

ACSP2025

BOOK OF ABSTRACTS



This book includes the abstracts accepted for presentation at the ACSP2025 Annual Conference. This book was completed and posted to www.acsp.org 06/30/2025.

Notes about this Book

This book includes only the abstracts accepted for presentation at the 2025 Annual Conference. This book was completed and posted to www.acsp.org on June 30, 2025.

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Abstracts are first ordered by the type of abstract, then sorted numerically by abstract ID. All types of abstracts are not necessarily represented in all 15 tracks.

1. Pre-organized Session Summaries – the overview describes the intent of the session and lists the included abstracts
2. Abstracts accepted with the pre-organized sessions
3. Roundtables
4. Workshops
5. Individual paper abstracts
6. Research in Motion (RiM) abstracts

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Track 1 – Anti-Racism in Planning

Track 1 Pre-Organized Session Summaries and Abstracts for the Sessions

Decolonizing Education through Indigenous Planning

Abstract ID: 1840.0.0.827.2025

Track 1: Anti-Racism in Planning

Pre-Organized Session Summary

Session Includes: 1844.0.0.91.2025, 1844.0.0.237.2025, 1844.0.0.804.2025

James Miller [University of Auckland] james.miller@auckland.ac.nz, organizer

Indigenous planning represents a holistic approach distinct from urban planning, integrating cultural and natural elements across scales. Indigenous planners with Western training act as decolonial agents by unlearning and relearning while supporting Indigenous communities.

Colonial legacies persist in planning education, creating challenges when working with underrepresented groups. Western planning tools often fail to address Indigenous contexts. While some institutions offer courses on power dynamics in planning, these are typically electives emphasizing theory over practice and located outside planning departments.

The panel explores how research can inform decolonial teaching through three questions:

- How can planning be taught through Indigenous frameworks?
- What can be learned from the Land through Indigenous perspectives?
- How can non-Indigenous planners engage with Indigenous planning theories?

Learning Objectives:

- Explore pedagogical approaches in addressing power dynamics, colonialism, and subalternity.
- Engage with decolonial and Indigenous planning frameworks.
- Supporting the development of Indigenous planning education.

Beyond Refusal: Balancing Colonial Thinking in Planning

Abstract ID: 1844.0.0.91.2025

Track 1: Anti-Racism in Planning

Pre-Organized Paper Presentation

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The impact of colonial power on Indigenous Peoples in Guatemala, as in other regions, transcends mere overt control of Land, labor, policies, and decision-making. Coloniality insidiously shapes intersubjective relationships and knowledge production, fundamentally altering how Indigenous Peoples perceive and engage with the world around them. Yet, in the face of these oppressive dynamics, Indigenous Peoples not only resist but also assert their agency, cultivate, and revitalize their own schools of thought. This counter-hegemonic stance empowers them to envision and plan for a future distinct from the dominant power structures that seek to marginalize them.

Literature has helped deepen our understanding of how Indigenous Peoples employ refusal as an epistemological approach to challenge the colonial practices of settler states. Refusal addresses the implications of state recognition, cultural appropriation, and the co-optation of Indigenous ways of thinking and acting. In the field of planning, a growing body of literature on refusal reveals the colonial violence inflicted upon cities and regions due to assimilation efforts and hostile planning practices. While refusal highlights the complex positioning of Indigenous peoples between settler states and their own communities, it remains unclear how this concept operates in contexts where Indigenous individuals embody both the roles of colonizer and colonized. This article builds upon existing literature to explore how refusal applies in certain situations when Indigenous peoples plan for their futures. Additionally, it advances the "planning in re-existence" framework, offering a nuanced perspective on how Indigenous individuals apply balance to their lives.

I draw on the example of the Mayan Ixil community in Chajul. In this town, 95% of the population identifies as Maya, including those in governmental authorities and the public education system, which operates under a western colonial framework. Despite facing ongoing challenges related to colonial assimilation, the community develops its own schools of thought to challenge the narratives imposed by settler states. Through critical place inquiry, I outline three levels of training in which Maya Ixil women engage in their community. These are organized mainly through the Asociación Centro de Educación Maya Ixil (ACEFOMI) for young girls, the Universidad Ixil for young adults, and the political school of the Consejo Nacional de Viudas de Guatemala (CONAVIGUA) for adult women. These three stages of learning are instrumental in fostering critical thinking rooted in Maya cosmovision and in preparing future leaders of Chajul with a political agenda. By viewing territory and body-land as a relational system that brings balance to their lives, the educational spaces where Ixil women participate contribute to developing a holistic approach to Indigenous community planning.

Citations:

- Lopez-Huertas, M. J. (2025). Planning in Re-existence: Decolonial Cracks and Indigenous Futurities. *Journal of Planning Education and Research*, 0(0). <https://doi.org/10.1177/0739456X251321749>
- Walsh, C. (2023). *Rising up, living on: Re-existences, sowings, and decolonial cracks*. Duke University Press.
- Harjo, L. (2019). *Spiral to the stars: Mvskoke tools of futurity*. The University of Arizona Press.
- Wright, S. (2018). When dialogue means refusal. *Dialogues in Human Geography*, 8(2), 128–132. <https://doi.org/10.1177/2043820618780570>

Key Words: Beyond Refusal, Balancing, Planning In Re-existence, Decolonial Praxis

Possibilities and Challenges for Decolonial Planning Education and Practice in British Columbia

Abstract ID: 1844.0.0.237.2025

Track 1: Anti-Racism in Planning

Pre-Organized Paper Presentation

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This paper explores the role of planning education in decolonizing the planning professions. We present findings from our research project investigating how planning students in British Columbia, Canada, are educated about Indigenous land-relationship principles, decolonization, and reconciliation in planning curricula and pedagogy.

Despite centuries of colonial policies in Canada, Indigenous Peoples continue to engage in planning activities with(in) and on their lands, enacting and adapting dynamic planning practices in place since time immemorial. Planning scholars, educators, and practitioners are increasingly recognizing the challenges and possibilities that Indigenous resurgence and self-determination present to contemporary Western planning education and practice, and that pedagogical change is key to responsible, decolonial, and reconciliatory regional, urban, and community planning relationships. For example, decolonial education should provide non-Indigenous learners opportunities to unlearn what they think they 'know' about Indigenous peoples, in order to make space for more accurate knowledge about Indigenous peoples and settler colonialism. In response to growing scholarly and official recognition of Indigenous rights, professional planning institutes across Canada have initiated Indigenous Planning and Reconciliation task forces and committed to making Indigenous and decolonial education a requirement for planning school curricula and for membership in professional associations.

Research into the state of decolonization in planning education and practice is vital as planning educators, scholars, practitioners, and Institutes look towards reconciliation and decolonization and consider how to move to atonement, action, and responsible partnership. No study to date has evaluated how planning students are educated about these issues.

In this paper we investigate BC planning schools' approaches to Indigenous and decolonial planning education. We present findings from our research into how planning students in BC are being educated about Indigenous and decolonial Planning. We present insights from key-informant interviews with 20 planning educators connected to the four accredited planning schools in BC, exploring their experiences and views on the challenges and possibilities for Indigenous and decolonial planning education in BC and Canada. Across the interviews, several key themes have emerged: planning educators are a) facing significant interconnected ontological, epistemological, and pedagogical challenges to teaching Indigenous and decolonial Planning; b) finding innovative ways to 'do' the work of decolonizing planning education through curricular design and pedagogy in and outside of classrooms; and c) developing important critiques of planning education and practice and overarching goals for what 'decolonizing' planning might look like. Our research provides important insights into how Planning students in BC are being educated about Indigenous land use principles, Reconciliation, and decolonization, informing and planning practitioners, education programs, and institutes to work in respectful partnership with Indigenous communities and to adopt decolonial principles and practices.

Citations:

- Gaudry, A. & Lorenz, D. (2019). Decolonization for the Masses? Grappling With Indigenous Content Requirements in the Changing Canadian Post-Secondary Environment. In Smith, L.T., Tuck, E., & Yang, W.

(eds), *Indigenous and Decolonizing Studies in Education: Mapping the Long View*, pp. 159-174. Routledge, New York.

- Howitt, R., & Lunkapis, G. (2010). Coexistence: Planning and the Challenge of Indigenous Rights. In P. Healey & J. Hillier (Eds.), *The Ashgate Research Companion to Planning Theory; Conceptual Challenges for Spatial Planning* (pp. 109-134): Routledge.
- Matunga, H. (2013). Theorizing Indigenous Planning. In T. Jojola, R. Walker, & D. Natcher (Eds.), *Reclaiming indigenous planning* (pp. 3-32): McGill-Queen's University Press.
- Prusak, S., Walker, R., & Innes, R. (2016). Toward Indigenous Planning? First Nation Community Planning in Saskatchewan, Canada. *Journal of Planning Education and Research*, 36(4), 440-450.
doi:10.1177/0739456x15621147

Key Words: Indigenous, planning, decolonization, education, British Columbia

Decolonizing Space & Place Through Relational Pedagogy

Abstract ID: 1844.0.0.804.2025

Track 1: Anti-Racism in Planning

Pre-Organized Paper Presentation

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This paper explores pedagogical approaches applied in decolonizing planning curriculum to prepare students for effective collaboration between governmental planning agencies and sovereign Indigenous communities. The research examines teaching methods developed within the Tribal and Indigenous Planning specialization at Western Washington University's Urban Planning & Sustainable Development program. The research addresses a critical question: How can planning education meaningfully incorporate Indigenous spatial knowledge while navigating the inherent contradictions of teaching decolonial practices within Western academic institutions?

With Washington State's House Bill 1717 now requiring jurisdictions to work with Tribes in city and regional planning, there is an urgent need to educate planning students and professionals to serve as effective facilitators who prioritize Tribal sovereignty in their professional roles. The pedagogy central to this work is grounded in Land and relations, informed by Indigenous literature from Moananuiākea (Oceania) and Turtle Island (North America). Drawing on theoretical frameworks from scholars such as Tuck and Yang, Goeman, Diaz, Teves, Matunga, Jojola, Fujikane, Refiti, and Connelly, the approach centers Indigenous epistemologies that challenge Western planning paradigms. The research methodology combines reflective practice, curriculum development analysis, and case studies of studio courses conducted in partnership with Tribal communities in Northwest Washington.

Reflections from seven years of pedagogical development across a Canadian and American institution—encompassing experiences as part of an Indigenous cluster hire at a Canadian university and a comparative Indigenous studies hire at WWU—reveal three key insights. First, effective decolonial planning and design education requires modeling ongoing relearning as an Indigenous person trained in Western educational systems, creating authentic learning environments. Second, scaffolded learning experiences that move from analyzing the coloniality of power (Quijano) to engaging with Indigenous placemaking and finally examining just transitions provide a comprehensive framework for students to develop a critical approach necessary for respectful cross-cultural planning. Third, incorporating applied projects with Tribal partners prepares students for the real-world complexities of facilitating planning processes that honor Tribal sovereignty while navigating municipal and state requirements—a challenging process.

The research demonstrates that meaningfully preparing students to bridge between Indigenous and non-Indigenous spaces requires guiding principles centered on respect, reciprocity, and responsibility. Students are taught to honor the process and work as facilitators rather than subject experts. Specific pedagogical interventions, including positionality assignments and decolonial futures projects, indicate the effectiveness of these approaches in developing planners capable of facilitating between urban planning frameworks and Indigenous communities while upholding Tribal sovereignty.

This research contributes to planning scholarship and practice by providing concrete strategies for training planners to implement collaborative processes required for Indigenous placemaking within urban centers and by emerging legislation like House Bill 1717. The findings offer valuable insights for planning educators and professionals seeking to work respectfully and effectively with Indigenous communities while navigating their responsibilities within state, county, and municipal planning contexts.

Citations:

- Tuck, E., & Yang, K. W. (2012). Decolonization is not a metaphor. *Decolonization: Indigeneity, Education & Society*, 1(1), 1-40.
- Jojola, T. (2013). Indigenous planning: Towards a seven generations model. In R. Walker, T. Jojola, & D. Natcher (Eds.), *Reclaiming Indigenous planning* (pp. 457-472). McGill-Queen's University Press.
- Matunga, H. (2013). Theorizing Indigenous planning. In R. Walker, T. Jojola, & D. Natcher (Eds.), *Reclaiming Indigenous planning* (pp. 3-32). McGill-Queen's University Press.
- Goeman, M. (2013). *Mark my words: Native women mapping our nations*. University of Minnesota Press.
- Quijano, A. (2000). Coloniality of power, Eurocentrism, and Latin America. *Nepantla: Views from South*, 1(3), 533-580.

Key Words: indigenous planning, planning education, decolonization, pedagogy, bridging

Track 1 Roundtables

Cross-Racial Solidarity and Urban Planning : A Roundtable Discussion

Abstract ID: 1843.0.0.487.2025

Track 1: Anti-Racism in Planning

Roundtable Submission, Topical Discussions

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One relatively unexplored area in Planning Education is whether and how two prominent subfields in urban planning—namely: Community Development in North American cities, and International Urban Development in the Global South—can reinforce each other. June Thomas (1996) first lamented this knowledge gap, but did not explore research bridging racial disparity in North American cities and urban colonial legacies in the Global South. Earlier, Sanyal (1989) had advocated a "one-world view" of planning but did not probe how “the local” and “the global” played out in multi-ethnic cities, where flows of international migrants sometimes provoked racial tensions, hindering cross-ethnic solidarity.

To advance solidarity building, the two subfields of planning must identify conceptual as well as historical overlaps between two sets of research, which so far had different intellectual priorities. The proposed round table aims to begin a conversation drawing on a recently initiated collaborative research between Morgan State University, an HBCU with a strong African American student body, and MIT's DUSP, known for its large number of international students. This enquiry seeks to understand existing relationships between African Americans and non-white immigrants and identify possibilities for coalition building.

The joint inquiry began by examining the history of the 1992 riots in Koreatown, Los Angeles, which revealed that North American cities were unprepared for the impacts of international migration, particularly its effect on African American communities. Despite efforts to create social harmony after the riots, they floundered because of a lack of understanding of “differences” between two sets of marginalized groups. These efforts remained superficial, with mutual distrust of the government as the only shared sentiment (Chang, 2002). Thus, what could have provided an opportunity for long-term solidarity building was lost in an immediate urgency to cultivate “social tolerance” and stop the violence.

A second element of the joint inquiry is the role of grassroots and faith-based organizations in advancing racial solidarity. Grassroots Asian American organizations, like Asians4BlackLives and the Committee Against Anti-Asian Violence (CAAAV) challenged structural anti-Blackness in new ways in pursuit of historical truth and racial justice (Kim, 2023). Similarly, the Black Alliance for Just Immigration (BAJI) advocates for racial, social and economic justice for Black immigrant communities. Faith-based organizations, though historically significant in the Civil Rights movement and immigrant advocacy, remain an under examined force in solidarity movements, complicated by their capacity to both unite and divide. Chang (2002) questioned whether churches can effectively encourage social

solidarity building given their inaction after the 1992 riots. Lloyd (2014) emphasized the need to examine how the intersection of race and religion influences contemporary organizing.

Having explored existing literature on cross-racial solidarity, we propose a round table to seek insights from two groups within ACSP, namely POCIG and GEPIG. The purpose is to create a deliberative forum to bring together attendees to identify pathways for ongoing research to build cross-racial solidarity in urban planning. The following set of questions will guide the deliberations:

1. What roles do grassroots solidarity groups and faith-based organizations play in fostering cross-racial solidarity? How do they connect historical injustices with contemporary racial justice movements? Can they unify efforts to address urban issues?
2. What spatial and structural factors shape solidarity between African American and non-white communities? How do struggles over urban issues like land use, displacement, and public space access influence solidarity building?
3. How can practicing planners and academics foster solidarity building among different ethnic groups?

Citations:

- Chang, E. T. (2002). "Los Angeles riots and Korean-African American conflict." *American Studies*, 25, 305–340.
- Kim C. J. (2023). *Asian Americans in an Anti-Black World*. Cambridge: Cambridge University Press
- Lloyd, V. (2014). "Organizing Race." *Journal of Religious Ethics*, 42(4), 640–660.
<https://doi.org/10.1111/jore.12076>
- Sanyal, B. (1989). "Poor countries' students in rich countries' universities: Possibilities of planning education for the twenty-first century." *Journal of Planning Education and Research*, 8(3), 139–155.
- Thomas, J.M. (1996). "Educating planners: Unified diversity for social action." *Journal of Planning Education and Research*, 15(3), 171–182.

Key Words: Cross-Racial Solidarity, Faith-Based Organizing, Grassroots Groups, Collective Resistance, Racial Justice

Reparative Planning in the Capital City

Abstract ID: 1843.0.0.531.2025

Track 1: Anti-Racism in Planning

Roundtable Submission, Topical Discussions

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This roundtable discussion seeks to critically examine the intersection of urban planning, racial capitalism, and reparative justice in the context of today's sociopolitical climate in the United States. As cities confront the impacts of rising fascism, neoliberal agendas that fuel austerity measures, and the unrelenting commodification of space, urban planners and scholars are faced with the reality that rational planning has become a racial capitalist project. The recent era of anti-racist planning brought critical reforms to the field (Jackson et al., 2023; Walker & Derickson, 2023; Walsh, 2018). Yet, with a government that no longer believes in data, urban planning will not survive unless we change its entire structure.

In Williams' (2020) theory on reparative planning, he urges us to "reject paternalistic impulses of entrenched planning traditions which would deny African Americans the right to assert, to the extent possible within planning processes, principles of self-determination and self-development" (8). Instead, we must rethink "the role of African American communities in setting planning goals and enacting planning policies" without dismissing or restricting them "with notions of technical efficiency or incrementalism" (8). The tangible process for how to implement this vision, however, is where Williams leaves off and this roundtable discussion begins.

The aim is not to theorize, but to tangibly mobilize our colleagues to fight for a disciplinary revolution for our communities' liberation. Planning scholars are facing critical questions about the roles we play in perpetuating or dismantling these systems—often at the same time. The panel will explore the blurring of this binary, pushing the boundaries of whether we can lead planning to evolve beyond its historical entanglement with racial capitalism and white supremacy while becoming a transformative force for revolutionary justice. Revolution must move beyond changes in property or production relations, toward a redefinition of planning's values, human relations, political responsibility and power (Boggs et al, 1978). How do we, as planners, develop and clarify an alternative to this ongoing political economy? How do we leverage interstitial politics to chart a new course for planning education and scholarship, one that grapples with the possibilities and contradictions of reparative planning frameworks in the face of fascist politics? This roundtable questions whether reparative planning can be an anchor for a paradigm shift whereby planning shifts from a tool of capitalist oppression to one of radical transformation, even without perfection and without resolving every social problem.

The panelists will explore case studies of grassroots movements for racial and economic justice and municipal reparations projects. Panelists will also ground the discussion in how the legacy of plantation logics have been fundamental to planning's rise as a white supremacist project throughout the rest of the country. Participants will be invited to grapple with reparative possibilities within and against hegemonic planning, sharing insights from their own values, advocacy, and responsibilities.

Citations:

- Jackson, A., Yerena, A., Lee, C. A., Garcia-Zambrana, I., Chrisinger, B., Harjo, L., & Harwood, S. (2023). Anti-racist futures: Disrupting racist planning practices in workplaces, institutions, and communities: Introduction to the Special Issue. *Journal of the American Planning Association*, 89(4), 411-422.
- Reed, T. F. (2020). *Toward Freedom: The Case Against Race Reductionism*. Verso.
- Williams, R. A. (2024). From racial to reparative planning: Confronting the white side of planning. *Journal of Planning Education and Research*, 44(1), 64-74.
- Walker, R. H., & Derickson, K. D. (2023). Mapping prejudice: the limits and opportunities of data for anti-racist planning. *Journal of the American Planning Association*, 89(4), 459-471.
- Walsh, E. A. (2018). White fragility as an obstacle to anti-racist resilience planning: Opportunities for equity-conscious partnerships. *Journal of Urban Management*, 7(3), 181-189.

Key Words: reparative planning, reparation, capitalism, justice, race

Urban Climate Justice Planning in the Trump Era

Abstract ID: 1843.0.0.966.2025

Track 1: Anti-Racism in Planning

Roundtable Submission, Topical Discussions

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For many years, climate equity/justice was not a concern in urban climate action plans—whether focused on mitigation, adaptation, or both. Prompted by public and media attention over the past 10 years to both our climate crisis and our deep structural and historical racial injustices, equity and justice considerations, and even climate justice plans that center these critical issues, are becoming more common. Many authors, such as Bulkeley et al , Shi, L. et al , Meerow et al , Sovacool et al , Westman & Castán Broto and Fitzgerald (2021) have documented this shift.

Combining the climate and environmental justice agendas means that locally elected officials, urban planners, environmental justice organizations, and the private sector must work together to undo harms created by past rounds of policy and planning—what Williams calls reparative planning. Urban planning academics have sought to better understand the struggles, challenges, and opportunities for linking urban planning/planners and bottom-up racial and environmental/climate justice advocacy to create more climate-just cities. While planning in cities is important, what is evident to all is that cities need support from their states and the federal government to achieve many of their equity/justice goals.

For a while that support was forthcoming. Several high-profile deaths of blacks by police culminating in the murder of George Floyd in May 2020 catalyzed a national reckoning on race and brought the Black Lives Matter movement into mainstream consciousness. Then in January 2021 President Biden launched the Justice 40 initiative, which mandated that 40 percent of the benefits from federal investment in areas such as climate change mitigation, clean energy, and sustainable infrastructure go to marginalized communities. In August 2022, the Inflation Reduction Act was passed, which committed to investing about \$370 billion in climate related activities.

We're in a very different country now. Since he was elected, Trump signed an executive order to freeze grant payments already committed under the IRA and then to rescind them. He also revoked the Justice 40 Initiative. Other executive orders eliminate diversity, equity, and inclusion initiatives. This means that the cities wanting to center racial equity and environmental justice in their climate action will be fighting an uphill battle.

In this roundtable, we seek to initiate a discussion on how we can move the climate justice agenda forward in this hostile environment. We explore funding alternatives, maintaining political support, preemption of local action and related concerns and opportunities.

Citations:

- Shi, L. et al. Roadmap towards justice in urban climate adaptation research. *Nat. Clim. Chang.* 6, 131–137 (2016).
- Meerow, S., Pajouhesh, P. & Miller, T. R. Social equity in urban resilience planning. *Local Environ.* 24, 793–808 (2019).

- Sovacool, B. K., Heffron, R. J., McCauley, D. & Goldthau, A. Energy decisions reframed as justice and ethical concerns. *Nat. Energy* 1, (2016).
- Fitzgerald, J. Transitioning from Urban Climate Action to Climate Equity. *Journal of the American Planning Association*. 88, 508-523. (2022).
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Key Words: climate justice, racial equity, funding alternatives, financing

Track 1 Workshops

Is Your Campus Ready? Supporting Faculty During Periods of Targeted Harassment

Abstract ID: 1841.0.0.895.2025

Track 1: Anti-Racism in Planning

Professional Development Workshop Submission

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Engaging in anti-racist planning education, research, and practice requires navigating anti-DEI legislation, the effects of Executive Orders, and looming funding threats. In today's fraught climate, it also requires being prepared for an ongoing threat facing faculty: targeted harassment by members of the public related to their teaching, research, or personal identities (AAUP, 2023; Doerfler, et.al., 2021). Urban planning is not immune from these attacks, and colleagues in our field have experienced targeted harassment connected to their work. Targeted harassment is when groups or individuals engage in aggressive and often organized campaigns meant to silence and censor faculty (Ferber, 2018). During periods of harassment, the overwhelming number of emails, online posts and messages, social media comments, phone calls, doxxing (the wide release of personal information such as home address, children's names, and more), stalking, and even threats of rape and death contribute to silencing, self-censorship, and a lack of safety — all of which prohibit faculty and staff from fully engaging in academia, higher education, and with the public. Harassment can also produce open records requests in which members of the public issue formal requests for faculty member emails and more (Polsky, 2019).

As a Fellow with the UC National Center for Free Speech and Civic Engagement I developed a workshop series based on my interviews with faculty members who experienced targeted harassment by the public, including faculty at schools of urban studies and public affairs (Flores, 2021). The interactive workshop proposed here complements an introductory session on the issue initially offered at ACSP Seattle and addresses the vastly different political and educational landscape in which targeted harassment is now occurring. The workshop includes an overview of the issue, draws on research, features first-hand experiences from a planning colleague who navigated severe harassment and agreed to share their story during our time together, and leaves participants with clear ideas about what to include in their safety and support plans. Research shows that there is no one-size-fits-all approach, and we will explore a range of formal and informal ways of supporting colleagues, consider what it means to center the faculty member (versus the institution) during periods of targeted harassment, and discuss strategies for support at department, college, and university campus levels.

Workshop Agenda – 90 minutes:

00:00-00:10 – Welcome and introductions

00:10-00:20 – Overview of targeted harassment (what it is, how it happens)

00:20-00:35 – Key findings from research and first-hand planning scholar experiences

00:35-00:45 – Scenario-Based Small Group Exercise: What if this happened to you?

00:50-00:60 – Individual Activity: Personal Safety and Individual Support Plans

00:60-00:70 – Dialogue: Formal and Informal Support

00:70-00:80 – Dialogue: Support at Department, College, Campus Levels

00:80-00:90 – Committing to Next Steps and Q&A

The goal of this workshop is for participants to learn about the issue, identify best support practices during incidents of targeted harassment, and leave with ideas for their own personal safety and support plans as well as next steps for bringing these strategies to their departments or colleges. Workshop outcomes include:

- Learning about targeted harassment of faculty by members of the public
- Learning about how and why faculty become targets
- Learning about the multiple ways in which targeted harassment affects faculty
- Identify formal and informal sources of support
- Identify support mechanisms on- and off-campus
- Identify support at department, college, and campus levels
- Develop personal safety and individual support plans
- Leave with next steps for bringing strategies to your own campus

What will the audience learn from your workshop: Attendees will learn how to support colleagues who may become targets of harassment by members of the public. We will discuss developing safety and support plans, as well as how to scale support at different levels: individual, department, and campus.

Reminders for attendees: All materials will be provided.

Citations:

- American Association of University Professors (AAUP). Fighting Targeted Harassment of Faculty. Last retrieved July 31, 2023, from <https://www.aaup.org/issues/fighting-targeted-harassment-faculty>
- Ferber, A. L. (2018). "Are you willing to die for this work?" Public targeted online harassment in higher education. *Gender & Society*, 32(3), 301-320.
- Flores, N. M. (2021). Tweets, Threats, & Censorship: Campus Resources to Support Faculty Through Incidents of Targeted Harassment. UC National Center for Free Speech and Civic Engagement. Permanent Link: https://issuu.com/ccowper/docs/flores_-_tweets_threats_and_censorship_2_
- Doerfler, P., Forte, A., De Cristofaro, E., Stringhini, G., Blackburn, J., & McCoy, D. (2021). "I'm a Professor, which isn't usually a dangerous job": Internet-facilitated Harassment and Its Impact on Researchers. *Proceedings of the ACM on Human-Computer Interaction*, 5(CSCW2), 1-32.
- Polsky, C. (2019). Open records, shuttered labs: Ending political harassment of public university researchers. 66 UCLA L.Rev.208. p. 212-293.

Key Words: Faculty, Higher Education, Harassment, Censorship, Academic Freedom

Track 1 Individual Paper Presentations

A 'Decarceral Planning' Spring Break Journey through Upstate New York

Abstract ID: 1844.0.0.1086.2025

Track 1: Anti-Racism in Planning

Individual Paper Presentation Submission

Courtney Knapp [Pratt Institute Graduate Center for Planning and the Environment] cknapp@pratt.edu, presenting author

Though the term "Abolitionist Planning" emerged in the past decade (UCLA 2020, Kim et al 2025) , the abolitionist political movements against slavery, white supremacy, and carceral modes of spatial and social control in the United States are as old as the country itself (Woods 1998). This paper explores the immersive learning environment of a graduate course focused on Abolitionist and Decarceral Planning, which has been taught at Pratt Institute since 2019. The course introduces students to the historic and contemporary political traditions of abolition democracy, abolition geography, decarceration, and transformative justice, and asks: how have urban and community planning practice (broadly defined) factored into both carceral punishment, and place-based movements for freedom and radical social care? What are the possibilities for a future where abolition democracy is central to planners', policymakers', and designers' work— and what might that reorientation look like in practice?

More specifically, this course explores the following critical questions:

- How have mainstream modes of spatial and social planning reinforced racialized logics of punishment and control?
- How do "insurgent planning" movements, situated outside of, and sometimes in opposition to, government-driven efforts— advance antiracist freedom dreaming, care and social and spatial repair?
- Are there opportunities for planners to support and work in solidarity with, place-based, local, and regional movements toward decarceration, abolition democracy, and transformative racial justice?
- Which land use strategies, housing and economic development strategies, community engagement frameworks, and institutional arrangements advance the practical work of abolition democracy and decarceration in communities, and which inhibit such freedom movements? (Knapp 2020)

This course tackles these questions, and others, unpacking the limitations and possibilities of the 'abolitionist' and 'decarceral' planning frames to advance racial justice in the United States and beyond. During the Spring 2025 semester, the course featured a five day, multimodal trip across New York State, beginning in Brooklyn and ending at the US-Canadian border in Niagara Falls. The trip highlighted the significance of upstate New York to both historical and contemporary abolition democracy movements, spanning from the 18th century to the present day. We visited important spaces of antiracist and anti carceral resistance: historic free Black communities throughout the Hudson Valley, Central, and Western New York, stops along the Underground Railroad, decarceration, harm reduction, and community reentry services, and more. We also witnessed some of the real time carceral and enforcement infrastructure that undergirds the upstate economy— inadvertently finding ourselves in political spaces affected by the Spring 2025 Wildcat corrections officers Strikes, immigration enforcement, and border control.

This paper will draw from personal and student reflections on the course and Spring Break trip to illuminate the lessons for planning educators and practitioners about decarceral planning. Through their participation in the course, students expand their understanding of the profession's role and potential responsibility to consider decarceration, and a reimagined understanding of 'public safety' as community care, as critical planning issues. They apply these frameworks to common planning issues, including housing, economic development, environmental planning, accessibility and mobility planning, placemaking, and preservation, and interpret these frameworks through field trips, in class activities, and creative research/ multimedia storytelling projects.

Citations:

- Kim, A. J., Knapp, C., & Sarmiento, C. (2025). Notes on Abolition in Planning: A Framework for Listening. *Journal of Planning Literature*, 08854122241298596.
- University of California, Los Angeles. 2020. "'Abolitionist Planning for Resistance' Pamphlet." Accessed October. <https://challengeinequality.luskin.ucla.edu/abolitionist-planning/#:~:text=Abolitionist%20Planning%20for%20Resistance&text=Committed%20to%20a%20philosophy%20of,institutionalized%20by%20the%20new%20administration>
- Dozier D. 2018. "A Response to Abolitionist Planning: There's No Room for 'Planners' in the Movement for Abolition." *Progressive City* 9.
- Knapp, C. (2020). Local Planning in the Age of Mass Decarceration. *Journal of Planning Education and Research*, 40(2), 169-185.

Key Words: decarceration, abolition, planning education, pedagogy, immigration

At the Intersection of Ethno-nationalism and Othering: A Study of Korean-Chinese Ethnic Segregation

Abstract ID: 1844.0.0.341.2025

Track 1: Anti-Racism in Planning

Individual Paper Presentation Submission

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This study investigates the dynamics of ethno-nationalism and processes of othering through the residential segregation patterns of Korean-Chinese migrants in South Korea. It examines how Chinese nationals of Korean descent experience racialization, marginalization, and spatial segregation within South Korean society. Employing qualitative methodologies, including in-depth interviews, participant observation, and group discussions, the research delves into the everyday processes by which Korean-Chinese migrants navigate their ethnic identity, national belonging, and social integration within the framework of state-led multiculturalism.

Despite strong cultural and linguistic ties to Korea, Korean-Chinese individuals often face discrimination rooted in Sinophobia and negative stereotypes that portray them as foreign or outsider figures. This perception is further exacerbated by geopolitical tensions between South Korea and China, which further intensifies this othering. Although the Korean-Chinese population constitutes a significant portion of long-term foreign residents in South Korea, existing policies emphasize immigration status and residency requirements over social integration. This ethno-nationalist framework significantly shapes Korean-Chinese experiences, often excluding them from full participation in South Korea's social, political, and economic spheres.

Of particular significance is the decline of Daerim-dong, historically the primary ethnic enclave for Korean-Chinese migrants. Through the lens of deterritorialization, we see ethnic community boundaries eroding and spatial and social dynamics transforming. As younger generations increasingly move away from the ethnic enclave, they encounter new forms of reterritorialization—seeking new spaces that offer greater social mobility and integration opportunities. This generational residential segregation reflects changing perceptions of homophily—the preference for associating with similar others—and group discrimination across generations.

Ultimately, this study provides a nuanced analysis of the intersection of ethno-nationalism, othering, and residential segregation in South Korea, revealing how Korean-Chinese migrants negotiate identity, space, and social belonging are negotiated in a society marked by both multiculturalism and exclusionary practices.

Citations:

- Choi, J. (2024). Making moral and economic inferior others: Everyday racialization of Asian migrants in South Korea. *Current Sociology*, 0(0). <https://doi.org/10.1177/00113921241269190>
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- Jessop, B. (2015). *The State: Past, Present, Future*. Cambridge: Polity.
- Kymlicka, W. (1995). *Multicultural Citizenship: A Liberal Theory of Minority Right*. Oxford: Oxford University Press.
- Schiller, N. G., Basch, L., & Blanc-Szanton, C. (1992). Transnationalism: a new analytic framework for understanding migration. *Annals of the New York Academy of Sciences*, 645, 1–24. <https://doi.org/10.1111/j.1749-6632.1992.tb33484.x>

Key Words: Korean-Chinese, Residential Segregation, Ethno-nationalism, Othering, Sinophobia

Community Land Trust Power Dynamics: Assessing Possibilities in Addressing the Racial Wealth Gap

Abstract ID: 1844.0.0.489.2025

Track 1: Anti-Racism in Planning

Individual Paper Presentation Submission

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Since the New Deal Era, the federal government has incentivized the exchange of housing on the private real estate market through financial regulation and subsidy provision to homebuyers and real estate investors (Immergluck, 2004). As a consequence, federal policy has largely exacerbated the racial wealth gap by reinforcing three inter-related practices in the private housing market: 1) the spatial segregation of racial groups within urban regions; 2) the privileging of White housing submarkets and their consumers; and 3) the expropriation of financial wealth from non-White (especially Black) housing consumers through predatory inclusion in racialized submarkets (Harvey, 1973; Taylor, 2019; Wyly et al, 2006). A growing consensus of scholars recognizes the importance of interrupting these practices and repairing the harm that they have caused (Dantzler & Reynolds, 2020).

In recent years, scholars have recognized community land trusts (CLTs) as a promising alternative to the private real estate market, especially in providing affordable homeownership for racially marginalized housing consumers (DeFilippis et al., 2018; Schneider et al., 2023). However, their capacity for more transformative politics—subverting the broader political economy of racial capitalism and overcoming the hegemony of private property relations—has been undermined by a sole focus on affordable homeownership (DeFilippis et al., 2019). To better understand why CLTs do or do not reach their transformative wealth building potential requires attention to the way changes in local politics undermine community control and how local processes are embedded in complex power structures (Spicer et al., 2024; Dantzler & Reynolds, 2020). While scholarship has paid attention to differences in CLT models through transnational comparison and comparison of individual CLTs of a specific type, little work has delineated and described different CLT approaches and their power implications (Moore & McKee, 2012; Spicer et al., 2024).

To address this gap in the literature, we use John Gaventa's (2006) power cube to perform a comparative power analysis of three CLTs from different urban regions and housing submarkets in the U.S. These cases include Avanzando San Ysidro Community Land Trust in San Diego, California; Community Partners for Affordable Housing in Highland Park, Illinois; and Klondike Community Land Trust in Memphis, Tennessee. We use the power cube to analyze the spaces, levels, and forms that power moves in each local community development system (Nickels, et al. 2024) and create a typology of community control in CLTs.

This study seeks to understand the potential of CLTs—in their own local democratic constructs—to overcome the racial wealth gap, subvert speculative capitalist land markets, and transform societal ideas about property and wealth. Our work pushes academic research to distinguish between levels of community control in CLT design, implementation, and outcomes to understand how CLTs can achieve their transformative wealth building potential. The analysis and resulting typology in this study can also be used as a guide for future CLTs in their pursuit of equity, racial justice, and community empowerment.

Citations:

- DeFilippis, J., Williams, O.R., Pierce, J., Martin, D.G., Kruger, R., & Esfahani, A.H. (2019). On the Transformative Potential of Community Land Trusts in the United States. *Antipode*, 51(3), 795-817.
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- Dantzer, P.A., & Reynolds, A.D. (2020). Making our way home: Housing policy, racial capitalism, and reparations. *Journal of World-Systems Research*, 26(2), 155-167.
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Key Words: Community Land Trusts, community power, racial wealth gap, power analysis, anti-capitalist solutions

Cop City in Wakanda: How Reductive Identity Politics Have Failed Atlanta

Abstract ID: 1844.0.0.146.2025

Track 1: Anti-Racism in Planning

Individual Paper Presentation Submission

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Known as a “Black Mecca,” the “City in the Forest,” and “Wakanda,” Atlanta, Georgia has been praised for its Black political leadership, dearth of historical significance, and rich cultural production. But in recent years, it has also become a firestorm of civil and human rights discourse regarding the siting and construction of “Cop City,” a \$90 million law enforcement training complex. Protests, sit-ins, and federal domestic terrorism charges have been a part of the unfolding theatre of events pitting city leaders against a myriad of activists and residents. The stakes are high as over 30 other states have plans for their own “cop cities” (some planning multiple facilities) and Atlanta is quickly proving to be a test case for the policing industrial complex both in terms of democratic processes of land use planning and what it reveals about racial urban politics.

Announced in March 2021, Cop City is sited in the Weelaunee Forest, the largest green space in Atlanta across 85 acres of city-owned land. First proposed after more than 50 large-scale protests took place across the U.S. in the wake of George Floyd’s 2020 murder, the facility will be among the largest militarized police facilities in the world and will require clear-cutting of the forest. Cop City will not just be a training site for the Atlanta Police Department, with 40% of its proposed offerings to benefit visiting law enforcement bodies including specialized instruction in repressive tactics to quell protests. Critics of the facility cite concerns regarding the implications to air and water quality, the urban heat effect, and the general safety of residents. The project’s approval process has also been mired in controversy with anti-democratic decision-making and the January 2023 killing of 26-year-old forest defender Manuel “Tortugita” Teran by a task force composed of Atlanta Police, Georgia State Police, and the Georgia Bureau of Investigation.

Through a historical analysis (including a prologue of the end of white mayors and the administrations of Maynard Jackson, Andrew Young, Bill Campbell, and Shirley Franklin), this case study explores recent Black political leadership with a focus on Atlanta Mayors Kasim Reed (2010-2018), Keisha Lance Bottoms (2018-2022), and Andre Dickens (2022-present). Particularly, I am interested in the conflict between identity politics and the “Atlanta Way,” the political strategy that allies white business owners and Black political leaders and is credited with guiding Atlanta’s development process from a southern hub to an international metropolis.

Employing racial capitalism as a theoretical framework, I concur that racial capitalism “produces unique classes, including a Black petite bourgeoisie...” that can simultaneously galvanize Black voters around issues of racial injustice and act as agents of capitalism that reinforce punitive values as a function of their middle class identities (Fortner, 2023, p. 631; Wiggins, 2020). Black political leadership in Atlanta leverages “linked fate,” understanding that the Black electorate’s political preferences are heavily influenced by group-based cues and “...of all the groups, African-Americans stand out—both for the unit with which the [B]lack community votes and for the distinctiveness of the [B]lack vote” (Dawson, 1993; Fortner, 2023; Hajnal & Trounstein, 2014, p. 86). Building on Fortner (2023) and Stone’s (1989) work, I posit Cop City as the physical manifestation of the interracial governing alliance of the “Atlanta Way,” a monument to and faucet of the capitalist police state poised to crush civil unrest in the coming days of protest, rebellion, and riots.

Citations:

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- Stone, C. N. (1989). *Regime politics: governing Atlanta, 1946-1988*. Lawrence, KS: University Press of Kansas.
- Wiggins, D. (2020). "Order as well as Decency": The Development of Order Maintenance Policing in Black Atlanta. *Journal of Urban History*, 46(4), 711-727.

Key Words: Atlanta, Black urban politics, Cop City, identity politics, land use

Notes on Abolition in Planning: A Framework for Listening

Abstract ID: 1844.0.0.201.2025

Track 1: Anti-Racism in Planning

Individual Paper Presentation Submission

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How can planners support and reinforce abolitionist freedom movements? The case for abolition in planning must confront historic and contemporary white supremacy, colonialism and racial capitalism. Urban planning continues to reify and affirm these genocidal structures and the harm they inflict on BIPOC peoples through practices that uphold systems of policing, and institutionalized “law”. The words of leaders in abolitionist thought, Kaba and Ritchie, can provide a blueprint for practicing planners for whom the incremental is perhaps more doable, but the critical reframe required to move towards abolition in planning is a deeper understanding that the incremental can and must also be transformative, destructive, even.

In her provocative essay, “There is No Room for ‘Planners’ in the Movement for Abolition,” geographer Deshonay Dozier argues that planners’ impulses toward incrementalism inhibit their ability to contribute to abolitionist freedom movements, reminding us that “reformist solutions keep institutions of oppression intact, they do not transform them” (Dozier 2018). Moreover, the planning profession’s entanglements with colonialism, white supremacy, and the state make it, in many ways, antithetical to abolitionist praxis: “abolition is not, nor ever will be, about ‘planners’”. It never has been. Instead, it is about practitioners of freedom dreams that occur outside of planning education and profession. Contributing to these movements and redistributing resources to them is a step in what ‘planners’ can do” (Dozier 2018).

Within Dozier’s critique is a lesson about what planners who care about abolition ought to do: find practical ways to aid grassroots freedom movements, and work to redistribute resources and political power to strengthen and support them. Planners need to be able to see the nuances and dynamics of racialization (Bates et al, 2018), racial buffering (Umemoto, 2000), and racial violence, in order to confront how we ourselves perpetuate and further violence in our own agencies and institutions, in communities, neighborhoods, and cities (Poe, 2022 & White, 2022).

Citations:

- Dozier, D. (2018). A Response to Abolitionist Planning: There’s No Room for ‘Planners’ in the Movement for Abolition. *Progressive City*, 9.
- Poe, J. (2022). Theorizing communal trauma: Examining the relationship between race, spatial imaginaries, and planning in the US South. *Planning Theory*, 21(1), 56-76.
- Knapp, C. (2020). Local Planning in the Age of Mass Decarceration. *Journal of Planning Education and Research*, 40(2), 169-185.
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- Kim, A. J., Knapp, C., & Sarmiento, C. (2025). Notes on Abolition in Planning: A Framework for Listening. *Journal of Planning Literature*, 08854122241298596.

Key Words: Abolition, Anti-racist planning, Planning practice, Community organizing, Planning education

Tracing A Black Feminist Tradition of Grassroots Planning in Urban Peripheries

Abstract ID: 1844.0.0.844.2025

Track 1: Anti-Racism in Planning

Individual Paper Presentation Submission

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I trace a heretofore unrecognized tradition of grassroots planning: placemaking practices led by Black women, working collectively and guided by an 'otherwise' ontology that diverges from planning's dominant white spatial imaginaries (Bates et al 2018), to build communities where Black people, particularly youth, are cared for. Drawing on my historical and ethnographic research on inland towns in Southern California's urban peripheries, I illuminate a pattern of Black women responding to spatial and social exclusion with a politics of refusal (Carter Jackson 2024). Instead of accepting subordination in suburban areas designed to serve white publics, they collectively organize(d) their communities to build Black towns, desegregate public schools, and dismantle carceral power. I argue that the Black feminist praxis of 'other-mothering,' conceptualized by Patricia Hill Collins (1990) in reference to child welfare being a community's collective responsibility, sustains women's organizing momentum despite obstacles and orients their spatial work towards youth (building parks, creating equitable schools, etc.). In this paper, I draw from Black Studies scholars including Katherine McKittrick (2006) to foreground maroonage, garreting, and plot-making as three spatial strategies of this Black feminist grassroots planning tradition.

This work speaks to urban futures, as Black households increasingly reside in the periphery, rather than the core, of North American metro areas (Lung-Amam 2024). I situate this work within the insurgent planning literature, wherein scholars like James Holston (2019) and Faranak Miraftab (2016) foreground urban peripheries and rural spaces, respectively, as sites of struggle, wherein marginalized people participate in grassroots placemaking and thereby cultivate their political power. I aim to contribute insight into how Black residents shape place in suburban American environments absent of urban social movement hallmarks, such as progressive local governments and non-profits with capacity, and argue that many have done so, and continue to do so, through this overlooked Black feminist grassroots planning tradition. This paper contributes to planning scholarship by building on Fayola Jacobs' important 2018 intervention, in demonstrating how Black feminist thought uniquely and significantly contributes to the grassroots planning literature.

Citations:

- Bates, Lisa, Sharita Towne, Christopher Paul Jordan, and Kitso Lynn Lelliott (2018). "Race and Spatial Imaginary: Planning Otherwise," *Planning Theory and Practice* 19 (2): 254-256.
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- Jacobs, Fayola (2018). "Black feminism and radical planning: New directions for disaster planning research," *Planning Theory*
- McKittrick, Katherine (2006). *Demonic Grounds: Black Women and the Cartographies of Struggle*. Minneapolis: The University of Minnesota Press
- Miraftab, Faranak (2016). *Global Heartland: Displaced Labor, Transnational Lives, and Local Placemaking*. Bloomington: Indiana University Press.

Key Words: Black feminist thought, urban peripheries/suburbs, insurgent planning, planning history & theory, community building

Track 1 Research in Motion (RiM)

125 Years of Racial Discourse in Urban Studies

Abstract ID: 1842.0.0.746.2025

Track 1: Anti-Racism in Planning

Research-in-Motion Presentation Submission, Research currently in process

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How has racial discourse evolved in urban studies over the past 125 years? While race has always been an essential element of urban studies (Goetz, Williams, and Damiano, 2020), our understanding of it has come a long way. However, the evolution of racial narrative remains understudied, as research on race is often fragmented across disciplines.

Building on Kwon and Nguyen's (2024) analysis of racial equity and justice in twenty urban planning journals (1980–2019), this study expands the scope to the entire Web of Science database, covering all urban studies literature from 1900 to 2025. Using a series of natural language processing techniques including Word2Vector and large language BERT model, I systematically analyze how the language of race has evolved, mapping its contextual associations with key terms and quantifying shifts in racial discourse across decades.

This study makes three contributions, leveraging the ability of large language models to analyze semantic contexts. First, it traces the contextual shifts in how "race" is discussed, uncovering patterns of emphasis and omission across historical periods. Second, it explicitly quantifies bias and discrimination in urban studies over time and examines how such discourse responds to major social movements, including the civil rights movement, the rise of equity planning, and the aftermath of George Floyd's murder. Third, it identifies disciplinary disparities, showing that natural sciences have been slower to progress in racial discourse than humanities and social sciences.

By mapping these trajectories, this research offers the most comprehensive longitudinal analysis of racial discourse in urban studies to date. In addition, it sheds light on how academic narratives are shaped by broader social transformations.

Citations:

- Goetz, E. G., Williams, R. A., & Damiano, A. (2020). Whiteness and urban planning. *Journal of the American Planning Association*, 86(2), 142-156.
- Kwon, J., & Nguyen, M. T. (2024). Four decades of research on racial equity and justice in urban planning. *Journal of Planning Education and Research*, 44(4), 2127-2139.
- Imbroscio, D. (2021). Race matters (even more than you already think): Racism, housing, and the limits of The Color of Law. *Journal of Race, Ethnicity and the City*, 2(1), 29-53.

Key Words: Racial Discourse, Urban Studies, Text Mining

Race and power in the civic engagement practices of the Choice Neighborhoods Initiative

Abstract ID: 1842.0.0.978.2025

Track 1: Anti-Racism in Planning

Research-in-Motion Presentation Submission, Research currently in process

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Scholars argue that civic engagement in housing redevelopment initiatives can better address racial injustice when it is informed by historical inequities and guided by resident voices and expertise (Stahl, 2023). However, the potential racial justice benefits of civic engagement are left unrealized when housing redevelopment programs fail to consider the power differentials between stakeholder groups. This paper is a critical policy analysis that uses Critical Race Theory (CRT) to understand how race and power factor into the conceptualization and operationalization of civic engagement in two recent federal housing redevelopment programs.

Launched in 2010, the Choice Neighborhoods Initiative (CNI) is a U.S. Housing and Urban Development (HUD) program to redevelop distressed public housing into mixed-income communities. CNI emerged as the successor to the 1992 Housing Opportunities for People Everywhere VI (HOPE VI) program of public housing redevelopment. However, it expands the previous program to encompass the revitalization of neighborhood assets. HOPE VI has been criticized for its lack of resident empowerment in decision-making processes (Chaskin et al., 2012). As HOPE VI disproportionately demolished public housing projects that housed mostly Black residents (Goetz, 2011), the lack of specific and sustained engagement of public housing residents facing the redevelopment of their communities contributed to exacerbating existing racial and class inequities. To address this, CNI requires continuous residential involvement in the redevelopment process. Yet early research on the impacts of CNI indicate that the program's civic engagement practices frequently fail to significantly incorporate public housing residents' voices and needs, which are often forsaken to prioritize other interest groups (Auerbach et al., 2023; Raciti et al., 2016).

This paper examines how CNI conceptualizes and operationalizes civic engagement. It looks at how civic engagement is understood by program stakeholders through a critical discourse analysis of thirty documents that include HUD planning and implementation Notices of Funding Opportunities, as well as grantee submissions from 2011-2022. Critical discourse analysis situates language as inextricable from social structures. As such, language has an ideological function that (re)creates and normalizes social categories, despite oftentimes functioning in an invisible manner. Since critical discourse analysis does not specifically examine race, we pair it with CRT to interrogate how the language of civic engagement in CNI reflects social understandings about race and power, despite often utilizing race-neutral terms.

We pair this analysis with a systematic review of the literature on civic engagement in the redevelopment process within the context of CNI. This review provides an emerging picture of how civic engagement is being operationalized by program stakeholders. The paper situates this analysis within broader scholarship on civic engagement and mixed-income housing to highlight the continued tension between how civic engagement is conceptualized versus how it is implemented, despite CNI's well-documented commitment to deeper resident engagement compared to previous federal housing redevelopment initiatives. The findings suggest that when civic engagement is conceptualized in race-neutral terms, it fails to encompass the contextually specific ways in which low-income communities of color engage in programs that substantially impact their housing and neighborhoods. The frameworks of CRT and critical discourse analysis indicate the need to continuously question and challenge deep-rooted power differentials embedded in planning discourse that contribute to the reproduction of race and

class-based inequities in the process of neighborhood redevelopment. These findings build upon research calling for the prioritization of community knowledge and leadership in redevelopment initiatives.

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Key Words: Civic Engagement, Racial Justice, Choice Neighborhoods

Rescue or removal? The Entangled Logics of FEMA, ICE, and Undocumented Exclusion

Abstract ID: 1842.0.0.859.2025

Track 1: Anti-Racism in Planning

Research-in-Motion Presentation Submission, Research currently in process

Carlo Chunga Pizarro [University of California at Irvine] cchungap@uci.edu, presenting author

This presentation examines how U.S. immigration enforcement and disaster management systems have become structurally intertwined, creating compounded risks for undocumented immigrants in times of crisis. Since the post-9/11 reorganization that placed FEMA and ICE under the Department of Homeland Security, the boundary between disaster response and immigration enforcement has blurred. This entanglement has reshaped emergency management into a tool that, in many cases, enforces exclusion rather than support—especially for undocumented communities.

This study traces key federal policy shifts from 2000 to the present. These include the denial of aid to undocumented survivors after Hurricane Katrina, the expansion of deportation programs like Secure Communities under the Obama administration, the reallocation of FEMA funds to ICE detention during the Trump era, and the exclusion of undocumented individuals from federal pandemic relief. These turning points demonstrate how the dual logic of national security and disaster management reinforce each other to marginalize already vulnerable populations.

Rather than treating undocumented immigrants as stakeholders in need of protection, federal disaster policy increasingly positions them as threats to be surveilled, policed, or ignored. This paper argues that immigration status has become a silent filter in federal disaster aid programs, shaping who receives support and who is excluded. It also identifies how sanctuary policies have emerged in some cities and counties as local attempts to resist this convergence—seeking to create safer conditions for immigrant communities during emergencies.

This presentation draws from the first chapter of my dissertation. It contributes to planning scholarship by highlighting the role of bureaucratic institutions in producing racialized vulnerability and calling attention to the urgent need to separate disaster response from immigration enforcement. As climate-related disasters grow more frequent and severe, so too does the necessity of ensuring that all residents—regardless of status—can safely access disaster preparedness and recovery systems. The study lays the groundwork for new frameworks in disaster planning that center on justice, belonging, and the lived experiences of undocumented immigrants.

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Key Words: Undocumented immigrants, Disaster Management, Immigration enforcement, Sanctuary, Bureaucratic intersection

Transformation in planning? A case study of the Fleet Block in Salt Lake City

Abstract ID: 1842.0.0.776.2025

Track 1: Anti-Racism in Planning

Research-in-Motion Presentation Submission, Research currently in process

Jessica Reimer [University of Utah] jessica.reimer@utah.edu, presenting author

Planning theorists have long posited that planning can be a site of transformation for communities (e.g., Sandercock, 1998). Transformation can mean different things in different contexts, but broadly speaking, transformation in planning can be considered a reflection of what planning practitioners reference as creating communities that are equitable, sustainable, participatory, and just (AICP Code of Ethics and Professional Conduct, n.d.). In the past few decades, and particularly in recent years, planning scholars have introduced several approaches to planning that can help to enable these goals of practice, from therapeutic planning (Erfan, 2017), to planning for healing (Knapp et al., 2022), to anti-racist planning (Jackson et al., 2023), to name a few. While aspirational, it remains unclear if and how planning practitioners are integrating these approaches into their practice and how their use affects resulting outcomes.

To explore the use of these approaches in planning practice, I developed a case study examining an occurrence of what could be described as transformational planning. In Salt Lake City following the Black Lives Matter protests of 2020, several murals of Black individuals killed by police, locally and nationally, were painted on abandoned, city-owned buildings by an anonymous art collective. These murals quickly became a site of remembrance and advocacy against police brutality. However, in 2023, the city announced redevelopment plans for the land on which the buildings resided, which included tearing down the murals and creating a new space that preserved their legacy. In March 2025, the murals came down with little fanfare, and with the consent of the families of the individuals depicted.

In this case study, I used document review, media coverage, and interviews with city planners and stakeholders to understand the history of the site, the significance of the murals, and how the city got to a place with community members to tear down the murals while preserving the legacy of what they represented. Salt Lake City began meeting with families in 2021, knowing that redevelopment plans were slated for the property and that the murals had become an important cultural site for healing. What did this process look like? What actions did planners and other city officials engage in with the families and community members? How does this process reflect transformational planning approaches? I aim to answer these questions to shed light on what transformation-in-practice may look like, understand the use of contemporary transformational planning approaches, and highlight lessons for practitioners.

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Key Words: Transformation, Planning practice, Compassion, Therapeutic planning, Redevelopment

White Governing: A new framework for understanding left-behindness

Abstract ID: 1842.0.0.910.2025

Track 1: Anti-Racism in Planning

Research-in-Motion Presentation Submission, Research currently in process

Emma Walters [University of Illinois Urbana Champaign] emmalw4@illinois.edu, presenting author

Scholars have started to categorize shrinking or declining places as “left-behind places”, a term that envelops social, health, environmental, political, and governance-based understandings of places along with the traditional economic and political economy analysis of uneven development (Pike et al). Under this construct, left-behind places are no longer just the spatial selections of economic change, but a complex interrelation of multi-scalar social, political, and cultural dimensions which require interdisciplinary analysis and a range of policy and practice responses. Outcomes of decline expand to not only include economic, social, and spatial disadvantage, but emotional and psychological outcomes like disempowerment, discontent, and embitterment (Hannemann et al., 2023; Tierney et al., 2023). While left-behindness is an important framework for the analysis of shrinking or declining places and regions, its current construction lacks a proper racial lens which is critical when describing or theorizing how communities are produced or manufactured in the United States. The centering of race in left-behindness is especially critical, and particularly so in Rust Belt shrinking places and neighborhoods whose trajectories are inextricably linked to racial differences and racism (Dantzler, 2021; Dantzler & Reynolds, 2020; Gibbons, 2016; Hackworth, 2019). In the US the urban process produces and reproduces certain social relations and hierarchies related to capital and which are defined by not just location or space but defined by racial relations (Dantzler, 2021; Gibbons, 2016) and, specifically, the normalization of white advantage (Goetz et al., 2020).

Understanding the role of whiteness, specifically, in the manufacturing of left-behind places becomes essential. In recent years, scholars have pointed to incorporating a critical whiteness lens in research on urban planning and urban transformation to better understand how whiteness, and specifically the flight of white affluence, impacts urban processes (Goetz et al., 2020; Williams, 2024). Although race and racial segregation and inequality are widely acknowledged in urban planning and urban studies fields, they have not sufficiently incorporated a critical whiteness lens to center and theorize the role of white advantage and supremacy in urban transformations and governance. By shifting the focus of scholarship and policy to whiteness, we flip the script. Instead of making the problem of race one that singularly focuses on the concerns of people of color, it makes visible the ways that whiteness as advantage and privilege have become systematized and institutionalized systems of racial injustice and subjugation (Goetz et al., 2020).

In this paper I expand the framework of left-behindness to include racial capitalism, emphasizing critical whiteness, to better understand how racism differentiates the process and outcomes of left-behindness and the relationships between people and property in left-behind places. Informed by Cedric Robinson’s (2000) description of the racialization of capital, Prentiss Dantzler’s (2021) framework for racial capitalism, and the field’s recent call for an analytical emphasis on whiteness (Goetz et al, 2020), I blend left-behindness, governmentality and whiteness to understand the outcomes of neighborhood change through a case study in Decatur, IL. I find that left-behind places are not just the outcome of state centered policy making informed by spatially selective economic change, but also an outcome of entangled and multi-scaled systems of racial subjugation that I call “white governing”. Together, these forces result in continuous cycles of disciplined decline and dispossession that are governed by a myriad of agents and informed by both capital and racial domination.

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Key Words: left-behindness, whiteness, racial capitalism, governmentality

Track 2 – Community Development

Track 2 Pre-Organized Session Summaries and Abstracts for the Sessions

Planning & Public Schools: Opportunities and Challenges

Abstract ID: 1840.0.0.365.2025

Track 2: Community Development

Pre-Organized Session Summary

Session Includes: 1844.0.0.142.2025, 1844.0.0.156.2025, 1844.0.0.267.2025, 1844.0.0.296.2025, 1844.0.0.150.2025

Jason Reece [Ohio State University] reece.35@osu.edu, organizer

Public school systems are a critical component of infrastructure, and essential for youth and community development. Schools serve as important community assets, supporting not only youth development but also neighborhood well-being and economic growth. Public schools, which rely heavily on property taxes, are directly impacted by economic development and housing policies. This pre-organized session explores the opportunities that arise when city planning and public education systems are aligned, and the challenges that emerge from their misalignment. The session includes an analysis of both the historical legacy of redlining and contemporary economic development policies on school funding. Additionally, it documents the role of planning in repurposing former public-school facilities and examines the potential for collaboration between community development and public education systems.

Learning Objectives:

- Understanding the role of planning in the repurposing of former public school facilities.
- Exploring the potential opportunities of aligning youth development, schools and community development practices.
- Documenting the impact of planning and economic development policies on school funding.

Schools for Sale: Disinvestment, Dispossession, and School Building Reuse in Philadelphia

Abstract ID: 1844.0.0.142.2025

Track 2: Community Development

Pre-Organized Paper Presentation

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Using Philadelphia as a site, this paper delves into reuse of school buildings closed a decade ago to understand how different forms of reuse or vacancy simultaneously reflect and shape the racialized dynamics of neighborhoods in which they are embedded and larger urban transformations. We show that the slow violence of disinvestment and dispossession wrought on Black communities through school closures does not end when buildings are shuttered.

The paper draws from a larger book project (forthcoming 2026, University of Chicago Press) based on nine years of ethnographic fieldwork across three closed school communities, spatial analysis of the city's conditions over time, and photographic documentation of three sites of vacancy and demolition. These multiple analytical modes provide a layered account of the localized impacts brought by regimes of contemporary urban governance organized by racialized logics of austerity, market-based competition, and retraction of public goods. The paper concludes with a typology for the spectrum of school reuses. Based on a theory of "reparative planning" (Williams, 2020), it offers considerations to ensure that those most harmed by closures—Black communities—are central to processes of imagining new possible futures for these buildings.

The analysis is grounded in interdisciplinary scholarship from urban studies, education, planning, and geography to explain how race, capital, and place interact to influence the trajectory of closed schools and surrounding neighborhoods. It is also grounded in a collective awareness and humility about how the authors' layered identities as White women, mothers, and scholars shape the contours of this inherently partial contribution.

While there are patterns around reuse and vacancy, what happens after closure is highly situated and contextual, shaped by long histories of racialized disinvestment and dispossession that manifest at the neighborhood level. Understanding what happens to these schools post-closure is also understanding processes that hinge on racial capitalism, or how "racial hierarchies serve as a basis for historical valuations of people and places" (Dantzler, 2021, p. 115). These processes are not new or unique to school closure but rather mirror the anti-Blackness of capital that has historically constructed new spaces, new imaginations, and new definitions of consumers, often under the veil of "public interest," to the detriment of Black communities in the United States (Bledsoe & Wright, 2019; Vale, 2013).

What is new is how contemporary decisions about school closure and building disposition implicate public education—a lauded public good—in these destructive processes. School buildings are transformed from public assets into privatized financial assets when they are sold and redeveloped. What happens to closed schools is a refraction of the private real estate market, shaped by racialized capital flows that dispossess and displace Black communities from the places and institutions that they have created over time. As districts turn again to school closures, this analysis highlights the links between place, race, and education amidst broader urban transformations, a necessary understanding for advocates, planners, educators, politicians, and scholars as they reconceptualize the meaning of the public realm.

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Key Words: public education, school closure, neighborhood change, racial justice, reparative planning

Unequal Histories, Unequal Schools: Redlining's Legacy in Chicago School Funding

Abstract ID: 1844.0.0.156.2025

Track 2: Community Development

Pre-Organized Paper Presentation

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In the 1930s, the Home Owners' Loan Corporation (HOLC) systematically labeled certain urban areas "hazardous" for mortgage lending, a classification that limited credit access and prevented residents from accessing the primary means of property-based wealth accumulation. Despite the formal abolishment of these redlining policies decades ago, several studies suggest these discriminatory practices continue to shape neighborhood well-being and educational outcomes (Aaronson et al., 2021; Fishback et al., 2020; Lukes & Cleveland 2021). Further expanding these findings, this study posits that they have produced self-reinforcing cycles of disinvestment, a phenomenon explained by path dependency (Pierson, 2000), in which historically redlined neighborhoods remain fiscally constrained. Because public education in the United States is predominantly financed through local property taxes, suppressed property values often translate into underfunded schools. Thus, understanding how spatial disparities in school funding linger becomes a critical concern for planners, policymakers, and community stakeholders.

Drawing on Chicago, Illinois as a case, this research employs panel matching methodologies to systematically compare formerly redlined and non-redlined neighborhoods under the HOLC maps. By spatially overlaying digitized redlining boundaries on current data from the Illinois Report Card from the Illinois State Board of Education, the analysis isolates the legacy effects of redlining on property values, tax capacities, and per-pupil spending. Consistent with prior findings on redlining's broader impacts (Rothstein, 2017), early results indicate that neighborhoods previously flagged as "hazardous" continue to grapple with lower property tax revenue and reduced school resources—even when controlling for contemporary demographic factors. These disparities both reflect and reinforce the social and economic distance between redlined and non-redlined communities, demonstrating how an early, pivotal choice can set the stage for persistent structural consequences, a hallmark of path dependency theory (Pierson, 2000).

In linking urban planning scholarship to education finance, this study illuminates how historical housing policies still dictate the fiscal landscapes of local governance. Rather than interpreting these inequities as merely a matter of uneven tax bases, the path dependency framework reveals how one discriminatory policy choice from nearly a century ago can become deeply embedded in institutional and financial structures. As a result, short-term policy fixes, whether modest adjustments to funding formulas or incremental property tax relief, often fail to challenge the deeper structural forces perpetuating inequity. On the other hand, interventions such as statewide redistribution measures, targeted tax relief, or holistic planning reforms may offer more durable solutions but require political will and sustained attention to dismantle the underlying institutional biases. Ultimately, by applying path dependency concepts to the case of redlining, this study contributes a clearer understanding of why legacies of urban segregation and discrimination do not simply fade away but continue to shape the quality of public schooling. In doing so, it provides a roadmap for planners and policymakers who seek to address deeply rooted spatial injustice, pointing toward comprehensive, equity-driven reforms that challenge the structural scaffolding underpinning contemporary school finance systems.

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Key Words: Redlining, School Finance, Path Dependency, Chicago, Panel Matching

Input and/or Output Legitimacy: Industrial Development Agencies and School Board Representation

Abstract ID: 1844.0.0.267.2025

Track 2: Community Development

Pre-Organized Paper Presentation

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New York State Industrial Development Agencies (IDAs) are local public authorities tasked with promoting economic development. These controversial entities are governed by unelected, appointed boards that have substantial legal authority to make decisions that impact the ability of local governments to collect taxes that in turn provide basic services. For instance, IDA boards can abate or divert property tax revenues that would otherwise go to fund public schools. IDA boards can do so without the consent of school boards. In 2021, New York State public schools lost at least \$1.8 billion in revenue to tax abatements granted by IDAs (Wen and LeRoy, 2023). Importantly, these abatements are not evenly distributed across student populations; districts with higher percentages of historically disadvantaged races abate more per-pupil (Wen et al., 2025).

For over a decade, budget watchdogs and other advocates have been calling for greater scrutiny of IDA activities, critiquing their practices for encouraging a so-called “race to the bottom,” and pointing out the perverse incentives of IDA governing boards. The calls for IDA reform have been especially vocal since 2021. One piece of legislation, in particular, would require that IDA boards include a school board member. This bill passed in both the Assembly and the Senate in 2024 but was vetoed by Governor Hochul.

Despite energetic calls for changes to the structure and legal authority of IDA boards, there is little concrete evidence that any of the proposed reforms, including the one above, would actually have a substantial impact on IDA activities. Accordingly, this paper asks: How does the presence of school board members on IDA boards affect the abatement of taxes intended to fund public schools?

While there are not similar agencies in other states that legally require school board representation with which to compare, some IDA boards in New York State do have school board representation. This research will document which IDAs have school board representation and examine IDA activities during the period a school board member was on the IDA board. Did projects during that period abate fewer school district taxes?

Planners have long been concerned with the legitimacy of planning institutions and practices, especially as “weakly institutionalized” structures have proliferated (Taylor, 2019, 217). Some scholars focus on the outputs governing processes to judge legitimacy, while others focus on inputs, such as the representativeness or democratic election of representatives (Scharpf, 1999). When applied in a planning context, the question becomes to what extent inputs actually produce outputs that are in line with the norms of democratic planning. This paper probes the relationship between input and output legitimacy of planning institutions by treating IDA board members as “inputs” and the various subsidy deals they broker as “outputs.”

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Key Words: tax abatements, public schools, accountability, representation, legitimacy

Evaluating the Impact of Business Incentives on School Fiscal Health: A Quasi-Experimental Approach

Abstract ID: 1844.0.0.296.2025

Track 2: Community Development

Pre-Organized Paper Presentation

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This paper examines the impact of Louisiana's four major economic development tax incentive programs on the fiscal health of its school boards using the staggered difference-in-difference (DID) model on a 10-year panel from 2010 to 2019. Given the prolific use of similar revenue diversion mechanics throughout the U.S. and potential harm/abuse associated with the practice, there needs to be clearer understanding of their distributive effects. Few states publish project-level data with adequate details for the kind of analysis required to achieve this clarity as proposed in this abstract—the main reason that existing research falls short on drawing definitive conclusions.

Operating on the generous assumption that projects would not have occurred in the absence of incentives (and reserving this important probabilistic estimation for future studies), I focus here solely on the causal relationship between subsidized development and educational funding. In any year most of the ~70 parish school boards are subject to active tax exemption agreements that vary in count and magnitude. Each year that follows sees some of the old projects ending and new ones starting. As such, the traditional DID model using binary to indicate treatment vs. control is replaced by a generalized version based on continuous treatment intensity or “dosage” of multiple concurrent treatments (either by project or NAICS group) while retaining other design structures that account for parallel (fiscal) trends and (treatment) timing variations—hence “staggered”. The goal is to isolate the marginal effect of one unit increase in treatment intensity across districts and years.

Pending extensive data processing and model building, here are the basic parameters, preliminary summaries, and anticipated workflows based on the dominant program that accounts for 85% of the ~15,000 projects approved to date. Under this program, exemptions in the 10-year period from 2010 to 2019 totaled \$8.4 billion with a 16% overall increase after adjusting for inflation. Three-quarters of the projects get renewed for five more years after the initial five. The individual school board's portion of foregone revenue can be estimated using its 2019 tax abatement financial disclosures (which—to give an idea—added up to \$270 million in the one year). Treatment intensity is measured as cost to a school district relative to its revenue capacity. The null hypothesis is that tax exemptions do not affect school fiscal health and funding adequacy, with a 2-year lag between predictors and outcomes, controlling for aggregate project performance (new jobs created weighed by wage) as well as school district conditions and trends from public school census surveys.

In addition to board-approved projects, Louisiana also publishes advance notifications of incentive applications currently undergoing review for all four programs (2,150 at the moment). Intermediary results from the above analysis at the project level can be used for forecasting the fiscal impact. The findings can also more broadly inform financially sustainable economic development planning in U.S.

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Key Words: tax incentives, school finance/funding, impact analysis, Louisiana, industrial development

MBK: Post-Pandemic Community Development Strategies to Support Schools and Youth

Abstract ID: 1844.0.0.150.2025

Track 2: Community Development

Pre-Organized Paper Presentation

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Misalignment and lack of collaboration between schools and community development efforts can impede youth development. School segregation, tax and funding inequities, disinvestment, and school closures undermine both youth and community development (Bierbaum, 2018; Wen, Marcello & Warner, 2025). Despite these inherent challenges, schools and community development practitioners can support each other to foster youth and neighborhood development (Warner, Reece & Zhang, 2024). The need for greater collaboration between these fields is necessitated by ongoing challenges to youth from the pandemic. While learning loss from the pandemic is a national trend, lower-resourced school districts were more likely to experience greater learning loss and slower remediation among their students. Social isolation also contributed to increased mental health and socialization challenges for youth (Reece, 2024).

Emergent collaborative school and community development efforts have attempted to address the challenges to youth development stemming from the pandemic. This case study documents the design and impact of the My Brothers Keeper Village youth development program in Columbus, OH. The collective impact-based program is led by the City of Columbus's Department of Neighborhoods, in collaboration with dozens of nonprofit and educational organizations. Informed by the Obama Foundation's national "My Brothers Keeper Alliance," the program supports a variety of youth empowerment activities, with the goal of improving high school graduation rates. Specifically, intensive summer programming activities aim to align youth employment opportunities with community service in multiple high-need neighborhoods in the city. Youth service providers offer supportive out-of-school "third places" that youth consider safe and nurturing environments. These activities build the confidence of youth, exposing them to transformative experiences and providing extensive mentoring support. Programming to support youth wellness and emotional well-being is integrated into the effort to improve mental health, emotional regulation, and resilience among youth participants.

The case triangulates interview, focus group, and outcome data developed from a two-year evaluation of the program. The case study analysis explores how programming and resources were directly targeted to supplement learning loss and address youth development barriers that emerged in the aftermath of the pandemic. The case demonstrates the potential of aligning schools and community development initiatives to improve both youth and neighborhood outcomes. The case concludes with a reflection on the potential opportunities and limitations of replicating this model in other community settings.

Citations:

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Key Words: Schools, Youth, Development, MBK

Weaving Pluriversal Dialogues in Community-Engagement: Fostering Care and Coproduction in Planning

Abstract ID: 1840.0.0.963.2025

Track 2: Community Development

Pre-Organized Session Summary

Session Includes: 1844.0.0.344.2025, 1844.0.0.633.2025, 1844.0.0.540.2025, 1844.0.0.650.2025, 1844.0.0.783.2025

Magdalena Novoa [University of Illinois Urbana Champaign] mnovoa@illinois.edu, organizer

This session draws on community-engaged research focusing on scholars that adopt facilitative rather than expert roles, investing in the coproduction of human experiences, life and caring relationships exceeding conventional planning outcomes. Drawing from feminist, decolonial, abolitionist perspectives, and diverse geographies, this session pushes the traditional boundaries of community-based planning to address the challenges of planning pluriversal futures in complex and contested settings while serving communities' needs. Presenters examine how pressing planning issues necessitate learning from the ground up, centering local context, history, diverse temporalities, ways of knowing and situated approaches to problem-solving. The session aligns with Ortiz's (2023) call that in turbulent times, planning needs to recalibrate its disciplinary framing, grounding our reflections and actions in political significance and solidarity with those mobilizing for radical social change.

Learning Objectives:

- To identify ways in which planning can become a tool to repair existing colonial and oppressive legacies.
- To learn strategies and methods of community-engaged research from a pluriversal perspective
- To identify the dilemmas, limitations, and possibilities of community-engaged planning research.

Co-Producing Socially Just Ecological Infrastructure: Urban Wetland Stewardship in Dhaka

Abstract ID: 1844.0.0.344.2025

Track 2: Community Development

Pre-Organized Paper Presentation

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As cities across the global South face intersecting crises of biodiversity collapse, climate precarity, and deepening environmental injustice, ecological infrastructure has emerged as a key terrain for intervention (Pauleit et al., 2021). Yet dominant models of ecological infrastructure are often deployed through technocratic, top-down planning frameworks that erase already existing, place-based relationships between urban nature and marginalized communities. In Dhaka, Bangladesh—where wetland ecosystems are rapidly disappearing due to speculative real estate expansion—such erasures have led to the dispossession of informal settlement dwellers who have long engaged in everyday forms of wetland stewardship. These communities are framed not as environmental stewards but as encroachers, making way for elite imaginaries of ‘green’ urbanism. This paper calls for reimagining ecological infrastructure through a co-productive, justice-centered framework building on the concept of Socially Just Ecological Infrastructure (SJEI) (Huq, 2024). Drawing on critical urban theory, feminist and pluriversal scholarship (Vasudevan & Novoa, 2022), we argue that SJEI must be co-produced with the very communities whose ecological knowledge and labor are routinely rendered invisible. Co-production in this context is not merely a procedural gesture but a deeply political and epistemic practice that recognizes the entanglement of human and more-than-human worlds, while confronting the coloniality embedded in dominant planning paradigms.

Based on an ongoing research-to-action collaboration with a collective of informal wetland stewards in Dhaka who are resisting state eviction and envisioning alternative futures for their neighborhood, this paper identifies three interlinked practices through which SJEI can be co-produced in contested Southern urbanisms: (1) Respectful noticing of informal human-nature entanglements and the care work that sustains them; (2) Centering the voices and epistemologies of informal settlement dwellers in research, storytelling, and advocacy around urban environmental futures; and (3) Catalyzing state actors to recognize, legitimize, and co-create novel ecologies with communities, rather than displacing them in the name of ecological restoration.

We show that co-production itself must be produced—it is fragile, contingent, and often relies on insurgent practices that must be nurtured through sustained relationality, trust-building, and collective refusal of extractive knowledge paradigms. The politics of care and co-production, in this case, emerge not from formal participatory mechanisms, but from situated solidarities built through shared struggle, land-based knowledge, and collective endurability. By developing a nuanced account of urban wetland stewardship in Dhaka, this paper contributes to broader conversations on planning for pluriversal futures.

Citations:

- Huq, E. (2024). GREEN INFORMALITIES AS SOCIALLY JUST ECOLOGICAL INFRASTRUCTURE: Enduring with Dignity at the Edges of Resilient Development in Dhaka. *International Journal of Urban and Regional Research*, 48(4), 560-583.
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Key Words: Ecological Infrastructure, Coproduction, Social Justice, Environmental Justice, Bangladesh

Stitching Memories as Situated Methods in Planning: Coproducing Knowledge with Chilean Arpilleras

Abstract ID: 1844.0.0.633.2025

Track 2: Community Development

Pre-Organized Paper Presentation

Magdalena Novoa [University of Illinois Urbana Champaign] mnovoa@illinois.edu, presenting author

Over the last decades, planning scholars have increasingly grown aware of the importance of understanding experiential and embodied ways of knowing that extend traditional practices of knowledge production. Scholars and practitioners have experimented with participatory methods to depart from positivist and rational planning approaches and to embrace affective perspectives on place that can emerge through creative practices (Allmendinger & Tewdwr-Jones, 2005). Narratives, stories and storytelling have become critical for participatory creative practices in planning, examining planning's rational tendency and its harmful impact on marginalized communities while helping them to envision universal futures (Ortiz, 2022). Pluriversal planning scholars have utilized storytelling as valuable tools to decolonize planning by dismantling historical colonial power structures that shape how we think about land, people and knowledge production (Vasudevan & Novoa, 2023).

In this context, Arts-Based Participatory Planning (ABPP) has become a powerful tool to unveil and validate planning knowledges often not captured by conventional methodologies from the North. ABPP integrates artistic methods and creative expression to engage communities in decision-making, emphasizing collaboration and inclusivity to make planning accessible and meaningful to diverse audiences. However, while arts-based approaches have proven useful to complement conventional understandings of planning focusing on social connectedness and emotions, they pose several methodological challenges (Carpenter and Horvath, 2022). One critical question is how to overcome the power imbalances inherent within the planning system that often become replicated through ABPP. This paper reflects on the critical project of decolonizing planning methods through ABPP to contest dominant narratives in planning. I draw on a coproduce workshop using the local textile craft of arpillera urbana with women in the coal basin in southern Chile to create counter-narratives of the urban history of their cities from a female perspective and influence preservation policy. Despite women having a crucial role in producing social and political life in the coal region's past, they are rarely considered in scholarship and remain invisible from official preservation and planning narratives. The result of the arpillera workshop, a sixteen-foot-long textile entitled *Memorias de la Mujer Lotina* [Memories of the Lotina Woman], suggests that the arpillera urbana emerged as what I refer to as "situated methods" that challenge the limitations of conventional research and the power imbalances of ABPP. With its focus on experiential knowledge, the arpillera, as a situated method in planning, directs attention to and recognizes a broad range of knowledge that exists beyond the experts and authorities, its traditional scientific methods, and the dominant patriarchal culture. It accommodates what Watson (2006) defines as 'deep difference,' encouraging planning scholars and practitioners to seek alternatives to dominant methodologies for understanding urban issues. *Memorias de una Mujer Lotina* suggests that research grounded on communities' cultural practices produces situated responses to complex urban histories that shape present dynamics. It fosters memory, creativity, and coexistence, promotes diversity, and coproduction in planning. *Memorias de una Mujer Lotina* highlights three main contributions for advancing situated methods in planning research and practice: 1) It helps to identify the silences in urban history that planning and preservation processes have perpetuated 2) Foregrounds care and encourages 'horizontal knowledge coproduction' with languages that are accessible to multiple audiences, 3) fosters political action and legitimizes alternative rationalities in planning based on communities' ways of being and knowing.

Citations:

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Key Words: Arts-based planning, decolonial planning, Chile, gender, co-production

Re-Imagining the Whole Pie: People's Budgets and Community Based Research

Abstract ID: 1844.0.0.540.2025

Track 2: Community Development

Pre-Organized Paper Presentation

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Genesis Liriano-Terrero [UW Madison] gliriano@wisc.edu

This paper examines a community-based research project conducted in collaboration with Freedom, Inc. (FI), a Black and Southeast Asian non-profit organization in Madison, Wisconsin, that works with low- to no-income communities of color. FI is at the forefront of the Movement for Black Lives and has led a grassroots initiative to reshape the City of Madison's budget. These efforts align with participatory budgeting processes seen globally, raising important questions about participatory democracy. However, a key distinction between the literature on participatory budgeting and the contemporary movements for people's budgets is that current efforts are not state-driven, nor are they limited to a specific portion of the budget.

This paper examines these contemporary bottom-up efforts to redirect investments under new discourses that challenge dominant narratives surrounding safety and austerity. These efforts are part of national movements advocating for people's budgets, which focus on issues of community control and reinvestment at various scales. By combining community-based research with community-based learning courses, this research brought together students and community organizations to build community power while enhancing research capacity. The community-based research design for this paper incorporated several data collection methods, including online surveys, focus groups, community forums, and in-depth interviews, as well as both qualitative and quantitative analyses.

The paper presents the findings of Madison's People's Budget, situating it within the broader historical movement to challenge the dominant frames around safety and the transformation of how reinvestment in safety should prioritize the needs of those most affected by violence, poverty, racism, and discrimination. It also discusses the potential of community-based research, highlighting the challenges posed to positivist research approaches. The paper further explores how planners can use community-based research as a strategy to engage and invest in underrepresented communities, not only for budgetary decisions but also for broader planning processes. Investment in educating community members about budgets is essential for participatory and people's budgeting and is also often lacking in existing municipal budget processes.

Finally, the paper concludes by reflecting on the implications of this national movement for people's budgets. It provides an opportunity to (re)imagine reinvestment and community control in both the community and the classroom.

Citations:

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- Taylor, K. Y. (2016). *From# BlackLivesMatter to black liberation*. Haymarket Books.
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Key Words: People's Budget, participatory, community based research

Un/learning to Rebuild: Abolitionist Pedagogy and Institutional Transformation for Community Engaged Planning

Abstract ID: 1844.0.0.650.2025

Track 2: Community Development

Pre-Organized Paper Presentation

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How do we learn from, partner with, and support abolitionist freedom movements and collectives in our pedagogical spaces while transforming our institutions from within? This paper reflects on a year-long experience of co-teaching an urban affairs doctoral core course with a local abolitionist coalition concerned with uplifting people's definition of safety by shifting power and resources from punitive measures and violent policing to community-led solutions in Memphis. Building on the recent studies on abolition in planning, this paper explores how the "framework for listening" by Kim, Knapp, and Sarmiento (2025) works in a community-engaged pedagogical setting.

Our participatory project for this class challenged the idea that more policing automatically leads to safer communities. Instead, we explored alternative approaches that address safety concerns without relying on punishment and incarceration-especially in communities that have historically faced over-policing and criminalization. We examined potential alternatives and transformative practices to improve public safety in Memphis by reducing reliance on traditional policing and investing in community-led solutions. Together, we negotiated our roles and defined the scope and goals of our year-long collaboration. Throughout the course, the abolitionist collective trained students to conduct deep canvassing, which involved in-depth conversations with community members to understand their concerns, priorities, and experiences with policing and public safety. Through deep canvassing and data analysis, we gathered insights into how people in Memphis perceive safety and what changes they believe would be most effective. Moreover, in addition to our final report, we used the result of our extensive literature review and content analysis to create a public-facing library of alternatives to policing tailored to the context and realities of Memphis.

Although this class was not designed specifically as an abolition planning course, partnering with an abolitionist collective fostered a growing consciousness about the colonial and carceral history of planning. This awareness was further reaffirmed by the fact that about 40% of Memphis's city budget is devoted to policing and punitive measures. Drawing on pluriversal planning scholarship (Vasudevan & Novoa 2022), we confronted the colonial and carceral history and present reality of our city through centering the counter-narratives and lived experiences of the marginalized communities most affected by police violence; and learning from the situated knowledges, collective acts of resistance, reimagination and rebuilding on the ground by the actors at the center of these abolitionist movements. Grounding our class in a Black feminist abolitionist perspective from the start, we learned and unlearned with Mariame Kaba and Andrea Ritchie (2022), who laid out an incremental blueprint for abolition in planning to move away from carceral measures and policing and instead invest in community resources to achieve greater safety.

Using this class as a case study, this paper delineates six aspects of a transformative pedagogical experience informed by critical feminist, pluriversal, and abolitionist perspectives: (1) Adopting more facilitative roles as educators; (2) redistributing and extending the resources of academia to the forefronts of abolitionist movements; (3) learning from and mirroring the horizontal structure of abolitionist collectives in pedagogical spaces and structures to encourage collective work and accountability that is essential to liberatory frameworks; (4) centering care and occupying pedagogical spaces as whole human beings with affective relations and lived experiences; (5) blurring the imposed borders between academia and communities by fostering inviting and open classroom

settings; and (6) emphasizing accessible outcomes through acknowledging various forms of knowledge and knowledge co-production.

Citations:

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Key Words: Abolition, Pedagogy, Urban Planning, Critical Feminist Theory, Community-Engaged

Community Peer Review: Re-Imagining Foundational Roles of Community in Disaster Research Processes

Abstract ID: 1844.0.0.783.2025

Track 2: Community Development

Pre-Organized Paper Presentation

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Participatory processes often presuppose a specific role for community-based knowledge as subservient to “expert” knowledge, downplaying the importance of community agency. This becomes most apparent through participatory research processes disallowing community members from opposing the core premises of projects. “Damage-centered” research, in these situations, is most egregious, as communities have little recourse to fight narratives of their supposed brokenness (Tuck, 2009). Tuck instead advocates for desire-based approaches which advocate for researchers to more deeply engage theories of change in our processes, asking: “What can research really do to improve this situation?” (Tuck, 2009, p. 423). As disaster scholars, this question figures prominently in our post-disaster research. To reflect and codevelop notions of change, we follow Liboiron, et al’s (2018) community peer review research approach, which asserts a community’s right to identify and define, for themselves, when research is helpful or harmful (2018, p. 2). Liboiron, et al emphasize two core aspects of community peer review: (1) consent to participate that extends well beyond the IRB and (2) the full rights of communities to refuse research/researchers. This, in fact, returns back to the original intention behind participatory research (Fals-Borda & Rahman, 1991; Freire, 1970).

Through analyses of post-flood recovery in the Pájaro Valley region of California between 2022 and 2025, our team developed several forms of “community peer review” (Liboiron et al., 2018), extending its use into planning research and practice. In particular, we merged common insights of coproduction of research questions and data collection, with new reflections on how communities ought to maintain agency on reporting out and back on research findings. As such, the paper covers four “phases” of this research: (1) establishing strong community relationships, (2) community involvement in research question development; (3) community guidance in data collection, and (4) community review of data and “next steps.” We find that with the demands of being in an active flood response and recovery situation, Pájaro Valley community representatives and residents clearly communicated a desire to be involved in some phases more than others—the trust built with the community allowed residents to feel connected to the project without posing excessive burdens on already limited time and resources. From this, the paper concludes with suggestions for formalizing and expanding these approaches for future planning research and practice.

Citations:

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- Freire, P. (1970). *Pedagogy of the oppressed*. New York, NY: Continuum.
- Liboiron, M., Zahara, A., & Schoot, I. (2018). *Community Peer Review: A Method to Bring Consent and Self-Determination into the Sciences*. Pre-printed publication.
- Tuck, E. (2009). *Suspending Damages*. *Harvard Educational Review*, 79(3), 409–428.

Key Words: community peer review, participation, research ethics, disaster studies

Track 2 Roundtables

Leveraging University Innovation to Advance Community-Identified Sustainable Development Projects

Abstract ID: 1843.0.0.698.2025

Track 2: Community Development

Roundtable Submission, Topical Discussions

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The Educational Partnerships for Innovation in Communities - Network (EPIC-N) is an international network of some 100 university- or community-based programs using the “EPIC Model” of university-community collaboration to advance progress on the UN SDGs. Started by planning faculty at US universities, EPIC-N has grown to include universities in the US, Africa, Asia, and Latin America and the Caribbean. The community-driven EPIC Model matches declared community needs for documentation, design, or research to courses of study at universities, with expert faculty/instructors in those courses giving students course credit for working to meet those needs. More than 2200 specific projects in more than 400 politically and demographically diverse communities—all advancing one or several SDGs—have been completed so far.

In this session, Ada Inman, EPIC-N Program Manager; Gavin Luter, EPIC-N Managing Director; Maria Dahmus, Director of the Office of Sustainability Initiatives and Adjunct Faculty at the University of St. Thomas; and Stina Kielsmeier Cook, Program Coordinator at the University of Minnesota, will introduce the EPIC Model, share best practices, discuss challenges, and provide pathways for researchers to get involved in these projects. The session will focus on the outcomes of EPIC Model projects, specifically highlighting the impacts on communities, faculty, and students. Following this presentation, speakers will interactively showcase the EPIC Model at work through select member programs.

During this session, participants will gain a deeper understanding of the EPIC Model, strategies for adapting the EPIC Model to their own university or community context, and resources for doing so. Desired outcomes include a deeper understanding of the EPIC Model, brainstorming on how to integrate the EPIC Model into universities worldwide, ideas for innovative collaborations between universities and communities, and forming connections with other universities and potential partner orgs to further collaborations. Success of the workshop will be evaluated by the amount of connections made and new ideas for university/community collaborations.

Citations:

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Key Words: Community, Engagement, Sustainability

The Changing Landscape of Tribal and Indigenous Housing

Abstract ID: 1843.0.0.760.2025

Track 2: Community Development

Roundtable Submission, Topical Discussions

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Daniel B. Abramson [University of Washington Department of Urban Design and Planning] abramson@uw.edu

Margo Hill-Ferguson [Eastern Washington University] mhill86@ewu.edu

This panel brings together four planning scholars working at the intersection of housing, climate adaptation and Indigenous self-determination. The panel begins with a framing by planning legal scholar Margo Hill, JD who will share the history that shapes the complex land tenure issues that shape housing on and off reservations. Then the panelists will reflect on the following questions:

- In what ways did housing that was developed over the 20th century increase Tribal communities' vulnerability to climate hazards such as flooding, wildfires, extreme heat, and coastal erosion?
- How have historical and current Western governance structures, policies, and regulatory frameworks shaped historical housing development and conditions on Native Tribal lands?
- How do Indigenous values and knowledge capacities mitigate and adapt to the impacts of climate change?
- What planning processes and methods support Indigenous self-determination related to housing in a changing climate?

The panelists bring applied experience from work with coastal tribes in Washington, Hawai'i, and Alaska. Audience members are encouraged to bring their stories and questions to the discussion.

Citations:

- Hill, M., & David, J. (2023). Tribal Zoning, Sovereignty in Action. *Zoning Practice*, 40(11), 13.
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Key Words: Housing, Indigenous, Land use, Climate adaptation, Planning law

Track 2 Individual Paper Presentations

A Statewide Spatial Analysis of Community Gardens and Agricultural Sites

Abstract ID: 1844.0.0.182.2025

Track 2: Community Development

Individual Paper Presentation Submission

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Community Gardens and Agricultural Sites (CGAs) can support local food systems, enhance ecological services, and strengthen social connections and mental health, especially for vulnerable communities grappling with the impacts of climate change. Few studies have examined the distribution of CGAs within historically marginalized communities, and limited information is available regarding CGA practices and design. We addressed this gap by conducting a survey and geospatial analysis of CGAs throughout California. This research was funded by California Climate Investments (CCI), which invests the State of California's Cap-and-Trade auction proceeds to reduce greenhouse gas emissions and serve disadvantaged and low-income communities.

From October 2024 to February 2025, we conducted a survey both online via email and in-person via physical flyers. A total of 109 respondents completed the survey and provided a baseline understanding of CGAs including information on the size, location, organizational structure, food production, growing techniques, programming, and community engagement. Our findings were derived from triangulation of survey results, spatial analysis, field observations, and informal interviews. We found that gardens and farms served diverse populations, including disadvantaged communities, Native American Tribes, people with disabilities, rural and urban areas, seniors and youth, schools and universities, and unhoused community members. Similar to research on gardens and social capital, our survey respondents emphasized how CGAs were a space for making friends, transferring intergenerational knowledge, and exchanging different cultures. They also reported benefits described by previous research, such as neighborhood beautification and improved mental health.

A total of 93 surveyed CGA locations were mapped. Seventeen percent were located in tracts designated as a Disadvantaged Community (DAC) by CalEnviroScreen 4.0 and an additional 3% were located in a DAC within tribal land. In addition, 14% of surveyed CGAs were located in areas within a half mile of a DAC-designated tract. Just under two-thirds of CGAs (62%) were located within low-income communities. Furthermore, this research analyzed the distribution of 534 CGAs within selected California counties relative to disadvantaged and low-income communities as defined by the CCI Priority Populations map. Of the 534 CGAs mapped in California, 29% were located in a DAC area and 60% were located in a low-income community.

This research also aligns with scholarly evidence that community gardens often support food security and increase access to fruits and vegetables, which can result in reduced disease-risk. Most respondents reported that their CGA allowed them to improve their diet and save money on food costs. The majority of respondents reduced their number of trips for grocery store shopping. CGAs promoted environmental sustainability in a variety of methods. Most CGAs practiced organic gardening without the use of pesticides. They also supported biodiversity by selecting native plants and creating a habitat for pollinators, such as bees, butterflies, and birds. CGAs also restored the soil and sequestered carbon through regenerative agriculture practices.

Although CGAs provide an abundance of benefits, they could use additional support in several areas. Over half of respondents described protecting plants from pests and disease as challenges for their CGA. Another key finding was that CGAs operated on low budgets, which illustrated the need for funding to sustain these sites. The benefits of CGAs were multifaceted and nuanced. This research's survey and spatial analysis is a first step towards understanding and quantifying the participant's perspectives of how the CGAs affect them personally, their community, and the environment. Our study helps planners and policy makers better understand the impacts of CGAs on health, the environment, and social disparities.

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Key Words: gardens and agriculture, community engagement, environmental benefits, spatial analysis

A Study on the Vitality of Historic Urban Areas from an Individual Perception Perspective

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Track 2: Community Development

Individual Paper Presentation Submission

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In Chinese cities like Nanjing, historic cultural districts are often situated adjacent to high-density residential areas. In recent years, the influence of social media platforms has significantly increased tourist traffic to these districts. While the economic benefits from tourism have contributed to their development, this has also led to over-commercialization, heightening conflicts between tourists and local residents over the use of public space. As a result, residents' quality of life has declined, and the risk of displacement among native populations has grown. Thus, quantitatively characterizing and analyzing these issues is crucial for guiding informed decision-making in urban renewal strategies.

Existing research on public spaces has predominantly examined the relationship between the environmental attributes of physical spaces and urban vitality. In contrast, this study applies the Stimulus-Organism-Response (S-O-R) theory from environmental psychology to develop an integrated research framework. The framework combines stated-preference (SP) questionnaires with a SEM-Logit model, refining the "environment-perception-behavior" chain to offer a more comprehensive approach to understanding public space dynamics. For the empirical analysis, Laomendong, a popular historic district in Nanjing driven by social media, and its adjacent residential areas were selected as the case study. The study involved the collection of audiovisual data from 127 public spaces, representing a range of space types. Meanwhile, 460 SP questionnaires were distributed. Respondents were required to provide their socioeconomic background information and evaluate various scenarios across multiple dimensions. Additionally, they were asked to make binary choices between two scenes. Building on this foundation, the SEM approach was employed to quantify the intangible factors influencing public space activities, including visual, auditory, and cultural atmosphere perceptions. Subsequently, a Logit model was applied to establish the relationship between these influencing factors and public space activity preferences.

The model results reveal distinct differences in public space environmental preferences between tourists and residents. Specifically, tourists prioritize visual experiences and the cultural atmosphere, valuing elements such as architectural authenticity. In contrast, residents demonstrate greater sensitivity to soundscape quality and the overall condition of public spaces. These divergent preferences highlight the need for a more diversified approach to urban renewal strategies. Furthermore, traffic congestion and noise pollution caused by commercial activities in the historic cultural districts have negatively impacted surrounding residents. This issue likely stems from the spillover effects of tourism-driven commercial development and the spatial constraints of public spaces.

Building on relevant case studies, this research underscores that while urban renewal strategies driven by the "Instagrammable" effect can enhance district vitality in the short term, an excessively homogenized development model may lead to population decline and urban hollowing-out in the long term. Consequently, the sustainability of urban vitality faces substantial risks. Moreover, as the surrounding residential areas experience an aging population, residents act as key custodians of historical and cultural heritage. Their displacement could further diminish intangible authenticity, including traditional lifestyles and distinctive cultural practices. In this context, local governments are confronted with the challenge of maintaining the population scale in these areas and optimizing demographic structure. Therefore, addressing multi-objective urban renewal scenarios necessitates the

integration of spatial characteristics, vitality features, potential demographic structure, and demand preferences to develop context-specific renewal strategies.

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Key Words: Individual Perception, Tourism and Residence, Urban Vitality, Historic Urban Areas, Public Space

Addressing Climate Gentrification in a Small-Mid-Sized Multi-Risk City

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Track 2: Community Development

Individual Paper Presentation Submission

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Urban greening and climate resilience initiatives are often implicated as drivers of gentrification due to prioritizing sustainability goals without adequately addressing affordable housing and community stability. Despite efforts by environmental organizations and agencies to promote inclusivity, these initiatives frequently remain tied to urban economic growth agendas, which have been linked to gentrification and the displacement of vulnerable residents to areas of higher climate risk (Anguelovski et al., 2023; Pearsall, 2020; Shokry et al., 2020). While existing scholarship focuses on housing affordability strategies as a primary remedy to green climate gentrification (Matteucci et al., 2024), it largely overlooks the potential role of other social infrastructure—community-based organizations, care facilities, and social services—in mitigating these pressures (Shokry, 2021; Best & Jouzzi, 2022). Furthermore, most studies of climate resilience and gentrification dynamics have concentrated on large cities like New York, Chicago, Los Angeles, and Miami (Quinton et al., 2022), leaving smaller cities within their metro regions critically understudied despite their unique dynamics and challenges.

This study addresses two interrelated research questions. First, to what extent do climate resilience initiatives reshape vulnerability and displacement risk in smaller, minority-majority cities? Second, how do networks of social infrastructure shape community capacity to resist displacement and adapt equitably to climate change? Together, these questions examine both the structural drivers of climate gentrification and the locally grounded mechanisms of resilience that may mitigate its effects. By integrating these threads, the research captures both the macro-level planning dynamics and the micro-level institutional responses that characterize adaptation in under-resourced urban contexts.

We employ a mixed-methods approach that integrates spatial analysis with community-engaged qualitative research in Elizabeth, NJ. GIS mapping of green resilience initiatives, social infrastructure, and gentrification indicators provides spatial insights into how climate investments intersect with neighborhood change. Throughout the spatial analysis we conduct community-engaged research with a broad network of stakeholders—including social service providers, nonprofit organizations, educators, and mutual aid groups—many of whom serve predominantly low-income and immigrant communities of color. This collaborative approach centers the expertise of those embedded in the city's social fabric and prioritizes knowledge exchange and relationship-building throughout the research process.

Preliminary insights suggest that in small- to mid-sized cities like Elizabeth, where formal adaptation planning capacity is often limited, networks of social infrastructure may serve as critical, though often underrecognized, foundations of climate resilience. Community-based organizations have expressed a growing interest in serving not only as service providers but also as more active participants in climate communication, displacement mitigation, and adaptation planning. We hypothesize that this process may catalyze stronger relationships among organizations and support their evolving role in shaping equitable climate adaptation responses.

This study contributes to planning scholarship by expanding the analytical lens on climate gentrification to go beyond housing as a means for preventing displacement, and by highlighting smaller cities as key sites for understanding climate equity. It offers insights for planners and policymakers on embedding justice into climate resilience initiatives. For planning education and practice, it reinforces the importance of inclusive, community-centered methodologies and cross-sector partnerships in advancing just climate resilience.

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Key Words: Climate Gentrification, Social Infrastructure, Adaptive Capacity, Community Engagement, Urban Resilience Planning

Aging in place: Community Design Strategies for Aging Rural Minnesota

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Track 2: Community Development

Individual Paper Presentation Submission

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According to the U.S. Census Bureau, the population of individuals aged 65 and over increased by 33% from 2006 to 2016, reaching 49.2 million in the U.S. This number is projected to nearly double to 98 million by 2060. Unlike urban communities with targeted facilities for the aging population (e.g., senior assisted living and nursing homes), most rural communities are dependent on neighboring major cities for these resources. Aging in place is an alternative option that helps the rural aging population remain in their places without relocation. Current practices for aging in place primarily focus on design and policy interventions tailored to individual home modification. However, there is a lack of understanding of how physical and social characteristics of rural neighborhoods challenge aging in place practices at a community level. This research explores environmental and socioeconomic characteristics at a neighborhood level and investigates an inclusive, incremental, and community-driven approach that helps identify localized solutions towards building healthy aging communities.

The main objective of this project is to provide rural community policymakers and rural development agencies with a rigorous, empirical understanding of the relationship between environmental/ socioeconomic characteristics and aging in place practices at a neighborhood level. The neighborhood-level strategies for aging in place – including convenient access to medical facilities, grocery stores, community centers, and independent housing options – play a crucial role that supporting independence and social participation, and significantly contributing to older adults' quality of life.

This project explores localized community design strategies by answering the following two research questions: 1) How might we measure and assess physical dimensions that support aging in place for older adults in rural communities? and 2) How might we build aging communities that cater older adults' social needs in rural communities? The research utilizes factor analysis to examine the dimensional structure of these environmental and socioeconomic variables. Additionally, cluster analysis is employed to create a typology based on the spatial patterns of physical and social indicators. The results reveal distinct classifications that visually showcase an opportunity-based framework and highlight both the existing and potential strengths of aging communities in rural Minnesota.

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Key Words: Rural community, aging in place, equal accessibility, design interventions,

Assessing Affordability and Equity in Northern California TODs: A Typology-Based Spatial Analysis

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Track 2: Community Development

Individual Paper Presentation Submission

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Transit-oriented development (TOD) is a globally recognized urban planning strategy integrating public transportation with high-density, mixed-use developments to foster walkable, accessible, and sustainable communities. While TODs offer numerous economic, environmental, and social benefits, a persistent challenge is housing affordability, as these desirable areas often experience rising property values and displacement pressures. Despite growing concerns over housing affordability, there remains a lack of a standardized, transparent methodology for quantifying and categorizing TODs based on their affordability and accessibility, which is crucial for planners, policymakers, and researchers aiming to create more equitable transit-integrated communities.

This study develops a TOD typology based on built environment characteristics, incorporating density, diversity, design, and the broader 5D framework within High-Quality Transit Areas (HQTAs) as well as Principal Component Analysis methodology. By systematically analyzing these variables, the study categorizes transit-served areas into three distinct types: TOD, Transit-Adjacent Development (TAD), and Hybrid Zones. TODs are defined as high-density, walkable neighborhoods seamlessly integrated with transit, reducing car dependency and promoting multimodal accessibility. In contrast, TADs are developments near transit infrastructure but lack strong connectivity, often leading to continued reliance on automobiles. Hybrid zones represent a transitional category that blends characteristics of both TOD and TAD, incorporating some transit-supportive elements while maintaining gaps in multimodal access, density, or land-use diversity.

Beyond categorization, this typology serves as a foundation for spatial investigation of the intersection of transit access, affordability, and equity, particularly concerning vulnerable populations. By analyzing socio-demographic factors such as income, race, educational attainment, vehicle ownership, and affordable housing availability, this study identifies spatial patterns that reveal disparities in access to equitable TOD environments. Methodologically, the study employs spatial multi-criteria analysis (SMCA) and hot spot analysis to assess the distribution of affordability and vulnerability variables across the TOD typology. The findings will contribute to the limited body of literature on affordability within transit-oriented developments, offering insights for future planning strategies that balance transit integration with social equity.

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Key Words: Transit, Housing, TOD, Affordability, High Quality Transit Area

Assessing the Impact of University-Led Neighborhood Revitalization Using Difference-in-Differences

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Track 2: Community Development

Individual Paper Presentation Submission

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University-led neighborhood revitalization initiatives have become an increasingly common strategy for community development, aiming to improve the physical and social environments of urban neighborhoods. However, whether these efforts drive meaningful neighborhood change has remained challenging. While qualitative case studies have examined the impacts of university efforts in neighborhood revitalization, only a dearth of research quantitatively measured their effects on neighborhood change.

In this presentation, I address this gap by employing a difference-in-differences (DID) approach to examine the impacts of university-led revitalization efforts on the demographics, economic conditions, and housing characteristics of focus neighborhoods. The DID method provides a robust framework to assess the outcomes of these initiatives and allows for causal inference under specific conditions. Using data from the American Community Survey, which includes demographic, economic, and economic indicators, I investigate variables that align with the program goals of two case initiatives: the Partners Achieving Community Transformation led by The Ohio State University and the University Northside Partnership led by the University of Minnesota Twin Cities.

The findings show the variations in the extent to which neighborhood characteristics change. There is a notable change in demographic indicators right after the implementation of programs, exemplified by the decline in the proportion of Black populations. On the other hand, changes in economic indicators, such as the unemployment rate or the proportion of populations in poverty, are lagged. Housing indicators show less consistent changes. These mixed results highlight the varied impacts of university-led neighborhood revitalization across different dimensions of neighborhood change.

Reflecting on these changes, I raise a follow-up question: do these changes benefit incumbent residents or imply gentrification? Using origin-destination data of households in the case neighborhoods, this part of the research explores changes in household mobility patterns before and after implementing the case initiative programs. I propose that if more lower-income households migrate out of the neighborhoods and higher-income households come in, this signals gentrification. This approach allows for a more nuanced understanding of university efforts for neighborhood revitalization.

By combining the two quantitative analyses, this research has implications. First, I make a caution about universities' place-based engagement and its unintended consequences—gentrification. Conceptually, scholars call for a mix of place-based and people-centered approaches in community development. However, achieving all the goals in the real world may be a fantasy, at least in the short term. Second, the possible uneven impacts of these neighborhood revitalization initiatives highlight the importance of designing interventions. Universities and other nonprofit organizations in community development need to consider how to mitigate the risk of displacement while fostering social and economic benefits. Understanding the diverse patterns of outcomes of these initiatives can inform best practices for future university-community partnerships.

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Key Words: Urban Revitalization, University-Community, Neighborhood Change, Difference-in-Differences

Beyond Distributional Equity: How Do NGOs Advance the Urban Green Space Justice in Beijing

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Track 2: Community Development

Individual Paper Presentation Submission

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This paper describes the tactics open-space activists in China use to advance NGOs' agendas in the hierarchical Chinese planning system. Specifically, it focuses on how they shift ideas of equity away from distributional equity towards procedural equity and equity of values. Urban green spaces (UGS) play a vital role in providing ecosystem services and offering social benefits. Cities are encouraging the public use of UGS as part of their sustainability strategies. While the equitable distribution and accessibility of UGS have been widely studied, less attention has been paid to how justice is embedded in the urban greening processes (Nesbitt, Meitner, Sheppard, & Girling, 2018), including who participates in decision-making and whose values and knowledge are recognized (Pike, Nesbitt, Conway, Day, & Konijnendijk, 2024).

Environmental NGOs are activists in urban greening efforts. Their involvement offers an opportunity to assess how justice is negotiated during the planning, development, and management of UGS. By promoting public awareness, NGOs help broaden inclusion and recognition in UGS governance (Rigolon & Gibson, 2021). In China's authoritarian planning context, while NGOs are increasingly welcomed for their technical expertise and contributions to national environmental goals, they also face close regulatory oversight and limited institutional autonomy (Liang & Han, 2025).

Most existing research on UGS justice adopts a top-down perspective, focusing on state-led policy outcomes and distributive equity (Pellerey & Giezen, 2024; Pike et al., 2024). However, the experiences, strategies, and influence of NGOs remain insufficiently examined. Little is known about how NGOs address justice and how their actions reshape power dynamics and advance UGS justice. To address these gaps, this study investigates how NGOs contribute to UGS justice in Beijing. Specifically, it asks:

- 1) Which dimensions of UGS justice do Chinese NGOs focus on?
- 2) What roles do NGOs play in promoting UGS justice?
- 3) How have NGOs shifted the focus of UGS planning from distribution to inclusion?

This research draws on qualitative case studies of NGO involvement in UGS projects in Beijing. NGOs were selected through purposive and snowball sampling, including both registered NGOs such as Friends of Nature and grassroots NGOs such as Let Birds Fly. These NGOs aim to integrate their values into planning outcomes. Fieldwork was conducted between March and July 2023. Data collection included 26 in-depth interviews with NGO leaders, members, and volunteers, and 16 in-depth interviews with key stakeholders (planners, local officials, park managers, scholars, and citizens). These were complemented by participant observations of NGO-led activities such as environmental education, birdwatching, and policy meetings. Further, content analysis of NGO posts on digital platforms was used to enrich the data.

Findings reveal that NGOs contribute to UGS justice from three aspects. From the distributional aspect, NGOs in Beijing reshape the meaning of UGS justice by downplaying the distributional equity. They argue that the city already has an oversupply of homogeneous parks. From a recognitional perspective, they successfully insert local values into planning by framing parks as habitats rather than purely recreational spaces. Through long-term technical engagement, ecological surveys, and narrative framing, NGOs negotiate with government actors to gain tacit recognition of their expertise, even if their influence is not publicly acknowledged. From a procedural angle, NGOs create informal participatory spaces by building trust with planners and governments, networking with peer organizations, and organizing citizen-involved environmental activities. It opens new channels for bottom-up input. This study contributes to UGS justice scholarship by offering new insights into how NGOs navigate state control to act as justice-oriented intermediaries in UGS governance.

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Key Words: Urban greenspace planning, Environmental justice, NGO participation, Urban green equity, Beijing

Bridging Theory and Lived Experience: Gentrification and Displacement in Pilsen, Chicago

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Track 2: Community Development

Individual Paper Presentation Submission

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While existing literature extensively discusses gentrification and displacement, my fieldwork in Pilsen, Chicago, reveals some differences between existing perspectives and residents' lived experiences. Existing studies primarily examine conflicts between longstanding residents and newcomers (Betancur 2002 and 2011; Hyra 2006 and 2015) or longstanding residents' feelings of loss due to displacement pressure (Chernoff 1980; Atkinson 2015; Valli 2016). However, my interviews with nearly 100 residents considering data saturation show that perspectives on gentrification vary widely. Regardless of their length of residency, residential status, or the degree of gentrification occurring in their neighborhood, residents have various perceptions. Notably, they may also share similar sentiments, meaning that it is not possible to categorize their perceptions based solely on their residency status. These findings highlight the need to bridge the gap between academic discourse and lived realities.

This study is ethnographic field research including informal conversational interviews in Pilsen, a historically Hispanic neighborhood undergoing gentrification for 40 years, to investigate how individuals perceive gentrification and the extent to which academic theories align with their lived experiences. Findings suggest that residents' perspectives on gentrification are more variable than conventional notions of gentrification and displacement pressure. By employing thematic analysis, this study found eight different perceptions: Gentrification Advocates, Pragmatic Residents, Gentrification Skeptics, Unaffected People, Exit-seeking Residents, Community Keepers, Gentrification-aware Newcomers, and Alienated Legacy Residents. Furthermore, displacement pressure is experienced not only by longstanding tenants but also by building owners, homeowners, and even newcomers in distinct ways.

Also, this study attempted to consider the fundamental assumption for data saturation—appropriate measurement. Although Guest, et al. (2006) suggest that data saturation may be achieved within the first 12 interviews and Francis et al. (2010) suggests setting 10 interviews as a primary sample with a stopping criterion of 3, this study reveals that this may not be appropriate for gentrification studies. Within the first 20 interviews, only five different perceptions on gentrification were identified, and the sixth appeared approximately within 50, the seventh within 70, and the eighth at the end of data collection. Also, a new type of displacement pressure among building owners due to developers first mentioned approximately the 70th interviewee, while other types were identified within the first 30 interviews. Also, as gentrification is a sensitive topic, interviewees may not openly provide their perspectives, raising concerns about social desirability bias, which could be addressed by an interviewer's stance. Therefore, the saturation points of studies on sensitive topics should be carefully determined.

This study highlights the need to approach gentrification and displacement pressure with a comprehensive and nuanced understanding of residents' perspectives, as residents may share selective narratives about their neighborhood. This study also emphasizes the importance of interviewers maintaining neutrality on gentrification to encourage interviewees to share their perspectives openly, rather than framing gentrification solely as a tension between longstanding residents and newcomers. Investigators should recognize the complexity and intersectionality of gentrification, as affected neighborhoods may have distinct historical, social, political, and cultural contexts. Adopting this broader perspective can contribute to a more nuanced understanding of the consequences of gentrification and support policymakers in making informed decisions that address the needs of gentrifying communities.

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Key Words: Displacement Pressure, Gentrification, Displacement, Data Saturation, Neighborhood Change

Competing for the Community: Ethnic Suburban Settlements and Gentrification in Urban Chinatowns

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Track 2: Community Development

Individual Paper Presentation Submission

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Urban Chinatowns have become contested spaces of gentrification across North America and have had various repercussions for different segments of the Asian American community. Working-class Asian American immigrants rely on Chinatown for affordable housing, jobs within the ethnic network, and culturally appropriate social services, the neighborhood is an important site preserving Asian American culture and history, and, for relatively affluent Asian Americans, a place of economic investment. These various meanings and purposes of Chinatown have implications for community development efforts that are responding to these gentrification pressures.

For this presentation, I will present excerpts from my book, *The Power of Chinatown: Searching for Spatial Justice in Los Angeles* (Hom, 2024), which is an ethnographic case study of community politics and gentrification in Los Angeles Chinatown. Specifically, I will highlight how the growth of ethnic suburban settlements and small cities in San Gabriel Valley, which includes Monterey Park, dubbed the “Beverly Hills for Chinese Americans” in the 1980s, shaped the process of gentrification in the historic urban Chinatown in Los Angeles as the smaller cities in San Gabriel Valley became an aspirational symbol and the new residential and economic center for Chinese and Asian Americans. Given these regional and community trends, Chinatown was thus starting to lose its value for Chinese and Asian Americans as a residential space, which has contributed to tensions about ongoing development in the neighborhood and for whom it should center.

I argue that in response to the growth of the Chinese American presence in San Gabriel Valley, Chinatown community leaders have asserted two conflicting identities of Chinatown. The first as a low-income immigrant neighborhood and the second as a downtown adjacent neighborhood appealing to upwardly mobile young professionals. While the former perspective is asserted to resist gentrification and the latter is to encourage gentrification, they both ultimately highlight how Chinatown is often in competition with San Gabriel Valley as community leaders use both to distinguish Chinatown from the San Gabriel Valley that warrants specific types of resources for the neighborhood. This competition shapes community development efforts and tenant rights activism in Chinatown, as there is increasing pressure to develop more market-rate housing to attract both relatively affluent individuals, regardless if they identify as Asian American, to live, work, and spend in Chinatown as a way to “sustain” Chinatown. In the presentation, I will discuss the implications of this competition as to how Chinatown’s core identity as an ethnic space and center for the community continues to evolve, but is also a contested process that reflects intra-ethnic community differences along class, generational, and immigrant cohort lines.

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Key Words: Asian Americans, gentrification, community development

Contested Culture in the Barrio: Gentrification, Representation, and Activism in Boyle Heights

Abstract ID: 1844.0.0.882.2025

Track 2: Community Development

Individual Paper Presentation Submission

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This paper analyzes how cultural regeneration both drives and resists gentrification in Boyle Heights, a working-class Latinx neighborhood in Los Angeles. Since the early 2000s, local officials and private actors have aimed to rebrand the barrio into a cultural destination by drawing on its established Chicanx and Latinx art scene. Efforts to create an official Arts District along First Street illustrate “marketable ethnicity,” which repackages cultural symbols to legitimize “inclusive” development. Through this process, redevelopment is reframed in a racialized context, emphasizing certain aspects of neighborhood culture to attract outside capital. Yet, culture here is more than a promotional device. It is a critical arena where organizations fight displacement and defend local identity.

Drawing on newspaper articles, interviews, and digital artifacts, this study tracks the evolution of gentrification in Boyle Heights and two contrasting responses that took shape in the 2010s. First, a coalition of progressive nonprofits adopts a reformist path that merges affordable housing production, policy advocacy, and cautious collaboration within formal political structures. For these groups, gentrification is contradictory but potentially manageable. Recognizing the structural inequities of market-led change, they push for community benefits, tenant protections, and equitable development, hoping to keep Boyle Heights’ culture alive, preserve livelihoods, and secure needed resources.

Opposing them is a militant coalition of grassroots and mutual-aid groups who reject all engagement with elites or market-friendly strategies. Characterizing gentrification as an inherently violent project of racial capitalism, they condemn cultural regeneration as complicit in displacing immigrant families. Targeting art galleries and civic art initiatives, they charge that public and philanthropic support for “cultural revitalization” conceals speculation and rent hikes. Through disruptive direct actions, they challenge those seen as fostering commodification, reasserting culture as collective survival rather than a market product.

These diverging tactics underscore tensions in a barrio where culture sparks both pride and speculation. While nonprofit coalitions negotiate to alleviate displacement, radical activists see such engagement as endorsing a system that dismisses poor and undocumented residents. Boyle Heights thus reveals a broader struggle in barrios - How do communities secure resources and visibility without deepening systemic inequalities? Ultimately, this paper argues that cultural politics underlie both gentrification and its resistance, illuminating how redevelopment can promise economic renewal yet fuel sharp conflicts over who truly belongs.

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Key Words: Gentrification, Cultural Regeneration, Racial Branding, Community Activism, Neoliberal Urbanism

Defiende a Cabo Rojo: Insurgent Planning and Territorial Struggles in Puerto Rico's Southwest

Abstract ID: 1844.0.0.207.2025

Track 2: Community Development

Individual Paper Presentation Submission

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This research explores the insurgent planning practices and place-based meanings developed by grassroots movements in opposition to Proyecto Esencia, a proposed mega tourism and residential development in an ecologically sensitive coastal zone of Cabo Rojo, Puerto Rico. It documents and analyzes how community members, activists, environmental advocates, and allied academics and professionals have organized to challenge a project that threatens not only coastal ecosystems and public access to natural resources, but also the socio-spatial fabric and territorial autonomy of the region. In doing so, the movement has mobilized both invited spaces—such as public hearings and formal comment periods—and invented spaces—including community assemblies, protest actions, independent research, and creative place-making—to articulate alternative visions of development rooted in environmental justice and community-led planning.

Drawing from transformative planning literature and grounded in traditions of Latin American and Caribbean resistance, the research engages the insurgent planning framework (Huq, 2020; Torres-Cordero, 2024) to examine how the movement, organized as Defiende a Cabo Rojo, asserts counter-hegemonic visions of development, sustainability, and territorial justice. Through ethnographic observation, document analysis, and semi-structured interviews with key participants, the study investigates how Defiende a Cabo Rojo not only resists environmental exploitation and dispossession, but also creates spaces for communal gathering, collective imagination, and long-term, community-engaged planning.

The research situates this grassroots struggle within a broader context of post-disaster neoliberal development in Puerto Rico, where extractive and speculative land-use practices often override participatory planning, environmental regulation, and the rights of local communities. In this setting, Defiende a Cabo Rojo challenges dominant planning paradigms by asserting their own knowledges, territorial attachments, and political claims to a more equitable and sustainable futures for Cabo Rojo.

Preliminary findings suggest that the grassroots movement embodies a historically rooted form of environmental justice activism and community-based organizing in Puerto Rico—one that interweaves legal advocacy, storytelling, ecological stewardship, and collective memory (Torres-Abreu et al., 2023). The paper also highlights the movement's role in exposing gaps in the Environmental Impact Assessment process and the broader failures of territorial governance to protect ecologically and culturally significant landscapes.

By documenting and theorizing the insurgent planning practices and place-based meanings mobilized by Defiende a Cabo Rojo, this research contributes to debates on just development, decolonial planning, and grassroots resistance to spatial dispossession. It also seeks to amplify the voices often sidelined in formal planning processes, offering insights into how communities not only resist displacement and environmental degradation but also actively prefigure alternative futures for the places they call home.

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Key Words: insurgent planning, decolonial thinking, grassroots movements, neoliberal development, territorial justice

Demystifying Urban Planning with AI: Opportunities and Risks

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Track 2: Community Development

Individual Paper Presentation Submission

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Urban planning documents often use technical and bureaucratic language, creating barriers for those unfamiliar with the field (Forester, 1980). This specialized "planner's speak" may unintentionally discourage public participation, increasing reliance on experts and ultimately reducing civic engagement (Forester, 1980; Li et al., 2020). This issue is particularly evident in South Korea, where readability assessments indicate that planning documents intended for public dissemination are often more complex than Korean bar exam materials. While many cities and urban initiatives, as well as prior research, have focused on enhancing the visualization and accessibility of spatial and quantitative urban data (Hemmersam et al., 2015), the excessive complexity of textual planning documents remains largely overlooked.

This study addresses this gap by customizing an AI model that leverages Seoul's urban planning glossary and relevant legislative data as a knowledge base. Through an iterative process incorporating citizen feedback, the study refines AI prompts to improve the readability of planning documents. Reformatted documents generated by the improved model are then evaluated through experimental studies to assess their impact on citizens' comprehension and engagement with urban planning processes. Additionally, expert interviews and validation processes are conducted to verify the accuracy of AI-generated documents. The study also examines the broader implications, challenges, and risks of leveraging AI for urban planning communication. The findings contribute to the discourse on AI-driven public engagement, offering insights into the potential and limitations of language models in democratizing urban planning knowledge.

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Key Words: planning communication, textual complexity, civic engagement, artificial intelligence

Engaging Community by Birth Celebrations: Mitigating Maternal Isolation and Enhancing Social Capital

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Track 2: Community Development

Individual Paper Presentation Submission

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Japan's declining birth rate is a pressing social issue, yet the burden of childcare continues to fall heavily on mothers, with limited support during pregnancy and postpartum. According to a report by the World Forum, since 2020, suicide has become the leading cause of death among pregnant and postpartum women in Japan, underscoring the psychological and social difficulties many mothers face. Particularly in suburban areas of the Tokyo metropolitan area, where nuclear families are common, the absence of extended family and weak community ties can lead to increased isolation (Yamazaki, 2022). These conditions highlight the urgent need for localized support networks that ensure mothers do not face early child-rearing alone.

While home-visit programs have proven effective in supplementing traditional family support (Byrne, 2015), there remains a need to rebuild community-based structures that foster organic, localized connections (Sharifipour, 2022). Opportunities for interaction between new parents and various their neighbors are vital for reducing maternal isolation and promoting inclusive, supportive environments for raising children. Given the erosion of traditional community structures, it is imperative to reconstruct social networks among a wide range of stakeholders and to revitalize communities so that they can function effectively as platforms for community-based support.

This study examines the Welcome Baby Project, a Japanese community-based initiative (NPO) that celebrates each child's birth and supports new parents by distributing birth celebration gifts prepared by local stakeholders. The project aims to build community engagement and reduce isolation during early parenting. Through this grassroots model, the project fosters a sense of shared responsibility and belonging among diverse community members. By analyzing the project, the study aims to elucidate its social significance, particularly in terms of mitigating maternal isolation during the early child-rearing period and contributing to the revitalization of community networks.

The study involved an investigation of the project's operations through interviews with organizers and analysis of related records. Additionally, semi-structured interviews with ten project participants explored their motivations, experiences, and perceived outcomes, while four in-depth interviews with recipient mothers examined changes in community connections and anxiety levels during early motherhood.

Findings of this study indicate that the Welcome Baby Project provides meaningful opportunities for mothers to connect with their local communities. Participants of the project, including individuals, local businesses, and major corporations, contribute through various flexible forms of involvement. Companies gain insights applicable to their work with families, while individuals report joy and connection through gift preparing activities. These diverse entry points create inclusive, sustainable networks of support.

The project also contributes to rebuilding social capital by promoting local solidarity and strengthening ties among community members. It addresses maternal well-being not only through material support but also by creating a welcoming, supportive environment rooted in shared community values. Importantly, the project adopts a community-led, collective approach rather than relying solely on institutional or family-based support. This model offers a culturally resonant and potentially more sustainable alternative to top-down interventions. By leveraging

local resources and fostering collaboration, the project offers a culturally grounded and sustainable approach to supporting child-rearing in contemporary Japan.

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Key Words: Neighborhood Connectivity, Community-Based Support, Maternal Isolation, Child Rearing

Examining Community-Led Implementation of Comprehensive Community Initiatives

Abstract ID: 1844.0.0.631.2025

Track 2: Community Development

Individual Paper Presentation Submission

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The Comprehensive Community Initiative (CCI) is a widely used model for community development in major cities across the United States. The CCI model involves a holistic assessment of the needs and assets of a place, the creation of a comprehensive plan with a diversity of stakeholders, and the development of an implementation structure for the plan (Kubisch et al., 2010). Critics of the CCI have demonstrated that in some cases, the model enables CCI sponsors to dominate the planning and implementation processes, advancing agendas for neighborhood change that benefit powerful outside institutions and further marginalize low-income neighborhood residents (Bonds et al. 2015; Fraser et al. 2003; Rosen et al. 2022). Our study asks what happens when CCIs are implemented without a dominant sponsor? How do neighborhood groups govern CCI implementation? What do they have the capacity to achieve without a sponsor? And ultimately, what groups or institutions shape CCI implementation and its beneficiaries? Our study examines 5 places in Chicago where Local Initiatives Support Corporation (LISC Chicago) partnered with community-based organizations to engage in Quality-of-Life Planning from 2015 to 2018. Quality-of-Life Planning is LISC Chicago's CCI model based on its work in the New Communities Program, a multi-sited CCI sponsored by the MacArthur Foundation in the 2000s. In each of the 5 sites of the study, LISC provided modest planning grants and technical assistance through alternative funding sources to one local lead organization. However, local organizations were largely accountable for implementing their respective Quality-of-Life Plans, providing a rich opportunity to explore the similarities and differences in approaches to CCI implementation within the same city and during similar periods. We interpret each site as a separate but overlapping field of community development, each with its own "loosely coupled system" of organizations within a variety of sectors and levels (i.e. grassroots, frontline, and support) that govern and influence CCI implementation (Chaskin, 2003; Stoutland, 1999). We collected data from each site through in-depth interviews with key stakeholders and the collection of plan and implementation documents. Our comparative analysis yields four important findings about CCI implementation. First, in the absence of a powerful sponsor, the lead local organization assumes an influential role in CCI implementation that resembles the role of a community development intermediary organization. They mobilize and assist grassroots and frontline groups to further CCI implementation. Second, due to their central role, lead local organizations exert substantial influence over CCI governance. In each case, lead local organizations made important determinations about governance structure, implementation priorities, and community engagement methods. Third, the way the lead local organization structures the CCI governance and implementation is largely determined by the tradition of community action that their organization follows. Thus, organizations with a tradition of community organizing approached implementation differently than those based in community development or social planning. Fourth, with a few exceptions, CCI implementation was largely opportunistic. That is, an organization's affiliation with the Quality-of-Life plans was perceived to increase their access to existing funding opportunities available in the philanthropic and public sectors. Thus, the existing resources and funding priorities of larger institutions largely determined what parts of the Quality-of-Life plans were implemented. These findings suggest that if CCIs are not dominated by one major sponsor, they are dominated by a loosely coupled system of local, state, and national support organizations, with one organization in the neighborhood playing a key coordinating role.

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Key Words: Community Development, Plan Implementation

Exploring Counter-Hegemonic Space: The Case of El Rescate in Humboldt Park, Chicago

Abstract ID: 1844.0.0.1019.2025

Track 2: Community Development

Individual Paper Presentation Submission

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This study examines how community organizations create counter-hegemonic urban spaces that resist neoliberal displacement and marginalization. Focusing on El Rescate, an independent living center operated by the Puerto Rican Cultural Center (PRCC) in Chicago, it explores how El Rescate's socio-spatial practices provide identity-affirming housing and community for homeless LGBTQ+ and/or HIV-positive youth.

Drawing from queer and feminist theories, as well as materialist and critical urban theory, this research asks: How do El Rescate's practices shape the lived experiences and identities of LGBTQ+ and HIV-positive youth in Humboldt Park? In what ways does its physical and social organization challenge dominant urban governance? Using ethnographic methods, the study situates El Rescate within the PRCC's broader efforts to create "parallel institutions" that counter neoliberal urban development. The study highlights how El Rescate, in its socio-spatial organization, materializes self-determination, collective care, and spatial justice, offering insights into alternative models of city-making.

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Key Words: Spatial justice, Neoliberalism, LGBTQ+

Green Commons in Contested Urban Spaces: Fostering the Potential of Kuzguncuk and Roma Urban Gardens

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Track 2: Community Development

Individual Paper Presentation Submission

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Capitalistic, speculative dynamics prevailing in Urban Spaces are changing the ways our public realms are shaped. Urban public spaces are becoming privatized, compartmentalized, and divided between different interest groups (Webster, 2007; Lee & Webster, 2006). Examples include cafés in public parks, private establishments with leaseholds on publicly owned lands, and gated communities. According to Lee and Webster (2006), this is an “evolutionary step”, and it is happening due to congestion in urban public spaces. Congestion happens when the number of people or groups demanding usage of space increases. They argue that public spaces are deemed to be privatized, and privatization is the most efficient use for them as urban areas densify and increase in population.

On the other hand, there are commoning initiatives by citizens, individuals, and collective organizations, where an urban space, a garden, a residential area, a theater, or other types of platforms and resources are managed collectively. Collectively managed gardens, also known as Urban Green Commons, exist in various configurations from allotment gardens in Stockholm to community gardens in Berlin. We know that they are good for ecosystem services, protecting biodiversity, and promoting social inclusion and urban resilience (Colding & Barthel, 2013; Colding et al., 2013). In organizational terms, we know that a common point they share is the ownership of management rights by the users of the gardens (Colding et al. 2013).

However, there are opposed opinions on their existence on congested urban public spaces. Colding et al. (2013) and Lee and Webster (2006) argues that their feasibility and justification on congested, highly demanded, public lands are rather limited. Whereas Arvanitidis and Papagiannitsis (2020) provide an example of an Urban Green Commons actively existing in an urban open space located in a high-density neighborhood of Athens.

Secondly, as stated above, there is a loss of public land in cities due to increased congestion and demand. Istanbul shares the same fate, with an even striking percentage of land appropriation for redevelopment and privatization of public lands (Durusoy, Cihanger 2016). The current dynamics of development expose Istanbul's green commons to the risk of appropriation and redevelopment by private capital (Durusoy, Cihanger 2016). The limits and extent of the new forms of urban green commons in Istanbul, opposing privatization dynamics, remains an unexplored topic.

This research provides insights on two cases of Urban Green Commons located in central areas of Istanbul, where one had significant government intervention and the other was developed informally. Kuzguncuk Urban Garden was done in collaboration with the Uskudar Municipality, being the renter and formal user of the land, and Kuzguncuk neighborhood residents as significant but informal collaborators. On the other hand, Roma urban garden was a place of contestation between the Beyoglu Municipality and Cihangir neighborhood residents, where there were arguments over its land-use and where the garden initiative has developed through informal connections.

Furthermore, this research argues that commons, especially these two cases, are not only subjected to congestion but are also subjected to contestation between different interest groups, namely the local municipalities, local associations and/or concerned citizens. This raises arguments on the political nature of public green spaces, forgotten in property-rights and urban green commons literature.

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Key Words: Urban Green Commons, Urban Gardens, Urban Movements, Insurgent Planning, Istanbul

How Does Housing Supply Impact Asian American Segregation?

Abstract ID: 1844.0.0.216.2025

Track 2: Community Development

Individual Paper Presentation Submission

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In recent decades, many American cities have experienced significant growth in their Asian populations, accompanied by increasing racial segregation between Asian and non-Hispanic White populations (Iceland et al., 2014). Prior research has typically framed this trend as a case of self-segregation among Asian Americans or, more recently, as a consequence of White flight—where White populations move out of areas undergoing racial transition due to the growth of Asian populations (Li, 1998; Kye, 2023). However, limited attention has been given to the role of urban planning and housing policies in shaping Asian residential patterns, despite growing evidence of their critical role in influencing racial segregation (Rothstein, 2017). Increasingly, research links racial segregation with restrictive local land use regulations and planning processes that inhibit the construction of new housing and raise housing costs, particularly in predominantly White, middle-class suburbs (Pendall, 2000; Trounstein, 2020). While Asian Americans are disproportionately concentrated in expensive housing markets with limited new development, research on these exclusionary local housing policies often neglects their specific impacts on this group. This gap in the literature raises an important question: How do uneven housing supply patterns across suburbs influence Asian American residential patterns and their racial segregation from other groups?

In this study, I argue that the housing supply dynamics in suburban areas plays a critical yet underexplored role in shaping contemporary Asian American residential and segregation patterns. Analyzing longitudinal census data, I find that Asian segregation is increasingly influenced by suburban dynamics—both the segregation of Asian and other racial groups across different suburban locales and within those suburbs by neighborhoods. Multivariate analysis reveals that Asian population growth is greater in suburbs with greater supplies of single-family and multi-family housing, and that this association is greater for Asians compared to other racial groups. Additionally, greater single-family housing supply is linked to increased Asian-Black segregation, while multi-family housing supply is negatively correlated with Asian-Black and Asian-White segregation within those suburbs. Lastly, metropolitan areas with more uneven patterns of housing supply saw greater Asian-White segregation between different suburbs, and slight decreases in Asian-Black and Asian-Hispanic segregation. These findings suggest that while suburban housing developments offer more opportunities to move into those places for Asian Americans, it may also contribute to their segregation, particularly when new supply is primarily single-family homes and unevenly distributed across the region. They also highlight how housing policies may shape emerging patterns of multi-racial segregation that extend beyond the traditional Black-White racial framework in the literature.

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Key Words: Housing Supply, Segregation, Asian Americans, Neighborhood Change

How San Francisco's Laundry Jobs Turned White(r): Historical Contexts and Modern Implications

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Track 2: Community Development

Individual Paper Presentation Submission

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Data science has turned urban history from a “data-poor” to a “data-rich” field. Planning historians also adopt quantitative tools (Hillier et al., 2010) that, for examples, help scholars quantify labor market trends that were largely described based on narrative evidence previously. Quantitative results further shed light on the details of community and economic development, which were often ignored in the literature yet shaped American cities’ economic and cultural diversity.

We present an example of quantitatively studying historical community and economic development. We study the changing pattern of San Francisco’s laundry jobs at the turn of the twentieth century. Starting from 1849, the city’s laundry jobs were primarily taken by Chinese immigrants; prior historical research described the decline in Chinese laundry over time (e.g., Friday, 2010), yet it (a) fails to quantify this decline, (b) simplifies it as a result only caused by exclusion laws, and (c) thus cannot present nuanced understandings of how different populations engaged in community and economic development.

Using digitized census records, we find that in 1880, over 80 percent of San Francisco’s laundry workers were ethnic Chinese, the majority of whom resided in Chinatown. By 1900, the proportion of Chinese-ethnic laundry workers declined by nearly 30 percent but remained high. The old job pattern changed much more dramatically in the first decade of the twentieth century: in 1910, only 30 percent of the city’s laundry workers were Chinese-ethnic; the proportion of Chinese-born laundry workers was even lower than the French.

The old explanation of the changing pattern—Chinese exclusion—is valid, but there are several key contributors of this change that were ignored in prior research and can only be learned by quantitatively analyzing business directories, census and living cost records, economic survey data, and newspapers. We use regressions, spatial GIS, and topic modeling to identify these contributors: First, long-term demographic trends, most notably Japanese migration, induced competition even without altering stereotyped association between the Chinese and laundry, and, moreover, between Chinese laundry and poverty. Second, the 1906 earthquake, rather than only exclusionary laws, changed Chinatown’s economy that increasingly favored international trade. Third, some white groups previously lived near Chinatown—most notably the French—broke ethnic segregation and worked in this ethnic neighborhood, taking laundry jobs alongside Chinese workers. Overall, the social and political discourse suggested that various non-Chinese communities actively engaged in initiating the change, while economic development played a secondary role.

These diverse mechanisms suggest much stronger motivations of changing the ethnically concentrated pattern of laundry jobs than what was understood before. But the stronger motivations did not lead to better economic outcomes for non-Chinese workers taking laundry jobs, as estimated based on census and living cost data.

These new findings suggest (a) the observed changing pattern of San Francisco’s laundry jobs was not only due to immigration exclusion but, to a larger extent, actively shaped by community and economic development launched in both Chinese and other ethnic groups; (b) such development, driven by demographic, social, and economic factors, broke residential and occupational segregation of San Francisco’s Chinatown, even if was one of the most segregated ethnic enclave in American history (Eriksson and Ward, 2019) and remained so largely by policy design (Lew-Williams, 2018); (c) while we find populists were indeed thrilled by this changing job pattern, they could not

turn laundry more lucrative and thus benefited new, non-Chinese workers, suggesting negative impacts of populism on community and economic development aligning with planning research in modern contexts (e.g., Spicer and Caper-Futterman, 2020).

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Key Words: historical planning, ethnic economy, community development, data science, Chinatown

How South Korean mothers overcome social exclusion: Focus on place and community

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Track 2: Community Development

Individual Paper Presentation Submission

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This study analyzes how South Korean mothers overcome social and spatial exclusion. South Korea's low birth rate has drawn global attention, with Seoul recording the country's lowest birth rate. While multiple factors contribute to this phenomenon, this study focuses on the social exclusion women face during pregnancy, childbirth, and child-rearing. The research conducted in-depth interviews with 20 mothers raising children under 36 months in Seoul. Data analysis followed a grounded theory approach, involving transcription, coding, and categorization.

The findings indicate that the social exclusion of participants, which coincides with spatial exclusion, results from a combination of patriarchal social norms, capitalist ideologies, and mobility constraints. Pregnancy, childbirth, and childcare are still perceived as women's responsibilities, making pregnant women seem dispensable in the workplace and leading to mobility restrictions. Social exclusion involves both voluntary and involuntary aspects, creating a complex dynamic that often leads women to accept their circumstances. Voluntary factors include heightened safety concerns and physical changes during pregnancy, while involuntary factors include lifestyle changes after childbirth. Negative perceptions of mothers with children restrict their spatial choices, while physical and lifestyle changes create additional mobility constraints.

Participants counter spatial exclusion through place appropriation, experiencing common transformations in their central spaces that closely relate to social exclusion. While the home remains the primary space throughout, other central spaces evolve from workplace to online communities ("mom cafes") and eventually to cultural centers. Exclusion from the workplace weakens their sense of social identity, transforming their perception from a "place" for self-realization to a "space" for income generation. Online communities emerge to fulfill social needs, functioning as trusted sources of information and platforms for new social relationships. Postpartum care centers and the immediate post-discharge home prove the most isolating spaces. This isolation eases when virtual connections from mom cafes transform into real-life interactions. Mothers create real-world communities in local spaces, with large supermarkets evolving from mere shopping "space" into "places" for social interaction and emotional stability. The concept of home is also being redefined. Increased social visits transform home from private retreats into semi-public places for gatherings, largely due to mobility constraints that complicate outings. Similarly, neighborhoods shift from being "convenient for commuting" to "suitable for child-rearing."

These changes in spatial perception accompany shifts in community dynamics. During pregnancy, participants experience weakened belonging with workplaces and friend groups, leading them to seek online communities with others in similar situations. After childbirth, they move these virtual connections into physical spaces, forming localized parenting communities. The extent of this transformation varies based on workforce reentry intentions. Those planning to return to work view local communities as temporary and avoid deep engagement, while those without definite reemployment plans develop stronger attachments to their new spatially based communities, often considering them their closest social networks.

This study reaffirms the relationship between space and place while demonstrating how individuals establish new relationships with space through place appropriation. This suggests that the place is not fixed but adaptable depending on situational contexts. The study also highlights the significant role of online spaces, which have not

been deeply explored in place discourse. These insights suggest the need for careful examination of childcare-related policies at the local level to ensure practical effectiveness.

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Key Words: Place appropriation, Post-place community, Social exclusion, Spatial exclusion, Maternal identity

Human Mobility and Urban Village Renewal: A Multi-Agent Simulation Approach

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Track 2: Community Development

Individual Paper Presentation Submission

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"Urban villages" are unique spatial units that have emerged during China's rapid urbanization, characterized by high-density housing, informal economies, and complex social networks. These areas exhibit highly dynamic and heterogeneous patterns of human mobility, posing significant challenges for spatial renewal strategies. This study takes an urban village in Nanjing as a case study, integrating location-based service (LBS) data, point-of-interest (POI) information, and building morphology data to construct a multi-agent modeling framework. The framework systematically captures internal and external mobility patterns and simulates population responses under various urban renewal strategies. Typical intervention pathways—including off-site relocation, phased redevelopment, and functional transformation—are incorporated into the model. Agent behavior is designed with decision-making logic and migration willingness, allowing for an in-depth analysis of how different strategies impact population distribution, spatial vitality, and functional structure. The results reveal the coupling mechanisms between human behavior and spatial structure in complex urban environments, providing data-driven insights and simulation-based evidence for human-centered urban village renewal.

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Key Words: urban village, human mobility, multi-agent modeling, urban renewal strategy, behavior simulation

Indigenous Pedagogies of Love

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Track 2: Community Development

Individual Paper Presentation Submission

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Indigenous life in India is defined by development. Indigenous peoples in India are categorized as Scheduled Tribes, a constitutional category defined by a presumed backwardness, remoteness, and need for improvement. In Nagaland, an Indigenous region of Northeast India, Indigenous life and community well-being are tracked via development measures and initiatives where development is seen as both a requirement for and vehicle of peace and stability. In this paper, we propose Naga pedagogies of love as Indigenous modes of accounting for relations and narrating community wellbeing. We consider Naga storytelling about rice as an embodied Indigenous pedagogy of love that enacts Indigenous futurity in the here and now.

We draw on scholarship on Indigenous pedagogies that centers community as a source of power and knowledge. Our methodology in this paper privileges Naga pedagogies, enacting Naga practices of conversation, reflection, and question and response, to ask what our stories about rice tell us about Naga notions of growth, scale, and political relation. How might these notions of growth and scale infuse a Naga vision of community development?

In this paper, we show that the embodied experience of human relation to rice not only constructs a Naga pedagogy of love and kinship, but also places limits on colonial notions of development. Naga pedagogies generate a vision of Naga presence rooted in social, cultural, and political relations to people, animals, plants, and other aspects of Naga life. A Naga critique of development, both as a process for economic growth and as an organizing principle for contemporary colonial relations, challenges dominant understandings of Indigenous past, present, and future.

Naga pedagogies stand in contrast to dominant notions of development which center models of continually increasing growth and expansion. Building on theorizations of Indigenous epistemologies, we demonstrate how dominant modes of development and scaling-up are unable to account for Indigenous ways of knowing and being. Instead, we explore forms of reciprocity and sociality that are embedded in Indigenous community and allow us to claim past and future as Indigenous features that are outside the economic domain of expansion.

Through its focus on Naga storytelling as a way of relating genealogies, making relations, and narrating community wellbeing, this paper contributes to scholarship on Indigenous planning and proposes that attention to Indigenous methodologies and pedagogies redefines success in community development. Enacting Indigenous pedagogies of love means shifting the standards, framing, and goals of Indigenous community development.

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Key Words: Indigenous planning, community development, storytelling, Indigeneity, love

Investigating Asian Language Access and Immigrant Discourse in Housing Policy Across in Greater D.C.

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Track 2: Community Development

Individual Paper Presentation Submission

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Through a review of local housing policy documents, strategic communications, and public meeting minutes in Washington, DC; Fairfax County, VA; and Montgomery County, MD, this study investigates whether these materials address the language needs of Asian immigrant communities—and if so, how—or whether those needs remain overlooked. The presence or absence of effective language access tools can have material consequences, shaping who can navigate housing applications, qualify for aid programs, or participate fully in housing-related decision-making processes. To better understand how these tools shape immigrant experiences of accessing housing, my research asks: How do housing-related policies and institutional practices in the Washington, DC metropolitan region explicitly address “language access,” and what themes or omissions characterize the way local governments frame (i.e., represent or discuss) immigrant communities and their needs? The work focuses on Asian immigrants due to rapid demographic growth in these communities and wide linguistic diversity that remains unaddressed by ‘one-size-fits-all’ minority outreach strategies.

This analysis draws from Bourdieu’s concept of linguistic capital to interrogate how language proficiency operates not merely as a communicative tool but as symbolic power structuring access to housing resources and institutional legitimacy. This lens enables a critical examination of how policies frame English proficiency as an implicit norm, echoing Louie’s observations on how language proficiency functions as both a racialized marker and a measure of cultural legitimacy within institutional fields. By focusing on linguistic capital, the analysis aims to expose how language is central to reproducing inequality, especially within systems claiming equity but operating through standardized, technocratic discourse.

Adopting a hybrid methodology merging Critical Discourse Analysis (CDA) with Large Language Model (LLM)-assisted content analysis, the project draws upon a diverse corpus of 200+ documents spanning 2015–2024. Blending the interpretive depth of CDA with computational power of LLMs such as GPT-4 enables large-scale pattern recognition and thematic clustering across complex textual datasets. In applying LLM-driven analysis, I address ethical considerations of algorithmic biases and data privacy, ensuring human-led CDA remains central to interpretative depth.

Mapping discursive patterns, metaphors, and rhetorical strategies used to describe non-English-speaking groups, the research uncovers explicit and subtle references while revealing instances where Asian immigrant communities are relegated to broader “minority” categories or omitted altogether. CDA provides a critical lens for unpacking institutional priorities, policy narratives, and power imbalances underlying official language and public discourse. Meanwhile, the LLM-driven component facilitates pattern detection and categorizing textual gaps or oversights. Preliminary findings indicate a gradual increase in discussions around cultural nuance and linguistic inclusivity; however, the relative scarcity of direct mentions of Asian languages or experiences signals ongoing tensions in resource allocation and sociopolitical attention. By illustrating how discursive practices either amplify or obscure Asian immigrants’ needs in housing processes, this study underscores the importance of data-driven, critical frameworks in shaping policy decisions. It highlights how resource distribution, programmatic guidelines, and equitable communication strategies could refine support for immigrant populations. Ultimately, it contributes fresh insights into the shifting nexus of immigration, governance, and equity, calling for intentional, data-driven strategies to foster meaningful community engagement.

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Key Words: Housing, Language Access, Asian immigrant, LLM, Washington D.C.

People, Parks, and Power: A Systems Change Analysis of Durham, NC

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Track 2: Community Development

Individual Paper Presentation Submission

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Scholarship on park inequity includes documented disparities associated with race/ethnicity and socioeconomic status in the provision of parks and green space (Klompaker et al., 2023; Rigolon, 2016), the presence of park amenities (Crawford et al., 2008), and funding (Joassart-Marcelli, 2010; Wolch et al., 2005). Communities in Partnership (CIP), a community-rooted organization in East Durham, North Carolina, began their People, Parks, and Power project with funding from Prevention Institute and Robert Wood Johnson Foundation in 2022. This project sought to build knowledge about the current state of parks in historically Black neighborhoods in Durham and the power structures and narratives that hold inequitable conditions in place.

CIP partnered with two other historically Black neighborhoods, and community residents to gather information using a variety of methods including park observation, interviews, community mapping, and content analysis. The project used a power and systems change analysis informed by Arnstein, Lukes, and Kania, Kramer, and Senge (Arnstein, 1969; Kania et al., 2018; Lukes, 1983). In particular, the model created by Kania, Kramer, and Senge provided a framework to examine the conditions necessary for systems change. The model is arranged as three inter-related and interdependent levels of an inverted triangle. The top level, Structural Change, is the outward manifestations of our inequitable system: policies, practices, and resources flows. We examined meeting minutes, the newly adopted comprehensive plan, the parks and recreation comprehensive plan, and budgets. We found the utilization of multiple community engagement tools with limited evidence that information from community participation was included in local park and recreation policies.

The middle level (Relational Change) includes relationships, connections, and power dynamics. We investigated the government agencies with influence over park and neighborhood conditions as well as non-governmental entities such as parks foundations, environmental protection organizations, city beautification groups, land trusts, non-profit housing and financial institutions, and institutions with significant land holdings. Interviews and community mapping exercises revealed the sheer amount of time and resources necessary to secure any physical improvements or policy change. Stakeholders with more power often used strategies that delay action under the guise of gathering more information or community input. Similar to our findings at the Structural Change level, community expertise is gathered but rarely integrated. When it is included, substantial changes that dilute their initial intent are made without consultation.

The Transformative Change level refers to the mental models and the narratives help hold systems in place. Content analysis of local media and in-depth interviews with long-term community advocates highlight the ways the city's reputation as a "progressive" Southern town support an avoidance strategy. The dominant approach to redressing historical inequities is to 1) repeatedly state that no one working for the city today was in place when many of the detriment policies were initially adopted, and 2) to create policies that focus on treating everyone equally despite current unequal conditions. Both strategies are a part of the avoidance narrative, which absolves agents of local government from the responsibility of examining how current systems perpetuate harm and fail to meet the needs of neighborhoods experiencing the effects of generations of disinvestment.

This analysis continues to inform the organization's efforts to address heavy metal contamination discovered in five parks during the project, a 2024 parks and green space bond, and the rewrite of the City's unified development ordinance, which all have implications for future land use, gentrification, and displacement.

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Key Words: park equity, systems change, structural racism, green infrastructure, municipal undergreening

Planning an Indigenous Language-scape: Production and Meaning of a Cherokee Linguistic Landscape

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Track 2: Community Development

Individual Paper Presentation Submission

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Of the approximately 7,000 documented languages of the world's languages, nearly 50 percent are endangered and at risk of linguistic extinction (Bromham et. al., 2021). The United Nations (UN) proclaimed 2019 as the International Year of Indigenous Languages, acknowledging that most of the linguistic diversity projected to be lost in the coming century comprises Indigenous languages (United Nations, 2021). In 2022, the UN further reaffirmed its commitment to safeguarding Indigenous languages from extinction by designating the period between 2022 and 2032 as the International Decade of Indigenous Languages to mobilize support for preserving, revitalizing, and promoting Indigenous languages (United Nations, 2019). These initiatives within the international community demonstrate the global significance of Indigenous languages and underscore the importance of Indigenous people's distinctive knowledge systems, cultural values, and dedication to land stewardship.

The Cherokee language (ᏍᏏᏉᏏ) is an Indigenous language spoken by the Cherokee people, and there exists a concerted effort to invest in language revitalization among the three Cherokee Tribal governments in the United States. In the municipalities of Tahlequah, Oklahoma and Stilwell, Oklahoma, two towns located on the Cherokee Reservation, observers can witness instances of the Cherokee language transcribed into the built environment via various wayfinding techniques, including public signage and art, in addition to English. The presence of an Indigenous language coexisting with English as part of the linguistic landscape is particularly uncommon in the United States, given the jurisdictional limitations between local and Tribal governments.

This phenomenon warrants an investigation to explore the relationship between planning processes and Indigenous language revitalization, in this case the Cherokee Language, with the understanding that safeguarding Indigenous languages is critical to maintaining Indigenous knowledge systems. This paper is the first of a 2-phase project conducting this investigation. We ask the following questions: (1) What are the underlying processes behind the production of transcribed Cherokee language that exist in the public realm?; (2) How can typological system(s) be developed to catalogue how the Cherokee language is transcribed within the public view?; and (3) What semantic differences exist between the Cherokee transcriptions and English that are indicative of Cherokee knowledges being expressed, if any?

Through a document analysis of municipal records and a photographic survey of transcribed Cherokee wayfinding, our preliminary findings indicate that coordination between municipal and tribal agencies is necessary to navigate complex jurisdictional systems for the installation of permitted wayfinding signs. Furthermore, individuals such as private property owners, business owners, and Cherokee language speakers play a crucial role in determining the location and significance of Cherokee transcriptions in the built environment, respectively. While a substantial portion of the Cherokee wayfinding examples are direct translations of their English counterparts, there exist instances where Cherokee cultural knowledge is essential to comprehend deeper cultural nuances.

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Key Words: Indigenous Planning, Language Revitalization, Languagescape, Cultural Heritage

Reimagining Public Dialogue: A Multi-User and Multi-Agent Approach to Community Engagement

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Track 2: Community Development

Individual Paper Presentation Submission

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Chatbots are emerging as tools that facilitate a novel form of data collection through conversational surveys, encouraging users to engage in dynamic dialogues through open-ended questions, interpretation of free-text responses, and interactive follow-up (Xiao et al., 2020). This approach enhances user-centered information collection and has been applied to community and urban planning projects (Xiao et al., 2020; Dortheimer et al., 2024). However, most existing chatbots are designed for one-to-one interactions, highlighting the need for intelligent agents capable of facilitating group conversations (Wagner et al., 2022), which require the support of multiple agents (Jiang et al., 2023). This need is particularly relevant for negotiating urban solutions in multi-user or community contexts. The main goal of this paper is to develop a multi-user and multi-agent AI system for chatbots, based on a large language model, specifically tailored to community contexts. The system will be used to support community dialogues and enhance collaboration among residents in civic engagement. This work aims to explore the potential of the multi-user and multi-agent AI system to facilitate inclusive, structured, and efficient group dialogues, especially in scenarios where diverse perspectives need to be considered and acted upon in real time.

The system architecture is built using Python, JavaScript, and HTML, with WebSocket technology enabling real-time interactions between multiple users. To ensure secure and scalable data management, all user input and conversation data is stored in a web-based SQL database hosted on Google Cloud Platform. At the core of the system's conversational intelligence is the Gemini-1.5-flash-002 model, which enables the chatbot to act as a proactive and context-aware moderator. The chatbot is designed as a multi-agent system, with different agents assigned to specific topic areas, including 'stakeholder connector', 'problem detector', 'communication navigator' and 'summary notetaker'. Interaction begins with an introduction led by the stakeholder connector agent, where users are encouraged to share information about themselves, and the connector agent collects personal attributes and labels that serve as the basis for subsequent group dynamics. Following the introduction, users engage in collaborative scenarios (e.g., completing the tasks in the game together) based on the predefined urban problems that need to be addressed. Meanwhile, the "problem detector" agent will dynamically identify key issues based on context and user input, followed by the "communication navigator" agent, which will manage potential conflicts between users. After the group discussion, the agent 'summary notetaker' will summarize the discussion messages and generate strategy suggestions for next steps. By leveraging community-specific agents and large language models, this study advances the design and application of multi-agent chatbots for public participatory processes and contributes to the intersection of artificial intelligence, human-computer interaction (HCI), and community engagement. We hope that the multi-user AI chatbot can make it easier for communities to discuss complicated tasks and help to effectively address real-world issues. In addition, we hope that the multi-user AI chatbot will lower the barrier to participation and improve the quality of engagement in community settings in the future.

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Key Words: Large Language Models, Participatory Planning, HCI, Civic Technology

Reimagining social infrastructure: Integrating libraries into mixed-use developments

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Track 2: Community Development

Individual Paper Presentation Submission

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Public libraries are a unique form of social infrastructure and the only organizations that are both free and open to all. The services they provide are not means-tested benefits that are targeted to only those who qualify. Rather, their services and resources are available to everyone, regardless of age, familial status, income, employment status, place of birth, citizenship status, race, ethnicity, religion, or any other ascriptive characteristics. They are third spaces that offer a place to relax or socialize without having to buy a coffee. Historically, public libraries in the US have been housed in stand-alone structures, thanks in part to Andrew Carnegie's funding of thousands of such public libraries across the country, but this is changing.

From Brooklyn to Chicago to Boston, cities are calling for the redevelopment of public library branches that are part of mixed-use developments. This research asks how cities are changing the development model when it comes to public library branches and how they are reimagining public libraries as forms of inclusive and accessible social infrastructure. Through a review of public library requests for proposals, development plans, and news media across the country, I document the evolving nature of public libraries and to what extent they advance planning goals of creating cities that are more equitable, diverse, and inclusive. I find that the newer mixed-use developments combine public libraries with housing, but the mixed uses also extend beyond this pairing, and the concept of a co-located public library is not new. Similar to the first public library Carnegie built in 1890, which was located in a five-story building along with an art gallery and a twelve-hundred-seat music hall, cities have been finding creative partners for public libraries, from health centers to retail, for decades. This research contributes to larger discussions within the field of urban planning about social infrastructure, inclusive and equitable development, and public services.

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Key Words: Public libraries, social infrastructure, mixed-use development, affordable housing

Restoring a Record, Reclaiming a Place: Collective Memory as Anti-Displacement Practice

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Track 2: Community Development

Individual Paper Presentation Submission

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Countering legacies of racialized disinvestment and cultural erasure, how can planners ensure redevelopment reflects — rather than overwrites — the histories of marginalized communities? This research proposes three dimensions of memory-based planning as tools for anti-displacement development. In partnership with a Community Land Trust (CLT) emerging in one of the first neighborhoods designed for Black homeownership in the American South, a planning scholar, resident researchers, community organizers, and affordable housing developers worked together to surface the neighborhood's long-observed history. Our collaborative process addresses displacement as both a physical and cultural phenomenon — one that fractures community identity, memory, and belonging (Fullilove, 2004). We respond to claims that redevelopment without historical recovery risks reinforcing the very patterns of exclusion it aims to redress (Hayden, 1995; Sandercock, 1998), and to calls for more inventive historical methods to counter the omission of Black life from institutional archives (Hartman, 2008).

Together, we incorporated a range of community-engaged historical methods into the CLT's formative organizing and engagement, including oral histories, archiving in resident homes and community centers, memory-based focus groups, participatory mapping, walking tours, co-curated neighborhood exhibits, historic markers, and the restoration of a historic home. Across these practices, three dimensions of memory-based, anti-displacement planning emerge: 1) archival recovery, 2) collective memorialization, and 3) tactical remembrance. Each offers distinct takeaways for restoring a record that honors those who remember the past and affirms their place in the future being built:

- 1) Archival recovery, where resident memories serve as finding aids in municipal archives — revealing new connections to documents previously disconnected from the neighborhood — while also surfacing materials held in homes, schools, and community centers;
- 2) Collective memorialization, where residents engage in shared reflections — through group workshops, participatory mapping, and oral history walking tours — that reveal broader patterns of racialized disinvestment, shifting narratives from individual neglect towards an understanding of structural injustices and the possibility for collective action; and
- 3) Tactical remembrance, where visible, place-based interventions — including historic markers, the restoration of a historic home, and a temporary, nine-exhibit neighborhood museum — physically demonstrate that redevelopment can move forward without erasing the cultural fabric of the past.

This work contributes to broader efforts to position grassroots preservation as a reparative practice (Roberts and Kelly, 2019), inviting planners to engage with memory as a foundation for more just futures. We offer new approaches for incorporating historical recovery into community development, and reflect on their significance for cultural repatriation and anti-displacement in practice.

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Key Words: Anti-displacement, collective memory, community land trusts, preservation, participatory planning

Rural Community Development Planning in the United States: Cases Illustrating an Integrated Approach

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Track 2: Community Development

Individual Paper Presentation Submission

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In their Introduction to the Routledge Companion to Rural Planning, Scott, Gallent, and Gkartzios (2019, p. 1) point to “an urgent need to reinvent rural planning for the 21st century,” yet the challenges facing rural areas have not been much reflected in planning scholarship, practice, or institutions (Hibbard & Frank, 2021). As one aspect of that reinvention, our studies of rural planning history, theory, and practice have led us to recommend that the field pay greater attention to rural communities and to “take a more broad-based view of development, to include not only economic growth but also social, cultural, environmental, and political equity and well-being” (Hibbard & Frank, 2024, p. 272).

Planning widely understands itself to be a derivative field that borrows and synthesizes from other fields. As a result, these fields have been rich sources for assessment, innovation, and expansion. One such cognate field that has relevance for rural planning is community development. As explained by Rios et al. (2024, p. 549), “Parallel to the urban school of community development is a second thread that grew out of self-help activities of late-nineteenth-century rural life. Less familiar to planning, the ‘rural’ school of community development has ties to the U.S. Department of Agriculture, land-grant institutions, and educational associations.”

These insights led us to review the rural community development (CD) literature to draw lessons for rural planning (Frank & Hibbard, 2024). In that study, we compared each field’s substantive knowledge, processes, and institutions. Focusing on lessons for practice in the United States, we found that the planning field is biased towards urban interests, the physical environment, formal processes, comprehensive planning, regulations, and government, all of which hinder planners’ effectiveness in serving rural communities. In contrast, we found rural CD to be well supported and successful through its emphasis of opposite elements – rurality, people, informal communications, project implementation, voluntary actions, and non-governmental partners. We thus offered suggestions for how rural planning could incorporate rural CD approaches, while retaining rural planning’s unique, complementary strengths.

Here we report the findings of empirical studies that follow from our rural CD literature review. We seek to understand the rural planning-community development nexus and interrogate the lessons above through case studies of community initiatives in two deep (remote) rural counties, one in Florida and one in Oregon. The cases cover actions taken by local leaders and practitioners to address significant, common rural concerns, including economic development, natural hazards, and community cohesion, using data collected through interviews, document analyses, and observations. We draw on concrete instances to illustrate the substantive knowledge, processes, and institutions involved in each field as they act separately and together to advance rural community development. The strong traditions and professional cultures in planning may make it difficult to embrace and/or collaborate with distinct and sometimes opposite practices. Thus, we conclude by identifying barriers to, and opportunities for, further integration of aspects of rural CD into rural planning.

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Key Words: rural planning, community development, interdisciplinary

Tejando Comunidad: Informal Health Solutions Among the Latinx Immigrant Population

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Track 2: Community Development

Individual Paper Presentation Submission

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Undocumented Latinx immigrants continue to face vulnerabilities in obtaining access to healthcare in the U.S. due to their unrecognized status, preventing them from receiving public benefits. Urban planning has studied these populations housing patterns (Chinchilla et al., 2022) and urban placemaking (Talen, 2012), but little has been explored in relation to their health care access. Current scholarship has only just begun to advocate for equitable measures centering marginalized populations (Williams et al., 2023). Previous planning studies explored mobility transportation obstacles immigrants and marginalized communities endure to get to health care facilities (Edward & Biddle, 2017). But this previous research overlooks the solutions low-income Latinx immigrants use to get access to health care in the U.S.

This study aims to center the Latinx immigrant population and their health-seeking behaviors to inform more effective planning approaches. This study's overarching research questions is: What solutions do Latinx immigrants engage in to receive healthcare access in the United States? Given that Latinos in the U.S. continue to experience unequal access to healthcare information, facilities, and services compared to their non-Latinx white counterparts (Hill et al., 2021). Despite greater barriers and less access to healthcare opportunities, a unique trend, the Hispanic Health Paradox, is observed among Latinx immigrants experiencing better health outcomes than native born Americans (Markides & Coreil, 1974). Specifically, Latinx immigrants exhibit higher life expectancy, lower death rates, and lower infant mortality rates than natural born residents (Fernandez et al., 2023). Centering immigrant populations is necessary to comprehend the proliferation of paradoxical health outcomes. Previous planning research has disregarded informal practices immigrants use to address their health needs. Reliance on informal mechanisms like health fairs, non-prescribed medicine, reliance on family members, or community health events can help rationalize and better explain the Hispanic Health Paradox (Madden, 2015).

To better understand the Hispanic Health Paradox and address literature gaps, this study will survey Latino immigrants participating at a local Dallas-Ft. Worth area health fair to gauge their health-seeking solutions. Our research implements an anonymous cross-sectional structured survey (n=88) targeted at the Latino immigrant community attending the Bi-National Health Fair, organized in part by the Mexican Consulate in Dallas. This survey samples the first of three health fairs the research team plans to survey to gauge the immigrant community in North Texas. The survey seeks to understand how health insurance availability among Latino immigrant health fair participants affects their access to and use of formal or informal medical behaviors. Specifically, their medical information sources, medical facilities used to receive or access care, and reliance on community events to receive healthcare. Health fairs are ideal data collection settings because the community trusts them as healthcare sources, and vulnerable populations rely on them for medical access.

Survey results confirmed the hypothesis that low-income Latinx immigrants address their health needs through informal means, such as reliance on community events. Despite a low sample size, preliminary results show that uninsured immigrants are more likely to rely on community events and community centers to access healthcare needs. These results can have public policy implications to better fund and recognize organizations facilitating health fairs for marginalized community members. Additionally, planners seeking to implement community-oriented development strategies can use health fairs and other community events to more effectively target hard-to-reach populations and improve community outreach.

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Key Words: Immigration, Community, Health, Informality, Latino/a

The Physical-Environment Features That Influence Social Capital: A Systematic Literature Review

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Track 2: Community Development

Individual Paper Presentation Submission

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The practices of urban planning and natural hazards management have been intertwined in the US at least since the 1970s, when planning agencies began to incorporate the latter as their goals (Baker & McPhee, 1975). While physical/engineering measures had been the predominant approaches to hazard risk reduction, since the turn of the century, the utility of the social approaches has been increasingly recognized. Among the social means the hazards literature has examined, social capital – the social networks and social norms that promote collective actions (Woolcock, 1998) – receives particular scholarly attention.

Many planning studies have examined social capital, despite not necessarily linking it with hazards. In particular, many have investigated how different physical-environment features influence the stock of social capital. Development density, land-use mix, and New Urbanist designs are among the features that have been visited (e.g., Lund, 2003). In fact, planning literature has accumulated a good volume of empirical evidence about what physical environment can affect social capital. However, there is no study synthesizing this booming volume of evidence, which is a problem.

For practitioners, this problem hinders research translation. Despite the substantial scholarly efforts, there is no holistic framework specifying what aspects of the physical environment planning should work on if it is to further social capital. This adds to the uncertainty in taking action to promote social capital, which can ultimately discourage planning agencies from using the social capital tool at all. Alarming, this uncertainty can be compounded when the existing evidence is conflicting – a common situation. An example is development density: while some studies suggested that a higher density can stimulate social capital, a good number of seminal texts (e.g., Freeman, 2001) suggested otherwise.

For planning scholars, this gap represents a missed opportunity to map out the physical-environment features that are understudied. The opportunity is also missed to highlight where existing evidence is conflicting and requires further investigation.

To address this gap, we conduct a systematic literature review on the existing scholarly literature that links urban planning with social capital. Specifically, we answer three research questions: (1) what planning literature has studied about social capital, (2) what physical-environment features have been empirically tested as significant for social capital, and (3) what the direction and mechanisms of the influences are.

Our review consists of two parts. The first part is a scoping review. We extract from each existing study the issue it examined and then thematically group these issues. This provides a snapshot of what planning literature has studied about social capital.

The second part is a textual narrative synthesis guided by Popay et al. (2006). We select from the scoping review the studies explicitly discussing the relationship between physical environments and social capital. We then (1) identify the studies that empirically test the relationship, (2) extract from them the physical-environment features

that influence social capital, and (3) code the direction of the influence. The mechanisms behind the influences are also coded.

Where the evidence conflicts, we refer back to the samples and designs of the primary studies. Based on this examination and supplemented by relevant theories, we derive the possible reasons as to why the conflicting evidence emerges. We also generate a more detailed specification of when a given physical-environment feature may promote social capital and when it can instead weaken the capital.

The ultimate outcome of the synthesis is a tabulation of physical-environment variables that affect social capital. This can be used directly by practitioners to design policies aiming at social capital, which can ultimately contribute to community hazard resilience.

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Key Words: Social Capital, Community Resilience, Land Use Planning, Built Environment, Systematic Review

The Public Library Model: Planning for Resilience to Economic, Climate, Health, and Political Crises.

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Track 2: Community Development

Individual Paper Presentation Submission

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With 9,000 public library systems in the US, libraries are almost omnipresent community assets. Libraries free and open environments and librarians' inclusive and caring ethos make libraries quintessential third spaces. They also serve as de facto community resilience hubs. Our team's recent work in 13 Midwestern states, shows that libraries offer free and universal information access beyond collections, provide safe spaces and resources for learning, civic engagement, formal and informal social gatherings, and programs for all ages. As digital access and literacy have become essential in most aspects of economic life, libraries provide computers and internet services, and librarians help patrons fill in and submit job applications and access government and social services. Libraries also serve as formal and informal cooling/warming centers during extreme weather events, and some function as emergency information hubs during disasters. Most pivoted creatively during the COVID crisis and many maintain new services, e.g., outdoor WIFI hotspots -arguably an indicator of resiliency (Laurian et al. 2024). While libraries seek to promote safe and inclusive environments and sound information to all patrons, they have, in recent years, come under intense scrutiny and political pressures for some of their programs and collections, e.g., with book challenges and book bans, from both state legislatures and local residents.

This paper presents results from a 2024 survey of 805 library directors in all US states and territories, supplemented by interviews. It builds on a project funded by the Institute of Museum and Library Services (gutted by executive order on 3/31/2025) developed by scholars in Urban Planning, Library and Information Science, Social Work, Sociology, and Business. The survey provides a comprehensive picture of libraries' community resilience impacts, defined as library programs and practices that address local social, economic, environmental, and political challenges. We focus particularly on the ways libraries (1) support local civic life and community engagement, (2) help patrons access economic and educational opportunities, (3) serve as informal and formal resilience and disaster-response hubs, (4) innovated during COVID and retooled COVID-triggered innovations into enhanced services, and (5) respond to political book challenges and book bans. We explore potential regional differences across the country, and examine the impact of libraries' resources, funding streams, and state political contexts on their interests in, and ability to, deliver community resilience programs.

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Key Words: Resilience, Libraries, Information, Preparedness, Adaptation

The Role of Urban Heat Islands in Short-Term Residential Moves in San Antonio, USA

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Track 2: Community Development

Individual Paper Presentation Submission

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Environmental conditions play a crucial role in shaping settlement choices. In recent years, climate change has increasingly influenced human mobility, with both direct effects and indirect consequences. The Urban Heat Island (UHI) effect is a prominent phenomenon associated with urban climate change and has been demonstrated to exert a significant impact on the quality of the living environment, consequently reducing the overall well-being of urban residents. However, large-scale evidence on the impact of UHI on residential mobility remains limited. Therefore, this research addresses a central question: Does UHI influence short-term household mobility in U.S. cities, and how do socio-economic factors like green infrastructure and income interact with this process?

This study focuses on San Antonio, Texas—a rapidly warming, high-mobility city—as a case study to explore how disparities in land surface temperature (LST) intersect with income, green infrastructure, housing prices, and energy burden to influence short-term residential mobility between 2018 and 2023. Building on climate adaptation theory and the literature on environmental inequality, the research frames UHI as both an environmental and socio-spatial driver of intra-urban change.

The research utilizes satellite-derived land surface temperature (LST) data and raster-based tree canopy cover. These environmental variables are integrated with household-level data, including economic indicators (e.g., income, housing appraisal values, electricity burden), mobility status, and other demographic covariates. This enables a fine-grained analysis of how UHI and socio-economic conditions jointly influence short-term residential mobility. A two-stage analytical approach is employed. First, Spearman's rank correlation tests and chi-square analyses are conducted to examine whether higher LST values are disproportionately concentrated in lower-income areas. Second, a binomial logistic regression model is used to assess the relationship between land surface temperature (both its absolute level and interannual change) and household mobility status. The model incorporates a rolling-window framework to capture short-term mobility patterns and control for covariates including housing price fluctuations, income level, energy burden, and other demographic characteristics.

Findings reveal that higher summer LST levels are associated with increased short-term residential mobility, especially among lower-income renters in neighborhoods with minimal green infrastructure and higher energy burden. The findings advance planning scholarship by providing new empirical evidence for how climate stress interacts with housing and infrastructure inequality to influence urban mobility.

This research underscores the need for targeted green investment and energy equity strategies in climate-vulnerable neighborhoods. Cities must incorporate UHI mitigation into housing and infrastructure planning to reduce involuntary displacement and promote climate resilience. Additionally, these findings highlight the importance of integrating environmental justice considerations into urban heat adaptation efforts.

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Key Words: Urban Heat Island, Climate-Induced Mobility, Environmental Inequality, Green Infrastructure, Housing Displacement

The Shifting Geography of Nonprofit Intermediaries

Abstract ID: 1844.0.0.95.2025

Track 2: Community Development

Individual Paper Presentation Submission

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Nonprofit organizations have emerged as critical intermediaries supporting low-income and minority homeownership, delivering essential intermediation, referrals, and counseling support. This study examines the post-pandemic spatial reconfiguration of crucial intermediaries—HUD-certified housing agencies, place-based anchor institutions, and faith-based organizations. Using spatial analysis and logistic regression, it assesses how changes in nonprofit networks between 2019 and 2024 influence loan approvals. Kernel Density Estimation (KDE) reveals a spatial redistribution of intermediaries, with declines in urban areas—especially Cook County—and increased suburban institutional density. Analyses of Home Mortgage Disclosure Act (HMDA) data indicate that proximity to housing institutions positively impacts cash-out refinance approvals but has limited influence on home purchase loans, challenging assumptions about the universal benefits of nonprofit networks. Findings suggest that while intermediaries support post-purchase stability, structural barriers impede equitable mortgage access. The study underscores the need for policy interventions that strengthen nonprofit networks, address racial disparities in lending, and enhance intermediary effectiveness in supporting first-time homebuyers. These insights contribute to broader discussions on housing equity.

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Key Words: Nonprofit Intermediaries, Spatial analysis, Mortgage Access, Homeownership Disparities, Housing Equity

Understanding Foot Traffic Through POI Diversity and Clustering: A Spatial Data-Driven Approach

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Track 2: Community Development

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Foot traffic data helps business operators and the government refine retail location strategies and improve the visit experience (Lee, 2024; Chang et al., 2023). A mix of point of interest (POI) clustering enhances economic output. (Qian et al., 2022). Although some studies have linked POI and foot traffic (Islam et al., 2021; Yao, et al., 2024), none have discussed how POI clustering impacts foot traffic. This research investigates the relationship between foot traffic patterns and the types of POI clustering in Honolulu, Hawaii, aiming to identify actionable insights that can enhance urban walkability. The research integrates a comprehensive dataset encompassing POI attributes, including commercial establishments, public services, and recreation areas, coupled with pedestrian traffic data obtained from privacy-preserving visitor analytics over a three-month observation period (April, May, and June 2024). Utilizing geospatial analysis, this study measures POI diversity based on the Simpson Diversity Index and applies multivariate clustering techniques to analyze the spatial distribution of POIs and their relationship with pedestrian activities.

Findings from the study reveal complex relationships between POI diversity, clustering, and foot traffic. Areas characterized by high POI diversity generally experience greater foot traffic, underscoring the positive correlation between high density, high diversity POIs, and pedestrian activities. It also reveals that certain combinations of POI will further promote pedestrian activities. For example, if two grids have similar diversity index, the grid with apparel and accessory stores has higher foot traffic than those that don't have. However, notable exceptions were observed in some high-diversity zones where foot traffic was paradoxically low, indicating that factors other than mixed-use zoning and POI diversity influence walking behaviors, such as the location of POIs relative to residential areas, the quality of pedestrian infrastructure, and the specific types of predominant businesses significantly.

This study further discusses the broader implications of these findings for urban planning and policy-making. For example, high POI diversity near low-density residential areas demonstrates less foot traffic rates, suggesting land use strategies that shorten residential and commercial distances or improve public transit connections between residential and commercial areas would improve foot traffic. The study contributes to the field of urban planning by providing empirical evidence on the characteristics of POI clustering that enhance pedestrian-friendly environments, offering valuable insights for policymakers and planners seeking to foster more walkable cities.

In conclusion, this research underscores the necessity of considering both the diversity and strategic placement of POIs in urban planning to effectively enhance walking behavior. The insights gained from the Honolulu case study point towards broader applications for improving urban livability and sustainability through the promotion of diverse, pedestrian-centric POI clusters. Future research should explore these relationships in different urban contexts to validate the findings and further refine strategies for promoting walkability in cities globally.

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Key Words: Walking behavior, POI clustering, POI diversity, spatial analysis

Urban Heat Stress and Emergency Medical Incidence: Hourly Insights from Human Energy Budget

Abstract ID: 1844.0.0.1037.2025

Track 2: Community Development

Individual Paper Presentation Submission

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Background: Global climate change and the urban heat island effect are increasingly contributing to environments that negatively impact the health of city residents (Yadav et al., 2023). The design of cities can modify microclimates, potentially alleviating or worsening these heat-related conditions. This study aims to analyze hourly patterns between the human energy budget and heat-related Emergency Medical Service (EMS) incidents to assess how thermal comfort and hourly heat effects influence heat-related human health (Lee & Brown. 2022; Seong et al., 2023). This study focuses on using weather data and EMS records from Cincinnati to assess the health impacts of extreme heat.

Method: This study uses hourly weather data and EMS records from Cincinnati, Ohio, focusing on the hot seasons (June–September) of 2019 and 2020. EMS incident categories included heat exposure, cardiovascular distress, headache, and respiratory symptoms. A total of 10,912 EMS cases were selected that involved heat exposure, cardiovascular distress, headache, or respiratory symptoms. The COMFA (COMfort Formula) model was used to estimate the human energy budget, which represents net heat exchange between the human body and the environment. To analyze time-lagged health responses, a distributed lag non-linear model (DLNM) was applied. Spatial analysis was conducted by geocoding EMS incident locations and overlaying them with land cover (impervious surfaces, vegetation, and tree canopy) and heat vulnerability indices at the census tract level, including demographic variables such as age, income, and housing quality.

Results: The analysis reveals that Higher HEB values were significantly associated with increased EMS calls for cardiovascular and headache symptoms, especially within 0–6 hour time lags. Each 10 W/m² increase in HEB led to a relative risk (RR) of 1.37 (95% CI: 1.22–1.54) for cardiovascular cases and 1.19 (95% CI: 1.08–1.31) for headache cases. Respiratory symptoms showed no significant association. EMS incidents were highly concentrated in census tracts with high impervious surface area and low vegetation coverage. Vulnerable neighborhoods with higher poverty and elderly populations experienced disproportionate rates of EMS incidents, aligning with locations of elevated HEB. Peak EMS activity occurred between 2 p.m. and 6 p.m., indicating strong diurnal patterns in thermal stress.

Discussion: This study contributes to planning scholarship by integrating hourly thermal comfort metrics with real-world health data, providing empirical evidence of how microclimate affects urban health on a fine temporal scale. The findings underscore the importance of designing urban environments that reduce human thermal load, particularly in vulnerable neighborhoods. Strategies such as increasing tree canopy, reflective materials, and shaded spaces can help moderate HEB and reduce heat-related health incidents. Furthermore, the use of hourly HEB patterns offers planners a novel metric for forecasting EMS demand and prioritizing interventions during extreme heat events. This approach provides a transferable framework for integrating climate-adaptive design into public health planning, especially as cities face more frequent and intense heat waves due to climate change.

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Key Words: human energy budget, hourly thermal comfort, extreme heat, emergency medical service, climate-adaptive planning

Track 2 Research in Motion (RiM)

Assessing Authenticity in City Branding: The Case of Memphis, Tennessee

Abstract ID: 1842.0.0.445.2025

Track 2: Community Development

Research-in-Motion Presentation Submission, Research currently in process

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Memphis has a rich cultural heritage -- represented in music, history, and food. Memphis is known as the birthplace of blues and soul music, the home of Graceland, and the site of civil rights history at the Lorraine Motel. Cities construct and project their city image through branding efforts. The main goal of city branding is to present it to the world. Other reasons for city branding are to attract tourists and foreign investors. These enable to improvement of the local economy, market cities internationally, and promote civic identities (Mihalís, 2005). Memphis has been subject to all the rationales that make image an important part of public policy and has attempted to promote its cultural history to appeal to creative class workers and increase consumption-oriented development.

Cities initiating branding efforts to attract tourists, investors, and global recognition create tension between authenticity and commercialization. The tension is rooted between top-down branding strategies, such as iconic landmarks and mega-events, and bottom-up lived experiences of the residents. This study investigates the construction and perception of city image in Memphis, Tennessee and examines the tensions between authenticity and commercialization in city branding. Branding is critical for economic development but risks dilution through commodified tourism strategies. This research addresses three questions: (1) Do Memphis's organizational branding narratives reflect its cultural, historical, and social attributes? (2) To what extent do residents perceive these branded images as authentic representations of the city? (3) How can authenticity be systematically measured in urban branding contexts?

The study will employ a mixed-methods design integrating qualitative and quantitative approaches. It will combine purposive sampling for selecting organizations based on predefined attributes (architecture, history, science, society, culture, economy) and company types (formal/informal, local/international), followed by semi-structured interviews. For residents and tourists, the design will include a randomly sampled dichotomous survey (agree/disagree) using the curated images (based on the semi-structure interview) to assess perceptions of authenticity in Memphis. This dual-method approach will ensure triangulation between organizational branding strategies and public perceptions.

The study will advance scholarship by bridging Lynch's (1960) physical-centric model with Lefebvre's (1990) tripartite framework of conceived, perceived and lived experience (Piazzoni, 2018). This study will contribute to the conversation by exploring how Memphis's branding efforts align with or diverge from its cultural and historical realities. By identifying the factors that determine how residents perceive a city's branding efforts, the study will inform urban planners, policymakers, and marketers about the significance of aligning branding strategies with the city's true identity. The findings may encourage cities to prioritize cultural heritage, history, and the lived experiences of residents while creating branding initiatives. This will lead to authentic branding strategies. The results of the study will also be significant for cities like Memphis, which are seeking to rebrand themselves or

improve their existing branding strategies. In the broader context, the research will contribute to the growing field of urban studies by providing a framework for measuring the authenticity of city branding. This can be applied to other cities seeking to ensure that their branding efforts align with the aspirations of their residents and the realities of their communities.

The study will challenge the idea of city branding. The research advocates reimagining branding efforts to use it as a tool to benefit the residents and the community rather than focusing solely on economic development.

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Key Words: Branding, Image, Identity

Local Schools and Social Infrastructure: Responding to Crisis in Diverse Neighborhoods

Abstract ID: 1842.0.0.132.2025

Track 2: Community Development

Research-in-Motion Presentation Submission, Research currently in process

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Schools are fundamental institutions within neighborhoods, serving not only their traditional roles in education but also as critical support hubs for immigrant families and low-income populations (Forrester et al., 2020; Vincent, 2006). In diverse urban areas such as Baltimore City's Southeast district, public schools have provided trusted spaces where families can access vital information and services in addition to education. For many immigrant families, schools are essential entry points into the broader community, offering support that extends far beyond the classroom (Bierbaum et al., 2023). Parents frequently turn to schools for assistance in navigating complex issues such as interactions with law enforcement, mental and physical health concerns, and access to social services that are otherwise difficult to obtain.

This study examines the role of public community schools—and their collaboration with nonprofit and faith-based organizations—during two recent crises: the COVID-19 pandemic and the sociopolitical turmoil triggered by a new federal administration's anti-immigrant policies in the United States. While Southeast Baltimore is home to a highly diverse population, crises such as these exacerbate existing challenges, including fear, misinformation, and discrimination, increasing the vulnerability of minority and immigrant communities. Understanding how public schools and other organizations respond in these contexts is critical for ongoing and future events.

Based on qualitative interviews conducted between 2023 and 2025 with school principals, community school coordinators, and representatives from nonprofit and faith-based organizations, this research explores how these institutions addressed the crises. Preliminary findings reveal that although social divisions between long-standing residents, newly arrived immigrants, and younger, more affluent newcomers became more pronounced, partnerships between schools, churches, and nonprofits deepened. These organizations worked collaboratively to implement holistic, coordinated responses that addressed residents' urgent needs. They served as key intermediaries, providing accurate information on public health and legal rights, distributing food and medical supplies, and offering mental health support by providing a safe and trusted space.

This case highlights the evolving role of public schools and NPOs as central pillars of social infrastructure in diverse urban neighborhoods. Their ability to foster trust and act as reliable, culturally responsive sources of support underscores their essential function during times of crisis. However, the findings also suggest that without sustained collaboration among a broad range of organizations—including those beyond their immediate focus—these efforts risk losing their effectiveness. Collaborative, community-based approaches must be established and strengthened during non-crisis periods to promote long-term neighborhood resilience and inclusion.

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Key Words: Diverse Neighborhood, School, Immigrant, Covid19, Social Infrastructure

Residential Energy Use and Its Influence on Temperature-Related Mortality in Vulnerable Populations

Abstract ID: 1842.0.0.84.2025

Track 2: Community Development

Research-in-Motion Presentation Submission, Research currently in process

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The seventh goal of the United Nations Sustainable Development Goals (SDGs) aims to provide universal access to affordable, reliable, and sustainable energy for everyone (UN, 2015). Despite these efforts, energy inequality remains a significant issue in many regions in the world. Like many advanced countries in North America and Europe, South Korea archives nearly 100% electricity accessibility, along with a high penetration rate of city gas and natural gas. However, regional disparities are evident, and energy-vulnerable population groups are exposed to higher risks during extreme weather conditions in both summer and winter (Yang et al., 2024). As climate change intensifies, with prolonged summers and winters, these vulnerable groups face year-round exposure to such risks.

Vulnerable groups tend to have low household incomes and live in poor housing conditions (Zhao et al., 2022). They often cannot afford sufficient energy to maintain a comfortable indoor temperature, which is essential for preserving health (Benevolenza & DeRigne, 2019). While previous studies have addressed the energy consumption in climate change era, most have focused solely on predicting energy supply and consumption. Few have directly examined the impact of energy consumption on temperature-related mortality, highlighting the need for further investigation.

Against this backdrop, this study aims to assess the impact of energy consumption on temperature-related mortality rates among vulnerable population group. The study period is set at 18 years from 2005 to 2022, and spatial scope includes a total of 229 jurisdiction (SIGUNGU in Korean) in South Korea. For energy consumption, we look into both residential electricity usage and gas consumption, while temperature-related mortality among vulnerable groups was categorized into mortality rates due to cold and heat among infants, children, and the elderly.

In this following, we conduct a two-fold analysis, assessing overall and spatial inequality and Generalized Additive Model (GAM). First, we measured the overall inequality in energy consumption and temperature-related mortality using the Gini index, and conducted a Local Indicators of Spatial Association (LISA) analysis to reveal the spatial inequalities. Second, we hypothesized a nonlinear relationship in which increases in energy consumption reduce temperature-related mortality among vulnerable groups up to a specific threshold. After the point, the mortality reduction effect would become less pronounced. By conducting GAM, we examine in detail the impact of energy consumption on temperature-related mortality among vulnerable groups to derive the nonlinear effects and the threshold at which these effects change.

Our study contributes to examine the direct impact of energy consumption on temperature-related mortality among vulnerable groups, thereby shedding light on the complex interplay between energy inequality and adverse health outcomes. Furthermore, in the context of climate change and the intensification of extreme weather conditions, our findings underscore the urgent need for policies that reduce regional energy disparities and protect at-risk population groups from the health impacts of prolonged periods of extreme cold or heat.

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Key Words: Energy Inequality, Thermal Mortality, Vulnerable Population, Extreme Climate, GAM

The Paradox of Vacancy: Speculation, Planning, and the Transformation of Third Places

Abstract ID: 1842.0.0.138.2025

Track 2: Community Development

Research-in-Motion Presentation Submission, Research currently in process

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This project redefines vacancy of third places such as cafes, restaurants, and art spaces—as more than physical emptiness, positioning it as both a disruption of communal and socio-economic systems and a strategy of financialization. In growing cities like Seattle—particularly in Pioneer Square and the Chinatown-International District—vacancy does not indicate decline but an uneven urban process shaped by speculative investment, policy decisions, and shifting land-use priorities. While community-driven efforts seek to reclaim vacant spaces, these same interventions can paradoxically attract speculative capital, troubling the relationship between vacancy prevention, memory preservation, and displacement. Through mapping business closures, analyzing historical business patterns, and tracing how public and private investment firms shape vacancy, this research interrogates how planning policies sustain commercial and ecological vacancies. Using archival research, policy analysis, and spatial mapping, this study reveals how vacancy operates as both a constraint on community stability and a tool for restructuring urban space. By centering neighborhood histories, planning frameworks, and the material conditions of third places, this research uncovers how vacancy is leveraged, resisted, and negotiated in the face of ongoing urban transformation.

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Key Words: Vacancy, Speculation, Third Place, Urban Change

University-Community Engagement for Neighborhood Planning: The case for extended partnerships

Abstract ID: 1842.0.0.821.2025

Track 2: Community Development

Research-in-Motion Presentation Submission, Innovative practices, concepts, and ideas for pedagogy

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In poor, post-industrial cities, neighborhoods often do not have the resources to effectively plan (Mallach 2018, Rohe 2009, Peterman 2000). Building on the work of Reardon (2019), this paper shows that urban planning departments and non-profit partners can fill vital gaps in producing data, creating spaces for dialogue, and finding financial support for neighborhood-led planning efforts. This paper argues for the importance of direct involvement of non-profit mediating organizations in the design and delivery of courses for neighborhood-level planning. In 2022, the Ball State Department of Urban Planning established a multi-year effort to enhance local neighborhood planning through a collaboration with the Muncie Land Bank. Ball State faculty and staff designed and delivered neighborhood planning classes with the goal of growing local capacity for effective community development planning by augmenting opportunities for public participation and knowledge production in a specific neighborhood (Innes & Booher 2004). The courses combined student research, regular community input sessions and building new empirical knowledge about the built environment through surveying and analysis. Because land bank staff was deeply involved in the design and delivery of courses, they were able to build on student analysis and plans to acquire property, to write (and receive) grants, and to build development partnerships. The practical and financial successes of the land bank enabled them to hire additional staff, including former students. As a result of initial success, the department and the land bank have elaborated a model for university-community collaboration that will serve several low-income neighborhoods in Muncie, Indiana. Drawing on more than three years of engaged scholarship, as well as interviews with non-profit and community-based partners, this paper details the mutual benefits of long-term, university-nonprofit-community partnerships as well as the challenges of maintaining these relationships in the context of resource deprived higher education and urban settings.

Citations:

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Key Words: Community Development, Neighborhood Planning, Engaged Scholarship, Land Banking, Housing

Who Leaves and Who Stays?: the Role of Socioeconomic Status and Place Attachment in Displacement

Abstract ID: 1842.0.0.1118.2025

Track 2: Community Development

Research-in-Motion Presentation Submission, Research currently in process

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While urban development initiatives are enhancing our cities, displacement that often accompanies such progress has been persistently overlooked. Displaced people and those facing displacement pressure are often underrepresented by governments and media. Understanding of mechanisms of displacement would inform policy makers to promote just development.

To understand the mechanisms, we should investigate a process that precede residents' relocation—that is displacement pressure, which is related to residents' feelings. Residents' response to displacement pressure may differ. However, there are two knowledge gaps. First, there is an inconsistency between quantitative and qualitative studies on whether gentrification induces displacement: qualitative studies often demonstrate such an effect, while quantitative studies do not. Second, there are inconsistent arguments about socioeconomic status (SES) and place attachment. Critical theorists argue that lower SES groups rely more on place attachment or community bonds (Harvey 1995; Betancur 2011) due to the scarcity of exchange values, but urban ecologists and urban precarity scholars contend that higher SES groups have stronger feelings of place attachment as lower-SES people do not have enough resources to construct those feelings as they are struggling with daily survivals (McKenzie 1921; Lancione 2015). Scholars in community psychology assert that SES or social class may play a minimal role in constructing place attachment (Sampson, 1988; Hummon 1992).

To fill these gaps, I address two questions: 1. How do residents of varying SES construct their community sentiments? 2. How do these differing sentiments influence responses to displacement pressure, the decision to move out, in a gentrifying neighborhood?

Pilsen, a historically Latino neighborhood in Chicago that has been gentrifying for decades and becoming socioeconomically diverse, is an ideal place for this research. Residents' various income and educational levels and a gentrification index that I developed, consisting of sociodemographic and housing indicators, demonstrate this. I used data collected from a mixed-method approach. First, I conducted an in-person survey (313 respondents). The questionnaire was designed by integrating the extant literature in different fields: community psychology and epidemiology. Second, I used factor analyses to measure respondents' community sentiments and displacement pressure and conducted regression analyses to evaluate the association between socioeconomic status, feelings of place attachment, displacement pressure, and the decision of moving out. I adjusted for confounding factors using covariate adjustment based on directed acyclic graphs and addressed potential sampling bias by raking. I also considered potential non-linear associations.

There are four key findings. First, among individuals who had lived in the area for more than 15 years, those with higher SES reported lower levels of place attachment. Second, individuals with higher levels of place attachment experienced greater displacement pressure and perceived neighborhood changes due to gentrification more greatly. Third, individuals with higher place attachment were more likely to stay in the neighborhood, while those who experienced displacement pressure or with higher SES were more likely to move out. Fourth, there was an interaction between displacement pressure and feelings of place attachment in their relation to the decision to move out; the effect of displacement pressure on the decision to move out was higher among individuals who have higher place attachment.

Findings contribute to understanding the mechanisms behind displacement pressures and the decision to move. They inform policymakers about the varied responses in gentrifying neighborhoods, shaped by residents' SES, length of residency, and place attachment; their effects may diverge from patterns reported in existing quantitative gentrification studies.

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Key Words: Displacement Pressure, Gentrification, Place Attachment, Displacement, Neighborhood Change

Track 3 – Economic Development

Track 3 Pre-Organized Session Summaries and Abstracts for the Sessions

Can Local Governments Repair Harm? Moving Toward Equity and Reparative Planning

Abstract ID: 1840.0.0.130.2025

Track 3: Economic Development

Pre-Organized Session Summary

Session Includes: 1844.0.0.64.2025, 1844.0.0.70.2025

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The COVID-19 pandemic and its aftermath ushered in a new, more equity focused period, with an infusion of funds from the American Rescue Plan, and calls for reparative planning to address structural inequities. While this policy window may be closing with the Trump Administration, it is important for planners to explore the extent to which equity was embraced by US local governments, and the attitudes, processes and actions that differentiate cities that did more to address equity. In this session we explore the extent to which local governments included equity in their ARPA Plans, and if such plans made a difference in ARPA expenditure choices. We also look at several policy innovations – from universal basic income experiments, to new tax credits for families, to reparations programs. This empirical evidence is used to advance our theoretical understanding of the role of planning, economic development and our understanding of the potential and limits of local action.

Learning Objectives:

- Learn how local governments are creatively using their Am. Rescue Plan funds and how AI tools can be used to assess plans.
- Learn about the policies and practices that promote equity at the local and state levels.
- Learn about the opportunities for a reparative planning approach, both theoretically and practically.

Stuck in Neutral: Did US Local Governments Pursue Equity in their American Rescue Plans?

Abstract ID: 1844.0.0.64.2025

Track 3: Economic Development

Pre-Organized Paper Presentation

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Since the Great Recession some urban scholars have argued that cities have become austerity machines cutting services to those in greatest need. Others find cities balance service needs within fiscal constraints in a process of pragmatic municipalism (Warner et al. 2023). Progressive action is also possible, and can be used to broaden local government action and address structural constraints (Doussard and Quinn 2025, Diaz Torres and Warner 2024). But this typically falls short of a more radical reparative planning approach called for by some planning scholars (Williams 2024, Poe 2023). However, the possibility for structural transformation and progressive reform was made possible with the American Rescue Plan of 2021 which provided flexible funds for cities and counties to address structural inequities laid bare by the COVID-19 pandemic.

We assess the Recovery Plans submitted to the US Treasury by large US cities and counties regarding their ARPA investments. Using a framework for equity that includes redistribution, procedural and conceptual dimensions as well as measures to detect masquerading (false positives), we develop a ChatGPT-based equity protocol to assess language, action and processes to see to what extent equity was prioritized in ARPA investment plans. We use our ChatGPT protocol to assess the progressiveness of the ARPA Recovery Plans for all 327 Tier 1 governments (over 250,000 population). We then assess the factors that might differentiate the equity rankings of each plan. These include local government context: capacity, politics, local need, fiscal limitations, partisan voting, and local Black Lives Matter protests (during 2020) as well as socio-demographic characteristics. We find that most plans are neutral. Across all plans, we see pragmatic municipalism responses as local governments cautiously address equity while ensuring ARPA benefits extend more widely to the broader community. This may be strategic now that the Trump Administration is challenging the equity focus of all government activity.

Citations:

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Key Words: Equity, American Rescue Plans, ChatGPT, Plans

Do Plans Matter? The Role of Local ARPA Plans in Shaping Equity Investments

Abstract ID: 1844.0.0.70.2025

Track 3: Economic Development

Pre-Organized Paper Presentation

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The effectiveness of local plans in translating intentions into actions remains a central concern in urban planning. This challenge becomes particularly pressing as local governments expand their equity roles to advance progressive initiatives. Do plans matter in shaping progressive local actions, particularly in times of crisis? This study focuses on the American Rescue Plan Act (ARPA) during the COVID-19 pandemic, which encouraged local governments to invest in public health and address structural inequalities. We investigate whether the progressiveness of local ARPA plans influences expenditure choices and leads to greater investments in equity-oriented areas.

We employ ChatGPT to comprehensively analyze how 327 Tier 1 US cities and counties (over 250,000 pop) spent their ARPA funds. ARPA encouraged local governments to focus on public health and addressing negative economic impacts, especially in minority and low income neighborhoods. At the same time, ARPA gave local governments flexibility by allowing them to claim up to 68% of funds as “revenue replacement”. We use ChatGPT to analyze 77,811 individual project descriptions of funds recorded under “revenue replacement”. This enables us to recode expenditures back into the broader ARPA categories. We find these expenditures are similar to the expenditures reported in the official ARPA categories, except that proportionally more revenue replacement funds are spent on public sector capacity.

Next, we run regressions on the distribution of ARPA expenditures. Our independent variables include the level of progressiveness in the local government ARPA plans, as well as local socioeconomic needs, government capacity, fiscal stress, and political influences, including Republican control. This allows us to compare equity claims with equity actions while controlling for local constraints. Our regression analysis reveals that local ARPA plans play a critical role in driving equity investments, particularly in public health and economic relief for households, affordable housing, and community services. However, we also find evidence that some local governments strategically used their ARPA funds to enhance public sector capacity while framing their actions within an equity narrative. By examining the relationship between planning and implementation, this study highlights the need for stronger link between equity discourse in local planning and actual investment in local actions.

Citations:

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Key Words: Local plans, Equity investments, American Rescue Plan Act, Large Language Models

How Financial Incentives and Zoning Shape the Warehouse and Logistics Landscape

Abstract ID: 1840.0.0.643.2025

Track 3: Economic Development

Pre-Organized Session Summary

Session Includes: 1844.0.0.499.2025, 1844.0.0.438.2025, 1844.0.0.433.2025, 1844.0.0.243.2025, 1844.0.0.417.2025

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The past decade has been marked by a boom in large-scale warehousing and distribution facility construction, driven by growth in e-commerce, changing technology, and logistics consolidation, accelerated by the COVID-19 pandemic. This result has been development of ever-larger distribution facilities on the peripheries of metropolitan areas coupled with more proximate fulfillment centers. This session explores the economic development and land use planning processes and practices that are impacting siting of warehouse facilities and ultimately impacts of people and communities. We will present case studies from multiple states, e.g. CA, IL, NC, to depict which communities are encouraging and discouraging these facilities and what mechanisms they are employing.

Learning Objectives:

- Understand the causes of the boom in warehouse and logistics facilities in North America and the likely trajectory of such development
- Understand how financial incentives for municipalities influence zoning and siting for logistics facilities
- Understand how zoning and associated development approval processes are influencing siting for logistics facilities

Economic Development Incentives for Warehouse Construction: Evidence from Amazon's Chicago Expansion

Abstract ID: 1844.0.0.499.2025

Track 3: Economic Development

Pre-Organized Paper Presentation

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This paper examines the use of economic development incentives for the construction of warehouse and distribution facilities. The past decade has been marked by a boom in large-scale warehousing and distribution facility construction, driven by growth in e-commerce, changing technology, and logistics consolidation, accelerated by the COVID-19 pandemic. Given the infrastructure strain and environmental impacts of these facilities, many municipalities have sought to limit warehouse construction within their bounds, going so far as to institute construction moratoriums. However, other municipalities in the same regions have instead been eager to attract these facilities, doing so with a variety of tax incentives and economic development subsidies. Incentives remain a controversial economic development strategy, as there is limited evidence that they positively contribute to job growth and influence firm location decisions (Donegan et al., 2019). Furthermore, use of incentives comes with opportunity costs in the form of increased household taxes and reduced public services and may serve to exacerbate inequalities (Bartik, 2020; Lippert & Moore, 2020; Jansa, 2021;). While use of incentives is heavily studied, little work examines incentive use for warehouse construction in the contemporary logistics context. This paper catalogs the use of economic development incentives provided for warehouse facilities operated in the Chicago region by Amazon—the largest warehouse tenant in the U.S., to ask two questions: (1) what types of incentives at which scales are subsidizing warehouse construction, and (2) does incentive use exhibit patterns based on municipal demographic and fiscal characteristics? Data on incentives is assembled from government reports, planning documents, media coverage, and data collected by Good Jobs First's subsidy tracker and is analyzed alongside municipal demographic and fiscal data from annual financial reports.

Three findings emerge. First, incentive use is widespread, with over half of Chicago-area Amazon facilities receiving at least one form of incentive. Second, warehouse incentive programs are administered at the local, state, and federal levels by multiple entities, and are frequently layered. Third, the use and type of incentive exhibited patterns based on local municipal characteristics, reflecting the presence of varied entrepreneurial development regimes (Craft et al., 2020). Fiscally distressed and heavily indebted municipalities were more likely to provide large-dollar incentives through tax increment financing than their fiscally healthy counterparts, raising important questions about the opportunity costs and tradeoffs of these incentive strategies. This underscores the need to consider incentive use in context and in conversation with contemporary debates in freight planning about how to facilitate more efficient and equitable logistics planning outcomes.

Citations:

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Key Words: warehouses, logistics, economic development, incentives, subsidies

Warehouse in the Garden: The Changing Logistics Landscape of the Port of New York-New Jersey

Abstract ID: 1844.0.0.438.2025

Track 3: Economic Development

Pre-Organized Paper Presentation

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Over the past three decades, the state of New Jersey has seen a rapid expansion in commercial warehouse construction driven by rising import flows through the Port of New York-New Jersey and a speculative industrial land market. Development is occurring not only along major thoroughfares close to the port but also in suburban and quasi-rural municipalities where earlier modes of production and consumption are becoming obsolete. These include agriculture, manufacturing, sprawling office parks, and enclosed malls. Such development mirrors trends across the United States' port cities, particularly Los Angeles-Long Beach (De Lara 2018). Though New Jersey is home to the second largest port in the United States, it has remained understudied in academic literature. Similarly, those familiar with New Jersey's burgeoning logistics landscape argue that the state's locational centrality to the east coast consumer market explains the recent rise in warehousing. This paper seeks to complicate this narrative of geographic determinism by uncovering the historical and political forces which have made land available for development, particularly for logistics infrastructure. It also considers how communities and the warehouse workforce—primarily immigrant temp laborers—are responding to warehouse expansion.

This paper presents findings from twelve months of ethnographic research with planning and policy practitioners and in communities impacted by the growth of logistics as a development strategy in New Jersey. Using data gleaned from qualitative methods including participant observation, semi-structured interviews, historical document analysis, and auto-ethnography, this paper nuances critical logistics studies' interest in the normative rationalities of global goods distribution (Bonacich and Wilson 2008; Cowen 2014). Rather than aiming to map the macro-scale structure of logistics networks, this paper works through three interlocking thematic lenses—land, labor, and the body—to understand the multi-scalar processes and relationships which animate logistics infrastructures in New Jersey. It argues that land has been rendered available for warehouse development through historical redlining practices, speculative investment, and logistics expansion designed to counter the port's trajectory of decline in the late 20th century. These changes have sparked grassroots protest movements in rural and suburban municipalities which simultaneously raise critical environmental concerns and aim to preserve the exclusionary, white character of their communities. Finally, it considers how warehouses serve as a key place of employment for immigrants whose gender and migration status renders them precarious. These workers are often connected with warehouse jobs through temporary employment agencies which link multinational corporations to immigrant strongholds throughout New Jersey. While we might imagine warehouses to be highly technologically integrated worksites, the most vulnerable workers often must use their bodies as their primary tool.

At a broad level, this paper contends that warehouses are more than a repository for goods within our globe-spanning system of production and consumption. Rather, they are symbolic and material constructions which connect disparate communities and concerns. It further suggests that we must center the human body and relations in our understandings of what constitutes logistics infrastructure today.

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- De Lara, J. 2018. *Inland Shift: Race, Space, and Capital in Southern California*. University of California Press.

Key Words: logistics, warehousing, New Jersey, political economy, ethnography

The Logistics of Zoning, Zoning for Logistics: Toward Equitable Development for Urban Freight

Abstract ID: 1844.0.0.433.2025

Track 3: Economic Development

Pre-Organized Paper Presentation

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Warehousing and distribution center (W&D) expansion has raised concerns about disparate, adverse health effects from urban freight. While local governments wield several tools to manage logistics-related development, few may be as consequential to public health disparities as zoning. This study synthesizes the state of recent U.S. zoning actions toward W&D, and evaluates zoning as a tool for protecting public health in areas historically burdened by freight traffic. Specifically, we investigate 92 zoning actions at 67 locations (51 municipalities, 9 counties, and 7 states) and assess the level at which Environmental Justice (EJ) principles inform these actions. We analyze 213 public documents including ordinance texts, council meeting transcripts, zoning codes, plans, and developer/advocacy websites. We find that despite the recent attention toward W&D at the state-level, most local actions are discretionary (n=32). While we offer examples of councils aligning with EJ groups, discretionary processes have important drawbacks. Other jurisdictions revisit long-term plans (n=17), land use definitions (n=13), development standards (n=13), and conditional use permitting (n=12). However, many regulations restrict by-right W&D development with little indication that these changes are intended to benefit marginalized communities historically burdened by freight traffic.

Ultimately, local jurisdictions lack a unified regulatory approach to W&D. However, long-term plans and state environmental policies guide jurisdictions with the most EJ-explicit actions. Ensuring equitable and healthy urban freight development requires clear strategic priorities and environmental safe-guards for vulnerable populations. We discuss how these findings fit into contemporary debates surrounding zoning and urban freight planning.

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Key Words: Urban freight, Equity, Environmental Justice, Zoning

Planning for warehouse development: A case study of spot rezonings in California

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Track 3: Economic Development

Pre-Organized Paper Presentation

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The rise in online shopping has increased demand for large distribution warehouses for the storage and distribution of retail goods on the urban periphery. In northern California, agricultural land has been rezoned to industrial for the purpose of warehouse development, while in southern California, residential development has been cleared to make way for warehouses. The rezoning of residential land to industrial is uncommon, particularly in California where there is a severe housing shortage and residentially zoned land is typically considered to be the “highest and best use.” The proximity of these warehouses to residential communities is an environmental justice concern given they generate negative externalities such as air pollution and can cause road safety hazards for vulnerable road users (Wang et al., 2022; Yuan, 2021).

The introduction of environmental acts and the environmental assessment process during the 1960s and 1970s coincided with a broader movement in planning – the rational or utilitarian approach to planning – which saw planning as a series of choices or decisions (Davidoff & Reiner, 1962). Despite extensive critiques regarding its subjectivity, the rational approach to planning remains a dominant paradigm in the practice of planning, including comprehensive planning. Spot rezonings are private proposals to rezone a site or precinct, that typically occurs outside the comprehensive planning process. There are three core issues associated with spot rezoning: it can confer wealth transfer to the landowner, it may indicate political capture by landowners and developers, and it can violate the structural integrity of the zoning system (Mandelker, 2016). While spot zoning is discussed within the legal literature, it is rarely discussed within planning literature, which has primarily focused on upzonings.

In this paper, I explore how planners evaluate spot rezoning proposals including the planning practices and value judgements which shape their decisions to expand industrial land. I draw on case studies of five projects across San Joaquin, Riverside and San Bernardino counties in California. Through a review of environmental impact reports (EIRs), planning reports, recordings of city council and planning committee meetings, bill proposals, media articles and semi-structured interviews, I explore the institutions and practices that shape the siting of warehousing, as well as their failures. While EIRs conclude that the warehouse projects will have significant and unavoidable environmental impacts, site rezonings to industrial are nevertheless justified based on a “statement of overriding considerations.” These statements prioritize city or county-wide economic “benefits” such as job creation and revenue generation, reflecting the broader fiscal and economic vulnerabilities of these cities, and the fiscalization of land use (Wassmer, 2002).

In this paper, I argue there is a mismatch between the scale of the project-level environmental assessment and the city-wide economic “benefits” which are used to justify the approval of the rezonings, and, more broadly, a mismatch between local incentives and welfare objectives. This paper provides important insights for planners regarding land use planning and the environmental assessment process. Specifically, this paper recommends that planners avoid spot rezonings and instead should ensure rezonings are part of a comprehensive plan and considered in the context of the broader equity considerations for a local jurisdiction.

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Key Words: warehouses, logistics, rational planning, spot rezoning, environmental assessment

Planning the E-Commerce Landscape in North Carolina: Analysis of Spatial Patterns and Development

Abstract ID: 1844.0.0.417.2025

Track 3: Economic Development

Pre-Organized Paper Presentation

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Recent years have seen a rapid rise in online shopping and a resulting uptick in logistics facilities across American and global communities. Evidence suggests that the spatial patterns of these facilities have changed as the volume increases require ever larger distribution centers and rapid delivery windows require facilities proximate to population centers.

Less clear is how land use planning and development approval processes are responding to this shifting economic landscape. This study assesses these processes in North Carolina to capture how local governments are responding and presents analyses of the spatial patterns of recent developments. We examine recent spatial patterns of warehouse development in North Carolina, and the urban planning processes, locally, statewide and/or regionally, that are guiding warehouse development in the region.

We employ a mixed-methods approach surveying warehouse development in the state with geospatial analysis and conducting interviews with planners, developers, and other related professionals overseeing warehouse development. We interviewed 15 planners in jurisdictions across several municipalities and coded interview results in Dedoose. Simultaneously, we conducted a spatial analysis of warehouse facilities and their development in North Carolina using the U.S. Historical Business Database from Data Axle – Reference Solutions (formerly ReferenceUSA).

The spatial analysis shows hotspots of warehouse facilities located near population centers in locations with rapid access to the transport network. Since 2015, warehouse facilities in NC have increased and the size of facilities has grown as well. The geographic center of warehouse activity has shifted outward showing evidence of logistics sprawl.

Interviews with planners revealed that most warehouse development in the state has minimal development approval processes because it is sited in light industrial zones where these facilities can be developed by right. Most planners in the state indicated a favorable predisposition to these type of developments comparing them to other more impactful uses that are possible in light industrial zones.

A small number of communities used long-range planning processes to be attractive locations for large-scale distribution centers. The strategies included zoning large areas in attractive locations, eg near interstate on-ramps, light industrial and proactively building onramps and other infrastructure. The communities engaging in these activities tended to be at critical nodes on the highway network, ie where two interstates meet, and close to multiple metropolitan areas.

State policies are also influential on these processes. The state has an incentive program to attract these type of facilities and the NC Department of Transportation requirements affect the development approval process.

Public involvement in warehouse siting decisions is limited. This is because most of the development is by-right and because most communities work to separate residential and light industrial areas because of the likelihood of traffic and noise complaints.

The conclusions that emerge from this work are that a small number of jurisdictions that are well-situated along transport networks are likely to see continued demand for warehouse facilities. Long-range planning for this demand would provide these communities with the ability to anticipate fiscal, employment and resident impacts.

Citations:

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Key Words: logistics, warehouse, development approval, industrial

Track 3 Individual Paper Presentations

'Safe and Clean' Reexamined: Evolving relationships between BIDs, Policing and Smart Technologies

Abstract ID: 1844.0.0.99.2025

Track 3: Economic Development

Individual Paper Presentation Submission

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Literature on business improvement districts (BIDs) has described the ways that the presence of law enforcement officers and communication with law enforcement agencies has been integral to the establishment of BIDs and their priorities (Vitale 2008; Stuart 2016; Herring 2019). These authors point to a dovetailing of 'safe and clean' initiatives that have been centerpieces of BID missions with order maintenance policing practices that have been described as keys to urban development under neoliberalism (Wacquant 2009). In recent years, BIDs have also adopted smart city technologies like pedestrian counters and platforms to collect consumer data, along with other technologies that support the objectives of their membership (Kudla 2022). While public safety is a top priority in the mission of many BIDs (and has been since their inception), there is a scarcity of scholarship identifying how their relationships with law enforcement may have evolved in light of the expansion of smart city and police surveillance technology. We currently lack an understanding of how law enforcement-BID coordination may have shifted in terms of formal and informal arrangements, personnel, data/information sharing, and in their shared initiatives. Furthermore, as law enforcement agencies continue to invest more in expanding a tech-focused police surveillance apparatus, the role of BIDs in this expansion—as stewards of public space that often use consumer facing technologies to track behaviors of users—remains undefined. This research uses New York as a case study and is a content analysis of interviews with BID staff and tech companies, city reports on BID functions, and marketing materials. In this analysis, we answer the following: 1) What does the prevalence of smart city tech look like for BIDs? 2) How have these types of tech been integrated into the ways that BIDs cooperate with law enforcement? And 3) How have BID relations with law enforcement evolved under the smart city ethos?

We found that while police surveillance technologies are ever-present features of neighborhoods, BIDs' engagement with smart technology tended not to focus on public safety as a goal. To carry out safety related mandates, BIDs tended to rely on human know-how and relationship-building more so than technology—a strategy that is more akin to their roots in law enforcement collaboration through boots on the ground security officers and frequent communication. There are, however, new ways that BIDs have integrated their practices into the work of order maintenance policing. We found that the practice of hiring private security and coordinating with law enforcement has evolved into established practices of law enforcement (off-duty and retired) being formally integrated within BIDs' organizational structures (e.g.: as board members, staff and security). There were also instances where law enforcement oriented tech products were integrated into the offerings of companies that market their products to BIDs, creating a (not necessarily sought after) overlap between technologies for policing with economic development. Further, we found that law enforcement often obtain CCTV footage from BID members for investigations, and have held public meetings to encourage the adoption of surveillance technologies like CCTV and doorbell cameras. Importantly, we also found evidence of resistance to law enforcement integration and police surveillance technologies into the workings of BIDs, many of whom were concerned that this type of

cooperation would be a threat to community trust and place the safety of over policed populations in further jeopardy. These findings shed light on the nature of relationships between development and policing that are often overlooked in planning literature, and provide new insights around the role of BIDs in the policing of public space.

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Key Words: BIDs, smart cities, policing, surveillance

A Framework for Equitable Economic Development: Looking In, Leveraging, and Locking

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Track 3: Economic Development

Individual Paper Presentation Submission

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What would economic development “look like” if resident well-being and equity were primary goals of economic development, not aspirational after-effects of growth? Growth is typically the prime objective of economic development, at least in part due to fears that without continually creating or at least replenishing stocks of economic development assets, economic stagnation and decline will occur in cities and regions (Hill 2023). To this end, economic development practitioners usually employ “best practices” to attract and retain the “right” people and industries to promote growth. This presentation will instead offer an alternative framework - Looking in, Leveraging, and Locking (3Ls) – based on a synthesis of existing asset-based theories to explore how economic development practice may be more attuned to promoting equitable development in places, particularly those with histories of disinvestment, population loss, and other challenges. These existing models include the community capitals framework (Emery and Flora 2006), Asset-Based Community Development (Kretzmann and McKnight 1993), the community economies framework (Gibson-Graham 2006), and the concept of “scaling deep” from the organizational studies literature (Kim and Kim 2022). Looking in refers to a process whereby stakeholders assess existing formal and informal assets to address economic concerns. Leveraging refers to how stakeholders may collectively draw from existing assets to garner additional resources to achieve shared priorities. Finally, locking refers to ensuring that economic activities benefit residents and helps to generate community stability and wealth building. I will then offer two case studies of organizations in cities that exemplify the 3L model in action (Made in Durham in Durham, North Carolina and Invest Appalachia in Central Appalachia).

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Key Words: Asset-Based Models, Equitable Econ. Dev

A Theoretical Framework for the Co-evolution of Technological Change and Regional Economic Growth

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Track 3: Economic Development

Individual Paper Presentation Submission

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[Central Theme and Research Question] This study examines the complex co-evolutionary dynamics between technological change and regional economic growth. Drawing on endogenous growth theory and evolutionary economics, technology is shaped internally by economic agents pursuing monopolistic competition (Romer, 1990; Nelson, 1994). From a regional perspective, these agents—firms, industries, and institutions—form regional innovation systems (RIS), where networks facilitate continuous interaction and drive further technological advancement (Cooke, 2001; Fritsch et al., 2019). This interplay creates path dependencies in regional economic evolution, leading some regions to stagnate while others reorganize and thrive, rather than “lock-in” (Martin & Sunley, 2006). A key issue for regional planning is to understand how technological change and regional economic conditions mutually influence each other over time, shaping development trajectories. The primary research question is: How do technological change and regional economic growth co-evolve, and what are the mechanisms that drive this bidirectional relationship? By addressing these questions, the study aims to clarify the processes that are essential for sustainable regional development.

[Approach and Methodology] The study develops a theoretical framework rooted in evolutionary economics, regional innovation systems, and endogenous growth theory. This framework explains that technological change and regional economic growth are interdependent: innovations reshape industries and labor markets, while regional characteristics—human capital, infrastructure, and institutional frameworks—guide technological trajectories (Romer, 1990; Nelson, 1994). The methodology combines a comprehensive literature review with comparative case studies of Silicon Valley and the Rust Belt. The literature review synthesizes existing theories to identify gaps in understanding co-evolutionary dynamics, while the case studies demonstrate how regional conditions and technological progress reinforce each other in empirical terms.

[Meaningful and New Findings] The research introduces a novel theoretical model that captures the feedback loops between technological change and regional economic growth, departing from traditional approaches that consider only one-way relationships. This model emphasizes the endogenous nature of innovation in regional contexts and offers a new perspective on development dynamics. Preliminary findings from the case studies reveal a clear co-evolutionary cycle: government investment in infrastructure attracted technology firms, which promoted innovation and economic growth, which in turn enhanced the region's technological capacity. This positive feedback loop provides empirical support for the framework, demonstrating how regional conditions and technological progress are mutually reinforcing. These findings provide a structured approach to analyzing the interrelationships that drive regional development, adding depth to the existing literature.

[Relevance and Implications] This work has important implications for planning scholarship and practice. On the one hand, for scholars, it advances the theoretical understanding of co-evolution in regional development. On the other hand, for practitioners, the framework provides a tool for designing policies that leverage technological investments for sustainable growth—such as R&D incentives for emerging regions or innovation networks for mature ones. By clarifying these dynamics, the research equips planners with strategies for fostering resilient, technology-driven regional economies.

Citations:

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Key Words: Co-evolution, Technological Change, Regional Economic Growth, Evolutionary Economics, Regional Innovation

Agglomeration Economies in Social Innovation Cluster through Network Diversity

Abstract ID: 1844.0.0.802.2025

Track 3: Economic Development

Individual Paper Presentation Submission

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Amid the global growth of the social economy, supporting social economy organizations (SEOs) is increasingly seen as a tool for both efficient public service delivery and economic development through local entrepreneurship and demand-based market creation (Jessop, 2003). Social innovation clusters have emerged as key in regional development, based on theories of innovation districts and industrial clusters that highlight the benefits of geographic proximity and network diversity (Gerli et al., 2021). However, empirical research remains limited due to scarce data and underdeveloped theory on agglomeration effects in social innovation contexts.

This study quantitatively examines how network diversity within a social innovation cluster affects SEO survival. Drawing on agglomeration economies and entrepreneurship literature (Cai & Etzkowitz, 2020; Jacobs, 1969; Porter, 2000), the study hypothesizes that field diversity (e.g., partnerships across IT, education) and sector diversity (e.g., collaboration with public, private, and civil sectors) enhance survival. However, it expects diminishing returns beyond a certain level (curvilinear effects). Regional diversity (geographically dispersed partnerships) is expected to have limited impact considering social embeddedness. Lastly, it hypothesizes that intermediary organizations moderate these relationships by managing partnerships.

To test these hypotheses, the study applied a quadratic logit regression model to distinguish between linear and curvilinear effects of diversity, with network diversity measured using the Herfindahl-Hirschman Index (HHI). Social network analysis was used to calculate degree and closeness centrality. The moderating variable, *ratio_io*, reflects the proportion of an SEO's partnerships involving intermediary organizations. Control variables include organizational type and profit orientation.

The study uses data that is extracted from a performance document of Seoul Innovation Park, a social innovation cluster created in 2015 by the Seoul Metropolitan Government to support SEOs. Located on a 100,000 square-meter site, the park hosts around 130 SEOs and 11 intermediary organizations. Data include business and partnership information on 113 SEOs from a 2020 survey, with updated survival status verified in 2024 using tax records and websites.

Initial Findings show that accounting for curvilinear effects and intermediary roles improves model fit. Sector diversity positively influences survival, while field diversity has a negative effect. Only field and regional diversity show curvilinear trends. These results challenge the assumption that more diversity is always better. Excessive field diversity appears to dilute focus and strain resources. The moderating role of intermediaries, though often emphasized, showed limited empirical support.

This study contributes to the literature by offering a rare quantitative examination of how network structures within social innovation clusters shape SEO survival. By building on existing scholarship and disaggregating the broad notion of cluster diversity into field, sector, and regional dimensions, the study provides a more precise analytical framework for understanding the role of diversity in cluster dynamics. Practically, the findings stress the value of balanced diversity and targeted support mechanisms over indiscriminate expansion of partnerships.

*This study is part of a comprehensive mixed-methods doctoral dissertation that investigates agglomeration economies in the context of social innovation clusters, with this paper focusing on the quantitative analysis.

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Key Words: agglomeration economies, social innovation cluster, network diversity, quadratic regression, Organization survival

Beyond Workforce Development: Toward a New Paradigm of Human and Community Flourishing

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Track 3: Economic Development

Individual Paper Presentation Submission

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“Workforce development” (WD) emerged in the 1990s as an outgrowth of employment and training programs grounded in Federal anti-poverty efforts of the 1960s. Scholarship on this new WD paradigm emphasized job connectivity, skills development, and career ladders (Giloith 2000; Schrock 2014). The WD paradigm arrived at a moment of growing neoliberalization of social and labor market policies, in particular welfare-to-work programs, but also significant experimentation at the community scale with novel approaches to job-centered economic development targeting historically marginalized populations. For this reason, WD as a field has enjoyed relatively broad political support, even though it has been fragmented both in scholarship and practice.

But is the workforce development paradigm in step with progressive planning visions of economic development that center economic and racial justice, human capabilities and flourishing (Doussard and Schrock 2022)? I argue that WD field’s narrow focus on worker skills and labor force attachment, and growing orientation toward employer needs and prerogatives, marginalizes it relative to broader urban justice movements. For example, minimum wage campaigns have successfully “grown the pie” for low-wage workers overall, rather than simply helping them access bigger slices of the existing pie. At the same time, the COVID-19 pandemic drew attention to the role of social infrastructure – such as housing and childcare – in supporting labor force participation, especially for women. And finally, the continued deepening of workplace technology adoption reminds us of the importance of the ability of workers to utilize their skills.

In this paper I sketch out what a new paradigm “beyond” workforce development might look like. The first element would go “beyond skills” to organizational practices and policy frameworks for building worker power and agency. The second element would go “beyond wages” to a focus on individual and household well-being, which would engage more meaningfully with social reproduction. The final element would go “beyond careers” to a broader orientation toward human and community flourishing, including but not limited to jobs and labor force attachment. I draw on case studies from around North America to help illustrate and elaborate the parameters of this new paradigm. I conclude that a new paradigm for worker power, well-being and flourishing would bring the field more closely into alignment with the planning field’s progressive norms and orientation.

Citations:

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Key Words: workforce development, economic justice, economic development

Building Inclusive Entrepreneurial Ecosystems: Addressing Market Failures for MWOBs

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Track 3: Economic Development

Individual Paper Presentation Submission

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Entrepreneurial ecosystems (EEs) are crucial for business development and economic growth, yet research on EEs for minority- and women-owned businesses (MWOBs) remains limited. Traditional EE frameworks emphasize market forces, networks, and institutional support but often overlook systemic barriers such as discriminatory lending, exclusion from supply chains, and limited financial and social capital. These barriers create persistent market failures, reducing business survival rates and economic mobility for MWOBs. Addressing these challenges requires more than conventional entrepreneurial support; it demands intentionally designed, community-driven ecosystems that align mission-oriented stakeholders and leverage existing networks.

This study examines how locally embedded and regionally connected networks function as EEs to address market failures for MWOBs. Using the Ascend program as a case study, we analyze how universities, nonprofits, financial institutions, and private-sector partners collaborate to support MWOBs across 13 U.S. cities. Built on the M3 framework—focusing on financial access (Money), management skills (Management), and market access (Market)—Ascend provides MWOBs with historically less accessible resources. Through qualitative research, including interviews with Ascend business alumni and key stakeholders, we explore how mission-driven partnerships enhance resource accessibility and address structural inequities within traditional EEs.

Findings suggest that purpose-driven partnerships in underserved communities fill resource gaps, foster equitable economic growth, and transform fragmented networks into cohesive EEs. These partnerships do not emerge organically but are intentionally cultivated through mission alignment, pre-existing networks, and strategic opportunities. Universities and nonprofits build trust and legitimacy, while financial institutions and corporate partners provide capital and market linkages for business scaling. By leveraging existing relationships and designing targeted interventions, these collaborations enhance knowledge-sharing, financial access, and market opportunities for MWOBs.

This research shifts the focus from macro-level regional analyses to institutional actors shaping EEs. It provides empirical evidence on how partnerships among universities, nonprofits, corporations, and government agencies enhance MWOBs' access to markets and capital. It also offers practical insights for policymakers and business support organizations on building trust, tailoring programs, and structuring long-term partnerships. Instead of one-size-fits-all models, we emphasize flexible, place-based strategies that align institutional missions with entrepreneurship initiatives to foster equitable economic growth.

Ultimately, this study highlights how intentionally designed EEs—rooted in partnerships, mission alignment, and regional connectivity—can bridge systemic market failures and enhance economic resilience. Insights from the Ascend program offer a scalable model for promoting economic inclusion and entrepreneurship.

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Key Words: Entrepreneurial Ecosystem, MWOBs, Market Failures, Strategic Partnerships, Inclusive Growth

Do AI innovations benefit farther-away places' AI entrepreneurship?

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Track 3: Economic Development

Individual Paper Presentation Submission

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A long discussion has focused on the role of distance in knowledge spillover effect. On the one hand, studies argued increasing remote working and technology advancement can weaken the agglomeration effect and benefit places geographically further from innovation hub (Haefner & Sternberg, 2020). On the other hand, researchers demonstrate that the technology shock to physical distance is overestimated (Tranos & Nijkamp, 2013).

It is worth revisiting the distance's role in knowledge spillover because the recent evolving technology might have changed the distance of knowledge spillover. AI employee's workplace is less bounded by geography due to the digital and data-driven nature of the industry. The way of interaction and collaboration can be very different among employees in digital high-tech industry from those in traditional industries.

Entrepreneurship is a critical channel and outcome for commercializing knowledge spillover into tangible economic impacts. While incumbent firms tend to select safe alternatives and may underutilize innovation, entrepreneurs are more willing to take risks to commercialize novel knowledge, create new business, and generate jobs (Henderson & Weiler, 2010). Emerging AI technology serves as a potent enabler of entrepreneurship, fostering new economic opportunities. The research tests whether AI-driven innovation spills over beyond innovation hubs, contributing to AI entrepreneurship in more distant locations.

The paper contributes to knowledge spillover theory of entrepreneurship literature by examining AI fields. Due to data limitation, previous studies use a broad definition of high-tech industry and include manufacturing industries into the high-tech categories (Liu et al., 2021; Qian et al., 2013). These results can underestimate the distance of knowledge spillover in high-tech industry because manufacturing industries are more dependent on physical equipment and can be more location-restricted than digital high-tech industries. Our study overcomes the limit by focusing on AI innovation and entrepreneurship.

We use the following datasets. We identify AI patents using Artificial Intelligence Patent Dataset (AIPD). Meanwhile, we collect patent inventor and patent content information from the United States Patent and Trademark Office (USPTO). Besides, we collect AI firms from CrunchBase, which is an increasingly prevailing database on innovative startups and venture capital. The data includes the startups founding date, a detailed address, and a short description of the firm's basic function. The study period is from 2001 to 2020. We use logit regression to check whether AI-innovation hub cities are more likely to benefit entrepreneurship in different cities.

We have geocoded and cleaned all the patents and AI startup data and completed the regression analysis. Next, we will work on writing the manuscripts and results interpretation. Our regression results indicate that AI firm is more likely to locate in cities that are different from AI innovation hubs than that of two decades ago, which verifies our hypothesis.

Practically, our study offers insights to policymakers to design AI-related innovation districts and refine agglomeration policies of digital high-tech industry to benefit from the knowledge-spillover effects. For entrepreneurs, the study helps them to make better location decision to benefit from nearby knowledge spillover.

Citations:

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Key Words: Innovation, Entrepreneurship, Knowledge Spillover, Artificial Intelligence, Agglomeration

Grassroots Remapping of Innovation Geographies: Unmaking of Shanghai's Core-Periphery Logic

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Track 3: Economic Development

Individual Paper Presentation Submission

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The emergence of DeepSeek, an open-source large language model that has shaken the global technological discourse since early 2025, has changed the innovation geography of the Yangtze River Delta area in China, which emphasize the role of Hangzhou rather Shanghai. Hangzhou has initially established a resilient innovation ecosystem through improved talent recruitment policies, ample fiscal investment, and a regional collaborative innovation network. It is thought-provoking that Shanghai, long regarded as the leader in comprehensive strength and innovative endowment within the Yangtze River Delta, is now being rapidly caught up by Hangzhou in the global innovation chain. Data from Crunchbase indicates that between 2019 and 2023, Hangzhou has nurtured six local tech unicorns with a total valuation of \$38.2 billion, which seems to reflect a intuitively subtle difference from innovation in Shanghai. Therefore, this paper aims to explore how to create urban spaces that better facilitate knowledge exchange and local innovation, focusing on two key questions: (1) Why have six emerging "unicorn" tech companies, including DeepSeek, originated in Hangzhou rather than in Shanghai? (2) What are the differences in innovation elements between Hangzhou and Shanghai? Inspired from Richard Florida's (2002) theory of the creative class, this study conducts an exploratory research combining qualitative and quantitative methods. Initially, it employs Terry N. Clark's Scene Theory and related research methods for preliminary studies, comparing selected scene dimensions (locality, authenticity, transgression) between two urban spaces located in Hangzhou's Future Science City and Shanghai's Knowledge and Innovation Community, thus addressing the differences in innovation scenarios between Shanghai and Hangzhou. Based on the preliminary research results, the study subsequently constructs a dynamic panel data model of firm formation and talent migration patterns (2015-2023), analyzing the decisive roles of key "hard infrastructures" (such as café density and incubator space distribution) and "soft ecosystems" (such as scenario authenticity, locality, and cultural facility index) in urban innovation capacity. Empirical findings reveal that Hangzhou's innovation scenarios exhibit greater locality and authenticity compared to Shanghai, with three comparative advantages for Hangzhou: (a) A regulatory environment conducive to technology experimentation, where the approval cycle for start-up licenses is 72% shorter than in Shanghai; (b) Market entry costs in Hangzhou's innovation parks are reduced by 60% through targeted subsidies; (c) Cultural facilities attract international talent, with Hangzhou's cultural facility index (0.73) surpassing that of Shanghai (0.61), particularly excelling in attracting Gen Z tech talent. This study presents three innovative arguments: (1) The "low-cost experimentation/high innovation elasticity" paradigm in Hangzhou stems from path-dependent spatial-institutional co-evolution triggered by strong local network embeddedness; (2) The observed reconstruction of rent gradients challenges traditional Christaller hierarchies, revealing how medium-sized cities can break the monopoly of global urban innovation through spatial arbitrage strategies; (3) "Re-localization of innovation geography" demonstrates that compared to Shanghai's positioning as a "global resource hub," Hangzhou's "low-cost testing ground" provides superior early advantages—this finding constitutes a significant revision of global innovation hierarchy theory. The findings of this study has the potential to enrich the understanding of mechanism of innovation in cities.

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Key Words: Innovation Geographies, Hangzhou, Scene Theory, Dynamic Panel Data Model

High-tech Regions as Innovators of Traditional Technologies

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Track 3: Economic Development

Individual Paper Presentation Submission

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In the knowledge economy, a region's economic development often hinges on the innovation capacity of its specialized industries. In some high-profile cases including Silicon Valley and Boston, high-tech industries such as information technology and bioscience have driven development (e.g., Mayer, 2011). Elsewhere, innovation in cultural and professional service industries has received significant attention. However, studies on innovation and technology-led development have largely excluded relationships with traditional industries (e.g., metal working and textile manufacturing). Instead, the academic focus on traditional industries and their regions centers on employment decline and urban shrinkage (e.g., Ganning & Tighe, 2021).

Previous research shows that innovation in high-tech industries contributes to efficiency and innovation in traditional industries through the improvement of production processes (Hansen & Winther, 2011; Robertson & Patel, 2007), product components (Mulhall, 2015), and innovations in design and service. Whether these developments have led to increased patenting activity in traditional industries, however, remains under-studied, and especially at the metropolitan level, where arguably these relationships matter the most. It is entirely plausible that high-tech development encourages increased patenting in traditional industries through regional labor markets, regional demand conditions, and knowledge spillovers between firms. If this happens, regional economic development policy stands to gain considerable effectiveness by building programming around these relationships.

Utilizing technological classifications and patent data from the US Patent and Trademark Office (USPTO), this study tests whether regions with higher patenting levels in high-tech fields between 1996-2000 also had greater patenting levels in traditional fields between 2010-2014, while accounting for the impact of historical traditional specializations and other confounding variables. Additionally, this study divides patenting in high-tech and traditional fields into specific technological categories, thereby providing a more detailed view of industrial dynamics. Briefly, traditional and high-tech industries here refer to the NBER categorization (which is also used by the USPTO), where traditional industries are identified as those with a long, stable history of patenting that predates and underpins many modern technological innovations.

The analyses suggest that regions that demonstrated higher patenting levels in high-tech fields during 1996-2000 subsequently exhibited greater patenting levels in traditional fields between 2010 and 2014, with variation shown at the industry-level. Further, the analysis indicates that regional innovation, including in traditional fields, is predominantly influenced by path dependency, with the high-tech fields' impact being more complementary.

Citations:

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Key Words: High-tech Industries, Manufacturing Industries, Regional Innovation, Patenting Activity, Economic Revitalization

Industrial Land Use Expansion in Deindustrializing Communities

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Track 3: Economic Development

Individual Paper Presentation Submission

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Researchers have documented the conversion of central-city industrial areas into commercial or residential districts since the 1980s (Zukin 1982). Critics of this trend have expressed concern that industrial conversions push manufacturing firms out of central cities, impeding innovation and reducing access to good-paying, working-class jobs. As a policy response, researchers have advocated the adoption of industrial preservation policies, which are intended to retain manufacturing jobs and bolster the working-class communities that depend on those jobs (Gilothe & Betancur, 1988; Leigh & Hoelzel 2012; Lester, Kaza, & Kirk 2013). However, most research on this subject has focused on cities with strong markets, like New York and San Francisco, without examining weak market contexts. Weak markets differ in key respects from strong markets and therefore merit separate attention (Dewar et al 2017; Galster 2019).

This paper examines industrial land use change in Metro Detroit, a metropolitan area that has struggled economically since the 1970s, especially within its central city, which has struggled to respond effectively to deindustrialization (Thomas 1990). We ask: How has the distribution of industrial land use changed over time and with what effects on adjoining neighborhoods? First, using GIS, we document changes to industrial land use throughout Metro Detroit by comparing zoning maps, land use maps, and aerial imagery from the 1950s to the 2020s. Then we more closely examine two types of cases: 1) industrial districts that existed in the 1950s and later expanded into surrounding neighborhoods and 2) industrial districts that existed in the 1950s and were later converted to non-industrial uses. To understand why industrial land use changed in each instance and with what effects, we analyze data from planning documents, legislation, news media, the Census, zoning maps, land use surveys, site visits, and interviews.

In line with prior research, we find examples of industrial districts that have been converted to residential or commercial use. These cases of conversion have occurred in gentrifying areas, including along Detroit's postindustrial riverfront and in inner-ring suburbs like Ferndale and Birmingham. Yet the dominant trend is one of industrial expansion. In the region's weakest real estate markets, including in much of Detroit as well as some of the region's oldest industrial suburbs, state and local policies have enabled the expansion of industrial districts into adjacent residential and commercial territory as a means of preserving and expanding manufacturing employment in the face of ongoing deindustrialization. Such expansion was initially funded by federal and local programs for urban renewal; as federal funding diminished, industrial conversion continued to be financially feasible because older neighborhoods have experienced extensive property abandonment and devaluation, lowering the cost of land acquisition.

The net effect has been that cities like Detroit and Highland Park are devoting more land use than ever to industry, but with shrinking returns, because tax abatements limit the collection of property tax collection and because modern industrial enterprises employ far fewer workers compared to the past. Industrial encroachment has also had significant negative externalities within affected neighborhoods. Thousands of homes and businesses were demolished to enable industrial expansion, and the residents who remain are subjected to increased truck traffic, air pollution, and noise. Thus, industrial expansion has exacerbated environmental injustice, even as it has also enabled the preservation and growth of job-producing firms.

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Key Words: industrial land use, urban renewal, deindustrialization, environmental justice, weak market cities

Libraries and community economic resilience in the United States

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Track 3: Economic Development

Individual Paper Presentation Submission

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Libraries are important community resources. They provide books, access to information, internet and databases, space for study and meetings, career service assistance, and special programs, events, and cultural activities to community members. In this research, we study the relationship between libraries and community economic resilience in the United States, which has not been adequately studied in the literature. The empirical analysis includes two parts. First, we conduct spatial analysis to examine the relationships between the presence of libraries/the level of library resources and a set of economic outcome indicators (median household income, unemployment rate, poverty rate, and self-employment) at the U.S. county level. Positive correlations and spatial spillover effects are expected between libraries and some of these economic indicators. Second, we conduct a Difference-in-Differences (DID) event study to examine the causal impact of libraries on community economic outcomes (which cannot be identified in spatial analysis). More specifically, we study whether the closure of a library leads to declined economic outcomes at the U.S. city level. Through both spatial analysis and causal event analysis, we show the importance of libraries in community economic resilience.

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Key Words: libraries, economy, community development

Policy-led uneven growth opportunities and the decline of commercial areas in Seoul

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Track 3: Economic Development

Individual Paper Presentation Submission

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While many commercial areas in Seoul, such as Seongsu and Yeonnam, have gained global popularity as must-visit destinations, some areas near major universities have experienced a substantial decline in the number of businesses since COVID-19. The shrinkage of commercial areas near major universities in Seoul marks an unprecedented shift, as these areas were once trendsetting hubs for young consumers. Media reports often cite shifting consumption patterns, a sharp decline in visitors due to COVID-19, and high rental costs as key factors for the decline. However, this explanation is limited, given that these areas have prospered over the past three to four decades despite repeated economic shocks and evolving consumer behaviors. This recognition calls for a more systematic investigation into the causes of their decline.

This study examines the cause of decline by focusing on public policies particularly its unintended consequences, using the Sinchon/Idae commercial areas. The Sinchon area is located near Yonsei University and the Idae area is adjacent to Ewha Womans University. Theoretically, this study adopts the concept of opportunity structure proposed by Galster and Killen (1995).

Between 2010 and 2015, different types of commercial areas emerged in Seoul and the city government implemented booster policies to foster their growth. Examples include the relaxation of density regulations for Garosu-gil, pedestrian-friendly street improvements in Seongsu, and the construction of a new subway station and park in Yeonnam. Meanwhile, the city government designated Sinchon as a public transit zone and Idae as a special district for fashion and beauty businesses. These programs appeared to enhance pedestrian-storefront interactions and encourage specialized agglomeration of fashion and beauty businesses. However, in reality, they disrupted key elements of the business ecosystem that had supported the area for three decades—such as curbing the automobile access for supply deliveries and discouraging new opening of other types of businesses such as food & beverage through increasing parking requirements.

Before these government initiatives, commercial areas in Seoul operated under relatively homogeneous institutional conditions. However, the introduction of spatially differentiated policies altered the opportunity structure for each area, disproportionately disadvantaging Sinchon/Idae. This uneven opportunity structure influenced individual store owners' location choices, ultimately leading to a voluntary migration from Sinchon/Idae to adjacent commercial areas with better growth prospects. Through this process, the Sinchon/Idae commercial area gradually but persistently lost its growth momentum.

This study empirically examines this mechanism through a comparative longitudinal case study. It compares Donggyo/Yeonnam area with Sinchon/Idae, specifically the business numbers and vacancy rates from 2010 to 2023 to capture the effects of differing policy programs. The results exhibit that Sinchon/Idae struggled, Donggyo/Yeonnam thrived. Additionally, it analyzes the spatial relocation of businesses between Sinchon/Idae and Donggyo/Yeonnam, demonstrating a one-directional migration from Sinchon/Idae to Donggyo/Yeonnam during the study period. To confirm that business movement was driven by imbalanced opportunity structures rather than market forces alone, this study draws on interviews with business owners.

Ultimately, this study challenges the prevailing view that commercial growth and decline are primarily market-driven. It also underscores the need for a more careful and nuanced approach in designing areas specific policy programs to deduce the chances of inadvertent negative impacts.

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Key Words: Commercial areas, urban growth and decline, opportunity structure, impact of public policy, unintended consequences

Reframing Economic Development: How women/non-men/womxn reshape the field through lived experience

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Track 3: Economic Development

Individual Paper Presentation Submission

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Planning scholars have increasingly shed light on the many ways in which gender relates to both how public spaces are designed and how they are experienced by users. While the planning field continues to prioritize the creation of just, equitable, diverse, and inclusive cities, the field of economic development has been slower to focus its efforts on inclusivity, especially from an intersectional and gendered perspective (Erickcek 2023; Conroy, 2019). To do just that, this paper expands upon existing literature to further explore the history of women/non-men/womxn in the field of economic development and the myriad ways in which they have shaped and are reshaping the field (Warner and Prentice, 2013). The research starts from the premise that, since its inception, the field of economic development has traditionally reproduced existing power dynamics (MacKinnon, et al 2022). As part of a broader project focused on gender in economic development, this study uses interview data collected in 2024 and 2025 to consider how the increasingly diverse workforce in economic development – both practitioners and academics – is changing the focus and practice of the field itself.

Preliminary findings suggest that the number of womxn practicing and teaching in the field of economic development continues to grow. However, the findings also show that the pace with which womxn's participation has grown differs substantially by race, ethnicity, and geography. It also suggests that womxn practicing and teaching in the field possess multiple identities that shape their experiences within the field, how they approach their work, and how they envision the future of the field as the demographics of the field continue to change.

Observable shifts in workforce composition within the field of economic development beg the question of whether the focus of the work will shift as well. To that end, interviewees were asked to reflect on whether they have observed shifts in how the field operates and in terms of what constitutes the focus of economic development. Most interviewees with 15 years or more experience working in the field were able to point to specific changes they had observed during their career, while interviewees who more recently entered the profession spoke of either second-hand accounts from more senior practitioners or how their understanding of the history of the CED field compared to their lived realities in the profession today. When asked about the focus of their work, many interviewees unsurprisingly noted classic economic development approaches like deal-making, real estate development, and retention strategies. Still, many also mentioned myriad other ways of thinking about and performing economic development, and in so doing they enthusiastically talked about how meaningful this other work can be. The focal changes they observed can best be categorized into three main categories: 1) a shift to more strongly center the need for childcare and caregiving more broadly to be considered as an CED priority; 2) expanding and creating opportunities for marginalized communities to participate in the CED process; and 3) an explicit focus on an economic development practice that creates economic opportunities for marginalized communities to benefit from CED. The paper concludes with a discussion of how gender shapes the work that economic developers do and what it is like to be a womxn working in the field today.

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Key Words: gender, economic development, policy, practice

Remote Work as an Opportunity for Empowerment and Economic Autonomy

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Track 3: Economic Development

Individual Paper Presentation Submission

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As we shift from a manufacturing-based society to one based on information, finance, and creativity, the need for knowledge workers increases. Since this sector of the workforce relies on their own skills and knowledge as labor power, they are able to perform their work from anywhere provided they have access to telecommunication technologies to report back to their employers or clients.

Though the idea of working remotely has been around for fifty years –it was first theorized by Jack Nilles in 1975– it was not until the recent pandemic that it got more attention and became the object of multiple studies. These analyses are concentrated in three main clusters of interest: 1) Labor economics, 2) Office space reallocation and downtown reactivation, and 3) Business management in the remote work era. These studies pull information from official reports, surveys, and other official statistics and demographic data. However, they have ignored one of the key pieces of remote work, i.e. remote workers themselves. It is this gap in this research field that this work intends to fill.

This study seeks to provide further understanding of remote work from the workers' perspective. Moreover, it intends to shed light on how adopting this type of work alters the daily dynamics of remote workers. To achieve this, the study relies on mixed methods, namely a survey and a series of focus groups. Because of the nature of the study and the anticipated geographic dispersion of participants, the study was carried out completely online using online survey services and video conference software. The methodology for this project was inspired by some of the work done around this topic after the Covid outbreak, notably the Real-Time Population Survey (RPS) developed by Bick and Blandin in 2020. In an effort to expand the study at a global scale, both the survey and the focus groups were available in three languages: English, French, and Spanish, and they were promoted through different networks to encourage international participation.

The survey was active from February 19th to March 22nd, 2024, and 152 responses were collected from participants from 18 different nationalities. Focus groups took place at the end of March 2025, and 11 people participated in these sessions. While the survey enquired about changes in daily routines and potential relocations triggered by the adoption of remote work, focus groups allowed for in-depth conversations to expand understanding of remote work, and either confirm or challenge the assumptions made by the studies relying on secondary data.

The findings of this project show that remote workers have mostly a positive opinion of this work modality, with qualities such as flexibility, comfort, and convenience being highlighted. Nevertheless, some negative aspects of remote work cannot be ignored as is its isolating effect and the monotony it leads to. Perhaps because of this, face-to-face interaction remains highly valued among remote workers since it potentializes relationship building, team collaboration, and overall career advancement. However, remote work is not only about professional development, it is also an opportunity to improve work-life balance, particularly during life stages where additional personal time is needed, such as raising a family or dealing with medical issues. Therefore, we see that remote work can also be a tool for empowerment and a path to economic autonomy. However, more work needs to be done to provide this type of work with adequate regulation to ensure fair conditions; and for this thorough understanding of this phenomenon is needed for which remote workers's input is an essential part.

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Key Words: Remote Work, Work Flexibility

Sectoral Concentration, Competitive Crowding Out, and Displacement in US Innovation Districts

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Track 3: Economic Development

Individual Paper Presentation Submission

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In local economic development, Innovation district (ID) has been widely regarded as catalyst for spurring job creation and attracting investment through concentrated clusters of knowledge-intensive industries (Drucker and Kayanan, 2024). Many planners and scholars believe it offers a complementary local development model against traditional industrial clusters such as Silicon Valley—characterized by sprawling suburban corridors (Hamidi and Zandiatashbar, 2019). Instead, innovation districts advocate for compact, mixed-use urban environments that prioritize walkability, public transit, and mixed-use, thereby enhancing quality of life while fostering creativity and entrepreneurship. Yet, beneath the surface of the promising picture, concerns persist that extreme specialization and market demand can crowd out locally oriented businesses and displacing lower-income households (Kayanan et al., 2022), hence making ID less resilient to external shock.

In this paper, we investigate these tensions through a comparative study of 25–30 IDs across the United States and their economic performance before, during, and after COVID-19. Drawing on neighborhood-scale data spanning 2015–2024, we measure both the promise and peril of tech-centric development, illuminating how pandemic-era economic shocks have intensified existing vulnerabilities in housing affordability and service-sector stability. There is few empirical evidence documenting these unintended consequences for ID particularly induced by external shock. Our study seeks to bridge the ongoing debates in agglomeration economy by focusing on two key effects of ID specialization.

First, we quantify concentration risk—the extent to which reliance on a single high-growth industry magnifies an area’s exposure to downturns, labor market shifts, and broader macroeconomic fluctuations. Building on established concentration indices (HHI) and location quotients, we trace the degree to which tech and biotech jobs dominate local employment structures (Boix and Galletto, 2009). By assembling longitudinal data from the American Community Survey, the Bureau of Labor Statistics, and HUD, we observe how these booming sectors shape local labor markets over nearly a decade, including the volatile pandemic period.

Second, we explore competitive crowding out and displacement effect in the service and housing sectors due to concentration. Innovation districts thrive on proximity-driven knowledge spillovers, yet they risk expelling smaller, less profitable businesses—particularly those critical for day-to-day neighborhood life. In doing this, we exploit rich establishment-level records, including Yelp business listings to track closures, and we pair them with foot traffic data that capture the shifting spatial patterns of consumer demand. In parallel, we analyze how intensifying real estate pressures limit the affordability of surrounding neighborhoods for middle- and low-income households.

Once we construct key metrics for measuring concentration and displacement, we use difference-in-differences to identify how pandemic shocks produced divergent trajectories for high-concentration versus more diversified districts. We then incorporate shift-share (Bartik) instruments to account for exogenous national-level sector growth, ensuring that local conditions do not entirely drive measured changes. This allows us to assess whether an externally driven surge in specialized employment truly displaces services or low-wage workers, or whether local policies moderate these forces. By comparing innovation districts with “control” neighborhoods from the same metros, we reduce confounding influences.

Beyond a simple success-or-failure dichotomy, systematically assessing the potent and associated risk is a critical step for guiding innovation district toward equitable, resilient futures. WWe expect our empirical results offers concrete policy for mitigating displacement and preserving critical service ecosystems.

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Key Words: Innovation district, Concentration risk, Displacement, Difference-in-difference, Pandemic

Supermom in the 'Hood: Pandemic-era Female Labor Force Participation in Bogotá, London, and Toronto

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Track 3: Economic Development

Individual Paper Presentation Submission

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Women typically serve as the primary caregivers for the children in the household, and many work part- or full-time as well. To balance the demands of home and work, employed individuals with caregiving responsibilities benefit from easy access to jobs and amenities by living in either care amenity-rich neighbourhoods or neighbourhoods with high levels of transit accessibility (or both). However, the Covid-19 pandemic brought new challenges of working from home while often serving as full-time caregiver, with lasting impacts for many.

In this paper, we examine two related questions: How does a care amenity-rich environment and high labour market accessibility impact female labor force participation in different contexts (Bogotá, London, and Toronto)? And how did the Covid-19 pandemic transform labor force participation for women living in different types of neighbourhoods? We hypothesize that the presence of care amenities supports higher levels of labor force participation, particularly for high-wage workers in high-skilled occupations, but accessibility plays a critical role as well, particularly for women in low-wage service occupations. These built environment and accessibility factors then lead to higher post-pandemic labor force participation, but again with outcomes differentiated by occupation of employment.

For the analysis, we deploy census, travel survey, Open Street Map, and cell phone data. We develop a typology of neighbourhoods using cluster analysis, and then identify the key factors differentiating those types via discriminant analysis.

The findings of this research not only have implications for transportation, economic development, and land use policy, but also speak to debates about the "15-minute city" by showing how a dense built environment functions as labor market support – but primarily for high-end, high-wage occupations, due to factors such as housing costs. Policy implications will focus on the type and location of care supports that best facilitate labor market participation.

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Key Words: care economy, pandemic, female, labor markets

Systemic Barriers for African American Energy Researchers

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Track 3: Economic Development

Individual Paper Presentation Submission

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The past studies on regional innovation are clear that minorities are underrepresented in the workforce of innovation-related occupations or research work. For instance, only 7.1 percent of doctoral degrees were awarded to African Americans (NSF 2019), and they constitute a similarly small share of 7.4 percent in so-called high-tech industries (EEOC 2014). Even more concerning, only 0.3 percent of Small Business Innovation Research grants administered by the National Institute of Health went to teams with African Americans as the principal investigator (Mervis 2015). This pattern of underrepresentation applies to all kinds of minorities except Asian Americans.

However, the objective of these studies was to quantify underrepresentation, and little has been studied about the structural or systemic barriers of minority researchers, which our project aims to contribute. We operationalized to study this aspect by focusing on African American researchers in the energy field. Based on the theory of regional innovation (Cooke 2001), we selected three case regions of North Carolina, Atlanta, and Miami, as each region has a cluster of so-called Research I universities and Historically Black Colleges and Universities (HBCUs). We first identified productive energy scholars at institutions affiliated to these regions based on the bibliometric method, a study of academic journal articles. Then, we conducted in-depth interviews to understand systemic barriers around them. We employed a stratified sampling method combined with a match-pair analysis between White and African American researchers, totaling 28 interviews.

Our interviews confirmed deep systemic barriers for African American energy researchers at multiple levels of institutions, such as departments, universities, and academic networks. We summarize those systemic barriers in eight points and further discuss policy implications.

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Key Words: Regional innovation, Equity, African Americans, Energy

The Collective Approach to Entrepreneurial Ecosystem Building: The Richmond Virginia Case

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Track 3: Economic Development

Individual Paper Presentation Submission

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Entrepreneurial ecosystem building has become a central component of local economic development strategies. However, there is no unified theory on how to best achieve the optimal system. Scholars have discussed the necessary stakeholders and their roles (Bischoff et al., 2018). In practice, many different models have been advanced with varying success. Building a seamless system that is diverse, inclusive, collaborative, and equitable has proven elusive for most cities. Entrepreneurship has the potential to alleviate poverty and revitalize neighborhoods.

Richmond, Virginia, is often identified as the former home of the Confederacy, with lingering racial inequality and poverty, a relic of the city's historical roots of oppression. Richmond was considered a trailblazer in its fight to alleviate poverty because it was the first city in the nation to institutionalize its Office of Community Wealth Building strategy by making it a part of the city's governmental structure.

However, in 2015 the entrepreneurial ecosystem has been described as disjointed with many silos (Harper-Anderson 2018). Since then, many new nonprofit organizations and private sector stakeholders have taken an interest in joining forces to create a new model of ecosystem building. Policymakers have bought into the ecosystem approach (Isenberg, 2010). The private sector also views this approach as critical for the region's economic growth.

The 1717 Collective is made up of seven key organizations and many partners who came together to meet the entrepreneurial needs of Richmond and surrounding areas using a community organizing approach. What makes this initiative different is the actual formation of a collective as well as the hiring of a coordinator tasked with "developing and maintaining deep and positive relationships with a variety of regional stakeholders across the private and public sectors to shape and support the evolution and growth of the region's entrepreneurial and business economy" (LinkedIn job description).

This qualitative case study has three main questions. What is the process followed by the Richmond entrepreneurial community to build the 1717 Collective? What key factors and local conditions enable the organizations involved to overcome the silos that previously characterized the Richmond entrepreneurial ecosystem? What are the key lessons that other cities wishing to build their own collective might learn from the Richmond case?

This study uses two sources of data. The primary data are derived from 25 semi-structured, in-depth one-hour interviews with organizational leaders involved in the Collective. We also interviewed five administrators at organizations outside the Collective to ascertain their views of the new initiative. We coded the interview for key themes.

Preliminary findings suggest that having a navigator in place who was explicitly hired for the collective and who can steer and keep track of progress is a game changer. Further, the formalized collaborative partnerships and unity of vision for the ecosystem were key to developing an operational model that benefited a broader array of entrepreneurs than each organization operating separately would have.

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Key Words: Entrepreneurship, Ecosystem, Collective, Richmond, Inclusion

The Effects of Urban Center and their Built Environmental Characteristics on Business Productivity

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Track 3: Economic Development

Individual Paper Presentation Submission

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Extensive planning and economic literature points to the key role of urban employment centers as vital hubs of economic activity, attracting businesses, creating jobs and generating economic growth and productivity in U.S metropolitan areas (Hamidi et al., 2019). Urban centers are distinct from employment and population hubs as they offer place qualities such as land use mix, job-housing balance and proximity to residential areas. Research shows that these qualities, along with access to public transit and walkability, support innovation generation and economic productivity by facilitating access to a larger pool of talents and customers, providing opportunities for knowledge spill over and resource sharing, providing an active social environment for interaction with other businesses and clients, and promoting physical activity and mental well-being for the business community (Zandiatashbar et al. 2018, Padeiro et al. 2019, Hamidi et al. 2017).

Yet, there is little evidence on the effects of urban centers (and their built environmental characteristics) on business productivity. In addition, the causal effects of centers' form and infrastructures on business outcomes remains a major gap. This study seeks to fill these gaps by addressing the following key questions: (i) What is the spatial distribution of urban employment centers in the US metropolitan areas in 2020 (ii) How to best identify the typology of urban employment centers (based on transit amenities, walkability and land use features?) (iii) Whether and to what extent the typology of urban centers and their built environment amenities such as walkability and mixed-use development influence business productivity (measured as business sales volume) in 2020.

To answer these questions, we employed Local Moran's I to identify the main urban centers and applied Geography Weighted Regression to identify subcenters based on employment and population data from the US Census and Longitudinal Employer-Household Dynamics (LEHD) in 340 MSAs across the US for 2020. This follows and improves the earlier works (Hamidi and Ewing, 2014; Park et al., 2020). To identify the effect of transit and built environment amenities on business sale, we aim to control for confounding factors that impact these relationships in following three steps: First, we apply cluster analysis to classify urban centers based on their transit and built environment infrastructure. We anticipate generating four center types based on availability and quality of transit and built environment. Second, from business analyst micro-data (2020) we select firm samples located in each center type and utilize Propensity Score Matching(PSM) methodology to determine the impact of center types on firm sales volume by matching similar firms located in different center types using the following explanatory variables: number of employees, sectoral classification, square footage area, firm headquarter status, public transit accessibility, and accessibility to firms of similar industrial character within a twenty-minute driving time. Finally, this study compares sales volume for the firms in different station area types and computes the ATE of being in a center with transit and high-quality built environment amenities (Zandiatashbar et al. 2019).

These findings have significant implications for urban planning and policy and its influences on business growth, as it informs decisions related to efficient land use, the role of regional transit and built environment amenities on business and economic outcomes. Understanding these dynamics will guide strategies to identify infrastructure bottleneck for business development and prioritize financing amenities in areas that has strong potential to generate economic outcomes.

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Key Words: Urban form, Urban centers, Transit, Business Productivity, Built Environment

The Future of Planning amid Population Decline

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Track 3: Economic Development

Individual Paper Presentation Submission

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Research shows that most Legacy Cities fail to acknowledge population decline in comprehensive plans and that among those that do, plans include few if any associated planning strategies. Consequently, cities have utilized their limited resources to pursue inappropriate and ineffective development strategies, often making long-term outcomes worse. In Legacy Cities, the perception of population decline shapes the planning strategies employed. Perceptions of population decline range from ignoring it to accepting ongoing contraction. These perceptions map onto a spectrum of planning strategies ranging from passive to active. Planning culture acts as the moderating force between perceptions of population decline and planning strategies chosen.

This paper evaluates planning culture and quality in Pittsburgh to assess whether and how the city's first comprehensive plan might acknowledge and respond to population decline. The city's successes in economic restructuring and apparent recognition of decline in early communications about their plan suggest that Pittsburgh could provide an example for Legacy Cities.

The research utilizes interviews with key stakeholders and content analysis of materials related to the citywide plan. Planning culture is evaluated in four categories: shrinkage context, general context, Planning context, and planning toolset. The early stages of Pittsburgh's comprehensive planning process were also evaluated for elements of plan quality, like whether there is a clear vision statement for the project, and whether all relevant stakeholders are included, among other considerations.

The interviewees describe a city that has gentrified some neighborhoods while others suffer neglect. This phenomenon has three effects. First, planning is viewed differently between gentrifying and neglected neighborhoods. Second, it is widely believed that the affordability crisis in higher-amenity areas has driven out minorities, worsening population loss, and that affordable housing must be developed in response. Third, there is no single set of goals or strategies that will work for everyone. This fact confounds stakeholders' ability to imagine how the city will successfully develop a comprehensive citywide plan.

The analysis finds a planning culture characterized by talent and dedication, situated in division and constraint, and marred by a perceived lack of transparency. Aspirations of growth remain politically correct, keeping the city anchored in maintenance strategies, and tending more toward urban competitiveness than livability. Due to resource constraints, City Planning is described as failing to articulate clear goals, recording goals that cannot be implemented, and taking an extremely passive stance on plan implementation.

Sources acknowledged Pittsburgh's history of population loss, and most acknowledge ongoing population loss. However, most sources qualified their acknowledgments of population loss—insisting on the upsides of qualitative changes in demographics (such as age), or city-regional dynamics, or mixing optimism with reality. While some interviewees believe decision-makers act rationally despite publicly espousing growth, others point out that responses remain speculative and unclear. For example, affordable housing development is viewed as the solution to out-migration, but plans to produce it are vague at best. This exemplifies accepting decline privately, speculating about responses publicly, and working to maintain current conditions.

Any Legacy City Planning Department will struggle to be fully resourced, but even more so when it is tasked with effectively planning for a divided city. In Pittsburgh, as elsewhere, the result has been prioritizing growth areas and de-prioritizing areas with less access to traditional channels of power and influence. The paper concludes with recommendations from the Equity Planning framework.

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Key Words: population decline, Legacy Cities, Shrinking Cities, Comprehensive Plans

The Impact of Gender Equality on Economic Growth: A Comparison of the EU, US, and E7

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Track 3: Economic Development

Individual Paper Presentation Submission

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This research targets for studying the effect of gender equality on economic growth via a comparison of countries with varying levels of gender equality, specifically the European Union (EU), the United States (US), and also the E7 group of countries. If we fully reduce the gender wage gap and back larger female participation into the labor market, can it fairly lead toward economic growth? Klasen and Lamanna (2009) previously pointed out that gender inequality in education can obstruct economic growth in many regions. Furthermore, this study questions precisely how women's participation in Human Resources in Science and Technology (HRST), contributes to driving the economy.

This study collects data from 2014 to 2023, covering a large range of regions, including the European Union, the United States, and from the E7 group of countries namely China, India, Indonesia, Brazil, Russia, Mexico, and Turkey. The main variable used for measurement of outcomes is GDP per capita. The key independent variables that were studied relate directly to gender equality in most terms of education, labor market participation, and special fields of science, technology, and also advanced research (HRST). Several control variables are also included to prevent further factors from distorting the analysis, such as initial GDP, birth rate, investment rate, and trade openness. The analysis is conducted using panel data statistical methods. These methods are used to clearly and accurately understand the correlation between gender equality and economic growth.

A comparative analysis of countries with varying levels of gender equality reveals that countries placing greater importance on gender equality tend to achieve better economic outcomes, particularly in terms of GDP growth and employment levels. Another key finding is that women's participation in science, technology, and research fields (HRST) greatly contributes to economic potential, especially in innovation-based economies such as the United States or specific regions of Europe. More women involved in these jobs improves work output and greatly helps make financial growth faster and steadier. Meanwhile, most of the E7 countries, despite their having high economic growth rates, still face gender inequality within labor markets and in access to education. These disparities continue to obstruct economic growth along with preventing the full utilization of the population's potential.

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Key Words: Gender Equality, Economic Growth, Labor Productivity, Social Inequalities

The Price of Green: Understanding the Economic Impact of Urban Park Development

Abstract ID: 1844.0.0.23.2025

Track 3: Economic Development

Individual Paper Presentation Submission

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Urban parks are widely recognized as valuable public infrastructure that enhances environmental quality, public health, and urban livability. However, their economic impact on housing markets remains complex, as price effects depend on proximity, development timing, and spatial spillover dynamics. While prior research has demonstrated that parks increase property values, most studies rely on cross-sectional hedonic pricing models, which fail to capture causal price adjustments before and after park development. This study addresses this gap by employing a Difference-in-Differences (DiD) approach to analyze the real estate impact of Gwanggyo Lake Park, South Korea, a large urban park developed in a planned new town setting.

Gwanggyo New Town provides an ideal setting for evaluating park-induced real estate appreciation due to its planned urban structure and the sequential timing of park development. As Gwanggyo Lake Park (2.02 million m²) was completed in November 2013 after most residential developments, this sequencing offers a quasi-experimental framework for comparing housing price dynamics before (2011–2013) and after (2014–2016) the park's completion. Utilizing 7,992 apartment transactions, the study examines price changes for properties within 500 meters and 1000 meters of the park against those beyond 1000 meters, leveraging South Korea's transparent real estate transaction data to minimize selection bias.

The findings reveal spatially differentiated price effects. Properties within 500 meters of the park exhibited a 15.9% price increase before the park's completion, suggesting that anticipated benefits were largely incorporated into pre-development prices. As a result, their post-development appreciation was relatively modest at 3.1%. In contrast, properties within 1000 meters experienced a significant post-development price increase of 18.7%, indicating a strong spatial spillover effect where the park's economic benefits extended beyond immediate adjacency. Additionally, regression analyses confirm that building age (-2.5% per decade), unit size (+4.3% per 10 m²), and total household count (+7.2% for larger complexes) significantly influenced housing prices, underscoring the importance of accounting for structural housing characteristics in park-related valuation studies.

This study makes three key contributions to the literature on urban economics and land value uplift from public investments. First, it differentiates market anticipation effects from realized price gains, providing empirical evidence that housing markets incorporate expected benefits long before public infrastructure is completed. Second, it identifies spatial spillover effects, demonstrating that price appreciation is maximized not in immediate proximity to parks but at intermediate distances, where accessibility is optimized while congestion-related disamenities remain limited. Third, it provides actionable insights for urban planners and policymakers, emphasizing that strategic park placement and complementary infrastructure investments can enhance real estate value appreciation over the long term.

From a policy perspective, these findings suggest that real estate value capture mechanisms, such as land value taxation or development-based financing, could help cities recover part of the economic benefits generated by urban parks. Moreover, cities should consider the optimal timing of park development relative to housing construction, as well as the spatial distribution of park-induced value gains, to maximize economic efficiency.

By demonstrating that urban parks are not just environmental amenities but also strategic economic assets, this study highlights the importance of spatial and temporal considerations in green infrastructure planning. These insights contribute to evidence-based policymaking and provide a framework for optimizing public investments in urban green spaces for both economic and social sustainability.

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Key Words: Urban Park Development, Housing Price Dynamics, Difference-in-Differences, Spatial Spillover Effect, Anticipation Effect

The Private Equity “Roll-up” of Local Businesses

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Track 3: Economic Development

Individual Paper Presentation Submission

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Financialization is broadly defined as the increasing role of finance at the level of economies, firms, and households (Aalbers, 2019). At the firm level, it entails the prioritization of investors’ and managers’ interests, intersecting with growing scholarly interest in asset manager capitalism (Braun & Christophers, 2024; Christophers, 2023; Gibadullina, 2024). One way in which the financialization of firms occurs is through private equity (PE) investments in small to medium-sized, locally serving businesses. PE firms raise large pools of capital from institutional investors and wealthy individuals, with the promise of high returns. Acting as financial intermediaries, they acquire local businesses—such as lumber yards, plumbing companies, and veterinary clinics—engaging in a “rolling up” strategy, where smaller businesses are consolidated into larger entities. They target underperforming or undervalued businesses, implementing management changes to enhance their value before selling them for maximum returns, with the aim of delivering returns to investors. Some local businesses, characterized by stable cash flows and short-to medium-term profit potential, are particularly attractive to PE investors. The regulatory environment governing PE firms differs from that of publicly held companies, allowing PE firms to manage the business they acquire with greater opacity and a higher tolerance for financial risk, with implications for employees, customers, and communities (Appelbaum & Batt, 2014). While PE firms can generate substantial financial gains for their investors and fund managers, they may negatively affect the acquired businesses’ employees and community access to local goods and services. This exploratory study examines private equity firm transactions between 2014 and 2025 across the United States to assess the nature and magnitude of this phenomenon. We examine the types of businesses targeted by PE firms, map their geographic distribution, and evaluate the broader implications of the financialization of local businesses for community access and urban planning.

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Key Words: Financialization, Private Equity, Asset Manager Capitalism

Tracing the career trajectories of high-skilled entrepreneurs in the U.S.

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Track 3: Economic Development

Individual Paper Presentation Submission

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New firms play a crucial role in the local economy by creating jobs, fostering innovation, and facilitating economic growth. However, the extent of their impact varies significantly across industries and business types. During the pandemic, the number of businesses in low-barrier industries, those requiring lower skill levels and contributing less significantly to local economic growth, increased substantially (Kalenkoski and Pabilonia, 2022). While the growth of low-barrier businesses has been well-documented, the dynamics of high-skilled businesses, which play a substantial role in job creation and are crucial to the local economy (Gittell et al. 2014), remain relatively underexplored in existing research, particularly in the post-pandemic context.

This paper aims to address this gap by analyzing the major career trajectories of entrepreneurs in knowledge-intensive industries during the pre- and post-pandemic periods. Using sequence analysis and Current Population Survey data, this study identifies 7 major career trajectories, including stable high-skilled business ownership, wage-based employment, transitions between high-skilled business and wage employment, transitions between high-skilled and low-skilled business, and precarious business ownership. Notably, the prevalence of both stable high-skilled business ownership and precarious business ownership increased in the post-pandemic period. The demographic composition of those in stable high-skilled self-employment has shifted in post-pandemic periods, with younger individuals and those with higher education now more likely to pursue this path. This trend suggests that competition within highly skilled businesses has intensified, making long-term success increasingly challenging.

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Key Words: high-skilled, business, career trajectories, economic development, pandemic

Unraveling the Spatiotemporal Dynamics of Business Activity in U.S. Metropolitan Areas

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Track 3: Economic Development

Individual Paper Presentation Submission

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The urban form has been recognized as one of the fundamental determinants of economic performance across metropolitan regions, influencing the viability of new business formation, business expansion, and overall economic resilience (Hamidi & Zandiatashbar, 2019; Cissé, Dubé, & Brunelle, 2020). While a substantial body of literature has explored cross-sectional determinants of firm or business formation, less attention has been paid to the longitudinal dimensions of this relationship—how urban form influences the temporal trajectories of business dynamics (Ahlfeldt, Pietrostefani, Schumann, & Matsumoto, 2018). This study seeks to advance this inquiry by examining the association between urban development patterns—specifically the continuum from compactness to sprawl—and the dynamics of business establishments across 202 metropolitan statistical areas (MSAs) from 2000 to 2019 in the United States, thereby addressing a critical gap in the literature before the COVID-19 pandemic occurred.

This study leverages the time-series business establishment data extracted from the Census Bureau's Business Dynamics Statistics (BDS) database. The BDS provides annual aggregated counts of business establishments categorized by age, employee size, and industrial sector across various spatial scales—from county and MSAs to states. This database allows for the construction of robust measures of new business birth rates, as well as the identification of establishment deaths (exits) and the tracking of business survival over time. To quantify urban development patterns, this study utilizes various urban compactness measures, including the 2010 urban compactness index developed by Ewing and Hamidi—a comprehensive measure encompassing development density, land use mix, centeredness, and street connectivity. This study also supplements this with other relevant time-invariant and time-varying covariates from various Census Bureau datasets, including the American Community Survey (ACS), EPA's Smart Location Database, and County Business Patterns, to control for socioeconomic, demographic, and economic factors that may influence business dynamics.

The methodological approach in this study involves two complementary longitudinal modeling strategies. First, spline linear growth curve models within a multilevel framework assess within- and between-MSA differences in new business formation trajectories, accounting for temporal variations induced by the Great Recession (2007-2009) (Grimm, Ram, & Estabrook, 2016). Segmenting the analysis into pre-, during-, and post-recession phases enables examination of how urban compactness potentially mitigates adverse economic impacts. This study hypothesizes that compact MSAs exhibit enhanced economic resilience, reflected in less pronounced declines in new business formation during recessionary periods.

Second, Generalized Additive Mixed Models (GAMMs) provide a flexible, non-parametric approach to capture possible non-linear relationships between urban compactness and the longitudinal trends in business formation, exits, and survival rates (Wood, 2017). GAMMs are suitable for identifying critical thresholds or optimal compactness ranges conducive to sustainable business growth and longevity, exploring how interactions between urban form and temporal dynamics influence business outcomes.

By integrating spline linear growth curve models and GAMMs, this study offers a nuanced understanding of urban form's multifaceted impact on business dynamics over time. Findings from this research will equip urban planners, policymakers, and economic developers with actionable insights to design the built environments that promote sustained economic growth, entrepreneurial vitality, and robust business ecosystems. The research advances methodological practices by demonstrating the value of combined piecewise linear and non-parametric longitudinal modeling techniques, enhancing the analysis of complex urban economic dynamics.

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Key Words: Business Dynamics, Urban Compactness, Metropolitan Areas, Growth Curve Modeling, GAMM Modeling

When Did Deindustrialization Start? Reexamining Industrial Decline in Metro Detroit

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Track 3: Economic Development

Individual Paper Presentation Submission

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Deindustrialization is often acknowledged as a planning problem due to its connection with job loss, unemployment, loss of fiscal capacity, and the threat of population loss. The term, first introduced in the 1980s, is generally used to describe the erosion of manufacturing employment and investments at a national or subnational scale (Bluestone & Harrison 1982). Since that time, the threat and effects of deindustrialization have motivated and justified various local and state-led economic development planning and policy efforts—such as industrial retention, industrial diversification, cluster-based strategies and worker training programs—especially in regions that were highly specialized in manufacturing activities in “Rust Belt” areas of the US Northeast and Midwest (Wolman et al 2015).

But when did deindustrialization begin to impact cities and regions in the US Rust Belt? The beginning of deindustrialization in the US is often associated with the 1970s. Urban and labor historians have argued that cities in the Rust Belt began deindustrializing earlier, in the 1950s, as firms decentralized their factories and adopted labor-reducing technologies (Sugrue 2014). Other scholars focus on the 1920s as a turning point (Lewis 2020). This paper argues that the starting date of deindustrialization in the United States Rust Belt hinges on the scale at which it is studied. We develop this argument through a case study of manufacturing employment patterns in Metro Detroit. By examining industrial restructuring in Metro Detroit at the level of factory districts, this paper shows that the region’s oldest industrial zones began declining in the late 1910s and 1920s—not the 1950s or 1970s—due to the relocation of firms to outlying industrial areas and the decline of legacy industries. These older industrial districts entered a long-term process of downgrading and job shedding, and their gradual abandonment contributed to fiscal decay in Detroit and older suburbs such as Highland Park (Thomas 2013).

In reaching this conclusion we brought together a variety of sources indicating the location of industrial employment over time. First, we used statistics from the Census of Manufactures to understand two trends from 1889 forward: 1) the change in manufacturing employment within each municipality in Metro Detroit, and 2) the change in manufacturing employment within each of Detroit’s leading industries. Then, to understand employment changes within the city of Detroit, we gathered firm-level employment data from the Michigan Labor Department (1894-1920), and the Employers’ Association of Detroit (1920-1929). In conjunction with fire insurance maps, real estate maps, trade catalogs, and city directories, we used this data to track the development of Metro Detroit’s industrial districts over time and to roughly gauge employment levels within each district in the decades leading up to the Depression. To explain the trends we observed, we consulted a range of primary and secondary sources, including newspaper articles, trade journals, government reports, and academic studies. Based on our findings, we conclude that Metro Detroit’s oldest industrial districts were in fact declining by the 1920s, even as the city experienced tremendous growth on the periphery, both inside and outside of its municipal boundaries. We affirm the need for greater consideration of finer-grained spatial patterns of growth and decline in regional industry analysis.

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Key Words: legacy cities, industrial restructuring, automotive industry, labor, economic geography

Whose Image? Unraveling the Branding Image of Memphis, Tennessee

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Track 3: Economic Development

Individual Paper Presentation Submission

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The concept of city image has been described in multiple ways in the literature about urban places and has evolved over time in public policy. For example, Lynch (1960) focuses on how physical elements shape a city's identity. Lefebvre (1991) argues that a city's identity is not just about buildings but also about how people live, interact, and feel about their surroundings. But in practice, city image is also constructed by policymakers and city boosters through city branding. In recent decades, shifts in the economic structuring of American cities, and changes in political economy have led cities to emphasize urban tourism, cultural amenities, and consumption-oriented development. In this context, cities must rely on place marketing to project a unique image to draw visitors and investors. However, the curation of image can lead to tension through cultural commodification. Cleave & Arku (2022) argue that any branding is the outcome of a growth machine.

Memphis, Tennessee, provides a robust setting to study the evolution and construction of city image. Memphis represents a typical mid-size southern American city that has dealt with deindustrialization, poverty, and resource constraints. It has been subject to all the rationales that make image an important part of public policy and has attempted to promote its cultural history to appeal to creative class workers and increase consumption-oriented development. The city has a rich culture to market – with signature food (barbecue), a well-known music heritage (blues, soul, and rock and roll) and iconic landmarks (Graceland, Beale Street.). As Memphis evolved from cotton-based agriculture and trade to manufacturing, and later to logistics and biotech, its internal and external imagery evolved as well. Phrases used to describe the city include “birthplace of rock and roll”, “America’s aerropolis”, and “grit and grind” – a term popularized by the NBA Memphis Grizzlies and adopted by many to represent the city. As Rushing (2009) argues, Memphis embodies a “paradox of place,” with each potential curated image creating opportunities for conflict and tension between authenticity and commercialization. For example, while “grit and grind,” may resonate with some, it might turn off others. An emphasis on the city’s musical past may have a negative impact on actors in the city’s current music scene.

This research is the first phase of a multi-step project. Phase one will focus on understanding current branding efforts in the city. This will provide a foundation for future research that will measure how residents perceive the authenticity of these branding efforts, and whether that varies by demographic differences.

The study will advance scholarship by bridging Lynch’s physical-centric model with Lefebvre’s tripartite framework of conceived, perceived and lived experience (Piazzoni, 2018). The study’s findings will illustrate a) how the branding of Memphis has evolved historically, b) who brands the city, c) what elements they choose to represent the city, and d) who the city is being marketed to. The findings will determine if these differ across organizational attributes. The study employs a purposive sampling for selecting case study organizations based on predefined attributes (architecture, history, science, society, culture, economy) and company types (formal/informal, local/international), followed by semi-structured interviews. The research also includes an archival review of branding materials, a literature review, and media representations to trace the evolution of Memphis’s image over time.

The implications of this research are significant for urban planners, policymakers, and marketers who seek to design branding strategies that are both economically effective and culturally authentic. The results of the study benefit mid-sized cities like Memphis, which are seeking to rebrand themselves or improve their existing branding strategies.

Citations:

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Key Words: City branding, City image, Economic development, Authenticity

Track 3 Research in Motion (RiM)

The Co-evolution of Innovative Industries in U.S. Older Industrial Region

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Track 3: Economic Development

Research-in-Motion Presentation Submission, Research currently in process

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In recent decades, scholars and policymakers have been increasingly interested in how regions foster new economic activities and adapt to industrial change. As global supply chain disruptions, geopolitical shifts, and national industrial policies reshape economic landscapes, understanding the mechanisms of regional path development has become more critical than ever. Many governments have introduced policies to secure domestic supply chains in key industries, while firms are reorganizing production networks to mitigate external risks. These shifts create both challenges and opportunities for regional economies, particularly in older industrial regions seeking to leverage existing capabilities for new industrial growth.

The research addresses the following research questions: How do local and non-local dynamics shape the path development of industries in the region? Furthermore, how do these dynamics drive the functional transformation of regions—including changes in factor conditions, institutional infrastructure, and skill and technological specialization? This study examines the evolution of two innovative but also incumbent industries—electric vehicles (EVs) and semiconductors—in Ohio, a core state in the U.S. industrial Midwest. I analyze firm entry and exit patterns, employment changes, and occupational shifts, considering the organization of production of each industry, governance structures, and the institutional environment.

In this Research-in-Motion presentation, I focus on analyzing the value chains of the EV and chips industries to identify related sectors and assess the role of Ohio's regional economies over time. This analysis utilizes firm data and sector-specific employment data. Additionally, by leveraging data on occupations within each industry sector, this phase of the study aims to uncover the specific functions these regional economies have undertaken and how they have evolved. Incorporating occupation- and job-related aspects beyond industry aspects, including firm data, helps address the limitation of industry-based analysis, which often fails to capture the regional capabilities embedded in occupational structures.

This approach enables a deeper understanding of the functions that regions perform and provides a foundation for exploring the interrelatedness and co-evolution of two seemingly unrelated industries. The following phase of research will focus on the role played by various agents and the institutional environment in leveraging regional assets and driving the functional transformation of these two industries. Furthermore, this study's focus on EVs and semiconductors captures how recent place-based policies, such as the Inflation Reduction Act (IRA) and the CHIPS Act, have created new opportunities for regional economic development and planning. Although the long-term effects of these policies are uncertain due to potential political and economic shifts, this research highlights how such policies can drive industrial diversification and economic transformation in older industrial regions. By bridging economic geography with regional planning, this research underscores the importance of aligning regional development strategies with evolving industrial policies and local capabilities, offering a framework for guiding economic renewal in the face of broader global shifts.

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Key Words: Economic transformation, Path development, Diversification, Older industrial region, Innovative industries

Understanding Neighbourhood Effects on Post-Pandemic Business Recovery in Vancouver, Canada

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Track 3: Economic Development

Research-in-Motion Presentation Submission, Research currently in process

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Local businesses play a critical role in community recovery and resilience following disasters. However, the spatial context in which they operate has received limited attention. Previous economic recovery literature has primarily focused either on business-level strategies or broader macroeconomic outcomes. As a result, the influence of neighbourhood-level (meso-scale) characteristics on post-disaster business survival and recovery remains a missing middle. This study addresses this gap by investigating how neighbourhood contexts—including local economic conditions, neighbourhood safety, geographic location, and urban planning interventions—affect business survival across different phases following the COVID-19 pandemic in Vancouver, Canada. Specifically, it explores the question: “How do neighbourhood characteristics influence business survival in the immediate aftermath, during the sustained disruption, and in the extended recovery phases of the pandemic?”

The COVID-19 pandemic, which brought prolonged and large-scale impacts, offered a unique opportunity to understand disaster recovery. While some lessons and findings align with those drawn from natural hazard contexts, the pandemic has also highlighted distinct differences (Chang et al., 2022).

Adopting a mixed-methods approach, this study combines quantitative multilevel modelling and qualitative business interviews. The quantitative component applies multilevel logistic regression to hierarchical data (businesses nested within neighbourhoods) to identify statistically significant factors influencing business survival from 2019 to 2022. These findings guide the qualitative phase by informing participant selection and developing interview questions to explore mechanisms behind the statistical relationships. Interviews with both surviving and closed businesses contextualize how neighbourhood characteristics and planning interventions influenced their recovery experiences, including reasons behind the limited effectiveness of specific urban planning interventions like neighbourhood plazas and slow streets.

Preliminary findings indicate significant temporal shifts and disparities in neighbourhood influences on business recovery. In the initial phase of the pandemic, business-specific characteristics such as the age and size were particularly critical, while neighbourhood safety appeared to compound disruptions. As the pandemic continued, neighbourhood characteristics—including local economic conditions, business environment, and geographic location—became increasingly influential. Over the extended recovery phase, the broader neighbourhood context became even more significant, with business recovery strongly influenced by nearby business closures, downtown location challenges, and neighbourhood socioeconomic changes. These findings highlight the need for targeted planning approaches and interventions that consider neighbourhood contexts, especially during prolonged recovery from large-scale disruptions.

Citations:

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Key Words: Business recovery, COVID-19 pandemic, Economic disasters, Neighbourhood effect

Understanding the Impact of Automation: The Case of Long-Haul Commercial Truck Driving in the U.S.

Abstract ID: 1842.0.0.548.2025

Track 3: Economic Development

Research-in-Motion Presentation Submission, Research currently in process

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Long-haul truck driving remains one of the largest and best-paying occupations for many workers, especially those lacking formal education. At the same time, automated commercial motor vehicles (ACMVs) are currently being developed and portend a transformational impact on the trucking industry and the close to 2.1 million workers that support it. Proponents argue that ACMVs provide enhanced fuel economy, lower travel times, and improved safety and offer a potential solution to the ever-growing supply chain and trucker shortage. The adoption of more automated driving assistance technologies might also make truck driving more attractive to a newer generation and different types of workers. However, while the gains from ACMVs might be widespread, the losses are likely to have acute effects on specific geographic regions and demographic groups — potentially worsening existing inequalities.

This study presents some initial results from an NSF-supported study of the impact of automated driving technology on long-haul truck driving. Not just in terms of lost jobs and income but on the people and communities that are most likely to be affected. We also situate our results for different possible adoption scenarios in terms of the timeline of adoption, extent of proliferation, suitable driving conditions, and whether they will still require a human in the cab or be driverless. Our analysis draws upon interviews with drivers, discussions with technology companies and developers, and the analysis of secondary occupational, demographic, and industry data. Our study offers valuable insights that planners and policymakers may find helpful in developing strategies to protect vulnerable communities in the face of economic and technological change.

Citations:

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Key Words: Future of work, workforce development, automation, regional economic impact

What are the Barriers to Successful Brownfields Workforce Development Programs?

Abstract ID: 1842.0.0.629.2025

Track 3: Economic Development

Research-in-Motion Presentation Submission, Research currently in process

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Workforce development is a term frequently used across economic development literature and is emerging as a key component of community economic development programs. Formally, Workforce development programs encompass programs, policies, practices and institutions that help labor market actors create, sustain and retain a skilled workforce (Schrock 2013, Leigh and Blakely 2013). Demographic and economic transitions, rapid changes in technology and changes in federal programs have created a changing landscape within which individuals, employers, public-sector and non-profit workforce development agencies operate within. Workforce development programs are often viewed as “people centered” economic development strategies and as a path to more equitable economic development (Tan et al. 2016; Garmise 2006) but reviews of current workforce development programs suggest that mainstream approaches to designing and implementing programs are dated and this may contribute to a “skills gap” between many in the workforce and potential employers (Lowe 2021; Zaber et al. 2019). In addition, questions exist about the effectiveness and efficiency of various workforce development programs (Hollenbeck and Huang 2016; Simons 2013; Eberts, Bartik and Huang 2011).

Presenting the results of 14 semi-structured interviews and three case studies of workforce development agencies that received EPA issued brownfields job training grants between 2018-2023, this Research in Motion paper identifies the organizational, contextual and programmatic issues workforce development agencies encounter in implementing job training programs. These organizations, termed “workforce intermediaries” (Lowe 2021) in that they work to directly match employer needs with a trained workforce, have emerged as key actors in training people for careers in the “green economy.” Working with key program informants at these agencies, the multiple case study method systematically identifies barriers to successful brownfields job training grant programs and adds to our understanding of factors that contribute to the successful implementation of workforce development programs.

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Key Words: Brownfields, Workforce Development

Track 4 – Environmental Planning & Resource Development

Track 4 Pre-Organized Session Summaries and Abstracts for the Sessions

Contested Waters: Planning at the Intersection of Human, Ecological, and Property Rights

Abstract ID: 1840.0.0.873.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Session Summary

Session Includes: 1844.0.0.115.2025, 1844.0.0.399.2025, 1844.0.0.482.2025, 1844.0.0.761.2025

Charisma Acey [University of California, Berkeley] charisma.acey@berkeley.edu, organizer

This session explores the tensions and alignments among human, ecological, and property rights in water and land governance. Drawing from cases in Ecuador, Brazil, Ghana, and the U.S., panelists examine how rights of rivers, wetland conservation, exclusionary zoning, and land value capture intersect with planning systems and legal frameworks. The session highlights how environmental planning and governance is being reshaped by legal innovations such as rights of nature and by struggles over the human right to water, access, pollution, and resilience. Papers use methods from legal geography, political ecology, and spatial analysis to surface how planning mediates conflicts between ecological systems, infrastructure, and rights claims. Collectively, the panel calls for integrative planning approaches that center environmental justice, collective agency, and socio-ecological interdependence.

Learning Objectives:

- Analyze how legal innovations such as rights of nature and the human right to water are reshaping urban and regional planning approaches across diverse international contexts.
- Evaluate the role of planning institutions in mediating tensions between ecological sustainability, infrastructure development, and property rights, particularly in contexts of environmental injustice and urban informality.
- Identify integrative planning strategies that recognize both human and ecological rights and promote equitable access to water, land, and environmental decision-making.

Courts, Rights of Rivers, and the City of Quito, Ecuador

Abstract ID: 1844.0.0.115.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Around the world more attention is being given to rights-based approaches to environmental protection of water and rivers (Eckstein et al., 2019; Kang, 2019). In this paper we explore the shift from an anthropocentric view of environmental protection, more common in Global North jurisprudence, to an ecocentric approach, which is emerging in the Global South (Martínez-Moscoso et al. 2023). Specifically we ask, How are Rights of Nature linked to anthropocentric concerns, even as they espouse more ecocentric positions? We explore how both positions appear in the legal arguments and lead to a broader ecosystem view that incorporates nature and society. We also explore how rights of nature links to rights to the city (Attoh 2011, Purcell 2022) in the context of water resource management.

We use the case of the River Monjas in Quito, Ecuador to show how judicial decisions have made rivers subjects of rights and how these are articulated in practice. Urban rivers promote habitats, support ecosystems, and provide human access to water. For cities in Latin America, lack of wastewater treatment generates contamination and risks people's right to safe, healthy, and pollution-free habitat. Citizen demand has forced politicians to expand environmental rights to include rights of nature. We find that, instead of a dichotomy between anthropocentric and ecocentric concept of rights, the two are combined in a broader ecosystem framework which links rights of nature (right of the river to flow, to be clean), to rights to the city (historical preservation, access to nature). We also show how the courts focused on the obligation of the City of Quito to ensure river rights, and not the role of the state or the private sector contaminators. This raises critical questions for planners about who speaks for nature and who pays for its protection.

Citations:

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Key Words: rights of nature, right to the city, rivers, municipal responsibility, Ecuador

Recognizing Nature, Rethinking Planning: Rights of Nature in Brazilian Municipalities

Abstract ID: 1844.0.0.399.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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In recent years, several Latin American countries have recognized the Rights of Nature in their Constitutions, with Ecuador's 2008 case often mentioned as pioneering (Cano Pecharroman, 2018; Etchart, 2022). These legal innovations point to a broader shift toward frameworks emphasizing nature-society relations and Indigenous ways of knowing. This convergence opens an opportunity to rethink urban planning through decolonial principles of relationality, reciprocity, and collective responsibility (Porter, 2020; Radcliffe, 2017; Jackson, 2005). Yet, the implications of Rights of Nature frameworks for the way cities are planned and governed remain underexplored.

While countries like Ecuador were early to recognize nature as a subject of rights at the constitutional level, Brazil presents a compelling example for examining how these frameworks take shape through municipal initiatives. This article examines recent Brazilian municipal cases recognizing the Rights of Nature to explore whether and in what ways this movement is fostering forms of urban planning aligned with decolonial principles. Through the experiences of Florianópolis (Santa Catarina) and Guajará-Mirim (Rondônia), the study analyzes the legal and socio-political processes that led to the recognition of nature as a subject of rights, mapping the actors involved, the institutional mechanisms employed—such as amendments to municipal organic laws and judicial decisions—and the socio-ecological implications of these processes.

The paper draws on qualitative content analysis (Hsieh & Shannon, 2005), guided by theoretical insights from Rights of Nature approaches and decolonial planning theory (Porter, 2020; Etchart, 2022). It examines primary sources such as municipal laws, court rulings, legislative records, and publicly available information from official judicial and government websites, alongside semi-structured interviews with key stakeholders involved in these initiatives. Preliminary findings suggest that these legal innovations challenge longstanding human-centered planning paradigms, creating space for more inclusive, participatory, and ecologically grounded forms of governance—as exemplified by the multi-stakeholder council established to oversee the Conceição Lagoon in Florianópolis. By centering Indigenous knowledge systems and community-based advocacy, the cases point to an emerging shift toward relational and nature-centered planning practices.

Citations:

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Key Words: Rights of Nature, Decolonial Planning, Water Governance, Brazil

A powercube analysis of cumulative rights and burdens in water-land access in Orchard Park, NY

Abstract ID: 1844.0.0.482.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Property is a bundle of cumulative rights, riddled with asymmetric power relationships. The cumulative nature of property rights implies that holding some rights (e.g., rights to access, withdrawal, management, exclusion, and alienation) often implies the (dis)possession of others (Lee, 2011; Frimpong Boamah et al., 2020). These rights are coded in institutional frameworks at multiple scales, including local, state, and federal regulations in areas such as zoning, soil and water conservation, land banks and trusts, water service agreements, and farmland protection (Fischel, 1987. Ashwood et al., 2019). This paper leverages the water-land nexus to probe the (1) actor-network of rights held by various actors in water and land resources, (2) power relations embedded in this actor-network, including the mechanisms through which various water and land rights are marginalized, and (3) spaces of resistance for those whose rights and interests in water and land are marginalized. The empirical case for the analysis unfolds around Providence Farm Collective (PFC) in Orchard Park, NY, which is a farmer-led nonprofit focused on promoting access to land for ecologically sound, culturally sensitive, and healthy food systems among under-resourced communities. PFC was started by refugees and immigrants, who organized themselves to purchase rural agricultural land for farming and agricultural entrepreneurship. Farmers' land and water rights soon became entangled in the complex web of institutional structures and power relations when the Orchard Park Town Board refused to sign off on a certificate of occupancy, preventing PFC's access to running water for their newly constructed \$2.3million barn. The paper's analysis draws from Gaventa's (2006) powercube framework to offer an understanding of how land and water rights become imbricated in the politics of exclusion, marginalization, and dispossession fostered through zoning, water (re)districting, and agricultural land stewardship. It also provides opportunities for conversations around the crucial role of collective action to resist and reform formal and informal governance arrangements, such as zoning ordinance and water districting plans, that work to marginalize water and land rights for under-resourced communities.

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Key Words: water, land, property rights, zoning, institutions

Land Value Capture and the Right to Avoid Water: The Case of Charleston, SC

Abstract ID: 1844.0.0.761.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

James Spencer [Louisiana State University] jhs@lsu.edu, presenting author

(Part of Special Session organized by Charisma Acey) Increased urban flooding in vulnerable coastal communities has presented a difficult question of how to provide mitigation infrastructure and how does it get paid for. Although there is quite some evidence of the positive impact of climate change adaptation on property values, real estate developers have been shown to be slow to incorporate the such costs into their developments, leaving public policy as the primary tool for mitigation, and Land Value Capture (LVC) has been proposed a viable, market-oriented solution. This case study of the Charleston, North Charleston, and Mount Pleasant region of South Carolina, which is extremely vulnerable to climate risk and in need of climate adaptation measures, assesses current efforts to limit urban flooding, reviews developers' willingness to pay for flood mitigation infrastructure, and assesses the appropriateness of LVC policies to meet the fiscal cost of mitigation infrastructure. In particular, the paper presents the LVC policies in the context of residents' abilities and rights to avoid water in the face of increasing flood events.

Citations:

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Key Words: Land Value Capture, tax policy, urban flooding, equity

Living With Fire: Planning, Evacuation, and Recovery in the Face of Urban Wildfire

Abstract ID: 1840.0.0.974.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Session Summary

Session Includes: 1844.0.0.800.2025, 1844.0.0.904.2025, 1844.0.0.954.2025, 1844.0.0.940.2025

Matthew Palm [University of North Carolina Chapel Hill] palmatt@unc.edu, organizer

Wildfires are increasingly reaching urban areas, revealing vulnerabilities in land use, transportation, and community resilience. This session opens with a comparative look at the 2023 Lahaina and 2025 Los Angeles wildfires, highlighting built environment impacts using geospatial imagery and emphasizing the need for restorative planning and community capacity building. A second paper examines how vehicle access shaped evacuation mode choice for LA transit riders, as well as health impacts, air pollution exposure, and transportation insecurity. The third paper explores where evacuees abandoned vehicles to escape on foot, testing for street network design effects. The final paper analyzes how the LA fires, associated smoke, and a temporary fare-free policy impacted LA Metro ridership and bus service performance. Together, these papers offer a multidisciplinary perspective on wildfire response—blending equity, infrastructure, and community recovery to inform future planning.

Learning Objectives:

- Understand how transit riders and people without vehicles evacuate from fast-moving wildfires.
- Understand how at-risk and vulnerable populations are harmed by fast-moving wildfires, and how fast-moving wildfires and associated air pollution impact transit ridership.

Planning for Resilience: Lessons from Lahaina and LA Fire Disasters

Abstract ID: 1844.0.0.800.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Using data from devastating fires in Hawaii and California, the challenges to planners and the communities they serve are described and analyzed. In addition to summarizing impacts derived from satellite, aerial, and 360 imagery and other data from other sources, response and recovery efforts are also described. While there are similarities between the Lahaina and Los Angeles fire disasters, the challenges of mutual aid, response and especially debris management for remote island communities are much greater than connected urban areas. Yet the concerns related to transportation systems especially related to evacuation and management of the movements of people, vehicles, and equipment before, during and after emergencies require attention to planning, prioritization, decision-making and allocation of assets and limited resources. In addition to the questions of the who, what, and where is saved or left behind, the need for cooperative, collective, community action is needed. During disasters, formal systems for search and rescue, mass care, and supporting the needs of vulnerable, at-risk people can be quickly overwhelmed. These constraints and limitations also impact debris management, cleanup and restoration, rebuilding and recovery. Especially with fire disasters, there are many opportunities for land use planning and risk reduction. Positive collective action and support of communities impacted by climate and extreme weather events requires more attention, resources, data sharing, and planning processes to not just hasten recovery but to ensure more equitable, just outcomes. Planners and community builders need more than ever to engage in sharing data and observations of what worked and what did not in terms of response and recovery efforts to be included in mitigation plans, adaptation strategies, risk transfer and insurance mechanisms and broader initiatives to build and sustain resilient communities. (Please note this paper is co-authored with Emma French)

Citations:

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Key Words: wildfire, community resilience, hazard mitigation, disaster governance

Where Wildfire Evacuees Abandon Their Cars & What It Says About Our Road Network

Abstract ID: 1844.0.0.904.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Wildfire risk is increasing in many parts of the world, necessitating more evacuations to move people to safety. Fast-moving wildfires, typically fueled by harsh winds and dry conditions, are particularly dangerous, swiftly decimating communities and often leaving insufficient time for evacuation (Cova et al., 2021; Grajdura et al., 2021, 2022). In these events, evacuees can abandon vehicles to seek safety on foot. The decision to abandon a vehicle can mean life or death; many fatalities from both the 2018 Camp Fire and 2023 Maui wildfires involved individuals waiting in their cars for traffic to subside (Kelleher & Lauer, 2024; Miller, 2020). Evacuation planning does not yet account for this phenomenon, which creates complexities within the evacuation process and subsequent recovery, including impeding evacuation routes for evacuees and emergency responders and requiring agencies to procure additional resources to clear roadways. Further, transportation planners have not fully explored the potential role of street network design choices in contributing to this dangerous phenomenon.

The Palisades and Eaton fires encroached on the urban footprint of the Los Angeles basin. The first, which originated in the Santa Monica Mountains, overtook built out areas with elements of curvilinear, dendritic, and highly topographically constrained road networks, raising the risk of key arterials becoming bottlenecked during evacuations. At the fire's onset, multiple news outlets reported residents abandoning their vehicles and fleeing through these roads on foot. The Eaton fire, in contrast, burned past the curvilinear and dendritic edges and into more traditional neighborhoods characterized by gridded street layouts, with similar reports of residents abandoning vehicles and fleeing on foot.

We fill a critical gap in knowledge surrounding where cars are abandoned during wildfire evacuations; we ask where cars are abandoned in the road network and what is the relationship between these locations and the street network configuration? We carry out this research using traffic data such as origin-destination paths, road closures, and congestion data for the 2025 Los Angeles wildfires, combined with satellite imagery and interviews with key agencies and emergency personnel. Using the traffic data, we conduct hot-spot analysis and clustering of stopped trips to identify the problematic locations. Qualitative findings contextualize the results and provide guidance for identifying best practices in addressing abandoned vehicles in wildfire evacuations.

This work builds a foundation for improving health and safety of communities in fire-prone areas by providing much-needed information on managing evacuations given the risk of vehicle abandonment. Our findings provide planners with insights into how to design resilient communities that can provide residents with safe means of escape. This research will allow communities and decision makers to make informed choices on how to adapt to a changing climate, and to understand how, when, and where to manage vehicle abandonment risk.

Citations:

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Key Words: Emergency planning, Resilience, Evacuation, Wildfire

Health, Transit, and Evacuation in the 2025 Eaton and Palisades Wildfires

Abstract ID: 1844.0.0.954.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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The LA Basin Wildfires of January 2025 were characterized by the rapid fire expansion into urban communities, including Palisades and Altadena, California. As wildfires encroach deeper into urban communities with vulnerable and transportation-insecure households, public transit becomes vital yet understudied evacuation method (Goddard, 2024). Most existing studies of wildfire evacuations focus on vehicle-owning households and assume that evacuees will use their personal vehicles while evacuating. However, some studies have considered how evacuation outcomes change with reduced vehicle access (Grajdura et al., 2022). Further, while some studies help define transit-dependent evacuees' needs, no studies have collected near real-time data on transit riders' evacuation behavior or their adaptation behavior immediately post-evacuation. Transportation-insecure households are more likely to rely on public transit and thus face significant challenges during evacuations from fast-moving wildfires (Grajdura et al. 2021, Toledo et al. 2018). These households, often low-income and historically under-researched, also face compounded risks after evacuation: extended exposure to harmful air pollutants while evacuating and limited ability to adapt to bus service disruptions that may jeopardize access to healthcare and other essential destinations.

To better understand the evacuation experiences of these vulnerable populations, we surveyed transit riders across Los Angeles County via the Transit App in the weeks following the fires. Riders who evacuated were asked about their evacuation experiences and decision making. All respondents were asked for details about their physical and mental health before, during and after the wildfire events, and continued transportation barriers post-fires. Our survey sample includes 579 responses, with 25 percent of respondents indicating they evacuated. The sample is diverse in gender, race/ethnicity, and household composition and demographically similar to LA Metro transit riders.

Our findings show that households without access to a car were more likely to evacuate using transit or walking and faced longer evacuation times with additional barriers compared to car-owning households. Similar proportions of car-owning and non-car-owning households relied on rides from others to evacuate, stressing the need for people to prepare for emergency situations by knowing neighbors or other non-household contacts. We also asked non-evacuees their likelihood of using different modes if they needed to evacuate and found similar patterns to people who evacuated with rides from family or friends or public transit being the most likely approaches. Respondents also reported negative physical and mental health effects from smoke exposure and evacuations, which varied by respondent race/ethnicity and prior health conditions. This research has important implications for how transportation agencies and emergency preparedness planners manage risks for transit-reliant and zero-vehicle households in future urban wildfire scenarios.

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Key Words: transportation, evacuation, wildfire, health, transit

Shifts in Transit Ridership And Bus Performance During the Los Angeles Wildfires

Abstract ID: 1844.0.0.940.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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The January 2025 Los Angeles wildfires expanded rapidly past the wildland-urban interface into densely populated residential communities, generating dangerous levels of air pollution across the region. In response, Los Angeles Metro - the region's largest transit agency - suspended fares for over two weeks, rerouted service away from active fire zones, and offered ongoing discounted fares to residents directly impacted by the fires.

Previous research suggests fare free transit can increase transit ridership (Bull et al., 2021), but critics contend that it does so by drawing mode share away from walking and cycling (Zipper, 2022). However, in the context of wildfires, such a shift may advance public health goals by reducing travelers' exposure to air pollution, allowing them to travel in faster, ventilated vehicles instead of walking or biking. While transit users generally face higher exposure to air pollution than private vehicle users (Cepeda et al., 2017; Van Ryswyk et al., 2021) limited evidence suggests that wildfire-induced pollution encourages mode shifts from active travel to transit- even without policy incentives - and that this effect may extend hundreds of miles from the fires themselves (Han et al., 2024).

This study evaluates the combined effects of wildfire smoke and fare-free transit on ridership during the 2025 Los Angeles wildfires. Using ridership data and General Transit Feed Specification Real-Time (GTFS-RT) data, we assess how mobility patterns changed across the city. We hypothesize that ridership increased in communities with lower vehicle ownership and decreased in areas under evacuation advisories. Additionally, we expect that in the initial days of the fires, route performance declined in neighborhoods near, but not within, evacuation zones. Our findings will help transit agencies better understand and prepare for ridership changes during air quality emergencies and fast-moving disasters, enabling them to maintain essential service delivery.

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Key Words: Wildfires, Public Transportation, Transit Ridership, Transit Performance, Air Pollution

Planners' Perspectives on Water - Climate Resilience and Adaptation

Abstract ID: 1840.0.0.699.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Session Summary

Session Includes: 1844.0.0.810.2025, 1844.0.0.284.2025, 1844.0.0.685.2025, 1844.0.0.593.2025

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Water is at the center of the climate crisis, but Planning is not at the core of global water conversations. Engineering is dominant due to institutional inertia and crisis-driven decision-making, despite advocacy for interdisciplinarity and power-sharing between engineers and social scientists for adaptive governance or evidence of reliance on infrastructure over governance hindering resilience. Amongst approaches identified to achieve water resilience in recent literature, impact of land use planning (Stoker et al 2022), need for socio-technical integration and interdisciplinarity (Cozier et al 2024), and importance of multilevel governance (Saikia & Jiménez 2023) and multi-stakeholder involvement (Huntjens et al 2015) depict a nexus of knowledge base and skill sets unique to planners, positioning them as key players in achieving resilience (Cesanek et al 2017, LUC 2023). This session provides localized actionable insights from Planning on these issues.

Learning Objectives:

- Focusing on water issue(s) within the climate resilience/adaptation milieu, addressing one/some of the critical ways planners/Planning can/has (perhaps uniquely) influence(d) resilience.
- Papers examine critical land-use and water resilience relationships, or navigating multilevel water governance, or collaborative or community-engaged planning for water, or resilience planning for water infrastructure
- One of three preorganized sessions aiming to recenter the role of Planning in water-related issues, emerging from an informal collective of ACSP researchers focused on water.

Socially Adjusted Vulnerability Assessment for Flood Mitigation at Jefferson Parish, Louisiana

Abstract ID: 1844.0.0.810.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Federal agencies assess the suitability of flood mitigation projects based on Benefit-Cost Analysis (BCA). BCAs often focus on property values and ignore the distribution of damages across different populations and how this might lead to different outcomes on total social welfare. For effective flood risk management that considers social welfare, it is essential to assess the social factors that influence an affected community's ability to respond to or recover from it. In this context, a major driver of social vulnerability is the income and wealth of at-risk populations and their relative exposure to hazards. One way to address how property protection impacts people's resilience is to shift the focus of BCAs to social welfare estimates, where individual social vulnerability is considered through relative impacts on income. Here, we propose a methodology based on equity through the lens of diminishing marginal utility of income and tenure to estimate how flood reduction and exposure will differentially impact different populations. This paper aims to produce vulnerability-weighted damage impacts for households living in single-family dwellings that make income and tenure-informed estimates of flood damage estimates incorporating marginal utility. We present a case study based on Jefferson Parish, Louisiana, using INCORE interpolated structure-based social data. This approach advances BCA methodologies, and can provide new perspectives on how to best use limited public funds to reduce vulnerability and promote social welfare through hazard mitigation. We compare our method to existing equity weighting approaches based on social categories and vulnerability indexes.

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Key Words: Benefit-Cost Analysis, Social Welfare, Equity, Social Vulnerability

Women's Empowerment in Practice: Insights from Mexico City's Rainwater Harvesting Program

Abstract ID: 1844.0.0.284.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Rainwater harvesting has long been used as a climate resilience measure in cities as it provides an alternative source of water, reducing dependence on traditional water supply systems and infrastructure that may be inadequate or vulnerable to climate extremes. In Mexico City, the city government has implemented the 'sistemas de cosecha de lluvia (SCALL)' program since 2019, involving the propagation of rainwater harvesting systems throughout the city to address the concerns of climate change, water stress, and water inequalities. Broadly considered a successful initiative in the city, over the last five years, almost 1,418 million pesos have been invested for the installation of more than 70,000 household-level rainwater harvesting systems as well as 2000 school-level systems in eleven municipalities of Mexico City.

Across the world, in many low-income communities, water provisioning for families is considered a women's task, and hence, women's empowerment is often equated with transferring the responsibility of water management systems to women. The SCALL program, predominantly led by women, challenged this narrative that 'water provisioning is a woman's task.' The leadership of the program refused to put the burden of managing rainwater harvesting systems on the already overburdened women beneficiaries of the program. They also challenged the program being put forward as a purely environmental or climate initiative and switched the narrative to make it a social initiative. Alongside, a precondition for availing of program benefits was also added, which required all family members, not just women, to participate in the system's management, undergo the necessary training, and participate in monitoring activities. The name and emblem of the rainwater harvesting system was changed from Tláloc (the god of storm) to Chalchiuhtlicue (the goddess of the lakes, streams, and rivers), signifying the change in narrative. Over time, the narrative of 'water management is a family task' seeped into the communities, and women beneficiaries could find up to an hour of daily respite to engage in leisure, social networking, and community-building activities. The paper thus is focused on the research question: How have these narrative changes led to the apparent success of the SCALL program?

To summarize, there are two levels of innovative changes in the narrative of the program that are of critical interest to this paper. The first is the change from an environmental to a social narrative while launching an initiative like rainwater harvesting and its impacts on various levels of administration and implementation. For clarity in this paper, I will call this change the 'environment to social narrative change'. The second is the change in narrative from 'water management is a woman's task' to 'water management is a family task' and its impact on beneficiaries and their day-to-day life. Through oral histories of people in leadership, the paper plans to document the iterative thought process as well as strategies that led to the design and implementation of the program over five years. This will be supplemented by quantitative and qualitative analysis of government survey data of the program. The paper aims to understand how such grounded narrative changes can be helpful in strengthening climate resilience-oriented programs and draw lessons for water management in growing Global South megacities in the era of climate change.

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Key Words: Rainwater Harvesting, Gender, Urban Water, Narratives

Margins to Mainstream: Geospatial Analysis of Nature-based Solutions for Informal Settlements

Abstract ID: 1844.0.0.685.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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In Delhi, India, storm drains (nullahs) carry runoff and un/partially treated sewage into river Yamuna, but ongoing remediation projects ignore Water, Sanitation, and Hygiene (WaSH) needs of >1 million residents of adjacent 'informal' settlements (JJs). This crisis has public health (flooding, diseases) and environmental (river pollution) dimensions. Despite substantial investment by many WaSH sector actors, access remains fragmented, hampered by tumultuous histories of "slum" eviction and institutional issues in service provision. An environmental challenge is interwoven with socio-political dynamics of service provision, requiring an approach addressing both social and ecological aspects. A decade of fieldwork, multi-stakeholder interviews, and institutional analysis revealed that Nature-Based Solutions (NbS) are being applied to WaSH and remediation projects, biophysically linking these agendas, but regulatory overlap obscures this connection and jeopardizes efforts to expand service access or remediate water bodies (Syal, 2019). At this critical juncture in Delhi's development, we provide city- and site-scale suitability analysis for nullah-adjacent JJs where NbS can be added to Community Toilet Complexes (CTCs) constructed as part of India's push to end open defecation, that are becoming pollution sources by releasing untreated or primary treated sewage into adjacent drains.

Starting with a list of 165 nullah-adjacent JJs, we eliminated sites too far away from a nullah or whose access to it is blocked by features (freeways, forests, etc.). Next, we used open-access or primary datasets for JJs and their population sizes, nullahs, and land cover for a city-scale suitability analysis identifying the subset of 107 nullah-adjacent JJs suitable for NbS based on suitable land vis-à-vis population estimates. We are conducting a sensitivity analysis using additional datasets to identify the final subset of potentially suitable sites (currently 35). For the final step—site suitability analysis—we first consolidated several literature reviews of NbS typologies used for wastewater treatment globally (Cross et al., 2021; others) to identify which ones are suited to our case based on already-established parameters like scalability (i.e., meeting population need), land requirements, filtration efficacy, and times. Next, we identified the parameters (like built-up area, rainfall, elevation, blackwater load, vegetation cover) to incorporate into the suitability analysis. We processed up-to-date spatial datasets for these parameters using open-source data where available (e.g., land use plans, satellite imagery from Maxar and Google Earth Engine), converting them into a single database of raster and vector layers. Expanding on the ALLOWS approach pioneered by Van Afferden et al. (2015) and Khurelbaatar et al. (2021), we will discuss a few cases at site scale (i.e., NbS design scale), including hydrology analyses demonstrating these projects can withstand Delhi's monsoons and avoid system overload issues common in Delhi's sewer networks.

This work complements an actor/institutional network mapping project analyzing WaSH and NbS sectors in India; together they aim to answer where and how coordinated WaSH-drain remediation projects can be implemented. While an NbS suitability analysis for Delhi exists (CSE, 2020), our paper highlights the socioecological justice opportunity provided by Delhi's interdependent drain pollution, flood mitigation, and "slum" upgradation agendas, adapting a new geospatial analysis method to the Indian context to do so. The city- and site-scale analyses provide actionable insights for NbS actors and government partners about where to pilot NbS integrated with CTCs and what typologies to explore. By offering practical insights into how NbS can prioritize vulnerable communities while

addressing critical environmental challenges, we contribute to broader discussions about climate justice in urban adaptation.

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Key Words: urban resilience, informal settlements, Nature-based Solutions, water, infrastructure

Contested Wet Futures: (Re) Planning Urban Wetlands in Africa, a case of Ghana's coastal cities

Abstract ID: 1844.0.0.593.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Urban wetlands are essential components of resilient and sustainable water systems in sub-Saharan Africa. These ecosystems maintain water quality, mitigate floods, and regulate hydrological cycles by absorbing rainwater and runoff while filtering suspended and dissolved solids from both surface and groundwater. However, despite their ecological significance, urban wetlands are experiencing rapid degradation, largely due to their marginalization in planning and governance frameworks. This neglect is particularly evident in Ghana's rapidly urbanizing coastal cities, where wetland loss is driven by weak institutional enforcement, the prioritization of property rights, and the dominance of engineered infrastructure over ecological considerations.

This paper critically examines the spatial-institutional and built environment dynamics that hinder the effective planning and conservation of urban wetlands in sub-Saharan Africa. It interrogates the role of institutional inertia, governance fragmentation, and land tenure regimes in shaping wetland futures. Using a mixed-methods approach that integrates multi-temporal satellite imagery analysis (NDVI, NDWI), policy review, and stakeholder interviews, this study tracks the transformation of wetlands from 1990 to 2024. Findings indicate a 30–50% decline in wetland areas, driven by privatization pressures and governance misalignments between water resource management and urban land-use planning. Despite growing global advocacy for nature-based solutions, wetlands remain overlooked in urban resilience strategies.

By reconceptualizing wetlands as both legal and ecological entities rather than expendable urban spaces, this paper advances the argument for governance models that balance property rights, infrastructure demands, and ecological imperatives. It situates wetlands within the broader discourse on water governance, advocating for adaptive, multi-level planning approaches that institutionalize nature-based solutions. The study contends that fostering urban resilience necessitates a paradigm shift from siloed, infrastructure-centric frameworks to integrative governance structures that embed ecological rights into urban planning. Strengthening institutional coordination and embedding wetland conservation into urban policy can promote more equitable and sustainable water futures for African cities.

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Key Words: Urban wetland loss, Coastal cities, Planning, Ghana, Environmental justice

The Capacity to Adapt: Property, Housing, and Agency in Climate Response

Abstract ID: 1840.0.0.547.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Session Summary

Session Includes: 1844.0.0.225.2025, 1844.0.0.308.2025, 1844.0.0.506.2025, 1844.0.0.81.2025, 1844.0.0.82.2025

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Many climate adaptation plans remain under-implemented, failing to address threats like wildfires, floods, and droughts. Meanwhile, everyday adaptations are constant, driven by people protecting assets and meeting basic needs. Yet planners often overlook the property institutions and governance structures that shape who can adapt. This session highlights how land use, property rights, and local governance constrain or empower those on the front lines of climate risks, including wildfire, sea level rise, and thermal insecurity. Case studies from Taiwan and California show how insecure tenure, complex permitting, and limited tenant rights reinforce unequal power relations. By revealing how official adaptation plans intersect with everyday actions, the session argues for reimagined property regimes and governance that foster equity and resilience. Participants will explore how to better support frontline communities, ensuring their needs are integrated into future planning processes.

Learning Objectives:

- Recognize how property institutions and governance arrangements influence everyday climate adaptation, especially for communities facing wildfires, sea level rise, and heat threats.
- Identify structural barriers—such as insecure tenure, complex permitting, and limited tenant rights—that undermine equitable climate resilience.
- Explore strategies for reimagining property regimes and municipal policies to enhance equity, community knowledge, and collective climate resilience.

The Centrality of Property Rights to Climate Adaptation: Cases from Taiwan

Abstract ID: 1844.0.0.225.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Property rights regimes complicate climate adaptation in ways that are socially equitable and ecological reparative (Shi et al., under review). Contemporary property rights often come with static boundaries, individual ownership, and expectations of monetary value. This can challenge planners' ability to promote collective action, adaptation under uncertainty, and ecosystems restoration. Indigenous, informal, or low-income communities' tenure insecurity also limits their control over adaptation. How have communities living in environmentally dynamic places historically dealt with risk? How have their land relations changed over time with colonialism and developmentalism? Who loses land, property rights, and power under state-led adaptation?

We explore these questions through three cases in Taiwan, where settler colonialism has shaped property rights for over a century and where typhoons, earthquakes, and landslides are frequent. Two of the researchers have engaged these communities for years, and all three conducted community tours and interviews in 2025 with dozens of residents, community leaders, and civil servants about property rights, land relations, and climate impacts.

The first case concerns Shezidao, a peninsula in Taipei at the confluence of two rivers. Early Han Chinese migrants adapted to frequent flooding by rotating land to share risks, building physical changes to their homes, and sharing food across the community (Liao et al., 2023). Fifty years ago, the city built flood control infrastructure for the rest of the Taipei metropolitan area while banning housing reconstruction in Shezidao, eroding both cooperative and individual property rights. Now, a redevelopment plan aims to expropriate the entire peninsula (home to many low-income households), compensate owners for about 40% of their original land areas, displace some residents, and tear the community apart.

The other two cases concern the Paiwan (Kukus Village) and Rukai (Changchih baihe Village), Indigenous communities in southern Taiwan that have been repeatedly relocated out of the mountains by the Japanese, Kuomintang, and democratic government following Typhoon Morakot in 2009 (Huang, 2018). Beginning with the Kuomintang, Indigenous communities have been prohibited from registering land as communal (Yi-Shiuan Chen, 2018). Now they have no rights to the land in their relocation settlements, are limited in their right to sell or bequeath the house, and may not return to their old village.

This paper attempts to put into conversation the experiences of Taiwan's Han Chinese and Indigenous Tribes. These dialectical cases show that, despite centuries of conflict, these groups share similarities in adaptation to environmental dynamism, including cooperative and communal land sharing reflective of a deep understanding of local environmental conditions. These approaches diverge from efforts to harden and securitize property rights by armoring waterfronts or retreating from the mountains. Meanwhile, the government has eroded people's rights to renovate, rebuild, sell, or bequeath land. In effect, adaptation on Taiwan's frontlines of climate change has come at the cost of the land rights and land relations of its most marginalized residents.

For Taiwan, these cases reveal the lasting influence of the Kuomintang's settler colonialism and anti-Communist struggle in shaping Taiwan's political identity and current adaptation planning. For climate adaptation planners

anywhere, these cases demonstrate the centrality of historic and future property rights as a fundamental factor of adaptation. Procedural justice without land rights severely undermines the power of communities to enact their own vision of adaptation, while secure property rights in novel or cooperative approaches can support individual and community agency in achieving housing security, secure livelihoods, and the ability to live dynamically with the environment (Lamb & Vale, 2024).

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<https://doi.org/10.1177/0263775818799751>

Key Words: property rights, land relations, flood, climate justice, climate adaptation

The Power to Act: Property, Agency, & Transformative Climate Adaptation in Manufactured Home Parks

Abstract ID: 1844.0.0.308.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Over 20 million Americans live in manufactured housing and approximately 1 million Californians live in manufactured home parks, otherwise known as “mobile home parks” or “trailer parks.” These neighborhoods provide essential affordable housing in communities across the state. However, many park residents face a ‘double burden’ of tenure insecurity and heightened vulnerability to climate change and other hazards. Mobile home park ownership is increasingly consolidating as investors and corporate owners buy parks previously owned by ‘mom-and-pop’ landlords. Simultaneously, public entities, non-profits, and resident cooperatives are buying parks to preserve their affordability. These varied ownership and governance regimes can exert powerful influences on residents’ lives under both everyday circumstances and in the event of climate change-linked disruptions.

This paper explores the question: How does manufactured home park ownership and governance shape residents’ vulnerability and adaptation to climate change related hazards? The underlying research includes a state-wide mobile home park ownership census and geospatial analysis of climate vulnerabilities. Drawing on these statewide analyses, this paper centers case studies informed by ethnographic fieldwork in climate vulnerable manufactured home parks across the San Francisco Bay Area and Delta regions. We find that mobile home parks can be venues for transformative adaptation, giving low- and moderate-income people the power to act in the face of climate change and other threats. However, these transformative potentials are mediated by ownership and governance arrangements, which shape residents’ security, agency, and resources. This inquiry offers insights on transformative adaptation across community types in California and beyond.

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Key Words: Climate Adaptation, Manufactured Home Parks, Housing, Mobile Homes

Alienated Adaptation: how rental relations shape access to decarbonization technologies

Abstract ID: 1844.0.0.506.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Nationally, the building sector accounts for a substantial portion of greenhouse gas emissions, and is thus a key sector in which decarbonization investments will need to happen. Electrification, weatherization, and other types of retrofits can not only reduce emissions that are produced by residential energy consumption, but can also reduce the energy burden of low-income households who struggle to make ends meet. However, many low-income households are renters who do not have agency over their own residential built environment. The question of building energy efficiency and retrofits has often been framed as a technological one, centering on heat pumps, solar panels, and smart thermostats. Yet, we argue that such technological deployment is often situated in a central power relation which governs housing. Renters' access to publicly subsidized retrofits depends upon the willingness of landlords to engage in these programs. Moreover, poor housing quality is often what enables people to access affordable housing, low-income renters are often reluctant to make appeals to their landlords and even resist their own housing improvements.

This paper uses empirical research on the landlord/tenant relation in one of the hottest housing markets in the country—the San Francisco Bay Area of California—to show the ways in which property relations constrain adaptive agency in the face of dangerous weather and climate change. Drawing upon Peter Marcuse's formulation of "residential alienation" as the loss of the critical relationship to housing as a dwelling, we argue that such alienation also constitutes a form of climate violence, normalized by property regimes that continue to place low income communities and communities of color at a structural disadvantage. Short of addressing residential alienation, climate planners and other adaptation professionals will be extremely limited in their abilities to achieve equitable decarbonization and climate adaptation more broadly.

Citations:

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Key Words: climate change, climate adaptation, decarbonization, rental housing, property

The Role of Cities in Housing Resilience and Decarbonization

Abstract ID: 1844.0.0.81.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Housing decarbonization, a key component in municipal climate action plans, is managed and implemented by multiple sectors, requiring coordination between urban planners, energy providers, community organizers, organizations conducting the retrofits, and state agencies. If successful, these energy retrofits can not only cut carbon emissions but also improve residents' energy security, health, and well-being, contributing to urban resilience against extreme weather events and energy disruptions.^{1,2} Yet, prior research has shown that implementation efforts face an array of challenges (e.g., limited awareness, lack of time and funds, shortage of skilled labor, long permitting processes, eviction risk), leading to insufficient participation, especially among lower-income residents who are more vulnerable to extreme weather and higher energy bills.^{3–5}

To better understand the nature of these challenges and what it would take to implement equitable decarbonization, we conducted a statewide analysis of decarbonization efforts across California, a state that ACEEE ranked first in the nation for energy efficiency policies and programs in 2025. California is home to approximately 60 decarbonization programs, more than half of which are led by local municipalities. We interviewed 57 people who hold leadership positions in local and state governments, energy utilities, implementation companies, nonprofits, and community organizations. Our study is conducted in partnership with environmental justice and community-based organizations in a Participatory Action Research (PAR) model, to ensure findings are grounded in the experience of impacted communities.

We find that local governments already advance resilient and low-carbon homes through multiple pathways. Cities raise resident awareness of the energy status of their home through disclosure and benchmarking ordinances, rules requiring an energy assessment at the point of sale, reach codes that encourage electrification, and educational campaigns. Some municipalities have programs to assist potential participants in selecting contractors. Others manage their own energy utility or are members of a Community Choice Aggregation agreement, which enables them to offer more affordable electricity rates and manage their own programs based on the priorities of their constituents.

However, we also identified other ways local governments can support equitable decarbonization. More cities should streamline permitting to reduce labor costs and delays. Cities should also review their tenant stabilization policies to ensure that retrofits don't lead to rent increases. A more aspirational pathway involves municipalities taking a more central role in the coordination of decarbonization efforts, including serving as a central information hub. Ease of access to information can improve the local capacity of individuals and small businesses to participate by assisting with filling out forms and providing guidance throughout the process. In this role, municipalities can also use their local knowledge to coordinate program design with energy providers and state agencies, further contributing to overcoming barriers to participation.

While urban planners typically engage in decarbonization efforts through climate action plans, our study shows that cities can fill a more significant role in coordinating decarbonization efforts across scales and in overcoming barriers that are within the jurisdiction of the local municipality. For cities to assume these roles, there's a need for states to provide technical guidance and allocate resources for the local management of energy efforts, including

permitting, enforcement of renter rights, and serving as a central hub for information dissemination. Our findings are relevant to municipalities across the nation in creating comprehensive strategies to retrofit the building stock to meet resilience and carbon emissions reduction goals.

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Key Words: Housing, Decarbonization, Equity, Governance, Resilience

Disorderly Urban Adaptation to Climate Change: Finance, Land Use, and the Built Environment

Abstract ID: 1844.0.0.82.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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This article develops the concept of “disorderly” urban adaptation to describe processes of change that unfold through exogenous shocks, abrupt policy shifts, and sharp adjustments in asset valuations and risk ratings. Disorderly adaptation is disjointed in the sense that it is shaped by diverse stakeholders acting on local problems and interests. But it involves all kinds of planning and management by individuals, community groups, governments, and private firms. We present an approach to studying disorderly urban adaptation by mapping interactions among three urban sub-systems: the built environment, land use, and finance. This approach sheds light on key features of disorderly adaptation, such as temporal and spatial mismatches, balancing and reinforcing feedbacks, and lags that “desynchronize” processes of sub-system change.

We implement this approach to study urban adaptation to wildfires in the High Fire Risk Areas (HFRA) in California. Our research involved three components that were conducted iteratively: (1) Study system characterization involved identifying key actors and institutions of three sub-systems in the California HFRA: Land use, the built environment, and insurance; (2) Data collection characterized relationships within and among sub-systems to understand their change over time. It includes academic papers, evaluation reports, planning documents, and news articles, participation in public forums and stakeholder workshops, and 21 formal interviews with individuals in leadership positions in state and local governments, insurance industry, and community organizations. (3) Qualitative modeling employed both causal loop diagrams to characterize high-level relationships and detailed conceptual models of interactions among sub-systems.

Employing this model, we describe a significant regime shift that was precipitated by the 2017-2020 mega-fires in the state. Prior to the fires, California experienced a long period of housing development and fire risk accumulation in the HFRA¹. This risk accumulation regime was disrupted by the 2017-2020 fires. Perhaps the most important driver of this disruption was a dramatic shift in insurer risk perception that ramified through the HFRA system. The private insurance industry’s response to the fires has been rapid, with significant shifts in pricing, availability, and total coverage². The response to this disruption by state insurance regulators has lagged private sector adjustment. Changes in the built environment and land use, meanwhile, have been slower still^{3–5}. The result has been a period of disorderly change, as homeowners, community organizations, local and state governments, regulators, and the insurance sector adjust to significant disruptions in at best partially coordinated ways.

We suggest that this approach has lessons for understanding and planning for emerging trajectories of urban change in many contexts and in relation to various hazards. For example, we observe disorderly change processes like those described in California in many areas of the US (e.g., Florida) that are facing increasing losses due to climate/environmental hazards, insurance market disruption, and varying levels of adjustment in land use and the built environment.

Our analysis of disorderly adaptive change as a socio-ecological systems problem has important implications for urban scholars and practitioners. Planners who seek to understand how to shape adaptive change in patterns of land use and the built environment should look beyond the adaptation plans of local jurisdictions where such issues are explicitly addressed. More attention should be paid to mechanisms such as financial risk rating and regulation, to mitigation standards for landscapes and structures in shaping urban adaptation to environmental

risk, and to the complex decision-making arrangements—from property owners and community groups to local and state government—through which these are instituted and navigated.

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Key Words: Adaptation, Resilience, Governance, Insurance, Mitigation

Water Utility Governance Planning and Equity Outcomes

Abstract ID: 1840.0.0.251.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Session Summary

Session Includes: 1844.0.0.205.2025, 1844.0.0.213.2025, 1844.0.0.171.2025, 1844.0.0.197.2025, 1844.0.0.58.2025

Gregory Pierce [UCLA] gpierce@luskin.ucla.edu, organizer

This panel brings together 5 different studies, with each working at the intersection of drinking water utility governance and water equity outcomes for communities. Despite the common theme, the session will allow for rich comparison across high income and low-middle income country contexts, scales of analysis (national, sub-national, local), and methodological approaches. The session's papers primarily focus on affordability and accessibility as the equity outcomes of interest, but inform broader Sustainable Development Goal discussions and urban environmental planning threads of scholarship.

Learning Objectives:

- Participants will learn the nuances of utility governance and planning
- Participants will understand the cutting edge of Human Right to Water Scholarship
- Participants will be exposed to multiple methods and comparative local contexts

Water Utilities and National Affordability Mandates: Evidence from Colombia

Abstract ID: 1844.0.0.205.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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The ability to afford water and sanitation services continues to be a challenge in the global South despite decades of initiatives such as the Millennium Development Goals and more recently, the Sustainable Development Goals (SDGs). SDG 6 calls for safe and affordable water and sanitation for all, however, meeting this goal requires overcoming local governance challenges given that most developing countries manage these services at the subnational level (Herrera, 2019). Improving water and sewer affordability requires understanding how those governance challenges can be addressed, particularly how water and sanitation utilities position themselves when new affordability initiatives emerge. This paper analyzes the positions taken by publicly owned and privately owned utilities, as well as the national association that brings them together, considering efforts by the Colombian government between 2023 and 2024 to adopt a water lifeline mandate. Water lifelines are basic volumetric allowances provided for free followed by normal tariff charges thereafter. This type of customer assistance program is considered “the best-case scenario” for non-tariff affordability assistance as it targets the poor while maintaining price or resource scarcity signals (Cook et al., 2020). Research on lifeline programs has centered on their genesis, design and impact (Contreras et al, 2018; Cook, 2020; Muller, 2008; Vargas et al, 2018). This paper focuses on how water utilities companies perceive these programs, how they position themselves when efforts to adopt them emerge, and the narratives they create to support or challenge the creation of a national mandate. Colombia was selected as a case study given efforts between 2023 and 2024 to adopt a national policy. Document analysis and interviews show that utilities develop their positions around three main criteria: administrative burdens and their financial implications, availability of technology, and concerns about unclear rules. Technological factors, such as the percentage of the population with water metering that a utility serves, are a key criterion for or against the adoption of lifeline mandates. Concerns around administrative burdens are significant among utilities in smaller municipalities while unclear rules present the most significant hurdle for utilities to lend support to these programs. Discourses calling for “universal access” are contrasted with terms preferred by utilities such as “access to a lifeline block” showing attempts to distinguish affordability from accessibility and perceived risks of policies targeting affordability becoming conflated with policies demanding improved accessibility. Findings show the importance of working with utility companies from the earliest stages of policy design given their centrality in implementing affordability policies.

Citations:

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Key Words: Water affordability, Utilities companies, Administrative burdens, Global South

Unintended Consequences: Hispanic Communities and Water Affordability in Wisconsin

Abstract ID: 1844.0.0.213.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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As state governments increasingly impose tax limitations on local municipalities, the hidden costs of fiscal austerity are being borne disproportionately by vulnerable communities. Payments in Lieu of Taxes (PILOTs), once a niche tool for offsetting public service costs, have become a critical revenue stream for municipalities facing budget constraints. However, our previous research revealed a concerning correlation between Hispanic population density and increased reliance on water utility PILOTs in Wisconsin, suggesting that these policies may exacerbate existing socioeconomic disparities.

Building on this finding, we now explore the nuanced spatial and temporal patterns of PILOT adoption in Hispanic communities, with a focus on small rural towns where agriculture is a primary economic driver. Using an interrupted time series analysis of 500 Wisconsin municipalities from 2000-2020, we examine how the 2007 state tax caps reshaped local fiscal strategies. Our research questions include: (1) How do socioeconomic factors in Hispanic-majority rural communities influence PILOT adoption rates? (2) What spatial patterns emerge in PILOT reliance across Wisconsin's changing demographic landscape? (3) How have these trends evolved over time, particularly in relation to Hispanic population growth and economic shifts in agricultural regions?

Our methodology combines quantitative analysis of municipal financial data with spatial mapping techniques to visualize PILOT adoption patterns. We control for variables including Democratic vote share, voter turnout, federal and state aid, property taxes per capita, percentage of Black residents, total population, and agricultural employment rates. This approach allows us to isolate the unique factors driving PILOT reliance in Hispanic communities.

Preliminary findings suggest that rapid Hispanic population growth in rural areas (135% increase from 2000 to 2015) may strain local infrastructure, potentially explaining higher PILOT adoption rates. We also observe that lower voter turnout and linguistic barriers in these communities correlate with increased PILOT reliance, raising questions about political representation in local fiscal decision-making.

This research contributes to planning scholarship by illuminating the intersection of demographic change, rural development, and municipal finance in an era of state-imposed austerity. By exposing potential inequities in water affordability resulting from PILOT policies, our study offers critical insights for policymakers seeking to balance fiscal constraints with equitable service provision in diverse, rapidly changing communities.

Citations:

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Key Words: water affordability, Hispanic, municipal finance, environmental justice

Digitizing Water Access in the Smart City: Governance Challenges and Equity Implications in India

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Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Intermittently available piped water imposes unequal mental, physical, and financial burdens on a billion water users worldwide (Bivins et al., 2017). These burdens lighten when water is supplied according to a predictable, reliable, and accessible schedule. However, little research has examined the institutional and technical processes by which these schedules are produced and conveyed or their impacts on water governance and users' water security (cf. Kumar et al., 2018; Subramanyam, 2024). This paper critically examines the governance challenges, particularly the organizational and technical burdens that digitally conveying water supply schedules impose on utilities and the (un)equal benefits that such conveyance offers water-stressed residents. We focus on the case of Coimbatore, India, where the utility started posting water supply schedules online in 2022 as part of Smart City digital governance reforms.

Our analysis takes a mixed-methods approach, analyzing (1) in-depth, semi-structured interviews with nine key informants in the municipal water utility investigating the challenges involved in conveying schedules; (2) user responses to the 99 social media posts about water supply schedules; and (3) the structure and contents of the 101 schedule documents themselves. The effort involved in producing and conveying digital schedules, which we estimated to be 71 labor hours daily across 135 staff, far exceeds the institutional capacity of the utility. Precariously employed frontline valve operators provide more than two-thirds of this labor without corresponding empowerment in digital technologies, workflows, or governance. Additionally, online schedule conveyance exposes them to further scrutiny from residents, managers, and elected officials, discouraging their buy-in into digitalization processes. This has implications for the quality of water supply schedules communicated to water-stressed residents.

We also find that the posted schedules are inconsistently formatted and difficult to parse, limiting their usability for residents hoping to predict supply timings for their localities. Content analysis of social media posts shows that residents expressed appreciation for digital transparency but were unable to consistently interpret or rely on schedules due to formatting inconsistencies, delayed postings, and unreported supply deviations. Quantitative analysis of schedule data reveals that the inconsistent and unreliable schedule structure also complicates 'data wrangling' (Lodato et al., 2021) by researchers seeking to derive supply metrics such as frequency, duration, and continuity from the schedules for evaluating utility performance (Meyer et al., 2023) or for detailing spatial equity in these evaluations (Carolini & Raman, 2021). These barriers to consuming schedules undermine the transformative potential of digitalization reforms aiming to improve governance and water security. Our findings demonstrate how digital reforms, when layered onto analog bureaucracies without corresponding investments in institutional capacity-building, reproduce rather than resolve infrastructural inequalities, including unequal water access. Our paper makes contributions to ongoing discussions on improving water security in intermittent water supply systems across the Global South. Additionally, it contributes to critical research on smart governance (Datta, 2018; Parkar & Lama, 2023), tempering optimism about digital governance reforms by arguing that digital technological interventions alone are insufficient for reforming water governance or addressing water insecurity.

In conclusion, our paper offers practical recommendations to improve the conveyance of water supply schedules. If organizational, technical, and political challenges are surmounted, digital schedule conveyance could be a powerful

instrument for equity-centered, data-driven water governance, benefitting water users, water infrastructure planners, and regulators.

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Key Words: Digital water governance, Intermittent water supply, Institutional reform, Performance evaluation, Equity

Water Governance Disparities and Utility Performance: Evidence from California

Abstract ID: 1844.0.0.197.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Drinking water and utility performance have traditionally been framed as a technological issue. Yet, the role of governance is increasingly apparent. This study examines accountability failures, focusing on water board elections. Local water boards shape access to water through key planning decisions such as infrastructure investment and water rate setting. Elections create incentives for officials to serve public interests, if held regularly. Elections are not held if opposing candidates do not run against incumbents.

In California, 176 boards govern drinking water for over 9.7 million people. Despite the magnitude of this responsibility, water boards are rarely examined. A data gap for local elections hinders research. We develop a novel elections dataset by linking information from county election results with IRS nonprofit tax filings. This dataset spans years 2009-2020 and all independent drinking water boards in California for systems serving over 3,300 people.

We examine the prevalence of uncontested water board elections and association with safe and affordable water, using negative binomial and probit regression. Safe water is represented by health-based compliance with the Safe Drinking Water Act, while affordability efforts are indicated by adoption of a low-income rate assistance program.

We find pervasive and persistent accountability failures within California water boards. During our study period, 57% of board seats up for election were uncontested, without significant variation across time. Low-income communities face more prevalent uncontested elections. In terms of utility performance, uncontested elections are not found to be significantly associated with water quality compliance. Yet, a strong association is found between uncontested seats and lower likelihood of adopting low-income bill assistance. These findings highlight political accountability as an overlooked factor for water affordability and governance inequities.

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Key Words: drinking water, local governance, elections, utility, affordability

Changes in Water Shutoffs from Pandemic Policy Shifts: Implications for Household Affordability

Abstract ID: 1844.0.0.58.2025

Track 4: Environmental Planning & Resource Development

Pre-Organized Paper Presentation

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Utility service shutoffs resulting from an inability of households to pay utility bills can have severe consequences for their health and well-being, and are a symptom of broader affordability challenges. Insufficient access to potable water is associated with dehydration, exposure to contaminants, and insufficient hygiene, which leads to higher disease prevalence. Even the unrealized threat of a utility shutoff can place economic, broader opportunity, and stress burdens on residents, as they may be forced to make trade-offs among basic household needs such as utility costs, rent and mortgage payments, transportation, and food expenses. Further, late fees levied because an inability to pay utility bills on time can deepen financial distress for households struggling financially. Shutoff policy motivations and effects started to be better documented in the planning literature a few years before the onset of the COVID-19 pandemic (Swain, McKinney, and Susskind, 2023).

Yet the onset of the pandemic signaled a renewed recognition of water as an essential service for health, and was demonstrated to be so as service shutoffs were prohibited (Zhang, Warner and Grant, 2022). The pandemic also sparked a temporary but dramatic change in U.S. water utility policy to limit residential customer service shutoffs or disconnections due to non-payment and high debt levels, and a greater degree of associated scholarship (Pierce, Barnett and Hughes, 2024). However, state-level policy effects on disconnections have been understudied (Warner, Zhang and Rivas, 2020), especially following the initial years of the pandemic (2020-2021).

This study analyzes trends in payment-related water service disconnections for households in New Jersey a unique ZIP code-level panel dataset covering both the pre and post pandemic period (2019, 2022-2023), made available as part of New Jersey's landmark 2022 Water Affordability Transparency Law. The dataset contains information on seven major water utilities in New Jersey. Of the seven utilities reporting disconnection data, we focus on those reported by New Jersey American Water (NJAW), the largest utility in the state based on population served.

Overall, we find that levels of disconnections mirror changes in state policy, i.e., a low point is reached under a disconnection moratoria in 2020-2021, but modest increases in disconnections are observed in 2022-2023 as moratoria were lifted. We also find that levels of disconnections are lower in areas that are more non-Hispanic white, non-poor, and elderly than the state average, but higher where the percentage of homeownership is higher. These trends are largely consistent with sociodemographic inequalities in disconnections documented elsewhere, but also may signal positive targeted protections persisting for the elderly and renters.

This paper contributes to several different literatures. By shedding light on the practice of utility disconnections, this paper's contributions span multiple disciplines including public administration, urban planning, and public economics. In the literature, however, state-level policy effects on disconnection rates have been understudied, especially following the initial years (2020-2021) of the pandemic. We know very little longitudinally about debt and disconnection levels, following the height of COVID-pandemic policies, much less pre-post pandemic moratoria.

To our knowledge, this study is the first to examine the relationship between arrearage, disconnection, sociodemographics, and policy changes pre-post COVID protections. This paper more specifically contributes to the literature on water affordability, but also points to the need for further research exploration and policy evolution to understand the role of disconnection protections in ensuring water affordability in the U.S.

Citations:

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Key Words: water, utilities, affordability, equity, public finance

Track 4 Roundtables

Climate Change and Health: Planning Reflections In a Polarized Era

Abstract ID: 1843.0.0.672.2025

Track 4: Environmental Planning & Resource Development

Roundtable Submission, Topical Discussions

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“As the rising temperature of the planet births bigger and more violent hurricanes, my aching body and the storm-wracked body of the world stumble around me, I enter the place our sick bodies have brought to us, a place where transformation begins”, Aurora Morales (2013)

Health conditions are embodied and place-based experiences re-shaped by the continuous interaction of disasters (both acute and slow). When formulated without community participation, climate adaptation planning can exacerbate pre-existing inequities and create additional layers of impacts on the health and wellbeing of communities. While those dealing with the highest levels of health and wellbeing burdens are frequently grasping what it means to inhabit the planet, staying within the incessant calls to be resilient or resistant, and trying to stay safe and healthy; many times, this planning comes from a lack of recognition that these communities have agency and valid knowledge.

This roundtable will provide a space to discuss the contextual ways climate change impacts communities' health and wellbeing, as well as the type of adaptation planning needed to advance healthier communities. Panelists will provide insights into how climate change impacts the health and wellbeing of communities in racialized and colonial contexts within the continuous iteration of disasters, both slow (environmental injustice, lack of affordable housing, displacement by urban development) and acute (hurricanes, flooding). The roundtable will also discuss the differential impact of top-down adaptation planning and a more bottom-up approach, and offer examples of some of the community mechanisms that can help to better adapt to climate change while reducing inequities and improving the health and wellbeing of communities. What are the institutional changes needed in planning to create paths for healthier and just living conditions? How can we learn from communities' strategies and knowledge to create healthy futures? As the continuous iteration of disasters becomes the norm, this roundtable with discussions contextualized on New York and Puerto Rico can shed some light on these and other questions.

Format: The roundtable is a topical discussion. It will have Malembe Dumont Copero as a facilitator and four discussants. The panel will start with the facilitator asking pre-formulated questions to the discussants Prof. Angeliz Encarnacion Burgos (UPR-RP), Prof. Ariam Torres (UPR-RP), Prof. Hugo Sarmiento (Columbia), and PhD candidate Katherine A. Pérez-Quiriones. Afterwards, the facilitator will open the discussion to the public to discuss and/or ask questions to the participants.

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Key Words: Health, Wellbeing, Climate adaptation, Community knowledge, Planning from below

Community Planning for a Just Energy Transition

Abstract ID: 1843.0.0.857.2025

Track 4: Environmental Planning & Resource Development

Roundtable Submission, Topical Discussions

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Recent scholarship has underscored the need for a renewed focus on decarbonization within the field of planning, particularly in relation to energy systems (Infield et al. 2023). The science is clear – the urgency of reducing emissions necessitates a rapid transition to renewable energy sources. Energy transitions, however, are often conceptualized and planned at the macro level, which can obscure the critical local dynamics that enable and constrain infrastructure development, despite the acute and intense local impacts of climate change, disaster preparedness and recovery efforts. Further, the implementation of renewable energy infrastructure is inherently place-based, with costs and benefits distributed unevenly across communities (Devine-Wright and Peacock 2024). To navigate the bumpy ‘mid-transition’—the period during which fossil-based energy systems coexist with new zero-carbon systems (Grubert & Hastings-Simon 2022)—planners must navigate tensions between different scales of governance, community priorities, and long-term goals.

This roundtable will be an interactive and forward-looking topical discussion, providing a space for attendees to reflect on how planning can evolve to meet the challenges of this pivotal moment in energy governance to promote climate resiliency, economic development, and increase civic engagement for our most vulnerable communities and populations. The ‘just transition’ framework calls for a restructuring of our energy economy to be based on renewable energy sources, locally governed and democratically operated, explicitly benefits workers and communities harmed by the fossil fuel industry, and accessible and affordable to all. Planning researchers and practitioners will consider current barriers and challenges to realizing these just energy transitions and consider what new practices we need to contend with them. We call on participants to engage in a critical discussion on how planning can more effectively address the spatial and social dimensions of decarbonization, and integrate energy justice in the context of existing planning frameworks.

Citations:

- Infield, Elisabeth, Linda Shi, Ivis García, Jennifer Minner, Jan Whittington, Kian Goh, David Hsu, Julian Agyeman, Michael Boswell, and Brian Stone. "Planning for Climate Leadership." *Journal of Planning Education and Research* 43, no. 4 (2023): 750-757.
- Devine-Wright, Patrick, and Adam Peacock. "Putting energy infrastructure into place: A systematic review." *Renewable and Sustainable Energy Reviews* 197 (2024): 114272.
- Grubert, Emily, and Sara Hastings-Simon. "Designing the mid-transition: a review of medium-term challenges for coordinated decarbonization in the United States." *Wiley Interdisciplinary Reviews: Climate Change* 13, no. 3 (2022): e768.

Key Words: just transitions, climate change, renewable energy, community benefits

Emerging insights into post-disaster community relocation: from theory to implementation

Abstract ID: 1843.0.0.778.2025

Track 4: Environmental Planning & Resource Development

Roundtable Submission, Topical Discussions

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Post-disaster relocation has been subject to study for over four decades now- from early works on post-earthquake relocation in Peru to that in Turkey after the 1999 Izmit earthquake to the more recent works on relocation after hurricanes in the Caribbean. While much of this research maintains its relevance, there have been significant movements in this field recently that require taking stock once again: the world is experiencing catastrophes at an accelerated rate; more communities are facing the prospect of climate (not just disaster) relocation, and experiencing cascading and compounding hazards more frequently; and questions are emerging on what we know of relocation from one hazard type extends to all hazard types. FEMA-funded buyouts in the US have reached a point in history in which looking back is useful for forging a path ahead. At the same time, coastal communities across the world are increasingly asking, should they move before they have to? To add to all this, the political and policy landscape within which such relocation is enacted, empowered and funded is also changing rapidly, with significant implications for disaster relocation within the US and abroad.

This roundtable attempts to ask how the research agenda on community relocation after disasters should change in light of this changing landscape of community experience, science, society and governance. Participants will exchange insights from their own research and weigh in on the following questions:

1. How much of what we know of disaster relocation still stands;
2. What new insights have we gleaned from recent research on the topic of disaster relocation; and
3. What needs to change within disaster relocation studies to better address the changing landscape of science and society?

Citations:

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- Iuchi, K. (2014). Planning resettlement after disasters. *Journal of the American Planning Association*, 80(4), 413-425.

Key Words: Disaster, relocation, recovery, managed retreat, climate change

Urban Heat Mitigation and Management from a Planning Perspective

Abstract ID: 1843.0.0.730.2025

Track 4: Environmental Planning & Resource Development

Roundtable Submission, Facilitated Debates

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We propose a roundtable discussion addressing key opportunities and challenges in implementing urban heat mitigation and management strategies. The session's central goal is to assess how conventional urban planning regulations and tools such zoning and design guidelines should evolve to achieve more effective and equitable heat-health outcomes (Habeeb, 2015 and Meerow, 2022). Although significant scientific advances have been made in understanding urban heat phenomena, the widespread practical implementation of heat mitigation strategies remains limited. Our core focus is identifying what has worked and persistent barriers to integrating these strategies into urban planning institutions.

The roundtable will address mitigation and management separately, recognizing that each requires distinct policy instruments and practices.

Firstly, we will explore barriers and opportunities to effective urban heat mitigation policy implementation. Despite increasing awareness of the urban heat island effect, obstacles to policy adoption persist, including limited understanding of impacts, lack of demonstrated real-world benefits, geographic transferability challenges, stakeholder coordination complexities, regulatory incentive deficiencies, and resistance to initial costs with distributed benefits(Keith, 2023). The discussion will highlight examples of strategies for overcoming these barriers by promoting co-benefits such as energy savings, enhanced public health, and improved stormwater management (Meerow, 2024). Discussions will also highlight necessary data and evaluation for heat mitigation and management.

Key questions regarding urban heat mitigation include:

What is the current state of urban heat mitigation strategies in local governments including, and particularly beyond, common methods such as tree planting, reflective roofing, and reducing impervious surfaces? How have these strategies been implemented using an equity lens, given our understanding of thermal disparities?

Should heat mitigation strategies be integrated into zoning and design guidelines, and what processes are effective for doing so? Do these tools work consistently across cities of varying sizes?

If knowledge and resource gaps, particularly in smaller municipalities, impede the adoption of heat mitigation strategies, how can local governments effectively address these gaps?

Secondly, the roundtable will focus on strategies for responding to extreme heat events (Gabbe, 2024). Discussions will address preparedness measures that local governments should adopt and examine the extent to which these emergency response strategies align with broader heat mitigation initiatives. We will discuss whether new institutional structures, such as dedicated heat officers, are necessary, drawing on experiences from cities that have

implemented such roles. We will also consider how urban planners can be more actively engaged in short-term responses, which past research has identified as missing in most local approaches to heat. Key questions include:

How can local governments – and particularly urban planners – better prepare for extreme heat events, and how closely should emergency response strategies be coordinated with mitigation measures?

Are new institutional structures required, such as specialized heat officers, and what insights can be gained from cities already employing these positions?

Can advocacy planning approaches be extended to include heat response efforts, and what roles do advocacy groups play in improving cities' readiness and response to heat events?

Citations:

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- Meerow, Sara & Ladd Keith. 2022. "Planning for extreme heat: A national survey of U.S. planners." *Journal of the American Planning Association*. 88(3): 319-344. <https://doi.org/10.1080/01944363.2021.1977682>

Key Words: Heat Mitigation, Heat Management, Extreme Heat Events, Heat Resilience, Planning Regulations

Track 4 Individual Paper Presentations

“Civilizing” Nature: Critiquing Wild vs Curated Approaches to Native Growth in Urban Spaces

Abstract ID: 1844.0.0.1046.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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In preserving ecosystem integrity, fighting against biodiversity loss and facilitating the growth and health of endogenous plants, the language of nativity is often leveraged; we seek to increase the planting and cultivating of native plants, diminish that of those that aren't native, and approach environmental planning, farming, gardening, around this concept of the native.

This concept bleeds into our logics of larger ecosystems, changes the way we valorize and conceptualize what things belong in a space, and can be seen in our social ecosystem discourse and in our approaches to urban planning (urban parks and greenspaces are often lauded for using only or primarily native plants in their collections and curations). While the goal of facilitating nativity is one that has done much good for preservations of biodiversity and supporting environmentally friendly practices, it also comes with two main drawbacks.

First, if we are to strive forwards nativity then we must understand what the native is, and concepts of native and naturalized plants are heavily mutable and fluctuate over time; what makes something native is as much a political and social question as it is a scientific one.

Second, the nature of the native is changed through its intentional cultivating; we seek to reproduce native ecosystems and grow native plants, but we often do so in ways that try to translocate the native, that which is unplanned and natural, onto the highly modern and efficient concepts of modern urbanizations and questions of technocratic or aesthetic ideals. Our gardens and parks aren't simply reproductions of the forests or pre-urbanized ecosystems, but are reimagined and replanned to fit into our conceptions of what nature ought to look like.

I contend that this concept of native extends beyond the way we interact with natural ecosystems, but is also seen in the way we interact with social ecosystems, the way we categorize people and populations, and how we plan urban spaces. Those that are not indigenous to a place (white settlers) have come to be seen as native, those that are indigenous have their nativity carefully reproduced in cordoned off areas and in ways that don't challenge the goals and development of the modern (reservations and land theft).

This project, through historical text and discourse analysis seeks to trace this idea of nativity in urban and environmental planning, understanding what is covered under this idea, why it is valued, and how it is achieved, before engaging with a philosophical ethical critique of this idea, seeking to put it in conversation with a related, though distinct, concept, that of the wilds, that is the growth that is natural and “native” to a place without being constrained or planned or formatted along particular ideological or practical lines. This project will end with an imagination of what it might mean to center the idea of the wilds in our environmental and urban plannings, in our natural and social ecological thinking, and how this might impact how we approach which populations are given our attention, are allowed to grow, and how.

Citations:

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Key Words: Urban Biodiversity, Social Ecosystems, Environmental Cultures, Ecosystem Planning, Native/Invasive Species

“Espinar es mi Hábitat”: Supporting Coastal Communities Beyond Disaster Frameworks

Abstract ID: 1844.0.0.93.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Disaster planning often operates within a framework of urgency, risk, and uninhabitability—terms that are deeply embedded in economic and colonial logics that fall very short in accounting for people’s lived experience. This presentation explores these relationships through the case of Espinar, a coastal community in Aguada, Puerto Rico, where flood mitigation has long been entangled with financial speculation. Drawing from a year-long ethnographic research, I examine how large-scale flood control projects continue to prioritize property protection and economic assets over community-defined needs. By understanding the environmental history of this area, I trace how flood control efforts have been mobilized—or sidelined—based on investment potential (from plantations to luxury tourism) rather than environmental or social wellbeing.

At the same time, Espinar’s residents resist dominant disaster narratives as well as imposed relocation, and many have alternatives to ‘dealing with’ the flooding that prioritize social networks, lived experience, and their deep attachment to the place. Their varied perspectives, captured through oral history interviews, community mapping workshops, and everyday conversations with several neighbors, challenge the logics of state-led disaster management, and make visible the many different ways in which closely-knit communities like Espinar, assess risk beyond externally imposed frameworks.

Despite the absence of “formal” adaptation and disaster preparedness measures, my research highlights that Espinar’s ‘viability’ is sustained through informal planning practices and deeply rooted networks of support. A small group of dedicated residents uphold local traditions, safeguard the community’s economic and social well-being, and protect the local ecosystems. All these self-led initiatives have direct effects for the community’s wellbeing during, after, and beyond disasters. This presentation will share some of the stories of these community leaders to argue for an approach to disaster and adaptation planning that recognizes and values the agency of frontline communities, critically examines the funding structures and decision-making of federally funded projects, and resists the neocolonial logics embedded in mainstream adaptation and environmental planning discourse—such as the depoliticization of issues and reliance on technocratic solutions.

Citations:

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Key Words: disaster-planning, place-based knowledge, wellbeing, Puerto Rico

{Heat Vulnerability Dashboard: A Decision Support Tool for Extreme Heat

Abstract ID: 1844.0.0.763.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Extreme heat kills more people annually in the United States than all other extreme weather events combined and these mortality rates are only intensifying with our changing climate. Urban residents have the highest exposures to extreme heat due to the urban heat island effect which occurs when pavement and tall buildings store and trap heat in cities, making cities significantly hotter than their rural surroundings. Determining an individual's risk of heat stress is challenging as extreme heat exposures vary dramatically throughout a city as do individuals' underlying health conditions, which can compromise a person's ability to regulate internal temperatures. Increased frequency of heat waves intensifies the necessity for communities to determine how best to prepare and recover from disasters. Data accessibility is critical to making climate data usable and actionable by communities. As many communities are resource constrained, it is important that an emphasis is placed on creating easily accessible and customizable decision support tools.

In this paper, we present a recently deployed heat vulnerability dashboard for the cities of Richmond and Clarksville, Indiana. The dashboard is part of a larger statewide Beat the Heat program. We have developed an interactive Heat Vulnerability(HV) dashboard, which enables communities to better understand their local vulnerability to heat and investigate best practices to support heat resilience . A Heat Vulnerability Index (HVI) is used to identify areas in a community where people are most vulnerable to heat. The common vulnerability indicators used in HVIs are environmental exposures (e.g. local temperatures), sensitivity (e.g. age) and adaptive capacity (e.g. access to air conditioning). Indices are often difficult to utilize and interpret as they are often highly sensitive to the selected input data, requiring caution when interpreting. One of our main aims for the dashboard is to allow users to select HVI data according to their own priorities which enables dynamic priority mapping. Dynamic priority mapping allows users to select a range of sociodemographic variables associated with susceptibility and adaptive capacity (age, social isolation, educational attainment, race/ethnicity, language barrier, and poverty), as well as different exposures variables associated with temperature (morning, afternoon, evening) to produce priority areas for their city. Based on variables selected, the dashboard highlights vulnerable geographies based on the selected metrics. All HV variables are aggregated at the Census block group level. We also scale down the HVI data to the Census block level and incorporate local context data at this scale. Local context data include environmental variables such as tree canopy, impervious surface and A.C. availability. Enabling our stakeholders to explore block level variations, our community partners are able to pinpoint priority areas on a resolution not currently available.

This work demonstrates how to support data integration for decision making by deploying a new interactive heat vulnerability dashboard for Indiana cities. This innovative dashboard highlights priority areas and local context conditions to help support decision making for effective heat response interventions. Future user experience (UX) evaluations are planned to integrate feedback and explore new features into the design of the dashboard. The HVI dashboard can be extended to cities across the United States, thereby making a positive impact to Indiana

communities and beyond and aiding in the targeting of resources and infrastructure in communities that need it the most.

Citations:

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Key Words: Extreme Heat, Vulnerability, Dashboard, Heat Vulnerability Index, Decision Support

A Historical Analysis of the Evolution and Implications of Natural Disaster Planning in Mobile, AL

Abstract ID: 1844.0.0.645.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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This paper examines the equity aspects of city plans responding to major natural disasters since the mid-twentieth century, focusing on Mobile, Alabama. The research explores the evolution of plans and their impact on vulnerable populations to determine if changes in disaster response planning have improved neighborhood resiliency in the city.

Urban resilience is the ability of urban systems to maintain or return to desired functions amid disturbances, adapt to changes, and transform systems that hinder future adaptability. Social vulnerability is often inversely related to resilience and is influenced by social, economic, political, and environmental factors, such as climate change, poverty, and discriminatory planning like redlining. Mobile, situated on the Gulf of Mexico, is prone to many climate hazards, including sea level rise, warmer summers and winters, and increased intensity and frequency of tropical weather events like floods, hurricanes, droughts, and urban heat islands. Historical, social, infrastructural, political, and natural shocks and stressors have shaped the city's development for decades. Parts of Mobile are socially vulnerable due to low income, high poverty rate, and the region's history of racial and ethnic oppression, white supremacy, and political disenfranchisement of people at risk from environmental forces. From Mobile's first city plan in 1950 to the citywide resilience assessment and plan in 2024, plans have evolved and responded to natural disasters and sought to improve resiliency. However, due to the city's history of socioeconomic inequity, the resiliency and planning in different neighborhoods have been uneven.

Crises like natural disasters and global pandemics can lead to quick changes in policies, plans, and institutions, allowing urbanists to analyze shifts in city governance. This analysis helps explain cities' diverse methods of addressing problems, reflecting the unique compromises formed during specific times and circumstances. The impacts of natural disasters often create urgent demands for new plans and policies, significantly influencing post-disaster recovery efforts and driving change in urban environments. This paper is the first part of a longer project to explore past, present, and future changes to urban resiliency and climate change impacts in Mobile. This part of the research uses archival and current policy and planning documentation and spatial analysis of historical data since the 1940s to identify the key junctures in plans that have contributed to resiliency or a lack of neighborhood resiliency. This analysis is overlaid with basic descriptive information on natural disasters affecting Mobile over time.

Our analysis shows that before the 1970s, flooding in low-income and African American neighborhoods was primarily acknowledged as an issue only when it affected nearby white neighborhoods. Public health concerns arose from open sewers and shared outhouses, particularly regarding disease spread during floods. Hurricanes prompted significant changes in urban planning in Mobile, with policies and planning structures being revised after major storms. Following Hurricane Camille in 1969, planners sought greater control over long-term hurricane planning after years of focusing on small infrastructure projects. After Hurricane Frederick in 1979 and the severe floods of 1980, a program was initiated to retreat from flood-prone areas, leading to the acquisition of easements and properties in vulnerable locations. As planning responding to natural disasters evolved from providing relief

post-disaster to mitigation strategies to resiliency planning, inequitable plans often make one neighborhood historically more vulnerable than the other, affecting future resiliency. This research promotes a need-based social vulnerability approach for disaster plans by including archival and historical plans and data in a resilience study.

Citations:

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Key Words: Disaster Planning, Urban Resilience, Social Vulnerability, Mobile, Alabama

A Machine Learning Approach to Predicting Hyperlocal Temperature in the Built Environment

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Cities worldwide are becoming increasingly hotter due to climate change, intensifying the risks associated with urban heat islands. Traditional approaches to studying urban temperatures often rely on Land Surface Temperature (LST) from satellites or meteorological stations located at the outskirts of cities at suburban areas or airports. However, these methods fail to capture the fine-scale variations in air temperature that occur within cities, where local factors such as urban geometry, land cover, and anthropogenic heat sources create microclimates. Additionally, LST does not reflect humidity variations, a key component of thermal comfort and heat stress. To develop a more accurate representation of urban heat dynamics, high-resolution air temperature data is essential.

In this paper we present the results of a machine learning (ML) model developed to predict hyperlocal near surface air temperature data in cities, building on our previous research on classifying the built environment into Local Climate Zones. Our model integrates spatial, environmental, and climate data from satellite imagery, LiDaR, building footprint shapefiles and meteorological station climate data. We include three different temperature datasets derived from satellite data, mobile sensors and insitu measurements to train and test our machine learning models. Additionally, we compare the performance of different ML algorithms, including ensemble learning models and neural networks, to assess their effectiveness in predicting hyperlocal temperatures. We also examine the potential of predicting temperatures at different times of the day (morning, afternoon and evening) as well as throughout the summer season. The resulting temperature data is modeled at a 30 meter resolution.

Furthermore, we will investigate how to utilize both an urban sensor networks and our near surface temperature algorithm to accurately predict temperature in real-time. This work will help to determine the optimal number of in-situ sensors and their distribution needed for accurate temperature data collection. The results of the study will inform the development of policy and planning strategies aimed at mitigating the impacts of heat and other environmental hazards in urban areas, with the goal of promoting equity and sustainability. It will also involve collaboration with local governments to integrate the temperature analysis data into their smart city planning and emergency management processes.

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Key Words: remote sensing, extreme heat, heat vulnerability, machine learning, urban heat island effect

A Mixed-Methods Assessment of Energy Insecurity in the US.

Abstract ID: 1844.0.0.72.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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An energy-just transition requires research and targeted solutions for energy insecurity faced by vulnerable households who are unable to meet their basic energy needs (Shelton and Eakin 2022). Energy insecurity can be driven by numerous factors, including economic hardship and the physical conditions of housing, and can result in a variety of behavioral coping strategies that expose residents' safety and health (Simes, Rahman, and Hernández 2023). Although energy insecurity is commonly associated with low-income Global South communities (Boateng et al. 2020), emergent research shows insecurities are prevalent in impoverished Global North communities (Simes, Rahman, and Hernández 2023; Hernández 2016; Jessel, Sawyer, and Hernández 2019). Yet, U.S. policymakers still largely ignore energy insecurities experienced by peri-urban unincorporated communities that remain invisible to planners.

Attention to energy insecurity is limited by national datasets, such as census, which poorly document energy expenditures, heating, ventilation, air conditioning (HVAC) access, and resident energy practices (Larsen et al. 2023). Previous literature focused on the energy-cost burdens of urban Northeast and West Coast multifamily buildings (Kontokosta, Reina, and Bonczak 2020). Consequently, the U.S. literature has largely disregarded peri-urban and exurban communities in metropolitan areas, as well as single-family and prefabricated housing—mobile homes and recreational vehicles (Jessel et al., 2019). Energy insecurity may be likely chronic in peri-urban unincorporated areas, such as informal subdivisions, which often lack running water, sewers, and energy infrastructure (Reyes et al. 2024; Guerra Uribe, Faust, and Charnitski 2019; Anderson 2008). The poor governance and neglect of counties to peri-urban communities have shifted the responsibility of infrastructure provision and services to impoverished households.

This study addresses gaps in literature and practice by proposing a mixed-methods assessment of physical, economic, and behavioral energy insecurity. To uncover physical energy insecurity, we present an index using tax appraisal district data from Dallas County, Texas—a rapidly growing U.S. region. The index identifies concentrations of precarious housing units that lack central heating, cooling systems, and both deficiencies. The index reveals large clusters of energy insecurity buildings in Southeast and West Dallas County in mostly unincorporated areas where building codes are weakly regulated and enforced (Anderson, 2008). The index can be replicated by planners and energy policy practitioners throughout the U.S. to identify and classify insecure communities requiring further qualitative research and targeted assistance.

Our study also demonstrates the use of the index to identify a high energy insecure, low-income, unincorporated subdivision in Southeast Dallas County for further research. We supplement the index with three years of field research—including in-depth surveys, interviews, and photovoice. Qualitative data collected through fieldwork illuminates the complex relationship between physical, economic, and behavioral insecurities of households. For instance, residents of an unincorporated informal subdivision face uncomfortable indoor temperatures, particularly during winter and summer, compounded by inefficient HVAC, inadequate insulation, and poor structural materials. Residents are thus forced to use inexpensive and inefficient devices to meet their daily energy needs. Our

qualitative assessment can provide a nuanced understanding of community-based solutions for supporting housing upgrading and an energy-just transition. Our mixed-methods assessment of energy insecurity can be used to craft more competitive state and federal funding applications and target technological innovations and participatory housing and energy upgrading strategies in the most vulnerable communities in our regions.

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Key Words: Energy insecurity, Peri-urban, Unincorporated, Mixed-methods, Housing Precarity

A Mixed-Methods Study of São Paulo's Park System Expansion Under the 2014 Master Plan

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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This study examines the evolution of green public spaces in São Paulo following the implementation of the 2014 Strategic Master Plan (Plano Diretor Estratégico, PDE), with a focus on the expansion of the municipal park system. Situating the analysis within the historical context of urban and landscape planning in São Paulo (Kliass, 1993; Bartalini, 1999), the research evaluates the city's 21st-century master plans, particularly the 2014 PDE and its monitored outcomes through 2024.

Central to the investigation is the application of urban planning instruments, such as the designation of existing and proposed parks as Special Environmental Protection Zones (Zonas Especiais de Proteção Ambiental, ZEPAM). This zoning mechanism aimed to mitigate speculative land valuation in areas of public interest, thereby reducing acquisition costs for future parks through the legal expropriation of private properties. The socio-spatial impacts of these interventions are assessed through a quantitative analysis of per capita park area—encompassing municipal and state parks—using census data (2010 and 2022), alongside spatial mapping of pre-existing and newly established green spaces between 2014 and 2024.

The study adopts the 2014 PDE's dual macrozone framework: (1) the Structuration and Qualification of Urbanization Macrozone (Macrozona de Estruturação e Qualificação Urbana, MEQU), characterized by high population density and infrastructural development, and (2) the Environmental Protection and Recovery Macrozone (Macrozona de Proteção e Recuperação Ambiental, MPRA), encompassing ecologically sensitive territories, including two major water reservoirs. Preliminary findings reveal pronounced disparities: the urban macrozone contains a higher concentration of parks, yet these are smaller in size (averaging 1 m²/inhabitant) and unevenly distributed, concentrated in central áreas and largely absent in peripheral areas, serving over 70% of the population. In contrast, the environmental macrozone—home to less than 30% of residents—achieves a per capita park area exceeding 50 m²/inhabitant, though spatial inequities persist due to fragmented accessibility.

To address these disparities, the study proposes a geospatial methodology for identifying priority areas defined beyond the 1-kilometer service radius of existing green public spaces above 20,000 m², as defined by municipal land-use criteria. Using QGIS v3.28 and metadata from the Municipal Department of Green and Environment, the methodology applies planar-projection buffer analysis. By overlaying the catchment areas of parks, plazas, and recreational zones, the analysis isolates underserved regions, prioritizing them for future interventions. This approach aligns with green infrastructure principles (Benedict & McMahon, 2002) and the 15-minute city concept (Moreno, 2024), emphasizing equitable access to ecosystem services, urban livability, and climate resilience.

Adhering to the WHO/UN-Habitat definition of urban green spaces—excluding private or restricted areas—the research underscores the urgency of universalizing access to green infrastructure within walkable distances. The urban macrozone's critically low park index (1 m²/inhabitant) highlights systemic spatial inequities, necessitating targeted interventions to bridge service gaps.

By integrating park index analysis with territorial mapping, this study provides actionable insights for urban planning strategies, reinforcing green infrastructure as a cornerstone of sustainable development. The findings demonstrate the critical need for mechanisms to equitably distribute green spaces across neighborhoods—a

capillary (fine-grained) approach—to address persistent inequities under current planning regimes. While focused on São Paulo, the methodology can be adapted to analogous contexts, such as Global South megacities that face similar challenges of rapid urbanization and spatial fragmentation.

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Key Words: Green Infrastructure, Park System, Geospatial analysis, Walkability, Sustainable development

A Plan Quality Assessment of Priority Climate Action Plans in the United States

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The US Environmental Protection Agency (EPA), through its Climate Pollution Reduction Grants (CPRG) program, allocated funding to organizations representing states, metropolitan statistical areas, and tribes or territories to submit a Priority Climate Action Plan (PCAP) in 2024. A total of 211 PCAPs were developed, each comprising a set of actions or measures to reduce climate pollution. The EPA defines priority actions as “near-term, high-priority, [and] implementation-ready measures” that contribute to reducing greenhouse gas (GHG) emissions and promote climate adaptation (US EPA, 2023: p. 28). Like climate action plans (Boswell et al., 2010; Aboagye et al., 2024), PCAPs outline the essential measures jurisdictions aim to implement to enhance their climate mitigation, adaptation, and resilience capacities. In the literature, the benefits of climate action plans are varied since their goals and actions are diverse and context-dependent, often tailored to the specific challenges of cities and regions. (Bassett et al., 2010; Boswell et al., 2010). Nonetheless, jurisdictions with climate action plans can effectively identify the causes, sources, and effects of GHG emissions, and the populations and areas most vulnerable to their impacts. These plans also provide a structured approach for stakeholders to tackle GHG emissions challenges and guide resource allocation for their reduction. Additionally, these plans create platforms for stakeholder collaboration, fostering accountability and transparency while developing synergies to tackle GHG emissions challenges and alleviate the burdens placed on affected communities (Aboagye et al., 2024; Bassett et al., 2010; Boswell et al., 2010; Deetjen et al., 2018). Some research reveals that climate action plans can significantly affect a city’s ability to effectively reduce GHG emissions and their impacts, albeit dependent on their content (Aboagye et al., 2024; Deetjen et al., 2018). Subsequently, this study uses a mixed-content analysis on the 211 PCAPs to understand how the different jurisdictions plan to reduce GHG emissions. Specifically, it seeks answers to four questions: What are the major sources and sectors contributing to climate pollution? What are the climate pollution measures commonly delineated in the plans? What authority do jurisdictions have to implement the identified climate pollution measures? and what are the innovations, strengths, weaknesses, and gaps in climate pollution reduction measures? Assessing the PCAPs will enable researchers, policymakers, and planners to understand the taxonomy of the measures to appreciate current practices and determine whether the plans offer concrete measures and targets for reducing GHG emissions. Overall, this assessment will provide valuable insights into the various climate pollution reduction measures, their adequacy and effectiveness, and offer opportunities to identify important practices and lessons that can enhance efforts to reduce GHG emissions and their associated burdens.

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Key Words: Climate Action Planning, Climate Pollution, Content Analysis, United States

A Study of Local Emergency Management Agency Planning Resource Needs in the United States

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Local emergency managers play a wide array of roles to keep our communities safe. This includes completing various tasks in the mitigation, preparedness, response, and recovery phases of emergency management. Competing priorities often place the focus of emergency managers on response at the expense of planning (Weaver et al., 2013). Past research and events have demonstrated a lack of priority for mitigation practices as more urgent needs take center stage in time allocation (Prater & Lindell, 2000). When hazard mitigation planning does occur, emergency managers tend to exclusively plan for the hazards of past disasters they have experienced (Labadie, 2011). Further studies found that emergency management offices tend to be more successful in developing plans than they are in carrying out the strategies put forth in the plans (Samuel & Siebeneck, 2019). Competing priorities often emerge throughout local emergency management agencies due to insufficient staffing and other resource constraints. For example, Smith (2008) indicates that hazard mitigation plan strategies are often not carried out because of a lack of dedicated resources in the communities. While there is a body of literature that examines local emergency management planning resource constraints, there remains a dearth of research that quantifies these constraints at the national level in the United States. Providing a quantification of these topics will enhance knowledge and subsequently begin the conversation of how to address local emergency management resource constraints towards plan development and implementation.

The purpose of this research is to examine and quantify local emergency management planning resource constraints at the national level in the United States. The following research questions were examined: (1.) To what extent do resource constraints inhibit local emergency management agencies from developing crucial disaster-related plans? (2.) To what extent do resource constraints inhibit local emergency management agencies from implementing crucial disaster-related plans? (3.) What is the overall effectiveness of collaborative relationships between local emergency managers and relevant planning stakeholders? The three research questions were addressed through the development of a survey that was distributed to local emergency managers throughout the United States. The first survey section covered resource constraints for developing local disaster-related plans. The second section addressed resource constraints for implementing the plans. The third section examined the effectiveness of collaborative relationships. Surveys were distributed at state emergency management conferences throughout the United States. Results highlight the resource deficiencies for local emergency management plan development and implementation. A discussion will be provided on the role of collaborative relationships in addressing these deficiencies.

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Key Words: emergency management, local plans, resource constraints, implementation, mitigation

Air Quality, Built Environments, and Asthma Prevalence in the Greater Philadelphia Metroplex

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Air quality disproportionately affects vulnerable populations, often as a result of complex interactions between environmental and social determinants of health (Sullivan & Thakur, 2020; Corburn, 2005). Urban areas, in particular, exhibit spatial inequities in health outcomes shaped by both historical legacies—such as redlining—and current structural and infrastructural dynamics, including traffic density and zoning patterns (Schuyler & Wenzel, 2022; Jung et al., 2022; Hutch et al., 2011). These disparities are particularly evident in respiratory illnesses like asthma, which has been found to be more prevalent in socioeconomically disadvantaged communities (Bryant-Stephens, 2009; Harris, 2019). This work examines these connections in the Greater Philadelphia Metropolitan Area at the census tract level ($n = 766$). The Greater Philadelphia Metropolitan Area, comprising nine counties, is characterized by its drastic socioeconomic contrasts and historical patterns of environmental inequity across neighborhoods due to historical development patterns, which provide an ideal context to examine these relationships. We analyze how air quality — measured by pollutant indices such as the national percentile of PM_{2.5}, NO₂, and Toxic Release — alongside community characteristics (including land use patterns and transportation infrastructure proximity) and sociodemographic factors contribute to disparities in asthma prevalence. We hypothesize that increased pollutant exposure and disadvantaged sociodemographic characteristics will be positively associated with asthma prevalence. Using a cross-sectional robust linear regression model, we find that asthma prevalence is significantly and positively associated with the percentage of Black and Hispanic populations, PM_{2.5} exposure, and toxic release levels. Interestingly, NO₂ levels and renter population share are negatively associated with asthma prevalence, while income is negatively associated as expected. Land use variables, including proximity to transportation infrastructure and percentage of industrial or green space land use, were not statistically significant in the asthma model when holding all else constant. These findings support our hypothesis that poorer air quality is linked to greater respiratory illness prevalence, though the relationships are conditioned by specific sociodemographic characteristics and reveal unexpected inverse trends for NO₂ and renter concentration. For urban planners, these results highlight the critical role of planning decisions in shaping environmental health outcomes. They point to the lasting impact of historical land use patterns, zoning, and infrastructural investments on community vulnerability. Our analysis underscores the need for equity-centered planning and policy interventions that integrate environmental justice, public health, and spatial planning frameworks to address the social determinants of public health.

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Key Words: Air Quality, Community Health, Built Environment, Land Use, Asthma

An Assessment of Planning for Resilience in Sussex County, Delaware

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Coastal communities face increasing hazards due to climate change. Their land use choices have a considerable impact on their ability to adapt to these risks, particularly with respect to flooding and sea level rise.

This project investigates whether growth management and land use policies in Delaware's Inland Bay communities advance climate resilience planning. The Inland Bay region is a uniquely appropriate site for this research. First, although Delaware is often considered a "growth management" state because of state involvement in local planning (Weitz, 2012), (Lewis, 2015), no prior research has examined the effectiveness of DE's growth management system. Second, the Inland Bays are highly susceptible to flooding and sea level rise, such that some towns may be fully inundated by the end of the century. Finally, Sussex County, where the Inland Bays are located, is one of the fastest-growing areas in the country, experiencing rapid development in the Bay region. This both increases the policy relevance of this research and creates an opportunity to explore the often-competing priorities of development and resilience. This project is also timely, as Delaware recently enacted legislation requiring counties and larger municipalities to address climate resilience in their comprehensive plans. It therefore contributes to the body of knowledge supporting communities' planning process considering these updated requirements.

The project uses the Plan Integration for Resilience Scorecard (PIRS) methodology (Berke et al., 2015) and longitudinal content analysis. The PIRS approach is spatial, analyzing the combined impact of multiple plans on resilience in hazard zones. It facilitates the comparison of different types of plans, such as comprehensive plans, sub-area plans, and hazard mitigation plans. In this assessment, we analyze 13 plans from 9 communities. It is also highly contextual, incorporating measures for physical and social vulnerability to assess how effectively plans address the areas most exposed to natural hazards. The PIRS analysis addresses this paper's first two research objectives: (1) investigate how Delaware's growth management policy, particularly through its 2020 Strategies for State Policies and Spending, contributes to hazard resilience (Lyles et al., 2025); and (2) identify factors that contribute to planning for resilience, such as physical and social vulnerability, development, and hazard exposure.

The PIRS assessment is followed by a longitudinal content analysis of plans and plan updates, focusing on a smaller subset of Inland Bay municipalities. This analysis contributes to a body of research that focuses on how plans are used. As part of Delaware's growth management and planning oversight, the state requires communities to submit annual plan updates. This analysis of the plans and updates supports objective (3): investigating how communities use and build on plans over time. In doing so, it contextualizes Delaware's Strategies among related growth management programs, particularly Maryland's Priority Funding Areas (Lewis et al., 2009).

This study finds that while Delaware's policy seeks to limit sprawl and development in natural areas, it does not necessarily re-direct development away from hazardous areas. The analysis of local plans indicates that communities vary substantially in their commitment to adaptation planning, and that their commitment is reactive based on physical vulnerability to the hazard. It does not find evidence that the state Strategies impact resilience planning. It also indicates that dedicated adaptation and hazard mitigation plans may be the most effective way to plan for resilience, rather than relying only on the comprehensive planning process. Finally, the analysis of plan

documents and updates over time reinforces the findings of the PIRS analysis. Communities act on the policies set forth in their plans but are not responsive to the state Strategies.

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Key Words: Coastal Adaptation, Flood Resilience, Growth Management, Hazard Mitigation, Plan Integration

An assessment of public awareness gaps in climate change policies: from global and city perspectives

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The effectiveness of climate policies depends on how closely governmental strategies align with public engagement. Although some studies have explored the disparities between policy priorities and public perceptions on both global and local scales, many rely on conventional survey data and methods that may lack timeliness or have limited coverage. To address these gaps, we employ ClimateBert to extract priority topics from the most recent Nationally Determined Contributions (NDCs) submitted by 195 Parties (194 countries plus the European Union) under the Paris Agreement before 2023. We then compile over 400,000 climate-related Twitter posts from 2022, embed them using the same approach, and calculate pairwise cosine similarities to measure how the public's attention aligns with government-defined policy topics.

We identify 38 government priority topics, grouped into nine broader categories, reflecting a global focus on emission targets, adaptation strategies, energy usage, and government regulations. The three most prominent topic groups are G1: Emission Accounting and Targets (30.7%), G2: Adaptation Strategies and Implementation (20.8%), and G3: Energy and Resources (15.5%). By analyzing Twitter data, we find that overall public attention to these core topics broadly aligns with government priorities. However, topics related to social inclusion, policy instruments, and transportation garner significantly higher public interest than reflected in governmental strategies.

To systematically quantify global differences, we define two key indicators. The first is NDC Topic Centrality, which measures how closely each country's NDC aligns with the identified priority topics. Our results reveal that developed countries such as Canada, Australia, and the United States exhibit strong leadership, with their NDCs showing high alignment scores. The second indicator is the PGA Ratio (Public-to-Government Attention Ratio), comparing public engagement with government focus for each topic. We observe that the PGA value is positively correlated with a country's income level but shows a weak correlation with its climate classification. This suggests that economic capacity may play a stronger role than climatic factors in shaping the extent to which public interests converge or diverge from governmental priorities.

Beyond the national scale, we also explore city-level variations in public awareness. Our dataset encompasses over 3,000 cities across six regions: three high-income (Australia, the European Union, and the United States) and three lower-income (India, Kenya, and Nigeria). We examine whether a city's coastal location, population density, and dependence on fossil fuels influence the PGA ratio. Preliminary evidence indicates that coastal cities tend to exhibit higher levels of public attention, potentially due to heightened climate risks and media visibility. Moreover, in developed countries, cities heavily reliant on coal mining also demonstrate elevated attention levels, possibly reflecting direct economic stakes in climate policies. However, population density does not appear to be strongly correlated with the PGA ratio, suggesting that urban size alone may not drive variations in public engagement.

These findings carry both scientific and practical significance. By integrating real-time public sentiment into climate policymaking, this study refines existing theories of structural and social diversity through the lens of community-level engagement. The results underscore the importance of targeted interventions in marginalized areas, where climate vulnerabilities often intersect with lower income levels and less policy emphasis. They also point to pilot

initiatives in high-engagement coastal cities, which can serve as laboratories for inclusive and equitable climate resilience.

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Key Words: urban climate policy, public awareness, urban resilience, topic modeling

Analyzing Compound Risks of Urban Form and Climate Change on Biodiversity in Mediterranean Countries

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The IPCC has highlighted growing concerns over the combined impacts of climate change and land use change on biodiversity (IPCC, 2022). Mediterranean countries, recognized as a global biodiversity hotspot rich in endemic species, are under increasing pressure from urbanization. Climate change further threatens biodiversity by accelerating habitat loss, driving species extinction, and altering agricultural and forest dynamics (IPCC, 2022). Despite the urgent need for environmental planning that addresses both urbanization and climate change, research that integrates these risks in this region remains limited.

To underscore the issue, a preliminary analysis was conducted using 30 arc-second data. Between 2000 and 2020, the effective proportion of habitat in Mediterranean countries declined by approximately 0.6% ($\sim 39,853 \text{ km}^2$). During the same period, the built-up surface area increased by about 33%, and average building height rose by approximately 14%. Approximately 92% of all grid cells experienced a decline in effective habitat proportion, and around 17 percent of these also experienced an increase in built-up surface area, indicating ongoing urbanization.

Urban growth is exerting a growing influence on natural habitats, yet the spatial dimensions of this process and the mechanisms through which it threatens biodiversity are still underexplored (McDonald et al., 2020). While most studies view urbanization primarily as a driver of increased exposure to climate-related risks, it also amplifies the severity of natural hazards within cities, such as elevated temperatures and intensified local precipitation (Garschagen & Romero-Lankao, 2015). Furthermore, when urbanization is not accompanied by income growth and is coupled with demographic changes like population aging, it can heighten vulnerability and constrain adaptive capacity. However, most previous studies have focused on climate science or ecological assessments, often using coarse spatial resolutions such as 15 arc-minutes or national-level scales. These approaches make it difficult to generate insights applicable to urban planning. In this context, there is a clear need for more detailed, spatially refined analysis at the neighborhood scale to support sustainable planning efforts.

To address these gaps, this study evaluates the combined risks of urban form and climate change for biodiversity in Mediterranean countries. An integrated risk assessment is performed using data at a fine spatial resolution of 1 kilometer, capturing historical changes over more than a decade. Special attention is given to urbanization threats across multiple dimensions, including population, economic activity, and changes in urban form. Urban form is assessed in horizontal, vertical, and structural dimensions, while temperature and precipitation are used to represent climate conditions.

To identify patterns of compound risks, K-means clustering is applied to group Mediterranean countries based on urban characteristics and to explain differences in biodiversity outcomes. A machine learning algorithm models the relationships among urbanization, climate change, and biodiversity loss. To interpret the model results, Shapley Additive Explanations (SHAP) are applied, revealing the relative contribution of each factor and allowing for comparison across the identified clusters. Through this approach, the study offers new insight into how urbanization threats and climate change interact to affect biodiversity in the Mediterranean region and provides a scientific foundation for more sustainable environmental and urban planning.

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Key Words: Compound Risks, Urban Form, Climate Change, Biodiversity, Mediterranean Countries

Analyzing The Impact of Green Roof Policy on Urban Heat Vulnerability in Chicago, IL

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Exposure to excessive heat kills more people each year in the US than deaths from all other weather-related events combined [1]. Some studies suggest that there were on average 1300 deaths per year from heat in 40 major American cities over a 30-year period and 320 heat-related deaths per year in four Canadian cities over a period of 47 years [2]. These fatalities primarily affect socially vulnerable groups such as the poor and elderly due to a lack of resources or support to combat extreme heat [1]. Cities all over the world are experiencing an increase in temperatures due to higher human activity, extensive development of impervious surfaces, and heat-retaining infrastructure. This results in the formation of hot spots in cities, also known as Urban Heat Islands (UHIs) which have been intensified over the past two decades. This can be attributed to multiple factors such as changes in land use, socioeconomic and demographic factors. Several solutions have been proposed to address this issue, green roof installation being one among such approaches [3]. This paper examines the potential implications of ‘green roof policy’ on the thermal landscape of the City of Chicago. Title 17 of the Chicago Municipal Code—referred to as “Chicago Zoning Ordinance” or “Zoning Ordinance” from here onward—introduced this policy in 2004 [4]. Title 17, Chapter 4, Section 10, Subsection 15A of the Chicago Zoning Ordinance allows floor area (FAR) bonuses for buildings incorporating green roofs. Additionally, the study is an attempt to evaluate the impact of different factors on urban heat islands and study the relation between UHI and different spatial and socio-demographic variables. The second objective of this study is to develop a UHI vulnerability index and monitor its variation over the period. Index-based approaches have been widely used in literature to identify spatial inequities for different phenomena [5]. We used this approach to explore the spatial distribution of thermal inequities and promote targeted interventions to reduce the impact of urban heat island and reduce vulnerability to heat inequities, and promote thermal justice. The study analyzed the correlation between Land Surface Temperature (LST) and various spatial, socioeconomic, and demographic indicators in Chicago from 2000 to 2020. Correlation results suggest that variables such as canopy cover, green spaces, and educational attainment exhibit a negative relation with LST, while impervious surfaces and driving alone to work indicated a positive correlation with LST. A paired t-test and chi-square analysis were also conducted to assess whether the changes in these variables were significant. Results revealed significant shifts in several variables over time, with an increase in variation in green roofs, driving alone to work, educational attainment, and median household income in 2020. A gap regression was conducted to assess how the variation in these variables resulted in a change in LST. Regression analysis revealed that changes in impervious surfaces and driving alone to work, along with redlining, contributed positively towards an increase in LST, while canopy cover was found to have a mitigating effect on LST. Furthermore, even though green roofs are known to improve thermal comfort, their effect was not significant at the census tract level. UHI vulnerability index developed through spatial analysis of different variables highlights that socioeconomic disparities are growing, disproportionately exposing the marginalized communities to higher LST. The study underscores the critical role of targeted urban planning and green infrastructure in mitigating UHI impacts and promoting a just approach to climate change in cities.

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Key Words: Green Roofs, Urban Heat Islands, Land Surface Temperature, GIS, Vulnerability Mapping

Are There Signs of Corporate Climigration in the U.S.?

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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A growing body of work explores corporate climate risk management in terms of decarbonization and adaptation in situ, but there has been little attention to how climate may shift corporate location and relocation decisions. Firm location decisions have always relied on economic factors, such as local taxes, land and construction costs, and access to workers. Places in the Sunbelt offer affordable housing and low-tax environments. Silicon Valley became a hub for tech firms due to its proximity to a highly skilled workforce and the clustering of tech-related activities. However, as these same markets start to internalize the growing risks of climate disasters, the cost-benefit calculus for firms located there, or considering a location there, may start to change.

The impact of climate risk on firm location decisions can vary depending on the locational assets as well as the individual firm features. For example, more footloose firms—or those with lower set-up costs who can relocate more easily—may discount future risks in favor of lower rents in areas exposed to climate threats. Firms that rely heavily on the co-location of other firms or certain densities of nearby consumers may not be motivated to give up those benefits in favor of safer climate havens. On the other hand, if households start to move en masse away from places that are economically advantageous, but vulnerable to climate disasters, firms may follow.

In this paper, we test for evidence of climate-related firm migration during the mid-2000s, after several defining events, like Superstorm Sandy, raised the salience of climate risk for U.S. cities. We combine information on establishments and their locations between 2015 and 2020 from DataAxle with FEMA's national risk index for the 100 biggest metro areas in the U.S. We first document the various kinds of firm location decisions. For example, we expect that climate risk may be differentially internalized into location decisions in the cases of new openings, relocations, or expansions. We then test if these location patterns vary by features of the metro area, such as population or employment density, or by characteristics of the individual firms, such as size or sector. Preliminary results suggest that, with the exception of a few multi-establishment firm expansion decisions (where new locations are sited in lower risk metro areas), climate risk has not yet driven firm location decisions. Rather, most economic activity in the U.S. is increasingly concentrated in the riskiest places.

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Key Words: Climate risk, Migration, Firm location

Assessing Equity in Urban Heat Adaptation: A Review of Network of Plans in U.S. Municipalities

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Urban areas face escalating challenges from the compounding effects of heat waves and urban heat islands, which pose significant environmental, social, economic, and health risks. These challenges historically burden socioeconomically and ethnically marginalized communities, who experience heightened adverse heat impacts while possessing limited adaptive capacities. This systematic imbalance has intensified advocacies for climate and environmental justice, highlighting the need for equitable heat adaptation planning. While cities are progressively developing heat adaptation strategies, most current practices prioritize technological solutions over social interventions, and few have formally, directly, or comprehensively incorporated equity considerations into their strategies (Turner et al., 2022). This oversight risks exacerbating socio-spatial inequalities (Swanson, 2023).

To help address this gap, we examine two research questions: 1) To what extent are equity considerations integrated into municipal networks of plans for heat adaptation? and 2) How do these integrations vary across cities, plan types, and plan quality principles?

This study systematically reviews networks of plans from the 30 most populous U.S. cities, focusing on plans related to climate adaptation and land use. We collect plan documents through online searches and verify them with city offices. Using keywords such as “heat,” “hot,” and “cooling,” we identify heat-related statements and use NVivo to code them based on seven plan quality principles with a systematic integration of equity-related criteria (Woodruff & Stults, 2016). We measure intercoder reliability using both percentage agreement scores and Krippendorff’s alpha to establish consistency and trustworthiness of content analysis (Conroy & Wilson, 2023). We then employ descriptive statistics to examine the significance of variations in equity considerations across plan types and quality principles, and further use stepwise logistic regression to investigate relationships between cities’ sociodemographic contexts and their integration of equity considerations.

Preliminary findings indicate a prevalent deficiency in the systematic incorporation of equity considerations within municipal heat adaptation planning, even within climate action, resilience, and sustainability plans where urban heat is a major concern. Other plan types, such as comprehensive, infrastructure, and environmental plans, typically neglect heat-related issues altogether. Municipal heat adaptation planning generally emphasizes plan quality principles related to fact bases, strategy, implementation, and collaboration, while neglecting dimensions including goal-setting, public participation, and uncertainty management. Furthermore, equity considerations are moderately incorporated only into fact bases and strategy identification, while remaining largely absent in all other areas. Results further suggest an overarching preference for “hard” infrastructural solutions (e.g., urban greening, cool pavements) rather than “soft” social strategies (e.g., public participation, outreach), despite the latter’s crucial role in advancing equity objectives. Moreover, findings indicate that larger municipalities and cities engaged in inter-organizational climate networks exhibit a more systematic integration of equity considerations into their heat adaptation planning.

These findings help elucidate the current state of equity integration within urban heat adaptation planning, highlighting existing gaps and variations across municipal contexts and planning practices. The results provide

practical insights for municipalities seeking to develop equitable heat resilience strategies and facilitate collaborative learning and knowledge exchange among urban planners and policymakers.

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Key Words: Content Analysis, Equity, Heat Adaptation, Network of Plans, Plan Evaluation

Assessing Nonlinear Impacts of Urban Form on Heat Resilience Across Scales Using Machine Learning

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Climate change has emerged as a critical global challenge, profoundly affecting human life through increasingly frequent and severe extreme heat events. These heat events are particularly intensified in urban areas due to the urban heat island (UHI) effect, posing significant risks to human health, infrastructure, and overall urban resilience. While many studies have empirically explored the relationship between urban form and Surface UHI (SUHI), there is limited research examining how SUHI dynamics shift during extreme heat events, recently conceptualized as "heat resilience." Furthermore, existing analyses often rely on traditional regression models that assume linear relationships and arbitrarily define spatial units without investigating how varying study unit sizes influence urban heat analyses within a city context. To address these research gaps, this study explores nonlinear relationships between urban form characteristics, land surface temperature (LST), and heat resilience in Seoul, utilizing advanced machine learning (ML) techniques across multiple spatial scales. Specifically, two Landsat satellite images with minimal cloud cover, captured on May 30, 2020 (extreme heat day) and September 19, 2020 (normal heat day), were used to retrieve LST data. Heat resilience was quantified by calculating the difference in LST between the normal and extreme heat days. Urban form metrics—including cover ratio, floor area ratio (FAR), building height variation, vegetation and water coverage, elevation, and proximity to major landscape features such as parks, water bodies, and mountains—were derived at multiple grid sizes ranging from 120 m to 1.08 km at intervals of 120 m. By analyzing these datasets, the study provides insights into how urban form influences heat resilience under varying climate conditions. Four representative ML algorithms—Random Forest, AdaBoost, Gradient Boosting Decision Trees (GBDT), and Artificial Neural Networks—alongside spatial regression models, were applied and evaluated. Among these, the GBDT algorithm demonstrated superior predictive performance, exhibiting the lowest mean squared error (MSE). Subsequent interpretability analyses, including feature importance assessments and partial dependence plots, revealed complex and nonlinear relationships between urban form characteristics, and LST and heat resilience. Specifically, vegetation and building coverage emerged as the most significant urban form variables influencing increased LST during extreme heat events and contributing to enhanced urban heat resilience. Conversely, large-scale landscape features did not exhibit clear nonlinear relationships. Additionally, comparative analyses across varying unit sizes highlighted significant scale-dependent influences on these relationships. Overall, this research deepens our understanding of the intricate dynamics between urban form, UHI, and urban heat resilience under extreme heat conditions. The findings can support urban planners and policymakers in formulating informed strategies and targeted interventions to enhance urban resilience to increasingly frequent and severe heatwaves, thereby prioritizing most influential urban form factors for effective urban heat mitigation.

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Key Words: urban heat resilience, urban form, machine learning, nonlinear relationship, scale effects

Assessing the economic impacts of largescale natural infrastructure investments for flood prevention

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Flooding is increasingly one of the most devastating natural hazards globally, both in economic damage and loss of life. Nature-based solutions, often called natural infrastructure (NI), represent a rapidly growing approach to flood management, with advantages for water quantity and quality (Metcalf et al., 2017). However, one primary barrier stymying large-scale NI implementation concerns its cost profile, which can complicate the establishment of NI funding streams (BenDor et al., 2018). Furthermore, while substantial research has quantified NI's economic benefits, such as ecosystem service production, few studies have explicitly modeled NI's economic impacts, including employment and value added to the regional economy.

In this paper, we seek to evaluate the potential economic impacts of a large-scale NI investment program, including policy scenarios that differentially leverage public investment to sustain the program over time, even leveraging it as a regional economic development strategy. We focus on two common and one NI practice – wetland restoration, reforestation, and water farming –as strategies for temporarily retaining and storing floodwaters in the Neuse River basin of North Carolina (Hovis, 2021). This basin is a major agricultural region that drains into a densely populated urban coastal area. We ask, how does NI construction affect employment and economic output throughout a regional economy? How do NI policy changes alter the extent of these economic impacts? How would economic impacts manifest in a large-scale NI construction and maintenance program?

To measure the economic impacts of widespread NI in the region, we implement an input-output (I-O) model using the IMPLAN modeling platform, informed by interview data (Hovis, 2021), wetland restoration records (Doll et al., 2021) and a geospatial and hydrologic analysis of the region (Doll et al., 2021). We model a range of economic impacts on the State of North Carolina's economy, including the direct (payments to firms to build and maintain NI), indirect (these firms' supply chains), and induced effects (spill-over effects throughout the economy) of investing in, and maintaining, new NI. We estimate these impacts using separate I-O models for each practice and scenario, as well as for the maintenance investments required for each NI practice. Although the maintenance impacts are likely to be smaller, they occur annually, as opposed to construction impacts, which are incurred once when the NI project is built.

We develop three institutional investment scenarios to assess their economic impact. Scenario 1 is a one-off investment over a single year. Scenario 2 is based on the North Carolina General Assembly's 2021 one-time allocation of \$15 million state budget to the North Carolina Land and Water Fund to address flood risk with NI throughout the State. Scenario 3 explores a situation where an NI funding mechanism scaled to the level of development in each watershed across the State.

Understanding the economic outputs from NI investments could help to reframe governmental cost-benefit thinking and support decision-making on policies tackling flooding hazards. These findings strengthen the case for adopting NI into resilience planning and broader economic development strategies.

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Key Words: Natural infrastructure, regional economic impact, input-output analysis, flooding, large-scale

Behavioral and Organizational Drivers of Climate Adaptation Outcomes: A Mixed-method Study

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The burden of long-term adaptation to climate change impacts communities globally but its impacts are experienced in differing degrees by the different demographic groups. In a similar vein, the benefits of state-led welfare policies combating climate change distribute themselves differently across religious, racial, caste, and gender identities, leading to varying degrees of resilience to climate change. From a planning perspective, the variation in climate resilience is most prominently observed in terms of household adaptation behavior and regional economic inequality. What drives this variation in adaptation outcomes of state-level climate mitigation and adaptation policies across different regions?

This paper utilizes stakeholder interviews and a novel survey experiment to explain why the desired outcome of a state-level adaptation policy leads to varying dynamics of regional climate resilience. The survey (n=559) captures variables measuring representational hierarchy within participatory planning initiatives and administrative burden experienced by community members across the divides of religion, gender and caste. Drawing on the theories of participatory planning, representational hierarchy, administrative burden and multi-dimensional decision-making, this paper sheds light on the regional political economy of adaptation behavior. The paper specifically asks between policy attributes and policy agent attributes, what really drives policy uptake decisions, and how these uptake decisions influence resilience building as a direct result of state-level adaptation policy.

Theoretically, the paper is invested in identifying precisely the relative weight of ethnicity, representational hierarchy and administrative within beneficiary preferences for policy uptake. The identification is then utilized to generate plausibly causal relationship between place-based policies and regional resilience, informing planning theory on regional inequality, climate resilience, and participatory decision-making.

While survey experiments are widely used in competitive choice scenarios, particularly the ones where preferences appear in bundles and present the respondents with a multi-dimensional decision-making scenario, in this paper, the adopted methodology helps to distinguish policy attributes (features of the policy offerings) from policy agent attributes (characteristics of the policy agent, trust in the agent etc.), allowing for clear distinguishment across (i) social and cultural factors such as ethnic networks, (ii) planning strategy related factors such as observable policy benefits, and (iii) regional spatial inequality that influences household decision-making for short and long-term adaptation. Preliminary findings suggest that ethnicity, partisanship and access to platform economy determine much of the (in)equities arising as divergent outcomes at neighborhood and regional scales.

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Key Words: adaptation behavior, household decision-making, policy brokers, regional inequality, participatory planning

Bibliometric Insights on Circular Economy and EVs: Implications for Georgia's EV Planning

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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This paper explores how global scholarship frames the integration of circular economy (CE) principles into the electric vehicle (EV) sector and translates those insights into context-specific strategies for Georgia's emerging EV ecosystem. As EVs are increasingly embraced as a climate mitigation solution, especially in high-growth states like Georgia, there is growing interest in ensuring that the EV transition is not only low-emission but also resource-responsible. Circular economy frameworks, which focus on reuse, recovery, and minimizing lifecycle impacts, offer a path forward. Yet, the way CE is discussed and imagined in the EV literature varies widely, and it remains unclear what types of change are being proposed and whether those models are adaptable to state or local contexts.

Using bibliometric methods, this study analyzes 42 peer-reviewed articles published between 2019 and 2023 at the intersection of CE and EV research. It applies tools such as VOSviewer and SPSS to identify major research clusters, collaboration networks, and thematic keyword patterns. Rather than a traditional literature review, this paper asks: What kinds of interventions dominate CE and EV discourse? Are scholars focused on technological innovation, policy design, behavioral shifts, or systemic change? What logics or theories of implementation can be identified across the literature?

The analysis reveals that while CE is often presented as a tool for environmental and economic optimization, there is a noticeable gap in regional and subnational applications. Most studies focus on EU or national-level systems, leaving a critical opening to translate global insights into localized, actionable strategies. In response, this paper develops a strategic framework for Georgia that connects the dominant themes and best practices in the literature to the state's unique industrial, policy, and economic conditions. The framework addresses key opportunities in battery lifecycle management, public-private partnerships, workforce development, education, and equitable access to infrastructure.

This research contributes methodologically by demonstrating how bibliometric analysis can surface embedded narratives and priorities within sustainability research. It also offers a practical model for planning agencies, policymakers, and scholars interested in integrating circularity into emerging EV markets. By linking research patterns with grounded strategy, the paper makes the case for more regionally responsive, data-informed approaches to implementing circular economy principles in transportation and environmental planning.

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Key Words: Electric Vehicles, Circular Economy, Sustainability, Strategic Framework, Theory of change

Bridging Territorial and Consumption-Based Emissions for Urban Climate Action Assessment

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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A critical challenge in urban climate planning is the accurate quantification of city-level CO₂ emissions, particularly consumption-based emissions that extend beyond city administrative boundaries. Previous climate planning efforts have often relied solely on territorial emissions, failing to account for carbon leakage and the full scope of cities' climate governance. This study addresses the following research questions: How can we define globally consistent urban boundaries to support comparable emissions accounting? And how can spatially explicit emissions inventories be developed to track and improve the assessment of urban climate planning, especially in underrepresented regions?

To answer these questions, we introduce a novel urban clustering method that detects administratively coherent and globally consistent urban boundaries using machine learning algorithms and remote sensing techniques. We then construct a bottom-up analytical framework for spatially explicit urban emissions inventories that integrates both territorial and consumption-based emissions. This framework enables consistent and comprehensive assessments of urban emissions across diverse geographies, including data-sparse areas in the Global South.

Our analysis reveals that consumption-based urban emissions account for approximately 90% of global CO₂ emissions, compared to 80% from territorial urban emissions. This 10% discrepancy, carbon leakage from urban to rural areas, highlights a blind spot in current urban climate mitigation strategies. Moreover, we find that many urban areas underestimate their emissions responsibilities by relying solely on production-based inventories within territorial boundaries, leading to gaps in comprehensive mitigation planning.

These findings have direct implications for urban climate governance and planning. By highlighting the carbon embedded in urban consumption patterns, our work supports more holistic mitigation strategies that address global supply chains and interregional carbon flows. It also provides a reproducible methodology for delineating urban boundaries, allowing planners and policymakers to better identify areas of untapped mitigation potential and to design climate planning practices that are both locally actionable and globally equitable.

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Key Words: Urban Carbon Footprint, Urban Emission Inventory, Urban Climate Planning, Climate Mitigation

Building heat resilience through an equitable planning framework for heat warning systems

Abstract ID: 1844.0.0.158.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Heat warning systems are designed to alert decision-makers and the public to impending dangerous hot weather and initiate preventive action to minimize the harm. As climate change increases the dangerous heat event, these systems are important tools in city's climate resilience actions. Most heat warning systems are based on city-wide forecasts, which can overlook or obscure the specific conditions of climate-vulnerable communities who are exposed to higher temperature but the least equipped to cope. There is a need to understand if and how heat warning systems address the needs of vulnerable populations within cities.

In this paper, we examine heat warning systems through the lens of equity and propose an equitable framework to guide the development of heat warning systems that better account for the conditions of vulnerable residents. We analyze how equity and justice concerns intersect with the four primary components of heat warning systems – forecasting, communication, response, and evaluation – and suggest how engagement with vulnerable communities can inform the development of more inclusive and effective heat warning systems.

Our analysis draws on a literature review and case study of heat vulnerable communities in Boston including: (1) temperature monitoring in seven heat vulnerable neighborhoods and (2) a photovoice study with 22 participants from two of these neighborhoods. We use the temperature data to examine the (mis)match of heat warning system to the temperature conditions in heat-vulnerable neighborhoods. The photovoice data provides insights into the ways participants' experiences and response behaviors align with the assumptions of heat warning systems as well as how participants' knowledge can inform the design of community-based warnings and actions.

We find that, first, forecasting methods do not reflect the uneven heat exposure across the city, which can lead to delays in issuing warnings and implementing cooling centers where needed. Second, current communication of heat warnings may not reach all vulnerable groups. Heat warning communication can be improved by further tailoring communication strategies to the specific needs and circumstances of various heat-vulnerable populations as well as establishing supportive community networks that can pass information and build trust. Third, while many cities and regions have crafted heat action plans that consider social equity, there is a critical need to enact responses that go beyond quantifying vulnerability (such as including Heat Vulnerability Index and Social Vulnerability Index in plans) and engage vulnerable residents to build targeted heat responses that account the varied circumstance that heterogeneous vulnerable populations face. Last, data inequity such as scarcity or absence of indicators (e.g., missing race or ethnicity information) and lack of surveillance systems in many low- and middle-income countries, limits the outcome-based evaluation to support the iteration towards an equitable heat warning system.

Based on these results, the paper proposes a planning framework that integrates environmental justice principles to guide the development of an equitable heat warning system.

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Key Words: heat warning systems, climate equity, justice principles, extreme heat adaptation, heat action plans

Building Rural Resilience: A Comparative Spatial Analysis of Nature-Based Solutions in Louisiana

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Climate-induced flooding is an escalating threat in Louisiana, driven by rising sea levels, intensifying storms, and increasing rainfall linked to climate change. These conditions are placing both coastal and inland communities at heightened risk. Currently, over 477,000 properties in the state are considered to have substantial flood exposure—a number expected to increase by nearly 69.7% within the next 30 years, affecting more than 809,800 properties. Although studies show that every dollar invested in natural hazard mitigation can save six dollars for future damage, rural communities often lack the resources and tools needed to prepare effectively. Key challenges include limited access to geospatial information and high-quality flood risk data, which restricts these areas' ability to plan for future hazards. Furthermore, most current research and planning frameworks prioritize urban contexts, focusing on green infrastructure solutions in cities while overlooking the specific needs of rural populations. This study seeks to address those gaps by investigating how spatial data and nature-based solutions (NBS) can support flood resilience in rural Louisiana. The research focuses on inland and coastal areas that face recurring flood threats but often lack the technical capacity to engage in comprehensive planning. By developing and analyzing a series of scenario-based models, the study assesses how different NBS interventions can help reduce risks and provide ecological and social co-benefits.

Research Questions-Research questions include 1) In what ways can Geographic Information Systems (GIS) improve the accuracy and relevance of flood risk assessments in under-resourced rural regions, and 2) what types of nature-based strategies are most viable for increasing resilience to flooding in both inland and coastal rural areas?

Methods-ArcGIS Pro is the primary spatial mapping tool used for flood risk analysis and the evaluation of NBS. The data used include digital elevation, land cover, hydrography, soil types, and other related parameters. We preprocess the digital elevation model (DEM) by performing fill, flow direction, and flow accumulation operations. This is followed by identifying flood-prone areas and analyzing flood risk levels categorized as high, moderate, and low. For evaluating nature-based solutions, we develop three scenarios focused on forests, wetlands, and agricultural/pasture lands. The methodology involves reclassifying land use types, running flood risk models for each scenario, and calculating the percentage reduction in high-risk areas.

Results-Results indicate that wetlands are the most effective NBS, showing the greatest reduction in flood risk in both coastal and inland areas. Therefore, wetlands should be prioritized for flood mitigation in rural areas across both landscapes. Next steps include incorporating additional parameters to better identify rural communities at high flood risk in Louisiana. We are also testing advanced modeling tools such as HEC-RAS, SWMM, and InVEST to evaluate NBS in greater detail, and plan to implement participatory GIS approaches to collect localized data for rural areas.

Conclusions-The project is designed with local governments and resilience professionals in mind, aiming to support evidence-based decision-making in communities that face high exposure but have limited planning resources. In addition to generating new spatial data, the research will produce visualizations and quantitative comparisons of multiple adaptation options. This will allow planners, engineers, and designers to evaluate trade-offs and make more informed choices about NBS implementation. Ultimately, the findings will support policy development and

investment strategies that are tailored to the realities of rural communities. By combining technical analysis with local knowledge, the project will contribute to more inclusive and effective climate adaptation efforts.

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Key Words: Flood Resilience, Rural Communities, Nature-Based Solutions, GIS, Louisiana

Building Urban Resilience with JUST-Trees: Addressing Community Interests in Urban Forestry Planning

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Advancing urban forestry interests has become a critical topic in urban planning practice and research, due to the ways in which tree canopy coverage has been found to contribute to the overall resilience of urban communities. While gaps in urban canopy coverage exist in many metropolitan areas, there are often sub-regions that experience these dynamics more deeply, as longstanding discriminatory policies and practices have been known to contribute to environmental injustices, such as the lack of trees. However, despite the awareness of urban forestry benefits and tree-related needs, minimal work has explored how these interests fit within the broader needs and priorities of vulnerable communities.

To begin addressing these dynamics, we explore these questions through a qualitative case study analysis of tree planning efforts in South L.A., a diverse region of Los Angeles with high concentrations of low-income households and communities of color, and far lower percentages of trees compared to L.A.'s average tree canopy coverage. We conducted semi-structured interviews (n=34) with community leaders and representatives in South L.A. Our research question focused on assessing what community leaders identify as the key needs, challenges, and recommendations for current and future planning, policy, and advocacy efforts related to tree planning in South L.A.?

Our study findings highlight key factors critical for advancing effective and equitable tree planning efforts in vulnerable urban areas. This includes (1) understanding how tree planning activities intersect with other community needs and interests, such as addressing health, housing, financial, and systemic issues, and (2) grappling with the potential unintended consequences of tree planning on vulnerable communities, such as potential environmental gentrification impacts. Through this exploration, our study findings work to advocate for more inclusive approaches towards tree planning in South L.A., and other urban communities dealing with the long-term impacts and legacies of environmental injustices and inequalities.

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Key Words: urban forestry, tree planning, community engagement, environmental justice, South LA

Cashing out social capital, can online interactions improve long-term resilience? A case study of Buffalo Blizzards 2022, 2024

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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This study explores the roles of self-organized Facebook groups as an “urban commons” in facilitating mutual aid behaviors during two recurrent blizzards (2022, 2024) in the city of Buffalo NY (Ostrom, 2015). At the height of the Christmas travel season, Buffalo has encountered the most devastating storm in its long-storied history of snow. 4 feet of snow fell in about 48 hours. Storm-force wind speed has caused structural damage. The conditions were so bad that emergency services in numerous towns were suspended (e.g., Buffalo, Cheektowaga, Clarence, and Williamsville).

While the major infrastructure in the physical space has been shut down, Buffalonians have flocked to cyberspace to stay connected. Two Facebook (FB) groups, “Buffalo STORM” and “Buffalo Blizzard Response” become the main communication hub where people share information, and resources and coordinate collective behaviors. Through identifying mutual aid messages and analyzing users’ social networks, Yin et al. (2025) have found that FB groups can improve community resilience by introducing “weak ties” among group members. These weak ties extend people’s traditional social circles and facilitate the flow of information and materials among otherwise disconnected groups (Granovetter, 1973).

Despite Yin et al. (2025)’s findings on weak ties, it is unclear if such emergent and temporary digital connections can translate into long-term social capital for future crises. Particularly, one year after the blizzard in December 2022, Buffalo encountered another severe storm in January 2024. This study conducts a longitudinal study on the long-term impacts of self-organized FB groups in responding to two recurrent blizzards (2022, 2024) in the city of Buffalo. Methodological-wise, we have collected FB messages sent in the FB groups during the 2022 and 2024 blizzards. By combining machine learning algorithms (e.g., named entity recognition) with social network analysis, we construct two spatial social networks capturing users’ mutual aid behaviors. We compare the two networks to explore the mechanism through which weak (ties) convert to strong social connections. Additionally, mapping the social networks spatially allows us to understand spatial constraints on mutual aid formations.

Through a longitudinal analysis, this research extends the urban commons theory into a digital context. Specifically, this research can find that social media platforms (e.g., FB groups) are not just a communication channel during crises. Instead, these platforms are becoming digital “urban commons” that can facilitate long-term resilience. When the main infrastructure in the physical space is down, social media platforms provide alternative solutions for people to self-organize, self-help, and engage in spontaneous mutual-aid behaviors during emergencies.

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Key Words: urban commons, Buffalo blizzard, social capital, longitudinal analysis

Catastrophic Hurricanes and Migration Preferences in the US: Evidence from Hurricane Sandy

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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This study investigates an interdisciplinary issue on how catastrophic hurricanes in the United States may reshape residents' cross-county migration networks and alter their migration preferences, particularly the interplay among economic, environmental, cultural, and political mechanisms. Using network analysis and causal inference method PSM-DDD, along with multi-source big data including IRS county-to-county migration records, disaster information, and socioeconomic attributes of counties, this paper takes Hurricane Sandy, which struck the northeastern United States, as a case study to investigate two research questions: First, do catastrophic hurricanes force or hinder migration in disaster-affected areas. Second, whether migration preferences under disaster conditions diverge from ordinary circumstances. Specifically, whether residents' migration is mainly driven by economic mechanism or shifting toward environmental, cultural, or political mechanisms. Innovatively, this study distinguishes between out-migration and in-migration networks to separately analyze how hurricanes and the four mechanisms influence outmigration during disasters versus in-migration post-disaster, offering insights for policymaking in disaster prevention.

Specifically, this study proceeds as follows: First, we designate treatment groups (counties severely impacted by Sandy) and control groups (counties unaffected by any major disasters during the same period). After screening, 41 of 132 Sandy-affected counties qualified as the treatment group, contrasted with 2,712 unaffected counties. Second, for each county in both groups, we construct annual county-to-county out-migration networks over five years (pre- and post-disaster), yielding 23,184 OD pairs for the treatment group and 285,937 for the control group. Each OD pair is characterized by origin-destination similarity across four dimensions: economic, environmental, cultural, and political. The same approach is applied to post-disaster in-migration networks. Finally, using PSM (Propensity Score Matching) to match comparable ODs in the control group, we employ DID (Difference-in-differences) and DDD (Difference in difference in differences) models to address the two research questions: whether disasters promote or hinder migration, and how the four mechanisms modulate the effects in DID.

Key findings reveal that out-migration networks exhibit lower migration rates from hurricane-struck areas, aligning with the "disaster suppression" literature. Migration preferences during disasters diverge from routine conditions, with environmental and cultural mechanisms dominating over economic factors—residents preferentially relocate to distant counties with greater cultural dissimilarity. Conversely, post-disaster in-migration networks demonstrate distinct dynamics: economic mechanisms prevail, as residents from less developed areas are more likely to move to disaster zones, with economic factors interacting with environmental and cultural drivers. These findings advance understanding of disaster-induced migration networks and preferences, offering insights for policymaking in disaster prevention.

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Key Words: Climate change, Hurricane, Migration, Displacement, Migration preferences

Challenges & Opportunities for Integration & Coordination of Local Climate Action in California

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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In California, local jurisdictions are required to address greenhouse gas emissions (GHG), climate adaptation, and environmental justice in long-range planning processes, but they have discretion in how to integrate climate measures across different types of plans. Jurisdictions can prepare a climate adaptation or GHG reduction plan, prepare separate stand-alone plans for different topics, or integrate topics into other plans and processes. Although this approach provides cities and counties with flexibility in how to integrate and coordinate climate actions based on their needs and local context, it could result in poor and inconsistent integration of climate strategies across plans, leaving people and infrastructure vulnerable to hazards (Berke et al., 2015). Even within a single city, the strategies, goals, and actions to achieve climate adaptation can vary substantially depending on when the plans for each sector were adopted and whether they focus primarily on technology and science or address the needs of residents and justice concerns (Strange et al., 2024). Developing and implementing plans in “silos” could result in missed synergistic opportunities to more effectively and efficiently reduce risks (Matos et al., 2023). Conversely, coordination of climate strategies across a network of plans within a jurisdiction could encourage greater coordination across previously siloed departments (Grafakos et al., 2018; Woodruff et al., 2022).

In response to these uncertainties, we investigate the challenges and opportunities for climate action integration across climate action plans (CAP), local hazard mitigation plans (LHMP), and general plans (GP) for a sample of cities in Orange, San Bernardino, and Riverside Counties. The selected cities have adopted all three plan types, which represent a range of multi-hazard environments with varying levels of resources and a mix of political contexts. We develop a climate riskscape framework to analyze how the following three categories of climate impacts and protective measures are addressed within and integrated across CAP, GP, and LHMP: Hazards (GHG emissions and Climate Hazards), Amenities (Protective Governance and Protective Infrastructure), and Vulnerabilities (Vulnerability and Environmental Justice). For our analysis, we extracted the goals, policies, and actions sections from each plan. Our coding framework consists of two broad categories for Climate Hazards and GHG emissions reduction, allowing for a comprehensive assessment of adaptation and mitigation. In the first step, we employed NVIVO software for automated precoding using keywords to identify relevant text segments across all documents. Next, we conducted a detailed manual review to verify and refine the coding. Finally, we generated frequency tables for different coding categories to quantify the presence of various climate hazards, mitigation strategies, and vulnerabilities.

Our results indicate that flooding receives consistent and strong coverage across all cities, followed by wildfires. However, there is a significant gap in drought and extreme heat coverage despite regional vulnerability. Strategies, policies, and actions addressing climate hazards predominantly focus on preparedness, while recovery planning remains limited or absent from the plans of many cities. In terms of GHG emissions reduction, transportation and land use consistently receive the most extensive coverage across cities, followed by energy efficiency and

production initiatives. Lastly, we found that hazard interactions, intensification of hazards due to climate change, and environmental justice concerns receive minimal coverage across all cities. Results support local climate action planning by identifying the challenges and opportunities for integrating climate action strategies across CAP, LHMP, and GPs.

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Key Words: Risksapes, Climate Action Planning, Plan Content Analysis, Southern California

City-Scale Carbon Mitigation Plan Collaborating with LLM Multi-Agents

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Background: Accurate monitoring and interpretation of urban carbon emissions are critical for designing effective mitigation strategies and advancing sustainable development. Traditional methods, however, struggle with fragmented data integration, labor-intensive calculations, and human bias. While large language models (LLMs) have shown promise in processing heterogeneous data (Fu et al., 2024), their potential in multi-agent collaboration—particularly for synthesizing policy insights and spatial dynamics—remains underexplored (Almulhim et al., 2024). Recent studies highlight LLMs' capacity to simulate stakeholder interactions and optimize complex urban systems (Cao et al., 2022; Gamage et al., 2024), yet few frameworks bridge technical analysis with policy implementation. This study proposes a multi-agent LLM framework to automate city-scale carbon neutrality reporting, integrating emission data analysis, policy knowledge extraction, and scenario-based planning. We aim to establish a scalable technical pathway for transforming raw data into actionable policy recommendations.

Data and Methods: The study integrates three data sources: 1) CEADs datasets (1990–2023) covering city- and provincial-scale sectoral carbon emissions (industry, energy, transport, buildings, land use); 2) China's 2024+ climate policies, including national strategies, sectoral regulations, and social initiatives across five key domains; and 3) low-carbon city plan case studies (e.g., Shanghai action plan) and peer-reviewed literature. Raw policy texts underwent preprocessing (cleaning, tokenization, stop-word removal), followed by BGE-M3 vectorization and Retrieval-Augmented Generation (RAG) integration into Milvus. A Neo4j knowledge graph was constructed using LLM-assisted Named Entity Recognition (NER) and Relation Extraction (RE), linking policy entities (e.g., "carbon peaking targets") to urban entities (e.g., industrial zones) via TF-IDF and lightweight ontologies. The Dify framework orchestrates a multi-agent workflow with five specialized agents: DataCollector (aggregates emissions/GDP/population data), Analyzer (spatiotemporal hotspot detection), SectorContributor (sectoral attribution analysis), Advisor (policy recommendations via knowledge graph queries), and Summarizer (report generation). The system was benchmarked against GPT-4/DeepSeek/Claude/ChatGLM3 APIs, achieving state-of-the-art performance in retrieval metrics (hit rate, MRR) and response quality (relevance, correctness, credibility, BERTScore).

Key Findings: The analysis demonstrates three pivotal outcomes: 1) post-policy emission reductions in carbon-intensive sectors validate the robustness of LLM-driven policy-knowledge extraction, particularly in linking regulatory mandates to sectoral outcomes; 2) the LLM-constructed knowledge graph revealed systemic gaps in regional governance, such as fragmented carbon trading mechanisms in western China, offering actionable insights like cross-provincial quota coordination frameworks; 3) empirical validation through the Ningbo City case study highlighted operational efficiencies, with the framework reducing report generation time while maintaining high accuracy in policy alignment—demonstrating LLMs' capacity to streamline municipal planning workflows. These findings collectively underscore the transformative role of multi-agent LLM systems in bridging data fragmentation (Hao & Xie, 2025), enhancing policy accountability, and scaling climate action.

Implications: The study underscores the transformative potential of LLM multi-agent systems in urban carbon governance, while highlighting critical pathways for future research. Technical advancements could focus on enhancing domain-specific LLM alignment with textual analysis could further refine emission attribution models.

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Key Words: Carbon mitigation plan, Large language model, Knowledge graph, Carbon emission, climate change

Climate Adaptation Co-Production and Residents' Changes in Adaptive Capacity

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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This article asks: how does residents' participation in a multi-year climate adaptation co-production process relate to measures of adaptive capacity?

Researchers contend that knowledge held by residents, when used alongside technical/scientific data, can contribute to improved justice and effectiveness of climate adaptation planning. Scholars and practitioners suggest co-production as one pathway to better integrate local knowledge into climate planning. For this article, we define co-production as the process of working collaboratively within and beyond research-focused institutions to develop knowledge useful for decision-making. In the planning field, residents' participation in the development of planning outputs represents one aspect of co-production. Scholars have long debated the role of, and limitations associated with, residents' participation in planning. However, some evidence exists that residents' participation in climate adaptation planning increases their feelings of trust, responsibility, capacity, and agency; awareness and understanding of climate risk; capacity to work toward equitable climate adaptation; and levels of personal responsibility for preparedness. These attributes can be measured in part by evaluating adaptive capacity, defined here as the ability of people, both as individuals and as communities, to anticipate, adapt, and recover from impacts stemming from environmental and/or climate change.

We investigate changes in adaptive capacity through a case study from Austin, Texas, a rapidly growing city facing flooding, heat, drought, and wildfire, all within the context of continued segregation, disproportionate exposure to climate-related events, and uneven access to adaptation infrastructure. Residents of the Dove Springs neighborhood of Austin worked with a community-based organization, Go! Austin, Vamos! Austin (GAVA), to identify a need for an online portal to share knowledge about their community, climate-related events, and preparation for, response to, and recovery from events. In 2019, GAVA developed the Climate Navigators program, a group of community members trained in climate preparedness and community organizing, as a first step to develop the portal. In collaboration with GAVA, the research team received National Science Foundation funding to work with the Climate Navigators from 2020-2024 to co-produce and launch the portal.

To investigate changes in reported adaptive capacity characteristics, we interviewed 22 members of the Climate Navigators in 2020 and again in 2024, at the end of the project. All interviewees were Hispanic/Latina women and live in a low-income neighborhood experiencing severe climate impacts. Semi-structured interviews consisted of open-ended questions accompanied by a graphic showing aspects of adaptive capacity. Interviews were recorded, transcribed, and, for 18 of the 22 interviews, translated from Spanish to English. Three researchers from the team then coded the interview data into key themes through multiple rounds of analysis.

Overall, initial findings show that participants reported improvements in (climate-adaptation specific) relationships to technology, information, skills, and equity, with challenges remaining in areas of economic resources and infrastructure. Relationships to institutions were mixed, with strong agreement that connections to community-based organizations and a research university improved, but, for the most part, distrust of local government entities involved with climate adaptation and climate-event response continued. Our findings are relevant for planners and researchers working in communities impacted by environmental and climate change, those considering how to work with residents to develop and implement co-production processes focused on climate

adaptation, and residents and community leaders seeking to develop programs and processes to improve adaptive capacity.

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Key Words: Adaptive capacity, co-production, climate adaptation, local knowledge, climate justice

Climate Gentrification in Florida: Perspectives from City and Housing officials in Tampa and Miami

Abstract ID: 1844.0.0.35.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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“Climate gentrification” is the new turn of phrase used to highlight the disproportionate impacts of climate change on low-income populations of color. Sea level rise threatens to dramatically reshape life on the Florida coast. As waters breach the tops of sea walls and bubble up from below, they erode the risk tolerance of wealthier residents to remain on the coast as inundation becomes more permanent than a nuisance. Consequently, higher elevation neighborhoods are increasingly primed to become gentrification hotspots through speculation and permissive development incentives for migrating populations facing eventual retreat from the coast. The process of inland retreat may also lead to secondary displacement of long-term residents as the pressures of gentrification, investment and development take hold particularly in lower income communities of color. While there is growing attention to the potentials for mass migration and retreat from the coast, there is limited empirical analysis of the dynamics of displacement related to sea level rise and the planning mechanisms in place to manage impending neighborhood change in higher elevation communities.

This paper examines the planning efforts to address the risks of first order displacement from the coast related to sea level rise impacts and mitigate second order displacement in low income inland communities on higher ground. We employ a multi-staged research design to explore how major urban centers in Florida are planning for and developing policies to address the disproportionate impacts that marginalized communities are likely to experience in the face of sea level rise. The three stages of the research methodology include 1) mapping of displacement risk indicators, 2) a modified network of plans policy analysis, and 3) semi-structured interviews conducted with key resilience, housing, and planning actors in Miami and Tampa Bay regions.

This paper draws from our policy analysis and interviews with city officials, housing officials, and advocates. We find through the plan analysis there is a disconnect between resilience and environmental policies concerned about the effects of sea level rise and housing protection policies used to manage neighborhood change and prevent displacement. Likewise, our interviews show that all regions are operating in a pro-development political context and as long as property values remain high, the misalignment in timelines of developers working on short-term returns with the realities of the eventual long-term implications for these new developments on the coastlines will persist. In inland communities for each region, we find ongoing tensions between the interplay of revitalization initiatives and neighborhood preservation, where communities that receive upgrades, urban greening or flood proofing witness increasing property values and become targets for displacement of existing residents.

Local variations across the comparative cases reveal divergences in the salience of climate displacement perceptions and responses. In Miami-Dade areas that are primed for potential displacement are explicitly identified as inland communities of color which are already undergoing neighborhood change. In Tampa Bay-Pinellas, planners are in the process of understanding the vulnerabilities related to sea level rise, sources of affordable housing stock and identifying potential areas where primary and secondary displacement may occur.

This paper advocates for a more anticipatory model of planning and proactive examination of climate planning and housing policies focused on anti-displacement strategies to identify gaps in coverage and opportunities to promote greater equity and address the risks associated with first order and second order displacement.

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Key Words: sea level rise, displacement risk, gentrification, affordable housing, coastal retreat

Collaborative Capacity and the Role of Governance Platforms in Watershed Planning and Management

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Collaborative planning and governance has become an established approach to managing complex problems (Genskow 2009; Innes and Booher 2010). For ongoing collaborative efforts, there is typically an entity at the center of this effort that has been called a governance regime (Emerson and Nabatchi 2015), network administrative organization (Provan and Kenis 2008), and collaborative platform. Ansell and Gash (2018, 20) define collaborative platforms as an organization with “dedicated competencies, institutions, and resources” for ongoing collaborative projects or networks. Considerable research has been conducted on collaboration formation and operation, but there has been limited research on how different collaborative platform forms and functions affect capacity and stability (Bryson et al. 2015). One model proposes that collaborative platforms can be categorized by those reliant on staff, boards, and partners—suggesting that each type has strengths and weaknesses related to capacity and stability (Margerum et al, 2025)

There is a long history of collaborative platforms to support watershed planning and restoration work. Chaffin et al. (2015) identified 304 entities operating just in Oregon, Washington, and Idaho. In Oregon collaborative platforms have been operating for more than 30 years as “watershed councils,” which may represent one of the longest collaborative governance efforts in the US.

This article examines how the types and functions of platforms affect the capacity and stability of watershed management efforts in the state of Oregon. The project uses a mixed method and participatory approach, supplemented by feedback and follow up case studies. The methods included an online survey of watershed councils (n=49; 81% response rate), which addressed topics of internal operational practices, resources, governance, and partnerships. The methods also included in-depth review of documents and funding data for 10 councils representing a cross section of locations, capacity, and partnerships. Twenty one interviews were conducted for four councils representing distinct capacity contexts. Throughout the study, researchers utilized an advisory team of councils and agency staff to review preliminary findings, analysis, and interpretations. Since publication of an agency report on this work, additional research was conducted on several “failed” councils to examine the issues and context for their demise.

The study found several aspects of collaborative platform stability important for capacity and success. First, lead staff turnover was a critical factor related to capacity. This often related to collaborative platform type, board-staff relationships, and compensation. Second, recruitment of stakeholder boards with the skills, capacity, and networks to support the platform was important for building capacity, but those in rural regions faced a paucity of potential board members. Third, those platforms with strategic plans with clear priorities tended to exhibit a stronger trajectory, but the effectiveness of the plans were as much a performance measure of ability and capacity. Finally, external networks supported by staff and stakeholders were essential to the overall capacity, growth, and stability. However, there are clearly dense and sparse networking opportunities across the state that cannot be overcome by simply “working to developing more relationships.”

In summary, the study finds that these factors can compound to help spiral the stability and capacity of collaborative groups. We document many cases where increased capacity, staffing, board engagement, and partnerships lead to an upward spiral of funding levels and diversity of sources. We also explore several cases in

which platforms experienced a downward spiral in funding levels and diversity of sources. While these limited cases are hard to generalize, they highlight the very fragile nature of even strong and well-functioning collaborative platforms.

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Key Words: Collaborative planning, Governance, Environmental planning, Watershed management

Community Building for Neighborhood Ecologies

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Within this chapter, I explore the Urban Ecology Center's (UEC) community-building approach to support neighborhood sustainability. I ask, "how or to what extent does community-building and engagement contribute to this end? What might we learn from their approach that informs neighborhood planning theory and practice for a more holistic, sustainable-ecological urbanism?"

The UEC engages with multiple endeavors from park planning to land management, civic science, and community education. Situated within 3 separate neighborhoods, the UEC is also committed to building community and fostering relationships with people, place, and nature as a basis for neighborhood improvement and wellbeing. This is implemented in several ways: by being physically embedded within neighborhoods; through basic social interactions and contact; through participation and engagement such as volunteer stewardship, community forums, environmental activities, and sustainability events; and by supporting and collaborating with aligned neighborhood groups, initiatives, and other organizations. A crucial, tangential question I ask here is: how does this integrated social-ecological approach mark a divergence from and transformation of more conventional and siloed neighborhood and environmental planning strategies of the past? Some of what I find is that, by working directly with residents and local communities, the UEC cultivates complex, socio-ecological that considers not only communities and the built and natural environments, but in recent years, has also emphasized the need for greater individual care, compassion, kindness, dignity, respect, and so forth. Incidentally, such elements are nascent topics of interest through literatures on planning (Healey, 2024), sustainable communities (Glennie, 2020; Yuille, 2023), resilience and capacity-building (Kan & Lejano, 2023; Helne, 2021).

Methodologically, this paper is based on ethnographic research conducted in summer and fall of 2023. I used participatory observations and research to collect data in the form of fieldnotes, interviews, and content analyses coupled with extensive literature reviews. Findings show that the UEC employs a multitude of strategies to build and strengthen community for sustainability and wellbeing. This, however, begins with a philosophical and practical reframing of care and ethics for both humans and the environment, built and natural. Conceptually, this is premised upon a pragmatic environmental ethic like Aldo Leopold's (1949) who espoused the need for an integrated, interdependent conception of community inclusive of other species, ecosystems, as well as other human communities and cultures. Despite its abstraction, Leopold envisioned such an ethic as embodied practically in the everyday relations between people and place. This is transformative for both planning theory and practice in numerous ways.

My findings show that the UEC's model consider community-building and environmentalism as a unified whole. This whole is, in turn, based on a social-ecological ethics of care (Healey, 2024) that presumes an expanded sense of wellbeing (Helne, 2021). Such community care is evidenced by the organizational vision and values as well the many words and deeds voiced by informants. Sustainability grounded in community, engagement, ethics, and care is of recent interest among some scholars (i.e. Yuille, 2023; Healey, 2024) and has garnered attention in sustainability and resilience (Helne, 2021; Glennie, 2020; Kan & Lejano, 2023). Collectively, these scholars suggest that sustainability cannot be decoupled from community which, in turn, requires care for both people and place. Such concepts are useless, however, without everyday, interactive practices in community. Hence, this research

explores an innovative, integrated approach that answers the call for more practical solutions to the issues of contemporary urbanism.

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Key Words: Community building, Ecological planning, Neighborhood urbanism, Ethics, Care

Community or Community-Owned Solar? An Empirical Study of Organizational Structure on Decision-making

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Community solar refers to any solar project or purchasing program within a geographic area in which the benefits of a solar project are shared among multiple customers (Department of Energy, 2024). It offers advantages over traditional methods of energy production and delivery, providing benefits such as financial savings, economic growth, environmental sustainability, and social equity (Ning et al., 2025). Community solar projects can be developed and owned by utilities, private companies, or, in theory, the community itself, with benefits to all participants. However, in practice, there are very few community solar projects that are truly community-owned. Research suggests that this is largely due to the need to set up a special purpose entity for such collective action, which increases the legal and organizational complexity of solar development and community collaboration when handled outside of the capacity of a utility or private firm (Chun, 2023; Milun et al., 2022).

In Washington State, however, Public Utility Districts (PUDs) represent a unique form of utility structure. A PUD is a community-owned, non-profit, locally regulated utility created by a vote of the people under state regulation RCW 54. This enabling legislation raises the question: Are Public Utility Districts (PUDs) better positioned to advance community solar than municipal-owned or private-owned utilities? To what extent do differences in utility provider governance structure affect the capacity (MegaWatts) and configuration of community solar installations? Other factors of interest include solar resources, regulation mandates, funding sources, and organizational characteristics.

In this paper, we apply new institutional economics in an empirical examination of the effects of utility structures on decisions surrounding community solar projects. We use data from the National Renewable Energy Laboratory (NREL) on community solar and the U.S. Energy Information Administration (EIA) Annual Electric Power Industry Database. Our analysis covers 60 Washington State utilities, including over 20 PUDs, focusing on their involvement in community solar and evaluating their make-or-buy decisions regarding project development.

For planners, understanding how utility structure shapes community solar development enables more strategic, equitable, and locally grounded energy planning. Preliminary findings suggest that utility structure and governance characteristics are associated with community solar development. PUDs, with their elected boards, are more responsive to community needs and tend to prioritize collective interests, making them more likely to provide community solar as a club good. However, due to the geographic limitations of their service areas, the system sizes of PUD-led community solar projects tend to be smaller. Nonetheless, the PUD model may offer a more compatible framework for supporting community-owned energy systems than other utility arrangements.

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Key Words: Community Solar, Utilities, Energy Justice, Energy Planning

Community-Led or Community-Washed: Analyzing Collaborative Urban Climate Change Planning

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Around the world communities that have historically been economically marginalized and burdened by pollution are now disproportionately vulnerable to the impacts of climate change. Pressured by environmental and climate justice advocates, governments are starting to direct public investments into these communities with the goal of simultaneously responding to climate change and addressing long-standing economic and social disparities. While many frontline communities support these targeted investments in theory, there are still concerns that, in practice, these efforts represent status-quo, top-down, urban revitalization efforts that ultimately reproduce environmental and climate injustices. As more public funding is directed into these targeted programs, more needs to be understood about how these investment programs are working on the ground. How are decisions made about how to spend public investments and who is involved in making these decision making processes? Finally, what are the possibilities and limitations of these efforts in terms of advancing multi-scalar and intergenerational climate justice?

To begin to answer some of these questions, I present a comparative case study of three neighborhoods in Los Angeles—Watts, Pacoima and South Central Los Angeles. Between 2018 and 2022, these three neighborhoods were awarded between \$23 an \$35 million through the State’s Transformative Climate Communities Program (TCC) to implement comprehensive, community-led climate change plans and projects. I use qualitative content analysis to examine in-depth interviews (n=56) and relevant documents related to the development of TCC-funded climate plans in each of these neighborhoods.

These three cases enable insightful comparison given that they are located within a single political jurisdiction, the City of Los Angeles, but they differ notably in terms of the planning process and outcomes associated with the TCC funding. In Watts, the City’s housing authority led a planning process centered around the redevelopment of one of their public housing sites, Jordan Downs. In Pacoima, an environmental NGO partnered with a grassroots environmental justice group to advance a plan centering around urban greening and revitalization of a channelized tributary. In South Los Angeles, a coalition of community-based organizations (CBOs) that organize across a range of issues put forward a climate plan that advanced inclusive economic development without displacement.

While each of these neighborhoods took a very different approach to climate planning, I find that the types of projects that are ultimately funded by the state are similar across the sites. In all three cases, I find that the realization of community priorities in the plans is limited to some extent by the program’s guidelines, which determine the types of activities that can be funded. I also find that while sites led by non-governmental organizations show more evidence of past direct community engagement with residents, the constrained timeline limited the ability of any site to engage in authentic community engagement during the plan development. Lastly, I find that disparities in institutional capacity inhibit the involvement and leadership of grassroots CBOs.

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Key Words: climate planning, climate justice, public investment

Community-Led Risk Assessment – Fighting Extreme Heat & Displacement in the Westside of San Antonio

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Many cities prone to extreme heat also struggle to preserve housing affordability and accommodate population growth. Studies have shown that heat strategies are not well coordinated across plans, and that only 10% of planners reported that their municipalities addressed heat in building codes (Meerow & Ladd, 2022). Cities often employ heat management and mitigation interventions within publicly managed spaces and buildings, but they also need to scale up retrofits and renovations of residents' housing structures. Given that many dangers posed by extreme heat can be rendered invisible, and housing affordability and resident tenure can be ignored in risk assessments, this research asks the question, how can community-led environmental housing assessments better capture the risks of extreme heat?

The heat is inescapable in San Antonio's Westside neighborhood, a predominantly Mexican American neighborhood where the high ratio of asphalt— along with older, pre-World War II structures— creates a heat island effect that leads to higher energy consumption and a greater risk of related health problems. This paper explores a community-led housing assessment process, revealing hidden extreme heat risks in a neighborhood facing displacement from code enforcement and gentrification (Lopez Ochoa & Zhai, 2024). Co-developed by the Historic Westside Residents Association (HWRA) and university researchers, the study highlights how environmental dangers intersect with housing insecurity in vulnerable communities.

The research project employed multiple methods and phases. First, community leaders and researchers completed the housing conditions form to inventory housing repair needs in the neighborhood and assess residents' socio-economic and health vulnerability. PurpleAir sensors, low-cost environmental sensors, were installed both inside and outside of participating homes to record air temperature and air quality metrics, which represented the full range of neighborhood housing conditions, and households participating in the sensor study completed survey forms. Finally, the surveys and feedback from community engagement sessions were analyzed to develop recommendations for prioritizing home rehabilitation needs. Overall, this research process presents a model for measuring community vulnerability that supplements macro-level heat data with individual household building conditions and occupants' health and economic conditions, resulting in a deeper understanding of community vulnerability.

Residents reported positive behavioral changes due to greater awareness of air quality and extreme heat hazards with the presence of the low-cost sensors, but behavioral changes are insufficient within housing structures in need of many repairs. Results corroborate the literature in housing decay and its role on urban issues such as decline-induced displacement and gentrification (Seymour & Akers, 2023; Suglia et al., 2014). The paper also reveals significant demands for housing repair assistance and cultural clashes between neighborhood residents and city staff, who enforce building codes and standards that deny legitimacy to the incremental, autonomous methods of self-repair, employed by residents due to necessity, but also as *rasquachification*, the inventive practice of many Chicana/Mexican Americans to repurpose discarded or inexpensive materials to express identity through function (Ybarra-Frausto, 1989) and maintain their homes.

We conclude that a housing conditions assessment process can help reinforce community solidarity and strengthen climate resilience. Further, the data validates residents' long advocacy for more equitable decision-making from the City of San Antonio for more resources to maintain and rehab structures falling in disrepair, as existing city programs, such as the Home Repair & Lead Remediation Program and REHABARAMA programs, currently present many institutional barriers to access for neighborhood residents.

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Key Words: extreme heat, climate resilience, community-led adaptation, risk assessment, community-engaged

Comparing green infrastructure spatial planning in cities across the United States and Germany

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Cities worldwide are increasingly investing in nature-based solutions or green infrastructure (urban forestry, rain gardens, green roofs, larger parks or greenways, etc.) to enhance sustainability and resilience. While green infrastructure is often promoted for its ability to provide multiple benefits or ecosystem services to communities, previous research suggests that in practice green infrastructure has often not been strategically planned to maximize multifunctionality or equity. It is unclear to what extent these patterns are persisting in the wake of historic investments in green infrastructure in the United States (US) and Europe, and if so how data and tools might help transform green infrastructure implementation.

Green infrastructure spatial planning, or the decision-making processes for determining which green infrastructure functions are prioritized and where different types of green infrastructure gets implemented within cities, are not well understood. This is an important knowledge gap because research shows that there are tradeoffs between green infrastructure functions, designs, and locations, but these remain under-examined. Most green infrastructure ecosystem services and disservices are also localized, so spatial planning decisions have important environmental justice implications. This study unpacks current green infrastructure spatial planning in diverse cities across the United States (US) and Germany, including key actors, information sources, and decision-making processes. We compare the results of national surveys of local officials engaged in green infrastructure planning. Our two-pronged sampling strategy included a ‘targeted’ stratified random samples of 240 US cities and 121 German cities representing different regions and population sizes as well as a ‘convenience’ sample of officials participating in relevant professional organizations. Identified local officials were sent an online survey through Qualtrics with a mix of open- and close-ended questions. Our qualitative and quantitative analyses of over 150 completed surveys reveals considerable variation in the types of green infrastructure being implemented, the multiple benefits that cities seek to achieve through these investments, the data, tools, and processes for deciding where to invest, and common barriers for green infrastructure implementation. For example, results suggest that German cities are more focused on green infrastructure to enhance biodiversity, while US cities prioritize improving water quality. Although US cities report more formal consideration of equity in siting green infrastructure, German cities are more likely to consider future climate change projections. In addition to clear national differences, we compare how survey results differ by city size and region. These findings can support the design of more effective international green infrastructure planning guidance and decision-support tools.

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Key Words: green infrastructure, nature-based solutions, urban forestry, climate change adaptation, spatial planning

Comparing Regional Climate Change Adaptation across Two Bay Areas

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Climate change impacts are generating planning challenges that require collaboration across municipalities, such as cross-jurisdiction flood infrastructure planning, regional cooling centers, and urban development in hazard-risky areas in high growth metropolitan regions. Practitioners and researchers have responded by turning to the metropolitan regional scale for climate adaptation planning. Research in the U.S. has shown that regional planning can facilitate effective climate change adaptation by overcoming limitations of local-scale planning in several ways, including: coordinating adaptation across jurisdictions; augmenting the planning capacity of resource-constrained communities; and sharing best practices. However, because regional governance structures vary significantly across political and institutional contexts, the role and effectiveness of regional planning for climate change may differ accordingly. Comparative analysis across different governance and urbanization contexts can thus yield valuable insights into how regional planning can contribute to climate adaptation.

This study compares regional climate change adaptation planning for flood resilience in the San Francisco Bay Area (SFBA) and the Greater Bay Area (GBA) in Guangdong China across three axes: (1) governance structure, (2) land ownership, and (3) urbanization context. The regional planning frameworks in place in both the SFBA and the GBA provide unique opportunities to study climate change adaptation planning at the regional scale. In this paper, we ask, how is metropolitan regional-scale planning constituted in the two “Bay Areas”? How are regional planning efforts addressing flood resilience in the two regions? How do the different land ownership regimes, governance structures, and urbanization contexts in the two “Bay Areas” shape different regional planning approaches for flood resilience? These questions are answered through field work in the two Bay Areas, semi-structured interviews with key informants from local, regional, and central government agencies, consulting firms, non-profit organizations, and universities, as well as analysis of public documents on infrastructure projects and planning initiatives for flood resilience.

We find that China’s “vertical” governance structures with centralized state ownership of urban land allow for top-down coordination, enabling relatively efficient and consistent planning across jurisdictions and levels of government. However, this high degree of centralization limits place-specific tailoring and innovation. In contrast, the “horizontal” planning context of the SFBA, characterized by greater local autonomy and planning pluralism, combined with highly fragmented and privatized property ownership, fosters locally context-sensitive solutions and diverse stakeholder engagement. Yet the decentralized approach can also lead to contentious debates, inefficiencies, and uneven policy implementation that can deepen spatial inequalities. These findings offer key insights into the forms and capacities of regional planning institutions from different settings, and challenge planning scholars and practitioners to move beyond viewing regional governance institutions as constrained by their dominant local contexts. Rather than viewing regional governance as strictly limited by the overarching political system, the comparative perspective provides alternative approaches to how regional planning can be achieved through expansive forms of metropolitan regional-scale institution-building that cater to the specific contexts of urbanization and land ownership to enable more effective and equitable adaptation planning.

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Key Words: climate change, adaptation, comparative, metropolitan regions

Consultants and Hazard Risk Reduction – Lessons from Mitigation Planning and Sustainable Recovery

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Federal and local governments have invested millions of dollars in hazard mitigation planning and disaster recovery to address increasingly severe natural disasters. Effective resiliency planning requires diverse expertise and frequent collaboration (Li et al., 2020). However, despite these investments, the integration of mitigation planning with disaster recovery remains unclear. Specifically, we lack a comprehensive understanding of what mitigation planning has translated into projects on the ground and how it influences collaborative risk reduction efforts at the local level.

Local emergency managers play key roles as coordinators with responsibilities spanning coordination, facilitation, collaboration, and administration (Samuel & Siebeneck, 2019). However, we know little about the consultants hired to facilitate local mitigation planning. Even though planning consultants can boost local planning and administrative capacity, consultants also add a layer of complexity for understanding localities' navigating through federal and state programs like the federal mandate Disaster Mitigation Act executed by the state government (Linovski, 2016; Laurian et al., 2004). Given this dynamic, it is essential to understand how consultants contribute to effective hazard risk reduction and long-term recovery. Specifically, this study asks: (1) To what extent do planning consultants influence the frequency of intergovernmental collaboration? (2) To what extent do consultants impact the implementation of hazard mitigation and recovery projects?

We designed a survey targeting hazard mitigation planners across six states: Florida, Georgia, North Carolina, Iowa, Kansas, and Missouri. These states were selected to capture geographic diversity and variation in planning practices, legal frameworks, and community demographics. The survey was distributed to individuals responsible for their county mitigation planning. Respondents provided insights into the frequency of intergovernmental collaboration, the involvement of planning consultants in risk reduction efforts, and the extent to which mitigation and recovery projects have been implemented in their jurisdictions.

Descriptive statistics reveal that consultants play a broad role in hazard risk reduction. Approximately half of the surveyed localities employ consultants as grant managers, while the majority rely on them for drafting mitigation plans and facilitating planning meetings. Regression analysis indicates that consultants' involvement in grant management is positively correlated with the implementation of recovery projects but not with hazard mitigation projects. Additionally, consultants' participation in planning processes is associated with higher frequencies of intergovernmental collaboration, particularly between county administration, planning, and emergency management offices. Planners with more years of experience in hazard mitigation are also more likely to refer to plan documents regularly in their work.

These findings contribute to the broader understanding of planning for hazard risk reduction by highlighting the evolving role of consultants amid the hollowing out of local government and the outsourcing of planning responsibilities. This shift is particularly concerning in rural and small communities where hiring in-house planners is less feasible. While consultants do not directly influence the mitigation projects implemented, their involvement strengthens intergovernmental collaboration, a critical component for resilience building. Recognizing this, we offer policy recommendations for local governments working with consultants, ensuring meaningful engagement with

consultants for future mitigation planning and recovery efforts. Additionally, we provide insights for training future planners to navigate intergovernmental and cross-sector collaboration effectively, equipping them with the skills necessary to support environmental planning in complex governance systems.

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Key Words: Hazard mitigation, sustainable recovery, consultants, collaboration, implementation

Contesting urbanization: Community responses to housing development in Santiago de Cali, Colombia

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Poorly planned urban development creates significant social and environmental issues. Low-income urban communities and forcibly displaced rural populations, already burdened by historical marginalization, economic deprivation, and social exclusion, are frequently relocated to high-risk urban areas. In the Global South, the concentration of poverty, forced displacement, and disaster risk within large cities exacerbates these issues, raising concerns among marginalized communities, governmental agencies, urban developers, construction companies, and conservation organizations. When efforts to mitigate disaster risk, alleviate poverty, and achieve environmental conservation intersect, conflicts can emerge. This article examines the environmental conflict triggered by the construction of low-income residential buildings and the relocation of vulnerable populations from a high-risk area to an ecologically significant area within Melendez River watershed in Santiago de Cali, Colombia. This article explores how long-term residents resisted a publicly funded housing project through various means, including public hearings, community meetings, protests, roadblocks, and legal actions. Long-term residents gathered support from local non-profit organizations, environmental groups, the city council, and other key stakeholders. This article provides a comprehensive understanding of the conflict dynamics, offering insights into the roles that diverse societal factors of urban development and environmental planning play in urban disputes. This case study underscores the need for meaningful participatory approaches in urban planning and natural resource conservation that recognize and respect the diversity of actors, interests and social values involved. This article opens the opportunity for readers to engage in proposing potential intervention strategies, fostering a collaborative effort toward resolving such conflicts.

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Key Words: Environmental conflict, Housing project, Biodiversity conservation, Conflict analysis, Urban development

Convergence in Practice: Knowledge Integration in a Cross-Disciplinary Environmental Planning Team

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Convergence research has gained prominence as a problem-oriented approach, focusing on integrating knowledge across disciplines to address complex societal challenges. Pressing environmental issues such as deforestation, biodiversity loss, and groundwater depletion require a cross-disciplinary approach to holistically understand and address the ecological, social, and institutional dimensions of these inherently interdependent problems. This paper examines how Knowledge Integration (KI) is conceptualized and operationalized by a cross-disciplinary team involved in an NSF-funded Growing Convergence Research Project (GCR) focused on catalyzing stakeholder-driven solutions to address the problem of freshwater salinization in the Occoquan watershed of Northern Virginia.

Despite growing recognition of the importance of Cross-Disciplinary Collaborations (CDCs), significant gaps remain in understanding how different forms of knowledge are integrated within these collaborations. Empirical studies that have systematically applied models and methods of knowledge integration and evaluated their intellectual outcomes remain sparse. This study addresses the following questions in the context of the NSF-GCR project: (a) How is convergence conceptualized and operationalized within the project, particularly in relation to KI? (b) What factors facilitate or constrain KI? (c) What challenges and barriers do team members encounter in integrating knowledge?

The study employs a multi-method approach. First, semi-structured interviews with 25 academic and professional experts involved in the GCR project revealed how participants interpreted the purpose, process, and challenges of KI across disciplinary and institutional boundaries. Second, a Social Network Analysis (SNA) mapped structural dynamics and collaborative ties, identifying key actors and knowledge brokers. Third, a thematic analysis of boundary objects, including publications, technical reports, and conceptual models, traced how integrative efforts are formalized, represented, and communicated.

An integrated analysis of multiple data sources reveals how a large cross-disciplinary team addressing a complex environmental challenge navigated across disciplinary and sectoral boundaries throughout a five-year collaboration. Preliminary findings show that KI is shaped by relational and motivational factors, with personal drive and openness to learning enhancing cross-disciplinary engagement. Rather than requiring constant participation from all the involved academic and professional stakeholders, a fluid team structure, where members contributed expertise as needed, proved beneficial to sustain productivity and created space for more inclusive and adaptive engagement. The team leader played a pivotal role as a boundary spanner and a knowledge broker, fostering connections across disciplinary and institutional boundaries and facilitating knowledge exchange. Notably, convergence extended beyond the project's formal timeline, generating lasting impacts such as enhanced transdisciplinary orientations among team members and sustained partnerships, highlighting the enduring value of a CDC.

The study advances our understanding of KI in convergence research and its application in addressing complex environmental challenges. Drawing on the perspectives of academic and professional collaborators engaged in

environmental planning and resource governance, it offers practical insights to foster effective knowledge co-production and coordinated action. Ultimately, these insights will benefit environmental planners, policymakers, academic researchers, and watershed managers in designing, supporting, and evaluating KI efforts and yielding more holistic approaches to managing environmental resources.

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Key Words: Convergence Research, Knowledge Integration, Environmental Planning, Watershed Governance

Decarbonizing Urban Industrial Sector in American Cities - The Missing Piece

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Cities and states across the United States establish Climate Action Plans (CAPs) to mitigate greenhouse gas (GHG) emissions from the urban sector. While these plans serve as critical frameworks for reducing emissions, their sectoral focus (e.g., transportation, building, industry) varies across jurisdictions. At the national level, industry accounts for approximately 30% of total U.S. GHG emissions, with direct emissions contributing nearly 23% of the total emission, making it the second-largest emitting sector after transportation and electricity generation (“Industry Sector Emissions | US EPA” 2025). Despite its significant contribution, industrial emissions are often overlooked in city-level climate action plans.

Bierbaum et al. (2012) highlight that while U.S. climate mitigation efforts have expanded, high-emission sectors like industry remain insufficiently addressed. The review emphasizes the fragmented nature of climate policies, with industrial emissions reduction typically seen as a state or federal responsibility, not a municipal priority. This misalignment creates a policy gap, where state-level strategies to reduce emissions from the industry sector are not effectively implemented at the city level. Basseches et al. (2022) and Dubash et al. (2022) stress the importance of aligning local and regional policies for effective climate action. Furthermore, discrepancies in emissions reporting complicate the integration of industrial emissions into climate action planning. U.S. cities underreport emissions by an average of 18.3%, with inconsistencies in fuel source inclusion and estimation methodologies (Gurney et al., 2021; Tomer et al., 2022). These reporting gaps hinder the establishment of effective mitigation strategies, further marginalizing industrial emissions in climate policies.

This research analyzes industrial emissions and their integration into city-level climate action plans (CAPs) using the U.S. EPA’s Greenhouse Gas Reporting Program (GHGRP) data and urban spatial data. By collecting and cleaning industrial emissions data from the GHGRP and integrating urban and environmental geospatial datasets, the study seeks to identify the association between GHG emissions from industrial areas in cities and urban and environmental factors such as urban infrastructure, population density, land cover, and land use. The analysis outcome from the quantitative analyses is then compared to the state and local CAPs to examine whether the state government and local governments with established CAPs are effectively addressing the issues regarding urban industrial GHG emissions. To test the effectiveness, the samples of this study are limited to states and local governments that have established and implemented CAPs.

Based on our comprehensive assessment, we seek to identify best practices and planning policy gaps to develop effective planning solutions that could help state and local governments achieve decarbonization of their industrial sector. This integration will not only enhance climate mitigation of the industrial sector but also contribute to decarbonizing cities based on the industrial economy.

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Key Words: Environmental Planning, Decarbonization, Climate Action Plan, Mitigation, Industrial Sector

Disaggregating Flood Mitigation to Strengthen Coping and Resilience in the Wildland Urban Interface

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Development within the wildland urban interface (WUI) has been on an upward trend in the United States since the 1990s, exposing people and property to wildfire and post-wildfire flood risk (Serra-Llobet et al., 2023).

Understanding flood mitigation behavior of WUI residents is critical in semi-arid regions such as Southern California experiencing intensification of environmental hazards due to climate change. Previous research suggests that place attachment, flood experience, self-efficacy, flood risk perception and trust in flood interventions influence homeowner intentions to adopt flood mitigation measures (Miao & Zhang, 2023). While studies show a positive relationship between disaster experience and perceived coping efficacy (Miao & Zhang, 2023) and a strong correlation between risk perception and protective decisions (Botzen et al., 2024), little is known about the factors that influence household intention to adopt different or multiple types of flood mitigation intentions (FMI). Rufat et al. (2024) hypothesized that insured households take fewer household preparedness measures, but little or no attention has been paid in the flood hazard literature to understanding household adoption of near-term protective actions (coping) versus longer-term protective actions (resilience). It is essential to distinguish between short- and long-term household FMIs because they have implications for household flood resilience building.

To expand our understanding of the factors that influence of household FMIs, we surveyed over 500 residents living in WUI areas within Southern California near recent burn scars in the Santa Ana and San Bernardino Mountain ranges in 2023. Drawing on the Protection Motivation Theory (PMT) and disaster resilience theory, we construct a conceptual model to examine the factors influencing the flood mitigation behavior of households living in WUI with respect to coping (near-term mitigation measures) vs resilience (longer-term mitigation measures) (Islam et al., 2022). Using Ordinary Least Squares (OLS) regression, we examine the factors influencing households' adoption or intention to adopt six FMIs: flood insurance, securing valuables, exterior minor maintenance to the property, exterior major maintenance to the property, purchasing flood supplies, and community actions. We also applied pairwise correlations to better understand factors associated with adopting both near-term and longer-term mitigation measures.

We find that self-efficacy (perceived capacity of the household to undertake flood mitigation action) significantly impacts flood mitigation behavior across all FMIs. Households with flood experience were associated with the adoption of short (exterior minor maintenance) and long-term (exterior major maintenance) flood mitigation measures; households concerned about the cost implications of adopting flood mitigation measures were associated with securing valuables from floods (short-term measure). Among the six FMIs, we find the strongest correlation between external minor and external major maintenance and the weakest correlation between flood insurance and purchasing flood supplies.

Our findings emphasize the importance of distinguishing between different types of FMIs within flood hazard scholarship and practice. Examining singular actions (such as flood insurance) in isolation or aggregating multiple actions (such as purchasing flood supplies and coordinating with neighbors) into composite mitigation summary measures masks critical information about the factors and motivations driving different household protective action against flood hazards. By disaggregating FMIs, our findings show that emergency preparedness programs and hazard risk communication can strengthen the capacities of WUI residents for both coping and resilience together.

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Key Words: Flood, Mitigation Behavior, Southern California, Resilience Building

Disconnects Between Project Planning and Implementation in Hurricane Sandy Recovery

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Planners involved in disaster recovery face significant challenges due to the paradox between an inclusive process to rebuild resiliently and time pressures to rebuild quickly. On the one hand, an inclusive process is increasingly emphasized for its potential to build consensus and lead to better outcomes (Goodspeed, 2016). On the other hand, rebuilding quickly continues to be the priority to secure residents' life back to normal as early as possible (Alexander, 2013). A deliberate and careful process is considered critical for building long-term community resilience, but speed is also critical to keep recovery momentum (Chandrasekhar et al., 2014). While planning literature and practice address the growing need of recovering resiliently by achieving efficiency, speed and equity (Shiozaki et al, 2024), long-term collaborative recovery approaches are nevertheless minimally studied. We seek to understand how planners can effectively create and manage disaster recovery processes that balance complex needs including stakeholder collaboration, speed, and implementation feasibility.

The post-Hurricane Sandy case in New York City is unique for its collaborative process. To better understand how collaborative processes work in actual recovery, this study focuses on the East Side Coastal Resiliency (ESCR) project, initially called the BIG U, in the larger context of Sandy recovery. We have analyzed the planning and implementation processes of the project over 12 years, relying on information collected through our research projects. Specifically for this paper, we reviewed primary and secondary documents, retrieved information shared by key ESCR project stakeholders, interviewed additional stakeholders, and attended city-hosted meetings to develop a narrative of collaborative recovery. To evaluate the level of collaboration, we adopted Gunton and Day's four criteria (Gunton & Day, 2003).

We identify four distinct phases of the ESCR process. "Collaborative planning & visioning (Phase I)" took place between February 2013 to June 2014 as part of an innovative federal program called Rebuild by Design (RBD), notable for supporting a deeply engaged collaborative planning and visioning. The second phase, "Collaborative planning – Detailed Design" lasted from June 2014 to May 2018, furthering and deepening the envisioned plan. "Change of the Plan (Phase III)" then took place between September 2018 to November 2019, initiated at the time when the original ESCR plan was scrapped by the City of New York with government officials deeming the consensus design not realistic for construction. "Construction (Phase IV)" is now ongoing since 2020, after the approval of the revised plan by the New York City Council. In terms of the level of collaboration achievement, the first two phases show success on all four variables represented in Gunton & Day's criteria. However, in phases III and IV, when the project was implemented, the community satisfaction and social capital benefits gained from the first two phases were squandered in lieu of other considerations including efficiency and political expediency.

Findings suggest that, first, there is a critical disconnect between resilient planning and project implementations due to different rationales. Such divides suggest the need of including implementation perspectives at the beginning of collaborative efforts. Furthermore, even after changing the project design for implementation, various stakeholders experience differing satisfaction levels depending on the benefits received. We conclude that if planners recognize these inherent disconnects between project planning and implementation, and seek to mitigate a drastic shift between the phases, collaborative approaches can be more effective even in complex and challenging rebuilding situations.

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Key Words: Collaborative planning, Recovery Planning, Resilience Planning, BIG U/ESCR, Hurricane Sandy

Disproportionate Heat Exposure Duration: A Novel Metric for Urban Health Equity

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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From 1961 to 2010, extreme heat events increased their frequency, duration, and intensity and generated health-related impacts that exceeded all other natural hazards in the United States. The current discourse on urban heat primarily examines intensity, while little attention is given to the role of duration of exposure, perhaps due to the lack of heat data that are spatially exhaustive and high resolution. This research addresses this critical gap by analyzing unique hourly temperature datasets across 34 U.S. cities, integrating historical segregation patterns with contemporary heat metrics. We introduce a novel degree-hour framework that quantifies both thermal intensity and exposure duration, revealing how discriminatory 1930s redlining practices continue to shape heat vulnerability through built environment characteristics.

Using National Integrated Heat Health Information System (NIHHIS) Heat Watch campaign data, we collected high-resolution air temperature measurements across two daily periods, afternoon and evening, in 108 neighborhood transects. These were overlaid with Home Owners' Loan Corporation (HOLC) maps that graded neighborhoods from "A" (Best) to "D" (Hazardous) based on racial composition and perceived investment risk. Our analysis demonstrates that historically redlined D-graded neighborhoods endure both higher temperatures and greater cumulative heat exposure compared to A-graded areas—a critical burden exacerbating climate health risks.

Statistical analysis revealed consistent disparities showing better graded neighborhoods with less heat exposure. D-graded neighborhoods exhibited afternoon temperatures of 86.47°F (2.18°F higher than A-graded) and evening temperatures of 83.43°F (2.82°F higher than A-graded). The degree-hour metric showed D-graded neighborhoods accumulate 3.388 more late-afternoon degree hours and 14.02 additional whole-day degree hours than city averages. Conversely, A-graded areas experienced 1.465 fewer late afternoon and 4.416 fewer whole-day degree hours, demonstrating significant cooling advantages. Normalized Difference Vegetation Index (NDVI) analysis of satellite imagery, which is urban greenery, revealed green space as a key mediator, with A-graded neighborhoods containing 25% more vegetation (mean NDVI 0.452 vs. 0.300 in D-graded).

The temporal-spatial specificity of our metric identifies intervention priorities. Neighborhoods that disproportionately experience cumulative heat exposure should be a heat mitigation intervention target. The heat disparities can be exacerbated through historical land cover legacy, in which affluent and white neighborhoods tend to have greater urban green spaces, including tree canopies, while lesser impervious surfaces than their counterparts.

Our findings underscore that equitable climate adaptation requires addressing both thermal intensity and exposure duration. As extreme heat events increase in frequency and duration, this dual-focused approach becomes critical for protecting vulnerable populations. The metric's ability to quantify cumulative heat risks during multiday events offers public health officials a refined tool for prioritizing interventions—from emergency cooling infrastructure to long-term urban forestry investments. By bridging historical spatial justice analysis with contemporary climate resilience planning, this research advances urban health equity in an era of escalating environmental challenges.

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Key Words: Urban Heat Exposure, Duration of Heat, Redlining, Air Temperature, Public Health

Diverging Point-Source Pathogen Patterns in Texas: Links to Socioeconomic and Urbanization Gradient

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Point-source pathogen pollution is a critical yet underrecognized issue in environmental planning and water resource management, posing health risks through recreational exposure, drinking water contamination, and fish consumption. While prior studies have examined disparities in drinking water quality by race, income, and housing conditions, the influence of these community characteristics on point-source pathogen pollution remains understudied. This study investigates how demographic, economic, and housing characteristics are related to point-source pathogen pollution across urban, suburban, and rural gradients in Texas. To address this question, we compile and analyze data on pathogen loads from domestic sewage, wastewater, and combined sources, reported to the U.S. Environmental Protection Agency between 2010 and 2022. These discharge records are aggregated at the census tract level and linked with demographic, economic, and housing characteristics data from the U.S. Census and American Community Survey. Urbanization levels are classified into urban, suburban, and rural categories using housing unit density-based typologies. We use linear mixed-effects models to assess associations between pathogen loads and census tract characteristics, including racial/ethnic composition, household income, poverty, unemployment, educational attainment, housing age, multi-family housing, and lack of plumbing. These models allow us to capture relationships while accounting for spatial variation and tract-level heterogeneity. Our models distinguish between pollution sources, including combined sources, domestic sewage, and wastewater, while accounting for spatial variation and tract-level heterogeneity. Findings reveal strong and spatially differentiated patterns of exposure. In urban areas, tracts with predominantly White populations are associated with higher pathogen loads from both domestic sewage and wastewater sources. In contrast, suburban and rural tracts with larger Black and Hispanic/Latino populations exhibit higher pathogen exposure, though the dominant pollution source varies by region. Economic vulnerability—including low income and unemployment—is most strongly associated with elevated pathogen loads in suburban areas. Housing characteristics, particularly older housing and incomplete plumbing, further shape exposure risks across all settings. This research underscores the complex interplay of race, economics, housing, and geography in shaping point-source pathogen pollution. It calls for more targeted, source-specific planning strategies tailored to regional contexts. By highlighting spatial inequalities in exposure to point-source pollution, this study advances environmental planning discourse and broadens the scope of traditional water governance to include pathogen pollution control and equitable wastewater management. Our results support the development of targeted, regionally sensitive policies that address both pollution source and community vulnerability, particularly in the context of aging infrastructure and urban-rural disparities.

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Key Words: Point-source pollution, Water quality, Urban-rural gradient, Spatial inequalities, Linear mixed model (LMM)

Do vulnerabilities moderate associations between gentrification beliefs and green space support?

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Introduction: Advocates frequently push for expanding green space access due to its multiple benefits, particularly in communities with limited provision. However, introducing new green areas in disadvantaged neighborhoods can lead to green gentrification, attracting wealthier residents and investment, such as real estate development. This often drives up housing costs, forcing many low-income renters to relocate, ultimately undermining efforts to ensure equitable access to green spaces and address health disparities.

Research has explored the relationships between residents' gentrification beliefs – support for development (i.e., encouraging public and private investment), neighborhood preservation (i.e., mitigating gentrification's adverse effects), and social integration (i.e., fostering connections between new and longtime residents) and their support for new green space investments. However, less is known about how different types of vulnerabilities to the negative impacts of gentrification (i.e., not owning a home and experiencing higher psychological distress) might moderate these associations. To address this gap, we analyze how different types of vulnerabilities might moderate the associations between gentrification beliefs and support for future green space investments.

Research questions: (1) What are the associations between gentrification beliefs and support for new green space investments? (2) How do different types of vulnerabilities (homeownership status, psychological distress) moderate these associations?

Methods: We study Salt Lake City's West Side, an underserved community that is experiencing some gentrification. In the next few years, Salt Lake City will build the Glendale Regional Park (a 30-acre park) and revitalize the Jordan River Parkway Trail (part of a 45-mile greenway). We used a mixed-method approach, including a survey with residents and in-depth interviews with residents and project stakeholders. The survey measured gentrification beliefs (e.g., neighborhood preservation, development support, social integration), support for green space, homeownership status, psychological distress, and control variables. We used multiple linear regression to analyze the link between gentrification beliefs and green space support, with interaction tests assessing the moderating effects of homeownership and psychological distress. We analyzed the interview transcripts through content analysis, including deductive coding based on content from the existing literature and inductive coding.

Results: The survey analysis shows a positive significant association between neighborhood preservation, social integration, and support for new green space investments. Interaction tests show that positive associations between neighborhood preservation and support for green space investments were only significant for non-homeowners and those experiencing higher psychological distress, whereas this link was not observed among homeowners or residents with lower distress. Additionally, social integration was linked to increased support for green space among non-homeowners, regardless of distress levels, but had no significant effect among homeowners. Interviews reinforced these results, highlighting neighborhood preservation efforts and social integration as key factors in boosting support for green space development.

Implications: Our results suggest that planners seeking to add new green spaces to underserved areas could increase vulnerable residents' support for these investments by concurrently developing strategies to mitigate gentrification and displacement. To make green space projects beneficial for all, planners and policymakers should tackle these vulnerabilities, support affordable housing, and involve residents in decision-making. This approach could help cities develop inclusive green spaces that improve the environment while promoting stability and equity in diverse communities.

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Key Words: Green gentrification, Urban green space, Parks, Gentrification beliefs, Vulnerabilities

EA Integration of Urban Flood Resilience: A Theoretical Framework and Index-Based Empirical Analysis

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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[Problems] Urban flooding poses a significant threat to cities, causing economic losses and environmental degradation. Despite the growing emphasis on sustainable development, Environmental Assessment (EA) frameworks—including Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), and Small-scale EIA—do not systematically incorporate urban flood resilience. Given that flood damages constitute a substantial proportion of disaster-related costs in South Korea, there is a pressing need to integrate urban flood resilience into EA processes. Existing EA methodologies primarily focus on environmental conservation and pollution control, neglecting the resilience capacities of urban infrastructure and spatial planning. This study addresses the gap by developing a theoretical framework that quantifies urban flood resilience and embeds it into EA evaluation criteria.

[Approach and Methodology] To integrate urban flood resilience into EA, this study develops an Urban Flood Resilience Index (UFRI), a composite index that quantifies cities' resistance, adaptability, and recovery capacities against flooding. The index incorporates spatial planning factors (e.g., green space ratio, floodplain zoning), infrastructure elements (e.g., drainage capacity, sewage system coverage), and EA implementation levels (e.g., presence of flood resilience assessment in EIA reports). A panel dataset covering multiple South Korean cities is constructed, combining official flood impact records, environmental assessment reports, and spatial planning data. A panel regression model is employed to analyze the correlation between EA-integrated flood resilience measures and flood-related outcomes, such as inundation area reduction and recovery time improvement.

[Findings and Implications] The results indicate that cities with EA frameworks incorporating UFRI demonstrate significantly lower flood damage and faster recovery times. These findings highlight the critical role of proactive flood resilience planning within the EA framework. The study provides methodological contributions by formalizing a quantitative assessment of urban flood resilience and validating its effectiveness through statistical analysis. In practical terms, the research suggests revisions to South Korean SEA and EIA guidelines to mandate flood resilience evaluation in urban planning projects. The findings also offer policymakers a data-driven basis for enhancing national flood mitigation strategies and urban resilience policies.

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Key Words: Urban Flood Resilience, Environmental Assessment, Flood Risk Management, Resilience Index

Ecological Competition: State Wetland Park Planning and the Contested Biodiversity in Shenzhen Bay

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Ecology has become an essential means and source of state power in China. From forest restoration to nationwide ecological reserve designation, there are significant tensions between the multiple aims of a vision that directs environmental protection, social transformation, green development, and urban beautification (Rodenbiker 2023). This research attempts to explore how ecological planning and restoration have been employed by different actors, i.e., national and municipal governments, elite organizations, scientists, landscape architects, and local residents, to form a unique coalition of social-ecological governance in Shenzhen Bay, South China Sea, and how these logics of governance shape techniques and policies that wield ecology of contested biodiversity.

Mai Po Wetland in Hong Kong and Futian Wetland in Shenzhen are located on opposite sides of Shenzhen Bay, an area situated along one of the most significant global flyways for migratory birds. This integrated ecosystem of plants, water, benthic organisms, and other elements supporting millions of birds has undergone drastic transformations for over fifty years. Notably, along with the fast expansion and densification of urban settlement, the coastal wetland area along Shenzhen Bay also underwent extensive human intervention and “ecological flourishing,” supporting some natures over others—with constant modification—and competing regionally as the landing point for migrating birds.

Through archival research, interviews, ecological data collection, and mapping, we inquire how the Chinese state and society wield ecology to shape nature and space through a series of “conservation” practices as the first step. Our findings reveal that ecological restoration in the Shenzhen Bay area reflects state responses to ecological competition across the border, supported by local elite groups with the aspirations of a globalized modernity. It is accomplished by both changing preferences for native species and prioritization of endangered birds, and differentiated views valuing exotic mangroves as both precious and hazardous, exacerbating the dynamic nature of the Shenzhen Bay ecosystem. The exchange between the two wetland reserves across the border, scientifically, social-politically, and ecologically, will also be documented. We argue that these techniques and practices represent a human-centered logic of conservation, focusing on the benefits to humans as recipients of ecosystem services rather than achieving “net gain for biodiversity.” Through that, our research hopes to provide insights into more equitable approaches to non-human nature in human-dominated landscapes.

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Key Words: Ecological Planning, Ecological State, Wetland Park, Shenzhen, China

Effectiveness of Heat Wireless Emergency Alerts and Planning Implications in Seoul, South Korea

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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As summer temperatures in South Korea have been rising, extreme heat has become a major health threat. To reduce health risks, some municipal districts have voluntarily issued wireless emergency alerts (WEAs) since 2018; such WEAs have increased dramatically, from 72 alerts in 2022 to 2,356 alerts in 2024 (Ministry of the Interior and Safety, n.d.). Public alerts have been regarded as effective means of early warnings to the communities, but few studies have evaluated the effectiveness of the system. Thus, in this research, we seek to analyze whether heat WEAs have influenced human travel behaviors to protect public health, accounting for various spatial and vulnerability factors.

Previous literature on the effectiveness of WEAs focused on destructive disasters such as floods, or pandemics like COVID-19. While limited, several researchers have investigated the effects of WEAs on mitigating impacts from heat stress. Weinberger et al. (2018) used a case-crossover approach to analyze the effects of heat alerts in reducing heat mortality rates, finding no significant improvement except in one city in the US. Benmarhnia et al. (2016) used a difference-in-difference approach to test whether alerts reduced difference in heat mortality for vulnerable populations in the US. In Korea, Hong et al. (2023) found that spatial factors such as mixed land use and a higher percentage of green areas increased the change in the floating population.

We used a spatial difference-in-difference (DiD) model to evaluate if heat WEAs were effective in changing floating population patterns for each administrative district (i.e., dongs) in Seoul during the summer of 2024. Since the goal of WEAs is to restrict movement during heat waves, hourly floating population was selected as the dependent variable. The treatment group was defined as the days WEAs were sent in the district during extreme heat; control group is when WEAs were not sent despite extreme heat. As our unit of analysis was tested to have spatial effects, we used the Spatial AutoRegressive-AutoRegressive (SARAR) model. Other spatial factors (e.g., percentage of commercial, industrial, residential, and green areas, public transit accessibility) and heat vulnerability factors (e.g. elderly and youth population, low-income population, number of vulnerable jobs) were included as independent variables to understand how such factors influence behavior.

The analysis showed that the interaction term of the DiD model for weekdays was statistically significant, indicating that heat WEAs were effective in changing floating population trends during heat waves. Moreover, certain spatial variables also showed significant correlation: the floating population increased in areas with a high percentage of residential, commercial, and green areas. There was a significant positive correlation with accessibility to bus stops, but not with subway stations. For vulnerability factors, the floating population decreased in areas with a high percentage of elderly populations and heat-vulnerable jobs (such as construction or facility maintenance).

Beyond showing that heat WEAs are effective in changing behavior, we derived planning implications to enhance heat adaptation of communities. More population headed to areas with ample green space and commercial buildings, possibly seeking shaded or air conditioned shelters. Such open areas enable people to quickly escape from heat without having to move far away, implying that mixed land uses can add versatility in adapting to extreme heat. Results also indicate buses can be a more accessible form of mobility. When planning for cooling shelters, locating them near or at bus stops can make cooling resources more accessible. Rather than building a few

large cooling shelters, distributing many smaller ones throughout the city can be beneficial for reaching vulnerable populations such as the elderly or people with physically demanding jobs, who are shown to have limited ability to adjust behavior upon receiving alerts.

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Key Words: climate adaptation, early warning systems, extreme heat, heat vulnerability, difference-in-difference

Estimating the Effects of Toxics Mobility on Residential Preferences in Galveston, Texas

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Track 4: Environmental Planning & Resource Development

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Environmental quality is consistently a critical concern in residential preference. Negative associations have been found between air pollution and housing markets, indicating that the housing prices tend to increase as air pollutant emissions decrease (Chay & Greenstone, 2005). Many other environmental toxics and pollutants are linked to human health concerns and may also have a possible negative impact on residential preferences (Leggett & Bockstael, 2000). In cities with multiple emission sources near residential areas, the effect of toxic emissions could be a major concern in the housing market as contaminants from emission sources (e.g., factories, landfills, etc.) have an inherent impact on tainting water, surface, and underground environments. The mobility of pollutants or the transfer of contaminants and mixing of toxic chemicals through flooding or other hazard events, can also has an inherent negative impact on the housing market. Toxic contaminants can travel not only through the air but also through floodwaters (Han et al., 2022; Presley et al., 2006), which enhances the concerns of contamination in residential areas with higher flood risks. However, there is a lack of research which seeks to capture the effect of toxic mobility and emissions on residential preference in flood-prone areas.

To fill this gap, this study assesses the impact of toxic mobility on single-family housing prices in Galveston, Texas, an area that has high flood risks and is characterized by high rates of industrial land uses. The mobilization of pollutants was considered by estimating the proximity to the emission source from each house. Pollutant emission was divided into two types—on-site emission and production-related waste—based on the emission data collected by the US Environmental Protection Agency to evaluate different effects by emission types. To consider mobilization through flooding, the flood risk of each property was also considered. Further, single-family housing sales data was collected from Realtor.com, a platform for properties and real estate trade.

Using a linear regression model, the effect of pollutant mobility on housing prices by flood risk level for 2022 was assessed by parcel. The results show that the proximity to the emission source had a significant negative effect on housing prices, indicating that people prefer to live far away from emission sources. Moreover, the effect of toxics varies by flood risk level. Houses with extreme flood risk showed a significant negative effect with housing prices, while pollutant amounts showed significant effects in houses with minimal to moderate flood risks. Further, we find that people prefer to live farther away from emission sources in areas at high risk of flooding, regardless of emissions. The proximity to toxic emissions dropped housing prices more in cases of high flood-risk, indicating that people are aware of the risk of possible mobilization of contaminants in floodwaters.

These results highlight the need for an integrated mitigation plan for residential areas near pollutant sources to protect from the inherent danger of exposure to toxics in adjacent or nearby in residential areas. There's an urgent need for protection since vulnerable populations tend to live in houses that have both a high risk of flood and exposure to toxic pollutants. Enforcing stricter industrial regulations on waste disposal procedures and renovating residential areas to mitigate the flood risk may help to protect residents and mitigate the effect of toxic pollutant mobility on housing prices. Green buffer zones between industrial and residential land uses should be implemented more. Integrated land use policies for choosing optimal locations for industrial development that

minimize environmental impact on residential areas, and the enforcement of stricter regulations on emissions and waste management are necessary.

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Key Words: Toxic Pollutant, Pollutant Mobility, Housing Price, Flood Risk

Examining Extreme Heat Preparedness in Urban Plans for the City of Memphis, Tennessee

Abstract ID: 1844.0.0.784.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The ravaging impacts of climate change events across the United States have been noted with deep concern across multi-scalar levels. Indeed, a recent National Preparedness Report released by FEMA (2022) has confirmed that climate change impacts and associated disasters have been felt across many communities and outpaced the capabilities of emergency management professionals. The report further revealed existing vulnerabilities among communities, as approximately 92% of communities identified climate change as an existential threat to the activities of emergency management institutions. Enhancing the adaptive capacities of vulnerable communities in climate change adaptation and mitigation efforts requires that significant attention and awareness be created to address preparedness gaps, especially from the policy front. In this paper, we shift the discourse on climate change preparedness to extreme heat preparedness due to the growing concerns about its deadly impacts. The National Weather Service (2018) has observed that heat is the deadliest weather-related hazard in the United States, even though most heat-related impacts are preventable by curating effective urban policies and designs to salvage the situation (Keith et al., 2023). Amidst these impacts and observations, the nuanced understanding of extreme heat impacts among at-risk population groups and often overlooked communities and cities has received little attention. This paper contributes to the extant extreme heat literature across the United States by emphasizing the role of urban planning in addressing extreme heat concerns in the Mid-South Region. Specifically, and using a qualitative content analysis, this study examines a range of urban planning documents focusing on climate and sustainability issues in the City of Memphis. The study attempts to answer the following research question: To what extent do urban planning documents mainstream extreme heat preparedness measures? The key findings indicate that extreme heat preparedness measures are not given significant attention in the plans. The findings further point to little engagement of residents in the implementation of extreme heat preparedness measures, as well as funding and resource constraints. This paper provides three crucial imperatives for addressing extreme heat concerns. First, and from the scholarship standpoint, it adds to the extant literature on extreme heat by focusing on the extent to which urban planning documents integrate extreme heat preparedness measures in the City of Memphis. The city of Memphis presents a good case to examine extreme heat preparedness due to its long history of socio-spatial inequalities and the weak capacities of emergency management agencies in addressing climate change events. Second, and from a practice lens, it contributes to the ongoing calls by early studies and professionals on the need to prioritize heat concerns in local government practice (Gabbe et al., 2021). In the context of Memphis, where socioeconomic inequalities are pervasive, planning for extreme heat preparedness from a policy front also addresses initial concerns on funding and other critical resources required for a successful implementation of preparedness measures. Third, and considering the reported impacts of extreme heat across the United States, this paper also creates awareness and makes a strong case for integrating extreme preparedness in emergency management plans. This will help address the challenges in pre- and post-extreme heat recovery

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Key Words: extreme heat, preparedness, planning, Climate Change, Memphis

Explaining the spatial distribution of green spaces across metropolitan regions

Abstract ID: 1844.0.0.173.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The distribution of green spaces in metropolitan areas is shaped by multiple factors. Parks and open spaces serve various functions and reflect urban spatial structures and governance dynamics (Boulton et al., 2018). Research suggests that polycentric metropolitan regions—those with multiple independent urban centers—offer a greater diversity of amenities, including green spaces, and reduce travel time, thereby improving accessibility (Wang, 2021). Meanwhile, public choice theory posits that municipalities compete to provide attractive amenities, with local governance institutions playing a key role in open space acquisition and preservation (Schmidt & Paulsen, 2009).

This study examines the amount, diversity, and spatial distribution of green spaces across U.S. metropolitan statistical areas (MSAs), considering both urban spatial structure and municipal fragmentation. We analyze green space data from the ParkServe dataset, which includes over 150,000 records, of which more than 117,000 are located within MSAs. Using this dataset, we calculate landscape metrics such as open space density, contiguity, and diversity based on managing authority (City, County, State, or Federal).

Applying spatial analysis and Ordinary Least Squares (OLS) regression models, we find significant variation in the relationship between polycentricity and landscape indices across governance levels. Specifically, both municipal fragmentation and regional polycentricity exhibit a strong positive correlation with the amount of city-managed green space, with polycentricity having a larger effect. This suggests that metropolitan areas with higher polycentricity and fragmented governance structures tend to provide more green spaces.

Furthermore, both local government fragmentation and polycentricity positively correlate with green space diversity in terms of governing authority. While the coefficient for polycentricity is small, it remains statistically significant after controlling for other factors, indicating a modest but consistent link between a polycentric urban structure and increased green space diversity. The effect of government institution density is more pronounced but has a confidence interval that includes negative values, introducing some uncertainty.

These findings contribute to a deeper understanding of how urban form and governance interact to shape the spatial distribution of green spaces, with implications for urban planning and policy.

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Key Words: green space, polycentrism, metropolitan regions, municipal fragmentation, open space

Exploring Resilience Definitions in Practice

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Track 4: Environmental Planning & Resource Development

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Urban resilience has become a central concept in various fields, including disaster management, urban planning, and environmental science. According to Munoz-Erickson et al. (2021), the urban resilience literature organizes the definitions into five categories: (1) System property, outcome, and process; (2) Shocks and stresses; (3) Pathways of change; (4) Relationship to sustainability, equity, and anticipation; and (5) Social, Ecological, and technological resilience. While many studies discuss how academics define resilience, little attention has been given to how resilience is conceptualized across different urban contexts and among the actors that build resilience 'on the ground' (Munoz-Erickson et al., 2021).

Academic literature and policy discourse suggest that certain governance arrangements, or networks, are more likely to enhance resilience, leading major urban resilience initiatives to aim for reforms in city governance accordingly (Beilin & Wilkinson, 2015; Fastiggi et al., 2021). The literature on urban resilience governance emphasizes the importance of breaking down organizational silos and fostering collaboration between diverse actors. Yet, no study explored whether existing resilience governance networks share similar traits in resilience definitions and if they do, are they collaborating or siloed in flood resilience planning efforts?

The interpretation and application of resilience in practice often vary among different sectors and stakeholders. However, it is unclear whether there is a relationship between collaboration in resilience efforts and how these actors conceptualize resilience in practice. This paper addresses this gap by analyzing collaborative governance networks for flood resilience in four coastal U.S. cities that are at the forefront of resilience planning: Boston, MA; Baltimore, MD; Fort Lauderdale, FL; and Seattle, WA. The paper addresses the following research questions: (1) How do definitions of resilience differ across cities? (2) How do definitions of resilience differ across categories of actors? (3) To what degree do key actors of flood resilience planning networks share resilience definitions?

To investigate the collaborative governance networks for flood resilience, we employed social network analysis (SNA). This methodological approach allows us to examine the relationships among sets of network actors, in this case, organizations, and identify which ones occupy important structural locations within the overall network (Prell et al., 2009). Our survey consisted of a combination of open and closed-ended questions. The work presented here focuses on an open-ended question, which asked respondents: "The concept of resilience can mean different things to different people. In a few words, what comes to your mind when you think of cities (or your city in particular) as being resilient to climate change?" We coded open-ended survey responses to the resilience conceptualization question using a deductive coding approach, allowing us to classify the responses into five distinct categories based on Munoz-Erickson et al., 2021.

The results of our study highlight that, generally across the four cities, framings of resilience tend to converge around definitions that emphasize the ability to resist, cope with, or bounce back to previous conditions. However, perspectives related to sustainability, equity, and social-ecological-technological systems (SETS) are rarely associated with resilience. Notably, there are significant differences across cities and governance actors in the way

resilience is conceptualized. We unpack these differences and discuss their implications for resilience research and practice moving forward.

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Key Words: Urban resilience, social network analysis, flood resilience, collaborative governance, resilience

Few Bright Spots in Climate Planning: Insights from Iowa

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Climate change is a global phenomenon that affects communities worldwide, and action is needed at all levels of government to adapt and mitigate its impacts. Despite growing scientific evidence and support for climate action in the U.S., the federal government has demonstrated a lack of leadership in climate planning (Alexander, 2020). Furthermore, there is significant variation among U.S. states, regions, and cities in their climate actions, “ranging from no action at all to rigorous implementation of stringent climate regulations” (p. 10), and many individual cities lack the capacity and funding to implement robust climate actions (Alexander, 2020).

A few U.S. states are heading in the right direction concerning capacity and funding. The state of California, for example, offers many environmental programs to support municipal climate action and to help reach statewide goals (U.S. Climate Alliance, 2022). Additionally, the state of New York created a Climate Smart Communities program to support local governments with resources, incentives, information, and a network for climate planning (Allred et al., 2021).

Given that climate planning varies significantly across the U.S., there is a need to examine the contextual factors and institutional capacities that shape climate action the city, county, regional and state levels of government. There is a gap in the current literature regarding states with limited resources and weaker climate leadership engaged in climate planning. Particularly, we are looking for bright spots where different levels of government are succeeding in climate planning efforts despite the weak level of state climate leadership. By highlighting these champions, we aim to provide insights for planners and policymakers facing similar challenges.

This qualitative research contributes to the planning literature by using Iowa as a case study to (1) examine online media coverage; and (2) explore contextual factors and institutional capacities related to climate planning at all four levels of government. The research questions for Part 1 were: How do Iowa's online newspapers frame climate change in their news articles? What are the dominant themes in climate change coverage relate to planning by Iowa's online newspapers? To address these questions, we conducted a content analysis of 320 local online newspaper articles using NVivo. Findings indicate that city size influences media cover: larger cities had a higher frequency of climate change reporting. In contrast, smaller cities had minimal or no coverage of climate change-related issues.

The research questions for Part 2 were: What contextual factors influence climate planning across the four levels of government in Iowa? What are the institutional capacities of these four levels of government for climate planning in Iowa? Examples of contextual factors included frequency and severity of climate events, and political environment. Examples of institutional capacity included human resources and community engagement. To answer these questions, we conducted an online survey targeting planners working on sustainability issues to their engagement in climate change-related work. We chose to focus on sustainability rather than climate change in the online survey due to the political landscape of the state (43% response rate). Based on the survey results, we conducted in-depth interviews with 28 planners to explore how contextual factors and institutional capacities

shapes climate planning efforts across different levels of government. Findings indicate that while relatively few champions exist across the state, those who are engaged tend to work in institutions with strong and focused leadership and are personally committed to addressing climate change in their own lives. Their efforts are reinforced by committed residents, innovative solutions, a justice-oriented approach and collaborations, all of which contribute to advancing climate planning initiatives.

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Key Words: climate change, institutional capacity, contextual factors, media coverage, planning

Filling for the Future: Governance of Sediment in San Francisco Bay

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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San Francisco Bay is the largest estuary on the United States West Coast and contains 59,000 acres of tidal wetlands around which 7.7 million people live across 7,000 square miles of land. The Bay's coastal dynamics have been greatly altered by urban development, with an estimated 90 percent of tidal wetlands destroyed or seriously degraded. Numerous stakeholders are working toward a goal of restoring the Bay's natural ecosystems, efforts made more urgent and complicated with projected future sea level rise.

Habitat restoration was traditionally oriented toward the past, with a goal of recreating historic ecologies, but increasingly has been viewed as 'futuristic' restoration that aims to make habitats resilient in the face of a changing climate (Choi, 2007). In urban coastal environments like San Francisco Bay, restoration projects are increasingly called upon to function as natural habitats while also serving as nature-based solutions for climate change adaptation and as a substitute for traditional 'gray' infrastructure, providing services such as flood protection, wave dissipation, habitat protection, recreation, and wastewater filtration.

In practice, orienting restoration toward a dynamic future requires changes in resource use and governance. Coastal managers in the Bay Area envision a need to use large amounts of sediment to maintain coastal ecosystems with sea level rise. They anticipate a "long-term mass imbalance of regional sediment" (Dusterhoff et al., 2021; p. 112) that requires mobilizing increasing amounts of dredged sediment, waste sediment, and debris for use in creating and maintaining elevation of coastal wetlands. This suggests a view of the urban coastline that involves continuous cycles of replenishment and rebuilding, creating new urban industrial-natural ecologies in which securing an increasing local sediment supply and metabolism is critical management and policy focus for cities facing sea level rise.

Given past histories of filling wetlands to create land for urban development, current federal, state, and local regulations strictly limit the placement of sediment as fill along shoreline. In keeping with an interventionist and reparative vision of restoration, groups promoting Bay restoration have identified environmental regulations as one of the key obstacles to a resilient future (Goodrich et al., 2023), and increasingly characterize permitting processes as obstructive 'green tape.' to alter policies to streamline permitting, allow 'beneficial' uses of fill, loosen standards for sediment quality, and allow projects that use 'nontraditional resources' such as construction debris in climate adaptation projects. These changes have been the subject of debate among planning and coastal management institutions (Pinto et al., 2018).

This paper examines the discursive and policy implications of this shift in sediment management, focusing on decision-making processes and regulations around the use of fill for nature-based solutions in San Francisco Bay. It draws on field site observations, document analysis, and interviews with coastal stakeholders, focusing on projects requiring fill, including 'horizontal levees,' a type of constructed wetland used for water quality improvement and flood protection. It shows how stakeholders have employed numerous discursive practices, policy innovations, and social-institutional practices to overcome regulatory obstacles. The paper argues that for ecological restoration in the age of climate change to fulfill its potential to become a 'world-making practice' for creating new social-environmental futures (Usher, 2023) it must acknowledge key tradeoffs that break from a paradigm of environmental preservation and protection.

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Key Words: climate adaptation, restoration, governance, coastal management, nature based solutions

From Disciplinary Silos to Synergies: Uncovering Shared Principles for Systemic Sustainability

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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This research was motivated by the fragmented nature of knowledge in education and associated disciplinary jargons, which creates barriers to effective communication and collaboration across disciplines. While each discipline has its distinct focal areas and theories, core elements may overlap. For example, life cycle stages in environmental assessment parallel value chains in business management, stakeholder engagement in participatory planning aligns with social network analysis in sociology, and Environmental, Social, and Governance (ESG) in corporate governance share similarities with sustainable development goals in public policy. These shared foundations provide valuable opportunities for mutual learning that tend to be overlooked or underappreciated.

Drawing upon a multidisciplinary bibliometric analysis in academic databases, this research aims to identify and synthesize theoretical frameworks, concepts, and models across disciplines that share sustainability goals, with a focus on system thinking, resource optimization, multi-criteria decision-making, and inclusiveness. Preliminary findings confirm common themes across disciplines, such as interactions between humans and the environment, iterative and/or dynamic processes of analyzing uncertainties, system hierarchies, elements, and networks. The systematic review of this research also reveals that disciplines may vary in terms of the unit of analysis (e.g., individual, firm, community, institution, or region), system boundaries, stakeholder identification and engagement approaches, and methods for classifying various types of activities involved. These differences seem to manifest in variations in the scale of analysis and the extent to which vertical versus horizontal thinking is employed.

Further, this research highlights the importance of recognizing both convergences and silos in emerging practices, particularly in the context of circular economy (CE). Although there is a general consensus that CE transforms the traditional linearity of “take-make-discard” model, definitions and CE-oriented approaches vary greatly (Kirchherr, Reike, & Hekkert, 2017; Sauvé, Bernard, & Sloan, 2016). Bridging disciplinary silos and overcoming academic and engineering boundaries are essential for achieving society-wide benefits of CE (Iacovidou, Hahladakis, & Purnell, 2021). While CE has been often regarded as an economic development strategy supported by engineering solutions, this study specifically focuses on exploring the unique strengths as well as complementary roles of environmental planning in relation to other professions. The central hypothesis is that fostering a deeper understanding of the diverse approaches and processes across disciplines and stakeholders can facilitate collaborative, positive changes from a system perspective.

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Key Words: Systematic Review, Environmental Planning, Circular Economy, Sustainability, Theory

Great Salt Lake Water Conservation Interactive Tool

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The Great Salt Lake is the most defining feature of Utah's landscape and a vital ecosystem for many migratory and local species. The region is experiencing rapid population growth, resulting in a surge in demand for residential and other urban water uses. There is a pressing need to divert more water from this system to meet these demands. However, such diversions could exacerbate ongoing water scarcity issues in the region. Without careful consideration and planning, the water levels in the lake will continue to decline. It is crucial to adopt proactive measures that promote sustainable water management among users and mitigate the impacts of climate change. By embracing water conservation practices, we can ensure the long-term viability of the hydrological system and safeguard the well-being of both present and future generations.

To address the complex water management challenges facing the Great Salt Lake, it is essential to understand the path water takes as it is diverted and used to support human activities. We can identify potential conflict points and pinpoint water conservation opportunities by mapping the entire water supply chain, from diversion points to end-users. With this information, we can develop effective strategies and policies that promote sustainable water management practices, reduce water loss, and enhance efficiency. Furthermore, by understanding the complexities of the water system, we can develop a more informed and collaborative decision-making process that involves all stakeholders.

Graduate students in environmental planning utilized data from the United States Geological Survey (USGS) National Water Use Information Program to trace water as it moved through the watershed. The primary water uses include agricultural, industrial, commercial, and domestic appropriations. The Water-Related Land Use dataset from the Utah Geospatial Resource Center links water to land uses. The team developed an interactive, comprehensive computer tool that enables water managers to understand current water allocation, set goals, and generate future scenarios. This tool facilitates testing the impacts of future domestic conservation programs, agricultural and irrigation practice changes, and shifts in water use allocations. Outputs from this project include a comprehensive analysis of water use in the Great Salt Lake basin, illustrating diversions, depletions, and return flows for each sub-basin. This presentation will clarify the water flows associated with the primary uses throughout the system and the sub-watersheds. Furthermore, this presentation will describe the tool and provide examples of its application. The graphical information and the use of the quantitative tool, at different levels of aggregation from watershed to county scales, enable water managers and land use planners to collaborate in achieving conservation goals.

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Key Words: Water conservation, Land use, Great Salt Lake

Green Equity Triangle: Visibility, Distribution, and Accessibility

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Urban green equity is critical to fostering sustainable and resilient cities in the face of rapid urbanization and widening socio-economic disparities. However, conventional assessments often overlook the multidimensional nature of green equity. This study introduces the Green Equity Triangle framework—integrating visibility, distribution, and accessibility—to evaluate how these dimensions collectively enhance urban livability and environmental justice. The research bridges the gap between traditional area-based greenery assessments and innovative, multidimensional approaches that integrate spatial, social, and infrastructural factors.

Employing a mixed-methods approach, the study combines advanced geospatial analysis with qualitative policy and literature evaluations. An enhanced Two-Step Floating Catchment Area (2SFCA) model is developed to incorporate distance decay, demographic weighting, and park attractiveness in measuring green space accessibility. Comparative case studies of London and Singapore—cities with contrasting planning histories and governance systems—enable contextualized analysis across diverse urban environments. This integration of quantitative and qualitative methods offers a comprehensive understanding of green equity, encompassing both objective indicators and residents' lived experiences.

Key findings offer several novel insights. First, high visibility does not always correspond with high accessibility, underscoring that proximity to greenery does not guarantee equitable access—particularly where infrastructural connectivity is lacking. In London, suburban areas often feature high visibility and distribution, while central high-density zones suffer from limited, poorly connected green spaces. Conversely, Singapore's state-led planning model achieves more consistent greenery integration, particularly within public housing estates. However, private and landed properties reveal deficiencies in both visibility and accessibility, suggesting that market-driven development can compromise green equity.

Second, the study reveals significant correlations between socio-economic status and greenery access. In London, low-income and minority communities face limited opportunities for green space use, while in Singapore, elderly populations benefit from highly integrated green infrastructure. Despite differing governance models, both cities struggle to provide sufficient greenery in high-density urban cores, where spatial constraints pose major challenges.

Singapore exemplifies a top-down, coordinated model, embedding ecological corridors into housing and transport planning through long-term, multi-level strategies (Ernstson, 2013; Rahman & Zhang, 2018). In contrast, London relies on targeted urban renewal, prioritizing pocket parks, green transport links, and community-led interventions while addressing gentrification through public oversight (Kiss et al., 2022). Both cities have adopted innovations such as vertical greening, Green Plot Ratio, and hybrid ecological-recreational spaces to reconcile green equity and spatial limitations (Connop et al., 2016; Middle et al., 2014).

In conclusion, this study introduces a novel, three-dimensional conceptual framework for evaluating urban green equity and develops a robust methodological toolkit that synthesizes spatial visibility, distribution, and accessibility—grounded in actual tree location data and pedestrian movement modeling. By comparing the

decentralized spatial structures of London and Singapore, the research underscores how divergent planning legacies influence green space outcomes. While Singapore's regulatory framework ensures equitable greenery in public housing, London's green inequities are closely tied to socio-spatial and historic housing disparities. The findings emphasize the importance of integrating controlled planning mechanisms with real-world simulations to advance equitable and sustainable green strategies across global urban contexts.

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Key Words: urban planning, green equity, sustainability, environmental justice

Green Infrastructure in Urban Redevelopment: Climate Resilience Through Hydrological Planning

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Cities are growing rapidly, and at the same time, there is a strong need for redevelopment planning frameworks to rethink the strategies of the aging infrastructures (Suárez et al., 2021). Redevelopment of existing infrastructure must account for the evolving impacts of climate change. As research highlights, challenges such as intensified rainfall events, outdated infrastructure, and rapid urban development are placing increasing pressure on local stormwater systems (Deslatte & Chung, 2025). While climate change presents significant threats to urban systems, it also creates an opportunity to reimagine and transform cities. Integrating climate adaptation strategies into urban redevelopment frameworks is essential to advancing long-term urban resilience.

In many cities, there is a dual problem in terms of hydrology: the risk of urban flooding on one hand, and the need to ensure access to reliable water resources for residents on the other. These conditions are increasingly linked to climate-induced disruptions, where both flooding and water scarcity emerge as parallel consequences of shifting rainfall patterns and degraded ecological systems (Ramyar et al., 2021). Thinking about nature-based solutions for this situation is a must. Green infrastructure (GI), beyond its aesthetic role, can act as a planning tool and support long-term environmental and infrastructure goals (Zhao et al., 2024). In this study, GI is positioned not as an add-on, but as a functional system to manage runoff, recharge groundwater, and restore urban hydrological balance.

The main objective of this research is to integrate Water-Sensitive Urban Design (WSUD) into planning frameworks, which offers practical solutions for managing stormwater while supporting ecological functions in cities. Previous studies found that fragmented implementation remains a major challenge in many cases due to the lack of knowledge on stormwater resilience and weak institutional capacity (Deslatte & Chung, 2025; Suárez et al., 2024). GI can be used as a bridge between ecological theory and planning practice (Ramyar et al., 2021). This study responds to that need by developing a spatially grounded planning model that embeds GI into urban redevelopment through WSUD principles.

This research employs GIS-based spatial analysis to identify areas where green infrastructure can provide the most effective hydrological benefits. The study focuses on Dallas, Texas, a rapidly expanding city experiencing redevelopment pressures, aging infrastructure, and intensifying climate impacts. The analysis overlays NDVI, flood risk zones, land use, and groundwater recharge potential to locate zones where WSUD strategies can be most impactful. These findings are supported by a review of redevelopment plans and hydrological design strategies, with an emphasis not only on GI location but on performance within the broader urban water system.

This paper contributes a spatially scalable framework and redevelopment model that associates GI with flood mitigation and long-term water resource management. The framework supports runoff retention, aquifer recharge, and ecological functionality through practical and scalable strategies. Drawing on the need to overcome fragmented and piecemeal approaches to urban design, this study responds to the call for more cohesive and integrated planning visions (Marques & Alvim, 2024). It focuses on identifying problem areas, where green infrastructure can be most impactful, based on hydrological vulnerability and redevelopment potential. The model serves as a foundation for future planning efforts that may further incorporate tools, policies, and institutional strategies for broader implementation.

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Key Words: Green Infrastructure, Urban Redevelopment, Climate Resilience, Urban Water Systems, Flood Mitigation

How Florida Local Governments Regulate New Residential Development in Flood Zones

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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This research examines Florida local government policies that address development in the places where people, property, and infrastructure are most at risk from storm surges. Under Florida Statutes, Coastal High Hazard Areas (CHHA) are defined as the area below the elevation of a Category 1 storm surge line and are those places most likely to be significantly damaged or submerged by sea water. Florida requires that local governments designate CHHA areas within the local comprehensive plan and limit CHHA development in accordance with the hurricane evacuation capacities supported by local transportation infrastructure. Although Florida's CHHA rules have changed over time since first adopted as part of the 1985 Growth Management Act, the overall intent has been to limit development in the CHHA for the purpose of maintaining evacuation capacity and minimizing loss related to public infrastructure and other public expenditures (Puszkin-Chevlin and Esnard, 2009).

Many Florida communities have long-established policies prohibiting additional residential density in the CHHA, resulting in zoning codes that are "frozen in time" (Puszkin-Chevlin and Esnard, 2009, 36). This led to concerns about the abilities of some communities to accommodate projected population growth, support economic development, and provide affordable housing. These concerns were amplified following a 2016 update to the Florida Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model used to identify the CHHA. In many communities, the update resulted in a significant expansion of the CHHA. For example, the City of St. Petersburg faced a 41% increase in the CHHA following the 2016 model update; this in turn resulted in text amendments to their Comprehensive Plan in 2020 that shifted from a strict prohibition of new development in the CHHA to a criteria-based project evaluation approach.

This research provides a survey of Florida local government policies for accommodating residential density in the CHHA. Specifically, it addresses three research questions:

- What are the local government's baseline rules for addressing new density in the CHHA?
- How have requests for additional density in the CHHA been decided over the last decade?
- What changes to the CHHA density rules have been considered or adopted since the 2016 update?

The session will include results from a scan of Florida local government comprehensive plans that include Coastal Management Elements to identify policies for addressing new density in the CHHA. Policies were analyzed to identify major approaches, such as those that strictly limit new density, those that incorporate incentives such as transferable development rights that direct density to specific areas, and those that use criteria such as building code or hurricane evacuation standards to permit density increases. The research demonstrates that most Florida local governments strictly limit new residential density in the CHHA, although a trend of accommodating more residential density is emerging, especially in areas with high land values.

The research will provide information about best practices in addressing density in flood prone areas. Florida's experiences provide instructive lessons on the balancing act involved between protecting human lives and public assets, cooperating with market processes, preventing climate gentrification, and accommodating demand for housing and redevelopment near existing urban infrastructure.

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Key Words: density, sea level rise, flood, coastal, evacuation

Influence of Social Networks on Household Recovery Perception in Post-Hurricane Puerto Rico

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Track 4: Environmental Planning & Resource Development

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Social capital has largely come to be accepted as playing an important role in community level disaster recovery today. Research has established that social networks, and the resources accrued through those networks, form an important pathway for the recovery of community residents affected by disasters. But the nature of this effect, or the variations of the effect based on different types of social capital forms remains to be explored. In particular, social capital may not always have a positive impact on disaster recovery, a facet that many empirical studies fail to capture although hints to this effect are evident in more qualitative research studies. As a result, there is a tendency in research to paint social capital, and all its forms, as having a uniformly positive effect on disaster recovery. This study investigates this claim by examining the effect of different forms of social capital on disaster recovery perception of households after disasters and the variances within.

Using a case study approach focused on post-hurricane recovery in Puerto Rico, we test the extent to which aid from specific social networks—i.e., bonding, bridging, and linking—mediates households' recovery perceptions experiencing high levels of damage. Data was collected through a stratified random sample household survey (n =251) in two Puerto Rican communities (Loíza and Comerío) affected by the 2017 Hurricanes Irma and Maria. Data was analyzed using ordinal logistic regression methods with interaction terms to test whether households with high or low disaster damage and that accessed financial aid and information through bonding, bridging and linking social networks had more positive or negative recovery perception. The study findings indicate that aid and information acquired from bonding, bridging or linking social networks have varying (positive and negative) effects on the recovery perception of high damage-experiencing households. Such finding points to the need for a nuanced approach to disaster aid that balances diversity of aid opportunities with adequacy of that funding to achieve recovery. The study also provides insights into the pathways through which social networks influence disaster recovery at the household level, specifically, the roles of different types of networks and their specific limitations.

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Key Words: household recovery, disaster planning, social networks, Puerto Rico

Integrating three plan evaluation approaches for coordinated heat resilience across Arizona

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Increasing chronic and extreme heat poses a growing threat to communities everywhere, with 90% of U.S. planners reporting concerns about longer heat waves (APA, 2024). Arizona's expanding urban corridor is particularly vulnerable to the effects of increasing temperatures, due to both climate change and the urban heat island effect. To effectively confront this challenge, the full network of community plans that shape the future of the built environment and community operations must collectively advance heat resilience (Keith & Meerow, 2022). While heat planning and governance is still in its infancy, research suggests that silos and conflicts in networks of plans often impede resilience (Keith et al, 2023). Integrated heat resilience planning therefore requires a systematic and comprehensive analysis of the silos and conflicts relevant to heat resilience within communities' networks of plans. This study is the first to combine three emerging, complementary plan evaluation methods to assess how cities' networks of plans address heat resilience. We applied Plan Quality Evaluation for Heat Resilience, Plan Integration for Resilience Scorecard™ for Heat (Meerow et al, 2024), and social network analysis of plan cross-referencing (Woodruff et al., 2022) to 21 plans from seven Arizona cities: Phoenix, Tucson, Tempe, Flagstaff, Casa Grande, Mesa, and Nogales. Our sample of cities represents communities of different sizes, geographies, planning capacities, and heat risks. We find similarities and differences in how these cities' networks of plans address heat hazards. The plans have consistently high-quality participation and coordination principles but lack details on vulnerability and climate change uncertainty, suggesting a need to move beyond immediate heat risks. We also identify opportunities to diversify policy mechanisms, spatially target high heat risk areas, and enhance the connection between planning efforts. These results lay the foundation for future collaboration with decision-makers to more effectively plan for heat resilience.

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Key Words: heat planning, plan evaluation, network of plans, heat resilience, extreme heat

Is Climate Change Driving Gentrification in Florida? Perspectives of affordable housing advocates

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Track 4: Environmental Planning & Resource Development

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Climate gentrification theory suggests that as storms and sea level rise increasingly flood the coast, people who live in vulnerable coastal areas will move inland to higher ground or residents moving into a region may look to higher ground to avoid climate risks. According to a growing number of scholars, these dynamics are realigning real estate markets toward inland neighborhoods and higher ground (Keenan, et al. 2018; Best and Jouzi 2022; Taylor and Aalbers 2022; Kim and Park, 2023; Hao and Wang, 2024). In Florida, inland neighborhoods are disproportionately working class and lower-income (Butler et al. 2021). Increasing interest in these neighborhoods is leading to speculative investment, increasing housing prices, and growing displacement pressures on existing residents (Butler et al. 2021; Matteucci et al. 2024). These dynamics suggest an inevitable progression of gentrification in coastal cities throughout much of the US, especially in Florida where large urban coastal cities concentrate high value properties and wealthiest populations along the most vulnerable coastlines (Butler et al. 2021).

While previous studies of climate gentrification focus on housing market signals, this study elaborates on how individuals who work in the affordable housing space are navigating these tensions as they work in inland neighborhoods. We aim to understand the extent to which housing advocates are integrating the future threats of climate gentrification into their policies, actions and advocacy work to address new threats to displacement amid an existing affordable housing crisis. Our approach recognizes that climate gentrification as a concept is rooted in an environmentally deterministic view suggesting that climate change impacts will automatically initiate a social process of gentrification. This view ignores other social processes and simplifies the gentrification process to a singular cause.

This paper begins with a review of gentrification literature, with a focus on scholarly studies of climate gentrification and best practices for how cities can stop or at least mitigate gentrification pressures. Next, it summarizes the methodology which consists of a case study of South St. Petersburg Florida utilizing a grounded theory methodological analysis of interviews with housing advocates and officials. We provide a history of the case and then elaborate on the results of interviews to understand the drivers of gentrification in South St. Petersburg and the extent to which climate gentrification is seen as a driver of these gentrification pressures. We then conclude with a discussion that elaborates on multiple dimensions and scales of drivers of gentrification, including an exploration of the long-term effects of Florida's growth paradigm, a clarification of the inadequacy of local responses, and a suggestion of a posture of climate possibilism rather than determinism as a way to approach drivers of and responses to gentrification pressures in the face of climate change impacts.

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Key Words: climate gentrification, affordable housing, sea level rise, climate reductionism

It Takes a Network: Who is Carrying Out Urban Climate Action Plans?

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The formal and informal actors working towards Cincinnati's sustainable future have converged on the issues of climate as the underlying *raison d'être* for environmental interventions. This is evident in the last two Green Plans (2018 and 2023) which couch all environmental, and many community development needs, into climate action initiatives. The 2023 plan adds an emphasis on inclusive collaboration, which inspired our research. Putting urban climate action plans into motion is not an easy task. The solutions suggested in such plans cross many scales and issue areas and can be fraught with political pushback. Literature on urban environmental governance highlights the need for cities to address climate change across scales (DiGregorio et al 2019) with collaboration a key ingredient. However, successful collaboration also requires a robust understanding of the organizations and relationships currently involved in addressing climate change – what we call a “climate network” (see also, Cunningham et al, 2016). Within this loosely defined network we want to know what organizations exist in Cincinnati that address climate change, how the Green Cincinnati Plan is used by these organizations, and what relationships exist among those addressing climate change.

Public sector, private-public sector agencies, activist groups, and community-based groups in Cincinnati have taken up initiatives towards meeting the Green Plan's goals. Our study strives to inform the planning field's discussions on the strengths and weaknesses of current climate action implementation and how to better activate linkages among planning, implementation, and resources as we move forward in addressing climate change. Our research identified and analyzed the range of public, private, and civil society actors that are taking actions to address climate impacts in Cincinnati. How much of this is connected to the plan? How connected or disconnected are the initiatives? What are the indications of collaboration and network building among these actors? Do the patterns of actions indicate integrated or disconnected network of actors? Over several years we have: (1) Identified climate action projects in Cincinnati. Our first cut of identifying projects was through websites, community meeting minutes, project reports. These findings were complemented with site visits and interviews at key high-profile projects and discussions with coordinators of the top government and civil society organizations. (2) Characterized the identified actors. We used web-based resources and targeted phone or in-person interviews to understand better both what they do and who they coordinate with. These descriptions were shared with key informants of these organizations to verify accuracy of what we found. (3) Created conceptual model(s) of the climate action network. We propose and analyze a network of relationships around climate problem solving.

We have found that top down and bottom-up initiatives are not always linked. It seems to depend on the area of climate issue being addressed. Some issues, such as the energy transition, which is addressing climate mitigation, have less public participation or initiatives due the types of changes that need to occur, even though ultimately the transition requires bottom-up participation. Many of the other sectors, which are more related to climate adaptation, and hence more in the area of urban planning and neighborhood development, have been more addressed by bottom-up localized projects. We conclude that more research is needed to understand how to better connect the different scales and types of actors to empower meaningful and impactful outcomes from climate action plans. It is often too complex for what are often small environmental offices within cities to orchestrate the

transition to climate resiliency. As such, our research looks to offer a direction for practice and research in how to improve connections among regional climate actors.

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Key Words: Climate Action, Collaboration, Plan implementation

Journey for Water Security: Using Gamification for Engaging Communities Facing Water-Related Hazards

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Track 4: Environmental Planning & Resource Development

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Gamification is a powerful and effective tool known for promoting engagement in educational settings and student learning outcomes (Wulan et al., 2024). Literature demonstrates how gamification has been gaining importance in the social and environmental sciences; however, the success of the approach is directly related to the context, framework selected and participants motivations (Cordero-Brito and Mena, 2018; Koroleva and Novak, 2020). In this work, we apply gamification as a tool to foster in-depth community engagement in environmental and territorial planning studies, by answering the following research question: “How can gamification be used to increase community engagement, reveal stakeholders perceptions and priorities in regions threatened by water-related hazard events?”. The Journey for Water Security (JWS) is a serious game primarily designed to disseminate information and raise participants' awareness of weather-related events and collectively develop creative solutions for urban and rural environments. The board game is collaborative and has three main components: perceptions, scenarios and resource cards. Each card represents situations faced by community members in their daily lives. For having an accurate representation of stakeholders' contexts, surveys were developed and applied with 385 community members of five municipalities in Paraíba state, Brazil. The surveys aimed to assess current awareness, perceptions, preparedness and coping capacities of residents towards water-related events (e.g., water shortage, flooding, water pollution). Perceptions shared by the community members were translated into “Perception Cards” integrated in the JWS. Perceptions aimed to reflect everyday situations experienced by the community, while Scenarios aimed to exemplify hypothetical, but possible, situations that are a result from extreme water-related hazards that may take place in the region (i.e., like water shortage or flooding events in a changing climate). Resource cards are adaptive capacity practices which can increase or decrease the community's exposure when facing those water events (i.e., flood barriers, rain barrels, green infrastructure, educational practices). To win the game, each team needs to suggest more integrated “actions” (i.e., or solutions) considering the multiple scenarios, resources and perceptions learnt. For ensuring applicability, the game was initially applied with researchers from the Federal University of Campina Grande, Brazil in June 2024. The pilot testing verified the acceptability, coherence and estimated average playtime, allowing for adjustments before implementation with community members. JWS was then applied during two workshops held in Boqueirão and Campina Grande municipalities in August 2024. 32 stakeholders, including residents, farmers, civil defense and members of local administration attended the workshops. By integrating real-world information and gamification, JWS has demonstrated potential to promote participatory research, environmental education, and community empowerment. JWS translates high-level research findings in an adaptive and collaborative way, becoming a valuable tool for collecting quantitative and qualitative data of municipalities facing urban planning and water challenges, sharing research findings, and contributing to creating participatory solutions and enhancing engagement with community members. JWS's

flexible structure also shows its potential for replication in other contexts with similar water challenges, strengthening the connection between environmental education, social equity and engagement, and the collective discussion of solutions with the support of the community.

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Key Words: Gamification, Community Engagement, Social Equity, Water-related Hazards, Territorial Planning

Land Use and Land Cover Dynamics and Their Impacts on Carbon Sinks – A Case of South Korea

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The Paris Agreement outlines a global commitment to achieving carbon neutrality by 2050 to mitigate global warming. In this context, the conservation of land-based carbon sinks such as forests, grasslands, and wetlands has emerged as a critical strategy. These natural carbon sinks have the capacity to sequester carbon and thus play a vital role in reaching carbon neutrality targets. However, these carbon sinks are increasingly threatened by urban expansion. Land use conversions from carbon sinks to urban areas can occur directly, or indirectly through transitional land types such as farmland or forestland. These land use and land cover (LULC) dynamics not only shape urban form but also have significant yet understudied implications for carbon sink capacity, which is essential for climate change mitigation.

Previous studies have examined the environmental impacts of urban expansion. The role of land-based carbon sinks mitigating climate change has also been widely recognized. However, relatively few studies have investigated how urban-driven LULC changes affect carbon sinks. This study addresses this gap by providing a spatially explicit analysis of carbon sink dynamics in the context of LULC driven by urban development.

South Korea, particularly the Seoul Metropolitan Area (SMA), offers a compelling case of such dynamics. Large-scale urban development projects - particularly New Town development - and greenbelt relaxation have accelerated land use changes from natural carbon sinks to urban areas. These developments, aimed at alleviating development pressures and housing shortages in Seoul to adjacent areas, have frequently resulted in the conversion of carbon sinks into urban areas. The rapid extent of such transformations has raised concerns about the loss of carbon sinks. Despite their growing importance, urban development continues to progress, often at the expense of natural carbon sequestration.

This study focuses on the SMA during two key periods of intensive New Town development and greenbelt relaxation: 2000-2010 and 2010-2020. First, LULC changes were quantified to examine urban developments and the associated loss of carbon sinks using GIS. Second, regression analysis was conducted to analyze the association between the changes in carbon sink capacity and LULC dynamics. Given the geographical contiguity, spatial regression models were applied to control for spatial autocorrelation of residuals. These combined approaches allowed for a more robust analysis of how LULC transitions have influenced carbon dynamics across the SMA.

Preliminary findings from the GIS analysis indicate substantial urban development across both time periods, with a significant portion occurring on land previously classified as carbon sinks. Notably, the loss of carbon sinks was not limited to direct conversions; considerable indirect losses were also observed through transitional land uses changes (e.g., forestland to farmland to development, farmland to barren to development). The regression analysis revealed that LULC dynamics, along with several urban factors, influence the degree of carbon sequestration capacity.

The findings of this study offer valuable insights into land use and environmental planning for achieving carbon neutrality. By identifying the spatial patterns and drivers of carbon sink loss at a regional scale, the results highlight

the need for more careful control of urban expansion in areas while preserving both direct and indirect carbon sinks. As cities continue to grow, we argue that land use and environmental must be aligned with climate goals through more spatially informed decision-making of new developments and the incorporation of ecological indicators into existing planning frameworks.

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Key Words: Land Use Planning, Carbon Sinks, Urban Expansion, Climate Change Mitigation, Land Preservation

Linking Hydrodynamic Flood Risk Modeling to Scenario Planning and Local Fiscal Impact Analysis

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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This research investigates the interplay between risk, climate and hazard services, and advanced modeling techniques to improve local mitigation and planning strategies that protect municipal tax bases and creditworthiness. Traditional planning and hazard management systems often struggle to balance short-term economic interests with the long-term fiscal costs and obligations resulting from climate-induced hazards. Recent advances in computational modeling have improved simulations of hazards—including flood and wind impacts—and quantified their effects on built infrastructure. Early findings indicate undercapitalized risk in property markets (Gourevitch et al. 2023), underestimated liabilities in public infrastructure, and potential challenges to municipal credit, although these models are frequently developed beyond the direct control of local decision-makers (Condon 2023).

Planners have long recognized the fiscal risks posed by natural hazards (French et al. 2010; Shi and Varuzzo 2020), yet methods to integrate revenue modeling, cost-of-service analysis, and public asset valuation into comprehensive scenario planning remain inadequate. Without such integration, municipalities lack a feedback mechanism that reflects the cumulative, long-term fiscal consequences of infrastructure investments, land use, and mitigation strategies. This study poses the central question: How can local governments incorporate a feedback mechanism that captures the cumulative costs of infrastructure and planning decisions to better manage long-term fiscal health and risk? Addressing this is critical, as private planning firms offer promising approaches that often lack transparency and empirical validation.

To answer this question, we propose an integrative framework linking hydraulic and hydrodynamic (H&H) models with scenario planning based on fiscal impact analysis. Our methodology has two main components. First, we develop methods to link the outputs of H&H models that simulate flood risk at high spatial and temporal resolutions with hedonic property valuation, damage and insurance estimation, techniques to assess the impact of flood risk on property values and tax revenues. Second, we connect these simulations to a cost-of-service analysis estimating replacement and maintenance costs for flood-exposed roads, drainage systems, and other infrastructure. By merging environmental hazard modeling with fiscal analysis, our framework provides rapid, actionable feedback on the long-term fiscal implications of planning decisions.

We validate our approach through a case study in the Acadiana region of Louisiana, USA, focusing on revenue vulnerability due to undercapitalized flood risk in the housing market. In this region, we examine how changes in flood frequency and intensity affect property tax revenues and infrastructure maintenance costs. Integrating these insights into a unified decision-support tool can help local governments weigh the benefits of mitigation investments against the long-term costs of inaction. This project presents a novel framework that reconciles short-term economic goals with long-term fiscal responsibilities amid escalating flood and wind risk economic stressors. By integrating hydraulic modeling, revenue impact analysis, and cost-of-service assessments, we provide local governments with practical tools to make informed, sustainable planning decisions that enhance community resilience and fiscal stability.

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Key Words: risk services, resilience, land use, fiscal impacts, mitigation

Mapping 3D Urban Form to Inform Conservation Strategies

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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With 2.5 billion people projected to move into cities by 2050, urbanization is set to become a leading cause of habitat and biodiversity loss, making cities key battlegrounds for conservation efforts. At the same time, cities can sustain high levels of species richness and rely on biodiversity to provide essential ecosystem services such as water purification, plant pollination, natural pest control, urban heat reduction, and climate change mitigation. Recognizing this dual reality, the United Nations' Kunming-Montreal Global Biodiversity Framework identifies enhancing ecological connectivity—the degree to which landscapes facilitate species movement—as a key conservation strategy in cities. While many cities are embracing conservation plans that emphasize connectivity, many lack concrete goals and rely on insights from non-urban environments, as urban ecological connectivity remains a nascent area of study. Moreover, most efforts to measure connectivity depend on two-dimensional (2D) metrics that overlook the structural heterogeneity of urban landscapes. This study addresses this by asking: In what ways do the three-dimensional (3D) aspects of urban landscapes influence ecological connectivity, and how can innovative 3D modeling approaches improve conservation planning?

Using Los Angeles as a case study, this research develops and compares 2D and 3D connectivity models derived from remote sensing and LiDAR-based landscape metrics. These models are validated using field surveys and community science bird observations, incorporating generalized linear mixed models and omni-directional movement analyses to examine how built and vegetative structure shape movement potential. Findings reveal that 3D structural heterogeneity plays a significant role in shaping connectivity for birds. For instance, variation in building volume is negatively associated with bird movement, a relationship that would be obscured using 2D measures alone. These results underscore the limitations of traditional connectivity assessments and emphasize the need to incorporate vertical structure into urban conservation strategies. This work was conducted in partnership with the City of Los Angeles to help inform the city's Biodiversity Index and its Local Biodiversity Strategy and Action Plan. By demonstrating how 3D spatial analysis can be translated into planning decisions, this study offers a transferable model for other urban areas seeking to integrate ecological connectivity into land-use decisions. In doing so, this research advances both understanding of coupled human–natural systems and the practical tools available to planners working to conserve biodiversity in the Anthropocene.

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Key Words: Ecological Connectivity, Urban Biodiversity, Urban Form, Remote Sensing, Conservation Planning

Mapping Urban Heat and Injustice: A Community-Centered, Mixed-Methods Study in San Bernardino

Abstract ID: 1844.0.0.779.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Climate change has intensified the frequency and severity of extreme heat events across the United States, with Southern California emerging as one of the most affected regions. Within this context, San Bernardino County presents a particularly vulnerable case due to its unique geographic features—being landlocked, arid, and topographically diverse—as well as long-standing socioeconomic disparities. Over the past two decades, San Bernardino has faced both the chronic stress of climate change and the acute pressures of urban decline. More recently, trends in urban redevelopment, including retrofitting efforts and changes in land use, have further exacerbated heat-related risks. These changes have disproportionately affected marginalized communities, revealing persistent patterns of environmental injustice.

This study employs a mixed-methods approach to investigate the spatial and temporal dynamics of heat vulnerability in San Bernardino County. Using cloud-based remote sensing technologies and machine learning models, we examine how different metrics of heat vulnerability have evolved alongside patterns of urban transformation over the last twenty years. In addition, the study integrates land use projections from the 2050 General Plan to anticipate future heat vulnerability and identify at-risk communities under future climate and urban redevelopment scenarios.

To ground the analysis in community experience, we incorporate data from travel surveys, including raw GPS traces and portable GPS device-based travel surveys, as well as community questionnaires. Framed by a heat vulnerability and environmental justice lens, this multi-scalar dataset allows for a nuanced understanding of local needs, behaviors, and lived experiences in high-risk areas. The study concludes by offering community-driven, design-based solutions that address both current and anticipated vulnerabilities. Ultimately, the research contributes to more equitable and climate-resilient urban redevelopment strategies in historically underserved communities.

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Key Words: Heat vulnerability, Environmental Justice, Urban redevelopment, GeoAI, Community Engagement

New Approach to Monitor the Life Cycle of Urban Street Tree Canopies and Guide Tree Planting Efforts

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Introduction-According to the Intergovernmental Panel on Climate Change (IPCC), it is predicted that global surface temperatures will increase by 0.3 to 4.8°C by the end of this century under different global warming scenarios (Pachauri et al., 2015). One common measure to mitigate the impacts of increased temperatures, which has been well-proven to be effective in cooling surfaces and ambient temperatures in cities, is the increase in the amount of vegetation, especially in the form of urban trees (Ellison et al., 2017). While trees play a crucial role in controlling the magnitude and duration of thermal exposure, tree mortality could have a detrimental impact on the long-term cooling capacity of current urban street tree canopies. To maximize the associated benefits of urban trees in a given city or neighborhood, it is important that the numbers of newly planted trees exceed the numbers of trees lost.

Research Goals-The goal of the current study is twofold. First, to estimate the age of the current population of street trees in the study area and calculate the number of tree losses due to aging under different longevity scenarios by the end of each decade from 2023 to 2100. Second, to identify locations that are in urgent need of tree planting based on the mortality data given the goal of maintaining or growing the existing street tree canopy.

Data and Methods-The case study area comprises six neighborhoods located within a mile or two of Downtown Los Angeles. This study area is the focal point of the University of Southern California's Urban Tree Initiative, a scientific effort aimed at maximizing the benefits of tree planting in a series of vulnerable communities near Downtown Los Angeles.

In this study, we utilized the diameter at breast height (DBH) of tree species in the study area to estimate their current age and assess trees' mortality and survival rates over the remainder of the 21st Century. We applied urban tree growth coefficients developed by a team of urban forest researchers at the US Department of Agriculture (McPherson et al., 2016). In the next step, we conducted a comprehensive literature review to establish the minimum, average, and maximum lifespan of the analyzed tree species. Using tree longevity estimates, we created three scenarios for estimating the survival rate of trees in the study area: better-than-normal (maximum longevity), middle-of-the-road (average longevity), and worse-than-normal (minimum longevity) scenario.

Findings-Our results demonstrate that under a typical (middle-of-the-road) longevity scenario, on average, near half of the current tree canopy in the case study area will have died by mid-century. In addition, by the end of the century, under this scenario, near 90 percent of existing trees will have died. Our results further revealed that, under the typical longevity scenario, on average, the case study area will lose about 10.8 percent of its tree canopy cover by the end of each decade.

Conclusion-In this research, we utilized individual tree growth and longevity data to portray the current and future condition of street trees in the study area.

Our approach in this study can serve as a model for cities to monitor the age and mortality rate of the urban tree canopy over time. Additionally, it enables efficient tree plantings and targeted resource allocations, thereby preserving the long-term vitality and the size of urban tree canopy and contributing to the resiliency of cities in a warmer future climate.

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Key Words: Urban tree canopy, tree mortality, tree planting campaigns

Nuancing Coastal Management Using a Best Management Process for Adopting Best Management Practices

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Ocean and Great Lakes coastal shorelines are receding landward remorselessly, the former because of sea level rise and the latter because of geophysical processes (Norton, 2022). Communities confronting shoreline recession face three daunting challenges in responding to it: coastal shorelines are highly dynamic—increasingly so because of climate change; substantial lengths of shoreline are privately owned; and shoreland property owners want their properties to be stable. When reality hits expectation, the conventional response has been to install shoreline armoring like seawalls. Scientific research and lived experience, however, both make clear that it is often not possible to protect buildings placed too close to the shore through armoring without destroying natural coastal resources, or conversely to protect natural coastal resources without prohibiting or removing armoring—and the buildings they are designed to protect (Pilkey & Wright, 1988). Coastal communities thus unavoidably face difficult trade-offs when making coastal management decisions.

The first step toward reasonable and well-balanced decision-making is to undertake comprehensive planning. While good planning is necessary, however, it is not by itself sufficient. The next step is to move from planning to doing by adopting appropriate infrastructure policies, public outreach and education campaigns, and land use regulations. Those plans, policies, campaigns, and regulations should comprise “best management practices” (BMPs)—practical and effective public actions designed to promote the community’s long-term resilience and sustainability in the face of dynamic natural coastal processes and persistent near-shore development pressures (Beatley, 2009).

There are today numerous decision-making tools presenting a wide variety of potential BMPs that coastal communities might adopt to enhance their resilience. In fact, there are now so many that a fourth daunting challenge for coastal communities today is the need to wade through all the available options to select the BMPs that best meet their unique needs. In addition, and despite so many options, much of that guidance takes a one-size-fits all (install nature-based shorelines) or a once-and-done (adopt a setback) approach, suggesting that off-the-shelf BMPs can be adopted with relatively little analysis or trouble. That approach inappropriately downplays a fifth daunting challenge—the fact that effective coastal management requires thorough and systematic analysis, and that coastal localities might not only fail to become more resilient but also prompt more controversy by attempting to adopt seemingly easy or unduly optimistic coastal management programs.

Drawing from literature reviews, individual interviews of coastal community officials, and focus-group interviews of coastal officials and other experts familiar with coastal management, this paper presents a sequence of steps—a best management process—that a coastal locality might take to identify, adopt, implement, and justify the right set of BMPs for its long-term resilience and sustainability. In brief, that best management process includes gaining a working understanding of coastal resilience and hazard mitigation; knowing the community’s authorities to manage coastal shorelands, and the potential benefits and risks of doing so, and of not doing so; engaging community planning; and then considering and selecting appropriate BMPs strategically. That latter step involves, and the paper focuses on, the need to confront realistically the tradeoffs that different management strategies implicate, the need for triage in selecting appropriate strategies for different natural and built shoreline conditions, the need to tailor “model” approaches to meet local conditions and needs, and finally the benefits of transitioning

deliberately, where possible, from living on a dynamic coast using engineered structures to living with natural coastal dynamics over time.

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Key Words: coastal management, climate change, best management practices

One Size Does Not Fit All: Regional heterogeneity in heatwave warning effectiveness and health risks

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Climate change is reshaping how cities manage extreme heat, making adaptation policies such as heatwave warning systems increasingly vital. However, these warnings operate on the premise that heat impacts all regions uniformly, neglecting the diverse climatic and socio-economic contexts that influence local adaptation. While regional differences in temperature sensitivity may affect population responses to extreme heat, it remains unclear whether the effectiveness of heatwave warnings in mitigating health risks is similarly heterogeneous. This study examines whether heatwave warnings have differential effects on health risks across regions with varying temperature sensitivities and compares their effectiveness when warnings are issued based on a uniform national standard versus thresholds tailored to specific regional conditions.

This research employs a two-step empirical approach using daily panel data from multiple cities in South Korea between May and September, 2019–2024. First, Generalized Additive Models (GAM) identify region-specific temperature thresholds at which heat stress significantly affects cooling energy demand, serving as a proxy for local temperature sensitivity. This enables the detection of critical temperature points where populations begin to exhibit behavioral responses to extreme heat, establishing an empirical basis for region-specific adaptation measures. Second, a Mixed Effects Model (MEM) assesses whether heatwave warnings reduce health risks differently across regions while controlling for climatic variables (humidity, wind speed, precipitation) and socio-economic characteristics (income levels, air conditioner penetration, healthcare infrastructure). A key contribution of this study is the comparative assessment of two approaches to issuing heatwave warnings: one based on a fixed national standard and another utilizing city-specific temperature thresholds derived from the first-stage analysis. By incorporating spatial heterogeneity, this analysis determines whether heatwave warnings are more or less effective depending on regional variations in temperature sensitivity and adaptation capacity.

Preliminary results indicate that temperature thresholds for heightened heat sensitivity vary across regions, with Seoul at 30°C, Daegu at 33°C, and Gangwon Province at 28°C. The impact of heatwave warnings on health risks also exhibits regional heterogeneity; in Seoul and Gangwon Province, warnings are associated with a reduction in patient count, whereas in Daegu, where extreme heat is more frequent, their effectiveness appears limited. Moreover, findings suggest that issuing heatwave warnings based on region-specific thresholds may enhance their effectiveness compared to a uniform national standard. These results imply that a one-size-fits-all heatwave warning system may not be equally effective across all regions, underscoring the necessity of localized climate risk communication strategies that align with region-specific temperature sensitivities.

This study contributes to climate adaptation research by demonstrating that the effectiveness of heatwave warnings varies across regions with different temperature sensitivities. The findings emphasize the need for flexible, localized strategies that account for how populations perceive and respond to heat rather than relying solely on standardized heatwave alert criteria. Refining warning criteria to reflect local temperature sensitivities could enhance adaptation measures and reduce health burdens associated with extreme heat. By integrating empirical insights from climate, energy, and health data, this research highlights the importance of adaptive governance structures capable of addressing regionally differentiated extreme heat risks and informing the development of more effective climate adaptation policies.

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Key Words: Climate change, Heatwave Warning

Persisting on the Jersey Shore

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Many coastal settlements persist despite repeated damage from storms and flooding. This may be less about willful ignorance and more about the attractiveness of coastal amenities outweighing the perceived risks of living in a location for certain people. This study investigates how resort municipalities located along the beaches of the Jersey Shore differ from the rest of New Jersey, USA, with the purpose of clarifying the special features of Shore communities' housing stocks, real estate markets, and populations. The case study uses data from the U.S. Census and other governmental sources to create a quantitative portrait of the Shore and presents logistic regression model results showing that features associated with Shore communities include high seasonal vacancy rates, high median housing values, high FEMA damage claims, and year-round populations with lower non-white percentage and lower median household incomes than the statewide values. Jersey Shore municipalities host many second homes, have housing values that are higher than the statewide average and show little net growth in population and housing units, but see continued housing investment (new construction and alterations) at a rate averaging USD 2.2 billion annually in 2023 USD over 20 years. Implications for public policy are to incentivize risk management behavior by second-home owners and owner-occupiers differently from one another, and view nostalgia-based arguments for special treatment with skepticism.

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Key Words: coastal settlements, flooding, second homes, real estate markets, tourism

Planning Beyond Crisis: The Promise of Insurgent Planning in Post-Disaster Mocoa

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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During the evening of March 31, 2017, a catastrophic landslide engulfed the Colombian city of Mocoa, killing at least 335 people in roughly thirty minutes. Seventy others disappeared, and over one hundred people were reported injured across 48 neighborhoods, and roughly 1,500 housing units were destroyed. With a total of 22,000 people impacted, this catastrophe was the deadliest disaster affecting Colombia in recent decades. Yet, despite an alignment of major national political commitments, international cooperation, and a multi-million-dollar humanitarian budget, reconstruction plans have not been completed eight years later. Why?

As the first comprehensive analysis of the landslide and its aftermath, this article is a novel investigation into the competing forces that ultimately canceled the central reconstruction plan, demonstrating that the kind of disruption caused by the disaster mobilized new actors and new forms of agency. In contrast to the popular perception that this kind of lack of remediation suggests the failure of urban planning, the article speaks to the success of local planners who have neutralized the national government's reconstruction plan because they perceived it as worsening the circumstances leading up to both the catastrophe.

Distinguishing between the "landslide" and the "larger disaster," the article further explains the government's proposed reconstruction plan within a history of violent extraction, dispossession and displacement. Framing an original case consisting of multiple ethnographic vignettes to trace actions, reactions and counteractions, I expose the reduction of the planning process as crisis urbanism. My research contributes to our understanding of variability among insurgent planning actors and their "invented spaces" for engagement in the context of disaster, by defining technocratic resistance as a valid form of dissent inside the government, and by proposing a new device for the study of insurgent planning called transformative spaces enabling local community's right to plan. Drawing on contemporary debates on anti-crisis, risk and decolonial thought, the article imagines an alternative paradigm for planning beyond crisis that enables radical community action through dissenting grassroots leadership.

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Key Words: crisis urbanism, technocratic resistance, insurgent planning, risk, anti-crisis

Planning Consultants for Capacity Building? Mediating Roles in Hazard Grant Management

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Over the past three decades, consulting planners have become highly prevalent with massive public planning work outsourced to private firms for cost-efficiency. In response to growing demands and pressures driven by climate change, many localities have worked with planning consultants for environmental planning. For example, many U.S. counties have engaged external consulting planners in some capacity to comply with state and federal mandates such as the Disaster Mitigation Act (Lyles, Pennel, and Riley, 2023). However, the specific responsibilities, performance levels, and broader patterns of consultant involvement remain unclear. Planning scholars emphasize the need for a holistic assessment of planning consultancy, particularly in areas such as plan development efficiency, project management success, and compliance with higher-level planning mandates (McLeod and Schapper, 2024). Hazard mitigation planning serves as a valuable testbed for evaluating consultants' effectiveness in delivering mitigation plans and additional services such as federal grant applications and management.

Hazard mitigation planning in the U.S. – often hired by county government and conducted by consultants – is complex due to significant variations in state planning contexts, hazard exposure levels, and states' discretion in environmental governance. This governance complexity provides an opportunity to examine the role of consultants in navigating environmental planning processes. To explore consultants' influence, we investigate their involvement in managing federal assistance grants that support local hazard mitigation planning. Specifically, we ask: (1) To what extent do consultants support the Hazard Mitigation Assistance Grant program? (2) To what extent do consultants assist with public and individual aid following major disasters? (3) Do consultants serve as mediators in helping localities secure federal mitigation grants?

We conducted a multi-state study to examine the impact of consultants on hazard mitigation planning outcomes, specifically focusing on federal grants received by local governments. We systematically reviewed planning documents from 105 counties across six states on consultants' involvement in local hazard mitigation planning. Additionally, we collected secondary data on federal grant assistance, hazard exposure, and county demographic characteristics. The federal grants analyzed included Public Assistance grants, Hazard Mitigation Assistance Grants, and Individual and Households Program funds. For the statistical analysis, we first employed confirmatory factor analysis to construct the concept of consultants' involvement in planning processes, capturing their roles in plan writing, grant management, meeting facilitation, and steering committee participation. We then applied structural equation modeling (SEM) to assess the mediating effects of consultants on federal grants received.

Our SEM results indicate that consultants are actively involved in meeting facilitation, plan writing, and grant management. Consultants significantly mediate localities' efforts in securing Public Assistance funding but not Hazard Mitigation Assistance Grants. As one of the few studies that have examined consultants' contributions to local environmental planning, our findings offer valuable insights into consultants' roles in administrative functions such as grant management. Beyond theoretical implications for the future of the planning profession (Campbell, Tait, and Watkins, 2014), our study provides practical guidance for local governments designing contracts with consultants, particularly those lacking the capacity for comprehensive planning processes beyond grant administration.

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Key Words: Hazard mitigation, planning consultants, grant management, risk reduction, planning capacity

Planning for waste management in informal settlements: Spatial Analysis in Kampala, Uganda

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Rapid urbanization, population growth, and changing consumption patterns have significantly increased global waste, including municipal solid waste and plastic waste. This waste is widely linked to increased risks of urban flooding, vector-borne diseases, soil and water contamination, and air pollution. The rural-to-urban migration in Sub-Saharan Africa increases the rate of urbanization and population densities with its concomitant waste generation in cities, making it overwhelmingly difficult for authorities to address. This is due to the limited budget for waste management in the space of competing priorities such as hunger, water shortages, unemployment, and hunger that state governments need to grapple with. Further, this issue is connected to the lack of policy implementation and enforcement of regulations. Waste collection in Sub-Saharan African countries is widely recognized as inadequate, with collection rate of about 55% for 90% disposal at uncontrolled landfills and dumpsites.

This paper investigates environmental planning practices and the human health and environmental hazards associated with waste in the informal settlements of Kampala, Uganda, using Acholi Quarters, Kifumbira, and Ggaba as case studies. The research used a novel dataset extracted from Google Street View (GSV) imagery to provide insights into geographical locations of pollution accumulation and ArcGIS spatial mapping to locate chronic areas that require immediate attention. We found higher concentrations of waste within a 0.5-mile radius from the settlement centroids in two of the three settlements. A Local Moran's I analysis identified statistically significant clusters of high and low waste presence and outliers to suggest the influence of local factors. A review of environmental planning practices and policies revealed that local authorities are well aware of these hazardous conditions but lack the necessary resources to address them.

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Key Words: informal settlements, waste management, Kampala, Uganda, Google Street View, environmental planning

Plans and Planners in the Water Governance and Management Knowledge Base

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Amid growing water scarcity and water quality concerns in parts of the United States (US), the US Geological Survey (USGS) has embarked on a project mandated in the 2009 Omnibus Act that enables integrated water availability assessments to improve access to information about disconnects between demand and supply in different social-ecological water systems. As a component of this work, with the support of the USGS and of the Royal Society of New Zealand, a team of researchers has produced a water governance and management knowledgebase of twenty water governance case studies that exemplify the disruptive events, drivers and social factors and decisions affecting water availability, quality, condition, and uses over time (Glynn et al., in preparation). As water becomes increasingly integrated into land use planning and the built environment attendant choices affect its management. Urban and environmental planners who are trained to balance public and private tradeoffs are progressively engaging in this critically important area of study (Cesaneck, Elmer and Graeff, 2017).

To understand whether and to what extent water management plans and/or planners influenced the water outcomes in these twenty case studies of socio-ecological systems and their water availability, we employed a three-step approach. First, we assessed each case study to determine whether water management plans (WMP) had been created and used at any (or multiple) point(s) in the course of case-study evolution. If so, we characterized the WMP typology, content (where available) and its genesis, as well as documented its effects and noted any issues that emerged in the process, compared to those case studies without WMPs. Second, using supporting literature for each case study, we identified the roles of the planners associated with those WMPs, if at all. Where present, we also noted the potential for/actual presence of participatory planning and narratives to address issues identified in the case study management process(s) and compared them with the participatory planning literature best practices (Bryson et al. 2013; Innes and Booher 2018). Finally, we documented the contextual setting that influenced the plans and planners' efficacy in the process, assessing the role of stakeholder engagement and public participation in water management and their efficacy.

With this triangulated approach, we were able to empirically examine the presence of planning in a formal water management process (e.g., the Rio Grande/Albuquerque, NM) to other kinds of WMPs (e.g., the Alto Maipo river basin plan) to determine whether the intended management outcomes were actually achieved and the intervening factors that supported or hindered them. If they didn't work, we documented the obstacles, including the influences of persistent actors, political will, exclusion/inclusion of critical groups in plan generation, planning knowledge or training, and planning process leadership. Where they did work, we examined the role of the planners in improving the outcomes of those plans, as well as the potential blinders even when planning was involved. Additionally, we examined the role(s) of planners in introducing narratives and in incorporating integral

but often overlooked or undervalued non-consumptive water uses that affected overall water management outcomes. Finally, we compared these planning roles with those proposed in the Dyckman and Paulsen (2012) water planning organization (WPO) model to determine whether these WPOs are organically manifesting. This assessment of the water governance and management knowledgebase offers novel and bridging perspectives on the role(s) of plans and planners as they increase their foray into coalescing the processes around water management, governance, and built form in exemplified areas of disruption, competition, and tradeoffs in social-ecological system needs and water availability and/or quality/condition concerns.

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Key Words: water governance, planning, case studies

Quantifying Wet-Heat Stress in Chinese Cities: Integrating UHI and UMI via Ensemble Learning

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Global climate change is intensifying urban wet-heat stress (WHS) by simultaneously elevating temperatures and humidity—phenomena largely driven by urban heat islands (UHI) and urban moisture islands (UMI) (Zhang et al., 2023). While UHI has been extensively explored, UMI remains under-investigated, and few studies have integrated both aspects. Given that urban built environments (UBE) critically shape these effects, it is essential to evaluate how various UBE characteristics influence WHS to inform effective urban planning (Liu et al., 2021).

In this study, we propose a novel, unified framework that concurrently quantifies UHI and UMI dynamics across 1,635 urban agglomerations in China during the summer months of 2020 (June to August). Utilizing high-resolution satellite data combined with an advanced ensemble learning approach—integrating the LightGBM model with the SHAP algorithm—we assess the contributions of three key UBE dimensions: physical morphology, natural characteristics, and development indicators. The resulting models achieved R-squared values exceeding 0.9, underscoring the robustness of our approach in capturing the complex interplay between UBE factors and WHS (Aggarwal et al., 2019).

The results reveal that approximately 28.9% of urban areas experience concurrent UHI and UMI stress, with these effects being more pronounced in warm climatic zones and in cities categorized as Super Cities (populations over 5 million). This study identifies five major insights into the UBE's role in WHS: (1) Urban greening alleviates WHS, particularly in larger cities, effectively lowering UHI without substantially raising UMI. This finding addresses concerns from previous studies that vegetation may increase air humidity through evapotranspiration, potentially exacerbating WHS and offsetting cooling benefits. (2) Both high building density (BD) and impervious surface ratios (IR) concurrently intensify UHI and UMI, indicating that controlling their upper thresholds is crucial for mitigating combined WHS. (3) Once building height (BH) exceeds 10–12 meters, improved urban ventilation reduces both UHI and UMI, with this effect growing stronger in larger cities. (4) High albedo surfaces, such as glass curtain walls, exacerbate WHS by reflecting and concentrating solar radiation in localized areas, particularly in large cities. (5) Urban development indicators, including Night-Time Lights and Population Density, significantly increase UHI while inhibiting UMI, with this impact intensifying as city size grows.

Based on these findings, we recommend urban planning strategies that promote innovative greening solutions—such as rooftop and vertical gardens—to maximize green coverage in space-limited environments. Additionally, optimizing building morphology by regulating density and impervious surfaces, adjusting building heights to improve ventilation, and carefully selecting materials to manage surface albedo can collectively mitigate the adverse impacts of WHS. Furthermore, sustainable urban development practices should balance economic growth with environmental resilience.

In conclusion, our integrated framework provides a comprehensive tool for understanding and mitigating urban wet-heat stress by simultaneously addressing UHI and UMI. This approach offers valuable guidance for policymakers seeking to enhance urban sustainability and resilience in the era of accelerating climate change.

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Key Words: Wet-heat stress, Urban heat island, Urban moisture island, Urban built environment, Ensemble learning

Receiving Communities in the Wake of COVID-19: Lessons from Rural Northeast Region

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Perhaps surprisingly, there is very limited literature on COVID-era US population mobility. In this study we use an innovative mixed-methods approach analyzing mobility in Northeast (NE) Region, exploring the COVID-era population movement trends in the region, the drivers that motivated locational choices of movers, and outcomes of rapid population influxes for receiving communities. We first analyzed Statistics of Income (SOI) data to spatially analyze the number of exemptions filing a tax return in a different county from the previous year—as a proxy of flow of people. Results revealed that the population changes were focused on just a few largely rural locations – 75% of newcomers who moved to top receiving communities originated from densely urbanized NE counties. Then, we conducted focus groups with 27 local housing experts in 22 rural counties of NE that received the highest relative numbers of in-movers between 2016-2020. Respondents believed key push factors included socioeconomic challenges faced in big cities, and technological and lifestyle-related changes catalyzed by COVID. Pull factors to these rural areas were housing affordability, amenities (e.g., natural amenities, physical and social infrastructure) as well as familial or friendship ties. The movements created significant challenges for the housing market and services, placing disproportionate pressure on socioeconomically disadvantaged groups in rural communities. While COVID was unusual, rapid-pulse population movement due to disasters is not, and lessons can be learned for the future. Planning can help receiving communities ameliorate challenges and achieve more just and sustainable outcomes of pulse movements driven by similar types of disasters, while also promoting the well-being of existing communities.

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Key Words: Migration, COVID-19, push and pull factors, receiving communities, pulse migration

Reconfiguring the Grid: A Socio-Technical Approach to Smart Microgrid Development in Chelsea, MA

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Infrastructure systems are often deemed invisible (Star 1999); however, as the new forms of distributed energy infrastructures populate urban and rural environments, what other, non-material transformations this new, more noticeable to the eye of urban residents, energy grid brings?

This project focuses on a particular type of distributed energy resource (DER): a smart renewable energy-based microgrid, which represents a localized solution for energy generation and distribution and plays a smaller role in the larger processes of energy transition than utility scale generation because of its smaller generation capacity. However, one of the key characteristics of infrastructure is the performativity of the technological choice that has intended and unintended consequences, including social and political ones (Winner 1980): for example, the decision of investing in a small-scale production and distribution system locks us into the inevitability of maintaining it in the near 30-40 years, being constantly incorporated into urban fabric and assumes the push towards further fragmentation of the grid and increased reliance of private and independent DERs (Coutard & Rutherford 2016, McCullough 2020). The islandability and adaptive capacity of the smart microgrid introduces the new set of challenges and implications for social and energy justice: with their deployment, the capacity to withstand the crisis becomes unevenly distributed, creating “pockets of resilience” for the loads that are deemed critical or for those who could afford the investment (Rutherford & Marvin 2023). Considering that it is common for a microgrid to have an anchor load that belongs to an institution, socioeconomic and political power imbalances may exacerbate the existing vulnerabilities (Gui et al. 2017).

In this project, I am interested in understanding how the project of the design and deployment of urban smart community microgrids can be transformed through the process of negotiation of different actors, their visions and their perceptions of the limitations and challenges (Latour 1992), and how the notion of “community” is reflected in the development of community microgrid. It is based on the case study of a virtual community microgrid in Chelsea, Massachusetts – a project that has been under development since 2016 and is still ongoing. As identified by McCullough (2020), local community microgrids are capable of shifting people’s expectations around energy, promoting values of self-sufficiency, sustainability, and increasing the interest in participation in energy production. Drawing on field site observations, qualitative analysis of project documents and legislature, and semi-structured interviews, I investigate Chelsea microgrid as a sociotechnical device, a configuration of particular political, economic, cultural, and material circumstances (Larkin 2013, Winther 2008, Nucho 2022). I explore its role in the process of increasing Chelsea’s resilience, both to power outages and in its economic, political, and social dimensions. This research contributes to the understudied phenomenon of the adoption of smart microgrids from a socio-technical perspective, sheds light on how microgrids are framed and perceived by the government, utility companies, and the communities and expands understanding of how the reconfiguration of energy infrastructure can inform collective imaginaries.

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Key Words: infrastructure planning, energy policy, renewable energy

Rethinking Justice: Power Dynamics and Alternative Approaches in River Landscape Management

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Rivers have historically shaped agrarian landscapes and urban settlements worldwide. As these landscapes face rapid urbanization, the conservation and restoration of riverine environments become increasingly critical. Recent trends indicate a shift toward alternative river protection and restoration approaches led by civil society organizations (CSOs) and grassroots networks (Boelens et al., 2022; O'Donnell & Talbot-Jones, 2018; Mallin, 2023). These approaches challenge traditional state-led strategies, which often impose uniform solutions that overlook local socio-ecological complexities. While alternative initiatives seek to restore ecological balance and support livelihoods, they may also produce unintended consequences. Additionally, interactions between state-led efforts and civil society interventions create a dynamic landscape of competing interests that can either reinforce or undermine conservation goals.

This research examines the role of CSOs and alternative practices in restoring the Ping River and the 700-year-old Muang-Fai irrigation system in Chiang Mai, Thailand. These water systems are vital to the region's ecological and cultural fabric, sustaining traditional agricultural practices and local livelihoods. However, environmental degradation and cultural shifts pose significant challenges. This study explores how grassroots actors develop innovative strategies to address these challenges while navigating broader power structures shaping river governance. A key research question guiding this study is: How have civil society organizations (CSOs) and other alternative practices envisioned and contributed to the protection or restoration of local culture, livelihood, and ecology of the Ping River?

The research contrasts state-led conservation strategies with community-driven initiatives, analyzing the power dynamics in alternative river management. While grassroots efforts tend to be more inclusive and context-sensitive, they may also lead to conflicts over resource access, shifts in livelihoods, and power struggles among stakeholders. Understanding these dynamics is crucial to evaluating the sustainability of grassroots conservation efforts.

Using qualitative methods, this study includes in-depth interviews between June 2024- April 2025 with CSOs, state actors, and farmers. Additionally, non-human entities, such as flora and fauna, are considered to assess broader ecological impacts. This multi-perspective approach provides a nuanced understanding of how alternative conservation practices influence river landscapes, social structures, and ecological health.

The theoretical framework integrates the concept of Rooted Water Collectives (Vos et al., 2020) with insights from critical feminist studies, bridging spatial planning, political ecology, and landscape ecology. This interdisciplinary approach offers a nuanced perspective on the social and political dimensions of ecological restoration.

Findings suggest that alternative approaches to river landscape protection and restoration in the Ping River basin remain largely human-centered and are often limited by the dominant discourses. While ecological restoration efforts exist, they are often shaped by human desires to control nature rather than allowing natural ecological processes to unfold. However, conservation strategies that integrate local ecological knowledge, traditional water management practices, and participatory governance appear to yield more socially and ecologically responsible outcomes.

By examining the role of CSOs and alternative approaches, this study highlights strategies that foster collaborative, inclusive, and context-sensitive environmental planning. These insights contribute to a broader understanding of environmental stewardship and planning in relation to broader landscape changes, offering pathways for navigating the complexities of river conservation in an era of rapid social-ecological transformation.

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Key Words: River Governance, Power Dynamics, Grassroots, Environmental Stewardship, River Landscape

Simulating Urban Green Space's Cooling Impact on Sleep Quality Using Diverse Planning Approaches

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The intensifying global warming, coupled with urban heat island phenomena, have brought a wide range of health issues related to humid heat exposure, particularly in densely populated urban areas of tropical and subtropical regions (Zhang et al., 2023). Our prior research has demonstrated that humid heat exposure significantly jeopardizes adolescents' sleep health, with air temperatures ranging from 25-30 °C causing a three to sixfold increase in the risk of various sleep disorders. These findings underscore the urgent need for planning interventions.

Urban Green Space (UGS) mitigates heat in surrounding areas through enhanced evaporation, provision of shade, and improved air circulation, which is demonstrated a crucial pathway to reduce urban humid heat in a recent global scale work (Yang et al., 2024). While several studies have examined specific UGS types and their cooling effects in relation to landscape features and neighboring land uses (Aram et al., 2019; Wu et al., 2025), few have assessed the cooling potential of UGS in conjunction with public health benefits or explored the spatial mismatches from a regional scale, hampering effective planning.

Our study utilized survey data from 124,390 adolescents across six cities in China's Greater Bay Area, alongside land use data (30m resolution) and monthly climate data (1km resolution). We applied a random forest method to develop an atmospheric temperature prediction model, incorporating land use, NDVI, and various climate indicators, achieving an average accuracy exceeding 0.95. We evaluated four distinct planning approaches for introducing new UGS: expanding existing large UGS, expanding existing small UGS, establishing new large UGS, and creating new small UGS. All proposed UGS were based on patches that were bare ground during the survey period, with their average NDVI values equal to the existing UGS. We integrated simulated scenarios with the temperature prediction model and linked these to a nonlinear regression model analyzing sleep disorder risks. Our findings indicated that adding approximately 2.3 square kilometers of new UGS significantly reduced the risk of sleep disorders for about 50% of the sampled adolescents. Expanding existing large UGS benefited the largest number of samples, while expanding existing small UGS yielded the lowest Gini coefficient for sleep disorder risks across all samples, indicating the most equitable outcomes. Establishing new small UGS had the least impact on cooling and health benefits, likely due to their location in suburban areas.

The four scenarios we analyzed highlight the common trade-offs between economic and social factors in urban planning. In China, the hierarchical breakdown of land use indicators at the provincial, municipal, and county levels serves as a widely utilized policy tool often accompanied by mandatory UGS requirements (Lin et al., 2023). Selecting small, low-value bare land patches to meet these requirements is cost-effective and minimizes social issues; however, it may lead to inefficient resource use considering climate and public health benefits. Conversely, expanding existing large UGS in city centers incurs high development costs due to premium land values, presenting potential challenges. As public health and its equity in the planning and development of UGS has often been neglected in past practices, it is essential to prioritize these factors to attain more effective and sustainable outcomes.

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Key Words: Heat Exposure, Urban Green Space, Sleep Disorder, Cooling Effect, Social Equity

Social Cohesion and Place Attachment in Wildfire and Flood Mitigation in Southern California's WUI

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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As climate change intensifies the frequency and severity of wildfires and floods, understanding the social factors that influence mitigation behavior is increasingly critical for planning and disaster resilience. This research examines the role of social cohesion and place attachment in shaping residents' engagement with wildfire and flood mitigation efforts in the Wildland-Urban Interface (WUI) of Southern California. Given that community-focused mitigation strategies rely on collective action, this study seeks to answer the following research questions: How do social cohesion and place attachment influence individual and collective mitigation behaviors for wildfire and flood risks and what socio-demographic and structural factors mediate the relationship between social cohesion, place attachment, and mitigation behavior?

To address these questions, this study employs a structural equation model using a survey of over 500 residents of WUI communities in Southern California. The dataset includes key variables such as homeownership status, length of residence, vegetation density, social cohesion, and place attachment scores. The model examines the relationship between these factors and self-reported mitigation actions, including structural measures, defensible space creation, and participation in community-wide disaster preparedness initiatives. Findings indicate a significant positive association between social cohesion, place attachment, and mitigation behavior. Specifically, social cohesion is strongly correlated with wildfire mitigation behavior and moderately correlated with flood mitigation efforts. Similarly, place attachment is positively associated with both wildfire and flood mitigation behaviors. Notably, homeownership status is positively associated with wildfire mitigation actions, though not significant for floods.

These findings have important implications for planning scholarship and practice. First, they underscore the need for community-focused mitigation planning that leverages existing social networks and neighborhood cohesion to promote resilience. Programs that enhance social capital—such as neighborhood fire-safe councils, community flood preparedness groups, and participatory risk communication strategies—could significantly improve risk mitigation efforts. Second, the differential effects observed between wildfire and flood contexts highlight the importance of place-specific strategies in resilience planning. Wildfire mitigation appears to benefit more from community cohesion, while flood mitigation behaviors may be shaped by additional structural or policy-driven factors. For planning education, these findings contribute to the growing discourse on social dimensions of hazard mitigation by providing empirical evidence on the role of social cohesion and place attachment in disaster preparedness.

In conclusion, this study emphasizes that building resilient communities requires more than physical infrastructure—it necessitates fostering social connections, strengthening residents' attachment to place, and leveraging these ties for collective action. By recognizing and integrating social cohesion and place attachment into risk reduction strategies, planners can enhance both individual and community-level disaster preparedness, ultimately mitigating the impacts of climate-driven hazards in the WUI.

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Key Words: Community Resilience, Place Attachement, Wildfire Mitigation, Flood mitigation, Social Cohesion

Socially Just Green Stormwater Infrastructure Solutions for Urban Flood Risk Management?

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The growing frequency of extreme storm events has prompted more U.S. cities to adopt small-scale, onsite Green Stormwater Infrastructure (GSI) to mitigate localized flooding. As a result, regional GSI plans have been widely shared and adopted among municipalities (Axelsson et al., 2021). Importantly, flood exposure is unevenly distributed—it disproportionately affects socially vulnerable populations (Cutter et al., 2013). Prioritizing GSI allocation to “high flood-risk areas”—where high flood exposure intersects with high social vulnerability—is therefore essential for socially just flood risk management (Chakraborty et al., 2023). This underscores the urgent need to assess how effectively implemented GSI plans direct resources to areas with greater flood mitigation needs (Matsler et al., 2021).

This research uses Milwaukee, Wisconsin, as a case study, given its leadership in GSI implementation, substantial socially vulnerable population, and influence on GSI policy development in other municipalities (Hopkins et al., 2018). It examines whether Milwaukee’s formal GSI plans (2014–2024) prioritized resource allocation to high flood-risk areas, compared to the earlier period (2004–2013) when no formal plan was in place. Specifically, it analyzes whether census block groups (CBGs) with higher flood risk were more likely to receive GSI investments during each period.

The analyses compare two definitions of flood risk (FR): an integrated index combining flood exposure and social vulnerability, and the city’s official definition. Flood exposure is proxied using wet basement records from storms exceeding the 10-year return period (2008–2010), while social vulnerability is measured using the CDC’s Social Vulnerability Index (SVI). The city-defined FR is represented by a composite score based on five weighted factors outlined in Milwaukee’s GSI plans, which do not incorporate SVI. Three additional control variables from the same plans are included: a GSI Implementation Opportunity Index (based on 13 weighted factors), a Water Quality Control Priority Index, and a GSI Implementation Feasibility Index. All variables are measured at the CBG level, except SVI, which is at the census tract level.

Given the limited GSI implementation prior to 2013, Binary Logistic Regression is first used to examine the association between FR and the presence of GSI (binary) across all CBGs. Ordinary Least Squares (OLS) regression is then applied to the subset of CBGs with implemented GSI to assess the association between FR and GSI storage volume (continuous). Hierarchical Linear Models (HLM) are used to assess the influence of spatial hierarchy on model outcomes. SVI scores are averaged separately for the pre- and post-2013 periods to account for changes in the index’s composition. All models include a time dummy variable and interaction terms between the post-2013 period and key independent variables to assess whether the effects of FR and other factors on GSI outcomes changed following the adoption of formal plans. Factor analysis is conducted to generate data-driven weights for comparison with the city-defined weighting scheme.

Regression results indicate that the GSI Opportunity Index remains a significant predictor of GSI distribution ($p < 0.05$) across all models in both periods. Prior to 2013, flood exposure is negatively associated with both the presence and storage volume of GSI ($p < 0.05$). After the adoption of formal plans, its association with storage volume becomes positive ($p < 0.05$), while the negative association with GSI presence persists ($p < 0.05$). Notably, the interaction between SVI and flood exposure in the post-2013 period yields a negative coefficient ($p < 0.05$) in

both OLS and HLM models, suggesting that the GSI plans and policies may have unintentionally reinforced inequities in flood risk management.

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Key Words: GSI, Flooding, Equity

The Impact of Multi-Level Funding Structures on Flood Relocation Programs in the U.S. Mid-Atlantic

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The limited number of climate-induced planned relocation programs that have occurred in the U.S. have largely been tackled through government-funded home buyout and acquisition strategies (Siders & Gerber-Chavez, 2021). Of particular importance is ensuring more distributive, procedural, and other forms of environmental justice – especially given that current data suggest unevenness in both access to and outcomes from such programs. Evidence consistently shows that relocation programs have suffered from long wait times, complex and uncoordinated multi-level governance processes, inadequate federal funding, lack of transparency, and insufficient monitoring and evaluation, among other concerns (CRS, 2024; Siders & Gerber-Chavez, 2021; Weber & Moore, 2019).

A 2024 Congressional Research Service report’s list of recommended improvements includes: dedicated funding for buyouts, pre-approval of buyouts before disasters, and ensuring affordable housing. Siders & Gerber-Chavez (2021) also recommend state programs that maximize stable, local funding – as opposed to sporadic funding via federal disaster appropriations. Despite these recognized needs, there has been little research on the funding mechanisms utilized by existing relocation programs. Many programs, in fact, incorporate multiple funding streams – due in large part to the fact that there is no one federal program or grant structure that oversees buyout implementation at the state or local level.

In this research project, I take a bottom-up approach to addressing the knowledge gap of how relocation programs are funded and how these funding structures impact equity-based planning and outcomes. First, I conducted detailed archival and interview data analysis on New Jersey’s multi-decadal, state-run buyout program, Blue Acres. I document how each state/federal pot that provides money to Blue Acres has its own stipulations for: appraising the fair-market value of a property, determining which properties are prioritized as high flood risk, which homeowners are considered vulnerable or disadvantaged, what is done with the land after a purchase, and so on. Municipal land use laws and local relocation incentives add to the complexity of the Blue Acres program’s structure, all in all creating a dizzying range of possibilities even within a singular program.

Second, I compare these results in NJ to parallel data collected from other programs in the Mid-Atlantic urban corridor: two post-Hurricane Sandy programs that have since ended (New York City’s Build It Back and New York State’s NY Rising) and four programs currently in design (Rainproof NYC “flood mobility”; NYS Blue Buffers buyout program; a secondary NYS managed retreat initiative; and Philadelphia’s to-be-named flood relocation initiative). As with NJ Blue Acres, these other programs draw on heterogenous funding sources that intersect with federal, state, and municipal policy. I compare these programs’ eligibility criteria, use of social vulnerability indicators, and definitions of climate and environmental justice communities.

Finally, I offer recommendations for improved urban relocation policies in the coming years – such as increasing community-driven planning, engaging with private-sector voluntary consensus standards, experimenting with innovative funding opportunities. Finally, I discuss ways in which these case study buyout programs, and the funding sources that they rely on, are resilient and ways in which they are vulnerable to targeted assaults under the current federal administration.

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Key Words: Relocation, Buyouts, Equity, Flooding, Climate

The Lahaina Wildfire: A Case Study in Polycrises and the Struggle Against Colonial Water Legacies

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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A budding scholarship on climate “whiplash”—referring to the massive interannual swings in climate events—is predicting greater frequency and intensity of these types of events, especially with regard to precipitation (Chen et al., 2022). Climate whiplash has additionally been linked to an increase in disaster events, such as wildfire recurrence (Homann et al., 2022). At the interface of the built and natural environment, cities and their infrastructures are grappling with compound crises driven and amplified by these devastating climate swings. Crisis events that are simultaneous but intricately linked, amplifying vulnerabilities through complex feedback loops have been referred to as “polycrises” (Lawrence et al., 2024). These types of crises span spatial, temporal, and institutional boundaries, challenging systems of governance and efforts towards better and just management. Nonlinear feedback loops introduce uncertainties, where actions taken to address one crisis may inadvertently exacerbate others.

The Lahaina wildfire of August 8, 2023, vividly exemplifies cascading risks and their compounding effects. While several synchronous system, management, and response failures led to complete devastation and destruction of the town within the span of a day, a broader time perspective reveals a long-standing struggle for indigenous Hawaiian land and water rights in legacy settler colonial water systems (Apoliona-Brown, 2025). This was further revealed through a debate over water management that was carried out through national media outlets following the Lahaina wildfire.

In this paper, we analyze two aspects of the Lahaina wildfire. First, we use the polycrisis framework (Lawrence et al., 2024) to analyze the events that fueled the devastation of the town of Lahaina. We situate this in the anticolonial management literature (Martinez et al., 2023) for a deeper understanding of the environmental justice aspects of this crisis event. Second, we consider how the discourse surrounding water management during and after the fire quickly became polarized and threatened decades of collaborative water management efforts. Findings from a Q-method study conducted shortly after the Lahaina fire add empirical evidence of this. We liken this to ‘public discourse whiplash,’ where crises lead to a resurgence of modernist thinking (e.g., singular and centralized engineering solutions, top-down management) rooted in a nostalgia for “what used to work.” The fallacy in this thinking lies in misplacing nostalgia in outdated water management strategies, rather than in the more stable climate regimes on which those strategies were originally based.

The Lahaina wildfire underscores the importance of systemic adaptation planning and strategies to address interconnected risks; it also highlights the role and vulnerability of environmental justice in catastrophic events and the need to resist backsliding into old management regimes.

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Key Words: wildfire, environmental justice, anticolonial management, Indigenous water right, Indigenous land right

The Nature of Dispossession: Private Trees, Public Policy, and Environmental Injustice

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Urban canopy is widely promoted as an unquestioned environmental good in cities, touted for providing benefits ranging from improved air quality, stormwater management, and mitigation of heat (McPherson et al. 2005) to decreases in crime and increases in property values (Kuo and Sullivan 2001, Donovan et al. 2021). Yet urban trees can also be experienced as an environmental burden, imposing maintenance costs and threatening damage to private property (Carmichael & McDonough, 2019). Here, through a case study of tree pest management from Minneapolis, MN, we explore this dual nature of urban canopy as both environmental good and burden, the ways those benefits and burdens intersect with notions of public and private realm, and the role of individual socioeconomic status and public policy in mediating the experience of goods and burdens.

We examine the impact of policies public officials implemented to manage the spread of the invasive pest emerald ash borer (EAB) to better understand the environmental justice implications of policies for managing urban nature. Drawing on qualitative interviews, document review, and spatial mapping, we evaluate EAB management approaches that aimed to protect the health of the urban canopy. We consider how racial and class inequalities shaped the development, implementation, and impact of these policies. In particular, we consider the use of an ordinance authorizing the condemnation of infested trees on private property to prevent further spread of the pest. Through this policy, the city's forestry department required the removal of thousands of private ash trees, with homeowners responsible for the cost of removal. Such costs can range from a few hundred to several thousand dollars per tree, resulting in substantial financial burdens for low-income homeowners or those living on a fixed-income. When homeowners cannot afford to pay the fees upfront, they become liens on the property, creating a new risk of tax delinquency and potential property loss through tax forfeiture. Public officials framed the tree condemnation as providing a service to residents; they reasoned that removing infested ash trees prevented safety hazards and the assessment process offered the option of spreading the cost out over multiple years. Further, citing the decades-long practice of condemning private trees for Dutch elm's disease, public officials were caught off guard by the intensity of community pushback that erupted in 2022 over the growing financial burden of ash tree condemnations. In contrast, this policy was experienced by low-income residents as an undue burden, a violation of private property rights, and an undermining of their access to the environmental benefits provided by trees. Eventually, in response to sustained community pressure, public officials secured federal and private philanthropic funding for programs to assist some homeowners with the cost of tree removals. However, for many residents the assistance came too late. Furthermore, it's unclear how many private ash trees remain in the urban canopy.

Although "race-neutral" in its design, we show the disproportionate financial and environmental impact of this policy on low-income communities and communities of color, resulting in the extraction of wealth from one of the city's most disadvantaged neighborhoods and the deepening of disparities in access to tree canopy and associated benefits. This case of forced tree removal demonstrates how—in the context of stark and racialized inequalities in wealth and the environment—managing urban nature through the administration of fees, costs, and fines linked to property rights, can undermine individual access to homeownership, and introduce a new vulnerability to

dispossession, and exacerbate inequalities in the benefits of urban nature. This work informs broader conversations about how we design policies to manage urban nature that advance more just and sustainable urban futures.

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Key Words: environmental justice, tree canopy, urban forestry, invasive species, political ecology

The Uneven Emotion of Green: A Multi-Scalar Analysis of Urban Park Sentiment in Detroit

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Urban parks constitute an integral component of the urban fabric, contributing not only to the aesthetic, ecological, and economic dimensions of the city, but also functioning as essential social infrastructures that foster community interaction and cohesion (Mullenbach, 2022). Beyond availability and accessibility, the vibrancy of these spaces, particularly how people perceive and emotionally respond to them, constitutes an essential dimension of urban placemaking (Huai & Van de Voorde, 2022). In shrinking cities like Detroit, long-term disinvestment and neighborhood transformation have led to uneven patterns of park use and satisfaction (Park et al., 2024). Observed disparities in both visitation and sentiment across parks and time raise critical concerns about spatial justice in urban green space (Kong et al., 2022; Liang & Zhang, 2021). Grounded in this context, the study seeks to answer the following research questions: (1) Which built environment features and activities contribute to positive or negative sentiment in urban parks, and how do these associations vary across parks with different seasonal and intra-day visitation profiles? (2) How does neighborhood context moderate the relationship between built environment features/activities and public sentiment?

This study integrated monthly mobility data from Advan and user-generated Google reviews for over 100 neighborhood parks in Detroit between 2021 and 2023. First, clustering techniques (e.g., dynamic time warping) were used to identify temporal usage types based on seasonal and intra-day visitation trends. User sentiment was quantified using natural language processing, producing a continuous sentiment score for each review. Built environment features and user-reported activities were extracted from the reviews and coded as binary indicators. A linear mixed effects model was employed to estimate how these features predict sentiment, controlling for unobserved heterogeneity at the park and monthly levels. This study further stratified the analysis by visitation type to assess temporal variation through subgroup regressions. A random forest model was used as a robustness check to capture potential non-linear and interactive effects. Finally, interaction terms were included to evaluate how neighborhood context moderates the impact of built environment features on user sentiment.

Preliminary findings suggest that features such as cleanliness, lighting, and playground facilities are significantly associated with higher sentiment scores, while mentions of safety concerns, poor maintenance, or lack of programming predict lower scores. The strength of these associations varies across park types. Neighborhood-level factors, including socioeconomic distress and land use diversity, moderate these effects: in distressed areas, basic infrastructure has a stronger influence on sentiment, whereas in gentrifying neighborhoods, aesthetic and cultural elements matter more.

This study advances an integrative, data-driven approach to understanding public perceptions of urban parks under conditions of urban decline. By combining mobility data and sentiment analysis within a robust modeling framework, it highlights how spatial and temporal disparities in park experience reflect broader social inequities. The findings provide actionable insights for planners aiming to prioritize equitable investment and responsive design strategies in neighborhood green spaces, especially in cities facing demographic and structural transitions.

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Key Words: Urban park sentiment, User-generated data, Landscape perceptions, Spatio-temporal analysis, Mixed effects modeling

The Vertical Premium: Relationship between Relative Height from Flood Elevation and Housing Prices

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Background: Flooding is one of the most common natural disasters globally. Despite continuous efforts by Canadian and local administrators' efforts to mitigate flood hazards and regulate development within floodplains, the historic trend of catastrophic losses has increased. Notably, the fiscal toll of severe weather events in Canada reached \$2.1 billion CAD in 2021 (IBC 2022). This increase in flood damage was caused by a combination of factors, including extreme precipitation and rising development, alongside escalating asset prices within flood-prone areas (ECCC 2019). The estimated Canadian population residing within 100-year floodplains is approximately 9% (equivalent to 3.31 million people), and this flood-prone population rate is expected to increase due to the influx of population into flood-prone zones (Andreadis et al. 2022).

Previous studies on housing prices near flood-prone areas were conducted by assessing floodplains or proximity to flood risks (Zhang & Leonard, 2019), or by analyzing direct property elevation (Mckinzie & Levendis, 2010). While distance-based assessments may be suitable in areas where land elevation gradually increases with distance, such an approach may not universally apply to all flood-prone regions. Additionally, direct elevation does not fully capture flood risks, as base flood elevations may not be uniform. This study uniquely employs the relative height between a property's elevation and the real flood elevation of the 2013 flood in Calgary, allowing it to accurately depict flood risk in terms of height compared to the absolute ground elevation or the base flood elevation derived from the 100-year floodplain. This study aims to investigate the relationship between relative height and housing prices in flood-prone areas, especially those adjacent to rivers, and assess whether these relationships remain consistent across various distance intervals from the rivers. Our research questions are as follows: 1) To what extent does relative height influence housing prices?, 2) How does the effect of relative height change following a flood event?, and 3) How do variations in distance impact the relationship between relative elevation and housing prices?

Methods: The unit of analysis for this study is single-family residential property sales transactions. We used the hedonic pricing model, including structural, transportation accessibility, location, and neighborhood characteristics. The sales transaction data encompasses a total of six years of transactions, including the three years before and after the 2013 flood event in Calgary. Our study focuses on single-family properties in the riverine areas, located within 1,600 meters of major rivers, namely the Bow and Elbow rivers, which are directly associated with the flood event. Accordingly, our study sample includes 24,488 single-family houses.

Results: Our findings indicate that relative height significantly positively affects property values both pre- and post-flood. Within 200-meter intervals from the rivers, we observe that the impact of relative height intensifies closer to the rivers but diminishes with distance. Specifically, we found a housing value increase ranging from 4.7% before the flood to 6.9%, or from \$28,752 to \$44,608 at the mean, after the flood for every 10-meter increase in height within 200 meters from the rivers. Beyond 200 meters from the rivers, the effect stabilizes while remaining statistically significant up to 1,200 meters. These patterns suggest increased buyer awareness of flood risk following the flood event. Overall, the findings demonstrate that prospective buyers recognize flood risks in riverine areas and are willing to pay a premium for properties at higher elevations.

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Key Words: Relative height, Elevation, Hedonic model, Housing price

Towards integrated Climate Equity: Interpretable Machine Learning for Urban Flood Risk Assessment

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Track 4: Environmental Planning & Resource Development

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With the growing frequency and intensity of extreme rainfall events, urban flooding has emerged as a serious challenge for high-density cities. However, most existing studies have primarily focused on the physical causes and environmental aspects of urban flooding, often overlooking the complex interplay of socioeconomic conditions, land use patterns, and spatial planning that shape risk exposure and unequal allocation of safety resources.

This study focuses on the Guangdong–Hong Kong–Macao Greater Bay Area (GBA), systematically evaluating flood risk and the spatial imbalance in the allocation of safety resources through a multidimensional assessment framework grounded in the “Hazard–Exposure–Vulnerability” (HEV) paradigm. The Dagum Gini coefficient and Lorenz curves are used to quantitatively assess spatial inequities in flood protection resources, enabling an in-depth examination of the severity of resource mismatch and its underlying driving mechanisms. Building upon this, a high-precision, multi-level flood risk prediction model is developed using a Bayesian-optimized LightGBM algorithm. Shapley Additive Explanations (SHAP) are applied to interpret the contributions and interactions of key flood-inducing variables.

The main findings of the study are as follows: (1) The Bayesian-optimized LightGBM model outperforms traditional methods in both predictive accuracy and generalization ability, effectively identifying high-risk areas with significantly lower error rates. (2) A clear coastal-to-inland decreasing gradient in flood risk is observed, with high-risk areas predominantly concentrated in densely populated urban clusters and river-intensive regions. (3) The distribution of safety resources lags behind actual flood risk patterns, and issues such as fragmented urban planning and isolated infrastructure in newly developed areas exacerbate resource inequality and undermine overall flood resilience. (4) The mechanisms driving flood risk show dynamic shifts, with primary contributing factors transitioning from topographic and physical variables at lower risk levels to hydrological and ecological factors as risk levels increase. (5) Impervious surface proportion (ISP) and fractional vegetation cover (FVC) are identified as key determinants of overall flood risk, while soil water retention (SWR) emerges as the dominant factor in high-risk areas.

By innovatively integrating flood risk assessment with spatial equity analysis, this study moves beyond the conventional hazard-centric approach, uncovering the deep-rooted structural inequalities among risk, resources, and spatial governance. The findings offer valuable insights and practical guidance for advancing climate-adaptive planning and equity-oriented policy development in high-density urban environments.

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Key Words: Urban flooding, Risk assessment framework, Machine learning, Spatial Inequality, Adaption strategy

Tracing the Spatial-Temporal Transformation of Environmental Injustice in São Paulo, Brazil

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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In this paper, I uncover how the spatial distribution of environmental injustices have changed over the last 40 years in São Paulo. The city, one of the largest in the world, is a key site for studying Environmental Justice (EJ) in the Global South. Similar to the rest of Brazil, São Paulo is defined by segregation and exclusion, which often puts racialized groups in areas of environmental hazards, primarily floods and landslides (Maricato & Colosso, 2021). Environmental injustices in the city are associated with a combination of the longstanding practices of altering waterways and residential/racial segregation. Over the decades, the city and the state of São Paulo have undertaken multiple projects to control the city's rivers, leading to their degradation and an increase in flood events (Bartalini, 2014). Decades of housing segregation have pushed many low-income, mainly Black or Brown, people into informal settlements in areas of floodplains or landslide-prone hills (Maricato & Colosso, 2021). Because of this history, EJ in the city is intrinsically connected to housing issues. Although policies that aim to tackle the problem have existed since the 1960s, little progress has been made (Maricato & Colosso, 2021). At the time of this research's development, there are no known studies that mapped the recent history of socio-spatial changes across São Paulo.

To understand the changes in environmental injustices in relation to informal housing, I compare demographic changes in the city from the past four national censuses (1991, 2000, 2010, 2022) at the census tract level. I also use historic aerial imagery to trace changes in the urban occupation across the years. This timeframe was selected to coincide with the period of democratic government in Brazil, since the current constitution was enacted in 1988. This spatial analysis will be a tool to analyse the impact of policies on the city's development. My research engages with theories of EJ which suggest that injustices are historically (re)produced through state practices (Horowitz, 2020) and with governance theories, which admit that power is not centralized in the state (Ansell & Torfing, 2022), showing "... how different actors, jurisdictions, levels and institutional arenas interact to exchange knowledge and ideas, coordinate action and collaborate in making authoritative decisions that produce collective outcomes." (Ansell & Torfing, 2022, p.1).

Research in the Global North that has traced the historic evolution of EJ in different cities largely focuses on state actions (Horowitz, 2020). However, in the Global South, urban informality is both an epistemology and a mode of urbanization, practiced both by the rich and poor and facilitated by the state (Roy, 2016). The governance processes that lead to environmental injustices in the Global South are different in the Global North, however, little is known about this process. Emerging approaches to environmental justice research in the Global South often establish a binary relationship between informality and the state, with the state being the main actor keeping informal housing in areas of environmental risk. My approach encourages a more nuanced understanding of how environmental injustices are produced and maintained in the Global South. Identifying spatial changes is the first step into assessing if policies are being effective and what other non-state forces are influencing spatial changes. This way, this research advances EJ frameworks by including other governance aspects beyond state practices. Preliminary results show vulnerability moving outside of city limits, raising the possibility of policies effectively reinforcing spatial segregation.

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Key Words: Environmental justice, Global South, Informal housing, Spatial Analysis, Governance

Tracking the Impacts of Urban Expansion on Heat Intensity: A Longitudinal Analysis Across the US

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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As urbanization accelerates, the urban heat island (UHI) effect has become increasingly severe worldwide (Zhang et al., 2024). This phenomenon leads to higher energy demands in buildings, greater carbon emissions, and serious health risks for urban populations, e.g., a total of more than 14,000 Americans have died directly from heat-related causes since 1980 (He et al., 2020; Yang et al., 2020). Existing research has explored how urban morphology, human activities, and building design contribute to UHI formation (Lopes et al., 2025).

However, there exists little evidence on the spatiotemporal effects of urban expansion patterns on changes in air temperature over time. An overdue yet unanswered question is whether and to what extent different patterns of new developments (infill development vs. suburbanization) affect the increase in air temperature in urban sections of metropolitan areas over time.

This study employs a longitudinal approach to examine the impacts of urban expansion patterns on heat intensity (measured as changes in high-resolution surface temperature) between 2010 and 2020 across 350 MSAs in the U.S. Our unit of analysis is the high-resolution Local Climate Zones (LCZs) within MSAs developed by Qi et al. (2024) which classifies built-up urban areas into 10 classes from compact high-rise to sparsely built and heavy industry. Changes in Urban expansion is measured using changes in total business and housing unit data across the first ten LCZ classes, including compact built-up areas (LCZ 1–3), open built-up areas (LCZ 4–6), lightweight low-rise (LCZ 7), large low-rise (LCZ 8), sparsely built (LCZ 9), and heavy industry (LCZ 10), capturing the growth of built-up areas within MSAs.

This study aims to address the following questions: (i) How has urban expansion patterns evolved from 2010 to 2020 across different urban classes? (ii) To what extent does urban expansion occur in compact, open, and low-density areas? (iii) How is the change in urban expansion in different urban classes affect changes in urban heat intensity between 2010 and 2020?

The results indicate that most urban expansion occurred in open and sparsely built-up areas, reflecting an increase in suburbanization rather than infill development. Additionally, MSAs with new developments in low-density urban classes (LCZ 6–10) experienced a greater increase in per capita temperature between 2010 and 2020.

The findings of this study have significant implications for urban planning and climate adaptation strategies. The observed trends of urban expansion occurring primarily in open and sparsely built areas suggests a shift towards urban sprawl rather than compact, infill development. This pattern contributes to greater land consumption, increased car dependency, and higher per capita temperature rise, particularly in MSAs where low-density urban classes (LCZ 6–10) have expanded the most. These insights highlight the need for policies that promote sustainable urban growth, such as densification and green infrastructure integration, to mitigate the adverse effects of urban heat islands and enhance climate resilience in rapidly growing metropolitan areas.

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Key Words: Heat island intensity, local climate zone, urban form, new employment, housing units

Transforming Local Energy Policies with AI-Driven Solutions

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Track 4: Environmental Planning & Resource Development

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In the age of AI-driven solutions, a transformative opportunity to improve climate adaptation and energy security policies appears within hyperlocal geographical locations, such as our test case with Tribal Nations in Oklahoma. Tribal communities face complex climate challenges, such as extreme weather events, water shortages and agricultural shifts (Whyte 2013). At the same time, they are under-resourced communities that can be revitalized if barriers such as regulatory complexities, funding limitations and equity disparities can be mitigated. Our research proposes an AI-driven geographical analysis approach to policy planning that can improve regulatory equity for tribal communities.

One of the greatest challenges in creating equitable regulations for tribal communities is a lack of understanding of the cultural and land-based nuances that policymakers must account for when developing policies for these communities (Schelly et al. 2020). AI can streamline this process to make information more accessible for both policymakers and community leaders to improve their understanding of one another. Developing these digital tools by automating extensive policy documents across tribal, state and federal levels can consolidate relevant works for stakeholders to improve the policy design process. Alignment with tribal sovereignty, historical effects of similar policies, economic growth and cultural preservation can be extracted as key insights to deliver these results. AI-driven Geographic Information Systems (GeoAI) and predictive analytics can enable us to visualize climate risks (Rawat et al 2024) and tribal energy potential (Kausika et al. 2021); for example, the use of satellite imagery with vision-based deep-learning models and machine learning models can assess land suitability for solar and wind energy projects while factoring local sentiments, fair access to the resources, economic disparities, land availability, cultural significance and more.

This work aims to introduce tools to democratize the decision-making process through available data and modeling processes. AI-powered governance tools allow tribal communities to engage the policy-making process by providing real-time feedback and determining alignment with local sentiments concerning land preservation, land priorities and local uses of their space. By the integration of AI-driven sentiment analysis and predictive modeling, policymakers can use insights to address equity-related concerns and ensure fair use of tribal resources. Moreover, reinforcement learning algorithms can optimize energy solutions by simulating policy scenarios; these simulations assess the impacts of various energy incentives (mainly renewable), funding mechanisms and policy adjustments, providing data-driven recommendations for improved policy design. AI can even automate grant application processes to connect tribal communities with appropriate funding sources, thus reducing bureaucratic obstacles to sustainable energy access.

This research thus aims to bridge the gap between policy innovation and responsible AI-powered recommendations to empower tribal communities with community-centric energy strategies that are sustainable and can be beneficial for all members of the communities. Furthermore, the proposed framework is designed to be adaptable, allowing its application to other territories, local communities, and regions seeking to integrate AI-driven insights into their energy policies. By tailoring the model to specific cultural, environmental, and economic contexts, this approach can foster resilience and sustainability in diverse energy ecosystems.

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Key Words: AI-Driven Policy Planning, Energy Planning, Renewable Energy Equity, GeoAI

Uncovering Spatial Disparities to Reduce Flood Risks for Mobile Home Parks in Nebraska

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Mobile homes provide an essential yet highly vulnerable source of unsubsidized affordable housing in the United States, particularly in rural areas. This study examines the spatial distribution and flood risk exposure of Mobile Home Parks (MHPs) in eastern Nebraska after their 2019's historical flood disaster event using high-resolution building footprint data and FEMA flood maps to assess disparities in flood vulnerability and inform resilience planning. A structure-level analysis and network assessment highlight substantial differences in vulnerability profiles. Rural Dodge County exhibits the highest risk, with half of its MHP units located in high-risk flood zones and lacking levee protection. In contrast, urban Douglas County has lower exposure, and suburban Sarpy County has no exposure. Network analysis shows that parks with higher flood exposure often have lower connectivity indices, compounding evacuation challenges. Despite these risks, Dodge County experienced steady MHP growth from 2018 to 2024, outpacing both Douglas and Sarpy counties. These patterns underscore how infrastructure investments and governance approaches vary across jurisdictions, influencing flood resilience. The 2019 floods further emphasized these disparities: Douglas County's robust levee system successfully protected MHPs, whereas Sarpy County experienced levee failures that led to localized damage. Dodge County, lacking comparable flood protection, suffered severe inundation. These findings illustrate how disparities in infrastructure investment, regulatory frameworks, and socioeconomic conditions shape MHP flood vulnerability, necessitating targeted policy interventions.

Findings reveal significant variations in flood risk exposure based on geographic context. Rural MHPs face disproportionately high exposure to FEMA-designated high-risk flood zones, while urban and suburban MHPs experience lower levels of risk despite their proximity to flood-prone areas. Preliminary analysis indicates a positive correlation between MHP growth and flood zone exposure, suggesting that high-risk areas are seeing increased park development. Additionally, variations in park characteristics—such as size, density, and connectivity—further influence flood vulnerability.

This study underscores the urgent need for flood resilience planning to mitigate disproportionate risks faced by MHP residents, particularly in rural areas. By employing structure-level analysis, this research offers a more precise understanding of flood vulnerability than traditional parcel- or census block-level approaches. Insights from this study can help policymakers, urban planners, and disaster management professionals develop more effective flood mitigation strategies to enhance community resilience among MHP residents.

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Key Words: mobile home parks, flood risk, spatial disparities, community resilience, Nebraska

Understanding Community Preferences for Improved Energy Resilience

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Track 4: Environmental Planning & Resource Development

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Though it is easy to imagine that municipal utilities and related infrastructure providers consider community interests when making capital investments to improve resilience, the reality is that utilities often lack basic information about community preferences. This paper presents research designed to provide electric utilities with community preferences for facilities of interest for continued operation during power outages.

From June to October 2024, a team from the University of Washington Urban Infrastructure Lab and the University at Buffalo carried out research on this question in the city of Seattle. The research, conducted in partnership with municipally-owned Seattle City Light, consisted of a household survey (n = 117) and three focus group sessions with survey respondents conducted in economically disadvantaged areas of the city. Focus group sessions gave survey respondents the opportunity to discuss the reasoning behind choices made in the survey and, employing a modified Delphi method, to distill community preferences down to top ranked choices, reaching consensus regarding suggested capital investments for the utility.

Conducted across six neighborhoods (8 census tracts) in the city, this community-engaged research revealed household-level needs, preferences, and particular sensitivities during power outage. Survey results highlight facilities that residents use every day (blue sky events) and those that would be critical to remain open during power outages (black sky events). Locations featuring bundled services such as grocery stores, gas stations, and pharmacies clustered in proximity to one another were highly frequented by respondents. During black-sky events, residential homes were identified as important service-providing locations, particularly for meeting needs that many public locations lack (e.g., cooking, charging, washing). Respondents also preferred these locations for their safety, comfort, and familiarity.

A subset of households frequent services critical to health, such as dialysis centers, doctors' offices, and food banks, on a daily or weekly basis. This population was more likely to visit all points of interest more frequently than the rest of the responding households. Dependence on dialysis centers, importantly, was entirely within the non-white population. Notably, research results emphasized facilities that were not already slated for or provisioned with renewable or back-up power systems, either due to being classified as government-owned or qualification as critical infrastructure (e.g., community centers and hospitals).

Results show that the process of community-engaged electric utility planning can be leveraged to help address inequities and reduce the social impacts of future power outages. This research was part of a larger project supported by the National Renewable Energy Laboratory (NREL), funded by the US Department of Energy, and

conducted in partnership with Electric Power Research Institute (EPRI) to integrate the outcomes of community-engaged research into the analytic metrics of utility planning.

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Key Words: resilience, energy, community, sustainability, infrastructure

Uneven Burdens of Heat: Health Disparities and Planning Implications across Urban and Rural Texas

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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As climate change accelerates, extreme heat events pose a growing public health challenge—one that is often unevenly distributed across communities. This study examines spatial disparities in heat-related emergency department (ED) visits across urban and rural areas of Texas, addressing three key questions. First, it maps the spatial distribution of ED visits for heat-related diagnoses and examines how patterns differ by admission severity (outpatient vs. inpatient). Second, it examines how heat vulnerability factors—such as heat exposure, socio-demographic sensitivity, and adaptive capacity—impact the severity of heat-related illnesses and ED hospital admissions across zip codes. Third, it explores how urban and rural planning strategies can mitigate these disparities and inform more effective climate adaptation efforts.

To address these questions, we assembled a comprehensive dataset at the Zip Code Tabulation Area (ZCTA) level across Texas ($n = 1,660$), integrating health, environmental, and socio-demographic data. Heat-related ED visit records for 2019–2023 from the Texas Department of State Health Services were linked with community attributes from the American Community Survey, U.S. Climate Reference Network data, tree canopy, and land cover data from the National Land Cover Database. Using this integrated dataset, we employed negative binomial regression models to examine the associations between heat-related ED visit rates and environmental and socioeconomic variables. Interaction terms between extreme heat and urban (versus rural) status were included to test how heat impacts differ by community type.

The results reveal pronounced spatial disparities: urban ZCTAs in Texas experience substantially higher volumes of heat-related ED visits, with more cases requiring inpatient admission. Extreme heat exposure—measured by the maximum heat index—proved to be a robust predictor of increased ED visit rates across all types of heat-related diagnoses. ZCTAs with limited access to air conditioning, higher road density, and a greater proportion of children experience significantly higher rates of heat-related ED visits. Moreover, while urban areas exhibit a stronger impact on extreme heat in terms of ED utilization among both inpatients and outpatients, our interaction analysis indicates that heat-related ED visits rise more steeply in rural areas as the maximum heat index increases – highlighting heightened vulnerability and potentially lower adaptive capacity.

These findings carry implications for planning practice in climate adaptation policy. Targeted interventions—such as expanding urban tree canopy, preserving parks and greenbelts, and reducing impervious surface coverage—can help lower ambient temperatures and alleviate heat-related health burdens in neighborhoods. At the same time, the disparities between urban and rural areas underscore the need for context-specific adaptation measures: rural communities would benefit from dedicated cooling centers, improved healthcare outreach for outdoor workers during extreme heat events, and programs to increase residential HVAC access for vulnerable households. Integrating health metrics and heat vulnerability indicators into planning processes can guide more equitable climate resilience strategies, ensuring that the most heat-vulnerable populations are better protected against the escalating risks of extreme heat.

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Key Words: extreme heat, heat-related illness, emergency visits, environmental justice, urban-rural inequity

Unveiling the Invisible Forest: Conservation Easement Trends in Urbanizing Counties

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Conservation easements (CEs) are the predominant mechanism to limit or stop growth on private lands in the United States (US). The reasons for CE ubiquity are variable and contextual, but can be attributed, in part, to governmental support of the instrument in lieu of other land conservation options. Possible CE placement drivers both posited and proven in the CE literature include: policy (nonprofit, local, state, and federal), federal and state fiscal tax incentives, landowner's ecological ethos, the size of the CE parcel, the type of land use underlying the CE parcel, and expansive purposes permitted for a valid CE. The Uniform Conservation Easement Act (UCEA), drafted by the American Bar Association from 1978 – 1980 and used as a model for at least 22 state CE enabling laws, has a very broad definition of CE purpose, allowing many potential purposes/forms of public benefit. Under the UCEA and the federal tax code, CEs are predominantly perpetual (except where prohibited by state law), and theoretically unalterable—unless there are changed conditions that alter their utility and/or defeat their purpose, nullifying the CE. Once they are in place, the CE purposes don't shift.

Concurrently, there is a pervasive and growing concern regarding tax abuse associated with their placement, given the huge societal investment in CEs and the requirement for some form of public benefit, in return. Since the mid-2000s, two policy trends may be altering CE use. The first is a call for greater transparency in CE placement and characteristics through national and/or state CE databases and/or registries (e.g., the National Conservation Easement Database). The second is a predominantly academic call for greater uniformity in CE drafting (McLaughlin & Pidot, 2013) even with the UCEA and accountability with (some of) the CE-holding entities to curb tax abuse (Cheever 1996; Pidot 2005). As a complementary aspect of this second call, several legal scholars (Flynn, 2021; Jay, 2022) suggest that there is a need to revise the "conservation purposes" section of the federal tax code.

Before introducing changes to the tax code, we need to understand the extent of its actual influence on CE instruments' design, the land trusts (LTs) who hold them (and their decision-making process), and the CE donor's objectives. Accordingly, we amassed a database of information on CE location and characteristics in rapidly urbanizing areas of the US, choosing counties in states with urbanization pressures, 25 or more CEs by county, exurban character and Level 1 ecoregion exemplification by size and representativeness. These counties include Sonoma and Sacramento, CA; Boulder and Mesa, CO; Douglas and Washington, MN; Lebanon and York, PA; Charleston and Greenville, SC; and Albemarle and Loudoun, VA. We collected 2823 CEs placed between 1997 and 2008/2009 and used intercoder reliability checks to develop our coding instrument through an iterative process for the CE purposes. Two research team members conducted semi-structured interviews with almost half of the land trusts in the study counties and first cycle coded these results using descriptive coding. Finally, we administered a survey to the population of CE donors listed in the CE instruments themselves. Our triangulated results allowed us to examine whether there is a significantly increasing use of direct IRS code language in the CE instruments over time, which may indicate a concern with compliance and a move toward uniformity. We also revealed the complex relationship between donative intent, LT conservation objectives, the reasons for the CE drafting approaches, and

the roles of policy accountability (institutionally) and federal tax regulations. These results will inform the direction of a tool whose ubiquity is impacting great volumes of land and its use in the US.

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Key Words: conservation easements, tax deductions, policy accountability

Urban Adaptation Trajectories: A Decade of Climate Discourse and its Implications for City Planning

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Over the last decade, public discourse surrounding climate change has undergone a significant transformation, shifting from abstract future projections to immediate adaptation imperatives. This evolution reflects changes in urban planning approaches, which have increasingly transitioned from technocratic mitigation strategies to more complex frameworks that integrate adaptation, resilience, and justice considerations (Fitzgerald 2022; Goh 2022). In this context, understanding the nuances of how climate discourse has evolved offers valuable insights for planning practitioners seeking to address the growing urgency of climate impacts in urban environments.

By examining social media discussions about climate change, this paper investigates the following question: How has public discourse around urban climate adaptation evolved over the past decade, and what implications does this evolution have for urban planning theory and practice? To address this question, the paper traces shifts in language, temporal framing, and thematic focus in climate-related discussions, with particular attention to how these changes reflect and potentially influence planning approaches.

To address this question, a longitudinal analysis of Reddit posts across various climate-focused communities from 2015 to 2024 illustrates distinct phases in the evolution of climate discourse. The dataset includes over 50,000 climate-related posts categorized under 15 key climate topics, such as "climate change," "global warming," "climate crisis," "sea level rise," and "carbon footprint." The analysis identifies three distinct phases: an early awareness phase (2015-2018) characterized by future projections and mainly coastal-centric vulnerability narratives; a transition phase (2019-2021) marked by increasing recognition of immediate impacts and an expanding discussion of urban climate risks; and a crisis response phase (2022-2024) centered on implementation and equity concerns. Notably, 2020 signified a crucial inflection point, as discussions about renewable energy, carbon neutrality, and climate justice gained substantial momentum amid a 41% increase in discussions about greenhouse gas emissions worldwide since 1990.

The analysis identifies both theoretical shifts in conceptualizing climate challenges and practical implications for urban planning approaches. The elements of climate discourse that have gained prominence in recent years emphasize interconnections between environmental and social systems, focusing on substantive adaptations rather than merely technical solutions. This evolution serves to complement and extend traditional mitigation-focused planning approaches, suggesting the need for more integrated frameworks that address both long-term sustainability goals and immediate adaptation requirements. Shi et al. (2016) have similarly advocated for justice-oriented approaches to urban climate adaptation, while Anguelovski et al. (2016) have documented the equity impacts of urban land use planning for climate adaptation.

A key implication of this evolving discourse, which this paper argues, is the necessity for planners to recalibrate their temporal horizons and communicative approaches. As Sabherwal et al. (2021) demonstrated, shifting public discourse on climate change has significant implications for climate action and policy support. The findings suggest that planning processes should explicitly integrate climate justice frameworks, as discourse increasingly connects concerns of environmental and social equity. Additionally, planning horizons need recalibration to address accelerating climate impacts, with a greater emphasis on immediate adaptation alongside long-term mitigation. By

recognizing these discursive shifts, planners can develop more responsive frameworks that address both the physical infrastructure needs and the social dimensions of climate resilience in urban contexts.

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Key Words: Climate discourse, Urban adaptation planning, Social media analysis, Climate justice, Reddit

Urban Greenway as Urban Eco-tourism: A Case Study of Tianfu Ring-shaped Greenways in Chengdu, China

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The unsustainable urban development and severe environmental issues have prompted the introduction of urban green infrastructure. Urban greenways (UG), as a form of green infrastructure, have demonstrated positive impacts in controlling urban sprawl, building green open spaces, and enhancing residents' physical and psychological well-being (Theeba Paneerchelvam et al., 2020). In planning, most scholars have focused on how greenways influence socioeconomic conditions, built environments, and public health. However, these studies overlook the underlying motivations and user satisfaction of UG as a form of urban ecotourism. Therefore, it is essential to focus on the user experience of UG, assessing the relationship between UG and urban ecotourism.

This study focuses on the Tianfu Ring-shaped Greenways at the Park City of Chengdu, an ambitious project representing Chengdu's exploration of achieving high-quality socioeconomic development and ecological protection (Zhang & Wu, 2024). Based on it, this study addresses the following questions: (1) What are the current conditions for urban ecotourism of the Chengdu Tianfu Ring-shaped Greenways? (2) What characteristics and satisfactory themes of the greenways are reflected in user-generated content? (3) Do these themes align with the officially promoted themes and urban ecotourism of the Park City?

User-generated Content (UGC), defined as creative works published by users on online platforms, has been extensively used in tourism research, focusing on evaluating tourism service quality, destination reputation, and tourist experiences (Lu & Stepchenkova, 2015). This study collected UGC of the Tianfu Ring-shaped Greenways from two reputable Chinese living experience-sharing online platforms: Dianping and Xiaohongshu. Latent Dirichlet Allocation (LDA), a topic analysis model, is frequently employed in text mining to uncover hidden thematic information within big data contexts (Guo et al., 2017). Consequently, LDA was applied to extract greenways-related satisfactory topics from the user side, and a descriptive analysis of policies and literature was conducted to analyze the underlying motivations from the provider side. The primary object is to offer novel insights into urban ecotourism and UG management.

This study anticipates that the extensive coverage of the case may not function as an independent urban ecotourism attraction. Instead, the greenways that connect with surrounding parks and wetlands serve as recreational open spaces for residents and tourists. The motivation for the urban ecotourism development does not generate tourism revenue through ticket sales; however, it contributes to building the "Park City" branding, thus attracting land investments, secondary industries and tertiary investments, and population inflows, which create alternative revenue streams for municipal government. Although most online texts reveal a generally positive attitude towards greenways, few equate it with urban ecotourism. Instead, most citizens and tourists recognize it as green infrastructure for cycling, a perception reinforced by official narratives that emphasize the integration with sports-related activities, which has led to conflicts among different users.

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Key Words: Urban Greenway, Urban Eco-tourism, User-generated Content, China

Urban Heat Islands and Social Exposure: A Multi-Dimensional Analysis of POI-Based Behavior

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Urban heat islands (UHIs) are not only physical climate phenomena but also spatial expressions of social and environmental inequality. In many cities, areas most affected by extreme heat also face structural disadvantages in income, housing, and access to green space (Hsu et al., 2021). These overlapping vulnerabilities raise critical questions about who bears environmental risks and how those risks intersect with patterns of urban mobility and behavior (Jesdale et al., 2013; Yabe et al., 2023).

This study investigates the relationship between UHIs and socio-spatial behavior by analyzing how human movement patterns reflect and reproduce environmental inequality. We focus on the micro-level interactions that occur through visits to points of interest (POIs), such as stores, parks, and workplaces, which offer insight into everyday urban encounters. Utilizing high-resolution mobility data from Spectus, that captures anonymized, time-stamped, device-level visits, we analyze 5.9 million POI records in San Antonio, Texas. These are spatially joined with block-group-level demographic characteristics and remote-sensing-derived land surface temperature (LST) data. Using Local Moran's I, we identify statistically significant high-temperature clusters (High-High) as urban heat island zones (Li et al., 2017; Ochoa et al., 2024).

We introduce a three-part analytical framework to investigate the relationship between environmental conditions and socio-spatial behavior:

- (1) POI Income Diversity, calculated using a customized diversity index (D_a) based on the income composition of POI visitors;
- (2) Social Interaction Types, defined by comparing the income level of visitors and POI locations as Upward, Downward, or Balanced interactions;
- (3) Individual Exposure, which measures the extent to which individuals interact with diverse income groups through their POI visitation patterns.

Results reveal distinct behavioral differences between heat island and non-heat island areas. POIs in UHI zones exhibit significantly lower income diversity compared to those outside, with differences confirmed by both t-tests and Mann-Whitney U tests. A multinomial logistic regression model shows that POIs in heat island zones are more likely to exhibit Upward and less likely to exhibit Balanced (not significant) interactions compared to Downward interactions. These findings suggest that UHIs may reinforce asymmetric interaction patterns, limiting social mixing.

At the individual level, we analyze the top and bottom 10% of users by income exposure index and find that lower-exposure individuals tend to live in socially and environmentally vulnerable neighborhoods. This highlights the intersection of climate burden, spatial segregation, and limited cross-class interaction in UHI zones.

By integrating mobility data, socioeconomic profiles, and environmental stressors, this study offers insights into the social consequences of heat in urban areas. These findings contribute to emerging efforts to develop just, data-driven responses to urban heat and its uneven social impacts.

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Key Words: Urban heat island, Mobility data, Income diversity, Social interaction, Environmental justice

Urban Human-Nature Interaction: A Deep Learning Approach to Global Social Media Imagery

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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As cities across the globe increasingly embrace nature-based solutions for health, climate resilience, and social equity, a key planning question emerges: how do people actually interact with urban nature in their everyday lives, and how can we measure these interactions across diverse global contexts? Traditional methods—such as field observations, surveys, and sensor data—often lack the spatial breadth, temporal continuity, or cultural comparability to answer this question at scale. This study proposes a computer vision-based approach for systematically detecting human-nature interactions (HNIs) from social media images collected in major cities across five continents.

Drawing from world-popular social media platforms such as Instagram, Google Review, Flickr, Weibo, etc., we curate a large-scale global dataset of geotagged photographs representing public life in over 30 cities (Ghermandi et al., 2022). These include Shanghai, Tokyo, London, Berlin, New York, Los Angeles, Rio de Janeiro, Melbourne, Cape Town, and others—selected to capture a variety of climates, cultures, and urban forms. Each image is manually labeled into one of 15 types of HNIs—such as walking, sitting, jogging, dog walking, photographing, flora observation, and recreational use of green infrastructure—based on an interdisciplinary taxonomy derived from environmental psychology and urban behavior studies (Matasov et al., 2023).

We then train and evaluate a suite of deep learning models to classify these images based on the YOLO (You Only Look Once) architecture (Salazar-Miranda et al., 2023), including convolutional neural networks and vision transformers. Among them, transformer-based models demonstrate superior performance in recognizing complex, nuanced human-environment relations embedded in real-world urban scenes. Beyond classification accuracy, our spatial-temporal analysis reveals meaningful differences in how residents across regions use and perceive urban nature. For instance, cities with dense, multifunctional green space networks tend to support a greater diversity of HNI types, while others exhibit clustering around limited activities like walking or sitting. Cultural and infrastructural factors further shape interactions—dog walking is prominent in North American cities, while landscape photography dominates in East Asian megacities.

This study contributes to urban planning in several ways. First, it introduces a reproducible and scalable framework for mapping human-environment relationships in cities using volunteered photographic data—an underutilized but increasingly available resource. Second, by visualizing and quantifying how different populations engage with nature, we provide planners with evidence to evaluate inclusivity, accessibility, and multifunctionality in urban green spaces. Third, we highlight the potential of artificial intelligence not only to monitor urban dynamics but also to amplify lived experiences as a basis for bottom-up design, planning, and policy.

To support future research and practical applications, we have also developed an interactive online platform that publicly showcases the global HNI dataset and provides access to our trained classification models. This tool enables planners, researchers, and educators to explore human-nature interaction patterns across cities, test model predictions on new images, and generate visual analytics to support comparative studies (Dong et al., 2024). Our approach offers planners a novel method of inquiry and a shared infrastructure for evidence-based, inclusive, and adaptive landscape design (Gupta et al., 2024). In doing so, we provide planners and policymakers with

concrete tools to monitor public space use, evaluate spatial equity, and support data-driven design decisions that improve the accessibility, quality, and resilience of urban nature.

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Key Words: Computer Vision, Urban Nature, Spatial Behavior, Global Cities, Crowdsourced Imagery

Urban Morphology and Sustainable Outcomes in Sub-Saharan African Cities

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Rapid urbanization has made many African cities very susceptible to potential climate change impacts. Nevertheless, granular analyses of African urban spatial structure remain rare (Prieto-Curiel et al. 2022), and the relationship between the spatial structure of African cities and sustainability indicators, such as the urban heat island effect, is even more so. In order to examine the relationship between urban spatial patterns and urban heat, we develop the first high-resolution spatial maps of urban morphology - the physical form and spatial arrangement of human settlement patterns - for all urban regions with over 10,000 population in Kenya, Tanzania, Togo, and Ghana.

To do so, we utilize three major innovative data sources to quantify the metrics of our interests: (1) the urban regions delineated by the Africapolis.org using satellite imagery and machine learning algorithms, which offers a homogenized definition of urban regions across Africa; (2) the Google AI Africa Open Buildings dataset and the Global Human Settlement Layer (GHSL), used to develop a range of urban morphological metrics using data-driven approaches, including kernel density estimations, urban sprawl indices, land cover fragmentation (and contiguity), and the degree of polycentricity; and (3) our key variables of interest, the urban heat island effect (UHI), defined as the temperature gap between the urban and rural regions, quantified using the MODIS Land Surface Temperature Product via Google Earth Engine platform.

These novel metrics are used in regression analysis to examine the relationship between the UHI effect and urban morphology, with the UHI as the dependent variable and a set of urban morphology metrics as independent variables. Based on the preliminary OLS regression covering 636 urban regions, we find that more aggregated urban fabric and high population (building) densities contribute to increased urban heat, whereas mixed use of land is associated with low urban temperatures. These findings corroborate previous research conducted in the US, Europe, and China (Li and Schmidt, 2024; Debbage and Shepherd, 2015; and Liu et al. 2021). However, our preliminary results do not reveal any significant contributions to the UHI effect from urban green spaces distribution or polycentric urban forms. Further regression testing the heterogeneous impacts suggests that region size, distinct climate zones, and the composition of surrounding rural areas (e.g., the proportion of desert land) may contribute to our unique results within the African context—a region previously lacking empirical evidence.

Our ongoing research will further clarify the distinctive relationships between urban morphology and the UHI effect in African cities. The findings will directly inform our project partnerships in the four studied African countries and, therefore, contribute to their policymaking in land use and sustainable development.

Citations:

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Key Words: urban morphology, Urban heat island effect, Urban spatial structure, Africa

Urban segregation and park visitation: A longitudinal and place-based study in Austin, Texas

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Urban parks provide significant benefits to public health, social cohesion, and overall well-being (Bratman et al., 2015). Regardless of the positive effect of urban parks, previous research highlights significant disparities in park access and use, both spatially and socioeconomically (Rigolon, 2017). Urban segregation policies have played a key role in shaping disparities in park use for marginalized communities; however, their role in shaping these disparities remains insufficiently examined (Nesbitt et al., 2019). Current literature about park usage inequality focused on (1) lack of usable parks or (2) limited accessibility for park. Many studies assume that park presence or proximity ensures usage, often relying on accessibility metrics like buffer zones. However, these methods fail to capture actual visitation patterns, revealing a disconnect between modeled access and real-world behavior. To address this gap, this study had a research objective: how urban segregation moderates the relationship between social vulnerability in the community and park visitation.

We investigated how Interstate 35 (I-35) moderates the relationship between social vulnerability and park visitation in Austin, Texas. We set I-35, highway across Austin, as a binary variable. Area located in East (1) is known as strongly predominantly minority and low-income populations compared to Western (0). We used the SafeGraph and Advan mobility dataset on park visitation, covering the period from January to December in 2019. We compiled a City of Austin Park visitation dataset incorporating human mobility patterns, demographic and socioeconomic characteristics, transportation modes, weather conditions, park facilities, land use, and geospatial attributes. To measure social vulnerability, we utilized social vulnerability index (SVI) from the Centers for Disease Control (CDC), which constitutes four aspects: socioeconomic status, household characteristics, racial and ethnic minority status, and housing types and transportation (Flanagan et al. 2011). The fixed effect model is employed to control for unobserved location and season-specific factors that may influence park visitation. In this study, we controlled for monthly variation and park type.

We found that socially vulnerable communities have lower park visitation rates, and interaction term tended to strengthen the effects between SVI and park visitation. Four themes of SVI—characterized by lower socioeconomic status, higher minority populations, poor housing and transportation conditions, and a higher proportion of children, elderly, or disabled individuals— had significantly negative associations with park visitation. These findings confirm a consistent pattern observed in previous studies: socially vulnerable groups tend to rely more on urban parks for recreation and daily activities. Further, interaction terms for SVI-I-35 were negatively significant in socioeconomic status and household composition, suggesting that the negative effect of social vulnerability on park use is stronger east of I-35.

These findings can help planners and practitioners more efficiently prioritize equitable resource distribution by enhancing park infrastructure and accessibility in historically disinvested areas, recognizing that marginalized communities actively engage with local parks despite facing socioeconomic challenges. Integrating community-

driven insights into planning processes can help create more inclusive and resilient green spaces that address both spatial inequities and current usage realities.

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Key Words: Park visitation, Urban segregation, Social vulnerability, Mobility data

Urban Tree Committees of New England, USA: Describing Past, Present, and Future Regional Trends

Abstract ID: 1844.0.0.860.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Urban forestry in the United States is the responsibility of federal, state, and municipal government agencies. For example, the federal Urban and Community Forestry Program administered through USDA Forest Service provides technical, educational, and financial assistance to US states, territories, communities and partners, and also monitors urban forestry programming, support, and investment through the Community Accomplishment Reporting System (CARS). The role of states may range from acting as intermediaries of federal financial and technical resources, to directly funding and supporting urban and community forestry initiatives across sectors within the state, often with collaboration at the local level (Rines et al 2011).

In the United States, grassroots responses have emerged to supplement urban forest management efforts traditionally led by local, county, and federal governments. Urban tree committees are one such grassroots response, whose service exists between a formalized organization and ad-hoc task force (Elton et al. 2022). While past research has described the roles and responsibilities of various urban forest management actors, no studies have previously established a baseline understanding of regional urban tree committees, including the membership of volunteer committees, their programming/educational initiatives and subject matter, and key audiences.

In this study, we distributed a participant survey to all known urban tree committees of the six state area of New England, a subregion that shares a highly urbanized land cover, bucolic exurban landscapes, and unique political systems. Our study successfully recruited representation across small and large cities of each New England state. Findings are summarized in three sections: an overview that describes urban committees by geography, guiding missions, and motivators of committee formation; the operational scope led by committees, including personnel, guiding documents, and funding sources; and the program, activities, and participants engaged by urban tree committees. This study identifies the presence and prominence of urban tree committees throughout the New England region, elucidates the ongoing need for resident engagement in local natural resources management, and highlights the reliance on unpaid personnel in the municipal urban forest governance. Cities of similar sizes may share more in common than those of different sizes in the same state – and there is significant opportunity for cross-disciplinary research and practice to build upon existing regional strengths.

The case for regional (subnational) urban forestry presents itself as an increasingly important way to describe and analyze interrelated socio-ecological dynamics of urban and community forests (Johnson et al. 2020). There remains a lack of information about sub regional organizational origins, partnerships, and volunteer networks of local urban tree committees (Hargrave et al. 2024) and how financial investment and project development creates momentum for continued activities, maintenance, and stewardship. Given the importance of spatial proximity and connectivity to urban natural resource science and management (Forman 2008), we also expect the social and ecological interaction and outcomes of urban forestry to be shared by closely located, similar sized cities. This may

be due to a number of factors including similar governance arrangements, land use and development histories, nursery stock/planting norms, and pest and disease pressures.

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Key Words: urban forest management, public committee, New England

US Internal Climate Migration: Lessons and Future Research Pathways for Planners

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Climate migration entangles many factors that need the attention of planners in the long term. Research shows that human migration may face substantial increases in the future and is often considered an adaptation response to climate change-related risks. In 2018, the US ranked fourth among all countries for internal disaster-related displacements.

The internal climate migration-related studies of the US are focused on specific subjects such as developing relevant models, exploring the locations of the destinations, or addressing factors affecting the choices of these locations. However, the existing studies fall short of offering a comprehensive synthesis that brings these components together and maps out future research directions. This underscores the significance of reviewing multidisciplinary literature to integrate current knowledge and support the development of more robust research pathways.

To bridge this gap, we used a systematic literature review method. After systematically reviewing multidisciplinary literature, this paper analyzes what we already know about internal climate domestic migration in the US, and the future research directions in terms of four aspects; internal climate migration modeling, destinations, and sending and receiving communities.

Regarding internal climate migration modeling, the findings suggest that it has been difficult to distinguish the climate influences from the broader push-pull factors of migration to date. Similarly, more work is needed to investigate whether migrants respond differently to sudden-onset versus slow-onset movements. Developing models at a smaller spatial scale than the county level would help explore the localized impacts and adaptation solutions. Also, integrating findings from different model types for validating the outcomes is still unexplored in existing studies.

Surprisingly, according to research to date, climate-related migration in the US is a regional phenomenon. Typically, the movements take place within metropolitan centers, even to more disaster-prone locations, although climate migrants are popularly thought to be long-distance movers. Future studies may benefit from comparing the drivers of choosing destinations to better inform in-situ solutions to climate change.

Concerning sending and receiving communities, the study found that out-migration generally instigates from areas already experiencing demographic and infrastructural hardships. Scenario planning may help the areas that think they may be sending or receiving communities. Also, research is required about predicting future population decreases and facilitating a planned retreat at the local scale. Future research should examine policies like infrastructure improvement, and accessibility to several facilities by the local governments of climatically vulnerable areas to control out-migration.

Climate-related migration adds uncertainty to demographic projections, which has implications for land-use planning. In general, climate-related migration often resembles other experiences of speedy population growth or decline, and studies using previous local and regional experiences can offer lessons for handling climate-related

migration. These insights may inform planners to take sustainable and inclusive approaches to integrate migrants with the receiving communities.

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Key Words: Climate migration, Migration modeling, Destinations, Sending communities, Receiving communities

Utility-Scale Solar in Virginia – Land Conversion, Community Impacts, and Local Permitting

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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[Note that this research was accepted for presentation at ACSP 2024 in Seattle, but the lead author had to cancel at the last minute due to an unexpected family matter. This abstract addresses the research that was to have been presented in 2024, along with additional new findings for 2025.]

Like many states, Virginia is experiencing a rapid increase in utility-scale solar energy capacity. While utility-scale solar provides many benefits related to climate change mitigation, pollution reduction, and tax revenue for the impacted localities, it also raises concerns. These include the possible loss of farmland, forest land, and sensitive ecosystems (Hernandez, et al., 2014; Kaza and Curtis, 2014), as well as environmental justice concerns from concentrating these facilities in low-income and/or minority communities (Mulvaney, 2019). Research into the impacts of existing solar facilities can help planners and policymakers mitigate those impacts, through siting agreements and other local regulations, and guide the future location of utility-scale solar through zoning codes, comprehensive plans, and other policy tools (Dias, et al., 2019; Poggi, Firmino, and Amado, 2018).

Our key research questions are as follows:

- What is the total acreage of land dedicated to utility-scale solar development in Virginia thus far, and the average acreage per megawatt (MW) of installed utility-scale solar generation capacity?
- Does utility-scale solar development occur disproportionately in counties that are lower-income and/or have high minority populations, compared to the statewide average?
- What types of land uses are most often converted to utility-scale solar development (agricultural, forested, open lands, etc.), and do these patterns vary significantly by region?
- To what extent is utility-scale solar impacting “prime” agricultural or “high conservation value” forest lands, versus farm or forest land with lower agricultural or conservation values?
- Based on current trends, what are the potential future impacts on agricultural and forest land if utility-scale solar grows, as expected, per Virginia’s clean energy and climate mitigation goals?

To answer these questions, we have built a new Geographic Information Systems (GIS) database of all utility-scale solar facilities currently operating in Virginia. Maintaining this data set requires meticulous cross-referencing of information from aerial photos, site maps (e.g., from county-level special use permit applications), and other sources to geo-reference the actual impacted site areas for each new utility-scale solar project. This includes the solar panel footprints as well as additional land converted around the panel area, but not any undisturbed land on the applicable parcels. After georeferencing the individual project sites, we overlay those project footprints with the Virginia Land Cover Dataset to identify the previous land uses at those locations. We found that over 75% of the impacted acreage had been former forest (50%) or cropland (28%), and that nearly half of the impacted cropland was of Very High agricultural soil quality. We also found that the largest utility-scale solar facilities were disproportionately located in Census tracts with a high percentage of African-American residents.

This research will inform policy recommendations to support further growth of utility-scale solar, while mitigating negative land use impacts. It will also identify best practices for tracking the impacts of utility-scale solar in a given state or locality. Finally, it will contribute to the evolving research on the impacts of utility-scale solar on forest and agricultural use, as well as related environmental justice concerns.

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Key Words: solar, energy, GIS, land-use, agriculture

Where Do Evacuees Go? Evacuation Destination Choices in Georgia during Hurricane Milton

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Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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Hurricanes are among the deadliest and most destructive weather disasters in the U.S. history according to National Oceanic and Atmospheric Administration. Also, they have triggered the largest mass evacuations. As hurricane intensity and the date and time of landfalls can be predicted, authorities are able to notify the population about the risks. People from high-risk areas can evacuate either voluntarily or due to evacuation orders before the hurricane strikes. Understanding where evacuees relocate and how they spend their time and money has been an active domain of policy and economic development research (Strobl, 2011; Tran & Wilson; 2020). From a planning perspective, better anticipation and preparation for mass evacuations can help alleviate stress on transportation systems, reduce strain on public resources, and even present economic opportunities (Li & Mostafavi, 2022). Without clear insights into evacuee movements and their duration of stay, cities struggle to allocate resources effectively, leading to housing shortages, overwhelmed public services, and economic instability.

Hurricane Milton, which made a landfall in October 2024, prompted an estimated six million Florida residents to evacuate, according to Federal Emergency Management Agency. This mass evacuation caused significant disruptions, including severe traffic congestion and fuel shortages, not only in Florida but also in neighboring states such as Georgia (Reuters, 2024). Due to its proximity and strong existing social network with Florida, Georgia became one of the major out-of-state evacuation destinations. Major cities in Georgia also suffered with prolonged traffic congestion due to the influx of hurricane evacuees (11Alive, 2024).

This study examines where Florida residents relocated during Hurricane Milton, and the factors associated with the destination choices. Additionally, we investigate whether evacuees from more severely impacted areas exhibit different destination choices compared to those from less affected regions. Utilizing mobile GPS-derived daily POI visit data retrieved from Advan Research, we quantify the anomalous influx and outflux of visitors at the Census Tract level in Georgia and Florida. To analyze the factors associated with POI visitor influx during the hurricane period, we employ OLS regression, considering variables such as transportation accessibility (proximity to airports and highway exits), socioeconomic factors (income levels, population, distances from city centers), POI accessibility (number of gas stations, home improvement stores, etc.), and social ties.

Our findings suggest that social ties, along with the availability of gas stations, supermarkets, day care facilities, disaster relief services, and home improvement stores serve as major pull factors for evacuees' destination choices. Furthermore, evacuees from the most severely impacted areas are more likely to relocate based on social ties, whereas those from less affected areas show stronger correlations with distance from their origin and the number of accessible POIs at their destination. The insights from this study can inform urban and regional planning, disaster preparedness, and economic development strategies, helping both receiving and sending cities build resilience against future hurricane-related displacements. Using high-resolution digital trace data, this study enables cities and emergency managers to be proactive rather than reactive to peoples' relief needs.

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Key Words: Hurricane Evacuation, Climate Displacement, Destination Choice, Point-of-Interest, Social Ties

Wind Path Development Strategies for Thermal Environment Improvement Using ENVI-met

Abstract ID: 1844.0.0.12.2025

Track 4: Environmental Planning & Resource Development

Individual Paper Presentation Submission

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The urban heat island (UHI) phenomenon occurs due to factors such as changes in land cover, artificial heat emissions, and increased building density during the urbanization process, which leads to problems such as increased summer heat waves, increased energy consumption for cooling, and worsening air pollution. In particular, South Korea is showing a warming rate faster than the global average, and the deterioration of the urban heat environment is emerging as a serious problem. Jinju-si, Gyeongsangnam-do has continuously expanded its city since the development of an innovation city, but the heat island phenomenon is becoming more severe in the old downtown area due to the relatively high building density and aging of buildings. Against this background, this study utilized ENVI-met simulation to analyze the thermal environment of the old downtown area of Jinju-si and derive effective heat island reduction strategies. First, the spatial distribution of the thermal environment was identified and hotspot clusters were identified by analyzing the land surface temperature (LST) of all administrative districts of Jinju-si. As a result of the analysis, Gye-dong, a legal dong within the old downtown area, was confirmed to have the highest average LST, and was selected as the simulation target site. Afterwards, the current status of Gye-dong was analyzed to confirm the thermal environment characteristics and building density, and a simulation was performed applying the heat island reduction strategy (building density and layout adjustment, etc.) derived through prior research and theoretical consideration. The simulation results confirmed the effect of improving the thermal environment in Gye-dong through building density adjustment and securing wind paths. In addition, it was verified that building density plays an important role in the formation of urban wind paths. Based on this, this study proposes an urban planning plan to improve the climate adaptability of the old downtown area of Jinju City, and it is expected to contribute to the establishment of thermal environment management policies in small and medium-sized cities with similar climate and spatial characteristics in the future.

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Key Words: Thermal Environment, Building Density, Building Layout, Wind Path, ENVI-met

Track 4 Research in Motion (RiM)

Challenges in Estimating Use of Long-Distance Hiking Trails

Abstract ID: 1842.0.0.850.2025

Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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Managers of long-distance hiking trails need information about trail use to attract funding and inform trail operations and maintenance. Methods of estimating use include field observations, video recordings, automated video sensors, surveys, social media, and GPS tracking. Factors affecting choice of methods include organizational capacity, cost, and validity of results. This case study reports research in progress to estimate use of the Superior Hiking Trail, a 340-mile trail in Northeastern Minnesota that runs from south of Duluth, MN to Canada. In 2023, in collaboration with Arrowhead Regional Development Commission and the City of Duluth, the Superior Hiking Trail Association (SHTA) implemented a new monitoring program based on the approach used by the Minnesota Department of Natural Resources to monitor use on bicycle trails. This approach involves segmentation of the trail into monitoring sections, deployment of automated infrared sensors at permanent (i.e., mid-May through early November) and short-duration (about one month) monitoring locations, and use of the day-of-year (DOY) factoring method that uses patterns from permanent count stations to extrapolate short-duration counts into hiking season total counts. Based on staff capacity and the availability of monitoring equipment, planners designed the program to complete monitoring of the entire trail over a three-year period.

Planners initially divided the trail into six segments, each of which includes multiple monitoring sections defined by road crossings and other factors. The number of sections per segment ranges from 6 to 14, with more in the urban area around Duluth. The total number of monitoring sections is 50; each section on average represents about 7 miles of trail. In 2023, the SHTA deployed infrared sensors and completed monitoring on 21 sections, including 2 permanent and 19 short-duration locations. Following extrapolation of short-duration counts, the average daily trail use across these sections ranged from less than 1 on an access trail to 513 hikers per day on a section of a trail in a state park. The mean and median hikers per day across these sites were 82 and 31, respectively. To obtain an interim estimate of total trail traffic, planners imputed the median value for the remaining 29 sections. Then, to convert trail traffic to trail visits, planners assumed 85% of hikers completed out-and-back trips and had been counted twice. Trail traffic counts then were adjusted, yielding an estimate of 407,000 visitors in 2023. In 2024, the SHTA monitored an additional 13 sections. Across these sections, trail use ranged from 4 to 88 hikers per day, a smaller range than in 2023. The median use for the 34 segments monitored in 2023 and 2024 was computed (25 hikers/day). The estimate of total hikers on the SHT then was estimated at 392,000, a reduction of about 4% that can be attributed partly to revised imputations of traffic on sections not yet monitored. Plans for 2025 are to complete monitoring of all remaining sections on the trail.

Several insights with implications for similar monitoring initiatives can be gleaned thus far. The approach has been dictated by the capacity of staff and resource limitations. For example, unexpected staff turnover between 2023 and 2024 resulted in monitoring fewer segments than planned in 2024. Funds for sensors and staff time for traveling to remote sections of the trail also have constrained monitoring. Results illustrate technical decisions that introduce uncertainty into estimates and affect their validity. These choices include designation of monitoring

sections, timing and duration of monitoring, methods of handling missing and erroneous data, method of extrapolation, and evidence and rationale for converting traffic counts into trail visits. Results in 2025 will provide a foundation for standardization of monitoring methods and support future demand modeling.

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Key Words: Trails, Monitoring, Use, Demand, Methods

Corporate Climate Havens: Resilience as Business Attraction Strategy in the Great Lakes Region

Abstract ID: 1842.0.0.143.2025

Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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Climate migration is already well underway. Millions of Americans are being permanently displaced in the wake of floods and wildfires every year while others have been choosing to move due to chronic climate stresses. Over the coming decades, climate migration of many types will only accelerate. In response, an ecosystem of organizations has begun to grapple with how to facilitate more equitable, sustainable relocation, engaging with cities and communities in this work. Given the immediate human toll of evacuating in response to a disaster or relocating due to crippling climate conditions, most of the research, advocacy, and policy development in this domain has focused on residential relocation.

However, climate-related migration is not limited to the movement of individuals and households; it extends to the private sector. Real estate and development companies have begun to factor physical climate risks into location and investment decisions while some corporations have relocated their headquarters or diversified their holdings in response to these signals. In addition, a small but growing niche of investment advisory firms is capitalizing on the opportunity to promote climate resilient investments. But the redirection of capital to relatively climate resilient locations is much more than a business matter. It is likely to shape and constrain employment opportunities, housing availability, and well-being for the individuals and households who are similarly seeking refuge from climate extremes.

The prospect of people moving to places that are less disaster-prone has given rise to the concept of the climate haven, one which is complicated and questionable, yet has gained currency by neatly encapsulating the notion of relative safety. The Great Lakes region is one area that journalists, researchers and advocates have pointed to as a haven due to the abundance of freshwater, the temperate climate, and infrequent natural disasters. Building on this concept and combining it with established forms of corporate havens such as tax havens and special economic zones, this project proposes and interrogates the notion of the corporate climate haven.

This project seeks to lay a foundation for untangling the implications of these larger issues by first answering the following questions: 1. For economic development organizations in so-called climate havens, is climate a selling point, and if so, how? 2. For firms considering these locations, to what extent does climate enter into their decision-making process? Answering these questions will help to describe the contours of the emerging phenomenon of corporate climate havens.

This research was conducted through a case study of two states in the Great Lakes region involving interviews with economic developers and site selection professionals as well as content analysis of promotional material and industry publications. Preliminary findings suggest that for economic development organizations in these states, climate is only one selling point among many, however water availability, the absence of natural disasters, and grid reliability do play a role in marketing these locations. In corporate decision-making, climate is dwarfed by conventional factors such as land, labor, and infrastructure. However, climate factors are slowly becoming more important, and for certain types of businesses ranging from food and beverage to semi-conductor fabrication, they can already be decisive. While these factors present advantages for businesses, they also raise concerns for local communities about water diversion and unsustainable land use trade-offs. This research sets the stage for a more robust analysis of urban futures as people and capital seek shelter from climate impacts.

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Key Words: climate migration, economic development, corporate adaptation, environmental politics

Inundation, Isolation, and Municipal Vulnerability in Coastal Planning

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Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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The U.S. is experiencing increasing frequency and severity of natural hazards and disasters (Frijters et al., 2023; Shepherd & Dissart, 2022). Among these threats, sea-level rise (SLR) and associated coastal flooding are expected to significantly disrupt coastal communities through both direct inundation and indirect impacts (Best et al., 2023; Logan et al., 2022). A critical concern for urban and municipal planning is that SLR will devalue or destroy coastal properties, eroding the local property tax base and precipitating fiscal stress for coastal municipalities.

Recent studies assessing SLR's impact on local government finances have primarily focused on properties directly inundated (Shi et al., 2023; Shi & Varuzzo, 2020), overlooking the fiscal risks to properties that remain physically dry but become isolated due to flooded access routes. This study addresses that gap by investigating how both direct inundation and indirect isolation from SLR affect property values and municipal fiscal resilience. Specifically, we ask how rising seas—through both submergence of properties and loss of connectivity—might undermine the revenue base of coastal communities in spatial and temporal dimensions.

Our analysis focuses on Dorchester County, Maryland, a coastal community with significant exposure to SLR. We integrate NOAA SLR projections with parcel-level data on property values, construction years, and local land use zoning. Using GIS-based flood modeling, we identify parcels projected to be inundated under various SLR scenarios and estimate potential losses in assessed value. To capture indirect impacts, we analyze road networks to determine which parcels, while not flooded, would lose convenient access to critical services such as fire stations and schools due to surrounding inundation. Preliminary results indicate substantial potential loss of taxable property. At 4 feet of SLR, approximately 25% of properties in Dorchester County could be directly inundated. Such flooding would likely render these properties uninhabitable and drastically reduce their value. An additional 32% of properties may remain dry but would become functionally isolated from emergency services and schools. Notably, homes constructed in the mid-20th century (circa 1940–1950) emerge as the most vulnerable cohort across all SLR scenarios, reflecting historical development patterns in low-lying areas. These findings suggest that fiscal impacts will not be distributed evenly in space or time but will be concentrated in particular neighborhoods and age cohorts of housing.

The consequences of short, extreme events and longer-term weather changes in property devaluation pose a serious challenge to urban fiscal resilience and urban planning. A shrinking property tax base, combined with increased expenditures for emergency response and climate adaptation, could strain municipal budgets and undermine the financial stability of local governments. By examining the magnitude and distribution of these risks, this study provides planners and policymakers with evidence to support climate-informed land use decisions and proactive fiscal planning. Our findings contribute to planning theory and practice by integrating climate adaptation with municipal finance, highlighting the need for adaptive zoning, infrastructure investment, and fiscal policies that bolster the long-term sustainability of coastal municipalities.

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Key Words: natural hazard, fiscal planning, land use, infrastructure, community resilience

Lasting Effects of Historical Redlining on Present-day Heat Inequities in Philadelphia

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Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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Historical injustices institutionalized in urban planning and housing policies have contributed to neighborhood landscape dynamics, thereby impeding the equitable distribution of heat adaptation measures in contemporary US cities. One of the historical institutional discrimination policies is redlining, which primarily created structural barriers to homeownership against low-income racial minorities as well as thermally unfavorable landscapes in historically marginalized neighborhoods. The spatial patterns of redlining and associated heat inequities are often depicted using the residential security maps created by the federal agency, Home Owners' Loan Corporation (HOLC). Specifically, compared to high HOLC-graded (non-redlined; "A") neighborhoods, low HOLC-graded (redlined; "D") neighborhoods tend to exhibit higher land surface temperatures, more impervious surfaces, and less green surface cover despite variations in datasets and spatial domains. Additionally, redlined neighborhoods often have high population density and a high proportion of socioeconomically disadvantaged residents, collectively facing greater risks from extreme heat events. Despite the previous efforts to examine the disproportionate heat risks of redlined neighborhoods, existing frameworks remain incomplete, particularly in understanding the micro-scale temporal dynamics of heat exposure.

This study examines whether the legacy of redlining persists in heat disparities at multiple scales in the summer in Philadelphia, Pennsylvania. This study conducts two main analyses at different scales: a neighborhood-level comparative analysis, and a block-level simulation analysis. For the neighborhood-level analysis, this study employs boxplots to analyze the cross-sectional distributions of tree canopy cover ratio, building area ratio, and land surface temperature values between HOLC grades. Then, nonparametric Kruskal–Wallis H tests and post-hoc multiple comparison tests are conducted for each variable to assess statistical differences in median values across the HOLC grades. For the block-level analysis, this study utilizes ENVI-met, a tridimensional microclimate model, to simulate 24-hour temporal variations—from 7 a.m. on July 20, 2019, to 7 a.m. on July 21, 2019—in air temperature at 1.5 m above ground level in selected census blocks based on the neighborhood-level results. This study also develops three different greening scenarios census blocks located in the redlined neighborhood, assessing the effectiveness of greening strategies in cooling at the micro-scale.

The finding of the neighborhood-level analysis indicates that the contrasting HOLC grade pairs, "A" and "D," had statistically different median values for tree canopy cover, building area ratio, and land surface temperature levels. The simulation results indicate that the hourly average air temperature levels of the HOLC grade "D" census blocks were significantly higher than those of their HOLC grade "A" counterparts throughout the simulation period. Notably, the disparity reached approximately 1.22 °C at the hottest time (3 p.m.). The simulation results of three different greening scenarios show that the combined strategy of grass and tree planting can diminish the average temperature by 0.31 °C at the hottest time, superior to the single planting strategies. Building on these findings, this study identifies the legacy of redlining on heat inequities across scales in present-day Philadelphia. Overall, this study emphasizes the significance of greening initiatives for residents currently living in historically discriminated neighborhoods to effectively reduce inequal microthermal dynamics.

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Key Words: redlining, microclimate simulation, ENVI-met, heat inequity, climate adaptation

Mountain Strong: Lessons in Resilience Planning from Post-Helene Appalachia

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Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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In late September 2024, Hurricane Helene struck the High Country of Western North Carolina, causing unexpected and unprecedented damage. In the aftermath, the region's communities faced both immediate and long-term challenges, many of which were amplified by the area's rural and mountainous geography. Despite these difficulties, the resilience and strong community spirit of the residents played a crucial role in overcoming obstacles.

As community-based recovery continues, clear themes are emerging that highlight how assets, challenges, and opportunities in disaster recovery planning can strengthen or hinder long-term sustainable resiliency. This study presents the findings from a mixed-methods, interdisciplinary, and civic focused approach evaluating community responses, exploring challenges, and identifying key themes and their impacts on regional planning, public health, and community development. It seeks to understand how these themes translate into tangible obstacles and actionable solutions. The results pinpoint effective strategies for community restoration and assesses potential for long-term efficacy.

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Key Words: Disaster planning, sustainability, emergency management, regional planning, rural planning

Municipal Design Standards and Urban Tree Planting Space: Case Studies Along the Mississippi River

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Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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There are many decision support tools for planners and natural resource managers to inventory urban trees. However, few resources comprehensively evaluate where trees can be planted using high-resolution spatial models alongside constraints imposed by local policies, regulations, and design standards. This research pilots a methodology with the following goals: 1) to integrate land use, land cover, and tree-related design standards, 2) to identify which types of trees can be planted, and 3) to assess the potential environmental benefits and tradeoffs of various design standards. Five major metropolitan areas along the Mississippi River were chosen as case studies: Minneapolis and St. Paul (Minnesota), Davenport (Iowa) and Rock Island (Illinois), St Louis (Missouri), Memphis (Tennessee), and Baton Rouge (Louisiana).

Two datasets were processed for this analysis. First, tree-related municipal policies and design standards were extracted from municipal codes, zoning regulations, and city planning documents. A systematic keyword search guided the extraction of relevant information from these documents. To verify data, we consulted with the city foresters, land-use planners, and parks and recreation representatives. After coding, an inter-rater reliability process was used to assess and correct for standardized data input.

Second, GIS data was collected and processed to evaluate the physical tree-planting potential. Federal and state GIS repositories were primarily used and supplemented by municipal sources. Suitable planting spaces were identified using pre-classified land cover datasets, prioritizing 1-meter or higher resolution (Wu et al. 2008). Land cover classes were reclassified based on similar research (e.g. Merry et al. 2013) into four categories: "Existing tree canopy" (deciduous and evergreen canopy); "Not plantable" (impervious surfaces such as buildings, roads, and parking lots); "Dig-ready plantable space" (soft surfaces such as turfgrass, bare soil, low vegetation, and agricultural fields); and "Water" (waterbodies and wetlands).

We discovered that local policies and design standards for urban forests vary significantly across cities. Tree preservation ordinances were less common, whereas tree planting design standards were more prevalent but inconsistent. While most GIS data was collected without issues, design standard-specific data, particularly critical infrastructure with tree planting restrictions (e.g., fire hydrants) required direct contact with municipal staff. The initial result of the plantable space assessment for the City of St. Paul, for example, revealed that out of the total 56.19 square miles, 41.97% is not plantable, while 22.70% is plantable. However, these initial numbers do not yet account for city-specific planting policies or critical infrastructure, which further limit available space. When overlaid with the policy and design standard data, we expect the total plantable to decrease from the initial result reported earlier due to policy constraints. For instance, in St. Paul, trees must be planted at least 10 feet from fire hydrants and utility poles. Such restrictions necessitate an additional category, "Limited planting," to more accurately represent the land suitable for planting.

This research bridges spatial analysis with policy evaluation in urban vegetation management. By integrating local policy and design standards in GIS, this research helps municipal and regional planners align urban forestry initiatives within existing regulations. The data produced by this research can also incorporate population

demography or nature equity considerations to ensure tree-planting efforts benefit all residents equitably. Finally, this research also highlights the value of interdisciplinarity - integrating geospatial analysis, policy analysis, and urban forestry - which is a valuable teaching tool in urban planning and natural resource management courses.

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Key Words: urban tree planting, urban planning, GIS, design standards, Mississippi River Basin

Nature Play & The City: A Case Study of Nature Play Areas in Austin, TX

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Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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To address concerns regarding decreasing time in nature in urban areas, cities implement green infrastructure projects, such as local parks, which aim to increase access to green spaces and promote nature connection (Parker et al., 2020). One benefit of increasing access and connection to nature is children's engagement in nature play. Although nature play can provide well-being benefits, inequities persist, as access to and inclusion differ across social stratifications of income, race and ethnicity, age, gender, and ability, indicating the role of social structures in urban development (Wolch et al., 2014). Through exploring the socio-political production of play areas in Barcelona, Spain, Pérez del Pulgar et al. (2020) challenged widely held assumptions that child friendly green spaces of play produce universal benefits. Building on the framework applied by Pérez del Pulgar et al. (2020), a mixed-methods case study approach was employed to nature play areas located in six parks across the city of Austin, TX.

To explore the socio-political production of these spaces, planning materials and documents related to each of the parks were reviewed. In addition, semi-structured interviews were conducted with four key representatives from local government and non-profit organizations that participated in the planning of the nature play areas. A cross-case synthesis approach was applied to summarize and compare data related to parks' background, surrounding social composition, level of gentrification, scale of transformations, framing/visions, and role of public and private partners. A checklist was used to collect data on the availability and quality of features and amenities in the parks, along with neighborhood demographic characteristics. Semi-structured observations of children's nature play were also performed over multiple weeks in March and May 2024, applying protocols as outlined by Cox et al., (2018). These observations captured children's demographics, types of play, social interactions, and nature interactions, serving as indicators of their relational well-being.

Initial findings reveal differences in neighborhood characteristics, as well as the frequency and type of use in the parks observed. School and neighborhood parks had significantly smaller numbers of observations than the larger metro and district parks. Therefore, the nature play areas in school and neighborhood parks also had lower levels of nature engagement. Differences in the demographics and engagement of users also differed. For example, one school park, located in a late-stage gentrifying neighborhood, had mostly adult users, typically with their dogs, and few children at the park during public park hours. Additional structured observations of children's play were employed at the two larger parks to quantitatively explore aspects of children's relational well-being. A total of 842 observations were collected at the two larger parks over multiple weekdays and weekends, and at various times of day. Summary statistics and chi-square tests reveal associations between observed demographics and the type of play and interactions performed in the parks. A regression analysis will be employed to assist in exploring these relationships and the differences in indicators of relational well-being across the two parks.

Findings from this study contribute to environmental justice literature through applying a mixed-methods case study approach, revealing additional contextual data about the parks' history and planning processes, not obtained through other methods. This study considers aspects of the production of space and their potential influence on the use of that space, which are important to the implementation of equitable green infrastructure. The direct observations of children's play also provide information useful to cities and planning professionals by revealing the social and environmental interactions performed in planned nature play areas.

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Key Words: Nature Play, Children's Well-being, Health Equity

Nature-Based Solutions for Climate Resilience: An Analysis of Urban Planning Strategies

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Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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Climate change impacts rising temperatures, increasing the frequency and intensity of extreme weather events, escalating the threat of sea-level rise, and exacerbating urban heat island effects (Folke et al., 2021). Addressing these complex issues requires developing and implementing comprehensive and integrated strategies designed to foster urban resilience, effectively mitigate the impacts of climate change, and facilitate adaptation to its inevitable consequences. Nature-based solutions (NBS) have emerged as a promising and potentially transformative approach to tackling these interconnected climate challenges within the ongoing discourse surrounding urban adaptation.

Despite a growing interest in NBS, a knowledge gap persists regarding cities' practical application of these solutions to effectively address climate change and enhance urban resilience. There is a pressing need for further research to comprehensively understand NBS's full potential, inherent limitations, and effective implementation strategies within the complex and dynamic context of urban environments.

In a global context characterized by economic constraints and governance limitations at both local and international levels, it is important to develop a clear and evidence-based understanding, aided by performance indicators, of how these adaptation actions, which prioritize strategic changes in urban design, can effectively bolster resilience and foster equity within urban areas. Therefore, the proposed research aims to investigate the multifaceted role of NBS within urban landscapes to simultaneously address the complex challenges posed by climate change, with a specific focus on enhancing resilience, achieving climate mitigation, and facilitating climate adaptation. This research will employ a mixed-methods approach, integrating quantitative data analysis, qualitative interviews with key stakeholders, detailed content analysis of relevant urban plans, and spatial analysis of plan policies.

The initial phase of this research involved a comprehensive content analysis of 213 urban plans focused on climate action, adaptation, resilience, and sustainability, sourced from 156 American cities members of ICLEI, to identify the prevalence of NBS proposed in plans. The results revealed that only 11.2% of these plans explicitly referenced NBS. While Resilience Plans exhibited the highest proportion of NBS mentions (50%), Sustainability Plans demonstrated the lowest (2.7%). Action Plans and Adaptation Plans contained 8.8% and 8.6% of plans, respectively.

To further explore the findings, we conducted an in-depth case study to examine whether cities implement Nature-Based Solutions without explicitly using the term. To identify whether a policy is classified as a nature-based solution, we used the European Research Executive Agency (2024) conceptualization. The first step is identifying whether the policy strategy is inspired by nature. If it is, we should identify whether it promotes environmental, economic, and social benefits. The case studies will examine the climate plans of four cities recognized as leaders in climate planning: Miami, FL; Washington, DC; San Francisco, CA; and Cincinnati, OH.

A preliminary analysis of the 91 strategies presented in the 2020 Miami Forever Climate Ready Adaptation Plan shows that only 8.8% were identified as nature-inspired or supported. Of these, only four strategies provided environmental benefits, and five provided social benefits. Notably, none of the strategy articulated economic benefits in their descriptions. This likely suggests that even when accounting for the absence of explicit NBS

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Key Words: Nature-based solutions, Climate resilience, Urban Resilience, Climate Adaptation, Co-benefits

Revealing disparities and drivers of compound exposure to urban heat and PM2.5 with low-cost sensors

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Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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With a warming climate, extreme heat events are becoming increasingly frequent, while worsening wildfires and prolonged droughts are intensifying fine particulate matter (PM2.5) pollution. Urban areas are particularly vulnerable to the compound impact of extreme heat and PM2.5 pollution due to the urban heat island effect and concentrated emissions sources. Additionally, complex and varied urban landscape lead to substantial intra-urban variability in both extreme heat and PM2.5 concentrations, meaning that some communities face disproportionate compound exposure and adverse health outcomes. However, current sparse regulatory monitoring networks and coarse-resolution remote sensing data are insufficient to capture fine-scale spatiotemporal dynamics of air temperature, humidity, and PM2.5 concentrations within cities. Moreover, although the frequency and duration of co-occurring extreme heat and particulate pollution are projected to increase, few studies examine them jointly. These gaps hinder the understanding of heterogeneity in compound exposures and pose significant challenges for advancing environmental justice.

In recent years, expansion of crowdsourced low-cost sensors has enabled spatiotemporally dense monitoring of temperature and PM2.5 concentrations. When combined with machine learning-based Land Use Regression (LUR) models, this offers a robust approach for exploring the spatiotemporal patterns of extreme heat and PM2.5 pollution across urban areas. In addition, machine learning algorithms have strong advantages in capturing the nonlinear relationships between various predictor variables and temperature or PM2.5 concentrations.

The goal of this study is to reveal spatial disparities in compound exposure to extreme heat and PM2.5 pollution and to identify key urban environmental drivers contributing to both stressors in Salt Lake City, Utah. We integrate measurements from low-cost fixed-site sensors with a spatial random forest-based LUR model to model and map the spatiotemporal distribution of summertime extreme heat and PM2.5 concentrations. Hourly air temperature, relative humidity, and PM2.5 concentration data were obtained from PurpleAir ($n = 118$) and Tellus ($n = 20$), while hourly air temperature and relative humidity data were collected from Weather Underground ($n = 62$), covering the period from June to August 2024. These data are combined with urban environmental covariates, including land use, topography, transportation infrastructure, building density and form, to conduct high-resolution modeling of the heat index and PM2.5 concentration. We will visualize the spatiotemporal distribution of compound exposure to extreme heat and PM2.5 concentration in Salt Lake City, identify communities with elevated exposure levels, and highlight the key urban environmental factors that drive these patterns. The methods and results of this study can help identify communities vulnerable to elevated exposures and provide spatially targeted guidance for short-term public health interventions. In addition, this study can provide quantitative evidence on green infrastructure, land use and zoning regulations for long-term climate-adaptive urban planning to mitigate extreme heat and PM2.5 pollution.

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Key Words: Extreme heat, Air pollution, Environmental injustice, Low-cost sensors, Machine learning

Tailoring Structured Decision-Making for Climate-Resilient Transportation: Lessons from Hawai'i

Abstract ID: 1842.0.0.1010.2025

Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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Climate change and sea level rise pose growing threats to transportation systems in coastal regions, with Hawai'i facing particularly acute challenges as an island state (U.S. Global Change Research Program, 2018; Keener, 2013). Increasing flooding, shoreline erosion, and infrastructure vulnerability underscore the urgency of implementing effective climate adaptation strategies (Moser and Boykoff, 2013). While structured decision-making (SDM) frameworks are widely used in natural resource and environmental management (Gregory et al., 2012), their application in climate adaptation planning has not been thoroughly examined in practice (Martin et al., 2011). This study explores how an SDM framework can be to support transportation adaptation planning in an island context.

We conducted semi-structured, in-depth interviews with 29 stakeholders involved in adaptation planning, including government agencies, NGOs, and community organizations. Participants were recruited using typical case and snowball sampling. The analysis identifies key concerns, objectives, tradeoffs, evaluation criteria, and barriers that shape planning outcomes. Recurring themes include the challenge of siloed planning, outdated or mismatched data, uncertainty in future scenarios, limited resources, and social or political inertia. In transportation specifically, challenges also included aging infrastructure, lack of redundancy in critical corridors, and difficulty aligning adaptation goals with land use and housing objectives.

Drawing on stakeholder insights, we propose a modified SDM framework that better supports cross-sector collaboration, integrates diverse stakeholder priorities, and accommodates long-term uncertainty. Key enhancements include: (1) early and ongoing engagement with communities to articulate shared values and manage tradeoffs; (2) alignment of adaptation efforts with broader planning goals to achieve co-benefits; (3) iterative feedback loops using updated spatial and temporal data; and (4) strategies to build trust, consolidate institutional support, and reduce implementation barriers.

This work contributes to planning scholarship by translating structured decision-making into a usable, iterative framework for climate-resilient transportation planning. The findings offer practical insights for local planners and policymakers working in coastal and island communities, where integrated and adaptive frameworks are essential to strengthening resilience. While grounded in Hawai'i, the study offers transferable lessons for other regions facing similar climate-related pressures.

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Key Words: Climate Adaptation, SDM, Planning Frameworks, Stakeholder Engagement, Transportation Resilience

The Missing Link: Why Local Plans Matter for Wetland Conservation

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Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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In the U.S., federal and state agencies have made significant efforts to protect and restore wetlands. Local jurisdictions play a crucial role in wetland conservation, as wetlands are often adjacent to key water bodies that serve critical ecological and community functions. While federal regulations and policies guide wetland conservation, their implementation at the local level remains uncertain.

Local comprehensive plans, hazard mitigation plans, and watershed plans each contribute to land use management, hazard risk reduction, and natural resource management. This study evaluates how well wetland conservation is integrated into these plans in Nebraska. It addresses three key questions: (1) How effectively do local jurisdictions incorporate wetland conservation into local planning systems? (2) What are the strengths and gaps in wetland conservation planning among these plans? (3) How can wetland conservation be better integrated into local planning?

Findings reveal that most local plans provide limited direct attention to wetland conservation, though conservation efforts are often embedded within broader environmental protection frameworks. Among the evaluated indicators, water resource protection received the highest score, reflecting strong local awareness of natural assets. Comprehensive plans adequately emphasize conservation policies, hazard mitigation plans address riverine wetlands within floodplains, and watershed plans focus on surface water resources and water quality improvements related to wetlands. However, the goal of achieving "no net loss" of wetlands received the lowest score, highlighting a significant gap between national conservation objectives and local implementation.

The study underscores the need for more proactive and targeted local government initiatives to enhance wetland conservation. It also offers practical recommendations for integrating wetland conservation into local planning efforts, providing valuable insights for planners worldwide, particularly in developing countries.

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Key Words: wetlands, conservation, comprehensive plan, hazard mitigation plan, watershed plan

What happens to the promise of resilience and equity in post disaster recovery?

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Track 4: Environmental Planning & Resource Development

Research-in-Motion Presentation Submission, Research currently in process

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Despite global consensus around the need for resilient and equitable recovery, post-disaster housing reconstruction often reveals a persistent gap between policy frameworks and their implementation, as core commitments are frequently sidelined in practice. This disconnect between intention and outcome is not accidental; rather, it is shaped by the inherent complexity of post-disaster recovery, characterized by urgency, limited resources, institutional fragmentation, and shifting political and donor agendas. In Nepal, early policy documents following the 2015 Gorkha earthquake explicitly committed to inclusive recovery. Yet, as reconstruction progressed, these commitments gradually faded from policy narratives and decision-making. This raises a broader question: how and why do resilience and equity goals shift during the period of recovery?

I argue that these shifts are not merely administrative but are shaped by evolving governance logics, shifting donor priorities, and debates over the technical framing of recovery. These debates shape how recovery is defined, measured, and managed, often sidelining equity and long-term resilience.

This research examines the institutional, political, and technocratic dynamics shaping recovery over the implementation period. Using Nepal's post-earthquake recovery as the central case, the study explores how stakeholders interpret, adapt, or overlook recovery objectives on the ground. Furthermore, I examined recovery cases from Sri Lanka after the 2004 Indian Ocean tsunami and the Philippines after the 2013 Typhoon Haiyan to evaluate if these patterns are unique to specific contexts or reflect broader systemic trends. Using a qualitative method approach, I first conducted content analysis of key documents from the disaster recovery efforts in each of the four countries, including national and INGO recovery policy framework, NGO publications and evaluation reports. This enabled a systematic tracing of shifting narratives, priorities, and institutional rationales over time. In addition, 20 semi-structured interviews (Nepal(12), Philippines(4) & Sri Lanka(4)) with engineers, planners, and policymakers provide grounded insights of recovery policies and practices.

Initial findings from interviews reveal two critical patterns. First, there is a widespread lack of awareness among implementers regarding the overarching goals of resilient and equitable recovery, highlighting a disconnect between centralized policy and local-level practice. Second, even when institutional inconsistencies are identified, front line government staffs expressed limited authority to adapt strategies, reflecting bureaucratic rigidity and hierarchical control. They also pointed to deeper structural disempowerment and institutional inflexibility. Moreover, an initial review of recovery documents suggests that data limitations, as commonly argued, are not the primary constraint in achieving resilient and equitable recovery. In Nepal, after the earthquake, the World Bank conducted a detailed damage assessment alongside a comprehensive socio-economic census of over six million affected individuals. However, this rich dataset was not extensively used to make recovery decisions. Instead, issues of equity and resilience were gradually sidelined through a pattern of strategic ignorance, where politically sensitive information as of caste, land tenure, and informal settlements, was excluded. This reflects a deeper issue concerning whose knowledge is recognized and acted upon.

Further, I explore how shifting donor priorities, political transitions, and institutional reforms shape which forms of knowledge remain in recovery. This knowledge explains how resilience narrows from a multidimensional ideal to a

narrow technical formality. By following changes in policy commitments, I explore the post-disaster governance and recovery's contested path, aiming to inform just and resilient recovery planning.

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Key Words: Post-Disaster Recovery, Housing, Disaster Governance, Resilience and Equity, Recovery Policy

Track 5 – Inclusion and Accessibility in Planning

Track 5 Roundtables

AI's Role in Creating Inclusive Spaces for Older Adults and People with Disabilities

Abstract ID: 1843.0.0.212.2025

Track 5: Inclusion and Accessibility in Planning

Roundtable Submission, Topical Discussions

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Artificial Intelligence (AI) has potential to address the unique planning challenges faced by under-represented communities, particularly older adults and people with disabilities. This roundtable aims to explore the opportunities and challenges of AI's impact on creating inclusive spaces for these communities (Ye et al., 2023). Is AI a boon that helps overcome challenges in planning for aging and disability communities, by providing tools for more targeted and responsive solutions (Czaja et al., 2022)? Or is it a burden that can potentially perpetuate existing inequalities and introduce new challenges (El Morr, et al., 2024)? Scholars from diverse subfields in planning will discuss the implications of AI-based solutions in the built environment. The conversation will focus on both the advantages and disadvantages of using AI for planning and designing inclusive spaces, and the specific needs of older adults and people with disabilities (Gallistl et al., 2024; Ran et al., 2020). The roundtable is an opportunity for planners to think about the nexus of AI, disability, and aging in the interest of creating inclusive built environments while acknowledging the potential challenges and adverse impacts AI may introduce or exacerbate. This will be one of the first debates about AI, disability, and aging in the field of planning.

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Key Words: AI, disability, aging, built environment, inclusive spaces

Encountering Otherness: Navigating Fieldwork as an Intersectional Body

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Track 5: Inclusion and Accessibility in Planning

Roundtable Submission, Topical Discussions

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Ethically engaged feminist urban research, especially involving long-term collaboration with communities and multiple sets of interlocutors, demands reflexivity—a critical examination of the researcher’s positionality, the research process, knowledge production and representation, as well as power relations that are neither fixed nor one-dimensional, and of the contested space we embrace as ‘the field’. Fieldwork in engaged urban research is always complex, contextual, embodied, emotional, relational, and politicized (Sultana, 2007), and poses unique challenges for women and queer researchers, especially when navigating male-dominated, patriarchal spaces.

In this roundtable, we—a group of feminist planning scholars who have conducted fieldwork on different dimensions of socio-spatial reproduction of cities—embark on a journey inspired by intersectional reflexivity (Rodriguez and Ridgway, 2021) to explore how our intersecting identities (gender, sexuality, class, race, nationality, religion, caste, education, language, marital status, institutional affiliations, and other vectors of difference) shape our ‘otherness’ in the field and our access to spaces and interlocutors. We move beyond fixed notions of intersectionality and employ ‘thick intersectionality’ (Yep and Mutua, 2016) to understand identity formation and embodiment as fragmented, reframed, and renegotiated within specific geopolitical, historical, and sociospatial contexts. This lens helps us identify our privileges and disadvantages and acknowledge our contextual vulnerabilities as othered, intersectional bodies, as well as, highlights the solidarity and connection formed through ethical collaborations.

For researchers embodying intersecting identities and subjectivities, critical reflexivity unpacks fieldwork complexities, shapes evolving researcher-interlocutor relationships, and can lead to transformative knowledge production (Nagar and Geiger, 2007). Even when native researchers like us ‘return home’ for fieldwork, dilemmas persist, and we face the ‘native yet the other’ question (Sultana, 2007)—where our intersectional identities shape our otherness even at home. These tensions also affect non-native researchers, who navigate expectations tied to their identities and contend with sociocultural norms and gendered behavior codes that may feel unfamiliar or restrictive. Native or not, researchers with intersecting identities negotiate performances of femininity or masculinity, respectability, and conduct expectations that vary across contexts, complicating access, trust, and legitimacy (Johansson & Jones, 2020). These norms are deeply embedded in place, and nonconformity can jeopardize research or place researchers at risk. At the same time, this heightened awareness must be accompanied by an ethics of care for oneself, recognizing that the labor of adapting and absorbing these expectations is often invisibilized. Creating safe, ethical, and relationally grounded fieldwork spaces is impossible if we, as researchers, feel unseen, unsafe, or unsupported (Billo & Hiemstra, 2013). Attending to our well-being—physical, emotional, and psychological—is a political imperative, particularly when our research involves co-creating safe spaces for our interlocutors. As engaged urban planners, through this roundtable, we embark on this

collective reflexive journey to explore ways to navigate our hope, hopelessness, and vulnerabilities, and deepen our relationships with places and people we encounter in the everyday field to produce ethical, meaningful, transformative research to support the causes and actions of our interlocutors for just existences in cities. The discussion will also encourage critical reflection on how academia supports—or fails to support—field researchers and why centering care, safety, and solidarity is essential for building more equitable research environments.

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Key Words: Engaged research, Fieldwork, Women and queer planners, Reflexivity, Intersectionality

Recruiting, Retaining, and Supporting First Generation Students at Planning Programs

Abstract ID: 1843.0.0.111.2025

Track 5: Inclusion and Accessibility in Planning

Roundtable Submission, Topical Discussions

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The AICP Code of Ethics espouses the importance of training and engaging underrepresented communities. Among planning programs, gender parity has been addressed while there has been incremental progress in diversifying racial/ethnic student enrollment (PAB, 2023). To address the latter group, ACSP and various groups—including POCIG and the ACSP Committee on Diversity—have extensively analyzed racial/ethnic student and faculty issues.

However, the 2023 Supreme Court ruling that banned race-conscious admissions is among the latest changes to federal, state, and university policies that are targeting efforts to diversify non-white students in higher education. Planning programs have also shown to perpetuate elite hiring networks, which reward students and faculty who adapt “cultural competence” to the culture of prestigious universities and affluence (Lee, 2022).

In this political environment, first-generation students may be one of the only permissible groups that planning programs can make concerted and explicit efforts to recruit, retain, and support. Based on other studies, first-generation students are also disproportionately underrepresented in graduate programs—only 3% will earn a master’s degree or higher (Redford & Hoyer, 2017), and they continue to experience barriers beyond completing an undergraduate degree (Cameron, 2021). Yet, there is scant scholarship on first-generation student experiences in planning programs. Accordingly, the roundtable is an introductory effort to focus on first-generation student experiences.

Questions the roundtable panelists seek to address include:

1. Understand the lived intersectional experiences of first-generation students
2. Identify systemic and institutional barriers and asset-based strategies that first-generation students experience
3. Discuss strategies, policies, programs, or recommendations for planning programs to lower barriers and support first-generation students at various levels of higher education

Citations:

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Key Words: first-generation students, planning pedagogy, planning education

Track 5 Individual Paper Presentations

A Tale of Two Durhams: 15 Minute Cities in the Research Triangle Park and City of Durham, NC

Abstract ID: 1844.0.0.993.2025

Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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The 15-minute city promises a retrofitting cure for many modern urban design problems that we can trace back to the mid-twentieth century, including car dependency, social isolation, sprawl, and economically segregated neighborhoods (Kjavarian-Garmsir et al, 2023). However, the implications of a 15-minute city for our current inequitable built environment must be examined through racial and economic justice lenses (Mouratidis, 2024). In this study we ask two interrelated questions. First, to what extent can 15-minute cities address not just poor connectivity but also a wide range of urban and societal inequities? Second, how might 15-minute cities be used to address failures in the planning process, especially by building meaningful participation and community involvement?

Our comparative, mixed-methods case study examines two 15-minute city applications within a few miles of each other in North Carolina: the first in the 1950s era, technology oriented, industrial Research Triangle Park (RTP) and the second in the city of Durham (Thompson, 2024). RTP's 15-minute city plan is the latest attempt to solve the "original sin" of isolating regional economic anchors from housing and retail. Durham embraced the 15-minute city concept in its latest comprehensive plan as a part of a growth management strategy aimed at building more equitable, accessible, and affordable neighborhoods.

We interrogate these interrelated cases along three distinct themes. First, we look for evidence of 15-minute cities disrupting or confirming development as envisioned by political and business elites; here, we consider 15-minute cities as descendants of both regional anchor industrial parks and Ebenezer Howard's plans for Garden Cities as profit-generating Victorian developments. Second, we explore the potential for retrofitting car-dominated spaces, in particular evaluating the extent to which 15-minute cities adequately address long-standing segregationist planning patterns. And finally we look for evidence of how, if at all, 15-minute cities address planning's ongoing struggles to integrate meaningful public participation into efficient, equitable processes.

While in theory 15-minute cities could tackle many legacy problems, we argue that—like predecessor movements—current iterations have been co-opted by developers in order to extract development profits and reinforce urban power arrangements. As a result they cannot overcome underdeveloped system-of-systems thinking, poor community engagement, business-driven development and the under-provision of affordable housing and other public needs. We therefore caution that American iterations of 15-minute cities alone are not a panacea to address systemic racial and economic injustices and may in fact exacerbate them. Still, their simplicity of concept leads us to believe that improvement is possible—especially if we learn from past work on creating equitable, inclusive streets and spaces. We thus conclude with a series of policy suggestions for moving 15-minute discourse away from simple examinations of transportation and land use and towards a system-of-systems model

that integrates meaningful public participation and improved governance (Conrad et al 2011, Taylor 2007) with more complex concepts of equitable, just streets and urban spaces.

Citations:

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Key Words: 15-minute cities, public participation, community engagement, economic development

Assessing Spatial Exposure: Public Infrastructure Access Among Immigrant Mobility Patterns in Denver

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Immigrant communities frequently face structural barriers to accessing public spaces in U.S. cities, contributing to spatial inequalities and social exclusion. Although immigrant populations are often concentrated in specific neighborhoods in Denver, their access to public spaces, transit systems, and other urban infrastructure remains understudied, along with the associated sense of belonging that is critical for people arriving in a new environment. To think about access to public amenities is to consider mobility patterns that enable one to navigate to them, as immobility can relate to spatial isolation and exclusion (Wander, 2025).

This study examines the spatial dynamics of immigrant communities in Denver by drawing on the concept of “exposure” (Kemmer et al., 2022) to evaluate the degree to which immigrant communities are visible and integrated within public spaces, as well as the extent to which they experience social and infrastructural inclusion or exclusion. If integration is considered part of a broader spectrum of urban mobility, then with the concept of exposure, we can hypothesize the degree of inclusion that is experienced by immigrant communities. This is within the framework of “critical mobility thinking,” in which it is suggested that fluid spaces of being mobile within the city provide opportunities for cultural production and the formation of relationships (Jensen et al., 2009).

This research aims to answer three key questions: (1) To what extent do immigrant communities in Denver have access to essential public urban infrastructure? (2) How does the concept of exposure help explain the spatial experiences of immigrant communities? (3) With the mindset of critical mobility thinking, how successfully do public spaces and urban infrastructure decisions among immigrant populations influence their exposure to public services and the ability for relationship formation between people and place? To answer these questions, this study will utilize a spatial analysis that integrates multiple accessibility variables to measure immigrant communities’ access to public spaces. Demographic data from the American Community Survey (ACS) and immigrant population data from Denver Human Services will be used to map the density of foreign-born populations and identify socio-economic patterns. Public space availability will be assessed using land-use and zoning data to determine the distribution and quality of parks, and other public spaces. Transit infrastructure will be evaluated using General Transit Feed Specification (GTFS) data and data from the Regional Transportation District (RTD). Additional environmental and neighborhood characteristics, including tree canopy cover from the Denver Regional Council of Governments will be incorporated.

A Multi-Criteria Decision Analysis (MCDA) framework will guide the analysis of these factors, producing a suitability map that categorizes neighborhoods on their level of exposure to public infrastructure and services. This will reveal how immigrant-dense neighborhoods compare to access patterns in neighborhoods that have a lower number of foreign-born populations. Findings will identify systemic disparities and highlight areas where targeted interventions could improve accessibility. By applying the concept of exposure to critical mobility thinking within immigrant communities and their spatial experiences, this study aims to broaden the understanding of urban accessibility and engagement with various public infrastructure. Conclusions will offer a foundation for designing more accessible urban environments, where immigrant populations can engage more fully with public spaces, from simply passing through to lingering. This research contributes to the growing body of work on spatial justice,

infrastructure accessibility, urban mobility patterns, and immigrant integration, offering insights for urban planners and policymakers seeking to address structural inequalities in cities.

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Key Words: Accessibility, Infrastructure, Mobility, Exposure, Immigrant

Assessing the Impact of New Metro Lines on Income-based Activity-space Segregation

Abstract ID: 1844.0.0.584.2025

Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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With the rapid urbanization and increasing population mobility, cities worldwide are facing severe challenges related to segregation and inequality. A diverse population composition is vital for fostering social cohesion within urban areas. Income segregation, stemming from the uneven spatial distribution of income groups, could profoundly undermine urban residents' equitable access to amenities and resources. This phenomenon manifests not only as static residential segregation tied to housing disparities, but also as dynamic segregation in daily activity spaces. Such activity-space based segregation may impede spatial integration among diverse groups, utterly eroding urban vitality.

In recent decades, the rapid expansion of urban rail transit networks has not only significantly enhanced urban mobility, but also exert profound influences on regional economies and social structures. Urban rail transit provides residents with a more efficient and sustainable travel option and reshapes the spatial distributions of income groups by altering urban economic activities and population flows, thus potentially affecting the income segregation within activity spaces. Some research posits that rail transit development could accelerate gentrification, exacerbating wealth disparities, and intensifying income-based activity space segregation. Conversely, other studies highlight the potential for public transport infrastructure to improve urban mobility and accessibility, thereby alleviating income segregation and fostering social integration. Nevertheless, the causal mechanisms driving these impacts remain unclear, highlighting the need for further investigation.

Shanghai, a key economic and financial hub in China, faces pronounced challenges related to urban social spatial segregation. In this study, we leverage a large-scale mobile signaling dataset for millions of users and difference-in-differences (DID) models to analyze the causal impact of the inauguration of Shanghai Metro Line 15 on income-based activity space segregation and its heterogeneity across income groups and urban locations.

The research results indicate that the opening of new subway lines can promote encounters and interactions among different income groups, thereby alleviating spatial segregation of activity areas. Specifically, the opening of Line 15 significantly increased the number and duration of visits by low-income and lower-middle-income groups in the surrounding areas, and the positive effect on the travel convenience of low-income groups continued to strengthen. Among different station types, the decline in spatial segregation of activity areas was more pronounced in existing transfer hubs, with an increase in low-income populations. This demonstrates that subway development has significant economic and social empowerment effects. Its opening substantially reduced the travel costs for low-income and lower-middle-income groups, while also providing convenient access to high-quality public services. At the social level, subway development promotes social equity and integration, lowering the travel barriers for low-income groups and enabling people from different income strata to equally utilize this public transportation resource.

The study provides useful insights into the social equity implications of rail transit development. When planning for new metro lines, governments and relevant agencies need to fully consider the impact of new rail transit

development on the socio-economic structure of the corridor. It is crucial to ensure the mobility and activity space of low-income groups, allowing diverse income groups benefit from the new transit infrastructure and facilitating their encounters and interactions.

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Key Words: Income segregation, Activity-space, Metro, Mobile signaling dataset, Difference-in-differences

Auto-Ethnographies of Home: Latine Immigrant Women Explain the Housing Crisis in Colorado.

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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The data collection methods that define urban planning work emphasize the analysis of quantitative data in a broad range of planning topics, including access to safe and affordable housing. Their findings, however, may only identify the disparities experienced by large population groups present in the US census. Quantitative analysis does not capture the experience, personal narratives and histories of under-represented individuals of mixed immigration status who may not appear in census estimates yet struggle to secure housing. Based on participant observations of Campeones del Sistema - a policy literacy program sponsored by the department of Public Health in Eagle County, Colorado - this analysis asks two related questions: (1) What are the experiences of Latine immigrant women in securing safe and affordable housing and (2) how can the Auto-ethnographic method – a qualitative data collection method informed by an author/researcher’s personal experience to describe and interpret a context, belief, or practice – be applied to participatory action research advocating housing and public health policy. These questions are answered through an in-depth case study approach combining the analysis of housing policies, archival documentation, the coding analysis of 10 housing auto-ethnographies and open ended and semi-structured interviews with their authors as well as policy makers. The analysis finds that auto-ethnographies of housing may provide relevant qualitative data bridging an understanding between the structural forces shaping Colorado’s housing crisis and the interpretation of individual life-histories. A lack of affordable housing and the absence of new construction foment a housing market where women with mixed immigrant status experience prolonged, unstable and multi-sited housing tenure. This condition in combination with a record based on personal narrative and memory upholds key themes: The experience of life-long housing challenges; the condition of transnational housing insecurity; the dependency of male dominated family structures; and the threat of gender violence and trauma in housing tenure. Additional findings also demonstrate that the auto-ethnographic method can successfully be in participatory action research by centering the role of authorship as a mode of agency, social learning and reflexive practice in the collection of data. Additionally, the collection of qualitative data may serve as a platform for advocacy through the support of community liaisons who identify opportunities to uplift the qualitative data in policy-making processes.

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Key Words: Housing, Immigration, Gender, Auto-ethnography

Bridging the Digital Divide: Public Spaces and Public Libraries in the City of Dallas

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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In the current era of digital media, there is a lot of attention to what is the role of city planners in facing the digital technologies that are becoming part of our cities (Geertman & Stillwell, 2020; NTIA 1995;1998;2000, Van Dijk 2006; Van Deursen & Van Dijk 2010). Many studies call urban planners to redefine urban planning practices and culture and move to digitalization planning (Nummi et al., 2023; Gabriela & Martin; 2023, Potts & Milz, 2024). The overarching purpose of this study is to position the role of urban planning in bridging the social and economic implications of the Digital Divide (DD), using an equity lens, through urban design interventions and innovative solutions. The DD is the gap between those who does and does not have access to the internet, that is part of the daily fabric of living in the digital era (Sanders & Scanlon 2021). Today, the DD research has developed by scholars into three levels : the first level deals with access to the Internet (NTIA 1995;1998;2000, Van Dijk 2006; Van Deursen & Van Dijk 2010, Scheerder et al, 2020), the second level deals with skills needed to use online resources and digital literacy (Bucy,2000; Hargittai, 2002; Gordo 2002; Hargittai & Hinnant 2008, Deursen & Helsper,2015; Lindsay,2005; Van Dijk 2006, Scheerdt et al.,2017; 2020,,) and the third level deals with who understand the Internet and benefit from it (DiMaggio et al., 2001, Hampton 2010; Deursen & Helsper., 2015; Scheerder et al., 2017;2020).However, there is little research from an urban planning perspective on the third level of the digital divide and how it impacts low-income communities . This paper aims to explore the equity implication associated with the third level of the digital divide within the context of the city of Dallas exploring the role of public spaces and public libraries in bridging the third level of the digital divide. The theoretical framework used for this study is Susan Feinstein's just city theory , Manual Castle theory of power and Kevin Lynch " Edges". This study is a qualitative case study using interviews, NVivo, and content analysis. The findings of this study emphasize the importance of the interdisciplinary urban planning field to develop informed solutions and call for a new language of narrative that suggest (architecture, art, urban planning and design) solutions that are extracted from lessons learned from the history. The study contribution is new in creating innovative interdisciplinary ideas in neglected public spaces such as under highways. The proposed public space ideas of this research could be replicated in other cities and policy makers can develop effective policies that focuses on digital equity from a bottom-up approach. Highways infrastructure should be equipped with internet fibers (first level of DD) to foster an inclusive public space for communities to gather, exchange ideas, and learn from each other (second and third level of the DD).

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Key Words: digital divide, digital equity, Public Library, Public Space, Kevin Lynch

Can City Walk Strategies Expand the Optimizing Scope of Public Space in Historic Residential Areas?

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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In historic urban districts, older residential areas often face a shortage of public spaces, which hinders the government's efforts to attract new residents as part of its strategy to tackle demographic challenges. However, these neighborhoods frequently border underutilized public spaces that hold the potential to become attractive. Furthermore, the rising popularity of city walk has expanded people's daily activities, encouraging them to explore more extensive urban environments. It is thus vital to assess the diverse needs of residents and determine whether their activity spaces can be extended further. This study seeks to broaden the scope of public space improvement by connecting various areas through streets to create spatial corridors, thereby increasing their appeal to new residents.

Despite this, much existing research on public spaces has primarily focused on improving individual locations rather than adopting a comprehensive approach at the regional or larger scale. To address this gap, this study chose the Xianxia Road Community in Nanjing as the site, given its limited internal public space resources. It then identified potential resources within the broader surrounding area. For example, historical and cultural landmarks in the vicinity were mapped using ArcGIS, and natural resources were categorized according to land use data. Analyses also included the accessibility of the road network and the coverage of public space. Initial surveys indicated that various potential public spaces could be linked within a 15-minute walking radius of the community. Additionally, panoramic video samples were collected during fieldwork to identify usable resources and typical areas for potential pathway development. After assessing the quality and characteristics of these samples and processing the videos, 28 representative scenes were selected for a statement preference (SP) questionnaire. This questionnaire aimed to understand the target group's perceptions and preferences regarding various built environment features, cultural and historical elements, and ecological aspects of public spaces. Using data from the questionnaire and establishing the SEM-Logit model, factors affecting preferences for public space choices were measured, and scores for adjacent public spaces were established. By integrating this with respondent attributes, including travel distance, time, and type of activity, the urban walking route was refined. In the end, an optional walking route connecting surrounding historical locations of the site, such as Qingliang Mountain and National Defense Park, was proposed, demonstrating the scalability of this research approach.

In summary, this study leverages the trend of city walk to propose a novel approach to enhancing the spaces around urban residential areas, shifting from isolated improvements to a connected network. It also incorporates additional dimensions from the questionnaire, such as visual and auditory experiences, to provide recommendations for optimizing and upgrading public spaces based on the significance of these indicators. Furthermore, it illustrates how activity paths can connect natural, historical, and cultural resources to maximize the appeal of these spaces for the intended audience.

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Key Words: City Walk, Public Space, Residential Area, Preference

Decolonizing Interpretive Planning: The Multiple Stories of Williamson Creek, Austin, Texas

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Heritage interpretation can be understood as storytelling about places and landscapes, drawing on original objects, first-hand experience, and illustrative media to reveal meanings and relationships for visitors to make sense of sites, collections, and events (Tilden, 1977). Interpretive planning has traditionally been premised on the material basis of heritage, thus foregrounding state-sanctioned built structures, historical figures, and narratives while glossing over intangible memories and experiences that give meanings to landscapes. Instead, from the perspective of critical heritage studies, heritage can be understood as multilayered performances of remembrance and constructions of place, belonging and understanding which can serve to negotiate a range of identities (Smith, 2006). This is particularly important in the case of heritage preservation in underserved and neglected communities which, from the perspective of state-sanctioned heritage conservation elites, ostensibly lack sites, events, and people worthy of state-sponsored preservation. Such communities draw on heritage as a recourse to contest neglect and exclusion, seeking greater influence in the construction of interpretive plans in order to place people at the center of interpretive planning (Cheong, 2021).

Such equity-based interpretive planning has been at the center of a five-year project led by residents of a primarily Spanish-speaking neighborhood in Austin, Texas. Working in partnership with faculty and students at the University of Texas and a variety of non-profit organizations and supportive officials from the City of Austin, a group of neighbors have led “story circles” (Curthoys et al., 2012) to document neighbors’ memories and relationships with a small community park located within the Williamson Creek Greenbelt East. These conversations inform development of a critical heritage interpretation plan based on the community-based storytelling, memories, and everyday place-making that give meaning to public spaces in the neighborhood. To develop an interpretive plan that reflects the multiple stories of the park and the neighborhood through signage, programs, and various digital and audiovisual forms inside and outside the park space, the project draws on decolonizing principles of research that emphasize critical reflexivity, reciprocity and respect for self-determination, embracing “Other(ed)” ways of knowing, and embodying a transformative praxis (Thambinathan and Kinsella, 2021). In doing so, the project seeks to create an identity for the park that reflects the character of place while fostering a sense of community ownership.

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Key Words: Interpretive planning, Heritage preservation, Critical heritage studies, Decolonial planning, Equity preservation

Digital Divide and Regional Inequality: A Multidimensional Literacy Framework in South Korea

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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[Research Questions and Objectives] As digital technologies evolve, the divide between those who can use them effectively and those who cannot is deepening. This digital divide is not just a technical issue but a structural driver of social inequality—shaping access to education, economic mobility, and civic participation. Yet, existing measurements remain simplistic, relying heavily on indicators like internet access or device ownership. These fail to capture how digital capabilities are formed, differentiated, and spatially distributed. This study addresses these gaps through three core questions: (1) How can digital literacy be redefined to reflect current technological realities and enable empirical measurement of digital inequality? (2) What digital inequality classifications emerge from this measurement? (3) How are these classifications spatially distributed, and what do they imply for regional inequality and planning?

[Data and Method] To answer these questions, we designed a national survey with 48 items covering four dimensions of digital inequality. These are based on a well-established multi-level framework: first-level (access to internet and devices), second-level (digital skills and usage frequency), third-level (outcomes in education, employment, and civic life), and fourth-level (data literacy and algorithmic awareness, including understanding of recommender systems and digital surveillance). The survey was conducted in early 2025 with 1,200 respondents, sampled across all 17 metropolitan and provincial regions in South Korea to ensure demographic and geographic diversity. Latent Class Analysis (LCA) was used to classify individuals into distinct digital groups based on their profiles. These classifications were then analyzed through multilevel spatial regression, combining individual-level factors with regional-level indicators such as digital infrastructure, education investment, and urbanization.

[Main Findings] The analysis identified five distinct digital types, each reflecting a different configuration of access, skill, and awareness. Notably, a “trapped potential” group emerged—individuals with high data and algorithmic literacy but low access to institutional support or smart infrastructure. This group illustrates how capability alone does not ensure participation without structural support. Conversely, digitally excluded groups scored low across all dimensions and were overrepresented in rural and aging regions. Algorithmic awareness proved to be a stronger predictor of digital engagement in civic and economic spheres than traditional metrics like device ownership or usage frequency. Spatial clustering showed that digitally empowered groups are concentrated in innovation-oriented cities like Seoul, Sejong, and Daejeon, while marginalized groups are clustered in post-industrial or rural areas like Gyeongbuk and Jeonbuk.

[Implications] This study offers three key contributions to planning research and practice. First, it reconceptualizes digital literacy to include algorithmic awareness alongside access and skills. Second, it develops a multidimensional and spatially sensitive classification of digital inequality. Third, by combining LCA with multilevel spatial regression, it provides a scalable method for detecting digital stratification. Policy-wise, the study highlights the need for place-based strategies that go beyond broadband expansion or skills training. Effective digital inclusion must align with local institutional capacities and lived realities. Ultimately, we propose redefining digital justice not just as access, but as equitable capacity to shape and participate in digital systems—grounded in both personal literacies and regional opportunity structures.

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Key Words: Digital divide, Digital literacy, Digital exclusion, Spatial inequality, Regional planning

Disability Initiatives in Planning Practice: An Analysis of Planning and Disability Needs in Alabama

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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The key to creating just environments in our communities and averting exclusionary practices has been the use of Universal Design (UD) standards to design products, spaces, and structures equally accessible to people of all abilities. Planners, policymakers, and rehabilitation specialists facilitate this objective of integrating individuals with disabilities into mainstream society. However, there is often a lack of collaboration among these actors, hampering UD efforts' effectiveness. This study, therefore, asks: How can collaboration between community planners and those with expertise in supporting individuals with disabilities be fostered? We aim to identify the gaps and barriers of UD community planning initiatives and opportunities to overcome such barriers.

The integration of UD into community planning is essential as urban health policies for individuals with disabilities are lacking. The need for equitable access and inclusive planning for people with disabilities calls for strategies to improve information dissemination on accessibility, involve them in decision-making, ensure continuity of care, provide economic assistance, and fight discrimination. However, research indicates significant gaps in accessibility within planning frameworks, and engaging individuals with disabilities can lead to better outcomes. In Alabama, adults with disabilities represent 33% of the population. More than half of seniors aged 65 and older have some form of disability, with mobility and cognition issues being the most common disabilities. There is a pressing need for inclusive community design, accessible housing, healthcare facilities, and support services in the state. While planning has the potential to address disability needs, many communities fall short in Alabama due to a lack of progressive planning practices, absent or outdated comprehensive plans, and the dearth of institutional structure for systematic planning.

To understand Alabama's disability landscape, this study employs two approaches: 1) examining the planning landscape for disability needs and 2) identifying parallel initiatives not necessarily initiated by planners. A Disability Assessment Index (DAI) was created using variables such as the percentage of the uninsured, individuals living in poverty, and those with disabilities. The DAI categorizes Alabama tracts into low, moderate, and high needs for disability accommodations. Additionally, we reviewed existing community plans for 22 municipalities and 12 regional councils to assess their incorporation of disability standards, focusing on their disability accommodations. We also mapped other inclusive and therapeutic programs for disabilities in Alabama, creating a directory of these programs and their initiatives.

We find that most areas with moderate to high disability needs are predominantly rural, whereas urban areas tend to show lower disability needs. Although a majority of the studied city plans include disability initiatives, their approaches are not comprehensive. None of the plans include people with disabilities or disability experts in the plan-making process. There is also a gap between identifying disability needs and incorporating initiatives to address them. Plans in major cities tend to be more comprehensive in addressing these initiatives compared to small cities, signifying issues of planning priority and funding. We also find that areas that showed high disability needs are not necessarily served well by disability programs. Especially in rural areas, regional council plans are not sufficient in creating an inclusive built environment for people with disabilities. We propose strategies that can foster collaboration between planners and disability specialists, remove urban and rural gaps, and find funding opportunities to prioritize disability initiatives in planning practice.

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Key Words: Disability, Inclusive Planning, Universal Design, ADA Compliance, Alabama

Enhancing Public Space Vitality in Historic Urban Areas through Intergenerational Integration

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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China is experiencing significant demographic aging, and a trend that is particularly pronounced in historic urban areas (HUA). In response, China introduced the strategy of "youth-friendly cities" to enhance urban vitality and social resilience. The local authorities in Nanjing have taken proactive measures to attract young people to settle in HUA, promoting urban revitalization. As demographic structures evolve, fostering intergenerational integration between youth and the elderly populations has become essential for sustaining urban vitality in historic areas, which is a continuous process. While public spaces serve as primary activity sites for both groups and function as key interaction platforms for their social engagement, making these spaces a crucial focus of this study.

However, existing researches solely concentrate on either youth or elderly groups independently, with limited analysis of intergenerational interactions within shared spaces.

Intergenerational integration is not a singular process of spatial adaption but a dynamic stage of the development. This study, therefore, examines the subjective experiences and mutual attitudes of young and elderly populations in public spaces. This study identifies current demographic composition and activity preferences through field investigations and interviews, and a Stated Preference (SP) survey is conducted to collect data on respondents' socioeconomic attributes, attitudes toward activities, and multidimensional evaluations and preferences for typical scenarios of public spaces in HUA. A SEM-Logit model framework is established to quantitatively assess the impact of five key dimensions—visual environment, soundscape, historical character, crowd dynamics, and activity intentions—on scenario selection results for both groups. This study further compares intergenerational differences in space utility over the short and long term, calculating marginal utility to explore effective strategies to foster intergenerational integration.

Preliminary results reveal that generational differences in public space preferences extend beyond activity habits and spatial attributes, encompassing perceptions of crowd dynamics and engagement in various activities. Within the SEM-Logit model framework, this study aims to identify key factors influencing intergenerational interaction, also to develop spatial optimization strategies from both short-term and long-term perspectives. In the short term, measures such as facility upgrades and event programming can enhance the appeal of public spaces to different generations and foster interaction. However, these efforts may be constrained by existing social structures and resident behavior habits, hindering sustainable intergenerational development. In the long term, population mobility and community building will become central considerations. Strategies should be tailored to the unique spatial characteristics and socio-economic contexts of each different shared space in HUA. Furthermore, by recognizing generational preferences, public spaces can be adapted along a progression, ranging from "Spatial Separation" to "Social Interaction" and "Mutual Support", thereby ensuring varying degrees of intergenerational participation.

In summary, this study aims to provide planning guidance for fostering intergenerational integration in public spaces within HUA, utilizing a SEM-Logit model framework. In the short term, it explores the relationship between elderly-friendly adaptations and youth-friendly enhancements. In the long term, it proposes localized environmental improvement strategies based on population structure optimization and neighborhood relationship

enhancement. The findings offer scientific support for historic urban areas' renewal, contributing to the development of more inclusive public space systems.

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Key Words: Intergen. Integration, Youth-Friendly Cities, Historic Urban Areas, Individual Perception, Public Space

Finding the Optimal: Balancing Accessibility and Need in EV Charging Station Allocation

Abstract ID: 1844.0.0.526.2025

Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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The rising prevalence of electric vehicles presents challenges in determining the optimal placement of charging stations. There is no single solution that fits all circumstances and slight differences in placement can lead to significant variations in access. Motivated by these considerations, this study examines how accessibility is influenced by various allocation criteria. The study considers four common criteria for Electrical Vehicle Charging Station (EVCS) allocation, including daily commuting distances (Fridgen et al., 2021), destination popularity (Pal et al., 2021), housing types (Hardman & Tal, 2021), and proximity to highways (Huber & Bogenberger, 2015). The analysis explores several EVCS coverage scenarios by assigning charging stations to 5, 10, 15, 20, or 25 percent of the block groups in the Grand Rapids and Detroit metropolitan areas. In addition, the study evaluates how these criteria affect disparities between underserved groups and non-underserved groups and assesses the extent to which the accessibility of underserved groups is compromised relative to the optimal distance under different allocation priorities. A heuristic optimization approach is employed to determine the optimal allocation of charging stations for each criterion under varying coverage scenarios, and the nearest travel distance to the nearest EVCS is computed as a measure of accessibility. The results show that accessibility does not improve much when charging station coverage increases to 15 percent of block groups. Workers consistently enjoy better access than residents regardless of the allocation criterion. Moreover, prioritizing locations with high work-to-home commuting distances significantly reduces the disparity between underserved and non-underserved groups. Overall, renters are identified as the most vulnerable group because their actual travel distance to the nearest charging station far exceeds the optimal travel distance for most allocations.

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Key Words: Accessibility, EVCS Optimal Allocation, Disparity

From reaching destinations to real accessibility: Commuting time and access to jobs in Mexico City

Abstract ID: 1844.0.0.13.2025

Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Accessibility has been defined as the ease of reaching destinations. There is an ongoing debate in the accessibility literature about whether the ease of reaching potential job opportunities translates into real access to employment. This study contributes to the debate by examining whether the ease of reaching destinations predicts real job access in key job concentrations of the Mexico City Metropolitan Zone (MCMZ). The analysis focuses on public transport commuters, using four indicators of the ease of reaching employment subcenters: average commuting time to subcenters Central Agglomeration, Santa Fe, Naucalpan, and the nearest employment subcenter. Spatial Autoregressive Combined (SAC) models assess the relationship between commuting time and job attainment while controlling for transport, urban structure, and socioeconomic factors. Four explanatory frameworks are tested: the Spatial Mismatch Hypothesis, the Choiceless Mobility Hypothesis, the Limited Mobility Hypothesis, and the Skill-Matching Hypothesis. Findings reveal that the ease of reaching destinations influences some employment subcenters while not affecting others. Even where accessibility matters, it is not the primary determinant. Accessibility interacts with urban structure and socioeconomic factors differently across employment concentrations. Real access to the Central Agglomeration aligns with the Choiceless Mobility Hypothesis, Santa Fe with the Skills Mismatch Hypothesis, Naucalpan with the Spatial Mismatch Hypothesis, and the closest employment subcenter with the Limited Mobility Hypothesis. These results suggest that real job accessibility is shaped by mechanisms specific to different employment concentrations. Thus, understanding who gains access to which jobs requires considering broader urban structure and workforce characteristics beyond the ease of reaching destinations.

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Key Words: Job accessibility, employment subcenters, urban mobility, spatial mismatch, Employment

How Does Disability Influence Extent of Visit to Activity Centers?

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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In a social milieu, an individual has a demand for traveling to different lands to perform different activities. These activities include not only working but also participating in non-work trips. Fulfilling this demand is necessary to earn a livelihood, maintain social relationships, provide nourishment for mental health, and enhance productivity (Marquez et al., 2020; Yen & Lin, 2018). An accessible and affordable transportation system is necessary to visit these land uses and to participate in these activities. However, many individuals in the United States (US) are not able to access these land uses using transportation systems and services due to physical and cognitive disability. While there have been studies exploring the mobility challenges faced by people with disabilities, rarely have any studies shed light on their frequency of trips to visit activity centers. To understand the influence of disability on the performance of various activities, we examine how different types of disabilities affect trip frequency to the workplace, grocery stores, friends' and relatives' residences, parks, and restaurants by surveying 1,896 respondents, including individuals with and without disabilities. For all activities, people without disabilities make fewer trips. The percentage of respondents who never visit the workplace or restaurants is significantly higher (around 10 percentage points) among people with disabilities. For non-work trips, people with disabilities show a relatively lower percentage of trip frequencies exceeding three times per week. Modeling trip frequency to these activity centers using ordinal logistic regression shows that having disabilities, in general, negatively influences the trip frequency of all considered activities, but different types of disabilities have varied influences on trip frequency for different activities. To pursue the research question, disability is classified in seven types: mobility impairment, vision impairment, hearing impairment, speaking impairment, cognitive impairment, psychological disabilities, and driving-limiting disabilities. Mobility impairments have a negative influence on trip frequency for all considered activities. Cognitive impairments negatively influence trip frequency to the workplace, friends and families' residences, and restaurants; and hearing impairment negatively influences trip frequency to the grocery store. Driving-limiting disabilities negatively influence trip frequency to workplaces, friends and relatives' houses, and grocery stores. In most cases, predicted probability shows that having particular types of disabilities reduces the probability of making the trips at higher frequency and increases the probability of making the trips at lower frequency, particularly never visiting the place. The most significant influence of disability is found in mobility impairment in terms of increasing the possibility of never going to workplaces by 22%. Driving-limiting disability can reduce the possibility of going to grocery stores at a higher frequency of 1-3 times/week significantly by 20%. The study provides recommendations to increase the frequency of visits to these activity centers by increasing the accessibility of the transportation system, ensuring better accessibility inside these activity centers, and providing community support to assist them in the movement of people with disabilities.

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Key Words: People with disabilities, Trip frequency, Travel Behaviour, Activity based trips, Transportation inequity

Identifying Coastal Pollution Hotspots in Puerto Rico Considering Social Vulnerability

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Track 5: Inclusion and Accessibility in Planning

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Compromised water quality is an increasingly pressing issue, particularly along coastal regions of Island communities. Water systems along coastal regions are increasingly overburdened as a consequence of climate change and an increasing global population (Sullivan 2016). There is a lack of awareness of the role of degraded water quality on ocean and coastal ecosystems that directly influence health and economic outcomes for coastal residents. Beyond human consumption, water that meets minimum quality thresholds supports plant and animal species and diverse economic sectors such as recreation, fishing and tourism.

Vulnerability literature has shown that impacts of environmental hazards such as degraded water quality are not evenly distributed among communities (EPA, 2021). Spatial measures of socio-economic vulnerability would allow to assess differential impacts on coastal communities (Portelli et al, 2020). A previous coastal socio-economic vulnerability profile for Puerto Rico at the Census Tract level based on US Community survey 2012-2016 data (Santiago et al 2021) was used as a baseline for our study. Existing databases were updated to estimate a more recent Census Tract level coastal socio-economic vulnerability assessment (2019-2023) for the study area.

We have tested for significant correlations between social vulnerability and coastal water quality indicators. Spatial regression analysis was then used to estimate the significance and magnitude of socio-economic vulnerability indicators (i.e., population > 65 and <17 years old, with a disability, with no 9th or 12th grade diploma, households earning less than \$10,000 a year or renters paying less than \$500 a month) on water quality parameters (Enterococcus, pH, temperature). The proposed baseline was a non-spatial pooled OLS regression model, expanded to include spatial interaction effects. A geographically weighted regression model (Fotheringham et al., 2003) was used to determine how well geographically contaminated areas predicted the occurrence of underserved communities.

Project findings have not only provided specific social coastal vulnerability and water quality profiles for Puerto Rico, but also identified locations that should be prioritized for cleanup based on pressing community needs. Statistically significant associations between socially vulnerable communities and lower levels of water quality would inform policies that seek to address coastal water quality pollution in communities and sectors whose livelihoods are affected by degraded water quality. Key affected sectors include subsistence, commercial and sports fishing, and tourism.

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Key Words: social vulnerability, water quality, Puerto Rico

Impact of Heat Adaptation Policy on Mortality via Vulnerability: Focus on Socioeconomic Disparities

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Extreme heat is a serious public health issue because it significantly affects human health directly and indirectly and leads to an increase in morbidity and excessive mortality (Vose et al., 2017; Mazdiyasni et al., 2017; Pirard et al., 2005; Pascal et al., 2013). Previous studies have shown that about 5,000 to 12,000 excess deaths occur annually in the U.S. due to extreme heat (Kochanek et al., 2011; Lowe, 2016; Weinberger, 2020; Shindell et al., 2020; Abbinett et al., 2020). Also, more than 65,000 people in the U.S. visit the emergency room due to heat-related illnesses (Crimmins et al., 2016).

In 2018, South Korea experienced its most severe extreme heat event in 111 years. According to the Korea Disease Control and Prevention Agency, the number of reported heat-related illnesses surged by 188% compared to 2017, resulting in 4,536 cases and 48 fatalities. In response, the South Korean government legally designated extreme heat as a natural disaster and implemented comprehensive nationwide adaptation strategies aimed at reducing heat vulnerability, with a particular focus on socioeconomically disadvantaged populations.

This study evaluates the effectiveness of this policy shift in reducing heat-related mortality by mitigating heat vulnerability between 2012 and 2022 across South Korea, applying the IPCC's climate risk framework. Recognizing that policy impacts may vary across socioeconomic groups, we further analyze the Heterogeneous Treatment Effect (HTE) by subgroup, including age, sex, educational attainment, occupation type, and region, to assess differential impacts.

Using an interrupted time series (ITS) analysis combined with generalized least squares (GLS) and the corARMA model, our findings indicate a statistically significant 72% nationwide reduction in heat-related mortality compared to the counterfactual scenario, translating to 7.6 preventable deaths per month (95% CI: -14.8, -0.4, $p = 0.04$). Furthermore, HTE analysis reveals that the intervention was particularly effective in mitigating heat vulnerability among socioeconomically disadvantaged groups, with mortality reductions approximately 12 times greater in older adults and 7 times greater in individuals with lower educational attainment.

These findings underscore the effectiveness of extreme heat adaptation policies in reducing heat-related mortality by addressing vulnerability, particularly among vulnerable populations, and reinforce the role of climate policy in addressing heat inequalities.

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Key Words: Extreme heat adaptation, Heat vulnerability, Heat-related mortality, Climate justice, Health justice

Impact of Residential Segregation and Vitality Segregation on the Elderly Inactivity

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Track 5: Inclusion and Accessibility in Planning

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Throughout the 20th century, segregation, defined as the spatial separation of racial and socio-economic groups, has been a central topic in urban studies (Cutler & Glaeser, 1997). However, population ageing—driven by increasing life expectancy and declining birth rates—has introduced a new dimension of segregation into academic discourse: age-based segregation (Harper, 2014). Although earlier research examined younger populations migrated toward suburban or peripheral areas, scholarly interest in residential age segregation has grown considerably since the 1990s (Sabater & Finney, 2023).

In South Korea, as younger age cohorts—particularly individuals in their 30s—relocate to areas offering greater employment opportunities and relatively affordable housing, such as Gyeonggi Province and central Seoul, older adults remain in aging residential zones. This demographic shift has resulted in the formation of “islands of elderly,” characterized by low-rise housing and an increasing share of low-educated, socially isolated older individuals. As younger populations relocate, the availability and quality of essential services in these areas decline, exacerbating older residents’ vulnerability to social isolation, psychological distress, and substandard living conditions (Hagestad & Uhlenberg, 2005). These spatial and demographic dynamics contribute to a reduction in intergenerational contact and diminish the economic vitality of local communities.

This study advances the conceptual understanding of age segregation. A key contribution lies in distinguishing Residential Age Segregation from Vitality Age Segregation, which means segregation in spaces of daily activity and social interaction. While previous research under the framework of ‘aging in place’ has emphasized housing preferences, relatively little attention has been paid to the structural and spatial organization of segregated neighborhoods (Miliadis & Psyllidis, 2022). For a more comprehensive understanding of age segregation, it is essential to finding the separation in activity spaces. To analyze these dynamics, this study conceptualizes Vitality Age Segregation using the urban vitality index, a widely recognized metric of population activity and spatial engagement (Q.-Q. Li et al., 2022). By utilizing mobility data of older adults in Seoul, this study identifies the actual spaces occupied by elderly individuals and evaluates whether spatial concentration in these zones facilitates or limits their engagement in daily activities.

This study computes a localized segregation index for both Residential and Vitality Age Segregation at the 250-meter grid scale. Mediation analysis is employed to assess whether age segregation mediates the relationship between neighborhood-level variables and elderly inactivity. In addition, structural equation modeling is utilized to explore heterogeneous effects.

The findings indicate that both forms of segregation are associated with reduced levels of activity at the regional level. However, Vitality Age Segregation, when observed at the scale of daily activity zones, can foster engagement among older adults. These results challenge the prevalent notion that elderly segregation is a natural or benign demographic process, instead highlighting its role in constraining participation and reinforcing spatial inequality.

By analytically distinguishing between residential and activity-based dimensions of age segregation, this study addresses a critical gap in existing literature and presents a more nuanced conceptual framework. The findings suggest that age segregation may function as both a mechanism of exclusion and a potential source of

empowerment, depending on spatial context. These insights call for urban planning approaches that extend beyond housing allocation to promote inclusive, intergenerational, and activity-oriented urban environments.

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Key Words: Age Segregation, Residential Segregation, Urban Vitality, Elderly Inactivity, Mobility Patterns

Inclusion and Emergency Response: Place, Identity, Politics, and Trust

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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The fact that racial and ethnic minorities, younger people, and urban residents in the U.S. are increasingly wary about calling 911 dispatch centers when they need help reflects connections between place, identity, and safety (Quick, 2022). Differences among geographic regions in trust in emergency services is an example of place-associated aspects of inclusion and exclusion (Zapata and Bates, 2015; Jackson et al., 2023), relating to Whiteness as an “encompassing and veiled” quality of access to the advantages of planning government policies and protection in the U.S. (Goetz et al., 2020, p. 145).

Issues of access to and trust in emergency response have been particularly acute in Minnesota following the 2020 murder of George Floyd by police officers. Some Minnesota communities now advise against calling 911 and are self-organizing other resources for safety and emergency response. The lack of trust in public safety professionals and the heightened anxiety of people interacting with first responders during emergencies may elevate responders’ burnout, risks, and trauma (Jacob et al., 2024).

This paper explores what Minnesotans expect from first responders, including 911 dispatchers, police officers, firefighters, and emergency medical technicians. We examine public expectations descriptively (i.e., respondents’ assessment of the quality of these aspects of emergency response) and normatively (i.e., what values they believe should be prioritized in improving emergency response). Through an anonymous survey, we collected data from 907 Minnesotan adults in 2023. Respondents were asked about their recent use of 911, whether they do or do not feel safe around different first responders, the reasons they might feel more or less likely to call 911 for help, their confidence in different kinds of responses to mental health emergencies (including social workers), and which values they believe should be prioritized in the implementation of and investment in the emergency response system as a whole.

Through descriptive statistics, data visualization, and statistical tests, we explored whether there are patterns of difference in attitudes by place of residence (urban, suburban, or rural), gender, race and ethnicity, age, income, and political affiliation. A substantial majority have a positive perception of 911 dispatchers, though less so for mental health emergencies. Study respondents’ feelings of safety are weakest around police officers (compared with other firefighters and EMTs), with statistically significant differences by age (with those aged 18-34 feeling least confident), race (with less than half of BIPOC respondents feeling safe), and income. Political affiliation was also statistically significant, with Republican respondents markedly more confident of their safety and being the only group to disagree with having social workers respond to mental health emergencies.

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Key Words: Place & trust, Policing & public safety, Identity & gov't service

Investigating Mobility-Impaired Older Adults' Travel Behavior: Evidence from Shanghai

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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The global aging population is growing rapidly, with the United Nations projecting 22% to be aged 60 and above by 2050. In 2018, 39.6% of China's population, including the elderly, disabled, and low-income groups, faced significant challenges in urban environments and public transport accessibility.

Outdoor activities and travel frequency serve as indicators of senior citizens' physical and mental health and quality of life. The lack of outdoor activity and daily trips is linked to restricted mobility, which in turn contributes to poorer health conditions. Research on the factors influencing elderly travel behavior has recognized the heterogeneity within this group, arising from factors such as age, different types of physical, sensory, and cognitive impairments, economic status, social and family support, and the accessibility of local built environments.

However, recent qualitative studies indicate that varying degrees of mobility impediments or disability severity exert more direct constraints on travel frequency and mode captivity.

Regarding family support, studies often associate family structure factors with the division of household responsibilities. It is noteworthy that living with family does not necessarily imply caregiving duties. Studies that explicitly verify the division of family responsibilities are scarce, and the relationship between living arrangements, household responsibilities, and trip frequency needs further exploration.

To improve the quality of life in the local community, Shanghai implemented the 15-minute community living circle initiative, equipping each local community with a list of service facilities. Studies have shown that the density of activity destinations, which signifies the accessibility of facilities and services, has a significant positive impact on elderly outdoor activities. However, due to various physical barriers in the local community, will this initiative benefit elderly individuals with physical mobility constraints?

The survey data from 1,049 respondents in Shanghai show that 59% of them reported mobility difficulties. This study incorporates "mobility limitation" as a grouping dimension, which includes self-reported mobility impediments and degrees of mobility difficulty, such as the use of crutches, wheelchairs. It also considers roles related to family responsibilities, including daily chores, caregiving for co-residents, community activities and duties, and the role of being cared for. The built environment factors were calculated based on a reduced range of their walking in 15 minutes. Logistic regression, Lasso, and Logistic regression with interaction terms were applied to analyze the differences.

The results show that, after accounting for "mobility limitation" category, mobility limitation is a more focused factor than physical impairments in elderly individuals, significantly negatively affecting travel frequency. For individuals with mobility restrictions, the family responsibility role—caregiving for others—has a more direct impact on maintaining a higher travel frequency than simply co-residing with family members. Meanwhile, the influence of local built environment factors—such as facility density and public transportation accessibility—is much weaker for this group compared to healthier individuals.

This analysis highlights the necessity of separately identifying and addressing mobility-restricted elderly groups in urban renewal, transportation planning, and travel behavior studies to avoid their needs being overshadowed by those of healthier elderly groups. For this population, research priorities should shift from conventional built environment optimization to the enhancement of micro-level barrier-free environments and universal design.

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Key Words: mobility limitation, mobility impediments, mobility impaired elderly, household responsibility, local built environment

Last-Mile Rail Transit in Suburban Communities: Income, Accessibility, and Transfer Time

Abstract ID: 1844.0.0.167.2025

Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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In the context of urban development and suburban transformation, vulnerable transportation groups within China's suburban communities face significant "last mile" connectivity challenges to rail transit. This study explores the first/last mile connections of rail transit, employing a hierarchical regression model to analyze how income levels and multimodal accessibility (including cars, buses, cycling, and walking) influence transfer times. Utilizing travel survey data from 2,204 residents across suburban communities in Nanjing, our findings reveal that low-income groups experience more pronounced effects on transfer times linked to walking and cycling accessibility, while high-income groups effectively mitigate transfer times through car access. Moreover, the impact of multimodal accessibility demonstrates spatial heterogeneity: optimizing car transfer facilities significantly reduces transfer times for outer suburban communities, whereas enhancements to walking networks improve efficiency for inner suburban areas. Sensitivity analyses indicate that for low-income residents, improvements to last-mile bus accessibility can significantly diminish transfer times, irrespective of community location. This research provides vital empirical support for enhancing the accessibility and efficiency of rail transit systems in suburban communities and suggests that policymakers must consider income disparities to promote transportation equity and sustainability.

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Key Words: Suburban Communities, Rail Transit, First/Last Mile, Accessibility, Built Environment

Making Space for Ethnic Culture: Identifying Banquet Halls as Important Ethno-cultural Spaces

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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The Greater Toronto Area is home to people with diverse ethno-cultural backgrounds, many of whom are increasingly bypassing dense downtowns to live in the suburban areas and municipalities in the region. Despite the growing ethno-cultural diversity in the area, local municipal planning efforts do not comprehensively accommodate the ethno-cultural practices and spatial needs of these communities (Viswanathan, 2009; Zhuang, 2021a). This has resulted in ethnic entrepreneurs taking on the responsibility of creating spaces such as places of worship and event spaces, many of which are located in areas zoned for industrial uses (Basu & Fiedler, 2017; Zhuang, 2021b). These spaces serve as critical community infrastructure but are not often formally recognized or supported by local municipalities.

Using the example of privately-owned event spaces serving South Asian communities in the municipalities of Toronto, Brampton, and Mississauga, this paper interrogates cultural planning efforts in these cities to ask: Are privately-owned event spaces currently understood and recognized as being culturally important spaces per planning definitions and regulations? Do these event spaces qualify for any municipal support or protection? What are some of the ways in which these spaces can be integrated into or accommodated by local cultural planning efforts?

This paper uses an analysis of policy documents and interviews with owners and operators of event spaces, and municipal staff working in cultural planning or cultural services to answer the questions posed. Initial findings indicate that most municipal cultural planning efforts focus on cultural production from an economic lens, and fall short of accommodating spaces for the practice of ethnic cultures. Cultural planning efforts currently also do not adequately support the emerging Do-It-Yourself event community, which rely on spaces like banquet halls for their work. This paper contributes to the emerging body of literature on the ethno-cultural use of space and multicultural planning practice.

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Key Words: Cultural planning, Ethnic culture, Event spaces, Banquet Hall, Cultural Infrastructure

Planning for Maternal Health Equity Among Low-Income Latina Women in Texas

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Urban planning profoundly shapes the physical, social, and environmental conditions that impact community health (Wang et al., 2020) yet it has long overlooked maternal health as a planning priority. While growing literature from public health and medicine highlights connections between the built environment and maternal health outcomes (Vinikoor-Imler et al., 2011), planning tools have largely failed to incorporate maternal health as a pressing concern. For instance, The American Planning Association's Healthy Communities Policy Guide, a foundational resource for integrating health into planning practice, does not mention maternal health. This disconnect is especially alarming in the context of the maternal health crisis in the United States, where maternal mortality rates are three times higher than in other high-income countries and recent policy shifts have deepened inequities in reproductive care (Hoyert, 2021). Latina women, in particular, face compounded barriers related to immigration status, poverty, racial discrimination, and geographic isolation, yet their experiences are often absent from planning discourse.

This study seeks to address these gaps by asking the following question: What are the key built environment factors, such as housing quality, transportation access, and neighborhood infrastructure, that contribute to maternal health outcomes among Latina women? By framing maternal health as a place-based and gendered issue, this research challenges traditional planning approaches and calls for greater integration of maternal health into planning community-based frameworks, tools, and policies that help address maternal health issues experienced by low-income Latina women.

To approach this question, this study employs a mixed-methods approach. Existing quantitative studies on the connection between maternal health and the built environment often rely on difficult-to-access datasets like birth records, which are typically siloed within health departments and inaccessible to most planning professionals. This study will analyze available quantitative data on maternal health to demonstrate the limitations of these statistics in capturing the lived experiences of low-income Latina women in US communities. Drawing on the planning index for maternal and child health developed by Wang et al. (2020), the study will incorporate county-level data from sources such as the HRSA and the NVSS to identify communities with poor maternal health. This study supplements quantitative data with data collected through mixed-method planning methods, such as surveys and in-depth interviews, to generate narrative-driven data. To engage Latina women in these communities, the study collaborates with promotoras or community health workers, who are trusted members of the community. To complement these narratives, street-level observations and evaluations of neighborhood attributes will help ground these individual stories in their broader spatial context.

Texas offers a unique context given its location as a border-state, high maternal mortality rate, restrictive reproductive policies, limited Medicaid expansion, and geographic disparities (IRWGS, 2024). Latina women in Texas have already seen a sharp rise in births while also facing longer travel times and higher medical costs (IRWGS, 2024). This research will be informed by feminist planning theory perspectives such as Chicana feminist frameworks that may help center the voices and knowledge of Latina women facing maternal health issues. Rather than proposing immediate solutions, this paper focuses on documenting spatial barriers to maternal health, laying the groundwork for future planning interventions. This research challenges planners to see maternal health not solely

as a health issue, but as a measure of spatial justice and community well-being. Broadly, this may serve as a reference for other cities in the US with high maternal health concerns.

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Key Words: Maternal Health, Public Health, Gender, Feminist Planning, Latinx/o/a

Planning with Disability: Understanding Facilitators and Obstacles

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Core values in planning and policy-making are community building, engaged participation, and meaningful opportunities available for all individuals. Social structures and the physical environment play a crucial role in either facilitating or inhibiting access and inclusion for individuals with disabilities. The design of physical infrastructure, facilities, or spaces, together with implementing programs and services, can intentionally or unintentionally ease or restrict participation for people with disabilities. Embedded planning dimensions and results from explicit policy, planning, and design efforts shape each of these features.

Access is the foundational step in creating an environment that allows individuals with disabilities to interact with their surroundings effectively. However, planning for true inclusion requires going beyond accessibility; it demands opportunities for individuals to be included, participate fully, and contribute meaningfully to their communities and society at large. This study explores how various aspects of life act as facilitators or obstacles for individuals with disabilities and how these elements collectively inform planning and policy-making opportunities for inclusion.

This study compiled a list of over 500 environmental and social conditions identified through an extensive literature review, where individuals with disabilities highlighted elements that either support or hinder their well-being and participation in community life. A panel of experts classified each facilitator and obstacle on four significant dimensions relevant to planning and policy-making: interaction scale (individual to society at large), responsible entity or agency (government, private, NGO), planning area (services, incentives, adopted plans, codes, standards, participation), and policy domain (well-being, learning, self-determination, inclusion, productivity, full citizenship). To understand the aggregated implications for planning, the classification of facilitators and obstacles was analyzed using contingency tables, chi-squared analysis of differences, and multiple correspondence analysis to generate clusters of facilitators and obstacles. Cluster analysis produced seven clusters of facilitators and seven clusters of obstacles, illustrating how different combinations of planning and policy aspects create opportunities or barriers for individuals with disabilities. For instance, some facilitator clusters effectively link planning standards and codes to institutional responsibilities. Others highlight the limited opportunities for personal growth facilitated by planning efforts or the insufficient initiatives to enhance participation and social interaction. Conversely, obstacle clusters reveal institutional challenges in enforcing well-being conditions or creating opportunities for personal development, among other issues.

Understanding the interrelated dimensions of these facilitator and obstacle clusters provides insight into how governmental and social responsibilities intersect with efforts at various scales to achieve specific planning and policy goals. This understanding can inform strategies to enhance inclusion in planning and policymaking. A discussion of these clusters will help identify strengths in inclusive planning, unaddressed planning areas, gaps in community and governmental efforts, and roles for advocates and policymakers. Ultimately, this study contributes to a more comprehensive and effective approach to fostering inclusivity in planning and policy design.

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Key Words: disability, facilitators, obstacles

Queer Social Movement Displacement in Greenwich Village

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Gentrification has long been known to displace populations by removing previous, often poorer people and replacing them with more affluent groups largely driven by a rent gap (Smith 1996). These previous populations have already established their own social, economic, and community lives over generations, and this includes social movement organizations and nonprofits that serve these populations in various capacities. What happens to these organizations in this process? Do they remain? Do they move along with their constituencies? At the same time, do their missions and claims change?

Specifically, what has happened to various LGBTQIA+ social movement organizations and nonprofits in New York City's Greenwich Village as gentrification has accelerated and displaced poorer queer populations and replaced them with increasingly affluent ones? Do these organizations remain in place and attempt to serve a more dispersed population from their original home bases, or do they attempt to move along with their constituents? At the same time, do new organizations focused on more affluent populations take their place?

Work similar to this has been done by Gieseeking (2020), but little work has focused on mapping this displacement in relation to claims made by the organizations. Additionally, we see that where marginalized populations exist, there tends to be the creation of social movements and other autonomous organizations to create community (Chauncey 1995; Nicholls 2016). But does this movement creation translate when it comes to people displaced within a given city?

This paper seeks to find out how these movements move through space while also measuring which, if any, of their claims change over time. I will accomplish this through a newspaper database analysis of approximately 1,000 New York Times articles from 1990-2020 in which I will examine the locations of organizations and their protests, actions, and areas of focus. I will supplement this by examining the tax returns found on the IRS Form 990s of any tax-exempt nonprofit organizations to find the addresses of organizational offices.

This database will also be used to examine the types of claims that these organizations make over this same period. Do they continue to advocate for the most marginalized groups if that was their mission before, or do they change their focus to the new groups of people coming in? For example, could a group that might have had an anti-gentrification focus give that up to focus on other things?

Preliminary findings show some evidence of this displacement and change of claims. My examination of the queer youth organization FIERCE (Fabulous Independent Educated Radicals for Community Empowerment), which was focused on anti-gentrification work in Greenwich Village in the 1990s and early 2000s, shifted their focus away from that to primarily focusing on rights organizing for queer youth. At the same time, the organization, formerly in Chelsea, close to Greenwich Village, ultimately found themselves at the north end of the Bronx, far away from their previous area of focus in Greenwich Village. Thus, FIERCE seems to have moved to a less affluent part of the city while also changing their focus.

This has important implications for planning scholars and even practitioners. Empirical data on what happens to the organizations that serve marginalized populations during the process of gentrification can assist planners in

thinking about the needs of populations newly displaced from gentrified parts of cities. Planners can use this to direct assistance to these populations if needed, and to assist organizations in their provision of services.

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Key Words: gentrification, movements, displacement

Rethinking the Child–Adult Divide: Reviewing and Reimagining Planning for Child-Friendly Cities

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Cities offer great potential for children’s learning, development, and socialization. Yet, urban inequality continues to threaten children’s rights and well-being. These inequalities exist not only among children but also between children and adults. Modern cities have long been criticized for being unfriendly to children - excluding them from shared spaces, restricting intergenerational mobility, and providing low-quality play environments (Brown et al., 2019). Despite decades of research and increasing policy attention, there is still a long way to go to build a truly child-friendly city. This persistent paradox raises the main question of this paper: why is progress in building child-friendly cities still so limited?

To address this question, this paper reviews and analyses how planning has historically responded to children’s needs integrated with an understanding of childhood and adulthood. Before the 1970s, children were not seen as distinct planning subjects; they were considered primarily in relation to designated spaces like schools, playgrounds, and residential zones. Under Fordist ideals, the “standard adult”—typically a stable, male worker—was positioned as the normative urban subject, while children were viewed as incomplete, dependent, and marginal (Lee, 2001). Planning practices reflected this hierarchical binary.

From the 1970s to the 1990s, feminist critiques and the decline of Fordism destabilized this male-centered norm. Initiatives such as Growing Up in Cities and Adventure Playgrounds emphasized children’s spatial experiences and perspectives. However, since the 1990s, children’s needs have again been side-lined again. The expansion of automobility and heightened safety concerns have severely curtailed children’s independent mobility. Structured schedules and the commercialization of play have reduced their autonomy and reinforced social inequalities (Malone, 2007). Meanwhile, the intersection of neoliberal economics and conservative social values has blurred the boundaries between childhood and adulthood: children’s lives increasingly overlap with adult domains, while adults—especially parents—reinforce strict spatial and temporal boundaries around childhood.

Current child-friendly planning strategies—namely, (1) the provision of exclusive child spaces and (2) efforts to promote children’s participation—reflect this divide in different ways. The first isolates children from shared urban life, while the second often becomes tokenistic and neglects the distinctiveness of childhood. All of these contradictions underscore the persistence of a binary that casts adults as “human beings” and children as “human becomings” (Qvortrup, 2005).

The solution, this paper argues, does not lie in addressing the increasing ambiguity between children and adults or in simply equating children with ‘human beings’ as adults used to be. Rather than reinforcing vertical hierarchies, planning should cultivate horizontal, collaborative relations between children and adults. As Moore (1980) suggested, building child-friendly environments is not only about children—it’s about improving urban life for everyone everywhere. In fact, practical examples like Canada’s family-friendly initiatives and critiques of the current child-friendly planning models show that this shift is already beginning, even sometimes unconsciously.

Ultimately, this paper offers conceptual and practical insights for rethinking child-friendly urbanism. It calls for a shift in planning logic: a truly child-friendly city is not just about children, but about all of us, and about reimagining the social and spatial relationships between children and adults. Can we envision a city that is more inclusive, more

equal, more interesting—and more encouraging of explorations and more tolerant of mistakes? The answer, I think, is yes. And it begins by rethinking how childhood and adulthood coexist in an uncertain urban world.

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Key Words: Child-friendly Cities, Urban Planning, Childhood, Child-Adult Relations

The Hidden Costs of Electric Vehicle Adoption: the Erosion of Aging-Friendly Communities

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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The rapid expansion of electric vehicle (EV) adoption in China's megacities, driven by global carbon neutrality goals, presents complex yet underexplored implications for community sustainability. Government subsidies and supportive policies have incentivized EV ownership. While China has not yet experienced a rebound effect from EV usage, the potential risks merit careful consideration (Du et al., 2023). Existing research has extensively examined the rebound effect of EVs, frequently using spatial clustering analyses to identify factors influencing EV adoption (Selena Sheng et al., 2022). However, a critical gap remains: the lack of urban planning perspectives (Jiang et al., 2024) assessing the spatial impacts of EV proliferation on community life circles.

This issue is particularly relevant given the rapidly aging population. Does the widespread promotion of EVs hinder the development of age-friendly communities? Although China's megacity centers are characterized by high construction density —potentially mitigating the suburbanization trends linked to increased motorization—the large-scale adoption of EVs may still encroach upon public spaces and alter the spatial distribution of amenities. Such changes could undermine the fundamental principles of the community life circles, which seek to promote pedestrian accessibility to daily necessities through a diverse and well-integrated network of local resources.

Shanghai has one of the highest rates of EV ownership among Chinese cities. As a megacity, its central districts are characterized by high-density and well-developed facilities, making them well-suited to the operational patterns of EVs, which are primarily used for shorter trips (Mukherjee & Ryan, 2020). To examine EV adoption and its spatial impacts, we conducted a survey of 400 participants across Shanghai, including both EV and conventional vehicle (CV) users. We applied a difference-in-differences (DID) model to assess behavioral shifts resulting from EV adoption. Additionally, we developed a structural equation model (SEM) to explore the mediating effects of increased motorization, encroachment on community spaces, and the resulting decline in community age-friendliness.

Our research yields several key findings:(1) For first-time car buyers, electric vehicles significantly increase mobility dependence, leading to a notable rise in short-distance driving frequency compared to pre-purchase travel behavior. (2) In multi-vehicle households, the acquisition of an EV does not result in a reduction in CV usage. (3) Temporally, EV adoption reduces commute times, particularly in central urban areas where well-developed facilities support efficient travel. Spatially, EV users exhibit a broader travel range, often extending beyond the boundaries of the 15-minute community life circles, potentially weakening the effectiveness of localized community facility services. (4) A majority of respondents reported previously or habitually using street or community road space for parking, with some experiencing conflicts with elderly residents within the community. Notably, the implementation of community speed limits has been shown to mitigate conflicts between EV users and elderly residents, enhancing pedestrian safety.

This study critically points out that electric vehicle policies are overly focused on the environmental benefits of reducing carbon emissions, but the underlying social costs are ignored. By analyzing the impact of EV adoption on public spaces and community facilities, we demonstrate how the widespread promotion of EVs may hinder the

development of age-friendly community life circles. Given these findings, megacities need to regulate motorization within community life circles, ensuring that age-friendly principles are prioritized in the continued expansion of EV adoption.

Citations:

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Key Words: Electric vehicles, Older adults, Community, Motorization, Public space

Travel Experience and Social Identities: A Comparative Study of Mobility in Austin and Boston

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Limited access to transportation can marginalize certain populations, creating transportation-disadvantaged groups. These individuals face challenges such as longer travel times, greater distances, higher costs, and the inability to complete essential trips, limiting their participation in social, political, and cultural life. To address these challenges, planners must consider individuals' lived experiences. Social identities, including race, disability status, gender identity, sexual orientation, language ability, and immigration status, significantly affect transportation experiences and access to opportunities and resources. Emerging research highlights these factors as key determinants of travel experiences.

Transportation planning in the US has been shaped by racial and gendered assumptions, reinforcing systemic inequities. Historically, racial planning has privileged white neighborhoods, stigmatized minority areas, and justified resource deprivation through white supremacy and spatial racialization. Environmental injustices and gentrification further entrench disparities, while the binary gender framework has centered the needs of able-bodied, middle-to-upper-class white men, marginalizing women and LGBTQ+ populations. These issues emphasize the need for inclusive, gender-responsive planning that considers diverse racial, ethnic, and gender identities. Addressing these disparities requires transportation planners to reassess mobility challenges and develop policies that serve all communities, fostering a more just and inclusive system.

Austin and Boston, though demographically similar, offer distinct transportation contexts. Boston's multimodal system contrasts with Austin's car-dominated, monomodal network. This study examines how disability, gender, race, and socioeconomic factors shape mobility experiences in both cities, based on 28 qualitative interviews (16 in Austin, 12 in Boston) with college students at the intersection of race and gender identities.

The findings reveal that transportation challenges are not equally experienced. Participants with disabilities or chronic conditions faced significant barriers, with women with disabilities expressing the most frustration over limited travel options. Lower-income and racial minority groups prioritized economic and structural barriers over health-related concerns. LGBTQ+ and female participants identified hygiene and safety as significant concerns. Harassment, influenced by race, gender expression, and identity, was a widespread issue. Women frequently reported unwanted attention, while LGBTQ+ individuals, especially those from marginalized racial backgrounds, described heightened vulnerability. Measures such as increased surveillance and staff presence could improve perceptions of safety and create a more inclusive environment.

GIS mapping of interview data reveals spatial gaps in transit connectivity. In Boston, less accessible areas include suburban or natural sites outside the subway network and neighborhoods with high concentrations of Mexican, Black, and low-income residents, where access often requires more transfers from the city center. In contrast, Austin's less accessible areas are emerging hubs that are car-dependent or require more than two transfers via public transit. This analysis shows that accessibility is shaped not just by the presence of transit routes but also by factors such as minimizing transfers between origins and destinations.

These findings highlight the need for transportation policies that address systemic barriers to safety, affordability, and accessibility. By prioritizing the needs of marginalized populations, policymakers can create more equitable and inclusive mobility systems that serve all communities.

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Key Words: Intersectionality, Accessibility, Mobility Justice, Inclusive Transportation

Trends and Challenges in U.S. Urban Planning Faculty: Stability, Structural Shifts, and Career Paths

Abstract ID: 1844.0.0.40.2025

Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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This study examines trends in tenure and tenure-track faculty positions within US urban planning programs from 2015 to 2024, offering insights into workforce stability and structural changes influenced by the COVID-19 pandemic. Drawing data collection from 89 urban planning programs, it analyzes faculty composition, recruitment, tenure and full professor proportions, mobility, and retirement at both national and program levels. The total number of faculty has declined slightly by 2.9%, indicating relative stability in urban planning academia. Meanwhile, the proportion of female faculty has increased from 36.54% in 2015 to 42.42% in 2024, reflecting progress toward gender parity in hiring. However, promotion disparities persist, with women underrepresented in higher academic ranks, underscoring ongoing systemic barriers. The growing competitiveness of academic careers in urban planning is reflected in trends related to hiring, tenure, and promotion to full professor. The COVID-19 pandemic has introduced new challenges to the academic workforce, causing both short-term disruptions and long-term structural shifts in hiring, promotion, and mobility.

Smaller urban planning programs face greater challenges in recruitment and retention, potentially limiting diversity of thought in the field. Although hiring rates for female faculty have improved, fewer women advance to senior positions, highlighting inequities in career progression. This study underscores the need for institutions to adopt strategies that support diverse hiring, equitable promotion processes, and inclusive academic environments.

Further research should explore racial and ethnic diversity in faculty dynamics to provide a more comprehensive perspective on academic workforce trends. While progress toward gender equity has been made, persistent disparities in promotion demand continued efforts to dismantle systemic barriers. Enhancing diversity and inclusion in urban planning academia will strengthen its capacity to address complex societal challenges. This study contributes to the discourse on faculty dynamics, emphasizing the importance of understanding stability and change in this specialized academic field.

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Key Words: Faculty composition, Tenure-track hiring, Urban planning education, Academic career pathway, Gender parity

Understanding How Transit Accessibility Shapes Children's Activity Range Using Mobile Phone Data

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Understanding how urban transit promotes children's mobility is crucial for inclusive transportation planning and children's well-being (Waygood et al., 2017). While extant research often prioritizes walking or cycling over car use, the role of public transit accessibility in shaping children's travel patterns remains insufficiently explored (Roberts et al., 2018). This absence is largely due to challenges in capturing children's actual activity patterns. Moreover, traditional approaches that focus primarily on home-based communities often oversimplify the spatial dynamics of children's mobility (Cai and Kwan, 2025). While schools function as critical mobility hubs structuring children's daily routines (Chaskin and Richman, 1992), existing research has yet to systematically compare the dual influences of home and school environments on children's travel behaviors and access to urban transit.

Building on these considerations, this study utilizes anonymized mobile phone data to bridge the existing gaps. Through a four-step procedure—comprising school-based stratification, temporal filtering, demographic clustering, and socioeconomic validation—the study identifies complete travel activities among child mobile phone users. Leveraging machine learning techniques, this study explores the nonlinear relationships between three transit modes (walking, bus, and metro) and three levels of children's activity range (compact, moderate, and extensive) across both home and school contexts.

Results indicate that the relative importance of transit accessibility increases as children's activity range expands, with this effect being particularly pronounced in the school context. Among three transit modes, road density emerges as the most influential factor in shaping mobility patterns. While transit accessibility generally facilitates children's activity range at the moderate level, its impact turns negative at the extensive level, suggesting potential constraints associated with parental concern. Notably, children residing in lower-cost neighborhoods appear to derive the most substantial benefits from enhanced transit access, underscoring the pivotal role of public transportation in fostering equitable mobility.

This study contributes to children's mobility research by adopting an innovative, integrated perspective on the interplay between children's travel activities and surrounding transit infrastructure, utilizing new data sources. The findings identify effective thresholds for public transport systems, offering actionable insights for child-centered transportation planning, and highlighting the priority of child-friendly public transit and school-focused planning strategies to support children's mobility and well-being.

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Key Words: Transit accessibility, Children, Activity space, Socio-spatial context, Mobile phone data

Who Is Truly Served by TOD? A Micro-Scale Analysis of Walkability and Transit Equity in Shanghai

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Track 5: Inclusion and Accessibility in Planning

Individual Paper Presentation Submission

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Transit-Oriented Development (TOD) is widely promoted as a strategy for creating compact, walkable, and transit-accessible urban environments. However, TOD planning often relies on simplified assumptions, such as using fixed-radius buffers (300–800 meters) to define metro station catchment areas, assuming uniform accessibility within. This method overlooks real street networks, physical barriers, and differences in walking ability across groups. More importantly, TOD often fails to address a central equity question: Are metro stations truly serving those who need them most? Low-income populations, highly dependent on public transit, are frequently excluded from walkable access. Without social targeting and spatial integration, physical proximity does not equal functional accessibility, leading to overestimated access and masked inequities at the micro scale.

To address these issues, this study proposes a micro-scale, path-based framework for assessing pedestrian accessibility, using route data from the Amap (Gaode) API. Focusing on 407 metro stations in Shanghai, it delineates walkable service areas within a 1-km threshold. A 50m × 50m grid system is applied, and pedestrian paths from grid centroids to the nearest entrances are computed based on real street networks, capturing more behaviorally accurate access patterns. The study develops four spatial structure indicators—coverage, gaps, compactness, and eccentricity—to quantify service area quality. These metrics are used to classify stations through Principal Component Analysis and K-means clustering, revealing structural disparities and spatial patterns.

To explore transit equity, accessibility results are overlaid with socio-economic data, including population density, elderly ratios, low-income housing, and land use. Special focus is placed on areas where vulnerable groups live near metro stations but are functionally excluded due to barriers such as disconnected streets or missing entrances. These mismatches show that transit investment without equity considerations may reinforce exclusion.

Findings highlight that in many peripheral and older neighborhoods, metro stations are geographically close but practically inaccessible. Fragmented walkable areas and persistent “access voids” overlap with vulnerable populations, resulting in compounded disadvantage.

In response, a multi-dimensional station prioritization framework is introduced, combining accessibility and vulnerability indicators. Planning recommendations include reorienting entrances, improving pedestrian connectivity, and enhancing last-mile access through modes such as e-bikes or community shuttles.

Citations:

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Key Words: Transit Accessibility, Walkability, eTOD, Metro Stations

Track 5 Research in Motion (RiM)

Evaluating the Inclusive Environment of Regenerated Waterfront Spaces: A Case Study in Shanghai

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Track 5: Inclusion and Accessibility in Planning

Research-in-Motion Presentation Submission, Research currently in process

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Introduction-This study examines the inclusivity of regenerated waterfront spaces, focusing on accessibility for elderly residents. Using the Suzhou River waterfront in Shanghai as a case study, it explores whether redevelopment enhances or restricts access for hinterland communities. The central questions are: Do these spaces remain equitable and functional for long-term residents, particularly vulnerable groups? Does the transformation prioritize recreational and economic benefits over local needs? By analyzing spatial accessibility and usage patterns, this research contributes to the urban equity discourse, providing insights into how waterfront planning can better balance development goals with the everyday experiences of local communities.

Methodology-A comprehensive dual-method approach was adopted. First, Urban Network Analysis (UNA) was employed to quantify spatial accessibility along the waterfront. This method integrated multiple transportation modes and mapped the connectivity between residential areas and the waterfront, incorporating the density of accessible facilities along pedestrian routes. Second, an AHP-Fuzzy Comprehensive Evaluation method was utilized to develop an inclusive evaluation system based on seven key characteristic indexes. These indexes captured critical aspects, including the quality of the surrounding route environment, the natural and built features of the waterfront space, and the provision of public service facilities.

Results-The evaluation indicated that the regenerated Suzhou River waterfront provided good overall accessibility. However, significant differences emerged in the usage patterns and demands of local elderly residents versus visitors. While strong transportation networks and well-distributed accessible facilities were present, certain river segments exhibited divergent usage: local elderly residents frequently engaged in informal activities—social gatherings, exercise, and leisurely strolls—in non-designated spaces, whereas visitors tended to concentrate around established public amenities. Additionally, mixed sentiments among local residents were evident, with some expressing nostalgia for the river’s pre-regeneration state alongside recognition of the improvements.

Discussion-These findings highlight the complexity of designing inclusive waterfront environments that serve both community residents and visitors. The study underscores the necessity of addressing not only physical barriers but also the emotional and social connections residents have with public spaces. Consequently, tailored optimization strategies are proposed, including enhancements to pedestrian pathways, improvements in the spatial distribution of public facilities, and an increase in accessible entrances. Furthermore, incorporating flexible design elements that preserve cultural and historical contexts is recommended to reinforce local identity and foster a sense of belonging.

Conclusion-By linking quantitative spatial analysis with qualitative assessments of user perceptions, this study offers valuable insights into public space utilization within urban regeneration. The results suggest that waterfront regeneration should balance the attraction of tourists with the daily needs of local communities. Ultimately, the

integrated approach advocated in this paper contributes to a broader understanding of inclusivity and accessibility in urban planning, promotes design strategies, and improves social equity so that urban waterfront spaces can be enjoyed by everyone.

Citations:

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Key Words: Waterfront Regeneration, Inclusive Environment, Psychosocial Barrier, Social Justice, Urban Network Analysis

Mapping Trends in Public Financing for Equitable Access to WASH Services: A Local-Level Analysis

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Track 5: Inclusion and Accessibility in Planning

Research-in-Motion Presentation Submission, Research currently in process

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Globally, especially in developing countries, people do not have equal access to water and sanitation services. Inequalities exist based on the area, urban/rural, gender, rich/poor, and other factors (Mason & Mosello, 2017). Likewise, there are disparities in access to water and sanitation services across districts in Punjab state, Pakistan. Around 35% of the population do not have access to safely managed drinking water, and 51% do not have access to safely managed sanitation services. The government of Pakistan is committed to achieving universal and equitable access to safe drinking water and adequate and equitable access to safely managed sanitation and hygiene for all by 2030 (Hureem et al. 2020). Equitable access to WASH (Water, Sanitation, and Hygiene) requires the implementation of social, economic, political, and administrative governance components, including equitable financial strategies (Bayu et al. 2020). Despite the government of Punjab's substantial investment in the WASH sector, people lack equitable access to WASH services. It is significant for the government and policy framework to ensure WASH financing strategies prioritize marginalized and vulnerable communities, and financial allocation addresses equity and inclusivity to reduce the burden of waterborne diseases and improve their quality of life (World Health Organization, 2015).

In this regard, this study aims to analyze the trends in the distribution of public financial resources in the WASH sector at the local level (across districts) and examine how WASH financial allocation benefits those who lack services and are in most need. The GIS analysis is conducted by using secondary data on poverty, and public WASH expenditures to track the trends in public financial allocation to WASH projects and the population's equitable access to WASH services at the local level. The results indicate the unequal allocation of WASH financial resources and reveal that the districts/local areas that lack access to WASH services and are in most need are getting less public funding compared to others. The study results will help to identify the barriers to providing equitable access to WASH and suggest targeting financial allocation in vulnerable and poor areas to meet universal and equitable access to WASH services in Punjab, Pakistan.

Citations:

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Key Words: Financial allocation, Equitable Access, WASH, Inequalities, Public Expenditures

Micro-Videos Analysis of Digital Spaces for Youth Participatory Planning Approaches

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Track 5: Inclusion and Accessibility in Planning

Research-in-Motion Presentation Submission, Research currently in process

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Planning and designing parks and open spaces for people between the ages of 14-24 years can be very challenging. Further attention to how and to what extent young people use these parks and other leisure spaces and what they do as part of their play and or leisure can lead to more effective utilization of the physical spaces and maximize the value of investments by local governments. Youth are actively using spaces in their environment as evident in the use of hashtags, micro-videos challenges— engagement in these hybrid cyber-physical spaces demand a reframing of the ‘the right to the city’ beyond physical spaces to include an ‘informational right to the city (Shaw and Graham 2017). This research builds on the applications of a wide range of digital technologies expanding the capability of the Youth Participatory Action Research (YPAR) model in gaining insights into health behaviors, learning experiences, and meanings associated with places. While digital technologies and social media can extend youth experiences, they can also lead to increased disconnection from their immediate networks of caretakers and friends, making it more challenging to identify critical signs of distress. This research addresses the critical gap in understanding how youth from various backgrounds navigate public, lived physical, and cyberspaces to engage, inform, and inspire others as ‘storytellers’—part of their right to the city (Ortiz 2022).

We ask the following questions: (1) How can analysis of micro-videos inform understanding of how young people use open, public, park, or other play spaces?; (2) To what extent can insights into the emotional state and activities conducted in these spaces inform organizations and local governments when planning, designing, and offering programming in these physical spaces?; (3) How can civic organizations and governments work with young people as part of a community-based engagement system?

Using AI/Computer Vision-based predictive modeling and Geographic Information System (GIS), this project investigates the range of uses and activities of youth in parks, and other public spaces. The preliminary data collection and analysis of 100 micro-videos offer insights into youth’s emotional struggle and the environment amplifying these struggles and what needs to happen for local governments and other agencies to build a smart, community-based response system. This insight can inform the development of youth-led programs and services that cultivate a sense of agency, creating long-lasting connections between youth and their communities (Domínguez and Cammarota 2022). Assessing youth engagement in these cyberspaces can provide valuable insights into their everyday experiences, the relationship-building that occurs, and what must happen for cities and civic organizations to prioritize youth in planning public, open, and park spaces.

Citations:

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Key Words: participatory action, youth, digital spaces

Negotiated Right to the City? Hispanic Street Vending in a Sun Belt Suburb

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Track 5: Inclusion and Accessibility in Planning

Research-in-Motion Presentation Submission, Research currently in process

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My research aims to understand how Hispanic street vendors in suburban unincorporated Gwinnett County, Georgia assert their right to the city by negotiating access to suburban space and producing lived space. I examined Hispanic street vending in Gwinnett as both a case study and a phenomenological study to better understand suburban governance, street vendors' lived experiences of suburbia, and street vending policy. Gwinnett's Hispanic population increased by over 36 percent during the 2010s, and the county contained considerably Georgia's largest Hispanic population by 2021 (Atlanta Regional Commission, 2021).

I asked about the implications of population growth and demographic transitions on the governance of suburbia. I also assessed the lived experiences of metropolitan transformations through the lens of Hispanic street vendors, who epitomize demographically and spatially changing suburbia. My findings reveal how Hispanic street vendors experience suburbia, how they navigate county government regulations that prohibit street vending and negotiate with commercial property owners, and the role of street vending in Gwinnett's Hispanic community.

My data collection methods consisted of archival research, windshield surveys and interviews, direct participant observations, and in-depth interviews. The research participants included Hispanic street vendors, food truck operators who invest more material resources into their vending practices, representatives of nonprofit organizations, current and retired county planning and code enforcement employees, elected officials, and commercial property and brick-and-mortar business owners where street vendors operate. I conducted critical discourse analyses of the data I obtained to understand the codification and reproduction of Anglo-American expectations and dominance in relation to suburban governance and the regulation of space.

I studied street vending within the context of metropolitan transformations in the United States. Current street vending scholarship focuses on the Global South more than the Global North, the urban core spaces of large cities with long histories of mass immigration, northern and west coast cities in the United States, and urban public spaces, such as sidewalks and parks, rather than suburban private property, namely parking lots of strip shopping centers and at the entrances to gated garden-style apartment complexes. My study of individuals' lived experiences of street vending and how it is governed within Gwinnett's Sun Belt suburban context is antithetical to the environments where scholars research this practice.

My findings fulfill knowledge and population gaps in the existing literature on street vending and North American metropolitan transformations. Nicolaides (2024) describes the "new suburbia", in which suburbs transition from bastions of white racial segregation into multiracial yet economically unequal demographic landscapes. Despite demographic shifts, regulations of the suburban physical landscape often undermine difference and reproduce white privilege (Lung-Amam, 2017). Furthermore, suburban governance frequently favors the interests of privileged sources of capital at the expense of demographically changing, economically and socially marginalized suburban populations (Peck, 2011; Ekers, Hamel, and Keil, 2012). My findings contribute to scholarship on metropolitan transformations by discussing (1) the discourses that a suburban government employs to justify maintaining and selectively enforcing Anglo-centric regulations, such as those that prohibit street vending, despite demographic transitions; (2) the effects of suburban geography and governance on the lived experiences of Hispanic street vendors; and (3) how they negotiate the use of space to satisfy their needs where private property

predominates. Finally, I recommend planning interventions to help enfranchise street vendors and advance suburban diversity planning.

Citations:

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Key Words: demographic change, governance, Hispanic communities, street vending, suburbs

Pharmacy Access Paradox: Shortages Amid Abundance - Measuring with Accessibility Index

Abstract ID: 1842.0.0.675.2025

Track 5: Inclusion and Accessibility in Planning

Research-in-Motion Presentation Submission, Research currently in process

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Pharmacy services are crucial in the U.S. healthcare system, extending beyond prescription dispensing to provide essential health services that make them vital community health hubs. The COVID-19 pandemic further highlighted the importance of pharmacies as strategic public health partners, ensuring care during health emergencies. However, despite their widespread presence, community pharmacies are not equitably accessible to all U.S. residents when social determinants of healthcare access (age, income, mobility, and health-related factors) are considered (Solomon et al., 2022; Kaalund et al., 2022; Berenbrok et al, 2022; Shi & Stevens, 2021). These disparities in access continue to worsen, exacerbating broader public health inequities and underscoring the need for research into pharmacy accessibility and the growing phenomenon of pharmacy deserts (Constantin, Ullrich & Mueller, 2022).

Focusing on Jefferson County, Kentucky, the study explores an enhanced Pharmacy Accessibility Index (PAI) that moves beyond simplistic distance-based measures by integrating the spatial distribution of pharmacies, sociodemographic data, potential user populations, pharmacy service quality indicators, and actual pharmacy usage patterns derived from smartphone location data (Placer.ai). While existing measures of pharmacy accessibility often rely on global-level distance metrics and neighborhood demographics, such analyses can obscure critical localized disparities in access. Hence, applying the Local Anselin Moran's I, the study addresses two questions: (i) To what extent do the micro-scale patterns of pharmacy accessibility deviate from macro-scale models of equitable spatial access (e.g., distance-based thresholds) in Jefferson County? (ii) How do these localized disparities in pharmacy access disrupt expected spatial patterns of healthcare availability, and what underlying socioeconomic and sociodemographic factors explain these mismatches?

Preliminary work suggests that traditional proximity-based measures may significantly overestimate actual access, consequently, the study highlights two key insights: (i) Beyond Numbers: The Need for Localized Context – Traditional global analyses often miss localized disparities and unquantifiable factors. Local Moran's I analysis provides a more nuanced, localized understanding of accessibility issues, enabling targeted interventions for equitable access. (ii) Spatial Inequity and its Public Health Implications – Systemic inequities, shaped by socioeconomic and sociodemographic factors, manifest spatially and impact public health. By filling these gaps, this study offers actionable insights to address pharmacy deserts and reduce healthcare disparities in Jefferson County.

Citations:

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Key Words: Equitable Accessibility, Pharmacy Desert

Spatiotemporal Behaviors in Shanghai's Lujiazui: Multi-Group Activities and Adaptations

Abstract ID: 1842.0.0.305.2025

Track 5: Inclusion and Accessibility in Planning

Research-in-Motion Presentation Submission, Research currently in process

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This study examines how diverse population groups interact within Shanghai's Lujiazui CBD using time geography theory. Unlike traditional CBD research focusing on spatial form, we analyze how different social groups create distinct activity patterns within shared environments.

Our methodology combined mobile phone data analysis (250,000 daily records), surveys (n=517), in-depth interviews (n=43), GPS tracking (n=217), and fixed-point observations (240 hours), with special attention to service workers often overlooked in urban studies.

Key findings: Temporal Rhythms: Four distinct patterns emerged: financial executives with flexible schedules, white-collar workers following standard hours, service workers with extended schedules, and platform workers showing peak-responsive patterns. The area displays a "double-peak, single-valley" daily structure with staggered peak hours creating a "temporal gradient."

Spatial Utilization: Different groups exhibit distinct activity ranges and paths. Financial elites concentrate along main axes, while service personnel navigate broader areas but primarily occupy marginal spaces. We observed "temporal space sharing" where the same physical spaces accommodate different groups throughout the day.

Activity Chains: High-income groups demonstrate "simplified efficient" activity chains (averaging 3.7 points daily), middle-income groups show "multi-point connection" patterns (5.2 points), and service personnel exhibit "task-driven" movements (6.5 points, mostly mandatory).

Behavioral Adaptation: Various informal activities emerge within the structured environment: breakfast vendors at specific times, temporary "food belts," transformed marginal spaces, and delivery rider networks. Groups develop tacit rules through daily practice, creating complex yet functional spatiotemporal patterns.

Based on these findings, we propose optimization strategies including institutional innovations, adaptive design approaches, supportive facility systems, and enhanced environmental planning that embrace temporal flexibility and social inclusivity.

This research contributes theoretically by combining time geography with social interaction analysis, methodologically by integrating big data with micro-behavioral observation, and practically by providing insights for inclusive urban planning that supports diverse population needs in high-density urban centers.

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Key Words: Spatiotemporal behavior, Activity patterns, Behavioral adaptation, High-density central, Diverse groups

The Smart City Paradox: Digital Utopias or Neoliberal Urbanism?

Abstract ID: 1842.0.0.17.2025

Track 5: Inclusion and Accessibility in Planning

Research-in-Motion Presentation Submission, Critique related to a hot topic in planning research

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The mass deployment of smart city programs has engendered as much optimism as it has trepidation in the practice of urban planning. While proponents argue that digital government and data-driven policy enhance efficiency, sustainability, and public service delivery, others argue that smart city policy reinforces neoliberal urbanism, widens sociospatial inequalities, and advances corporate interests above democratic city government. This study investigates whether smart cities are inclusive models or tools of exacerbating power asymmetries and spatial injustices. The central research question is: Does smart city policy lead to more resilient and more equitable cities, or do they serve as tools of privatization and social control?

This study employs a critical policy analysis and comparative case studies to examine smart city projects in world cities. The study assesses models of government, mechanisms of citizen participation, and the distribution of smart infrastructure investment, employing theoretical models of the political economy of the city and critical planning studies. The study finds that smart technologies have the capacity to govern the city but deployment is typically in the interests of the corporate world and not the public good. The majority of smart city policy is driven by public-private partnerships with technology firms having disproportionate influence over the government of the city, compromising public accountability and transparency (Lombardi & Vanolo, 2015). Consequently, the models tend to focus on high-income areas for the construction of smart infrastructure, exacerbating spatial inequalities and reinforcing exclusivity patterns (Praharaj et al., 2018).

More significantly, the implications of smart city technocracy demonstrate the risks of shifting decision-making power away from democratic institutions to data-driven and algorithmic models of municipal government (MacDonald et al., 2014). Automation and predictive analytics do not address the root of such issues as the unaffordability of housing, social polarization, and environmental justice (Ferm & Tomaney, 2018). Surveillance technology also raises issues of privacy, civil liberties, and increased policing and social control (Watson, 2009). The use of facial recognition and predictive policing underscores the need to solve these issues prior to implementation into models of government.

This criticism also identifies that smart city technologies prioritize efficiency over inclusivity. While smart mobility options and energy-efficient infrastructure present themselves as symbols of being sustainable, they primarily benefit wealthier citizens (Sidney, 2010). Urban service commercialization reinforces socioeconomic stratification, but research identifies that technology-based alternatives such as congestion pricing disproportionately impact low-income groups by restricting their mobility (Palermo & Ponzini, 2010). Despite such problems, other models of smart cities prioritize democratic government and citizen-driven innovation. Cities that experiment with open-source digital platforms, decentralized data management, and citizen-driven urban technology demonstrate that smart urbanism could be reoriented to a common city future. But these programs still lack money and do not scale due to institutional blockages by hegemonic technology actors (MacDonald et al., 2014), while research finds that smart city paradigms must be reimagined to make technological progress serve the public good, and that planners and policymakers must critically examine smart city rhetoric. Otherwise, smart city strategies risk consolidating neoliberal urbanism, privatizing public space, and exacerbating sociospatial exclusion. Future research must address how alternative digital models of urbanism can be institutionalized so that smart cities serve overall social justice ends and not as techno-utopian branding exercises.

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Key Words: Smart Cities, Neoliberal Urbanism, Digital Governance, Urban Inequality, Technocratic Planning

Unjust Spaces: A Spatial Inquiry into Temporary Worker Living Conditions in Toronto

Abstract ID: 1842.0.0.1128.2025

Track 5: Inclusion and Accessibility in Planning

Research-in-Motion Presentation Submission, Research currently in process

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“For nearly every injustice in the world, there is an architecture that has been planned and designed to perpetuate it,” wrote architect and activist Bryan Lee Jr. This is particularly true for the housing designed for Canada’s 775,000 temporary workers, who often face economic exploitation and spatial marginalization. Under Canada’s Temporary Foreign Worker Program (TFWP), employers can hire migrant workers for low-wage jobs, tying their migration status and labor conditions to a single employer. A 2024 report by the UN Special Rapporteur on contemporary forms of slavery described the program as a “breeding ground for contemporary forms of slavery,” while a 2025 Amnesty International report highlighted how its design exposes laborers from the Global South to severe abuse and discrimination.

A 2024 scoping review of material housing conditions of temporary foreign workers in Canadian agriculture highlighted various health inequities that have led to preventable illness and death. While human rights organizations and activists have highlighted similar patterns across Canada, no in-depth study has been carried out in urban centers and major government and non-governmental housing demand assessments largely overlook temporary foreign workers. Moreover, architects and planners — despite their critical role in shaping urban spaces — remain largely absent from this crucial conversation, resulting in the issue being largely framed through the lenses of rights abuses and labor relations.

This study aims to reframe this urban issue through a spatial lens by documenting and highlighting the material living conditions of racialized temporary foreign workers in Toronto. Recognizing the interconnected nature of this issue, this study adopts a cross-disciplinary approach, integrating human rights documentation with architectural visualization techniques to bridge the gap between human rights practitioners and built environment professionals.

A scoping review of media reports and academic literature on urban temporary migrant workers would be carried out to highlight key housing challenges and identify suitable Toronto neighborhoods for carrying out in-depth analysis. Three of these neighborhoods would then be shortlisted in close consultation with human rights experts to conduct at least two anonymized Key Informant Interviews per neighborhood. These interviews would be augmented by site documentation through photography and architectural drawings that would compare temporary worker housing conditions with the seven aspects of the Right to Housing as defined by the UN: Security of Tenure, Affordability, Availability of Services, Habitability, Accessibility, Location, and Cultural Adequacy. A final set of refined architectural drawings will be produced to conceal the true identity of these spaces and their inhabitants while enabling planners and architects to fully engage with the spatial dimensions of the challenge.

By bridging human rights advocacy and design practices, the study will highlight a rights-based approach to addressing socio-spatial issues while fostering dialogue between human rights practitioners, architects and planners to promote more just and inclusive living spaces for one of Canada’s most vulnerable populations.

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Key Words: Migrant Workers, Spatial Injustice, Racialized Workers, Housing Justice, Human Rights Advocacy

Vulnerable Urban Populations Have Inequitable Access to Essential Health Services

Abstract ID: 1842.0.0.998.2025

Track 5: Inclusion and Accessibility in Planning

Research-in-Motion Presentation Submission, Research currently in process

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Background: Ensuring equitable healthcare access remains a pressing challenge amid rapid urbanization, particularly for vulnerable populations. Surrey, British Columbia - one of Canada's fastest-growing and most diverse suburban cities - is undergoing a major public transportation expansion. However, it is unclear whether such developments will effectively reduce existing healthcare accessibility disparities. Spatial, socioeconomic, and transport-related barriers may disproportionately affect certain groups, further exacerbating health inequities. Accessibility, defined as the ease with which individuals can reach essential services, is a cornerstone of livable and sustainable cities. Understanding how different socio-demographic groups navigate healthcare access is crucial for informing infrastructure investments and advancing equitable urban planning.

Methods: This study assesses geographic healthcare accessibility within Surrey's multimodal transportation network using origin-destination matrices and high-resolution socio-demographic data at a 1-kilometre grid scale. The analysis focuses on vulnerable populations, including children and youth, seniors, racial minorities, individuals without a high school diploma, and low-income residents. Healthcare facilities considered include walk-in clinics, urgent care centers, and hospitals. Road and pedestrian infrastructure data are sourced from OpenStreetMap, while public transit data in General Transit Feed Specification (GTFS) format is obtained from the regional transportation authority. Travel times are estimated in one-minute intervals between 8:00 and 9:00 AM on a typical weekday (Tuesday, September 24, 2024), with results reported at the 50th percentile. The proportion of each subpopulation within 30-, 45-, and 60-minute travel thresholds is compared to the general population to identify healthcare accessibility disparities, with separate assessments for public transit/walking and driving.

Results: Preliminary findings indicate notable geographic disparities in healthcare access across Surrey. Central areas have shorter travel times and stronger public transit connectivity, while outer suburban neighborhoods face longer travel times and limited healthcare facility access. Children and youth, seniors, individuals without a high school diploma, and low-income residents appear to experience less access to healthcare facilities compared to the general population. These disparities become more pronounced at longer travel thresholds and are more severe for those reliant on public transit rather than driving.

Discussion and Conclusion: This study combines travel time analysis with high-resolution socio-demographic data to reveal disparities in healthcare access among vulnerable populations. Seniors and low-income residents, who rely heavily on public transit, face some of the greatest accessibility challenges. These findings highlight the need for strategic urban planning and transportation investments to reduce inequities in healthcare access. Future research should assess whether Surrey's ongoing transit expansion effectively bridges existing gaps in accessibility.

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Key Words: accessibility, equity, health, transportation, urban planning

Track 6 – Housing

Track 6 Pre-Organized Session Summaries and Abstracts for the Sessions

Rental Housing (1): Private Owners, Public Impact: Investigating the Business of Rental Housing

Abstract ID: 1840.0.0.1039.2025

Track 6: Housing

Pre-Organized Session Summary

Session Includes: 1844.0.0.78.2025, 1844.0.0.521.2025, 1844.0.0.411.2025, 1844.0.0.616.2025

Jane Rongerude [Iowa State] jrong@iastate.edu, organizer

This session explores the business practices and decision-making logics of individual (non-institutional) residential rental property owners (RRPOs). Housing insecurity is not only rooted in financial constraints but also shaped by social relationships that create or dissolve housing arrangements—relationships that urban planning can help regulate and reimagine. Most U.S. rental housing is privately owned and operated as an investment, yet the process of acquiring, renting, and profiting from property unfolds in varied ways. These papers examine how RRPOs act as key agents within local housing systems, both constraining and expanding opportunity. They challenge us to consider how planning can engage with and influence RRPO behaviors to promote housing justice and improve tenant security.

Learning Objectives:

- Recognizing the different categories of rental housing investors and the heterogeneity within those categories.
- Identifying the relationship between the varied business practices associated with the provision of rental housing and housing outcomes for both tenants and places.
- Identify opportunities for planners to leverage existing practices of residential rental property owners to further housing justice goals.

Rent Seeking Rent Seekers: Do residential landlords view new housing development as competition?

Abstract ID: 1844.0.0.78.2025

Track 6: Housing

Pre-Organized Paper Presentation

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In this project, we examine whether residential landlords oppose new housing development if they worry it will constitute new competition for their units. To do so, we design and administer a vignette experiment to elicit whether residential landlords are sensitive to new rental housing development near their existing rental portfolios. We present participants with a description of a proposed development and ask whether they support or oppose it and whether they would attend a planning meeting to voice their support or opposition. In the description, we randomly vary the type of building (for-rent residential, community-serving retail, and for-sale residential) and the distance of the proposed development to one of

the respondent's rental properties (a short walk, a short drive, and the same city). Our analysis examines whether the type of the proposed development and its distance from the respondents' properties affect reported levels of support or opposition. We find that respondents who received the residential framing were less likely to support and more likely to oppose the proposed new development than respondents who received the retail vignette. We also find some evidence that distance matters, with respondents who received the prompts describing the proposed development closer to their investments less likely to express support for the hypothetical project.

Citations:

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Key Words: Landlords, NIMBY

Investigating How Property Managers Use Residential Property Technology to Set Rents

Abstract ID: 1844.0.0.521.2025

Track 6: Housing

Pre-Organized Paper Presentation

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In recent years, scholars have turned their attention to the behaviors and management practices of landlords, including how landlords select tenants, engage in rent-setting, acquire new investments, and match tenants to specific neighborhoods (Kuhlmann et al. 2025; Rosen et al. 2021). A growing body of work has examined how residential property technology (or “prop tech”) shapes landlords’ business practices, including how automated tenant screening and algorithmic eviction processes influence housing access and stability (McElroy et al. 2022). A key focus of this work has been to explore how various social and racial biases are often baked into these technologies and how using these technologies can harden social and racial inequalities in the rental market (So, 2023). Despite this progress, relatively little research to date has examined how landlords and property managers interact with technologies that use algorithmic rent-pricing, such as RealPage. These technologies often use proprietary and publicly-available data to algorithmically determine rental prices for units, a shift that may have profound implications for housing affordability and market dynamics. This gap in the literature is particularly pressing given that a considerable share of multifamily property management companies use algorithmic rent-pricing technologies, raising the question of how setting rents algorithmically might depart from traditional methods of rent-setting (Vogell et al., 2022). Moreover, emerging evidence suggests that rent-setting algorithms may contribute to negative tenant outcomes, such as higher rates of eviction and systematic rent increases (Vogell et al., 2022). Indeed, a series of pending lawsuits allege that property management companies that use software like RealPage engage in price-fixing, colluding to drive up rents in multifamily housing markets. Given both the widespread adoption of technologies that use algorithmic rent-pricing and the potentially negative consequences that using these technologies could have on the broader rental market and tenant outcomes, additional research needs to explore how these technologies shape the market behaviors of various housing market intermediaries, including property managers and landlords. This study will examine how property managers who use RealPage interact with the platform and how the technology shapes their market behaviors, such as rent-setting and vacancy management strategies. Using a dataset of property management companies that use RealPage software across the United States, we recruit property managers and landlords from three major metropolitan areas in the U.S. with a high share of multifamily units. Through in-depth interviews, we explore key questions such as: How do property managers perceive and interpret algorithmic pricing recommendations? To what extent do they override or adjust these recommendations? How does this technology shape broader management practices, such as vacancy management strategies? In particular, we examine how property managers conceptualize algorithmic rent-setting—do they view it as analogous to other forms of dynamic pricing, such as airline fares or ride hailing companies, or do they believe that housing should be treated differently due to its essential nature? We complement our interviews with a descriptive analysis of the kinds of properties and neighborhoods where property management companies use RealPage, shedding light on whether algorithmic pricing tools are more commonly deployed in certain types of neighborhoods or housing submarkets. Collectively, this study will shed light on the specific mechanisms through which emerging residential property technology mediates and shapes market behaviors.

Citations:

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Key Words: Landlords, Rent-setting, Housing, Rental Housing

Slipping Into and Out of Arrears: The Dynamics of Spells in LIHTC Housing

Abstract ID: 1844.0.0.411.2025

Track 6: Housing

Pre-Organized Paper Presentation

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In the past few decades, rent burdens have increased for renters of all income levels, putting them at greater risk of falling behind on rent when faced with financial shocks (JCHS, 2024).

However, little is known about patterns of rent payment and how often, and how soon, renters recover after they fall behind, if at all. To what extent, that is, do shocks lead to a sustained inability to pay rent, versus a temporary spell of arrears? Understanding arrears spells is critical to optimal landlord forbearance and eviction practices, as well as to the design and targeting of public policies related to eviction protection, perhaps especially in the case of publicly subsidized housing. Of course arrears spells can be truncated by landlords' decisions to evict: If tenants are forced to leave as soon as they fall behind they will not have the opportunity to recover. In essence, landlords face a tradeoff between the risk of foregone rent and prematurely evicting a household that would have self cured. And the nature of this tradeoff may vary across economic and policy contexts (Nelson et al 2021).

We aim to explore these trade-offs by leveraging unique, individual-level rent roll data to better understand resident payment behavior and the dynamics of arrears spells in Low Income Housing Tax Credit (LIHTC) housing, a critical component of the affordable housing stock. Our data include 170 developments with nearly 27,600 units across multiple states from early 2023 to 2025. Importantly, our LIHTC properties share a common landlord and management company, allowing us to investigate how resident arrears dynamics and a landlord's eviction and forbearance decisions vary under different market conditions and policy regimes.

In aggregate, we observe that 27 percent of residents are behind on rent in an average month. But this static picture conceals considerable cycling in and out of arrears and increases and decreases in those arrears over time. Residents are just as likely to enter arrears as they are to exit them each month.

Looking over a longer time-frame, we find that over a third of households that fall behind on rent in a month pay back that amount within three months. Some households may not be given a chance to pay back their rent: on average 9 percent of those who fall behind on rent leave the building without paying within 3 months, presumably through a forced move.

Despite our focus on LIHTC housing, these average patterns are broadly consistent with Humphries et al. (2024), who study renters in unsubsidized buildings in the Midwest. But we show considerable variation across state policy regimes. The share of households that fall behind on rent in a month ranges from 3 percent to 29 percent across the 16 states in our sample. Similarly, we see large differences in the rate at which residents move out after falling behind - in some states this is as low as 4 percent within 3 months and in others as high as 28 percent. This suggests that in some states, landlords move much more quickly to evict non-paying tenants, and they may push out some households who could cure their arrears spells if given time.

While landlords may find that some patience can reveal information about whether additional generosity is optimal for a tenant, such patience can be costly for them. However, evictions are incredibly costly for tenants - leading to longer term health and economic consequences (Collinson et al., 2024). Policymakers might consider offering subsidies to landlords to support what are essentially small-balance loans to vulnerable renters in order to encourage more socially optimal patience.

Citations:

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Key Words: renters, eviction, arrears, landlords, LIHTC

The Relationship between External Shocks and Residential Rental Property Owner Satisfaction

Abstract ID: 1844.0.0.616.2025

Track 6: Housing

Pre-Organized Paper Presentation

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Concern is growing about the ability of non-institutional Residential Rental Property Owners (RRPOs) to weather various kinds of external shocks (Garboden, 2023; Lambie-Hanson, Li, & Slonkosky, 2022). The completion of the final wave of a major survey of RRPOs in the United States (“RRPO Survey”) makes it possible to gauge the impact of such shocks on the responding RRPOs as measured by their self-assessment of their prospects, which we shorthand as “satisfaction.” Following earlier research, we measure self-reported satisfaction along three dimensions: affective (i.e., respondent’s qualitative assessment of their own satisfaction with owning multifamily rental property), retrospective action (i.e., reported sale or purchase of rental property in the last year), and prospective intention (i.e., reported intention to buy or sell rental property in the next year). (Cook et. al 2024.) Taking advantage of the collection of the RRPO Survey over three waves (one per year over three years) and in nine cities, we aim to detect the impacts, or lack of impact, of three types of shocks to the RRPOs that unfolded across or in-between waves. These are disaster shocks (2024 Houston derecho; Hurricanes Debby/Helene/Milton affecting Tampa and Miami from August to October 2024; and the January 2025 snowstorm in New Orleans), policy shocks (imposition of rent control, and subsequent withdrawal in Minneapolis; strengthened fire egress requirements in Des Moines; and tightened lead abatement requirements in Cleveland), and market shocks (unusually rapid increases in insurance rates or property taxes, or decreases in rents). We identified the policy shocks mentioned from earlier interviews of RRPOs. In this study, we assess the relationships between shocks and RRPO satisfaction by i) comparing RRPOs in shocked to non-shocked cities in the same survey waves; ii) comparing RRPOs within single cities in waves preceding and postdating shocks; and iii) via results collected from a supplemental “exit survey” of RRPOs who reported leaving the multifamily rental business altogether. Our findings have implications for multifamily rental housing markets within US cities with respect to tenant stability, and to long-term changes in ownership structure including the possibility of movement away from non-institutional and towards institutional ownership in post-shock markets (Shiffer-Sebba, 2020; Eichholtz et. al., 1995).

Citations:

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Key Words: Property owners, Rental housing, natural disasters, market shocks, policy shocks

Rental Housing (2): Power, Precarity, and the Practices of Rental Property Owners

Abstract ID: 1840.0.0.1077.2025

Track 6: Housing

Pre-Organized Session Summary

Session Includes: 1844.0.0.943.2025, 1842.0.0.215.2025

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Rental housing plays a crucial yet understudied role in shaping urban housing markets and social inequalities. This panel examines the complexities of rental housing across diverse contexts. One paper explores how migrant women in Bengaluru face discrimination and violence in rental homes, revealing how rental markets reinforce social hierarchies. Another investigates Vancouver's rental submarkets through online listings, highlighting how language barriers impact immigrant housing access. A third study examines why small-scale rental property owners exit the market, challenging assumptions about their role in housing stability. Finally, an analysis of opposition to multifamily housing in Arizona uncovers racially coded language in public deliberations. Together, these papers illuminate how rental markets are socially constructed, shaped by discrimination, policy, and ownership dynamics, and call for planning interventions that promote housing justice.

Learning Objectives:

- Analyze how rental housing markets are shaped by social, economic, and policy factors.
- Evaluate the implications of the practices of residential rental property owners, tenant experiences, and public discourse on housing insecurity and urban inequality.
- Identify potential planning interventions to promote housing security and justice

Exit Interviews: When Individual Residential Rental Property Owners Leave a Market

Abstract ID: 1844.0.0.943.2025

Track 6: Housing

Pre-Organized Paper Presentation

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It has become common wisdom to assume that cities are better served by individual residential rental property owners (RRPOs) over institutional investors and local investors over investors who live at a distance. As one housing advocate explained, “I like rental property owners who live on my block, who are my neighbor.” Assumptions regarding who owns rental properties, their business models, and their motivations have shaped how housing advocates, planners and local decision-makers understand the production and preservation of existing rental housing. What we do know is that when a unit turns over, it is much more likely to result in rental increases for tenants. Therefore, it is important for cities to take seriously the question of why individual rental property owners sell and what opportunities may exist to preserve affordability when an RRPO exits the market.

This paper uses interviews and three years of reporting from RRPOs in nine US cities that have experienced a range of market conditions to understand the conditions under which RRPOs leave the market. Results show that both exogenous (city policies, disaster events) and endogenous factors (retirement) impact an owner’s decision to exit. This paper demonstrates the heterogeneity of RRPO experiences and the importance that cities pay attention to the turnover of rental properties and changes in ownership entities.

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Key Words: Rental Property Owners, Rental Housing, Housing Policy

Decoding Racially Coded Opposition in Multifamily Housing Deliberations in Arizona

Abstract ID: 1842.0.0.215.2025

Track 6: Housing

Pre-Organized Paper Presentation

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Emotionally charged conflicts about multifamily housing (MFH) projects are slowing attempts to improve housing affordability through increases to density and supply. Coded racism, such as anti-Black stereotypes that MFH will bring the inner city or crime to the neighborhood, has been detected in these conflicts. Yet the prevalence of this language is poorly understood. This research addresses this gap by asking: How prevalent is racially coded opposition in MFH deliberations?

We answer this question by using manual and machine learning methods to apply a racial meaning decoding tool to publicly available textual data on grounds for opposition to MFH in deliberations reported in Arizona local news media and public meetings from 2021 to 2024. The racial meaning decoding tool assists in detecting coded race talk by evaluating whether the words in questions might 1) have racial meaning (i.e., use common racial tropes), 2) lead to a disqualifying effect on racial power relations, and 3) have techniques that help to obscure or efficiently convey racial meaning (e.g., figurative language or othering). Words are scored based on these evaluations, with higher scores indicating a higher chance of racial coding. We then use descriptive statistics to examine the prevalence and forms of potentially racially coded grounds for opposition across varied geographic and demographic settings in Arizona.

Our preliminary findings reveal that grounds for opposition to new MFH commonly concern traffic, undesirable newcomers, parking, density, height, safety, incompatible land uses, dislike of developers, and neighborhood character. Potentially racially coded opposition is rare but occurs in diverse geographies and exhibits common themes, such as fears of contagion from MFH and its presumed residents. Overall, this research will deepen knowledge of the use of racial code words in deliberations about MFH and help municipalities, fair housing agencies, courts, and researchers more reliably recognize coded racism.

Citations:

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Key Words: multifamily, housing, racial, code, words

When Do Housing Policy Reforms Promote Housing Affordability?

Abstract ID: 1840.0.0.234.2025

Track 6: Housing

Pre-Organized Session Summary

Session Includes: 1844.0.0.108.2025, 1844.0.0.163.2025, 1844.0.0.233.2025, 1844.0.0.114.2025

Nicholas Marantz [University of California, Irvine] nmarantz@uci.edu, organizer

This session examines how recent housing policies and zoning reforms—ranging from U.S. state-level initiatives to national mandates in France—are reshaping the production, location, and use of affordable and middle housing. Papers assess the real-world impact of legislative tools like Oregon’s HB2001, Florida’s Live Local Act, California’s ADU laws, and France’s SRU law, using empirical data and policy analysis. Collectively, they assess whether these reforms are meeting their stated objectives, where they are falling short, and what conditions enable or constrain their effectiveness. The session provides a comparative, interdisciplinary lens on how design standards, administrative implementation, market dynamics, and institutional actors influence housing outcomes.

Learning Objectives:

- Identify and compare the mechanisms and outcomes of recent zoning reforms and housing policies in the U.S. and France.
- Evaluate how administrative implementation and local political dynamics shape the efficacy of housing production reforms.

Producing Middle Housing in Oregon after HB2001: The Role of Design Standards

Abstract ID: 1844.0.0.108.2025

Track 6: Housing

Pre-Organized Paper Presentation

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In 2019, the Oregon legislature mandated that cities adopt zoning reforms to allow multi-dwelling buildings (duplex, triplex, four,-plex, cottage cluster and townhouse) in areas that formerly allowed only single-family dwellings. Research by Kuhlmann (2021) and Dong(2024). provides preliminary evidence into the overall production outcomes of middle housing zoning reform.

Cities were directed to enact design and development guidelines for Middle Housing, either on their own or by a Model Code. Prior research by Lewis et. al. (2024) showed that landowners and developers face challenges navigating these standards. Thus, while the HB2001 removed regulatory barriers to Middle Housing, construction may lag if design standards are difficult to envision. This study seeks to close the visualization gap between regulation and implementation.

We analyze the regulations through drawing to visually describe and compare typical buildings that could be built under the design guidelines, particularly related to cottage cluster and townhome types. We inventory the architectural characteristics of the Middle Housing built since HB2001 was adopted. Interviews with planners and developers offer insight into:

- Which cities have been most successful in the new construction of cottage cluster and townhome as compared to other lower-density forms?
- What are the challenges of middle housing development under existing design standards?

This research provides valuable insight into other states and cities considering reforming zoning codes to allow more diverse housing types. We hypothesize that cities with more streamlined design standards will produce more units of housing and will be perceived as more approachable by developers.

Citations:

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Key Words: Middle housing, Design standards, Developer interviews, zoning, housing policy

The Impact of Florida's Live Local Act on Housing Production

Abstract ID: 1844.0.0.163.2025

Track 6: Housing

Pre-Organized Paper Presentation

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Zoning reforms have become one of the most common strategies for addressing housing affordability challenges throughout the U.S. In 2023, the Florida legislature passed a landmark legislation known as the Live Local Act (LLA). Most famously, the legislation included a sweeping provision that overrides local zoning ordinances for multifamily housing projects that set aside at least 40% of the units for households making up to 120% AMI. LLA allows such projects to be built on any land within the state zoned as commercial or industrial and overrides the height and density restrictions. Projects still have to comply with other local and state regulations other than use, density, and height restrictions.

LLA has been celebrated by housing advocates as an exemplary zoning reform that would unlock the production of affordable and missing middle housing. This paper asks whether LLA, in fact, is delivering the much-desired housing production and answers this question by interviewing market rate and affordable housing developers, local planning staff, and statewide housing advocates, and by analyzing the applications submitted for the state's Low-Income Housing Tax Credit (LIHTC) subsidy program from 2022 through 2025.

I find that LLA thus far has largely fallen short of meaningfully increasing housing production or making housing more affordable in Florida. As of March 2025, two years after LLA, there are 104 projects known to have taken advantage of the land use override provision of the Act. However, the majority of these projects remain only as a proposal; some have been approved but not constructed; less than ten projects have actually been constructed. I further identify the reasons why the Act is falling short. Developers reported that in most parts of the state, use, density, and height restrictions are not what's keeping developments from happening and that the property tax exemption component of LLA is the key to making projects pencil out. However, the current law does not allow developers to take advantage of the tax exemptions for construction financing. Moreover, both affordable and missing middle housing developers reported that local governments can still intentionally delay the process because developers must get a form signed by local governments certifying that the project meets all other local regulations except for use, density, and height.

Beyond housing production, LLA could have had the effect of bringing down land acquisition costs by opening up more land for multifamily construction. However, conversations with tax credit developers revealed that due to the state housing agency's strict site scoring rubric, land suitable for tax credit development remains extremely limited. The experience of Florida's LLA suggests how zoning reforms could fail to meet the intent of the reform when they are out of tune with market realities and are not coordinated with other relevant housing policies and programs. These findings offer lessons for designing more effective zoning reforms in the future.

Citations:

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Key Words: Zoning reform, State preemption, Housing production, LIHTC, Land value

Assessing the Residential Impact of California's ADU Reforms

Abstract ID: 1844.0.0.233.2025

Track 6: Housing

Pre-Organized Paper Presentation

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Accessory dwelling units (ADUs) are increasingly recognized as a potentially important source of affordable market-rate housing. Between 2016 and 2020, California enacted a series of laws requiring local governments and homeowners associations to permit ADUs as-of-right on nearly all single-family parcels statewide. These reforms are associated with a sharp increase in ADU permitting. In seven large California cities, ADU permit applications increased more than tenfold between 2015 and 2017. From 2018 to 2021, ADUs accounted for approximately 13% of all new units in the Bay Area and about 32% in Los Angeles County.

However, ADUs can only alleviate housing affordability challenges if they are used as residences. This paper analyzes two key questions: (1) Are ADUs supporting the formation or maintenance of multigenerational households? (2) Are ADUs permitted after state reforms being used as housing, rather than as home offices or short-term rentals? Multigenerational households—those in which at least two generations of adults co-reside—can provide health benefits for older adults and economic support for younger ones, including reduced housing and child care costs. California has the second-highest rate of multigenerational households in the U.S., following Hawaii. Nationally, such living arrangements are significantly more prevalent among people identifying as Black, Latine, or Asian than among those identifying as white. Understanding how ADUs are actually used is therefore crucial to evaluating the impacts of state reforms on housing supply and affordability.

Whereas prior studies have largely relied on surveys to determine how ADUs tend to be used, we leverage geo-referenced individual- and household-level data to provide the most comprehensive estimates to date. Our primary data sources are DataAxle (formerly InfoGroup), a marketing dataset that tracks household composition, and the California Secretary of State's voter registration file, which includes names and residential addresses. We infer familial relationships based on age proximity and surname similarity.

Our study area includes five Southern California counties (Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and the nine Bay Area counties (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma). We conduct parcel-level multivariate regressions for all single-family parcels in these regions. In the first model, the dependent variable indicates whether a parcel houses a multigenerational household; the key independent variable is whether the parcel contains an ADU. In the second model, restricted to parcels with ADUs, the dependent variable indicates whether the ADU has resulted in a new address with at least one resident, signifying its use for housing. Control variables include parcel-level attributes (e.g., lot size, slope), block group characteristics (e.g., poverty rate, educational attainment, racial/ethnic composition, share of foreign-born residents), and fixed effects for the city in which each parcel is located.

Citations:

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Key Words: Housing, Zoning, Accessory dwelling units

25 years of fair share zoning: evaluating France's SRU Law outcomes on social housing geographies

Abstract ID: 1844.0.0.114.2025

Track 6: Housing

Pre-Organized Paper Presentation

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Twenty five years ago, in December 2000, the SRU Law (Loi Solidarité et Renouvellement Urbain) was passed in France, requiring selected municipalities to devote 25% of their local stock to social housing, in order to curb growing trends of segregation. In this paper, I ask what impact this law has had on the rebalancing of social housing stocks for municipalities across the country, particularly those not complying with set quotas. Building on previous research, this paper is part exclusionary politics analysis, part supply analysis, and part neighborhood outcomes analysis--particularly when it comes to health outcomes. I use GIS and regression models to underscore how much of the mission set twenty five years ago, of "moving people to opportunity", and unlocking resources to offer them a better quality of life, has been achieved. I hypothesize that the reality is that we are faced with a patchwork of outcomes depending strongly on local land use regimes and political willingness to comply with a state-mandated law. I also hypothesize that while a lot of rebalancing still needs to happen, particularly in the most exclusionary municipalities, the mission of rebalancing social housing stocks, and hence unlocking access to better amenities and resources, has indeed overall been met.

Citations:

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Key Words: Social housing, Exclusionary politics, France, Health outcomes

Track 6 Roundtables

Beyond Supply: Vulnerabilities and Inequalities in Rental Housing Markets

Abstract ID: 1843.0.0.884.2025

Track 6: Housing

Roundtable Submission, Panel Interviews

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There is perhaps no urban region around the world that today remains sheltered from the housing crisis (Madden & Marcuse, 2016). One way in which urban populations have been adapting to changing housing landscapes has been to rely increasingly on rental markets to address housing needs. This shift is particularly pronounced in home owning nations, where a large proportion of people are no longer able to afford ownership, and in cities that host students and migrants, who require temporary living spaces. In the absence of adequate public supply, private rental markets have emerged as a primary resource that supplies critical housing in cities worldwide. Current policy debates concerning the state of rental housing markets are primarily focused on supporting private actors to increase the number of available units as a way of addressing rapidly growing demands (Molloy et.al, 2022). However, this focus has failed to examine the several other issues that renters in private markets are facing today.

Like any other housing sector, rental markets are grounded in the particular social, political, and cultural contexts in which they are located (Blomley, 2020). In home owning nations, it is the landlord's right to private property that continues to be overwhelmingly favoured over tenants' right to living spaces (Power & Gillon, 2022). As private property owners, landlords are empowered to shape housing outcomes in this market. The imbalance in power dynamics between landlords and tenants has subjected the latter group to several forms of vulnerabilities that impact and shape their housing experiences, including, but not limited to, housing unaffordability, discrimination in access and forced evictions. Against this backdrop, this roundtable brings together scholars who examine distinct issues that tenants are currently experiencing in rental housing markets globally. In doing so, we aim to collectively paint a more nuanced, in-depth picture of the vulnerabilities plaguing this sector and foster discussions on how these issues can be addressed to create more equitable rental housing for all.

Citations:

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- Power E R & Gillon C (2022) Performing the 'good tenant'. *Housing Studies* 37(3): 459-482.

Key Words: Rental housing, Landlords, Tenants, Power imbalances

Track 6 Individual Paper Presentations

“They Are Dumping On”: Understanding Drivers of Community Opposition to Middle Housing

Abstract ID: 1844.0.0.709.2025

Track 6: Housing

Individual Paper Presentation Submission

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As the housing affordability crisis deepens in many American cities, planning scholars and practitioners are increasingly advocating middle housing in single-family neighborhoods as an alternative housing that can offer diversity in housing options, improve housing affordability, and thus promote housing equity (Parolek, 2020). A growing number of cities—such as Portland, Minneapolis, and Austin—and states have enacted laws (for instance, Oregon's House Bill 2001) that permit higher-density housing options in single-family neighborhoods with goals of addressing housing affordability challenges and advancing housing equity (Dong, 2024).

Despite successes in these cities and states, local policymakers' and planners' efforts to develop middle housing in single-family neighborhoods have often faced major barriers—particularly community resistance to opening single-family neighborhoods to more diverse housing types in historically exclusive single-family neighborhoods (Dong, 2025). In response to community opposition, planning researchers have examined the impacts of multifamily housing development on housing market dynamics (Dong, 2024; Freemark, 2024). Yet, little research has focused on the underlying drivers of the community opposition to middle housing in single-family neighborhoods.

Louisville, Kentucky's largest city, exemplifies the challenges of implementing middle housing in the face of community resistance. The development of middle housing in single-family neighborhoods has encountered opposition from community residents and homeowners' associations (HOAs), which ultimately led to the passage of Kentucky House Bill 18. The bill would prohibit local zoning boards from upzoning to increase residential density for the foreseeable future.

Using the case of Louisville (KY), we integrate spatial analysis with content analysis of 383 public comments posted in 2024, as well as semi-structured interviews with affordable housing advocates, private developers, HOA members, city council members, and planning staff. The guiding questions are: (1) What are the primary drivers of community resistance to middle housing in single-family neighborhoods? (2) Are there variances in how communities react to the introduction of middle housing, and if so, to what extent do community characteristics explain these variances?

The preliminary findings show that concerns about “inadequate infrastructure” and “preserving quality of life” primarily drive resident resistance. Concerns about property value are more implicit in the opposing comments. Importantly, the analysis of public comments indicates that misinformation and confusion about what middle housing actually entails play a role in the resistance. Interviews with professionals in the affordable housing field further confirm this confusion about what the meaning of “middle.”

This research contributes to planning practice and scholarship by offering a set of recommendations for how planners can (re)frame the middle housing discussion in ways that counter misinformation while acknowledging

self-interests. First, the findings highlight the need for a more thorough analysis of residents' issues and interests, enabling planners to better anticipate and manage misinformation and confusion surrounding middle housing. Secondly, they call for facilitative leadership (Forester, 2013) in guiding planning processes where residents' concerns and interests are acknowledged, and planners can (re)frame middle housing around shared interests that are unique to each neighborhood. Lastly, the findings point to the need for further research on the impact of middle housing on home prices in mid-to-high-income neighborhoods. In order for planners and policymakers to effectively address residents' concerns about property values, longitudinal research examining different types and forms of middle housing and their impacts on home prices in various neighborhoods is warranted.

Citations:

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Key Words: middle housing, upzoning, zoning reform, housing affordability, single-family zoning

Absentee Ownership: Investor Owners and Tenant/Landlord Relationships in Single Family Rentals

Abstract ID: 1844.0.0.870.2025

Track 6: Housing

Individual Paper Presentation Submission

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This paper examines the effect of large scale investor ownership on tenant/landlord relationships. Institutional investor owners, including private equity firms and publicly held real estate investments trusts (REITs), are increasingly prominent in the single-family rental market since the 2008 foreclosure crisis (Seymour et al., 2023). These investor owners are often national or international in scale and operate their large portfolio of rental properties on business models distinct from those typical of local and small-scale owners (Decker, 2023). Recent research documents how large-scale owners file evictions at higher rates, increase rents more rapidly, and disregard tenant concerns more often than small-scale owners (Damiano & Goetz, 2024; Reosti et al., 2024; Raymond et al., 2018).

We use a mixed-methods approach, including quantitative survey analysis and qualitative focus groups, to better understand the experiences of tenants and the quality of their relationship with their landlord based on the portfolio size of the property owner. Our survey findings show that tenants living in large-portfolio owned properties (20 or more units) report less communicative landlords, higher maintenance expectations without compensation, worse treatment, and higher rates of harassment, discrimination, or retaliation. We consolidate these outcomes into a tenant well-being index, and show that these owner portfolio size trends hold consistent when we control for tenant, housing unit, and neighborhood characteristics. While the largest landlords are associated with the worst outcomes, we find that tenant experiences are lower on average in all but the smallest portfolios. The focus groups with tenants confirmed the divergence in the quality of the relationship between tenants in small- and large-portfolio owners. Our qualitative findings suggest less communicative and impersonal large landlords compared with more responsive and accommodating small landlords.

This research provides evidence of worse tenant experiences and more problematic relations associated with large-portfolio investor owners. It lends support to ongoing policymaking efforts to limit the scope of large-landlord holdings and to enhance tenants' ability to respond to the adverse conditions produced by large-portfolio owners.

Citations:

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Key Words: Single-family rentals, Institutional investors, Tenant/landlord relations

Adapting to Climate Change: Analyzing the Impact of Wildfires on Housing Development in California

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Track 6: Housing

Individual Paper Presentation Submission

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Climate change is intensifying the frequency and severity of wildfires in the United States, especially in California (California Office of Environmental Health Hazard Assessment, 2022). These wildfires cause significant loss of life and properties, as well as sky-rocketing fire suppression costs, particularly in the wildland-urban interface (WUI) areas (Kramer et al., 2019). The fast expansion of WUI areas, mainly driven by housing development, has been a major contributor to wildfire ignitions and associated damage (Radeloff et al., 2018). Despite these risks, housing development in California's fire-prone areas continues to grow, driven by worsening housing affordability in large metro areas, the rise of remote work, and the appeal of natural amenities (Dong, 2024).

This study aims to analyze the impact of wildfires on housing development in California's fire-prone areas using a quasi-experimental research design. By combining California's Housing Element Annual Progress Report data with wildfire perimeter data, I analyze annual housing permit trends from 2018 to 2024 in neighborhoods affected by recent wildfires (treatment group) and comparable neighborhoods that were not (control groups). I then construct a panel dataset and estimate wildfire impacts through a staggered difference-in-difference (DiD) event analysis.

The preliminary results show that wildfires reduced housing development, with effects that persist beyond the wildfire year. Notably, the temporal patterns of the impact is non-linear. Housing development saw a 23% decrease in the wildfire year, recovered somewhat in the following two years, but then declined again in the 3rd and 4th years.

The findings from this study suggest that recent large wildfires have heightened awareness of wildfire risk among developers, homebuyers, and land use policymakers. This increased risk perception may be contributing to a slowdown in housing development in fire-prone areas. While such a shift could reduce future wildfire vulnerability, it may also lead to decreased economic activity and municipal revenue—posing challenges for some local jurisdictions.

Citations:

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Key Words: wildfire, housing development, climate change

An Analysis of Hispanic Homeownership Attainment in the United States: Native vs Foreign Born

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Track 6: Housing

Individual Paper Presentation Submission

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Homeownership rates are often used as an economic indicator to represent upward economic mobility. These rates among different ethnoracial groups often reveal substantial homeownership rate disparities among races in the United States. The disparity of homeownership rates between two ethnoracial groups is commonly referred to as a homeownership gap. Homeownership gaps between race groups often indicate financial and demographic disparities between those respective groups (Haurin et al., 2007; Cortes et al., 2007).

Previously, the primary focus of this literature was the white and African-American homeownership gap (Sanchez-Moyano, 2020). Recent interest in the Hispanic homeownership gap can be partially attributed to the population and household growth of Hispanics in the United States. Perhaps the most important recent phenomenon is the recent Hispanic migration to communities in the United States that have previously had low concentration of Hispanic households. Hispanic migration in the 1980s was primarily concentrated in gateway cities such as Los Angeles; Chicago; Miami; and New York (Frey, 2018). This trend has now shifted to states or metropolitan areas such as Atlanta. The current areas reflecting significant Hispanic population growth include locations where prior Hispanic presence was not significant (Frey, 2018; Massey and Capoferro, 2008).

In this study, we will pay close attention to the Hispanic homeownership gap. Specifically, the difference between white and Hispanic homeownership rates. We will pay special attention on investigating how the Hispanic homeownership gap differs among Native-Born Hispanic and Foreign-Born Hispanic homeowners in the United States. Cohort visualization of age profiles of homeownership is a method that can help represent offsetting forces that both raise and lower the homeownership rate. By constructing a separate line linking age groups every five years, it is possible to visualize homeownership trajectories of the same age profile over the study period (Myers and Lee, 2016).

This paper investigates the logic of using homeownership gap indicators; explores different variations of the Hispanic homeownership gap definition, specifically when analyzing the gap by Native-Born Hispanics and Foreign-Born Hispanics; and investigates trends following nonoverlapping 5-year files of the American Community Survey (ACS) for the years 2007, 2012, 2017, and 2022 (Myers and Flores Moctezuma, 2020). Specifically, by utilizing "Integrated Public Use Microdata Series" (IPUMS) data that allows a fine-grained comparison analysis of the Hispanic homeownership gap among different Hispanic enclaves in the United States and California. A close examination is needed regarding the achievement of Hispanic homeownership among different states. In recent years, there has been an influx of Hispanic cohorts to states not traditionally considered home to Hispanic populations. By drawing state comparisons, we find that recent trends can help explain not only differences among Native-Born Hispanic and Foreign-Born Hispanic homeowners but also how trends over the study period can lead to the implementation of favorable policies that promote homeownership for all ethnoracial groups.

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Key Words: Hispanic Homeownership, Hispanic Enclaves, Hispanic Migration

An Analysis of Immigrants' Residential Mobility Trajectories in South Korea

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Track 6: Housing

Individual Paper Presentation Submission

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The influx of immigrants and their residential mobility are emerging as critical research agendas in contemporary urban planning, as they can significantly impact local demographic structures. Previous studies on immigrant mobility have predominantly focused on the determinants of whether immigrants move or not, with limited attention given to the temporal dynamics of mobility or duration of residence. However, the timing and length of residence in a particular location can influence the quality of the residential experience. Therefore, there is a need to complement prior research through the use of panel regression on time-series data and sequence analysis to capture these dimensions. This study aims to analyze the residential mobility trajectories of registered foreign nationals aged 18 and older who lived in South Korea for more than five years between 2016 and 2022. The research has three main objectives: (1) to compare the characteristics of immigrants who moved and those who did not, (2) to examine whether immigrants experience spatial and economic assimilation over time or show signs of ethnic clustering preferences, and (3) to compare how initial characteristics—such as country of origin, income level, and whether they initially resided in co-ethnic neighborhoods—are associated with different mobility trajectories.

The results show that country of origin is a significant factor influencing residential mobility, and that patterns of assimilation or co-ethnic clustering vary depending on both income and nationality. Furthermore, the initial conditions of immigrants upon arrival appear to have lasting effects on their subsequent residential trajectories.

Unlike prior cross-sectional studies that primarily identify static determinants of mobility, this study contributes to the literature by analyzing dynamic mobility trajectories over time, incorporating often-overlooked dimensions such as timing of moves and length of residence.

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<https://doi.org/10.1177/01979183211037314>

Key Words: immigrants, residential mobility, assimilation theory, sequence analysis, ethnic enclaves

Analyzing the Impact of Regional Employment and Industrial Characteristics on Housing Demand in City

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Track 6: Housing

Individual Paper Presentation Submission

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In South Korea, the imbalance between housing demand and supply in the Seoul metropolitan area and non-metropolitan areas has been a persistent issue. To address this, the government has sought to increase the housing supply through new town developments over the past several years. The nationwide housing supply-demand imbalance is largely driven by population concentration in the metropolitan area. The resulting changes in the demographic structure of cities due to population migration are a key factor influencing housing demand. Since migration primarily occurs due to job opportunities, it is crucial to consider the employment and industrial characteristics of cities when estimating housing demand.

Furthermore, due to agglomeration economies, industries tend to share homogeneity at a regional level rather than at an individual city level. As a result, the relationship between urban employment, industrial characteristics, and housing demand may vary across different regions. Therefore, when estimating a city's housing demand, it is essential to account for the employment and industrial characteristics of the broader region where the city belongs.

This study analyzed the impact of regional employment and industrial characteristics on urban housing demand using Hierarchical Linear Modeling (HLM) and Geographically Weighted Regression (GWR). Regions were defined based on interconnected industries, and the effect of regional employment and industrial characteristics on the housing demand of individual cities was examined. The analysis results confirmed the following research hypotheses:

First, Urban housing demand varies depending on regional employment and industrial characteristics.

Second, The impact of specific industry sectors on housing demand differs by region.

Third, Each region has specialized industries, and these specialized industries positively influence the housing demand of cities within the region.

Fourth, In the Seoul metropolitan area, the fourth industry had a positive impact on housing demand, whereas in non-metropolitan cities, the manufacturing-based secondary industry had a positive influence.

Based on these findings, this study provides the following policy implications for estimating and supplying appropriate housing demand at the municipal level in connection with industrial characteristics:

In metropolitan cities, information technology, high-tech, and arts-related industries influence housing demand. Therefore, housing supply should be planned in accessible locations that align with these industries.

In manufacturing-based growth cities in non-metropolitan areas, a higher proportion of non-regular workers tends to increase housing demand. As such, public housing policies for non-regular workers should be considered to address housing needs effectively.

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Key Words: Housing Demand, Regional Characteristics, Employment and Industry, Supply - Demand Imbalance, Population Migration

Avoiding the Risk of Trial, But Taking on the Risk of Agreement: Eviction Cases in Portland, Oregon

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Track 6: Housing

Individual Paper Presentation Submission

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In the United States, many tenants enter into stipulated agreements to avoid a trial in eviction cases. Similar to a settlement, stipulated agreements are court-enforced agreements that dictate the terms by which an eviction case will be dismissed. The most common types of agreements are (1) agreements to move out by a certain date or (2) agreements to pay and stay in the unit, which often include a payment plan. Previous studies claim that they require more than legal proceedings from tenants due to power imbalances and disparities in legal representation between landlords and tenants (Goldstein et al., 2020; Summer, 2023; Summers and Steil, 2024).

We revisit stipulated agreements in eviction court to address the following research question: How does what a landlord can win/extract differ between when a stipulated agreement is used and when it is not? We focus specifically on noncompliance, where tenants fail to comply with the terms stated in a stipulated agreement. More specifically, we seek to answer the following questions: (1) How many tenants are noncompliant with all or part of the terms of a submitted stipulated agreement? (2) What are the causes of noncompliance? Utilizing a sample of nonpayment cases filed in Multnomah County Circuit Court from July to December 2023, each involving at least one stipulated agreement, we conduct a content analysis of agreement documents from the Oregon Judicial Case Information Network.

We demonstrate that stipulated agreements can be used to extract additional concessions from a tenant than would be possible through legal proceedings. Tenants often struggle to comply with provisions requiring larger payments through a payment plan or timely future rent payments. Consequently, they frequently face a judgment of eviction despite partially or fully paying the owed balance. We underscore the need for policy reforms to regulate the terms that can be included in stipulated agreements and highlight the importance of providing tenants with better legal support to navigate eviction proceedings.

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Key Words: Eviction, Stipulated Agreement, Oregon

Beyond Shelter: Understanding the Growth and Distribution of Tiny House Villages

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Track 6: Housing

Individual Paper Presentation Submission

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Tiny house villages have significantly increased in number across the US, offering not just shelter but also integrated services such as mental health care, job training, and communal support systems. This research, building on a study conducted by Evans in 2020, seeks to provide a comprehensive analysis of tiny house villages including their physical and social characteristics, their spatial and political distribution as well as the funding structures that sustain them. The research aims to generate insights that will inform planners and policymakers on how these villages are being developed, where they are concentrated, and what contextual factors influence their adoption. To enhance public engagement and data accessibility, this study also introduces a more user-friendly interactive online mapping tool that enables real-time tracking and community participation in data collection.

A mixed-methods approach was employed, gathering primary data through email and phone interviews, alongside secondary data from organizational websites and social media platforms. Additionally, Geographic Information Systems (GIS) were used to analyze the spatial distribution of tiny house villages across all fifty states. A density-based clustering tool in ArcGIS was applied to identify regional trends and spatial disparities in the presence of tiny house villages.

Findings from the study reveal a pronounced clustering of tiny house villages along the West Coast, particularly in California, Oregon, and Washington, indicating a wider regional adoption for this housing model. Furthermore, the analysis found a higher concentration of tiny house villages in Democratic-leaning (“Blue”) states compared to Republican-leaning (“Red”) states, raising critical questions about how political ideologies and regulatory environments potentially shape their development. In terms of funding structures, only 19% of villages were found to receive exclusive public funding, while the majority (43%) rely solely on private contributions, indicating significant disparities in financial support. A good number of tiny house villages allow pets, which may make this housing model more attractive for individuals experiencing homelessness. This is particularly important because many unhoused individuals form deep emotional bonds with their pets, often considering them as family.

Drawing from the findings of the study, the study makes recommendations as follows: First, the limited public funding of tiny house villages underscores the need for stronger public-private partnerships to ensure their long-term sustainability. Given that a majority of these villages rely on private funding, increasing public investment and fostering collaboration between government agencies, nonprofit organizations, and private donors will be critical for their expansion and long-term viability. Also, addressing regulatory barriers and expanding tiny house villages in underrepresented regions with high homelessness rates is necessary for equitable access to this housing model. The spatial analysis underscores the need for policies that facilitate their development in areas where homelessness is prevalent, but tiny house villages remain scarce or nonexistent.

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<https://doi.org/10.1177/0739456X211041392>.

Key Words: Tiny house villages, Spatial distribution, GIS, Homelessness, Housing

Beyond supply: Income inequality, migration, developable land and the housing affordability crisis

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Track 6: Housing

Individual Paper Presentation Submission

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It is widely agreed that there is declining housing affordability for substantial parts of the population in most high-income countries. A “new mainstream” analysis of this crisis holds that it is caused by limited housing supply, in turn due to restrictions on construction, principally from zoning and regulation. The mainstream advocates for regulatory reform, which they claim will increase construction of market rate housing, thereby creating affordability for households at a broad range of income levels. We argue that this series of causal linkages is not well-supported in the literature. We empirically support this argument by simulating the impact of a large supply shock in high-cost local U.S. housing markets using different estimates of filtering rates and the elasticity of prices to supply from existing studies. We then construct an alternative, and more theoretically defensible, understanding of how we arrived at the current crisis, emphasizing three principal causes: increasing income inequality, the pattern of spatial sorting by income, and the exhaustion of easily developable land in much of the metropolitan U.S. Together, they generate a crisis without precedent in American history, and in turn, drive many of the other commonly cited causes of declining affordability, including overly restrictive zoning, regulation, and financialization. It is these economic geography fundamentals that are largely ignored in much of the academic work that has shaped the policy debate.

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Key Words: housing affordability, income inequality, migration, developable land, housing supply

Communities of Color Mobilize for Housing Policy Change

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Track 6: Housing

Individual Paper Presentation Submission

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Recent housing reforms in California are pushing local governments to plan for local and regional housing needs. Besides pressure from the state, grassroots organizing in Southern California is also challenging past governance tactics and driving some cities to shift their housing politics and policies. While overwhelmingly affluent jurisdictions continue to oppose housing development, some lower- and middle-income cities have leveraged state laws to pass stronger rent control and tenant protections in response to political pressure from local residents and activists. In northern Orange County (OC), a historically exclusionary and influential subregion, some racialized communities have reached a critical mass to exert political and economic influence in certain cities. In previous decades, communities in North OC organized to resist conservative and anti-immigrant policies. Displacement pressures and acute housing needs are similarly gathering increasingly diverse and mobilized residents clashing against the demands of wealthier and more homogeneous homeowners who feel as though their suburban life and property values are under attack. Most jurisdictions, however, are facing pressure to roll back initiatives that restrict housing development, implement or expand inclusionary zoning ordinances, and establish housing funds, among other strategies.

This research offers a rich inter-scalar analysis of the evolution of housing politics and policies at a period of reform, shedding light on the challenges and prospects for promoting regionally balanced development and housing access in exclusionary geographies. Contentious housing politics, notable ethno-racial and socioeconomic segregation, and unaffordability pressures make Orange County an important and understudied case for analysis. Shedding light on how Racially Concentrated Areas of Affluence (Goetz et al. 2019) are evolving, this context-dependent analysis adds nuance to our understanding of planning and housing policy change by triangulating three main data sources: news articles, public meetings, and government documents. Quantitatively and substantively, news makes up the predominant data source with 221 sources, followed by 72 public meetings and 58 government documents covering 29 out of 34 cities in OC.

Citations:

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Key Words: grassroots organizing, housing policy, Southern California

Denied: Housing Characteristics and Racial Disparities in Mortgage Denial Rates

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Track 6: Housing

Individual Paper Presentation Submission

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Decades have passed since the Fair Housing Act outlawed discriminatory practices in the housing market. During this time, America's racial composition has become increasingly diverse, and measures of racial tolerance have improved. Yet, segregation by race in American cities remains persistently high. This enduring pattern may be attributed to continued preferences for living in neighborhoods with members of one's own racial group. Alternatively, it may result from continued discriminatory practices in the housing market perpetuated by realtors and mortgage lenders. Prior research has found evidence that minorities have been less likely to secure loans in gentrifying neighborhoods, suggesting that observed shifts in the location of poorer and minority residents might not simply reflect changing preferences but rather continued discriminatory practices in housing markets, particularly in mortgage lending. These practices perpetuate historical patterns of segregation and limit housing opportunities for minority homebuyers, despite legal protections.

In this paper, we build upon our prior research that connected housing advertisement text with neighborhood mortgage approval rates. We previously applied a semi-supervised text classification model to longitudinal property listing data to derive a housing typology that follows an investment-disinvestment-renewal continuum. This approach allowed us to categorize neighborhoods based on the language used to market properties within them, providing insights into how racial disparities manifest across different neighborhood types. Our earlier findings revealed that Black homebuyers overwhelmingly applied for and were approved for mortgages in neighborhoods with a high share of disinvested properties—those not advertised for long-term wealth generation. This relationship held even when examining middle-and higher-income Black homebuyers, suggesting factors beyond individual financial resources are at play. The current study expands this analysis to examine mortgage denial rates using similar text classification techniques across a larger set of metropolitan areas. We analyze trends in loan denial to loan origination ratios by race and neighborhood type using Home Mortgage Disclosure Act data paired with Multiple Listing Service data. We then correlate these changes with denial-to-loan origination ratios by race, examining how marketing language relates to disparate lending outcomes. Next, we estimate the probability of an applicant being denied a loan as a function of individual, borrower, and neighborhood characteristics across metropolitan areas and policy-relevant time periods. Our results point to distinctly unequal mortgage lending practices by race. Black homebuyers are nearly six times more likely to be denied mortgages in neighborhoods characterized by homes marketed as "expensive investments." Additionally, Black homebuyers face higher denial rates in gentrified neighborhoods or those classified as "renewed." These patterns are particularly acute in metropolitan areas experiencing rapid growth and neighborhood renewal. These findings significantly impact our understanding of persistent segregation and inequity in housing markets. They suggest that discriminatory mortgage lending patterns help explain continued residential segregation, with institutional barriers—rather than merely preferences—shaping neighborhood composition. Our methodology offers a novel approach by leveraging property listing language to reveal patterns of discrimination that traditional measures may miss.

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Key Words: Housing Discrimination, Mortgage Lending, Text Analysis, Residential Segregation

Developing an Anti-Displacement Assessment Tool: For and with the Tenant Union & Louisville Metro

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Track 6: Housing

Individual Paper Presentation Submission

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How can governments mitigate displacement in the affordable housing development process? Urban planners and policymakers have long grappled with this question. From Austin to Boston and from California to New York, cities and states have enacted laws to protect residents from rising housing costs associated with gentrification and unequal income growth (Chapple and Loukaitou-Sideris, 2021). Despite these efforts, housing cost burden is at its highest recorded level (JCHS, 2024). Research detailing the impact of housing cost burden on housing insecurity and displacement has focused on large cities, liberal states, and international cases (see Been et al., 2025 for a review), leaving a gap in research about smaller and mid-size cities that face more restrictive legal environment.

Louisville Metro, KY, is a mid-sized city scarred by the legacy of institutionalized racial segregation that has experienced accelerating gentrification in the last decade. A group of tenants began organizing in 2019 to advocate for a law that would protect historically Black communities. In collaboration with a newly elected council member in 2020, the effort expanded to cover the entire city and focus on residential displacement associated with Metro supported housing developments. The resulting ordinance called for a team of academics to develop a tool that would guide the decision to support new housing projects with Metro resources.

This paper documents the process of developing an Anti-Displacement Assessment Tool (ADAT) for the Louisville Metro Government. The tool was developed in close collaboration with the Office of Housing and Community Development, Councilman Arthur who sponsored the ordinance, and the Louisville Tenants Union. The process culminated with the bipartisan, unanimous adoption of the ADAT by the Metro Council in November 2024. Drawing on interviews and reflection on our own practice (Schön 1984), we provide an overview of the political process involved in ensuring that the tool would follow the ordinance and the pass the scrutiny of a council that was initially reluctant to support the ordinance and highlight the shift in discourse to emphasize a pro-development, but anti-displacement approach.

The political context and demographic context influenced the development of the tool, providing unique insights into how a method that has been widely used in cities (e.g., Bates, 2013) can be adapted for a mid-sized city in a conservative state. In addition, the tool, being tied to an ordinance with a specific application for developers, needed to meet requirements that led to several innovations. First, the tool takes a project-first approach. The infrastructure of the tool is built around the site a developer has identified for a project. We use open-source software to enable a user to enter an address that is geocoded and used to produce an assessment based on the location of the project and the characteristics of the project. The tool uses the location to create an assessment based on a modified version of existing displacement risk toolkits. The tool draws on data from the Metro Government, census data, and Renthub to develop a risk assessment for every location in the city. We use the measure of risk to determine how likely the specific project is to exacerbate displacement pressures. Finally, in consultation with all actors and based on our research, we created a matrix of conditions under which the risk of displacement would be appropriately mitigated by the addition of affordable housing.

The result is a tool that mandates that every development contribute meaningfully to the supply of affordable housing where it is most needed (at or below 50% of AMI) and streamlines the process of approval by providing a transparent set of criteria for qualification. Louisville's anti-displacement assessment tool illustrates how cities can mitigate displacement without discouraging development of new affordable housing.

Citations:

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Key Words: Gentrification, Residential displacement, Tenant union, Affordable housing

Developing Moves to Opportunity: Understanding the Residential Mobility Patterns of LIHTC Tenants

Abstract ID: 1844.0.0.139.2025

Track 6: Housing

Individual Paper Presentation Submission

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The Low-Income Housing Tax Credit (LIHTC) is the largest source of federal funding for affordable housing. Historically, LIHTC has been used to develop affordable housing in high-poverty areas. Recently, states have begun to use LIHTC to promote access to lower-poverty areas in response to the Texas Department of Housing and Community Affairs v The Inclusive Communities Project 2015 Supreme Court ruling that LIHTC developments in Texas were reinforcing racial segregation. Beginning in 2018, California awarded extra points to applications of large family developments in higher-resource areas. While where you live is important for later life outcomes, the effectiveness of moving to opportunity programs is mixed (Ludwig et al. 2013). These policy changes have concerned some developers and affordable housing advocates who worry that focusing on high-opportunity areas will result in lower amounts of affordable housing being built because it is more expensive to build in these areas. However, recent work has shown that the policy change has resulted in more applications for and sitings of LIHTC developments in higher resource areas (Owens and Smith 2023). Reprioritizing LIHTC comes even though little is known about the mobility patterns of LIHTC tenants. Prior work on residential mobility among lower-income populations has come from studies of housing voucher recipients and public housing tenants. Little work has focused on the demographics or mobility patterns of LIHTC tenants, mostly due to data limitations. One recent study used consumer trace data to overcome common data limitations and found that LIHTC tenants typically experience increases in poverty and lower amenities when they move into LIHTC (Kuai 2024). Additionally, qualitative work has shown that LIHTC residents' perceptions of opportunity areas were more nuanced than the opportunity maps used by California to award LIHTC to developers, which has important implications for policy design (Reid 2019).

In this paper, I use unique residential history data from Infutor to examine who benefits from LIHTC developments in higher-resource areas and if states can use LIHTC to disrupt historic patterns of segregation. Even though California only recently began incentivizing developments in high-resource areas, there are still LIHTC developments built in these areas before 2018. By understanding who moves into these developments, we can better understand how tenants may respond to an increase in LIHTC in high-resource areas. I begin by studying the changes in neighborhood conditions for new LIHTC tenants between 2010 and 2021 before comparing the mobility patterns of LIHTC tenants in high versus low-resource areas and compared to similar private-market tenants. In doing so, I address the following research questions: (1) Where do LIHTC developments in high-resource areas draw new tenants from? (2) Does the probability of moving to a high-opportunity LIHTC development differ by race? I find that LIHTC tenants often sacrifice neighborhood resources to access affordable housing. Additionally, LIHTC developments in high-resource areas do not help facilitate moves to opportunity for a majority of their tenants but instead attract tenants from nearby high-resource areas, which contributes to racial disparities in who has access to these developments. Overall, LIHTC reinforces the "stickiness" of neighborhoods, as LIHTC tenants are far more likely to move to nearby areas than low-income private market tenants. Overall, LIHTC reproduces patterns of segregation and fails to disrupt typical residential mobility patterns of low-income tenants. This paper seeks to understand how potential LIHTC tenants respond to LIHTC developments in higher resource areas and provides a clearer picture of LIHTC tenant mobility. In doing so, I bridge the gap between person-based and place-based policy research by showing how supply-side housing programs influence the residential mobility of low-income tenants.

Citations:

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Key Words: Housing, Mobility, LIHTC

Differential Rates of Mortgage Approval to Black Applicants in Texas' Largest Cities, 2018-2021

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Track 6: Housing

Individual Paper Presentation Submission

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The rates of Black homeownership have been declining in many areas of the country. The overall decline in Black homeownership in Texas' largest cities: Austin, Dallas, Fort Worth, Houston, El Paso, and San Antonio; has been steeper than average. This decline has continued while the overall homeownership rate has begun to recover. Many factors influence the rates of black homeownership. Planners and mortgage lenders constitute two set of institutional policy actors that could be influencing this decline. What roles do mortgage lenders play in the relative rate of mortgage application acceptance to Black applicants? Does the extent of exclusionary zoning and single-family residential land use as the result of long-term planning policy impact this rate?

Two main methods are used to answer this question. An analysis of all mortgage applications for single unit owner-occupied housing units was conducted for the metro areas of these six cities. Using data from the Home Mortgage Disclosure Act dataset, the American Community Survey, and the USPS address dataset from HUD; a regression analysis is done to estimate factors influencing relative rates of mortgage application approval by racial category at the census tract level. A similar analysis is done to explain the different rates of mortgage approval by firm.

The last set of analyses examine the impact of zoning and land use policy on approval rates. Do mortgage lenders approve a higher rate of black applicants in census tracts that have, or had, exclusionary land use regulation? Data on the local geography of exclusionary zoning districts and the extent of areas with single-family residential land uses is added to the analysis to test the impact of these planning policies.

Results show different firms have different mortgage application results. Differences may also be found depending on whether units are in newly developing tracts. High rates of mixed land uses in a tract tend to dampen mortgage approvals for Black applicants. The results point to a significant degree of agency in individual lending institutions to improve mortgage lending outcomes for Black applicants.

Citations:

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Key Words: Mortgage lending, Homeownership, Race, Exclusionary zoning, Texas

Does Florida's Geographic Opportunity Map Influence LIHTC Placement?

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Track 6: Housing

Individual Paper Presentation Submission

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Poverty de-concentration is a critical discourse in affordable housing policy. The placement of Low-Income Housing Tax Credit (LIHTC) is often at the center of this discussion because LIHTC projects have been disproportionately placed in high-poverty, low opportunity, and minority neighborhoods (Freeman, 2004; McClure & Schwartz, 2023).

Scholars argue that siting LIHTC projects in high opportunity areas with low levels of concentrated poverty, high performing schools, and strong local employment may benefit residents (McClure & Schwartz, 2023). For instance, McClure (2019) argues that placing mixed-income LIHTC projects in these areas may help reduce the stigma related to subsidized housing and encounter less neighborhood resistance.

Empirical evidence investigating the influence of LIHTC project placement on neighborhood change shows mixed results. For instance, Woo et al. (2016) found that LIHTC projects in Cleveland, Ohio positively influenced nearby properties values, while those in Charlotte, North Carolina, had a negative impact, depending on local economic context.

The debate over LIHTC placement is mostly well-known by the 2015 Supreme Court ruling in favor of the Inclusive Communities Project's (ICP) claim. ICP argued that Texas Department of Housing and Community Affairs (TDHCA) had disproportionately awarded tax credits in predominantly Black neighborhoods. Since the ruling, many states have encouraged the placement of LIHTC projects in high opportunity areas by adjusting their Qualified Allocation Plans (QAPs), which outline how state governments review LIHTC applications and award tax credits (McClure & Schwartz, 2023).

This research investigates how policy changes in Florida have influenced LIHTC location patterns. Florida was selected as the setting for two main reasons. First, it is one of the largest states in the US. Second, in 2016, the state government created a Geographic Areas of Opportunity Map based on census tract indicators, including median income, education, and employment. This map was integrated into the state's QAP to encourage the placement of LIHTC in high opportunity areas.

Specifically, this research asks: what are the socio-demographic characteristics of LIHTC neighborhoods before and after the introduction of Florida's Geographic Opportunity Map? How has the introduction of the map influenced LIHTC placement patterns in Florida?

To address these questions, I first analyzed the socio-demographics of census tracts containing LIHTC projects, using census tracts as neighborhood proxies. I used ACS 2015 and ACS 2022 five-year estimates to represent pre- and post- map periods, respectively. I then conducted a two-sample t-test comparing socio-demographic differences between LIHTC neighborhoods inside versus outside opportunity areas. Finally, I used a Difference-in-Differences (DiD) regression model to evaluate the map's impact on LIHTC placement by comparing two dimensions: before versus after 2016, and inside versus outside opportunity areas.

Initial findings suggest that, despite the intervention of Florida's opportunity map, the majority of LIHTC projects built after 2016 remain outside opportunity areas. Additionally, neighborhoods with LIHTC projects inside opportunity areas have higher shares of white and Asian population, while those outside opportunity areas have

higher proportions of Black and Hispanic populations. My initial findings suggest that the efficacy of the state government's intervention of policy is limited and that additional incentives are needed to encourage the placement of LIHTC projects in high opportunity areas.

This research provides new empirical evidence on how state-level affordable housing policies shape the outcome of the geographic placement of affordable rental housing. The study provides suggestions on how policymaking can benefit the low-income and minority residents living in subsidized housing units in promoting housing equity.

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Key Words: LIHTC, Neighborhood Change, Poverty Concentration

Does Hurricane Flood Risk Impact Property Values? A Bayesian Approach to Flood Risk Estimation

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Track 6: Housing

Individual Paper Presentation Submission

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This study examines the impact of flood risk on property values in St. Petersburg, Florida, amidst the backdrop of increasing urbanization and sea-level rise in coastal cities. With the rise in popularity of coastal living leading to expanded impervious areas, this research evaluates whether flood risk serves as a significant attribute in determining housing prices. The research on the influence of actual or perceived flood risk on property prices is unsettled. Some scholars claimed that property values decline in neighborhoods frequently hit by storms, yet storm risks do not deter coastal development (Walls et al., 2018). Other scholars found that the coastal real estate market adapts to the increasing flooding risk because people purchase them at high prices to make money through renting (Fu and Nijman, 2021). Typically, flood risk is estimated using flood zones and seawalls (Jin et al., 2015). Some studies found no significant effect of flood zones on property values, while others suggested that high-risk zones may even increase them (Eberbach and Hoagland, 2011; Atreya and Czajkowski, 2014). Similarly, the effect of seawalls remains debated – some studies indicate they raise property prices, whereas others report the opposite (Kreisel and Friedman, 2002, 2003; Hamilton, 2007). One reason for the inconclusive relationship in previous studies is that flood risk varies substantially within the high-risk flood zone. And many seawalls are too outdated to protect people from floods.

In this study, we utilize a Neural Network with Monte Carlo Dropout to develop a flood risk variable based on crowdsourced data. The analyses compare different models that include and exclude flood risk attributes. The findings highlight significant spatial heterogeneity in property value responses to flood risk, suggesting that while some neighborhoods experience notable declines in value due to flooding, others may adapt positively to such risks, ultimately influencing future real estate development and exposing urban areas to greater flood dangers.

Citations:

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Key Words: Hedonic Model, Flood Risk, Additive Modelling

Dual-Function Housing Demand in Korea: Revisiting Mankiw-Weil for End-User and Speculative Roles

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Track 6: Housing

Individual Paper Presentation Submission

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[Introduction and Objectives] In South Korea, nearly all housing policies emphasize protecting so-called “real” demand. The distinction between “end-user” (real) and “speculative” (excess) demand is deeply embedded in public discourse, yet such terminology is uncommon internationally. This suggests that South Korea’s unique institutional and financial environment—particularly the 'Jeonse' system—has shaped distinct housing acquisition and investment behaviors. The Jeonse system, based on large upfront deposits rather than monthly rent, operates alongside traditional mortgage financing. Landlords often use Jeonse deposits, which range from 50–80% of property value, as de facto mortgage substitutes. This system lowers investment entry barriers and facilitates “gap investments,” where properties are acquired not for personal use but for capital gains, often by buyers classified as end-users in policy terms. This study aims to disentangle two types of housing demand: (1) end-user demand, defined as purchases for owner-occupancy, and (2) speculative demand, defined as purchases followed by leasing via 'Jeonse' or monthly rent. This distinction aligns with broader planning concerns about differentiating shelter-motivated demand from asset-based behavior.

[Data and Method] To estimate latent housing demand, we apply a modified Mankiw-Weil (MW) model, which originally linked age-specific population cohorts to housing consumption. While later studies incorporated income and user cost (Ioannides & Rosenthal, 1994), the MW model remains limited in capturing speculative behavior, which often diverges from residential utility motives. We address this gap by combining two data sources: (1) National population census microdata to estimate baseline end-user demand by region and (2) Transaction-level microdata from the Ministry of Land, Infrastructure and Transport’s Real Estate Transaction Management System to identify purchases not used for self-occupancy. Here, follow-up lease registrations (Jeonse or monthly) are used as proxies for speculative demand. This dual-source approach allows for a behaviorally disaggregated and spatially nuanced modeling of housing demand.

[Main Findings and Implications] Our analysis yields two distinct demand curves: one for owner-occupied housing and one for speculative purchases. Total demand is based on transacted floor area, while speculative demand is inferred from rental market activity. This segmentation reveals spatial patterns and behavioral asymmetries that traditional models obscure. By operationalizing speculative demand, the study offers a new foundation for differentiated policy interventions. High-speculation zones can be targeted with tailored instruments—such as loan-to-value (LTV) limits, holding taxes, or lease conversion restrictions—to curb volatility and mitigate displacement risks. Meanwhile, areas with high end-user demand can be prioritized for affordable or public housing provision. Additionally, the dual-demand model supports more rigorous ex post evaluations of housing welfare policies. If beneficiaries of subsidies or mortgage guarantees are engaging in speculative activity, it calls into question the redistributive goals of such policies. Integrating this behavioral distinction strengthens the accountability, equity, and responsiveness of urban housing frameworks.

Citations:

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Key Words: housing demand, housing tenure, end-user, speculative, Jeonse

Examining Predatory Contract for Deed Practices through Eviction Court Data

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Track 6: Housing

Individual Paper Presentation Submission

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A Contract for Deed (CFD) is a rent-to-own arrangement where buyers purchase a home through monthly installments over an extended period. CFDs are often regarded as predatory because they impose the responsibilities of homeownership and the disadvantages of renting without providing the corresponding benefits (Coates, 2014; Immergluck, 2018; NAACP, 2019). The seller retains ownership until the purchase price is fully paid and is not responsible for property maintenance (Kennedy, 2022). Buyers are held accountable for property taxes, insurance, and maintenance. If buyers fall behind on payments, sellers can evict them and reclaim the property. Despite the exploitative nature and adverse impact on low-income and minority buyers, there is limited research on the unfair terms embedded in these contracts.

This study uses a novel dataset of approximately 7,300 residential leases filed in support of over 15,000 St. Louis eviction proceedings in 2024 to examine the prevalence of predatory CFD practices, the geography of these cases, and the unfair terms embedded in these contracts. Tesseract, an optical character recognition tool, was used to extract information from lease documents, and fuzzy searching with regular expressions was employed in Python to extract lease details. Statistical analysis was conducted using Stata.

Our preliminary findings reveal the following: (1) In 2024, there were 95 CFD eviction filings in the City and County of St. Louis, constituting 1.3% of all eviction cases with exhibits. (2) CFD eviction filings were concentrated in predominantly Black neighborhoods in North St. Louis City and County. (3) The average sale price for CFD properties in St. Louis was approximately \$67,798 (SD = 15,804). (4) The average interest rate for CFD properties in St. Louis was 13.28% (SD = 2.52). (5) The majority of the loans had a term of 30 years, with some final payments extending to 2054. (6) Almost all CFDs include a clause stating that if the buyer defaults and the seller files for eviction, the buyer will be responsible for any collection-related expenses, including the seller's attorney's fees.

These findings underscore the predatory nature of CFDs and their detrimental impact on already vulnerable low-income households. They also highlight the need for policy and legal reforms to address these exploitative practices.

For the next steps, we will continue to collect lease documents and investigate further into the following areas: (1) Comparing selling prices to appraised values and the prices when the seller obtained the property to determine how much buyers were being overcharged and how much sellers profited from this process. (2) Assessing the number of housing code violations associated with CFD properties. (3) Measuring the time from the start of CFD agreements to the occurrence of eviction.

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Key Words: Contract for Deed, Eviction, OCR, Homeownership

Exploring Accessibility, Travel Behavior, and Affordability Effects of ADUs in Sacramento, CA

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Track 6: Housing

Individual Paper Presentation Submission

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Accessory dwelling units (ADUs) – also called in-law units, secondary units, or granny flats – ADUs are small self-contained dwellings that share the site of a larger dwelling structure, either as a standalone structure or as a converted portion of the larger dwelling itself. Permitting of accessory dwelling units has skyrocketed over the last five years in California, as recent state laws have made permitting easier than ever. This has ramifications for California’s housing supply (Volker & Handy, 2023), the affordability of its housing stock (Chapple et al., 2023; Marantz et al., 2023), and the state’s efforts to reduce vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions (Volker & Thigpen, 2022).

In this study, we investigate the affordability and accessibility of recently constructed ADUs in Sacramento, California, as well as the effect of ADU construction has on off-street parking supply, vehicle ownership, and travel behavior generally. We focus on the more than 400 ADUs that were permitted in 2021. We administered and analyzed a survey of the ADU permittees, which we pair with spatial and sociodemographic analyses using US Census data, grocery store data, and other data.

We find that recently permitted ADUs are mostly used for housing, but not necessarily affordable housing. The ADUs are located in areas with moderate rent levels – not the highest, but also not the lowest. The rents reported by the ADU owners similarly indicate moderate rent levels, albeit much lower rents for family members and friends. With respect to accessibility, we find relatively good access to public transit, grocery stores, and green spaces. However, while the accessibility attributes might portend travel behavior shifts for ADU renters, our survey indicated very little travel behavior change for ADU owners after ADU construction. On average, we found almost no change in off-street parking spaces on the subject parcels, almost no change in vehicle ownership of the ADU owners, and almost no change in travel behaviors of the ADU owners. Our findings generally support previous findings that ADUs provide somewhat affordable housing (Chapple et al., 2023; Marantz et al., 2023) and are unlikely to overwhelm existing parking supplies (Volker & Thigpen, 2022). But the jury remains out about the net effect on VMT – ADUs might not have a big effect on the travel behaviors of ADU owners, but we still do not know how tenants change their behaviors after moving into an ADU. We are currently studying that latter question in an extension of this study. Answers to these questions are useful to local and regional governments and policymakers as they develop and prioritize strategies to increasing affordable housing and reduce VMT and GHG emissions, including in sustainable communities strategies (per SB 375 in California), general plans, climate action plans, and VMT mitigation banks and exchanges.

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Key Words: Accessory dwelling units, Housing, Vehicle miles traveled, Affordability, Accessibility

Exploring Home Repair as Micro-Stabilization for Low Income Seniors in Cleveland Neighborhoods

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Track 6: Housing

Individual Paper Presentation Submission

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In older industrial cities confronting decades of population decline and economic contraction, affordability concerns can be less acute due to depressed property values, compared to places with steady population growth and economic expansion. However, housing quality is a widespread issue in shrinking cities. Cleveland's built environment is characterized by an aging housing stock in various states of disrepair with high rates of vacancy and abandonment across the city, particularly lower-income and Black communities (Tighe & Ryberg-Webster, 2019). Demolition is a common policy response, but this approach can limit the use of older housing to fill affordable homeownership needs, especially for vulnerable populations including elderly and low-income residents (Mallach, 2011; Rosenman & Walker, 2016).

Deferred maintenance of older housing is a factor that contributes to poor housing quality, housing vacancies, and abandonment. As responsibility for home repairs falls on owners, many owner-occupants face significant barriers to correcting structural deficiencies, improving outdated heating systems, or installing accessibility modifications (Louis et al., 1998). Such challenges disproportionately affect elderly and low-income residents who are also disabled, single, or from minority communities, exacerbating inequities in housing stability (Millard & Metraux, 2023). Access to home repair funds can be an important factor influencing whether households are able to remain in their homes when facing changes (e.g. advanced age, reduced income, diminished able-bodiedness) that could otherwise result in forced moves due to maintenance burdens. Home repair funding is particularly salient given that lower-income families are often constrained to aged and poorly maintained housing from the moment of purchase, due to historic patterns of structural disinvestment that place them in declining or distressed neighborhoods (Hernandez & Trupkin, 2021). Lower-income owners experience twice the number of housing problems than higher-income owners and address the problems less frequently and spend less on repairs (Millard & Metraux, 2023).

Publicly subsidized home repair programs represent one policy approach aimed at reducing maintenance costs and enabling homeowners, especially low-income and elderly residents, to maintain safe, habitable living conditions and remain in their homes. Home repair programs also have the potential to serve as a tool for neighborhood revitalization and stabilization. Using Cleveland, OH as a case study, this research examines the challenges of housing maintenance and explores the role of local rehabilitation programs in funding essential repairs. We explore the relationship between investments made through two citywide programs, Repair-A-Home (RAH) and Senior Homeowner Assistance Program (SHAP), and whether these program function as a form of stabilization for low-income, senior households. We ask: what is the relationship between home repair investment and the presence of low-income, senior homeowners? We hypothesize that the amount of home repair investment funds flowing into a neighborhood will help stabilize low-income, senior homeowners. Using data from the City of Cleveland's Department of Community Development and American Community Survey 5-year estimates for 2005 and 2014 at the census tract level, we estimate a regression model to understand the effect of home repair investments on changes in the share of cost-burdened low-income owner-occupied households aged 65 and older. Preliminary findings suggest that high levels of home repair investments helped to stabilize the presence of elderly low-income

households, particularly in lower and middle-income Black neighborhoods. The findings provide important insights into the role municipal home repair programs play in ameliorating health, safety, and housing quality challenges stemming from long-term decline and disinvestment.

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Key Words: home repair, housing quality, neighborhood stabilization, housing rehabilitation, shrinking cities

Exploring Racial Disparities in Home Appraisals and Their Impacts

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Track 6: Housing

Individual Paper Presentation Submission

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Previous studies on appraisal bias have shown that properties in predominantly minority neighborhoods—particularly Black and Hispanic communities—are often appraised at lower values than comparable properties in predominantly white neighborhoods, even after controlling for factors such as home size, condition, and location (Faber, 2020; Freddie Mac, 2021; Perry et al., 2018). However, these studies primarily used neighborhood racial composition as a proxy for race, without directly accounting for the race of homeowners. This approach may conflate neighborhood-level effects with individual-level biases, potentially overlooking more subtle forms of discrimination tied to homeowner race rather than just neighborhood demographics.

This study leverages the Uniform Appraisal Dataset (UAD) appraisal-level Public Use File (PUF)—the first publicly available dataset that includes both appraisal data and homeowner race/ethnicity—to provide a more precise analysis of racial disparities in home appraisals. By utilizing spatial regression techniques, this research examines the extent of appraisal bias and identifies the individual and neighborhood-level factors that contribute to it while controlling for land market values, geographic variability, and regional economic conditions. Additionally, this study explores the broader consequences of appraisal bias on communities of color. The findings offer deeper insights into systemic inequities in property valuation and their role in perpetuating racial wealth gaps, informing future policy interventions aimed at reducing bias in the appraisal process.

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Key Words: Appraisal bias, Housing

Exploring the Lived Experiences of Arab Refugees: Access to Public Housing and Integration.

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Track 6: Housing

Individual Paper Presentation Submission

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Past research in the Global North has overlooked the housing issues faced by low-income refugees with limited resources for housing (Brown et al., 2024). Meanwhile, housing literature in the United States has primarily examined disadvantaged communities and people of color, such as low-income African American and Hispanic populations (Rothwell & Massey, 2010; Aiken et al., 2021; Reina & Aiken, 2021). Low-income refugees must navigate the pervasive issue of lack of affordable housing nationwide, which already affects low-income communities and minorities (Aiken et al., 2021). Refugees in the U.S. face multiple housing challenges, including language barriers and limited knowledge of the housing market, which affect their employment opportunities (Noyori-Corbett & Moxley, 2017; Bhattacharjee & Corbett, 2023; Cicek-Okay et al., 2023). Despite their non-citizen status, some refugees, who comply with regulations and are considered "qualified immigrants," can access housing support through different federal programs (McCarty & Kolker, 2023). However, similarly to low-income Hispanic households, refugees and immigrants are often overlooked in housing assistance and homeless programs (Aiken et al., 2021; Reina & Aiken, 2021). Regardless of the goals of the Housing Choice Voucher program in providing access to higher-opportunity neighborhoods for low-income households, findings show landlord discrimination based on income source (Tighe et al., 2017). Although the literature on housing accessibility for refugees is scarce in the United States, we argue that the Arab population in the U.S. is especially overlooked, with limited studies of the Arab refugees' resettlement experiences (Darawsheh et al., 2022; Cicek-Okay et al., 2023).

This study addresses the gap by examining Arab refugees' accessibility to public housing in Dallas County. The research question is as follows: what are the experiences of Arab Refugees' resettlement in accessing public housing in a U.S. metropolitan region? We chose Dallas County because it is a rapidly growing metropolitan area that attracts refugees searching for housing and employment opportunities, and may help investigate their levels of accessibility of public housing, focusing on the challenges they encounter in obtaining adequate housing policy assistance, if any, and integrating into society. This study uses a mixed-methods approach, including GIS mapping of Arab population distribution in Dallas County using ACS data. Our research revealed limitations of the publicly available data for the targeted population. This limitation is associated with the ways in which the U.S. census classifies Arab people who can be identified as Middle Eastern and North African populations, but many of these residents identify as White. This fact, in turn, means that these groups are often neglected and underserved in accessing services that could benefit them (Strmic-Pawl et al., 2018). The map allows the identification of spatial concentrations of Arab populations that may house refugees' families in Dallas County. We supplemented the spatial analysis of Arab refugees with qualitative research, including up to 30 semi-structured interviews with Arab refugees to identify barriers to public housing assistance, including legal status, language barriers, and socio-economic factors. By examining the relationship between housing policy, refugee needs, and social integration, this study aims to expand the literature on housing refugees', particularly with the apparent gap of the underrepresentation of the Arab population in research. Also, to provide actionable recommendations for enhancing housing accessibility policy and encouraging better integration outcomes for refugees in urban areas. In addition, to inform more equitable housing policy for refugees, thus providing planners with insights to support these approaches in Dallas County. Findings may inform housing policy in other counties throughout the Country.

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Key Words: Refugees, Resettlement, Public Housing, Integration

Factors Affecting Duration of Stay for Migrant and Non-migrant Families in Emergency Shelter Systems

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Track 6: Housing

Individual Paper Presentation Submission

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Many U.S. cities are grappling with a recent influx of asylum-seeking migrants while also facing pre-existing, unmet housing needs and growing populations of homeless individuals and families (Colburn & Aldern, 2022; Colburn et al., 2024). While asylum-seeking migrants wait years for their cases to be heard, they typically remain in the U.S. outside of detention but unable to apply to legally work for 150 days after filing for asylum. As a result, many need short-term housing, but cannot pay for it and turn to emergency shelter systems. Previous research has assessed the entry and reentry of families into emergency shelter (Kim & Garcia, 2019) but has not yet determined how migrants and non-migrants differ in their use of emergency shelter. This project explores the following research question: What factors are associated with exiting emergency shelter systems for asylum-seeking migrants and non-migrants?

To answer this question, we focus on Hennepin County, Minnesota, where the family shelter system was estimated at 400 percent capacity as of December 2023 and over half of the families in the shelter system were likely asylum-seeking migrants. Within this context we conducted a mixed-methods research project that included an analysis of administrative data and thematic coding of 40 interview transcripts from migrant and non-migrant adults in families living in emergency shelters between November 2024 and April 2025.

The administrative data included records of migrant and non-migrant families living in the emergency shelter system between January 2021 and May 2024. Using this data, we conducted a survival analysis that assessed factors associated with whether and how quickly migrant and non-migrant families exit the shelter system. Specifically, we examined the relationship between migrant status and shelter exit using Kaplan-Meier estimates of survival times and Cox Proportional Hazard regression analysis. Our results suggest that migrants remain in emergency shelter longer than non-migrants even after accounting for family size and the number of adults in the family. A thematic analysis of interview transcripts indicates that migrants stayed in emergency shelter longer than non-migrants due to their temporary inability to legally work or access support measures (e.g., TANF and SNAP) available to non-migrants. Migrants were also less likely to search for permanent housing opportunities using case managers, instead relying on social media contacts which often failed to provide promising housing solutions. These results help inform local planning responses to support asylum-seeking migrants during a period of federal inaction on comprehensive immigration reform coupled with insufficient support for affordable housing.

Citations:

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Key Words: homelessness, asylum-seeking migrants

Fintech and Traditional Mortgage Lending in California's Wildfire Risk Zones

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Track 6: Housing

Individual Paper Presentation Submission

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As climate risks become increasingly common, a growing body of literature assesses the intersection of climate risks with real estate finance (Contat et al. 2024). Studies find that mortgage credit markets are adjusting to climate hazard risks, and emphasize the importance of soft local information in shaping institutional evaluations of credit risk (Duan & Li 2024). However, to date, a limited body of research has evaluated how mortgage lenders with differing access to local information evaluate and account for the risk of climate disasters during loan underwriting (e.g. Allen et al. 2023), and none has focused specifically on the growing threat of wildfires. Against this backdrop, this paper addresses two fundamental research questions: how have mortgage lenders changed their lending behavior, if at all, in the face of growing wildfire risks in California and do traditional and fintech lenders behave in a manner that suggests an internal capacity to integrate wildfire and climate science data and information into their underwriting and origination processes? These core questions are referenced within the broader concept of 'bluelining,' which suggests that a growing number of mortgage lenders are using a mix of soft and hard information to outline a geography of climate risk that is shaping the availability and pricing of financial services (Keenan and Bradt, 2020).

Following previous work focused on comparing fintech and traditional mortgage lending (e.g. Hauptert 2022) we construct an original dataset categorizing mortgage lenders as fintech or traditional, which is then paired with loan-level data for all loan application in California in 2018, 2019, and 2020 provided by the Home Mortgage Disclosure Act, and wildfire risk measures from the Federal Emergency Management Agency's National Risk Index. We use these data to construct a series of econometric models controlling for an array of applicant, lender, and neighborhood covariates. The models isolate the impact of wildfire risk on the approval rate and interest rate pricing strategies of fintech and traditional lenders.

Results suggest traditional lenders assign significantly greater risk to loans collateralized by homes in neighborhoods at high-risk of wildfires than do fintech lenders, both in terms of loan approvals and interest rate pricing. This may be because fintech lenders, which operate online and lack brick-and-mortar offices and local staff, have less local knowledge on the physical risks posed by wildfires. Alternatively, traditional lenders may be more effectively incorporating climate risk data into their loan underwriting processes. Results further suggest that fintech lenders are actually more likely to approve and assign low interest rates to home loan applications in high wildfire risk neighborhoods relative to neighborhoods with little or no wildfire risk. This counterintuitive finding may indicate fintech lenders are playing an arbitrage role, satisfying consumer demand in areas where the traditional lending market deems climate risk too high. Understanding the variation in risk management techniques between different lenders is insightful for assessing the future availability and pricing of mortgage capital that shapes everything from the relative affordability of housing to long-term fiscal stability of local governments whose tax-bases are compromised by climate impacts, including the growing risk of wildfires. As housing, insurance, municipal bond, and mortgage markets begin to internalize or capitalize risk, there are strong economic incentives for households and local governments to make adaptation and hazard mitigation investments that reduce risk. The apparent lack of climate risk considerations among the rapidly growing fintech lending sector holds important implications for planners making decisions about the suitability of different areas for residential zoning.

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Key Words: Mortgage Lending, Fintech, Climate Change, Wildfires, Risk-based Pricing

Forecasting Residential Land Capacity Using Publicly Available Data and Back-of-the-Envelope Methods

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Track 6: Housing

Individual Paper Presentation Submission

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In recent years, the shortage of housing available to accommodate rising housing demand has received substantial attention by scholars, advocates, media, and policymakers (Khater, Kiefer, and Yanamandra, 2021). The YIMBY movement owes its existence to the pervasiveness of this problem. It is widely recognized that one cause of the nation's housing shortage is the scarcity of land available to accommodate housing built at a variety of densities. In recognition of the need to expand the supply of land available to accommodate projected housing growth at different densities over a planning horizon, there is a growing need for simple, back-of-the-envelope methods that planners can use to identify impending shortages of buildable residential land.

Estimates of residential land capacity are generally derived from one of three approaches: (1) Some produce static estimates of buildable land capacity, adjusted for policy-based and geographic constraints, using survey data or local GIS data (Saiz, 2010; Monkkonen, Manville, and Lens, 2024). The main disadvantage of this method is that it is not forward-looking and tends to ignore future housing demand. (2) Others rely on detailed local zoning data to produce "build-out" analyses of what could be constructed under the maximum envelope imposed by current zoning (Conway and Lathrop, 2005). This method also ignores future housing demand and bears no relation to the actual number of homes that would be constructed over a planning horizon. (3) Others rely on sophisticated computable general equilibrium or simulation-based methods to simulate local housing markets over a given time period, assuming land supply constraints are binding during the simulation period (Waddell, 2002). This third method, while more theoretically sound, requires large amounts of local data and sophisticated econometric techniques that are difficult to implement and yield results that are not readily transparent to citizens, creating a "black box" problem when communicating findings to the public.

In this paper, we propose a new approach to forecasting residential land capacity that has the following advantages: (1) It relies on easily accessible public data from the US Census and the National Geological Survey's National Land Cover Database (NLCD) and does not require detailed parcel-level data, (2) It relies on minimal assumptions and transparent back-of-the-envelope methods, allowing planners to open up the "black box" of the methodology to easily account for different urbanization scenarios and development assumptions. (3) It can be easily scaled up or down to produce residential land capacity estimates for small areas as well as cities, counties, regions, states, or the entire nation.

We demonstrate the method using US Census data, the NLCD, and household projections for the state of Maryland. We employ the method to forecast residential land capacity to the year 2045 under alternative housing demand scenarios, replacement housing scenarios, urban density scenarios, and policy constraints. We conclude by discussing potential applications and limitations of the proposed method.

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Key Words: housing, residential land capacity, land use forecasting, planning methods, residential density

From Paradox to Exploitation: Re-theorizing Latinx/e Housing

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Track 6: Housing

Individual Paper Presentation Submission

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Scholarship on Latinx/e housing in the United States often begins with what Susan González Baker (1996) described as the “Latino paradox”. That is, despite existing disproportionalities in income and poverty that impact affordability and security, the Latinx/e population tends to be underrepresented among both the unhoused population and housing subsidy programs (Yzaguirre, Arce, and Kamasaki 1999; Aiken, Reina and Culhane 2021; Reina and Aiken 2021). The primary theories that have emerged to explain the departure from expectation in these areas are mutual self-reliance and, to a lesser extent, assimilationism that are assumed to reduce housing insecurity and deter the utilization of housing assistance (Aiken, Reina and Culhane 2021). These analytical perspectives are problematic because they minimize the role of discrimination and present an uncomplicated conceptualization of social factors and their outcomes. For example, as Carrillo, Patillo, Hardy, and Acevedo-Garcia (2016) show, while a reliance on social networks for support during times of crisis may help Latinx/e households secure new housing, the resulting short-distance moves effectively contribute to the maintenance of racial and class segregation.

In order to investigate these questions further, we partnered with a local nonprofit housing services organization and organized a community-based research (CBR) project utilizing intake data to identify potential participants. Thirty-two (32) semi-structured phone interviews in both Spanish and English with tenants in Dane County, Wisconsin were conducted and a hybrid process of inductive and deductive thematic analysis was used to interpret the data. Our results reaffirm the importance of mutual self-reliance among Latinx/e renters for finding housing, however we also uncover evidence of exploitative relationships in the form of poor housing quality and persistent conflicts with landlords and property managers that reveal discriminatory patterns. The results suggest that mutual self-reliance is only a partial explanation at best and that special predatory housing submarkets may also contribute to the “Latino paradox.”

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Key Words: Latinx/e housing, community-based research, exploitation, housing quality, housing services

Garden-Style Preservation: Building institutional & informational capacity for housing in MD

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Track 6: Housing

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A common image of suburban housing is one of subdivided single-family communities in which low- and moderate-income households have been largely excluded due to their need for rental housing and more affordable homes. However, as the demand for connected, urbanized neighborhoods both inside and outside city boundaries has increased, the suburbs have become an important source for affordable housing accessible to jobs across a given region. In the Washington, DC suburbs, the Purple Line, a 16-mile transit route opening in 2027, will connect gentrifying, dense suburbs and three lines of the DC Metro System (Finio, 2023). This will create unprecedented transit access to points across the region. However, this new accessibility has also created anticipatory effects on home prices and apartment rents in these relatively dense suburban communities (Peng et al., 2024). To combat this, members of the Purple Line Corridor Coalition have formed the Purple Line Preservation Network (PLPN). Based on the experiences of places such as Denver and Washington, D.C. (Howell et al 2019), the PLPN is a network of housing actors, including public agency staff, advocates, organizers and legal service providers to share data and develop solutions to preserve housing affordability at the building level. Researchers at the National Center for Smart Growth (NCSG) are supporting the PLPN by developing a database of risk factors and a coordinating early-warning tool to identify multifamily buildings that pose a high risk for displacement of affordable housing along the corridor.

The suburbs present unique challenges for the preservation of affordable housing because they have less developed organizational and informational frameworks than many central cities. Howell (2016) argues that successful preservation requires an “ecosystem for preservation,” including buildings to preserve, a network of organizations and data and a policy framework. In the suburbs, organizing is at both a temporal and spatial disadvantage compared to traditional social service organizing in cities (Lung Amam, 2024). Much of the existing affordable housing stock is unsubsidized, given political decisions in the 20th century to block construction of public housing in the suburbs. The existing, aging, garden-style multifamily housing stock is privately owned and extensive cooperation between private owners, nonprofits, and local government is required to preserve affordability. Data on these multifamily properties is scattered across public and private data sources, which must be integrated to paint a picture of need, and predict risk of loss of affordability. We find that, while the policy framework includes county rights of first refusals and local funding, the other elements of a preservation ecosystem were a larger challenge with roots in suburban development patterns.

Our approach to this community-engaged research builds both organizational and informational capacity in the Purple Line’s suburban context. The PLPN convenes agencies with knowledge of opportunities for preservation and the capacity to activate preservation work, such as acquisition of subsidies or properties. NCSG’s database and early-warning tool support this work by merging fractured data on risk factors from multiple jurisdictions and sources and providing recommendations for high-risk properties to review. The early-warning tool is trained initially by theory about how risk factors lead to instability. As the PLPN convenes and refines its list of high-risk buildings, the model is continually trained on this grounded knowledge to provide better recommendations. These

institutional and informational developments help give suburban communities along the Purple Line corridor capacity to preserve affordable housing that is more comparable to their central-city neighbors.

Citations:

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<https://doi.org/10.1177/0739456X17709500>

Key Words: Affordable housing, Housing Preservation, Data, Community

Gentrification and Displacement in Light Rail Corridors – a Case Study of Salt Lake City, UT

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Track 6: Housing

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To date, there have been very few attempts to quantify or measure displacement and some researchers go so far as to claim that “there are no statistical data available for such a task” (Marcuse, 1985). “Some of the key problems in the measurement of displacement are the lack of comparable data which continues to plague this research area.” (Easton et al., 2020) However, recently, the Consumer Reference Dataset (CRD) produced by Data Axle have been increasingly used in residential mobility studies due to their granularity and comprehensive information related to household characteristics (Diamond et al., 2019; Greenlee, 2019; D. C. Phillips, 2020). In our study, we rely on Data Axle Consumer Data to measure gentrification and displacement within light rail corridors in Salt Lake City, Utah.

The question asked and answered in this paper is whether low-income minority households are being displaced from Salt Lake City’s light rail station areas and if so to what extent. First, we examine changes in a set of socioeconomic indicators (extracted from Data Axle Consumer Data for the years 2015-2022) within the 0.25-mile buffer along TRAX light rail corridors and Salt Lake County in general. Then we measure the number of households moving in and out of the buffer and examine socioeconomic characteristics of each group (also using Data Axle Consumer Data). Secondly, we identify all TOD-like stations in Salt Lake County (with at least two multifamily building within a one-block distance from a TRAX station and some mixed-use development) and conduct a similar analysis for these stations (20 in total). Our study is among very few to use Data Axle to quantify displacement.

When looking at the light rail corridors in their entirety, we found no signs of displacement between 2015 and 2022, that is the households moving out of the corridors were not replaced by higher income white households. In fact, what we noticed is that a large proportion of those moving out became homeowners within one year of moving. Conversely, those moving in are lower-income households attracted by a rental market that is still affordable. Finally, ethnic composition of both household groups was nearly identical for the studied period of time with the share of minority households slowly increasing, also reflecting the general trend in the county and the region.

However, when looking at the TOD-like station areas, we noticed that while almost all of the 20 TOD-like stations experienced a significant growth in both low- and very low-income households between 2015 and 2022 (on average 145% and 134% respectively), the number of extremely low-income households (earning less than 30% of AMI) remained at the same level, although some of the households did relocate between station areas in search of deed restricted affordable units as only such units are affordable to this type of households. Thus, half of the TOD-like stations experienced displacement of extremely low-income households, and the other half of the stations (those with a higher availability of affordable units) experience an influx of such households. The station areas that welcomed the largest number of extremely low-income households are the ones with the largest pool of naturally occurring affordable housing in the form of older apartment buildings.

We also found that disproportionately more extremely low-income households live in TOD-like station areas. While, by default, half of the households living in Salt Lake County earn an income higher than the Area Median Income, the same was true of slightly more than 20% of households living in TRAX corridors in general in 2022, and only 2% of those residing within TOD-like stations (with multifamily housing options). On the other hand, there are

significantly more extremely low-income households residing in the TOD-like stations (64% in 2022) and in TRAX corridors in general (32%), compared to 15% in the county.

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Key Words: measuring displacement, Data Axle, light rail corridors

Geographic Concentration and Revenue Distribution of Short-term Rentals within Arizona MSA

Abstract ID: 1844.0.0.928.2025

Track 6: Housing

Individual Paper Presentation Submission

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The global rise of STRs (STRs) has raised concerns about their impact on housing markets and local communities. Recent studies have correlated the proliferation of short-term rentals (STRs) with a decrease in the supply of long-term rentals, leading to an increase in rental prices. While STRs are mostly concentrated in major cities, new research warns about their expansion to small towns and rural areas. Additionally, international studies have raised concerns about the industry's shift from home-sharing to corporate hosts. Canada's top 10% of rental owners generated the most revenue, and nearly 50% of Airbnb's revenue came from commercial operators. The shift towards corporate ownership could exacerbate the housing shortages impacting local communities. In the United States, little is known about the concentration of STRs, who owns them, and their effects on already disadvantaged communities such as Hispanics.

This research addresses this gap by examining to what extent corporate hosts control the STR market and where STRs are concentrated within the Metropolitan Statistical Areas (MSAs) of Arizona. Arizona has a sizable Hispanic population (32.5%) and record-breaking tourism. Preliminary findings show that small Arizona cities are already experiencing increased corporate host and housing shortages. Using quantitative methods to triangulate data from AirDNA and the Census from 2015 onward, this study answers two research questions: (1) Where are short-term rentals (Airbnb and Vrbo) concentrated, and how is the revenue distributed across different hosts (individual versus corporately) in the MSA of Arizona? (2) What are short-term rentals' longitudinal growth and concentration in predominantly Hispanic vs non-Hispanic neighborhoods?

To answer these research questions, this study employs spatial analysis to identify the distribution of short-term rental listings within the Arizona MSA. The results include maps that show the concentration of short-term rentals, focusing on neighborhood-level granularity and employing a hotspot analysis to identify clusters of short-term rentals within each MSA within Arizona. This research has the potential to significantly impact our understanding of ownership patterns and may reveal an uneven distribution of STRs' economic benefits, affecting local communities, particularly Hispanics. While focused on Arizona, the findings will have broader implications for addressing housing inequalities in other locations that are seeing similar rises in STRs.

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Key Words: Short-term rentals, Corporate Ownership, Hispanic communities

Good RAD Gone Bad? Rental Assistance Demonstration and Displacement in New York City

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Track 6: Housing

Individual Paper Presentation Submission

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Launched in 2012 under the Obama administration, the Rental Assistance Demonstration (RAD) program aims to address the unresolved backlog of capital needs in existing public housing. By converting traditional Section 9 public housing into project-based Section 8 housing, RAD seeks to attract private financing, investment, and/or management. RAD can be viewed as an improvement over earlier housing programs, such as the HOPE VI program, which has been criticized for contributing to displacement. As a preservation program, RAD causes far less disruption to residents' lives, making it somewhat less conspicuous. Moreover, unlike HOPE VI, RAD does not mandate rescreening for residents to return.

Transitioning from "tear down to rebuild" to "preservation," RAD's anti-displacement strategies appear promising to residents and housing advocates alike. Yet, there is no evidence showing that RAD stops displacement. Residents can still face the threat of being displaced due to private management under RAD. With New York City, the most active RAD participant in the U.S., as the geographic focus, this study aims to assess whether RAD's anti-displacement strategies are effective. I compare public housing projects that have been converted under RAD against those that have not and ask: Do RAD sites have lower eviction rates than projects remaining under Section 9? I examine this question through an Adjusted Interrupted Time Series approach, using eviction filing data to compare displacement patterns before and after the RAD conversion.

As disadvantaged communities across North America struggle against steeper odds amid a new wave of urban redevelopment, it becomes important to understand the effectiveness of anti-displacement strategies now incorporated into housing programs like RAD and other redevelopment initiatives. Answering the research question would have broader implications for housing and community development and help inform policy interventions that better achieve the anti-displacement goal.

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Key Words: Public Housing, Displacement, New York City

Hidden and Neglected: Lived Experiences of Housing Informality in U.S. Peri-Urban Areas

Abstract ID: 1844.0.0.421.2025

Track 6: Housing

Individual Paper Presentation Submission

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Though typically seen as a problem of the Global South, housing informality is now recognized as a pervasive issue in U.S. metropolitan areas (Reyes-Sánchez et al., 2024). Informal subdivisions, a locus of housing informality in peri-urban and rural communities, face housing and infrastructure precarity, as well as environmental and climate injustices, due to being hidden and neglected by county governments (Herbert et al., 2024). Scholars estimate over 2 million households live in peri-urban and rural informal subdivisions in the U.S. (Durst, 2019). Many live in precarious mobile homes and RVs. Because many of these subdivisions are unincorporated, state interventions are sparse and unevenly applied, and residents are forced to develop their own solutions to housing, infrastructure, and environmental injustices. While much of the literature on informal subdivisions has focused on describing the inadequacies of these communities and mapping subdivisions using big data and geospatial analysis, residents' lived experiences of housing informality and precarity lack attention.

To illuminate resident experiences of housing informality and precarity, we rely on emerging housing informality theory from the U.S. and participatory methods. Recent theory suggests that housing informality is not a binary—informal or not—but rather a continuum based on discontinuities in the relationship between the state and society (Harris, 2017). These discontinuities occur when residents and local bureaucrats individually or collectively act, or not, within housing regulatory regimes—property rights, property transfer, subdivision regulation, land use and zoning, and building codes (Durst & Wegmann, 2017). To understand how these discontinuities occur in informal subdivisions and create precarity for low-income residents, we co-produced participatory action research in an unincorporated subdivision in Dallas County, Texas. We chose to use participatory action research because of its power to co-produce planning knowledge and create more inclusive planning outcomes (Binet et al., 2023). This research included four years of architectural and infrastructural observations, resident surveys and oral histories, photovoice, community-engaged mapping, and resident science.

Through this co-produced research, we illuminate how one informal subdivision moves along a continuum—from latent to diffuse informality (Harris, 2017)—to explain how housing informality manifests and concentrates in peri-urban areas of metropolitan areas. Likewise, we reveal how actions and reactions in regulatory regimes of subdivision regulation and building codes produce manifestations of housing informality, and thus precarious conditions for residents. This includes analysis of how local government bureaucrats catalyze and exacerbate housing informality through selective enforcement and non-enforcement of regulations, as well as de-regulation, and how residents experience and respond to systemic housing and urban development issues through non-compliance with the same regulations.

The implications of this research reveal the “actually existing” nature of the relationship between the state and society, as well as the regulatory regimes in which discontinuities manifest. We also demonstrate how participatory action research produces the depth of data needed to connect theory to real world places. Likewise, we make an intervention in the U.S. literature which has largely used the words precarity and informality interchangeably without delineating the relationship between the two. Finally, we point to the inefficacy of policies pursuing formalization and displacement and demonstrate the need for participatory solutions for housing and infrastructure upgrading for sustainable and resilient communities.

Citations:

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Key Words: Housing Informality, Housing Precarity, Housing Theory, Peri-Urban Communities, Participatory Methods

Home Ownership and Reinvestment: A Tale of Two Cities

Abstract ID: 1844.0.0.843.2025

Track 6: Housing

Individual Paper Presentation Submission

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We examine whether reinvestment in single-family homes (SFHs) varies by housing tenure and by landlord size in terms of the number of properties owned. This work responds to previous work on how different types of owners differ in their property maintenance (Galster, 1983; Gatzlaff et. al., 1998), as well as to work showing that larger landlords are more likely to “milk” properties for financial returns by avoiding maintenance (Decker, 2023; Rose and Harris, 2022). The latter is particularly topical given the recent increase in prevalence of large – if not institutional – owners of permanent rental single family homes (Ky and Starling, 2023).

Using micro-level parcel data for all single-family homes in Minneapolis, Minnesota (2017–2024) and Charlotte, North Carolina (2004–2023), we link annual tax assessor records with publicly available building permit data to measure how reinvestment and maintenance activity relate to who owns a property, and how they use it. Rental properties are identified via homestead exemptions and mailing addresses, and large landlords are defined based on property-ownership thresholds. Per our regression analysis and after controlling for property and neighborhood characteristics, rental SFHs in Minneapolis file 22% fewer building permits and invest 33% less in permitted work than otherwise comparable owner-occupied units. In Charlotte, rental SFHs file 9% fewer permits and invest 1–2% less in dollar terms. Moreover, homes owned by large landlords – defined as landlords who own 20 or more properties within the metro area - in both cities file 26 to 56% fewer permits and invest 6 to 34% less into their properties than smaller landlords. Further, we find no statistical difference in plumbing permits, suggesting that landlords and large owners will forego proactive reinvestment, but not primarily reactive repair activity. Taken together, these findings suggest that the growing prevalence of rental occupancy and large-scale ownership in the SFH market may lead to diminished reinvestment activity over time, thus increasing depreciation of the overall housing stock. As such, it is necessary for planners and policymakers to consider what policy levers are available to stimulate reinvestment by parties that may not otherwise be inclined to reinvest into existing residential properties.

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Key Words: Home maintenance, landlords, homeownership, building permits

Housing Market Segmentation and Young Homebuyers' Trade-Offs: Evidence from Singapore

Abstract ID: 1844.0.0.592.2025

Track 6: Housing

Individual Paper Presentation Submission

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Central Theme: This study examines how policy-induced housing market segmentation shapes young homebuyers' trade-offs between housing attributes. While prior research has extensively examined price variations across submarkets with different spatial and structural characteristics, limited attention has been paid to how consumers directly respond to policy-driven submarkets classifications. We investigate these responses, particularly latent trade-offs between housing attributes in a dynamic policy context, to enhance hedonic modeling-based insights. Singapore recently restructured its presale public housing (Build-to-Order, BTO) classification system, shifting from a two-tier (mature vs. non-mature) to a three-tier (prime, plus, standard) location-based scheme. This policy change redefines submarkets by bundling locational attributes with varying regulations on minimum occupation period and subsidy recovery when being transacted. We leverage this policy shift as a natural experiment to examine its impact on young-aged adults' homebuying decisions. Given that 80% of Singaporeans reside in public housing flats, we anticipate substantial behavioral shifts among young homebuyers.

Data and Methodology: Our study comprises two main components. First, we leverage the application data for presale public housing flats (Build-to-Order, BTO) and transaction data for resale public housing flats in Singapore from 2019 to 2025 to develop a hedonic model. This model quantifies how trade-offs across public housing attributes, such as location, size and the choice between BTO and resale public housing units, evolve in people's responses to the shifted policy. Second, we draw on data from a nationally representative survey of 506 young Singaporeans aged 21 to 35. The survey was conducted in late 2023 and intended to capture intended housing choices before and after the policy's implementation. We employ discrete choice models to capture latent preference shifts among respondents with different personal particulars.

Findings: Results from application and transaction data show that with the effect of new location segments in the public housing market, preferring plus locations faces fewer trade-offs, while preferring prime locations faces more trade-offs. Besides, we have three results from our survey on young-aged prospective homebuyers: a) People choose different options almost uniformly, which validates the survey design and indicates that respondents end up trading off attributes when stating preferences; b) More people prefer presale (BTO) flats rather than resale flats, and prefer not-advantaged locations (standard, non-mature in pre-policy) than advantaged locations (prime and plus, mature in pre-policy) in the new policy context, showing the effectiveness of such a new policy; and c) The preference switch from mature locations to non-mature locations is driven by moving expectations, while the switch from resale flats to presale flats is led by people's financial constraints (income levels).

Implications to planning practice: Our study is expected to contribute to both academia and public housing policy practices in following aspects: First, we advance the existing literature on market segmentation by analyzing policy-oriented housing segments with quasi-experimental design; Second, we enhance the understanding of housing choices by unpacking the trade-offs among stated preferences on different attributes, supplementing the existing evidence on factors affecting revealed preferences observed in hedonic models; Third, we offer more thorough

evaluations of housing policies by reporting heterogeneous outcomes by personal characteristics, providing important reference for future public housing policy implementations.

Citations:

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Key Words: Location, Young-aged homebuyers, Stated preference switch, budget constraints, life-cycle mobility

Housing Shortages and Metropolitan Well-being when Housing Grows Slower than Employment

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Track 6: Housing

Individual Paper Presentation Submission

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Recent public debates and academic research have focused growing attention on housing shortages in the United States, yet there remains substantial disagreement on how to measure the extent of housing shortages (McClure & Schwartz, 2024; McCue & Huang, 2024). National estimates range from zero to over 20 million units, depending on the method employed—whether based on population growth, vacancy rates, or adjusted headship rates (Freemark 2024; Freddie Mac, 2021; Up for Growth, 2024). Each approach carries theoretical and empirical limitations, particularly due to endogeneity between housing supply and the very demographic indicators used to measure need. A gap in the literature is the lack of dynamic, demand-driven measures that capture labor market pressure on housing markets. This paper addresses that gap by proposing and testing an employment-centered metric of housing shortage, based on the differential growth rate between employment and housing supply. An added advantage is ease of understanding by local residents who often resist greater housing production. Unlike other methods, this approach directly captures demand for shelter generated by job growth. While organizations like the National Association of Realtors have begun to track ratios of job creation to building permits, the planning literature has not fully explored how labor market growth outpacing housing supply can reshape housing outcomes in locally undesirable ways.

We compile a panel dataset of 100 U.S. metropolitan areas (2011–2023) using employment data from the Bureau of Labor Statistics, building permits from the Census Bureau, and microdata from the American Community Survey. We construct the delta shortage measure as the difference between three-year employment growth and three-year cumulative permit issuance per occupied unit, lagged by one year. Using fixed-effects regression models, we test the association of this measure with metro-level indicators of housing well-being (e.g., headship rates, mobility, homeownership) and with a novel outcome: worker density per household.

Our findings provide evidence of how job-driven housing shortages shape metropolitan housing conditions. A one percentage point increase in the delta shortage measure is associated with a 0.37 percentage point decline in household formation among adults aged 25–34, a 0.12 percentage point drop in residential mobility among the same group, and a significant decline in homeownership rates among adults aged 35–44, the prime age group for buyers. These results offer a clear empirical validation of the delta shortage measure as a meaningful metric for identifying housing need in the context of economic growth.

We further investigate how housing shortages driven by job-housing imbalance affect the structure of households. Empty-worker households (with no employed members, mostly retirees) decline slightly with greater shortages but are largely explained by aging demographics. Multiple-worker households (with three or more employed individuals) rise sharply in high-shortage metros by “doubling-up” among working adults.

By framing housing need in terms of shelter for workers, this paper reframes the shortage debate in relation to labor market dynamics and planning priorities. In doing so, it also underscores the urgency of expanding housing production not only to improve affordability, but also to prevent constraints on workforce accommodation and regional economic growth. This work contributes to planning scholarship by offering a novel and policy-relevant method for measuring housing shortages—one that is grounded in employment trends and household composition

rather than static assumptions. It encourages a shift in housing policy discourse toward labor-aligned housing planning, with implications for zoning, regional growth strategies, and infrastructure investment.

Citations:

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Key Words: Housing shortage, Job to Housing Ratio, Worker households

Housing, Rent Control, and the Slow-Growth Movement in Cambridge MA

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Track 6: Housing

Individual Paper Presentation Submission

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Housing in Eastern Massachusetts is a topic which has garnered increasing attention from the public and policy makers in the past several years, with the passage of the MBTA communities act which seeks to induce housing production in suburban towns, the state's first housing production plan, and the recent elimination of single family zoning in Cambridge. But the housing crisis is not new in Eastern Massachusetts, with debates over what to do about the rising cost of housing in Cambridge extending back into the 1960s. This paper examines debates over housing densification, zoning, and rent control between 1960 and 2020 in order to answer the question of how Cambridge went from growth restriction to eliminating single family zoning.

Growth machine theorists have asserted that the slow-growth coalition has not had a significant effect on urban development in the United States (Molotch, 1993), but recent research has argued that anti-growth movements have had the effect of preserving built environment of a small town while accelerating gentrification, especially in university towns in large metro areas (Anbinder, 2023; Winling, 2018). I argue that in Cambridge, slow-growth movements have had a significant effect on the town.

In alliance with homeowners and environmentalists, tenant movements were successful in slowing housing construction but unsuccessful in stopping the growing dominance of universities and R&D-oriented industry, which homeowners generally supported. The success of radical movements in opposing growth in housing, combined with their failure at inducing changes to the political economy of the region, created conditions for YIMBYism to succeed. Struggles over rent control in the 1970s were also acute, and the design of Cambridge's rent control policy also contributed to gentrification.

My research is through a mixed-methods qualitative approach. I conducted interviews with Cambridge residents who have been involved in pro and anti-growth coalitions over the course of the past decades, analyzed local policy documents from the past 60 years, and drawn on archival materials of tenants' movement coalitions and public debates about housing. These findings will help scholars and policymakers understand what factors and political dynamics have led to changing approaches in the urban governance of housing production.

Citations:

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Key Words: housing, YIMBY, zoning, rent control, Cambridge

How Do Low-Income Housing Tax Credit (LIHTC) Residents Travel? Findings from the Chicago Area

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Track 6: Housing

Individual Paper Presentation Submission

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Transportation challenges within the LIHTC program—Low-income individuals often lack reliable mobility options, which exacerbates transportation insecurity, economic instability, and employment precarity. Households supported by the Low-Income Housing Tax Credit (LIHTC) program are particularly susceptible to these challenges. The program predominantly serves socially and economically marginalized populations, including extremely low-income families, older adults, people of color, and individuals with disabilities. These groups are frequently categorized as transportation-disadvantaged, unable to meet essential travel needs due to limited access to transportation. While the LIHTC program's primary goal is to address affordable housing needs for low-income families, ensuring adequate access to transportation must also be integrated into the policy discussions.

Understanding the travel behaviors of LIHTC residents is a fundamental step in addressing their transportation needs. However, there is a significant research gap regarding how low-income families living in LIHTC properties meet their everyday travel demands. This gap persists largely due to the absence of suitable data resources. Travel patterns are typically captured through household travel surveys, yet there is currently no systematic survey dedicated to the LIHTC program, nor have the LIHTC administrators collected such data. These knowledge and data deficiencies hinder the development of tailored transportation policies, forcing reliance on generalized findings from broader studies on low-income populations.

Research Questions—By leveraging existing household travel survey data (2018-2019) from the Chicago metropolitan area, this research addresses the following questions:

1. How do low-income individuals living in LIHTC housing travel?
2. Are their travel patterns significantly different from other low-income populations living in non-LIHTC housing?

Methods—I first identified LIHTC-assisted households among survey respondents by matching their home addresses to LIHTC property addresses from the Department of Housing and Urban Development's database. After determining each participant's LIHTC status, I compared trip-making patterns between LIHTC and low-income non-LIHTC residents, using descriptive statistics and Coarsened Exact-Matching (CEM) to account for confounding factors influencing travel behavior.

Findings—The findings reveal that LIHTC residents are more likely to belong to socioeconomically marginalized groups—such as unemployed individuals, older adults, people of color, individuals with disabilities, and non-drivers—and are even more marginalized than their low-income counterparts. This heightened marginalization translates into suppressed travel behaviors, including making fewer trips and a greater tendency to remain at home. Notable differences also emerged in mode shares and trip purposes: LIHTC residents relied more heavily on public transportation and ride-share services compared to their non-LIHTC counterparts. Additionally, LIHTC residents exhibited a higher frequency of healthcare-related trips, which was significant even after controlling for confounding factors (e.g., income, age, disability status) in the CEM analysis.

Planning implications—These findings carry important planning implications for housing authorities, particularly in Illinois and potentially in other states. Given LIHTC residents' limited access to personal vehicles and heavy

dependence on public transportation, it is essential to situate LIHTC properties in neighborhoods with robust transit infrastructure. Furthermore, transportation solutions for these communities should consider the complex mobility barriers created by their heightened marginalization. The high demand for healthcare-related trips also underscores the need to prioritize proximity to healthcare services during tax credit allocation processes.

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Key Words: LIHTC, Travel patterns, Low-income households, Coarsened Exact-Matching

How Municipalities Can Scale up Non-Market Housing for Lower-Income Households: Canadian Case Study

Abstract ID: 1844.0.0.576.2025

Track 6: Housing

Individual Paper Presentation Submission

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Despite a growing consensus that the private sector cannot meet the housing needs of low-to-moderate-income households, current policies and financial support for non-market housing in the U.S. and Canada are inadequate for generating sufficient units to meet the need. The stock of non-market housing across North America is among the lowest across peer OECD countries at only 3.5% of total dwellings (Young, 2023). This deficiency is manifested visibly at the municipal level in expanding homelessness, and less visibly in increasing evictions and an exodus of households in search of affordable housing options. These trends have serious social and economic impacts at local, regional and national levels.

Municipalities have a long track record of collaborating with community housing sector groups to facilitate affordable housing solutions along the spectrum from homeless shelters to below-market rentals. Many cities have adopted proactive measures to expand this supply, such as Seattle's workforce social housing tax levy and San Francisco's right of first refusal for non-profit organizations to purchase at-risk affordable rental properties. In Canada, Montreal's 20/20/20 inclusionary zoning mandating a proportion of non-market and below-market rentals in projects and Vancouver's purchase of private single-room-occupancy hotels for operation by non-profit organizations at social assistance rates. However, even by combining municipal ingenuity and creativity with increased funding and policy tools from senior governments, only small numbers of non-market units are being generated annually, and it is unclear how municipalities might substantially expand the supply of non-market housing.

This research seeks to identify pathways to scaling up non-market housing by combining an analysis of key documents proposing reforms to Canada's housing system with key informant interview in four British Columbia (B.C.) municipalities. These four municipalities capture a range of city sizes and institutional capacities as well as a breadth of geographic, demographic and housing contexts, allowing for comparative lessons to be drawn from across the cases.

The first stage of the methodology involved reviewing the policy literature on housing reform in a thematic analysis, identifying key ideas for expanding non-market housing that could significantly enhance existing municipal capacity. This analysis identified five themes among the proposals for how to improve Canada's housing delivery system: 1) Embed a rights-based approach in housing policy; 2) Convene allies, enter into coalitions, and collaborate with peer and senior governments to establish equitable housing as planning norm; and 3) Expand the legal and historic urban land stewardship role to facilitate a land strategy based on a vision for equitable housing; 4) Increase capacity for leadership and creativity in non-market housing provision by applying lessons from leadership and policy innovation in areas such as climate change and social procurement; and 5) reconceptualize housing as core social infrastructure.

In the second stage of the research, key informants engaged in non-market housing policy and delivery in four cities in southern B.C. were selected for semi-structured interviews to obtain perspectives on: 1) successes and challenges of delivering non-market housing and opportunities for significant expansion of supply; 2) the relevance to their own work in non-market housing of the five themes identified in the policy literature review; 3) specific

strategies they consider to have the potential to substantially increase the proportion of non-market housing; and 4) barriers to expanding non-market housing supply and how they might be overcome.

The analysis of the findings will provide insights into how municipalities can build on their existing capacity and experience to scale up the delivery of non-market housing.

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Key Words: Affordable housing, low-income housing, non-market housing, social housing, spatial equity

Innovative Housing Solutions: Shanghai's "Aging + Rental" Policy for Inter-generational Integration

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Track 6: Housing

Individual Paper Presentation Submission

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Central Theme - The study explores Shanghai's pioneering "Aging + Rental" policy aimed at mitigating housing mismatches between older adults and young people through strategic bulk rental arrangements. This policy reallocates aging housing in central areas to newer suburban developments, enhancing living conditions and fostering intergenerational integration and urban renewal. The research analyzes the outcomes of policy implementation, resource reallocation effects, and its broader implications for optimizing future housing policies.

Approach and Methodology - Employing a mixed-methods approach, the study integrates policy analysis with empirical research. Data collection spanned 14 pilot neighborhoods in Shanghai, utilizing participant interviews and policy effectiveness assessments. The analysis focuses on the policy's impact on housing supply-demand alignment, improvements in living experiences, and social integration, alongside its long-term effects on market stability and social equity.

Key Findings - Findings indicate the policy effectively addresses short-term housing needs for both older adults and young residents, improving convenience and environmental quality. However, challenges such as social isolation, weak community bonds, and policy sustainability concerns persist. Older adults experience limited integration into new communities, while young residents report parking issues and low neighborhood interaction. Long-term social effects, especially in reducing social segregation and fostering intergenerational coexistence, require further exploration.

Relevance and Implications - The study provides empirical insights into innovative housing policies addressing supply-demand imbalances in metropolitan areas. It underscores the potential of rental market reforms to optimize housing resources and promote social equity. The policy's experiences offer valuable lessons for urban planners and policymakers globally, highlighting the necessity of balancing immediate housing solutions with long-term social integration objectives.

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Key Words: Housing Policy Innovation, Generational Cohesion, Urban Renewal, Social Equity, Rental Market Reform

Locating a fiscal funnel in the rental market: Racialized geographies of 1031 exchange in Memphis

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Track 6: Housing

Individual Paper Presentation Submission

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This paper conceptualizes the IRS tax code as an urban infrastructure that funnels capital into cities in vitally important ways. By examining how local actors and dynamics (Weber, 2010) shape the practice of housing financialization (Fields & Raymond, 2022), I situate the tax code—particularly the 1031 exchange—within a fiscal geographic framework that shows “the specific ways that states – at all scales – are actively shaping [financial] processes through tax and other budgetary systems” (Tapp & Kay, 2019: 1). The 1031 exchange generates substantial liquidity across U.S. real estate, with estimates from Ernst & Young showing that over 500,000 exchanges occurred between 2008 and 2017, transferring approximately \$1.6 trillion in real estate assets.

Building on this framework, I argue that the IRS’s 1031 capital gains deferral program has created a ‘fiscal funnel’ in Memphis, Tennessee—the nation’s largest “turn-key” rental market—where large, local property management networks acquire, rehab, sell, and manage properties for a diverse range of clients, including institutional investors and affluent retail investors from coastal markets.

Using a dataset of computationally linked property ownership (An et al., 2023) and interviews with turn-key executives, I argue that deferred capital gains have created a ‘fiscal funnel’ within Memphis’s rental market. This funnel links proceeds from property sales in high-cost coastal markets with investment sites in Sunbelt and Rustbelt cities. Two interrelated factors drive this phenomenon. First, the overvaluation of housing in coastal markets enables retail investors to make cash purchases in many Midwestern and Southern housing markets. Second, the undervaluation of properties in these regions creates conditions conducive to cash-flow investments, where retail investors often prioritize passive income over long-term property appreciation. In this context, turn-key operators channel 1031 exchanges into cities with significant racial appreciation gaps (Markley et al., 2020), exploiting artificially deflated property values to generate passive income for retail investors, primarily from California.

Ultimately, this paper provides evidence that retail investors—facilitated by property management networks and the IRS tax code—collectively operate in Memphis at a scale and scope typically associated with corporate landlords. In some areas, this combination of management networks and tax programs has enabled turn-key properties to far exceed the portfolios of Memphis’s corporate landlords. Thus, this research offers a framework for understanding how the contours of the U.S. tax code become spatialized in neighborhoods across the country, bringing together and consolidating unlikely actors in the process of housing financialization.

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Key Words: Racial appreciation gap, IRS tax code, Property management, Housing, Financialization

Location, residents, and owners: An in-depth analysis of Canada's Manufactured Home Communities

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Track 6: Housing

Individual Paper Presentation Submission

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Manufactured home communities (MHCs) or land-lease communities are a small segment of the housing market yet considered essential for its contribution to affordable housing provision (Durst et al., 2019). These communities typically own the housing structure but rent the land on which it sits (Formanack, 2020). In the United States, MHCs are the homes of various precarious and/or marginalized populations, including seniors, lone-parent families, and immigrants (Formanack, 2018). Researchers have studied the precarious legal ground on which MHCs rest (Ly, 2018), and the struggles MHC residents have had to deal with in relation to mass evictions (Sullivan, 2017) and stigma (Sullivan et al., 2022).

Even though there are 190,000 households living in movable dwellings in Canada (including MHCs), little research is available on MHCs in the country (Kremarik & Williams, 2001; Lund, 2021). Yet, critical events influencing the stability and affordability of MHCs are occurring in Canada and requires further scrutiny. In recent decades, multiple MHC closures have raised concerns about residents' rights to remain and the precarity of MHC living (Lund, 2021). Recent MHC sales onto the hands of financialized landlords have been flagged in relation to potential evictions and rent increases. Lastly, the rise of the appeal of manufactured housing construction in policy and the media requires further reflection on the role MHCs play in providing affordable housing to Canadians.

In this paper, we present the first country-wide account of MHCs in Canada. We answer the following questions: Where are MHCs located in Canada? What are their size and socio-demographic composition? How have MHCs been perceived by Canadian media and policy? Who owns MHCs in Canada? How has the ownership profile of MHC owners changed in recent decades, and how does it relate to housing financialization?

The methods for our research are separated in three parts. First, we used a mixed method approach to localize and count Canadian MHCs combining news articles, industry webpages, Google Maps satellite images, and census data cross-validation. This enabled an exhaustive account of MHCs, including their location and their size, along with a socio-demographic portrait of areas where MHCs are located. Second, we conducted a scoping review of news media to provide a synthesis of the topics related to MHCs, using thematic coding to quantify the main themes surrounding MHCs in the media, including the experiences of MHC residents. Lastly, we analyzed the ownership of MHCs using an investigative analysis combining corporate reports, ownership records, and sales transactions, focusing on financialized landlords having acquired MHCs.

We find that MHCs are of larger size in New Brunswick, Alberta and Ontario, whereas British Columbia has the most MHCs, but tend to be smaller. Quebec is the province with the higher share of municipally owned MHCs. In the media, main topics surrounding MHCs pertain to infrastructure quality, rent increases, and park closures and evictions, speaking to the main challenges MHCs residents face. As a financial asset, MHCs have been discussed as a sought-after product for investors given its stable returns in part due to the lower turnover rates of its residents and the growing affordability concerns making MHCs a suitable option. As a result, financial landlords have acquired large amounts of MHCs primarily in Ontario, the Maritimes, and Alberta, leading to concentrating MHC ownership in those provinces. We conclude by stressing the importance of monitoring MHCs across Canada and highlighting how land use, zoning, and laws contribute to the precarity of MHC residents across the country.

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Key Words: Manufactured housing, Housing, Planning policy, Precarity, Mixed-methods research

Medicaid Pathways to Housing for Adults with Serious Mental Illness in Arizona

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Track 6: Housing

Individual Paper Presentation Submission

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The 2010 Affordable Care Act (ACA) created new opportunities for state Medicaid offices to provide intensive care coordination to high-cost, high-need beneficiaries with chronic physical or mental health challenges (NASHP, 2021). Across the nation, states are increasingly using these opportunities to coordinate housing-related services for low-income adults with “serious mental illness” (SMI), an official designation given to people with chronic mental health challenges that limit their ability to function in daily life (Kleinman et al., 2017; Silberberg et al., 2024). Limited research, however, has explored the challenges states face in implementing and sustaining these initiatives.

This study highlights implementation challenges that, if left unaddressed, could curb the effectiveness, reach, and long-term sustainability of Medicaid housing initiatives. We do so by evaluating the implementation of Arizona’s Housing and Health Opportunities (H2O) initiative. This initiative uses some of the opportunities created by the ACA to fund specialized housing-related services for adults with SMI who are at risk of or experiencing homelessness. Launched in October 2024, the services funded through H2O range from proactive street outreach to home modification financing to transitional housing services with case-management. By 2026, Arizona’s Medicaid office will decide if H2O should be continued and, if so, what modifications are needed to sustain the initiative going forward.

Since H2O’s launch, we have conducted recurring in-depth interviews with over 20 “frontline” workers involved in implementation, including high-level administrators, housing specialists, case managers, and clinical mental health therapists. In addition to asking about general implementation challenges, we have focused our interviews on workforce challenges in light of prior research that highlights staff burnout and turnover as challenges for initiatives like H2O (Fletcher et al., 2022; Kertesz, 2017). Through our initial interviews and qualitative analysis, we identified key implementation challenges and, as an ongoing research project, we will continue our interviews to learn about how, if at all, these challenges are being effectively addressed.

Our initial evaluation findings highlight four key challenges. First, vertical collaboration between high-level administrators and on-the-ground housing specialists and clinicians has been a challenge. Second, H2O’s complex eligibility determination and expense reimbursement processes have proven difficult to navigate. Third, partner organizations providing direct services to H2O clients do not have enough staff to fully support the initiative, and they are reluctant to hire more staff due to concerns about future funding availability. Fourth, existing federal statutes make it challenging to seamlessly transition H2O clients from state-funded transitional housing to long-term housing assistance provided by the Department of Housing and Urban Development. Currently, the state of Arizona’s Medicaid office is working to address these issues through program reforms and enhanced technical assistance, and in the coming months and years these efforts may help illuminate best practices for implementing Medicaid housing initiatives.

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Key Words: Housing, Mental Health, Supportive Services, Medicaid

More than Shelter: Tenant Organizing for Livable and Healthy Housing

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Track 6: Housing

Individual Paper Presentation Submission

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The share of renters is growing in the United States, as is the share of households spending more than 30% of their income on rent. Yet, the precarity of renting extends well beyond financial strain. For example, many renters reside in poorly managed and maintained homes but lack the political power to initiate reform. Our research examines how this combination of substandard housing and marginalization results in poor health outcomes, particularly for racialized and low-income renters. Conversely, we also analyze the health benefits of renter empowerment, namely those experienced by renters who are involved in tenant organizing.

Our research has two key aims: first, to establish clear links between housing and health in Austin, TX, and second, to uncover how tenant organizing improves renters' health vis-à-vis more livable housing conditions. To achieve these aims, our study combines qualitative information from tenant focus groups with quantitative data from surveys and indoor environmental quality (IEQ) sensors. Through these data streams, we gather (1) information about tenants' views on organizing; (2) accounts of specific health issues tenants experience and how they relate to their housing conditions; (3) insights into rental ownership and management practices; and (4) objective measures of indoor living conditions.

At this point in our research timeline, we have conducted two out of an anticipated four focus groups with Austin tenants; all participants are involved in organizing in some capacity. Preliminary findings reveal strong links between housing quality and health outcomes. Tenants have thus far reported a range of both housing quality and housing management characteristics, as well as accounts of how these characteristics impact their physical and mental health.

Prevalent housing quality and management characteristics include thermal discomfort, the presence of mold, deceptive repairs, and lack of or restriction on communal gathering space. Participants say these factors contribute to adverse health outcomes including anxiety, respiratory illness, elevated blood pressure, and loneliness. In contrast, participants have reported that engagement with tenant organizations serves as an antidote by facilitating social connection and offering solutions to housing disrepair. Additionally, data from IEQ sensors in participants' homes has shown that indoor particulate matter and humidity measurements often linger at unhealthy levels and correspond with some of residents' self-reported symptoms.

To advance this research, the next step involves finishing the collection and analysis of IEQ and survey data from at least 25 additional homes in Austin. Subsequently, qualitative data from focus groups will undergo thematic coding, while quantitative data from surveys and IEQ sensors will be modeled using standard regression techniques. Data visualizations will also be prepared.

Our work presents implications and opportunities for planning research. First, it draws attention to the link between housing and health. In housing literature this connection is often overshadowed by issues of affordability and displacement, though they are closely related. Second, our work further legitimizes tenant organizing as a mode of changemaking, especially for racialized and low-income residents who have been overlooked by more

institutional approaches to housing reform and health promotion. Third, we expect that our work will elucidate pathways for planning scholars to better support tenant organizations and renter wellbeing through research.

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Key Words: health effects, tenant organizing, housing and health, sensor data, mixed methods

New Waves of Neighbourhood Disruption: Airbnb, Student Housing, and Local Rental Market Impacts

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Track 6: Housing

Individual Paper Presentation Submission

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Regardless of geography, private rental housing markets are shaped by diverse supply and demand factors, alongside policy interventions. In global cities like Sydney, part of this demand originates from overseas, reshaping residential neighbourhoods through what has been termed 'transnational gentrification'. Users of platforms like Airbnb and international higher education (HE) students—both strongly represented in Sydney—are globally recognised examples of such forces. Notably, unlike many comparator cities, concentrations of Airbnb and international student tenancies significantly overlap in Sydney's eastern and inner suburbs.

While Airbnb's impact on rental affordability and availability has attracted substantial academic attention since the late 2010s, the rental market impacts of international HE student demand has only recently re-emerged in Australian academic, media, and policy debates. This follows a post-COVID rent surge, with claims that student renters are a key driver of inflation.

This paper presents findings from a PhD project examining how Airbnb and student private tenancies contribute to rent pressures in Sydney's private rental market. The project adopts a mixed-method case study design across three different inner-Sydney neighbourhoods: Bondi, Chippendale, and Kensington. These sites were selected to reflect varying intensities of Airbnb activity and student tenancies either in mainstream private sector or in form of Purpose-Built Student Accommodation (PBSA). Bondi represents a high-density Airbnb suburb; Chippendale, a hub of private student tenancies; and Kensington, a mixed site with both relatively pronounced representation of both submarkets, with a substantial and growing stock of PBSA, including on- and off-campus developments.

By tracing these dynamics across the three case studies, the research demonstrates the value of disaggregated, neighbourhood-level analysis in revealing how rental market pressures unfold on the ground. It highlights the limitations of relying on citywide indicators and argues for more scale-sensitive approaches to inform effective policy.

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Key Words: private rental market, Short-term rentals, Gentrification, Student housing, PBSA

NIMBYism and Workforce Housing in Tourism-Dependent Communities

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Track 6: Housing

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Dare County, North Carolina, stretches along 110 miles of the Outer Banks coastline, is a premier U.S. tourist destination, with visitor spending reaching \$1.97 billion in 2023. Tourism directly supported 12,030 jobs (45.5% of local employment), underscoring the county's economic dependence on the industry. However, the county faces a persistent affordable housing shortage, exacerbated by a predominance of single-family detached homes (78.8% of occupied units) and the rapid expansion of short-term rentals. As a result, median home values have nearly doubled in a decade, rising from \$264,563 in 2014 to \$508,528 in 2024—far exceeding the affordability threshold for the local workforce.

In 2024, Dare County secured funding to develop essential and workforce housing projects, including up to \$12 million through a public-private partnership and \$35 million in non-recurring state funds. However, the county ultimately returned both funds. While several factors contributed to this decision, a strong resident opposition—commonly referred to as Not in My Backyard (NIMBY) sentiment—played a significant role.

Prior research has documented NIMBY opposition to various developments, including human service facilities, waste facilities, unwanted activities, and compact development. However, NIMBYism towards affordable housing is not driven by a single motivation; concerns range from property value declines to decrease public service quality, poor aesthetic qualities, increased traffic volume, and parking, reluctance in the socioeconomic mix, and the increased density in the area. Monkkonen and Manville (2019) pointed out that opponents “cycle through a catalog of objections.”

This study examines two key questions: (1) To what extent does NIMBY opposition influence workforce housing development, and which specific concerns have the greatest impact? (2) Does the effect of NIMBYism vary based on participants' ties to the local community?

An online survey distributed via local government websites, social media, news outlets, and the Outer Banks Visitors Bureau has received 849 responses as of March 2025 (data collection ongoing). Respondents evaluated their overall support for workforce housing, 13 NIMBY-related indexes in the context of workforce housing, their satisfaction with current housing in the community, perceived urgency for workforce housing, and several socio-demographic questions. Statistical analyses included factor analysis, generalized linear model (GLM), and regression analyses.

Factor analysis grouped the 13 NIMBY indexes into three core dimensions of NIMBY opposition: (1) Perceived Community Disruptions, (2) Socioeconomic and Workforce Impact, and (3) Infrastructure and Traffic Concerns. All three NIMBY factors negatively influenced the support for workforce housing, with Perceived Community Disruptions emerging as the most substantial deterrent. Notably, support levels varied significantly by respondent type—resident homeowner, renter, worker, property owner, business owner, and visitors.

Given the pronounced impact of aesthetic and community-character concerns (variables in the Perceived Community Disruptions NIMBY factor), policy solutions should prioritize housing models that integrate seamlessly into existing neighborhoods. Strategies such as accessory dwelling units (ADUs) and incentivizing short-term rental conversions to long-term rentals may prove more politically viable than large-scale developments. These findings have broader implications for communities across the U.S., including both tourism-dependent regions and urban areas grappling with opposition to infill housing.

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doi:10.1177/10780879922184310

Key Words: NIMBY, Workforce, Housing, Tourism, Affordability

Nomadic Embeddedness: Understanding the Atypical Housing Pathways of Digital Nomads in Dali

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Track 6: Housing

Individual Paper Presentation Submission

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The burgeoning phenomenon of digital nomadism is reshaping traditional notions of work and residence. Embracing remote work and a mobile lifestyle, digital nomads often move beyond conventional housing markets. While extensive research has explored the work and lifestyle of digital nomads, housing practice—the anchor of this lifestyle—remain underexplored.

This research seeks to investigate the atypical housing pathways of digital nomads in Dali, China, a city increasingly recognized as a key hub for mobile creative class in China, addressing the following three progressive questions: 1) What core features characterize the atypical housing pathways of digital nomads in Dali? 2) What decision-making mechanisms drive such pathways? 3) How do such pathways further influence the housing market and community dynamics in Dali?

Methodologically, this research employs a mixed-methods approach, using Dali Old Town and surrounding villages as case study sites. Quantitative data is collected through questionnaires distributed to digital nomads, focusing on housing preferences, decision-making processes, and living experiences. The empirical identification and analysis of housing pathways are achieved using multiple-sequence analysis and cluster analysis, supplemented by qualitative data from semi-structured interviews with digital nomads, co-living space operators, and local agents. Interviews explore housing decision-making processes, living experiences, and responses of local stakeholders. Additionally, the analysis of online platforms including Trip.com and digital nomad community will provide insights into market responses and the living experiences of digital nomads.

The research reveals that digital nomads construct atypical housing pathways characterized by mobile short-term rentals, mixed-use spaces, and community-oriented co-living. The study further uncovers the interplay of economic, cultural, and social factors, as well as the opportunities and constraints imposed by the drivers, that propel young individuals to adopt such atypical housing pathways. Notably, emotional factors play a crucial role in the long-term evolution of digital nomads' housing decisions. A sense of belonging to Dali motivates over one-third of digital nomads to transition from mobile short-term rentals to longer-term "bases" or even semi-permanent leases, while the housing pathway featuring co-living spaces also significantly contributes to the formation of this sense of belonging.

The rising of digital nomads brings about rapid growth of short-term rental and co-living spaces in Dali, particularly in areas favored by nomads such as the Old Town and around Erhai Lake. Residential differentiation is evident among digital nomads, with newcomers concentrating in areas with well-established facilities and a strong community atmosphere, while established nomads may disperse to villages with a more local feel, which has differentiated impacts on the social dynamics of different areas. While current impacts on Dali's housing market remain moderate, without significant rent increases or conflicts with local residents, this study emphasizes that the growing digital nomad influx necessitates scholarly and policy attention to potential fissures—including enclaving, spatial segregation and gentrification.

Integrating mobility into housing research, this study provides empirical evidence on the housing practices of a large and growing high-mobile population, revealing how mobile residents shape urban spaces and social dynamics. The findings offer valuable reference for cities experiencing an influx of digital nomads, helping them to incorporate the dynamics of mobile labor and their housing needs into urban planning and housing policies. Furthermore, this research underscores the need to better integrate the dynamism and entrepreneurship of digital nomads into local community development, addressing potential conflicts between digital nomads and local residents.

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Key Words: Digital Nomadism, Housing Pathway, Co-living, Short Rental, Community Development

Population Change and the Housing Stock Dynamics in Post-Socialist Cities

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Track 6: Housing

Individual Paper Presentation Submission

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As global politics and economies shift, numerous cities face potential shrinkage. Historically, urban development has been guided by the goal of growth and shrinkage was viewed as an unintended outcome of political and economic factors. Reasons for shrinkage vary widely, including deindustrialization, political transformations, and climate conditions among many others. As the population declines, housing and neighborhood infrastructure become excessive and get vacated and abandoned. This leads to changes in the built environment, challenges management, and reshapes urban experiences. Decline materializes itself differently depending on the context, the historical legacies, and forms of governance.

The various effects of the decline of populations on the built environment are extensively researched in the context of North American cities. It was noted, that cities decline much faster than they grow, and that housing stock decline with a significant time lag from the population decline. Also, housing typology matters in the process of losing the housing stock in shrinking cities. Thus, detached single-family houses seem to be the most vulnerable category that gets ruined faster than other types — such as attached single-family homes, row houses, and multi-family units. However, North America's built environment—shaped by capitalist development—is characterized by a predominance of single-family homes and low-rise multi-family houses. By comparison, in the former Soviet Republics, as well as the countries of the former Eastern block, the housing stock is dominated by the large-scale housing project and mass-manufactured housing blocks of 5 and later 9 storeys. Given all mentioned above, this study aims to explore how Russia's urban environment, which is influenced by Soviet-era legacies, and inherited and mass-produced Soviet housing blocks responds to a change in population. It also asks if there is a correlation between the population decline and the loss of durable housing stock, and examines how large-scale dynamics are affecting different localities.

The main research question of this study is the following: in the context of Russia, does population decline result in a corresponding reduction in housing stock? If so, how does it affect both the quantity of housing and its quality—where housing quality is defined as the ratio of dilapidated units to the total housing stock? Using the state data on population, housing stock, dilapidated housing, and the estimates of the average size of the household in all municipalities across the country this study seeks to uncover the relationship between these three variables. Descriptive statistics, in conjunction with regression analysis, are applied to uncover potential linear relationships.

The secondary research question is asking if a country-scale quantitative study like the one outlined above in the context of limited data availability can provide actionable insights for policy interventions. What can this data tell us about shrinkage in post-Socialist cities where the housing stock is mostly comprised of the mass manufactured multi-family housing?

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Key Words: shrinking cities, built environment, housing durability, population change, post-Socialist cities

Post-foreclosure pathways and single-family rentals in the Twin Cities

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Track 6: Housing

Individual Paper Presentation Submission

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The foreclosure crisis of 2007 to 2009 significantly impacted long-term economic and social dynamics, notably increasing rentership rates and the number of single-family rental (SFR) properties. Previous studies have explored the links between high foreclosure rates, neighborhood demographics, and the rise of SFRs (e.g., Immergluck 2018, Pfeiffer et al. 2020, Charles 2019). However, there is limited understanding of the specific pathways that individual properties follow into the rental market, which is crucial for grasping the origins of the SFR stock and its effects on housing market dynamics. In this study, we address the following questions: What ownership pathways do properties take before and after foreclosure events? How do these pathways vary over time and among different owner types (e.g., small, medium, and large investors, REITs, and Private Equity firms)? How do these variations explain changes in SFR concentration and conversion over the past two decades? To investigate these questions, we conduct a quantitative analysis of foreclosure auctions in two metropolitan Minnesota counties from 2005 to 2023, utilizing annual parcel-level administrative data, neighborhood demographic data, and a novel ownership dataset. We employ both descriptive and inferential analyses, examining foreclosure and ownership pathways at the property level, spatial shifts in the SFR market, and ownership outcomes for properties that experienced foreclosure versus those that did not through a difference-in-differences style setup. Additionally, by tracking property-level sales data, we create a measurement of difference in sale velocity which can in turn explain divergences in neighborhood outcomes. We hypothesize a significant and persistent link between foreclosure events and increased rental conversion, highlighting common pathways to SFR ownership, particularly among large institutional investors. However, this effect is anticipated to vary based on spatial and demographic neighborhood characteristics, influenced by different investment strategies in areas with lower property values and higher populations of residents of color, reflecting historical patterns of racial housing discrimination and connecting to present-day disparities in housing quality outcomes.

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Key Words: Foreclosure, Single-family, Rentals

Predatory Premiums? Large Landlords and High Rents in the Single Family Rental Market

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Track 6: Housing

Individual Paper Presentation Submission

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The rise of institutional investors in the single-family rental market since the Great Recession has concerned researchers, advocates, and policymakers alike. Previous studies have shown that larger owners are more likely to evict tenants and use tactics such as serial eviction to extract rent, and their presence in the market may decrease the supply of affordable homeownership opportunities for first-time homebuyers.

It has also been hypothesized and reported anecdotally that these large investors tend to charge more rent and fees than smaller landlords. However, to our knowledge, no large-scale study has been conducted to test these hypotheses.

We test this hypothesis using a novel survey of renters living in single-family homes in the Minneapolis-St. Paul metro area. Utilizing multivariate hedonic regression modeling, we find that even after controlling for tenant characteristics like race and income, housing unit quality and size, and neighborhood fixed effects, larger landlords (owning at least 20 units) charge 15%-20% more for similar units compared to smaller landlords. This premium amounts to an extra \$250 per month for a typical unit. We find a similar pattern with fees paid and estimate, using similar models, that large landlords charge 48 percent more in fees compared to smaller landlords.

In a secondary analysis, we will also examine a longitudinal database of online single-family rental listings in the Twin Cities to explore rent patterns over the past decade to better understand how the growth of large landlords, including institutional investors, has impacted rents and test hypotheses related to rent setting through market power and spatial concentration and test for heterogeneity in rent setting strategies between different types of large investor landlords.

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Key Words: Single-family rentals, Institutional Investors, Rental Markets

Prioritizing heat resilience interventions in private housing settings: A data-driven approach

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Track 6: Housing

Individual Paper Presentation Submission

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Extreme heat mitigation strategies in most US cities have been normally concentrated in public spaces: adding trees in public parks, building/expanding cooling centers, adding cool pavement to streets, etc. These efforts have been rooted in several policy and academic articles that have made the case that heat mitigation policies in public spaces are the most practical, possible and even required first step towards creating more environmental justice (Gober et al., 2009; Guardaro et al., 2024; Keith & Meerow, 2022; Lopez Ochoa et al., 2024; Meerow & Keith, 2022). However, and given the growing evidence of the looming housing conditions crisis in the US (Harrison et al., 2024; Lopez Ochoa & Zhai, 2024; Martín et al., 2024; Robinson & Swanstrom, 2024), adding to the well-know and vast literature on the adverse health effects from poor housing conditions (Barton et al., 2007; Bonnefoy, 2007; Braveman et al., 2011; Chimed-Ochir et al., 2021; Keall et al., 2010), it is of paramount importance that heat resilience strategies are first and foremost thought as housing policy interventions towards improving the immediate spaces where vulnerable residents spend most of their time. This paper proposes a data-driven method to prioritize heat mitigation interventions at private residential settings. Using the case of the City of San Antonio, this paper tells the story of the process of engaging with different city departments to set up an experimental design approach to both deploy and measure the impact of heat mitigation interventions within residential private properties using environmental sensors and simulations. Combining a data fusion approach with traditional quantitative methods such as spatial clustering and locally weighted regression modelling and city official's input, a set of prioritized parcel-level data sets are produced and delivered to city officials for community engagement as well as for placing environmental sensors. Initial results show that both spatial clustering and matching techniques are efficient tools to select specific residential areas within pre-defined heat-island neighborhoods to target the application of different heat mitigation interventions towards improving both housing conditions as well as the immediate exterior environmental conditions. Different criteria and data are used to target cool-roofs, home rehabilitations, tree plantings and cool pavement – which yield different treatment settings in different neighborhoods thought the city. This research approach is important for a number of reasons: a) provides a reproducible method for planners and practitioners for testing and deploying measurable heat mitigation strategies, b) prioritizing interventions based on their impact and feasibility helps to target scarce environmental mitigation resources instead of placing them in areas with low impact, c) contributes to the growing need to connect environmental resilience to housing stability and conditions, d) provides a tractable way to make sense of the complex nature of built environments and the design of heat mitigation interventions in real life settings.

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Key Words: housing conditions, extreme heat, resilience

RealPage's Reach: Algorithmic Pricing and Housing Market Collusion

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Track 6: Housing

Individual Paper Presentation Submission

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America's rental housing stock is increasingly distorted by a price-fixing algorithm developed by the real estate analytics firm RealPage. Antitrust lawsuits filed by the US Department of Justice and state Attorneys General indicate that millions of rental units in the US feed data into RealPage's software and enable landlords to collude widely. Despite their significant size and scope, actual RealPage users are largely hidden from the public, blackboxing tenants, regulators, and policymakers from understanding and addressing the concentrated market power that shapes their lives. This presentation sheds light on the geography of this monopolistic practice and the methods required to analyze it by asking: who uses RealPage and whose data does RealPage use? To answer this question, we combine national-scale tax assessor data with web-scraped data from RealPage and the 50+ property managers listed by name alongside them in several ongoing antitrust lawsuits. Using R programming language and geospatial analysis, we identify the property owners who use RealPage or feed their property data into its algorithm and map these market dynamics. The findings from this project are relevant to planners and policymakers looking to use local, state, and federal antitrust law as a tool to protect affordable housing.

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Key Words: housing, revenue management, dynamic pricing, antitrust, big data

Reconceptualizing Being Unhoused: Lessons from the AANHPI Homelessness Experience in California

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Track 6: Housing

Individual Paper Presentation Submission

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California and other states across the country are experiencing a homelessness crisis. The crisis has led to growing public and policy attention to homelessness and debates regarding what constitutes homelessness. Policymakers recognize that homelessness or the lack of a home can take the form of being unsheltered or sheltered homelessness. Both are increasingly referred to as being unhoused. Unsheltered homelessness refers to people living on the streets, in parks, or in their vehicles without any form of stable accommodation. Sheltered homelessness includes living in temporary accommodations like beds in emergency shelters and safe havens provided by public agencies and nonprofit service providers.

We argue that it is necessary to adopt an inclusive and even more comprehensive view of homelessness and to conceptualize the conventional concept of homelessness to include individuals who temporarily share living arrangements and double up to shelter themselves.

The U.S. Department of Housing and Urban Development (HUD) collects national data on homelessness through its Point-in-Time (PIT) counts and provides federal support for addressing it accordingly. It estimates both sheltered and unsheltered homelessness by collecting original data annually in both categories to calculate the total size and scope of homelessness in the country. We appreciate HUD's broader approach to include sheltered homelessness but find it inadequate and misleading. On the contrary, we argue that the definition and concept of being unhoused must be expanded from unsheltered and sheltered homelessness to include individuals temporarily doubling up and sharing living arrangements to shelter themselves. The doubling-up category of homelessness must include families with children renting or sharing a room, or even a part of a room, often with friends and family, to avoid being unsheltered or sheltered homeless.

We use the case of homelessness in California's Asian Americans, Native Hawaiians, and Pacific Islander (AANHPI) community to understand the magnitude, scale, diversity, and experience of being unhoused, including temporarily doubling-up homelessness, in the state and differences across ethnic groups. We focus on eleven California counties with the highest concentration of AANHPIs. We draw on state-level homelessness data collected by the California Department of Education (DOE), which includes estimates of the state's school students temporarily doubling up as experiencing homelessness. We contend that the state's data more accurately estimates the number of school-going children experiencing homelessness in California. We compare and contrast state data with federal homelessness numbers in HUD's PIT counts to highlight significant discrepancies and deficiencies in the national estimates.

We also draw on original interviews with AANHPI homeless service providers to learn from their insights on the severe housing precarity in the state and the significance of temporarily doubling up as a form of homelessness. Our respondents note that the California AANHPI homelessness experience, in which doubling-up homelessness plays a significant role in coping with the lack of affordable housing, is generally invisible to policymakers as well as public service providers. Finally, we discuss the potential advantages and challenges associated with expanding the broader concept and operational definition of being unhoused in public policy, including political hurdles to policy

recognition, data collection and estimation challenges, and cultural and social barriers to accepting temporarily doubling up as a form of homelessness.

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Key Words: Homelessness, Doubling-up, Precarious housing, AANHPIs, California

Reducing Housing Cost Burdens through Nominal Cash Grants

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Track 6: Housing

Individual Paper Presentation Submission

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Introduction: In this paper, I report on a study on increases in housing security experienced and perceived by households that received a one-time nominal cash grant. Housing costs have increased sharply since 2000, and over half of US households spend over 30% of their income on housing costs (Joint Center, 2021). Higher housing cost burdens (HCBs) have negative effects on physical and mental health, educational outcomes and economic growth (Anthony, 2023; Desmond, 2016). Federal funding for housing programs for low-income populations has declined significantly (Kingsley, 2017). States responses to the housing affordability crisis have not been robust (Schwartz, 2021). Local support for low-income housing has been constrained by zoning restrictions, NIMBY opposition and city and county budget constraints. Could an ad-hoc short-term local relief program help?

In 2022, a progressive Midwest US county implemented a one-time, unrestricted use \$1,400 cash grant program for low-income households. Other than the income cap and a local address, there were no restrictions to receive this grant. About 2,240 households qualified and were mailed a check for \$1,400 – an amount equal to 84% of the average monthly income of program beneficiaries. Over 70% of the low-income households (both renter and owner) in the county were housing cost-burdened in 2020. Among beneficiary households, housing insecurity decreased from 50% before to 35% after the grant. Given this change with a relatively low-cost per household, should other locations institute such programs?

Data: Through a university-county collaboration, I was able to design the county's program application form, as well as conduct two surveys of beneficiary households to assess program outcomes – one soon after they received the check and a second a year later. Through these, I procured data on beneficiary characteristics, including housing costs, type of housing, severity of housing cost burden, owner versus renter, monthly income, and how the grant money was spent. The response rate for the two surveys was 46% and 35%, respectively; about 25% of the beneficiaries (583) provided detailed information on housing costs and food insecurity at all three data points, and these were used in the analysis. About 25% of the respondents received public housing assistance (either housing choice vouchers or living in public housing), 16% lived in mobile homes, 43% rented without any housing assistance and the rest (16%) were homeowners.

Methods and research questions: Using logistic regression techniques, I explored what characteristics of beneficiary households were correlated with:

- a) Being housing cost-burdened (HCB) before receiving the grant.
- b) Experiencing a decrease in HCB after the grant.
- c) Feeling housing secure (that is, confident about making the next rent/mortgage payment) after receiving the grant.

Preliminary findings:

- a) Black and Hispanic households were 2.5 and 1.7 times as likely, respectively, as White households to be HCB, after controlling for a variety of factors such as income, education, and household size.

- b) Households living in mobile homes and who were homeowners were 2.5 times as likely to be HCB as those receiving public housing assistance.
- c) Race/ethnicity and receiving housing assistance were the primary factors that correlated with feeling housing secure after receiving the grant.

Discussion: Even though the grant program seemed to decrease HCBs, the reasons for the decline appear to be idiosyncratic. Race/ethnicity had a negative effect on housing affordability for non-White households even in a progressive county, reinforcing the continuing need for addressing race-dependent housing outcomes. Receiving housing assistance was the primary factor correlated with lower HCBs and feeling housing secure, highlighting the need for expanding public housing assistance, perhaps through locally funded programs.

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Key Words: Housing Affordability, Local Solutions, Cash Grant

Regenerating Aging Communities via Intergenerational Symbiosis: The Case of Yulin, Chengdu

Abstract ID: 1844.0.0.785.2025

Track 6: Housing

Individual Paper Presentation Submission

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As China rapidly enters a deeply aging society, traditional aging-in-place solutions often fail to address both physical and emotional needs of elderly residents, resulting in outdated spaces and social isolation. This research proposes a new framework for regenerating aging urban communities based on the concept of intergenerational symbiosis, emphasizing cooperation, interaction, and exchange among different age groups.

The study investigates the applicability of intergenerational strategies to community renewal, using Chengdu's Yulin neighborhood as a case. It combines spatial analysis, field surveys, and questionnaires to identify key problems—marginalized seniors and decaying community spaces—and explores public attitudes toward intergenerational practices. Findings indicate that over 80% of respondents favor integrated intergenerational spaces while expressing concerns about practical design feasibility.

To address these challenges, the paper constructs a spatial translation framework focused on forgotten people and places, and proposes a three-stage regeneration path: co-existence, interaction, and symbiosis. This includes reprogramming community space through flexible, multi-scalar updates along three dimensions: time (7x24-hour scenario planning to synchronize daily rhythms), space (blended areas balancing independence and interaction), and memory (preserving local identity through cultural mapping).

The Yulin case demonstrates how intergenerational urbanism can reshape both tangible and intangible layers of the community. The area underwent renewal in four dimensions: morphology (dynamic streets and pocket parks), function (mixed-use day-night cycles), ecology (green-blue networks and sponge infrastructure), and culture (heritage preservation and placemaking). A hybrid governance model integrating public, private, and community actors supported long-term operational viability.

This model offers a replicable pathway for aging cities worldwide. It enhances livability for seniors while promoting spatial justice, social inclusion, and intergenerational value co-creation—advancing truly age-friendly and socially vibrant communities.

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Key Words: Aging Communities, Urban Regeneration, Spatial Justice, Age-Friendly Planning

Rent Stabilization in the U.S.: The Tenant Movement and Landlord Response

Abstract ID: 1844.0.0.828.2025

Track 6: Housing

Individual Paper Presentation Submission

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Across the U.S. tenants' rights activists and their political allies have put rent stabilization on the policy agenda at the municipal and state level. The effort has produced a strong response from the real estate industry and landlord groups. In this paper we examine 1) the form of rent stabilization laws being proposed and enacted across the country, 2) the political strategy employed by tenants' advocates, and 3) the counter-arguments and actions of real estate and landlord groups in opposition. This paper is part of a larger work offering a history and analysis of the contemporary tenants' movement in the U.S. In part one of this paper, we examine the most common features of rent stabilization proposals being considered across the country for their provisions related to rent caps, exemptions for new construction and small-scale landlords, vacancy control, and protections against eviction. In addition to profiling proposals, we conduct a political framing analysis of the arguments made by tenant and landlord groups, respectively, for and against. Preliminary results suggest that rent stabilization proposals have changed over time to reflect an emboldened tenants' movement nationwide. This is reflected in initiatives that are more likely to contain price controls on vacant units, shorter exemption periods for newly constructed units, and accompanying protections against eviction. Nonetheless, lobbying and financial contributions of powerful oppositional interest groups, notably apartment associations, realtors, and developers, stifle passage of tenant-friendly legislation in some locations. In part two, we examine how both the tenants' movement and landlord groups engage with academics and academic research on rent control. Both tenant and landlord groups reference academic studies to support contrasting claims about the impact of rent control, from claims by tenant groups about the decelerating impacts of rent limits (Heskin et al., 2000; Sims 2007) and the lack of impact on housing production (Gilderbloom and Ye, 2007; Sims 2007), to claims by landlord groups about decline in housing quality (Kholodolin, 2025) and withdrawal of units from the local market (Diamond et al., 2019).

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Key Words: Tenants right, Rent control

Residential Vacant Lot Development along Transit Corridors: An Application of Deep Learning

Abstract ID: 1844.0.0.102.2025

Track 6: Housing

Individual Paper Presentation Submission

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Considerable research addresses the systemic connections between land use and transportation. Considering public transit as a sustainable mobility option, extensive studies have provided important insights into the direct impacts of the built environment and land use on transit ridership (Cervero and Kockleman, 1997; Ewing and Cervero, 2001 and 2010; Kim et al., 2016a). A similarly large number of studies have investigated the reverse: how a change or intervention on the side of transit systems and infrastructure can affect land use and real estate market prices (Cervero and Landis, 1997; Giuliano, 2004; Kim et al., 2016b).

However, the previous research underestimated the heterogeneity of land use changes/developments around transit systems. The development can be classified into two distinct types: vacant lot development and redevelopment. It is reasonable to hypothesize that the expected nature, spatial patterns, and magnitude of these types are likely to be different. Nonetheless, much research does not specify the types of development around transit systems. One of the reasons for the lack of research on this topic is the lack of a comprehensive inventory that topologizes the development and systematically identifies the locations of vacant lot development and redevelopment (Jun et al., 2024; Kim et al., 2024).

This paper addresses this limitation by employing a deep-learning algorithm and examining the factors that influence vacant lot development around transit systems. For this empirical analysis, we utilized a deep learning model to detect residential vacant lot development, comparing and analyzing longitudinal satellite images in high-quality transit areas (HQTAs) in Los Angeles County. Taking the outputs of the detection as the dependent variable, we constructed a multi-level logistic regression model that tests the influencing property and neighborhood attributes on vacant lot development. The model outputs suggest that property characteristics at the property level and urban forms at the neighborhood level are the most influencing factors on vacant lot development. The properties that developers expect high returns (despite high investment) are likely to be developed (e.g., properties at a higher value and smaller size). The likelihood of vacant lot development increases in balanced neighborhoods with the features of conventional residential areas (e.g., lower land use diversity and accessibility to shopping centers) and urban amenities (e.g., higher regional job proximity and walkability). This probably indicates that the development tends to occur in areas with residential features in the study area where land use and amenities are already dense, diverse, and accessible. This paper contributes to deepening the discussion about the importance of land use and transportation integration for sustainable urban development.

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Key Words: Residential Development, Transit Corridor, Vacant Lot Development, Deep Learning Algorithm

Rethinking the Spatial Distribution of LIHTC Developments: Implications for Racial Segregation

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Track 6: Housing

Individual Paper Presentation Submission

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Since its creation in 1986, the Low-Income Housing Tax Credit (LIHTC) program has financed nearly three million affordable housing units, making it the largest source of federally subsidized rental housing in the United States. Despite its extensive reach, longstanding concerns remain that LIHTC developments are disproportionately sited in socioeconomically and racially marginalized neighborhoods, thereby limiting access to opportunity-rich environments and perpetuating structural inequities. These concerns align with the “geography of opportunity” framework, which highlights how neighborhood conditions—including education, employment, and health resources—significantly shape life outcomes (Galster & Killen, 1995; Ellen & Turner, 1997).

Early studies raised alarms about the clustering of LIHTC projects in disadvantaged areas (Van Zandt & Mhatre, 2009), and more recent work has documented ongoing spatial concentration, spillover effects, and racial disparities in site selection (Won, 2022; McClure & Schwartz, 2023). Although federal guidance emphasizes equitable distribution, it remains unclear whether LIHTC actively mitigates—or inadvertently perpetuates—racial segregation at the neighborhood level. This question is especially pressing given the nation’s heightened focus on racial equity and housing justice.

In response, this study investigates whether the spatial allocation of LIHTC developments fosters residential equity or unintentionally reinforces existing racial segregation. Centering on Cuyahoga County, Ohio (including Cleveland), the analysis examines whether LIHTC siting from 2010 to 2020 aligns with or challenges long-standing patterns of neighborhood segregation. We first assess how neighborhood characteristics changed between 2010 and 2020 in areas that did and did not receive LIHTC developments, offering insight into the correlation between baseline segregation or demographic conditions and subsequent public investment. Building on this temporal comparison, we then model the relationship between 2010 neighborhood variables—including racial composition, segregation indices, and housing tenure—and the likelihood of LIHTC allocation in the following decade. Grounding the analysis in pre-existing local contexts allows for a clearer understanding of how place-based inequalities may be either perpetuated or disrupted through affordable housing policy.

Our findings indicate that neighborhood diversity—rather than the proportion of any single racial or ethnic group—is a statistically significant predictor of LIHTC siting. Although this suggests some alignment with policy objectives to promote integrated communities, the noted spatial clustering of developments underscores enduring concentration patterns. These results highlight the need for more robust equity-driven site selection mechanisms and community engagement strategies. By examining the intersection of racial segregation and affordable housing policy, this study contributes to the literature on spatial justice and housing equity. Ultimately, the findings offer timely guidance for refining the spatial logic of LIHTC allocation—supporting legally sound, racially sensitive, and inclusion-oriented planning consistent with the goals of the Fair Housing Act.

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Key Words: Low-Income Housing, Racial Segregation, Spatial Inequality, Affordable Housing Policy, Neighborhood Analysis

Scaling Shared Equity Homeownership Models to Grow Affordable Housing Supplies

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Track 6: Housing

Individual Paper Presentation Submission

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Housing affordability continues to be a critical issue in the United States. Housing prices are surging far beyond what many communities can afford, profoundly affecting lower-income households. This trend warrants the need for strategies that promote the production of a larger and more affordable housing supply. Yet, developing these strategies faces several challenges. Some factors hindering progress toward affordability include limited access to financing and capital, restrictive public policies, and real estate market dynamics.

Shared equity homeownership (SEH) is one tool that has the potential to grow affordable housing supplies. This research examines the opportunities and barriers associated with the scalability of the SEH model, in a state-wide context. We ask two primary questions: (i) what are the current characteristics, scale, and effectiveness of SEH organizations in providing housing affordability solutions, and what are their plans for future expansions? And (ii) what are the barriers that SEH organizations face in creating additional housing supplies, and what potential mitigation strategies could promote wider adoption of SEH models?

To answer these questions, we surveyed existing SEH programs across Arizona, validating our list with a web search and review of existing data sources, including the 2022 national census on CLTs from Grounded Solutions Network (GSN). Respondents included large community land trusts (CLT) with 100+ units to smaller and/or newer organizations, to provide critical context for exploring how the SEH model can ensure access to affordable housing across various income categories and the barriers that may hinder the large-scale adoption of SEH in Arizona. Our survey focused on the organizational structure, capacity, and portfolios of SEH programs across the state. We supplemented this data with organization-specific data on property-level portfolio characteristics. Together, we consider the feasibility and efficiency of expanding the affordable housing supply in terms of housing production (i.e., acquiring existing housing units versus undertaking new construction projects), the financial mechanisms that support or impede the implementation of SEH programs, and the alignment of SEH principles with the housing demand in the target context. Our findings identify supply trajectories, as well as pinch points, for SEH programs in Arizona. SEH responses also provide insights into the opportunities for and obstacles to growth in light of local, state, and federal policies, as well as mitigation strategies.

While this study has a local focus with the aim to address housing issues in Arizona, the findings yield insights with broader implications at the national level by informing similar SEH initiatives and identifying actionable strategies that could allow policymakers to promote affordability and housing stability across the United States.

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Key Words: Shared equity models, Community land trust, Affordable housing, Community development, Permanent affordability

Soft De-densification: The policy landscape and effects of dwelling unit combinations

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Track 6: Housing

Individual Paper Presentation Submission

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There is a paradox in current planning practice: whereas considerable effort is expended to increase the number of housing units through densification, almost none is expended to prevent the loss of housing units through unit mergers. Indeed, home combinations are celebrated in the media as creative endeavors of interior design, and only a few cities have so far introduced measures to prohibit the practice. A prime example of what can happen when a municipality lacks unit merger regulations is New York City, where 104,000 housing units have been lost through dwelling combinations since 1950 (Brodheim, 2023). As planners permit greater density as one strategy to ease the housing crisis, these combinations raise questions about the coherence of supply-oriented solutions. If planning continues to champion the benefits of greater density, then it must directly address the density-reducing practice of unit mergers.

To expand the understanding of this practice, this paper asks two questions: (1) To what extent are unit combinations regulated in large U.S. cities?, and (2) What are the general effects of unit combinations? The paper answers these questions in two parts. First, a policy evaluation of the principal cities of the 50 most-populous metropolitan statistical areas in the United States. Second, a case study of German Village, a strictly controlled historic district in Columbus, Ohio.

Findings of the policy scan show that regulation of unit combinations is exceedingly rare in the United States. Among the cities analyzed, only Chicago, San Francisco, and Los Angeles have municipal regulations that limit the practice. The remaining cities consider dwelling unit combinations purely as home renovations, requiring only standard building permits. However, there is ample evidence that practitioners in places with regulations recognize unit combinations to have negative impacts. For the case study component, GIS analysis of parcel data from 1998 through 2024 show three distinct results among structures built before 1940 in the German Village district. First, the size of single-family homes has increased; second, the number of duplexes has decreased; and third, the number of single-family homes has increased.

In addition to offering empirical findings, this paper challenges tacit assumptions in the field of planning that rarely frame density reductions as problematic in the urban context. Within a culture of “suburban hegemony” that has historically positioned multifamily housing as innately less desirable than detached dwellings, most regulations do not apply friction when property owners seek to create single-family homes out of multiple dwelling units (Flint, 2006, p. 35). Influenced by the lineage of *Euclid v. Ambler* (1926), the dominant twentieth-century belief was that detached dwellings offered “a superior family life” while multi-family structures were viewed as both inferior and harmful (Hirt, 2014, p. 175). As a result of this legacy, applications to change a land use from multi-family to single-family encounter few objections.

If the planning discipline finds the production of new housing to be one valid solution to affordability, then planners should likewise conceive of housing loss by mergers as necessarily detrimental. Indeed, cities around the nation are currently reforming zoning codes to allow ‘soft densification’, a diametrically opposite movement that encourages ADUs in traditionally single-family neighborhoods. Consequently, jurisdictions should consider implementing housing unit preservation rules to complement supply-focused reforms. Against the legacy of hierarchical zoning, this research challenges planners to consider the negative impacts of density-reducing

practices in urban neighborhoods. The interrogation of unit combinations serves as a useful heuristic to move planning beyond ideologies that center, defend, and protect the detached single-family dwelling above all else.

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Key Words: housing supply, historic preservation, zoning, architecture, gentrification

Spatial Mismatches and Employment Outcomes for Subsidized Low-Income Households

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Track 6: Housing

Individual Paper Presentation Submission

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It has long been argued that where people live can have an important impact on their ability to access employment opportunities, particularly for low-income households and households of color, who are more likely to be burdened by “spatial mismatch” between sites of affordable housing and job centers (Kain, 1992). However, empirical evidence regarding the impacts of spatial mismatches on employment outcomes are mixed: while some studies find that a lack of spatial access to employment opportunities predicts labor market disadvantage, others argue that the most substantial employment impacts come from a lack of reliable access to a car (Fan, 2012; Hu & Wang, 2019).

This study examines the impact of spatial access to employment opportunities on low-income households by examining the labor-force participation outcomes of households that move within the Housing Choice Voucher (HCV) program – the largest source of rental assistance for low-income households in the United States. In addition to providing financial subsidies, the housing voucher program has the potential – if often unrealized – to provide households with the flexibility to move in response to life course effects or changing needs. Therefore, it might also be expected that voucher recipients would move closer to employment opportunities to obtain better employment outcomes, particularly given that voucher holders tend to have limited access to automobile transportation. However, existing evidence suggests that voucher recipients are not more likely to move to areas with greater employment opportunities, with voucher households in the workforce either unable to move to jobs-rich areas or making housing choices based on other factors (Lens et al., 2019). Indeed, public housing residents – rather than voucher recipients – have historically lived in areas with greater access to employment opportunities, owing to the location of site-based housing programs often closer to urban centers (Lens, 2014).

Focusing on households that moved within the HCV program between 2005 and 2018, this study uses a two-stage modeling framework controlling for neighborhood selection to explore the direct impact of neighborhood employment access on labor-force participation. In addition to employing a novel methodological framework, this analysis also expands upon existing studies by considering three discrete measures of employment access: overall access to employment as well as access specifically to low-wage employment and to jobs occupied by workers without a high school diploma. Model results reveal important differences: while voucher recipients do not experience substantive improvements in employment outcomes after moving to neighborhoods with high levels of access to employment overall, they experience gains in labor-force participation after moving specific to neighborhoods with greater access to low-wage employment opportunities. This indicates the importance of spatial labor market segmentation in shaping employment outcomes for low-income households, and points to the need for a greater alignment in planning between low-income housing and equitable economic development.

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Key Words: spatial mismatch, low-income housing, housing vouchers, job accessibility, low-wage workers

Special Assessment and Its Impact on Neighborhoods and the Condominium Housing Market

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Track 6: Housing

Individual Paper Presentation Submission

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In the early morning of June 24, 2021, a 12-story condominium tower, Champlain Tower South, in the beach town of Surfside, FL, in Miami-Dade County, collapsed and led to over 100 casualties, including 98 deaths and 11 injuries. The reasons leading to the collapse are multifold, including water penetration to the basement level, where the garage is located, and the chronic erosion of the steel structure in the foundation and the basement (Simons et al., 2022). These damages had been recognized before the collapse, and the remedial project had been approved. Before the collapse, Florida legislation required a 40-year certification of structural integrity for all condominium buildings taller than three stories. Responding to the collapse, all levels of government enacted stricter financing and building requirements, significantly impacting the condominium market's price, supply, and demand (Goodman & Neal, 2023; Sterk & Weisbord, 2024). In May 2022, Florida legislation passed Senate Bill 4-D, establishing a statewide mandate of the initial 30-year certification (25 years if the building is located within 3 miles of the coastline) and subsequent 10-year certifications for all the condominium buildings taller than three stories. The policy responses may help protect the structural integrity of condominium buildings but often require special assessments to bring the buildings to certification standards. These special assessments profoundly impact the condominium housing market, particularly on older buildings.

Many condominium owners attempted to sell the units due to the financial burden associated with these special assessments, changing the dynamics of the condominium market. To empirically explore the impact on the condominium market and neighborhoods, this study asks the following questions:

- 1) Which condominium buildings were affected the most, and which neighborhoods are they located in?
- 2) What was the condominium housing market and neighborhood trend before and after the collapse of the Champlain Tower South?
- 3) What was the condominium housing market and neighborhood trend before and after the new state legislation?

The study uses the historical condominium unit transaction data in Miami-Dade County to help answer these questions. A series of paired t-tests were conducted to explore condo housing prices and days in the market before and after the Champlain incidence and/or the Senate 4-D Bill. Explorative and descriptive analysis of the spatial distributions of condominiums affected mainly by the new legislation is conducted. Spatial hedonic housing price models were used to explore the determinants of condominium unit pricing and days on the market, controlling housing attributes, neighborhood characteristics and amenities, dummy variables of before and after the Champlain collapse, dummy variables of before and after the 4-D Bill, distance to the CBD, and distance to the coast.

The results of the study attempt to measure the magnitude of the impacts and propose possible policy interventions, particularly regarding policies to stabilize the housing market and neighborhoods.

Citations:

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Key Words: Condominium market, Special Assessment, Condominium certification, Neighborhoods

Tax Delinquency and Foreclosure among Heirs' Properties in the Dallas-Fort Worth Metroplex

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Track 6: Housing

Individual Paper Presentation Submission

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Heirs' property – land or real estate that is inherited by multiple family members, usually without a clear or legally documented ownership structure – is recognized as a highly unstable form of property ownership that exacerbates the racial wealth gap in the United States (Cole, 2021; Smith and Cubbage, 2024). However, the full extent of these vulnerabilities and their impact on wealth generation among Black and Latino landowners remains underexplored, particularly in urban contexts (Gaither and Zarnoch, 2017; Thompson and Bailey, 2023). In this study, we examine the concentration of residential heirs' properties in Dallas and Tarrant Counties. These two urban counties in the Dallas-Fort Worth Metroplex of North Texas are home to a diverse population of 4.7 million residents, including 936,000 African American residents and 1.7 million Latino residents. We examine the incidence of tax delinquency and foreclosure among heirs' properties at both the property and neighborhood level. We find heirs' property is heavily concentrated in minority communities and that heirs' property homeowners have markedly higher rates of tax delinquency and are at considerably higher risk of tax foreclosure than other homeowners in these same counties. Moreover, we find that both heirs' property and tax foreclosures are highly concentrated in census tracts in the urban core and that heir rate is a consistent and strong predictor of the tax foreclosure rate at the census tract level. We conclude by discussing how this research can inform policy interventions designed to enhance housing stability for families who inherit their homes and better safeguard the intergenerational transfer of wealth within Black and Latino households.

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Key Words: Foreclosure, Tax delinquency, Heirs' property, Wealth gap

The Effects of Affordable Housing Development on Local Rental Markets

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Track 6: Housing

Individual Paper Presentation Submission

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Affordable housing development often raises property values, creating concerns that it may also raise rents for the surrounding community (Craw 2023). The facts do not justify these concerns, at least in Miami-Dade County, Florida – an area where housing costs increased rapidly from 2000 to 2020. We model multifamily unit rents patterns in apartment buildings in neighborhoods with and without low-income housing tax credit (LIHTC) affordable housing developments. We use sophisticated difference-in-difference and interrupted time series methods to control for unit, building, and neighborhood level characteristics and trends. Across a variety of specifications and subsamples, there is no evidence of any inflationary impact of new Low-Income Housing Tax Credit (LIHTC) developments on the rents of nearby market-rate apartments across two decades of rent data, likethe more general literature of all apartment construction on nearby rents (e.g., Asquith et al. 2023 or Loewenstein and Willen 2023). In fact, in some neighborhoods, new Low-Income Housing Tax Credit (LIHTC) developments significantly reduced market-rate rents, in line with Damiano and Frenier (2020) analysis of Minneapolis or Oluku and Chang's (2024) national analysis. These findings suggest that LIHTC housing both benefits its tenants and can help reduce costs for some surrounding renters. This analysis provides evidence for practitioners looking to both expand affordable housing supply and maintain affordability of nearby rental housing units.

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Key Words: affordable housing, rental markets, LIHTC, quantitative modeling, Miami

The Good Case for "Good Cause:" Do Good Cause eviction laws reduce the rate of housing production?

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Track 6: Housing

Individual Paper Presentation Submission

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Do Good Cause eviction protections reduce the rate of housing production? Our preliminary analysis suggests not; housing production in California, Oregon, and New Hampshire did not decline after passage of Good or Just Cause relative to nearby states without the legislation. Across the USA, state legislatures are considering legislation that requires landlords to document "Good Cause" when evicting renters (Vasquez 2022). Stakeholders make contrasting claims about the potential impact of the policy. In support, tenant advocates argue that it helps families stay in their homes amidst a housing affordability and homelessness crisis. In opposition, landlord lobbyists suggest that Good Cause will disincentivize developers from building new multifamily rental housing and lead to a decline in housing supply, and, thus, exacerbate the housing crisis. Little research has examined the impact of tenant protections on housing supply in the fields of housing policy and planning; one notable exception is Jofre-Monseny et al. 2023. We set out to investigate the existing empirical research, and, subsequently, identified a gap across the fields of planning, policy studies, and housing economics on the impact of Good Cause on housing markets in the United States. We gathered data from three states – California, Oregon, and New Hampshire – where "Good" or "Just Cause" laws passed over the last decade. We conducted a difference-in-difference analysis on whether the trend in new permits at the county-level in states subject to the passage of Good Cause were different from the trends in nearby counties in states not subject to the law. The model controlled for other factors: county-level GDP, population, unemployment, and per capita income. We found that permits did not decline in California, Oregon, or New Hampshire counties relative to the changes occurring in surrounding states, all other things being equal. Building on existing research that suggests that Good Cause is popular among voters (Stein et al. 2025) and will keep families in their homes because it results in lower rates of evictions (Cuellar 2019) and displacement (Chapple et al., 2022), our findings suggest that passing Good Cause eviction protections will not result in reduced rates of new housing production or, subsequently, housing supply.

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Key Words: housing policy, rental housing, tenants, evictions, housing supply

The Impact of Mandatory Inclusionary Housing: A Descriptive and Causal Analysis from New York City

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Track 6: Housing

Individual Paper Presentation Submission

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Providing affordable housing is a critical link between sustainable urban development and social equity. This issue is particularly salient in New York City, where high housing costs and stark income inequality pose persistent challenges. Introduced by the Bloomberg Administration in 2016, the Mandatory Inclusionary Housing (MIH) program mandates private developers to include permanently affordable units in new residential developments as a condition for zoning changes. Since its inception, MIH has garnered sustained attention from both practitioners and scholars. However, despite growing debate over the past nine years, there remains a significant lack of empirical understanding regarding the policy's implementation and effectiveness. This gap stems largely from limitations in data availability and methodological challenges that have hindered robust causal evaluation of the policy's impact on housing supply.

This study aims to provide a systematic and data-driven evaluation of the MIH program, assessing both its development characteristics and its impact on housing production. The research proceeds along two dimensions. First, it conducts a descriptive statistical analysis based on a comprehensive compilation of MIH project data. It examines the spatial distribution, zoning changes, and development types of MIH projects to build a detailed picture of their macro- and micro-level characteristics. Second, the study establishes a rigorous causal identification strategy using a Difference-in-Differences (DID) design to estimate the policy's effect on new housing production at the local level.

The initial analysis has produced several thought-provoking findings that provide a foundation for the subsequent stages of this study:

- (1) As of today, New York City has approved 134 MIH rezoning areas and 205 MIH developments—100 of which are fully affordable housing projects, and 105 are mixed-income—yielding a total of 10,437 residential units.
- (2) MIH developments are widely distributed, spanning 80% of the city's Community Districts, with notable concentrations in the Bronx and Brooklyn.
- (3) Except for two cases, all MIH rezonings involved upzoning, with transitions from M1 to R7 and from R6 to R7 being the most common.
- (4) Considerable heterogeneity exists across MIH developments: most developers opt for Option 1, and the number of housing units per project varies significantly.
- (5) At a macro level, housing development activity within MIH zones has increased markedly. The number of permitted new buildings rose from an average of 93 per year (2003–2015) to 339 following MIH implementation. However, signs of strategic developer behavior also emerged—specifically, the number of buildings with fewer than 10 units (thus exempt from MIH requirements) jumped from 1 to 15 per year.

This study contributes to the growing literature on affordable housing policy by constructing a parcel-level panel dataset and applying a causal inference framework to evaluate MIH's real-world impact. It sheds light on the

complex interplay between policy design and developer behavior, offering both empirical evidence and methodological tools to inform future urban housing initiatives.

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Key Words: Inclusionary Housing, MIH, Housing Policy, Policy Evaluation, New York City

The Impact of Multi-family Units on Single-Family Property Values in Louisville, Kentucky

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Track 6: Housing

Individual Paper Presentation Submission

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The issue of missing middle housing in urban environments and the urgent need for its inclusion have been extensively documented and explored over the past two decades (Baqutaya et al., 2016; Frederick, 2022; Parolek, 2020). Among the various efforts across different governmental levels—ranging from federal public housing programs to local fair-share housing mandates—there is an increasing call for comprehensive zoning reforms (Lerman, 2006; Mukhija et al., 2010).

Louisville, Kentucky, stands as one of the cities currently undertaking a local zoning reform aimed at permitting higher-density housing in low-density residential areas. However, this process has faced significant opposition from both the public and state legislators. Public feedback gathered through a voluntary survey reveals consistent objections to the proposed reform. Kentucky House Bill 18, if enacted, will deprive local unelected zoning boards' power to approve multi-family, high-density developments in single-family zones.

This public resistance to zoning reform can be partially explained by prevailing stereotypes and public opinions linking density, minority populations, and poverty to perceived negative impacts on property values, safety, and traffic (Tighe, 2010). Craw (2023) offers one of the few empirical studies addressing these negative public perceptions in housing research, focusing on Little Rock, Arkansas, as a case study.

This study aims to contribute further empirical evidence on the effects of multi-family unit additions on housing market dynamics. Using Louisville, Kentucky, as a case study, we seek to address the following research questions: (1) What are the heterogeneous characteristics of multi-family properties? (2) How has the location strategy for multi-family properties evolved? (3) What are the impacts of introducing multi-family properties on the prices of single-family homes?

To support this analysis, we will collect data from multiple sources, including multi-family building permit records from the Louisville Metro Planning Department, housing transaction data from the Parcel Valuation Assessor's office, socio-economic data from the decennial censuses, and neighborhood physical quality data from LOJIC, our local GIS agency. First, we will conduct a spatial analysis across time to examine the spatial distribution of multi-family units and assess how this pattern has evolved. Subsequently, we will perform a spatial hedonic analysis of housing transaction data from 2014 to 2024 to determine whether the introduction of multi-family housing has had a detrimental effect on single-family property prices.

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Key Words: Multi-Family Housing, Middle Housing, Housing Price

The Politics of Participation: Public Review, Power, and Affordable Housing Under Chapter 40B

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Track 6: Housing

Individual Paper Presentation Submission

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Massachusetts Chapter 40B, also known as the Comprehensive Permit Law, is a state-level fair share housing policy enacted in 1969 to address exclusionary zoning and expand access to affordable housing across municipalities. It allows developers to bypass local zoning regulations through the Zoning Board of Appeals (ZBA) in communities where less than 10% of the housing stock qualifies as affordable, provided that a portion of the proposed units are permanently income restricted. While existing research has evaluated the siting outcomes of 40B developments—demonstrating their relative success in penetrating racially economically segregated neighborhoods—less attention has been given to the institutionalized democratic processes that shape how these developments evolve during implementation.

This paper examines the local political and participatory dynamics that emerge during Chapter 40B application reviews, particularly in suburban communities with a strong tradition of home rule and active resident engagement. Through in-depth case studies of Newton, Brookline, and Framingham Massachusetts, this study investigates how zoning board compositions, public hearings, and neighborhood feedback influence changes to proposed developments, including affordability levels, design characteristics, parking ratios, and environmental standards. By analyzing publicly available materials—such as ZBA meeting minutes (which include public comments), and planning documents—as well as interviews and direct observation of the permitting process, the paper traces how negotiations with developers both reflect and reshape local values, institutional priorities and design decisions.

Rather than treating 40B as a blunt legal instrument, this analysis reveals the subtle and often contentious ways in which community actors reinterpret the law's mandates through a lens of local autonomy, aesthetics, and infrastructure concerns. The paper explores the extent to which these processes either dilute or reinforce the core fair housing objectives of the policy and considers how municipal discretion and citizen participation interact with centralized state efforts to promote inclusion. Ultimately, this research contributes to broader scholarly debates on spatial equity, procedural justice, and the capacity of decentralized governance systems to advance redistributive goals within the constraints of market-driven development.

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Key Words: Affordable Housing, Chapter 40B, Exclusionary Zoning, Local Democracy, Fair Housing Policy

The Right to Housing Lost in Translation: Allophone Tenants in Parc-Extension, Montreal

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Track 6: Housing

Individual Paper Presentation Submission

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Tenants often face structural barriers that leave them vulnerable to exploitation, whether through precarious rental conditions, power imbalances with landlords, or exclusion from legal protections. Among these barriers, language inaccessibility plays a crucial but often overlooked role, limiting tenants' ability to secure stable housing, assert their rights, and access justice. Research from diverse housing contexts has shown that when tenants cannot navigate rental agreements, dispute resolution processes, or government services in their primary language, they face heightened risks of eviction, discrimination, and substandard living conditions. In cities with complex tenant protection frameworks, linguistic exclusion effectively denies tenants access to justice, reinforcing power imbalances between landlords and renters. Building on this broader discussion, this study examines how Quebec's language policies intersect with housing inequality, focusing on the experiences of allophone tenants in Parc-Extension, Montreal.

Quebec has a unique linguistic landscape where French holds a special status as the official language, deeply tied to the province's identity and history. Efforts to protect French, such as Bill 96, which limits immigrants' access to government services in languages other than French to their first six months in the province, are often framed as necessary for preserving Quebec's cultural distinctiveness. However, these policies also contribute to patterns of exclusion, particularly in access to housing. The absence of multilingual services in key institutions, including the Tribunal Administratif du Logement (TAL)—the regulatory body overseeing tenant-landlord relations—raises critical questions about how language barriers impact housing justice.

This paper investigates whether the lack of services in languages other than French at TAL contributes to housing inequality by making the legal process more complex and discouraging allophone tenants from asserting their rights. By analyzing the intersection of language policy and housing justice, this study aims to shed light on how linguistic exclusion reinforces broader socioeconomic disparities in Montreal's rental market.

Using a narrative interpretive framework, this study explores the housing experiences of 14 allophone tenants—individuals who speak neither French nor English—and those they interact with throughout their housing journey in Parc-Extension, one of Montreal's most diverse and lowest-income neighborhoods. This sector of the population is often underrepresented in housing discourse, despite facing heightened barriers to secure, adequate housing. The study includes interviews with two main groups: tenants who have experienced housing instability or challenges navigating the system, and key actors in their housing journey, such as tenant support staff, landlords, lawyers, and interpreters. The research focuses on three South Asian languages—Urdu, Hindi, and Punjabi—which are among the predominant non-official languages spoken in the neighborhood.

Findings indicate that navigating housing disputes without linguistic support increases tenants' vulnerability and discourages them from seeking justice. Tenant narratives highlight how language barriers at TAL intersect with precarious immigration status and financial instability, compounding housing insecurity. These stories illustrate that language inaccessibility is not an incidental challenge but a mechanism that reinforces systemic exclusion and exploitation.

By centering tenants' lived experiences, this research situates language inaccessibility within a broader system of exclusion that deepens housing inequality and reinforces power imbalances between tenants and landlords. It calls for policy reforms that recognize language access as a fundamental dimension of housing justice and tenant protection.

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Key Words: Right to Housing, Language Barriers, Legal Inaccessibility, Tenant Rights, Housing Inequality

The Role of Corporate and Non-local Ownership on Post-disaster Housing Recovery

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Track 6: Housing

Individual Paper Presentation Submission

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Housing recovery research has long illustrated the role disasters play in exacerbating inequalities in communities, yet less is known on the effect of corporate and non-local ownership on recovery outcomes. On one hand, homes in marginalized communities may be targeted by investors who invest minimally to "milk" a property of the tenants' rent and hindering recovery. On the other hand, investors may capitalize on the post-disaster context and high housing demand by purchasing damaged homes from residents unable to finance their own recoveries. Though this might lead to the restoration of a property to its pre-disaster value, it would be at the expense of the most vulnerable homeowners in recovering communities.

This paper explores the effect of owner type post-disaster by examining the recovery trajectories of single-family homes in Bay County, Florida, after Hurricane Michael in 2018. We operationalize recovery in two ways: 1) we examine recovery intention through the type of first action – repair or sale – a property owner takes after a disaster and 2) we examine recovery speed and extent as whether a property is restored to its full publicly appraised improvement value two years after a disaster. We interweave publicly available parcel data, building permit recovers, sales transactions, census data, and aerial imagery to build our dataset. Using multinomial and logistic regression models, we identify the effect of structural characteristics, damage, corporate and nonlocal ownership, and neighborhood contexts on these recovery outcomes.

We find that independent of other variables, corporate and non-local owners are less likely to first repair their properties; instead, they are more likely to sell their properties after disaster. Whether other surrounding property owners also repair or sell their properties bears positively on the property owner's decision to do the same. Whether surrounding owners were corporate or non-local mattered for repair but not for sale outcomes. Two-year property value restoration was negatively affected by the property owner being nonlocal or corporate. Whether a property was sold in this two-year period positively affected restoration. However, the largest effect on a property's restoration was whether the surrounding properties also were able to recover. These findings are consistent with differences in social attachment, where those geographically or emotionally less attached to an area may be less likely to act quickly or invest in improvements. However it also reveals the potential for a compounding challenge of pre-disaster corporate and non-local investment and post-disaster recovery delays on housing planning.

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Key Words: Housing, Disaster Recovery, Corporate ownership

The role of housing instability in the association between ambient temperature and preterm birth

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Track 6: Housing

Individual Paper Presentation Submission

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Preterm birth, defined by the World Health Organization as birth occurring before 37 weeks of gestation, remains a critical global public health challenge due to its significant contribution to neonatal mortality and long-term health complications (Torche, 2024). In South Korea, a country with one of the world's lowest fertility rates, the preterm birth rate has notably increased from 6.0% in 2011 to 9.8% in 2022. This upward trend highlights the urgent need to identify modifiable risk factors and develop strategies to address them. Previous studies have established associations between maternal stress, environmental exposures, and housing instability with adverse birth outcomes (Basu et al., 2010; DiTosto et al., 2021). However, research on the joint impact of these factors remains limited, particularly within the Korean context. Given that environmental heat and housing instability can function as both chronic and acute stressors during pregnancy, understanding their combined effects is crucial for developing targeted and effective prevention strategies.

This study explores the individual and interactive effects of ambient heat exposure and housing instability on preterm birth in South Korea. In doing so, we utilize comprehensive, register-based census data (100% sample) from Statistics Korea, covering a cohort of individuals born between 1983 and 1995. The longitudinal panel data not only includes birth year and month, gender, and birth weight of the babies born from 2015 to 2022, but also contains demographic, socioeconomic, and housing characteristics of their mothers. Birth outcomes were identified for mothers who delivered during this period, with preterm birth defined as births occurring between 20 and 36 weeks of gestation. Heat exposure was measured using satellite-derived ERA5-Land temperature data, assigning monthly average temperatures based on maternal residential locations one month before delivery. Housing instability was assessed across three dimensions: (1) poor housing quality (e.g., non-residential accommodations, built more than 30 years ago), (2) frequent residential moves, and (3) overcrowding, defined according to South Korea's Framework Act on Residence.

Statistical analyses were conducted to assess the independent and combined effects of heat exposure and housing instability on preterm birth, controlling for maternal age, education, employment status, marital status, parity, fetal sex, household income, district-level access to obstetric and gynecological services, and timing of delivery (month and year). Additional subgroup analyses examined potential variations in effects based on maternal education, employment status, and marital status.

We included 1,532,171 singleton birth (116,564 (7.6%) of preterm birth) from 1,137,707 females in our analysis. Preliminary findings indicate a statistically significant association between higher ambient temperatures in the month prior to delivery and increased odds of preterm birth. Independently, housing instability also significantly elevated preterm birth risk, with a notable synergistic effect observed when heat exposure coincided with unstable housing conditions. These results highlight the compounded risks posed by simultaneous environmental and social stressors, emphasizing the importance of integrative public interventions addressing both public health and housing policies (Arcaya et al., 2024; Reece, 2021). Further research is recommended to investigate underlying biological mechanisms and identify vulnerable subpopulations that could benefit most from targeted prevention strategies.

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Key Words: Housing instability, Preterm birth, Ambient temperature, Heat wave, Public health

The Role of Multifamily Property and Owner Level Characteristics on Disaster Impacts and Recovery

Abstract ID: 1844.0.0.665.2025

Track 6: Housing

Individual Paper Presentation Submission

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According to the Census' 2021 Rental Housing Finance Survey, approximately 54 percent of all rental housing units are in multifamily properties with 5 or more units – making multifamily housing (MFH) a significant portion of the rental housing stock. In the disaster circles, MFH is recognized as lacking a sufficient and effective policy response: federal disaster finances are lacking – especially in comparison to single-family, owner-occupied. And while foundational, the more prominent research including multifamily housing disaster recovery is dated and other research tends to be more anecdotal. More recently in the real estate economics literature, research combines multifamily with other classes of commercial real estate (CRE) to analyze asset pricing and loan performance outcomes with respect to hazard risk and exposure.

Given that MFH – and CRE more broadly – is primarily owned for investment purposes, anticipation of and responses to disasters falls to the owner establishing an inter-dependency between owners, housing, and renters. This research seeks to expand our understanding of rental housing related outcomes in the disaster recovery context, variation with the heterogeneous class of MFH and between owner types, and using large-scale, fine-resolution data on properties and owners for more robust and generalizable findings. A single event is studied – Hurricane Harvey's impact in Harris County, Texas – due to its extensive impacts, recency, and enough time having elapsed to adequately observe recovery outcomes. This research examines hazard risk, exposure, shorter-term disaster impacts, and longer-term recovery trajectories across MFH differentiated by property and owner characteristics. MFH properties with market-rate units are the primary units of analysis.

Limited access to commercial real estate data has hindered research on this topic. For this research, proprietary, industry-leading longitudinal data with broad coverage was obtained detailing property characteristics, quarterly occupancy rates and rents, and ownership characteristics. Other publicly available, longitudinal data are incorporated into the analyses (i.e., Census, Harris County Appraisal District). Key property- and owner-level characteristics are informed by the real estate, housing, and disaster literatures suggested to influence property-level financial performance and disaster period outcomes – namely, an industry-relevant owner typology, firm location, and economic scale, among others. A series of cross-sectional and longitudinal regression models examine how property- and owner-level characteristics and market segmentation are associated with being at risk (located in the flood zone); hazard exposure (whether inundated and to what extent); immediate and shorter-term impacts (changes in occupancy rates and tax-assessed improvement values); and longer-term recovery trajectories (occupancy rate and improvement value stabilization).

Steep declines in occupancy rates are observed in flooded areas in the 4th quarter of 2017 returning to market levels in 2nd quarter of 2019. Results demonstrate a fairly even distribution of risk and exposure across property and owner characteristics while market segmentation and ownership become more meaningful for predicting recovery period outcomes. Unsurprisingly, occupancy rates in high-rise structures were higher than garden-style, demonstrating the vulnerability of properties with shorter and wider configuration. Lower-priced units were more likely to be occupied despite flood exposure masking actual property damage and habitability concerns highlighting the demand for alternative and affordable housing – or lack thereof. Properties owned by some types of large-scale, institutional owners recovered more quickly attributable to owners being locally situated, construction sector connections, and general capacity and expertise.

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Key Words: rental housing, multifamily, natural hazards, disaster impacts, disaster recovery

The Significance of Elected Leadership in Homeless System Change

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Track 6: Housing

Individual Paper Presentation Submission

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When Houston's Mayor Annise Parker was battling for reelection in 2013, she committed to making homelessness a top priority for her administration. Mayor Parker, a former software analyst and Controller for the City of Houston, partnered with the Obama Administration to implement a Housing First Continuum of Care (CoC) (Fraser, 2013). Utilizing practices that were later promulgated in rules to enact the federal HEARTH Act, the City of Houston created a CoC that includes more than 100 organizations aligned in a technologically enabled system to categorize and prioritize people for housing.

Within five years of the initiative, the City of Houston saw homelessness decline by more than 60% (Kimmelman et al., 2022). Even more remarkably, the system that was created under Mayor Parker has maintained that reduction for more than a decade. For the last several years as housing prices and homelessness have risen nationally, state and local leaders from around the country have flocked to Houston to learn from this success. Articles and research about Houston's model have discussed the significance of collaboration and other factors, but very little attention has been given to the Mayor's role in leading system change. This paper examines the role that elected leadership plays in organizing homeless services systems using a Housing First CoC model. I use Houston as a case study and, through archival research and interviews, identify critical moments in the implementation of a Housing First CoC where executive decisions and leadership were key to creating system change. The data is analyzed within a framework that considers the strategies leaders use to respond to problems and the conditions that make systemic change possible (Callahan et al., n.d.; Howlett et al., 2015) and explores how Mayor Parker was successful in defining and committing to a solution, creating a network of organizations to execute on the solution, and maintaining the network with resources, shared success, and the formation of group identity.

The article concludes with a discussion of questions that are raised about local leadership and Housing First. Since homelessness is often described as a wicked problem (Head, 2022) and concerns a highly stigmatized population, bottom up pressure and grassroots advocacy alone has not been able to mobilize sufficient resources and effect systemic change (Foscarinis, 1991). With this example in mind, do such problems require centralized power to frame the issue and solution, align resources, and incentivize collaboration? Second, a body of research suggests that model fidelity is important for a Housing First CoC to demonstrate success the way that Houston, and Salt Lake City before it, has. However, movements and political will to address homelessness is cyclical, which begs the question: are there windows of opportunity for effective system change, and if so, what are they and how can willing leaders prepare to seize those moments when they arise? Finally, the future of federal policy supporting Housing First and CoCs are increasingly in doubt. Critics on the right see it as too permissive (Glock, 2022) and others have critiqued Housing First for prioritizing efficiency and cost savings through atomizing, hierarchical systems (Willse, 2010). Are there other models for addressing homelessness that can achieve system change but might be conducive to more diffuse leadership and governance structures capable of weathering a devolving political context?

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Key Words: Homelessness, Housing First, System Change, Leadership, Houston

Toxic Grounds: Segregated Soil and the Legacies of Racialized Zoning in West Texas

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Track 6: Housing

Individual Paper Presentation Submission

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This paper examines the entanglement of environmental toxicity, housing segregation, and planning legacies through the lens of soil as both material and metaphor in Lubbock, Texas. Drawing on my broader research project *Segregation by Design*, the study investigates how historically racialized zoning practices have not only shaped housing patterns but also embedded environmental injustices deep into the ground—literally and figuratively. Using soil toxicity data, zoning maps, oral histories, and archival planning documents, the paper argues that soil contamination in historically Black and Latinx neighborhoods is a living residue of segregated urban planning and infrastructural neglect.

This work explores how the physical properties of soil serve as an index of long-term exposure to industrial pollutants and proximity to infrastructural hazards, such as railroads, highways, and utility easements—all disproportionately situated near communities of color. These environmental conditions, compounded by housing disinvestment and discriminatory lending practices, create a layered geography of vulnerability that persists today. The paper considers how urban soil functions as both an ecological witness and a political terrain for imagining more just futures in housing and land use. Ultimately, the paper contributes to an interdisciplinary understanding of how environmental and housing injustices are co-constituted through the ground itself. It calls for new planning paradigms that center soil health, community agency, and ecological reparations as essential components of housing justice.

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Key Words: Environmental Justice, Zoning, Housing, Soil, Segregation

Tracing the Social Constructions of Whiteness Through Restrictive Housing Covenants in Massachusetts

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Track 6: Housing

Individual Paper Presentation Submission

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Restrictive covenants, embedded in property deeds, were central to institutionalizing residential segregation and furthering racial inequality across the United States throughout the mid-19th to mid-20th century. Enforced through private agreements, these covenants explicitly prohibited property ownership or occupancy based on race, ethnicity, religion, and national origin, profoundly shaping neighborhood demographics, patterns of wealth accumulation, and community development. Although the Supreme Court ruled that restrictive covenants were legally unenforceable in *Shelley v. Kraemer* (1948), their lingering social and economic impacts continue to influence contemporary disparities. Furthermore, many of these covenants are still found on property deeds today. Despite growing scholarly attention (Brooks, 2013; Gordon, 2023; Gotham, 2000), significant gaps persist in understanding the nuanced mechanisms through which racial categories were constructed and enforced in part through restrictive covenants, especially the critical role of private real estate developers in subdividing land and distributing standardized exclusionary clauses.

This study addresses these gaps by analyzing historical property deeds collected from two counties in Massachusetts, Northern Middlesex and Norfolk, digitized specifically for this research. Employing a Large Language Model (LLM)-based classifier, supplemented by manual verification from the research team, we identify and map restrictive covenants across space and time, showing how patterns of exclusion evolved. Our findings illustrate how the definition of racial categories embedded within covenants shifted dramatically over several decades, from vague prohibitions against "disorderly" persons, initially targeting Irish immigrants, to explicit exclusions of both "Irish" and "Negro" occupants, ultimately culminating in restrictions limiting occupancy exclusively to "Caucasian" individuals. These exclusions are likely to change across geographies, providing insights into waves of anti-immigrant sentiment and conceptions of whiteness in Massachusetts (Bushee, 1903; Muhammad, 2019). Furthermore, our case study uncovers the influential role played by real estate developers who strategically implemented standardized covenants during land subdivision, embedding racial hierarchies into the physical fabric of suburban communities.

By illuminating the evolving language of racial exclusion and the pivotal role of developers in promulgating restrictive covenants, this research highlights race as a socially constructed category, continuously redefined through practices of abstraction and differential treatment codified within private practices. These findings contribute essential nuance to ongoing scholarly conversations about racial formation and property-based inequality. Moreover, our work calls for an expanded, nationwide digitization and analysis of historical property records to comprehensively document these exclusionary practices. Such an effort could inform policy measures aimed at reparative lending and equitable reinvestment in historically marginalized communities, addressing the persistent economic legacies of restrictive covenants.

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Key Words: Race, Housing, Discrimination

Understanding the Rising Costs of Homeownership and the Implications for Affordability

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Track 6: Housing

Individual Paper Presentation Submission

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Homeowner affordability has deteriorated considerably in recent years. The number of homeowners who spend more than 30 percent of their income on housing has increased by 3.6 million households between 2019 and 2023, leaving 24 percent of all homeowners—20.3 million in total—with housing cost burdens (McCue, Airgood-Obrycki, and Whitney 2025). Rising cost burdens are especially concentrated among lower-income homeowners and older adult households more likely to be on a fixed income.

Mortgage payments are often the largest expenditure for homeowners, but non-mortgage costs have increased even more in recent years, including insurance premiums, utility costs, and property taxes, drawing increased scholarly attention. Average insurance premiums, for example, rose more than 20 percent between 2020 and 2023 after adjusting for inflation (Koller 2024). Similarly, rising utility costs have led to increased energy burdens, a particular challenge for lower-income homeowners (Ayala and Dewey 2024). These increased costs force households to make significant tradeoffs. Over 7 percent of all homeowners go without insurance, for example, due to rising costs and reduced access (Cornelissen, Heller, and DeLong 2024).

In this study, we use a longitudinal survey to determine how much homeowner costs have risen in recent years, overall and by detailed cost components. We examine how those costs rose before and since the start of the COVID-19 pandemic, and how they have varied by the income, race/ethnicity, age, and location of the household. Our preliminary research questions include:

- To what extent have housing costs for homeowners risen between 2015 and 2023? What specific costs (including mortgage payments, insurance premiums, property taxes, and utilities) have risen most? How have cost increases varied before and since the pandemic?
- How have housing cost increases varied by household characteristics and geography?
- To what extent have rising homeowner costs affected homeowner affordability?

To answer these questions, we use panel data from the American Housing Survey for 2015-2023. The survey is uniquely suited to this purpose, with detailed information on individual and aggregate homeowner expenses. The survey is also longitudinal, allowing an examination of how specific homeowner costs have changed for individuals over time. Methodologically, we use descriptive statistics and multivariate regression models to determine how cost increases are associated with different household characteristics. To estimate changing costs, we will look at matched pairs of homeowners over every two-year period (2015-2017, 2017-2019, etc.) to determine how costs have increased for existing homeowners.

In preliminary tabulations, total monthly costs for homeowners nationally increased 31 percent from 2015-2023. Property taxes had the largest increase, rising 63 percent, followed by insurance (46 percent), utilities (30 percent), and mortgage costs (28 percent). Housing costs have risen especially sharply in 2021-2023, when housing costs rose 13 percent. Over this period, utility costs for homeowners rose 20 percent, followed by insurance costs (12 percent) and mortgage payments (11 percent). Additional research will explore how costs have grown for individual

households over time using the longitudinal nature of the survey as well as examine how cost increases have contributed to the rise in cost burdens.

Better understanding the drivers of housing cost growth will have important implications for planners and policymakers. As non-mortgage costs rise, local officials can invest in policies and programs to address affordability concerns, especially for existing lower-income homeowners and homeowners on a fixed income who are most vulnerable to increased costs. Potential policies include energy retrofits or energy rebates; insurance subsidies or other programs to make homeowners insurance more widely available; and property tax rebates.

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Key Words: Housing, Housing affordability, Homeownership, Housing policy, Insurance

Unequal Burden of Growth: Housing Cost Pressures on Renters Near Prominent Firm Entries

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Track 6: Housing

Individual Paper Presentation Submission

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Business developments have significant social and economic impacts on the communities in which they are established, generating jobs, attracting additional firms and workers, and driving housing demand and real estate investment (Greenstone et al., 2010; Hartman-Glaser et al., 2023). This economic activity often reshapes local housing markets, and can lead to rising property values and shifting neighborhood dynamics (Chapple & Jeon, 2021; Chen et al., 2023; Pope & Pope, 2015). While existing research primarily focuses on how these changes affect homeowners and property values, the implications for renters remain underexplored. At the same time, the issue of housing affordability among renters has gained increasing attention in planning literature and policy discourse. Previous studies highlight a growing cost burden on renters, particularly low-income households, and its severe impact on their well-being and health (Acolin & Reina, 2022; Berlin, 2024; Collinson, 2011; Fernald, 2015; Seymour et al., 2020). More recently, this concern has extended to moderate-income renters, highlighting growing financial strain on a broader segment of the population due to rising rent and stagnant incomes (Colburn et al., 2024; Garcia & Metcalf, 2024; Hermann et al., 2024). Given the significant role that high-impact firms play in transforming local housing markets, it is essential to understand how their presence affects renters across income levels, particularly as rising property values and housing costs may disproportionately burden those who do not own homes.

This study investigates how placement of prominent businesses in neighborhoods affects the share of renter households burdened by housing costs—defined as spending more than 30% of household income on housing. The analysis examines renter groups by Area Median Income (AMI) in census tracts near firm locations across Georgia, a state that has attracted numerous major investments due to its pro-business environment. Using a staggered difference-in-differences framework (Callaway & Sant’Anna, 2021; Sun & Abraham, 2021), the study estimates group-time treatment effects, leveraging data on publicly announced entries of prominent firms compiled by Georgia Power Economic Development (2015–2022), along with tract-level time-series Comprehensive Housing Affordability Strategy (CHAS) data from HUD.

Results indicate a statistically significant increase in the percentage of moderate-income renters (80% to 120% AMI) experiencing housing cost burden in neighborhoods with new firm locations compared to control areas, with effects persisting across multiple years after treatment. Notably, five years after firm entries, the share of cost-burdened moderate-income renters increased by approximately 8.88 percentage points ($p < 0.001$), even after adjusting for neighborhood characteristics such as racial composition, educational attainment, population density, rent levels, and housing stock. In contrast, renters in other income groups did not exhibit statistically or substantively significant impacts.

This study contributes to the literature on housing affordability challenges faced by renters, particularly in relation to market dynamics and local economic growth. Findings suggest that high-impact firms can exacerbate financial pressure on moderate-income renters in nearby areas, likely due to heightened competition for limited housing supply. For planners, these results underscore the importance of anticipating housing demand—across housing submarkets and income groups—associated with business-driven developments, and of expanding affordable housing options particularly for households that fall outside traditional subsidy programs. Future research should examine variations in firm characteristics and evaluate the role of local housing regulations in mediating these

impacts, helping to inform policies aimed at addressing housing affordability challenges linked to regional economic development.

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Key Words: Housing Affordability, Rental Housing, Rent Cost Burden, Firm Entries, Economic Development

Upland Expansion: Co-Producing Eco-Culturally Healthy Housing for Coastal Adaptation by Tribes

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Track 6: Housing

Individual Paper Presentation Submission

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On the north shore of Willapa Bay in Pacific coastal Washington, the Shoalwater Bay Indian Tribe (SBIT) is developing sustainable and culturally relevant strategies for upland expansion in response to climate change-driven sea level rise and other threats to their coastal ecosystems and community. The situation is urgent as the reservation is located in the most rapidly eroding stretch of Pacific coastline in the US, on near-sea-level land that is vulnerable also to catastrophic tsunamis from a Cascadia subduction megaquake, and is also vulnerable to storms and landslides that threaten access, communications, and power supply. In anticipation, the Tribe has purchased back from timber harvesting corporations upland tracts adjacent to their reservation, where they seek to both develop relocation housing and also re-establish healthy and climate change-resilient forest ecology. SBIT recently received \$25m from USDOT to build an access road into the uplands to enable future relocation; \$6m from HUD to build two duplexes of affordable housing in the uplands and prepare a site for a third; \$1.25m from the US Economic Development Administration to develop a master plan for the upland community; and \$500k to improve Tribal broadband connectivity. These investments are only a start; over time, the Tribe seeks to develop additional sites for housing, services and programs, including Tribal Housing and Elder Assisted Living, an Economic Development District, a Justice Center, administrative buildings, museum, Health Clinic and “edible trails” for food sovereignty, active living, and retention of cultural identity and traditions according to the principle that “culture is health.” This long-term vision is challenged by the immediate need for affordable housing in the existing coastal lowland community, by residents' attachment to living close to the shore, and by concerns that upland development will conflict with biodiversity and habitat restoration, by residents' attachment to living close to the shore, and by concerns that upland development will conflict with biodiversity and habitat restoration. While many tribes in the Pacific Northwest are engaged in similar “moves to higher ground,” they are constrained by the standards and procedures required by the federal grant programs that fund them. To more effectively address the challenges mentioned above, the proposed solutions require freedom to innovate and test new prototypes. Since 2022, a partnership between the Tribe and a team from the University of Washington’s College of Built Environments has co-produced regenerative designs for housing that: (1) use locally produced materials (mycelium and sargassum fiber insulation) with local labor according to Passive House energy conservation performance standards and pin pile foundations to minimize soil disturbance and hydrological impacts; and (2) can be built modularly with prefabricated panels and other components that can be assembled, disassembled and reassembled to occupy different sites in sequence. The designs thus allow housing to minimize energy demand; to “grow” or “split” to accommodate changing household family sizes and structures; be erected on sites with minimal need to convert forest or wetland; and to be moved from site to site if necessary to avoid hazards such as retreating shorelines or wildfires, to make way for wetland and forest restoration, and to support a sense of continuity of dwelling and home-identification through the relocation process. Such modularity and dis/re-assemblability echoes historic plank house building practices that supported Shoalwater people through seasonal migrations between home sites across a traditional territory that was much larger and more ecologically diverse than the reservation to

which their community has been restricted since Euro-colonization. Development of these prototype designs is still underway, but this presentation describes the work's process, aims, and planning policy/professional implications.

Citations:

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Key Words: Resilience, Relocation, Climate Justice, Indigenous, Regenerative Design

Variety of Productivism: A Discourse Network Analysis of Local Public Rental Housing Policy in China

Abstract ID: 1844.0.0.1060.2025

Track 6: Housing

Individual Paper Presentation Submission

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Nations and cities face challenges of providing affordable housing for lower income families. Housing scholars have noted a global trend of residualization of affordable housing policy due to the neoliberal policy transformation since the 1980s. Housing is increasingly viewed via the lens of homeownership, investment, and wealth accumulation, while government-assisted housing programs are reserved for only poorest families. Comparative housing policy literature thus contrasts residual and universalistic housing regimes, based on observations in advanced capitalist economies in North America and Western Europe (Kenney, 1995).

However, other scholars argue that such dichotomous distinction is insufficient to account for East Asia housing policy systems where housing is utilized as an instrument for advancing economic goals, making it a productivist housing regime (Holliday, 2000). In China, while the government dramatically expanded public investments in affordable housing policy, scholars nevertheless suggested a hybrid housing model where affordable housing serves national developmental agendas (Zhou & Ronald, 2017). While debates over housing regimes primarily focus on cross-nation variations, recent literature has emphasized local-level variations often through comparative case studies (e.g., Zhou & Ronald, 2017; Li & Shamsuddin, 2022). Scholars have argued that national housing policy is subject to how localities reinterpret the policy goals and targets, bundle it with local priorities, eventually forming localized policy discourses and actions (Ma and Liu, 2024). While many studies focus on local policy actions and outcomes, little is known about how localized discourses about affordable housing evolve, diverge, and converge over time, reflecting the temporal dynamics between national policies and local actions.

Adopting the discourse network analysis approach (Leifeld, 2013), this article investigates structural and temporal characteristics of local discourses of the public rental housing program, a core component of China's national affordable housing framework. Through extensive web search we compile a total of 3,549 news reports on local PRH programs, covering a total of 167 cities during 2009-2019. We conduct systematic content analysis to identify local discourses of PRH's target populations over time, and construct city-discourse networks across different stages of the PRH program.

Preliminary analysis identified cross-city divergence between a residual model (PRH serving lowest and low-income families) and an inclusive model (expanding coverage to moderate-income families). Yet despite this divergence, our analysis shows the dominance of diverse discourses linked to a productivist housing regime, where local PRH programs target economically important groups (e.g., talents, new employees, migrant workers, enterprise workers, employees at industrial parks), while also revealing an undercurrent reminiscent of work-unit based welfare allocation (e.g., government employees, essential workers). Further discourse network analysis expects to find: (1) cross-city variations and emulations of productivist discourses, reflecting how a social policy such as PRH is bundled with local growth priorities, and (2) a recurring trend of divergence and convergence among local discourses, reflecting intricate dynamics between national policy design and local actions. Our research contributes to the international scholarship on to the intergovernmental dynamics of affordable housing policy evolution.

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Key Words: Public Rental Housing, Local discourse, Target population, network analysis, China

What use is housing evaluation in a changing climate? Learning with Alaska

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Track 6: Housing

Individual Paper Presentation Submission

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Alaska is a region marked by rapid climate change, housing innovation, and nested Indigenous and nation-state governance structures. Extreme weather events, wildfires, flooding, permafrost melt, and rising sea levels impact housing, which in turn influences community health and well-being. Tribal housing providers are on the front lines of the climate response in Alaskan communities. Policymakers and planners use evaluation to “close the loop” on climate adaptation and to avoid maladaptive practices. However, there is a lack of practical strategies for small local governments and community-based organizations to incorporate evaluation and monitoring into their housing efforts. This research draws on housing evaluation literature from the fields of social work, planning, and public policy, and theory from science and technology studies (STS) to examine how evaluation can help housing organizations plan for climate adaptation in Alaska. Entities like housing providers are a key link between government policymaking and the implementation of housing strategies that support climate adaptation and action.

This paper answers the question: How are organizations using monitoring and evaluation at the intersection of climate adaptation, housing, and community development? I interview and compare findings from two sets of interviewees: housing providers working on the ground in Alaska and evaluation experts from around the globe. The underlying aims of this research include understanding: 1) how climate change impacts or does not impact housing providers in Alaska, 2) what information and metrics related to housing and climate adaptation are most useful and where it comes from, and 3) how housing providers make decisions or “evaluate” options in this context. From this research, I recommend evaluation best practices that fit within housing providers’ current knowledge needs and workflows.

This research is guided by and produced as part of larger project to support tribal, Indigenous, and community-based housing providers to evaluate and communicate their work in a changing environmental and political climate.

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Key Words: housing, climate adaptation, evaluation, Indigenous planning, community development

Where's the Shortage? Housing Supply and Neighborhood Quality Among and Within Metro Areas

Abstract ID: 1844.0.0.524.2025

Track 6: Housing

Individual Paper Presentation Submission

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Housing is increasingly unaffordable in the United States—not only in coastal regions long known for high prices, but also in many communities across the country’s interior. A range of factors contributes to the crisis, including rising mortgage interest rates, which directly affect homeownership affordability. However, many scholars and policymakers have focused growing attention on a more systemic cause: inadequate housing supply (Glaeser & Gyourko, 2003; Mallach, 2023). This perspective has gained traction at the national level. For example, Kamala Harris’s 2024 presidential campaign called for a 50% increase in housing production over four years to close the supply gap. One frequently proposed strategy to meet this goal is to reform zoning and other land-use regulations to facilitate the construction of more housing (Been et al., 2019).

While national estimates suggest that several million additional housing units are needed, the location and nature of that need remain unclear. Even if supply is increased significantly, it is unlikely that adding units in one part of the country will improve affordability in another. The shortage—if there is one—is not monolithic; it is spatially uneven, varying across regions, metropolitan areas, and even between adjacent neighborhoods. Understanding where shortages exist and what drives demand in different places is essential for designing more effective and equitable housing policies (Hilber & Schöni, 2022; Rosenthal, 2021).

This project focuses on the intra-metropolitan scale and asks: where, within metro areas, is the housing shortage most acute, and where, by contrast, might we say there is a neighborhood quality shortage? This breaks down into two related research questions. 1. To what extent would more people live in a given neighborhood if they could afford to do so? 2. What factors contribute to the persistence of low demand in neighborhoods that, on paper, appear to have desirable physical and geographic characteristics?

To answer the first question, we develop a typology of neighborhood housing demand using two axes: affordability (e.g., housing costs relative to incomes) and environmental or social quality (e.g., school ratings, life expectancy, and exposure to pollutants—drawing from HUD’s AFFH data). We hypothesize that neighborhoods high in quality tend to be less affordable, and vice versa. We then assess how this typology aligns with actual indicators of housing demand, including homeownership and rental rates, tenure-specific vacancy and turnover rates, and net migration. This allows us to identify neighborhoods where latent demand may exist and estimate how many additional housing units would be needed to meet it.

To address the second question, we compare high- and low-demand neighborhoods within each metro area. We explore differences in housing growth and population change, the spatial distance between demand extremes, and how unevenly growth is distributed. For example, in Chicago, some neighborhoods have experienced significant population loss while others nearby have rapidly gained residents. These contrasts suggest that metro-level dynamics—such as transportation access, legacy disinvestment, and racial or economic segregation—shape neighborhood demand in complex ways. By analyzing both demand indicators and the metropolitan conditions that surround them, we aim to develop a more nuanced understanding of how housing shortages manifest at the neighborhood level and how targeted policy responses can address them.

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Key Words: Supply, Zoning, Neighborhoods, Regions

Who's Not Forming Households? A Demographic Decomposition of the U.S. Housing Shortage

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Track 6: Housing

Individual Paper Presentation Submission

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Declines in household formation have raised urgent questions about housing shortages in the United States. While some argue that housing supply has kept pace with household growth (McClure & Schwartz, 2025), this interpretation overlooks latent demand. That is, households that could have formed but did not, often due to affordability constraints. A measure of housing shortages, therefore, must consider how changes in household formation behavior differ from what would be expected given population structure.

There has been a body of literature that explains trends in household formations. On the one hand, economics literature has explored headship rate declines—particularly among young adults—mostly relying on regression-based Oaxaca-Blinder decomposition method (Paciorek, 2016; Acolin et al., 2024). These models capture the effects of changes in population composition but fail to explain shifts in headship rates by subgroup of population. On the other hand, in planning literature, demographic standardization has been applied to estimate “expected” household formation, offering an alternative way to estimating unmet housing needs (Monkkonen 2013; Myers et al., 2002). Building on these approaches, this paper introduces a demographic decomposition method to explain changes in headship rates within subgroups, revealing which populations have most altered their household formation behavior since 2000.

Using 2000 decennial census and 2019 1-year ACS Public Use Microdata, I decompose the change in aggregate household formation into two components: (1) demographic shifts in age, racial-ethnic, and housing type composition, and (2) changes in subgroup-specific headship rates. The results show that approximately 40% of the decline in household formation can be attributed to racial composition—particularly the growing share of non-White populations, who historically have lower headship rates. However, most of the decline is driven by within-group changes in household formation preferences, especially among White young adults aged 25–34, whose headship rates have fallen disproportionately. Notably, the preference for owner-occupied single-family housing also decreased more than for other housing types.

Extending the analysis to census tracts, I apply 2000 subgroup headship rates to the 2020 population structure to map localized unmet housing needs. Findings reveal that preference for outer suburban areas has declined, while central city neighborhoods have remained stable indicating a reversal of suburbanization trends. These geographic variations are correlated with urban form, including distance to CBD, neighborhood morphology, measured using urban morphometric indicators.

This paper’s methodological contribution is practical. The decomposition requires only two cross-tabulated datasets—population and household counts by subgroup—and can be implemented at small geographic levels using publicly available census data. In contrast to regression-based methods, which are data-intensive and limited to metropolitan or national scales, this technique provides a transparent, replicable framework for identifying unmet housing needs in neighborhoods. In sum, this research provides an application of demographic decomposition to housing shortage estimation, offering empirical insights into which populations and neighborhoods are most affected by housing shortages. By revealing the behavior of household formation and enabling neighborhood-level analysis, this work contributes both new evidence and a usable tool for planners and housing policymakers.

Citations:

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Key Words: Housing Shortage, Demographic Decomposition, Household Formation, Neighborhood Change

Track 6 Research in Motion (RiM)

Aging, Housing Affordability, and Homelessness

Abstract ID: 1842.0.0.300.2025

Track 6: Housing

Research-in-Motion Presentation Submission, Research currently in process

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The primary objective of this study was to expand research on community-level factors influencing homelessness, with a focus on examining the interactions between aging, housing affordability, and homelessness. By employing the Department of Housing and Urban Development (HUD)'s point-in-time counts of homeless persons without shelter and those in shelters gathered on a single night in January 2020 across 396 Continuums of Care in the United States, multilevel regression models revealed that as the percentage of renters earning less than 30% of the area median family income (as defined by HUD) increased, there was a significant increase in both overall and chronic homelessness. Similarly, a higher proportion of renters in this income bracket was associated with a substantial increase in both sheltered and unsheltered homelessness. Notably, when lower-income renters included a greater number of older adults, the severity of homelessness significantly worsened. These findings highlight the need for policy changes to reduce homelessness rates, particularly in aging societies.

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Key Words: Aging, Housing Affordability, Homelessness, Renters, Low Income Households

Differences in Investor Behavior in Post-Financial Crisis Property Tax Lien Markets

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Track 6: Housing

Research-in-Motion Presentation Submission, Research currently in process

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Since 2013, investors have purchased approximately \$350 million in delinquent residential property taxes in Cook County, Illinois. When owners do not pay their property taxes, Illinois state law requires local jurisdictions to auction the delinquent taxes to recover a portion of the lost revenue. After a tax lien certificate is purchased, the homeowner is then obligated to repay the tax amount plus penalties and interest to the lien holder. If they are unable to pay the full amount within a specified period, the lien holder can petition to take possession of the deed. However, this is a rare occurrence. Most tax liens are redeemed and the owner retains possession of their home. Tax lien purchases are thus more similar to financial instruments than outright property acquisition strategies.

Broadly, both property tax delinquency and tax lien purchases are spatially concentrated, reflecting racialized geographies of property. The racialization of home ownership is well documented, including “predatory inclusion” in mortgage markets (Taylor 2019) through subprime lending and racialized differences in housing price appreciation (Markley et al 2021). Research also demonstrates how Black and Brown homeowners are disproportionately harmed by inflated property tax assessments (Berry 2021) and tax foreclosures (Akers and Seymour 2018). Others have further explored the growing use of complex financial instruments and the fiscal restructuring of municipal governance (Peck and Whiteside 2016). In this presentation, I explore the interconnections between municipal tax policy, predatory finance, and racialized logics of property as they are articulated within the property tax lien market. I address the question: how does the financial and geographic structure of the property tax lien market create attractive investment opportunities for different types of tax lien buyers?

Using data from the Cook County Treasurer’s Office, I use spatial and quantitative methods to analyze the property tax lien market. Through a series of generalized linear mixed models, I compare the spatial patterns of investment of various types and sizes of tax buyers, finding significant differences in their respective portfolios in terms of their property- and neighborhood-level characteristics. Large institutional investor purchases are concentrated in predominately Black and low-income neighborhoods with the highest volume of available tax liens. While these liens are likely considered riskier due to redemption uncertainty and higher property value volatility, the structural characteristics of large investors enable them to bear heightened risk in exchange for earning higher interest rates. Smaller investors, on the other hand, are less likely to pursue such liens, and are more likely to purchase less risky, lower return liens in neighborhoods with higher property values and a lower percentage of Black residents. The result is that when low-income homeowners, particularly Black homeowners, become tax delinquent, they experience a unique modality of financial extraction as the tax liens on their property are more likely to bear higher interest rates.

My contribution is twofold. First, I demonstrate the diversity in the activities of investors as a result of the geographic and financial segmentation of the tax lien market. Second, while abundant research has addressed systemic racial inequities in home ownership and tax foreclosure, investor activity in tax lien certificates has been underexplored. Planners and policymakers must understand the particularities of tax lien investment, particularly how it creates opportunities for financial extraction and exacerbates racialized landscapes of homeownership.

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Key Words: property tax liens, housing precarity, municipal governance, financialization

Enhancing Interagency Collaboration for Equitable Housing Recovery in Baltimore County

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Track 6: Housing

Research-in-Motion Presentation Submission, Research currently in process

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Baltimore County, situated in the mid-Atlantic region, faces escalating risks from climate-related disasters, including flooding, severe storms, and hurricanes. Its geographic location and proximity to the Chesapeake Bay exacerbate these threats, particularly for socially vulnerable populations such as low-income households and residents of subsidized housing. These groups encounter disproportionate challenges in disaster recovery due to systemic barriers, including limited financial resources, bureaucratic complexities, and inadequate access to recovery assistance. Given these vulnerabilities, effective interagency collaboration is crucial for ensuring an equitable housing recovery process. This research examines the current state of interagency coordination in Baltimore County, identifies barriers to effective collaboration, and explores strategies for improving housing recovery efforts for at-risk populations.

This study employs a qualitative research approach, integrating a comprehensive review of Baltimore County's disaster management plans, policies, and programs with semi-structured interviews with key informants. These informants include representatives from emergency management services, housing departments, public health organizations, and community-based organizations. The research investigates how agencies interact, the challenges impeding coordination, and best practices that can enhance collaborative efforts. Data analysis is conducted using qualitative content analysis in Atlas.ti to identify key themes, obstacles, and potential solutions.

Preliminary findings suggest that while agencies recognize the importance of collaboration in housing recovery, several persistent challenges hinder effective coordination. These include fragmented communication, overlapping roles and responsibilities, resource and capacity limitations, and inequitable access to assistance. These findings underscore the need for policy and procedural reforms to improve interagency collaboration and ensure that socially vulnerable communities receive timely and sufficient post-disaster housing support. By addressing these gaps, this research aims to provide actionable insights for policymakers, emergency planners, and housing advocates. Strengthening interagency coordination will ultimately contribute to more equitable recovery outcomes and bolster community resilience in Baltimore County and beyond.

Citations:

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Key Words: Housing Recovery, Social Vulnerability, Equitable Recovery, Interagency Collaboration, Disaster Resilience

Housing and Food Insecurity among College Students: What can Planners and Legislators do?

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Track 6: Housing

Research-in-Motion Presentation Submission, Research currently in process

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This research attempts to answer two questions, 1) how could planners and campus administrators of the US higher education respond to the housing crisis, and 2) what are the tools that the US campuses could employ to mitigate housing and food insecurity and homelessness?

Research shows that more college and university students every year report experiencing housing insecurity and homelessness (Goldrick-Rab, S. et al., 2018). An NPR report indicates that more than 1.5 million college students in America are homeless. Eight percent of American undergraduate students are homeless, according to a survey of more than 2,000 colleges by the U.S. Department of Education, and five percent of graduate students are homeless. Students who cannot find a safe and permanent place to live cannot achieve their potential in our classrooms. To achieve education equity, it is imperative that campuses come together to address this issue and create a funding stream and partnerships across the beyond the local community. Researchers assessed housing insecurity through surveys to establish a baseline for housing and food demand. Vogt et al. (2018) developed a Student Housing Insecurity Mapping (SHIM) tool for a self-assessment inventory. The tool was helpful to initiate a broad conversation across campus. It recommended conducting training for faculty and staff to address housing insecurity, establishing partnerships with community organizations, assessing students' needs during breaks, initiating alternative housing options, creating an emergency housing partnerships, and offering emergency funds for students. Before joining higher education system, and under the McKinney Vento Homeless Assistance Act (National Center for Homeless Education, 1987), youth experiencing homelessness receive intentional support and guidance during their elementary and secondary education. To continue to support them in the higher education system so they can excel and thrive, Vogt et al. (2018) recommended that, campuses may have a member of the staff act as a single point of contact (SPOC). Legislations in nine states have created support system and designated a homeless liaison on college campuses (School House Connection, 2025).

The campus of the University of Colorado Boulder is a case study for this research to develop a publicly accessible geospatial, navigation tool to access and monitor campus resources for students who have reported housing or food insecurity or experienced -or at risk of- homelessness. Namely, Housing and Food Navigator [HAFN], the tool connects students during times of adversity, inclement weather conditions, and emergency needs with immediate access to resources including safe and quality housing and food and other permanent solutions to mitigate the risk of homelessness and starvation. HAFN's critical support system connects students with campus and community resources, support their success, and ensure a pathway -similar to their peers- for graduation with dignity and empowerment. As reports from campuses nationwide indicate that minority and international students are the most vulnerable categories among undergraduate and graduate cohorts, HAFN tool offers an equity lens, through which I am examining environmental and economic justice to study the impacts of climate change and financial burdens on students.

The outcome of this research addresses the lack of reciprocal benefits that could increase resources from a campus-community partnership, examines housing legislations and programs in the community, maps existing resources using Esri GIS Apps, and establishes an interactive Dashboard and Story Map using Esri platforms for creating housing and food navigation tool. Anonymous testimonials from two focus groups with students will be

included in the StoryMap, and semi-structured interviews with leaders of several divisions that oversee student service offers insights on funding and budgetary concerns.

Citations:

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Key Words: Housing insecurity, Homelessness, Housing navigation, Food insecurity, Campus resources

Housing Challenges of Displaced Communities: Early Findings on Gentrification in Nashville, TN

Abstract ID: 1842.0.0.1170.2025

Track 6: Housing

Research-in-Motion Presentation Submission, Research currently in process

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This presentation will share preliminary findings from a HUD-funded study aimed at enhancing the effectiveness of the U.S. Department of Housing and Urban Development's (HUD) Housing Choice Voucher (HCV) program. The study examines the experiences of communities displaced by gentrification in the Greater Nashville Region, marked by rapid demographic shifts and significant minority population displacement.

The overall research focuses on three main objectives: (1) mapping the relocation patterns of displaced populations, (2) exploring the housing challenges they face in new environments, and (3) evaluating the effectiveness of HUD's HCV program in meeting their housing needs. While existing literature connects gentrification and displacement, it often overlooks the housing experiences of those affected. This study aims to bridge that gap by integrating insights from these areas.

The presentation will highlight preliminary findings on factors influencing residential decisions and housing experiences among displaced populations. Using qualitative methods such as focus groups and in-depth interviews, the researcher aims to uncover motivations for relocating from gentrifying areas, the choices of new residential locations, and the challenges faced.

Ultimately, this research seeks to provide insights that can improve the responsiveness and effectiveness of HUD's housing assistance programs, fostering equitable urban development amidst gentrification.

Research Questions:

- What motivations led disadvantaged populations to leave gentrifying neighborhoods?
- What perceptions attracted them to their current neighborhoods?
- Does the new neighborhood offer necessary amenities?
- What key housing challenges are they experiencing?
- What challenges do renters and homeowners face?
- Is the current location providing a better housing experience?

The methodology will involve testing interview and focus group instruments. The researcher will collaborate with the Nashville International Center of Empowerment (NICE) to identify displaced individuals for evaluating their residential choices.

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Key Words: Gentrification, Displacement, Housing Choice Voucher, Residential Decisions, Housing Challenges

Planned Unit Development (PUD) and Housing Outcome: An Empirical Assessment in West Des Moines

Abstract ID: 1842.0.0.670.2025

Track 6: Housing

Research-in-Motion Presentation Submission, Research currently in process

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Restricted zoning regulations are widely considered to be a factor contributing to the affordable housing crisis in North America (Wegmann, 2019). Over the years, zoning reforms such as upzoning and flexible zoning have been introduced to alleviate this crisis. While upzoning has led to increased housing production in some cases, its effectiveness in achieving affordability and density objectives remains inconsistent (Gabbe, 2018; Kuhlmann, 2021).

Among various zoning reform strategies, Planned Unit Development (PUD) emerged as a tool to provide zoning flexibility to encourage higher-density, mixed-use, and innovative development while allowing developers to bypass traditional restrictions (David, 2019). However, their adoption has declined over time, despite their potential. This decline is often attributed to political uncertainty, inconsistent approval processes, and lengthy negotiations over public benefits (Moravec, 2009). Challenges such as extended approval timelines, developer risk, and political opposition have constrained PUDs' effectiveness (David, 2019). Some studies suggest that PUDs can facilitate higher-density development, yet others highlight that uncertainty in the approval process discourages their utilization (Moravec, 2009).

The impact of PUDs on housing prices and density remains underexplored, particularly in comparison to conventional zoning approaches. To explore this, this study seeks to investigate the use of PUDs and whether PUDs have contributed to increased housing affordability, housing supply, and higher-density development in one U.S. Midwestern suburb. The City of West Des Moines, Iowa, presents a valuable case study due to its extensive use of PUD zoning, with around 142 designated PUD zones over the course of 50 years. This study aims to answer the following research questions:

1. What was the quantity of housing developed through the use of PUDs versus conventional development units in West Des Moines from 2010 to 2020?
2. How did housing prices vary in PUDs compared to those in conventionally zoned areas in West Des Moines from 2010 to 2020?
3. How did housing densities vary in PUDs compared to those in conventionally zoned areas in West Des Moines from 2010 to 2020?

This study employs a mixed-method approach. For the background of this study, we will conduct interviews with public officials to understand the use, intent, and objectives behind PUDs' adoption and utilization in West Des Moines since 1973. For the first question, we will geocode building permit data from West Des Moines, which will allow us to calculate and compare the total number of housing units developed under PUD and conventional zoning from 2010 to 2020. For the second question, we will use hedonic difference-in-differences (DiD) model to estimate the effect of PUD designation on housing prices as the dependent variable. Each permit entry will be assigned to a dummy variable indicating whether it falls within a residential PUD or a conventionally zoned residential area. We will include control variables such as the number of rooms, the lot size of the units, and the number of parking spaces. For the third question, we will examine development density between 2010 and 2020

by extracting the permitted residential density values from zoning documents for both PUDs and conventional zones. Using kernel density estimation, we will present the findings on the variation in densities for PUDs versus what we get when developed conventionally over time.

The findings of this study will provide empirical evidence for urban planners and policymakers seeking data-driven insights on the outcomes of zoning flexibility through PUDs compared to conventional zoning, particularly in suburban contexts. As cities consider zoning reforms to address housing shortages, this study offers a grounded understanding of whether PUDs are a meaningful mechanism for housing production and pricing outcomes.

Citations:

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Key Words: Affordable Housing, Hedonic Model, Zoning, Spatial Analysis, Planned Unit Development

Promoting Housing Production Through Brownfield Redevelopment

Abstract ID: 1842.0.0.298.2025

Track 6: Housing

Research-in-Motion Presentation Submission, Research currently in process

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The availability and affordability of housing continue to be pressing concerns across the United States. As housing cost -burdens continue to rise for both renters and homeowners, there is an urgent need for innovative strategies to address the crisis—particularly for disadvantaged populations. Brownfields— previously developed sites adversely affected by actual or perceived contamination—present an unrealized opportunity to address this housing crisis (Alker, 2000). With over 450,000 such sites nationwide, brownfields offer significant potential owing to existing infrastructure, proximity to urban amenities, and alignment with smart growth principles (Schopp, 2003). Despite their potential, brownfield-to-housing projects remain underexplored in planning scholarship, with existing research primarily focusing on either general brownfield redevelopment or post-development impacts (Adams, De Sousa, & Tiesdell, 2010). This study intervenes at this juncture to ask: How can brownfield redevelopment be leveraged to expand housing supply and improve affordability? In doing so, it contributes actionable insights for municipalities, planners, and policymakers seeking equitable and sustainable solutions to the nation’s housing crisis (Glaeser & Gyourko, 2018).

This study was conducted in two phases, using a multi-source qualitative design. In Phase I, we conducted a systematic literature review to assess the current state of knowledge on brownfield-to-housing redevelopment, with a particular focus on policy frameworks, redevelopment models, and implementation barriers. Phase II involved a comparative case study analysis of selected brownfield-to-housing projects. An inventory of successful redevelopment projects was developed in collaboration with the Technical Assistance to Brownfields (TAB) Program. Projects were evaluated based on location, funding structure, number of housing units created, and redevelopment scale. From this inventory, three case study cities were selected to ensure variation in municipal population size, project scale, and financial models. For each case study, we conducted stakeholder interviews with local planners, government officials, housing agencies, nonprofit organizations, and community representatives. These were complemented by document analysis of policy reports, planning documents, and funding records to evaluate regulatory frameworks, redevelopment processes, and financing strategies.

Preliminary findings point to three critical factors influencing the success of brownfields-to-housing projects. First, the presence of a community champion or lead institution is essential. This entity— whether a public agency, nonprofit, or private organization—serves as the driving force behind the redevelopment process, ensuring continuity and stakeholder engagement. Second, remediation costs and liability concerns must be addressed before sites are transferred to developers. Developers are often reluctant to assume responsibility for environmental cleanup due to its high costs and legal risks. Third, housing projects for specific population groups— such as veterans, transitional housing, or elderly populations— have higher success rates. These targeted projects often access additional funding sources and garner stronger political and community support, expediting project approval and completion.

By identifying these key success factors, this research provides evidence-based guidance for improving the feasibility of brownfield-to-housing projects. It fills a critical gap in urban planning scholarship and advances policy relevant strategies for addressing the affordable housing crisis through land reuse and equitable redevelopment.

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Key Words: Housing, Brownfields, Smart Growth, Sustainable Development

Spatial Dynamics of Gentrification and Housing Choice Voucher Use in the Greater Nashville Region

Abstract ID: 1842.0.0.731.2025

Track 6: Housing

Research-in-Motion Presentation Submission, Research currently in process

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The greater Nashville region is undergoing significant urban transformation, driven by economic growth, population growth, and rising real estate values. These changes have led to shifts in neighborhood characteristics, including evolving socioeconomic conditions and increasing challenges with housing affordability. Housing Choice Vouchers (HCVs), a federal program designed to assist households in accessing affordable housing, are particularly influenced by these dynamics. Understanding how HCV use varies across neighborhoods experiencing different levels of change is critical for evaluating the program's effectiveness and informing housing policy decisions. Despite the importance of this issue, limited research has systematically examined the relationship between neighborhood change and HCV use, underscoring the need for a detailed investigation into these patterns and their implications.

Focusing on the Greater Nashville Region, This study addresses three key research questions: (1) Which neighborhoods in the greater Nashville region are gentrifying? (2) How does HCV use differ across neighborhoods experiencing varying levels of gentrification? (3) What are the broader implications of spatial differences in HCV use across neighborhoods registering distinct levels of gentrification? To answer these questions, neighborhoods are first categorized into distinct levels of change using a Gentrification Index developed by integrating real estate prices, income levels, and other socioeconomic variables. Statistical analysis is then conducted using data on HCV use obtained from the U.S. Department of Housing and Urban Development's (HUD) open data sources. This analysis examines the percentage of voucher households across neighborhoods with varying levels of gentrification to identify patterns and disparities in voucher utilization. Finally, findings from these analyses inform an evaluation of regional dynamics and their implications for housing policy interventions.

The results of this research aim to provide a deeper understanding of how neighborhood dynamics influence HCV use patterns and offer evidence-based recommendations to support effective housing policies. By addressing these critical questions, this study seeks to contribute to sustainable urban development strategies that address housing affordability challenges while ensuring that housing assistance programs remain responsive to changing urban conditions. The insights generated will be valuable for policymakers, housing authorities, and urban planners working to adapt housing strategies in rapidly evolving metropolitan areas like Nashville.

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Key Words: Gentrification, HCV, Affordable housing, Regional dynamics, Neighborhood change

Worth the Risk? Forming an Organizational Insurance Captive to Support Affordable Housing

Abstract ID: 1842.0.0.555.2025

Track 6: Housing

Research-in-Motion Presentation Submission, Innovative practices, concepts, and ideas for pedagogy

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In 2024 there were 27 separate weather and climate events that resulted in over \$1 billion in damages. This trailed only 2023, which saw 28 \$1 billion weather and climate disasters (Smith 2025). The increasing prevalence and costliness of these events is one significant factor influencing the increasing cost of insurance for housing. Sharply escalating insurance premiums are one of the most significant drivers of operating expenses for multiunit rental properties, including affordable housing, increasing at a rate more than triple that of the next closest operating expense in 2023 (JCHS 2024). Affordable housing is often also assigned higher premiums due to perceived risk associated with construction quality, population, and operations and required to carry higher levels of coverage by lenders and tax credit investors (Schneider 2024). Affordable housing projects operating with fine margins are poorly situated to weather these escalating costs, as they are restricted in their ability to raise rental rates to offset these expenses. Rising insurance premiums are threatening the viability of an increasing number of affordable housing buildings and portfolios.

This project explores the use of insurance captives as an approach to controlling operating expenses in affordable housing through a case study of a recently created insurance captive formed by Home Forward, the public housing authority for Portland and Multnomah County, OR. Drawing upon interviews with staff and participant observations (disclosure: I am Chair of the Board of Commissioners for the organization) and review of documents associated with the formation of the insurance captive, this project presents the decision-making process that resulted in the captive, the risks and benefits of this approach, and the lessons and implications for the larger affordable housing field. This case study further examines the captive performance in response to the January 2024 ice storm that caused significant damage to several Home Forward properties as a stress test of the concept.

Citations:

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Key Words: Affordable housing, Insurance captive, Climate and weather

Track 7 – International Development Planning

Track 7 Pre-Organized Session Summaries and Abstracts for the Sessions

Community and State Responses to Precarious Housing

Abstract ID: 1840.0.0.743.2025

Track 7: International Development Planning

Pre-Organized Session Summary

Session Includes: 1844.0.0.447.2025, 1844.0.0.639.2025, 1844.0.0.419.2025, 1844.0.0.720.2025

Leslie Martínez-Román [Texas A&M University] lmartinezroman@tamu.edu, organizer

The starting point of this panel is the issue of precarious housing globally. Precarity, rather than informality or homelessness, refers to larger structures and inequalities shaping lived experiences related to precariousness, reflecting systemic housing failures, as well as commodification, financialization, and the housing conditions entangled with inhumane and racial capitalism. While precarious housing has been acknowledged in academic and policy communities, solutions to such challenges strive to achieve affordable and adequate housing alternatives. Solutions to precariousness are diverse, drawing considerably on different contexts. This panel seeks to contribute to debates on responses to tackle housing precarity in diverse contexts through collective means, bottom-up strategies, state and national approaches, slum upgrading, and cooperatives. Drawing on solutions to precarious housing, we interrogate alternative urban strategies and the notion of precarious housing itself.

Learning Objectives:

- The key objective of this panel is to consider how and under what conditions responses and solutions to precarious housing across different contexts can be advanced to contribute to more equitable cities and spaces.

Community-Based Slum Upgrading in Southeast Asia: Precarious Improvements Along Many Dimensions

Abstract ID: 1844.0.0.447.2025

Track 7: International Development Planning

Pre-Organized Paper Presentation

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Residents of self-built settlements in the Global South experience precarity along many dimensions. These can include physical instability, insufficient basic services, or insecurity due to a lack of recognized land rights. These dimensions are captured by the terms “slum,” and many governments around the world have instituted slum upgrading schemes that have grown more comprehensive over time. Southeast Asia has been at the forefront of state-sponsored slum upgrading for several decades. Multiple generations of policies have been tried, seen varying degrees of success, and served to inform the subsequent programs of neighboring countries. From Indonesia’s Kampung Improvement Program (KIP), touted as the world’s first government-led slum upgrading program in 1969, to Thailand’s current Baan Mankong (“Secure Housing”) policy, multiple countries in Southeast Asia have, in their turn, proffered global models for reducing housing precarity of the urban poor. In this paper, I rely on a combination of literature review and insights from primary ethnographic research to examine the trajectory of slum upgrading in Indonesia, the Philippines, and Thailand. I illustrate how these programs have evolved, learned from each other, and often struggled with the same limitations. I argue that these limitations are inherent to the project of attempting to solve the many dimensions urban precarity through community-based upgrading. This calls into question how scalable or comprehensive these solutions can be.

Taken together, slum upgrading programs in Southeast Asia have followed a trajectory of addressing increasing the number of dimensions of precarity in their goals, from physical to economic to social. From the primarily physical aims of the original KIP to the comprehensive community-driven aspirations of Baan Mankong, upgrading the housing of slum residents is no longer seen to be just about housing security. Instead, it is about using housing as a basis from which to remake politics (Mitlin 2008), empower the poor (Herrle and Ley 2015), and establish new land relations in the city (Pérez-Castro and Somsook Boonyabancha 2019).

These are laudable goals. And sometimes they are achieved, in part. But they are rarely, if ever, fulfilled to the expectations of the strongest proponents of these programs. Quite often, these projects are constrained by limited resources, foiled by conflict, and marred by exclusion of the poorest (Berner 2000; Das 2015). I argue that these efforts to provide greater housing security by upgrading not just shelter but lives and communities have a way of (re)producing other forms of precarity, at least for some residents. This happens for three main reasons. First, the emphasis on cost recovery, specifically the use of collective finance, inherently excludes the poorest residents, sometimes leaving them in an even more precarious state. Second, the processes themselves are precarious, as they require the coordination of vast numbers of people and organizations. Finally, when achieved, formality comes with costs. Debt acquired during upgrading or the costs of transportation in the case of relocation can all move residents from the precarity of informality to financial precarity. Though improvements on these programs have been made at the margins, we seem to be learning these same lessons over and over again. Housing certainly can be a site of empowerment for some people. But the evidence from these programs should also make us ask, should empowering oneself be a prerequisite for achieving stable housing?

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Key Words: Community Based Housing, Collective Housing Tenure, Slum Upgrading, Southeast Asia, Housing Precarity

Interrogating Experiences of Collective Property: The Case of Rio de Janeiro

Abstract ID: 1844.0.0.639.2025

Track 7: International Development Planning

Pre-Organized Paper Presentation

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Land regularization is a global challenge, and has been recognized as key to guaranteeing access to land and affordable housing. In Brazil, land regularization is especially problematic given the scale of informal urban areas. While Brazil's 1988 Constitution includes tools allowing for land regularization, these are increasingly recognized as ineffective in making progress towards access to land. Acknowledging this challenge, several Rio de Janeiro communities began implementing a model based on collective property. Drawing on global experiences with Community Land Trusts (CLT), a type of shared equity ownership where land is separated from buildings on it, this tool became known in Brazil as Termo Territorial Coletivo (TTC).

In this paper, I interrogate recent experiences in implementing alternatives to individual ownership through collective property, specifically drawing on the case of TTC. In the context of debates on precarious housing globally, I explore experiences in the neighbourhood of Grupo Esperança in the western periphery of Rio de Janeiro, a community implementing the TTC model. The case is unique as it is an example of self-built housing constructed through Brazil's federal Minha Casa Minha Vida-Entidades (MCMV-E) housing program, with the houses finalized in 2015. On completion of the MCMV-E project, however, the lack of sufficient documentation led community members to seek alternative arrangements through collective property to secure their permanence, drawing on the community's considerable knowledge and experience with housing autogestão. In such contexts, residents do not have de jure security, meaning that their permanence on the land remains highly tenuous, putting them at risk of eviction.

Exploring the implementation of TTCs in Rio, the article has relevance for broader debates on access to land and regularization in informal communities globally. Despite growing interest in TTCs in Brazil, there has been little exploration of its implementation. I examine the conditions whereby collective property can be effective in challenging the multifaceted issues faced by communities at risk of displacement. Therefore, I ask the following question: Are alternative property arrangements effective strategies to equitably address basic housing and service needs in low-income communities experiencing displacement pressures? Based on qualitative research in Rio de Janeiro in 2023 and 2024 with residents, community leaders, technical advisors and experts in Grupo Esperança and beyond, the article reflects on the broader relevance of strategies related to collective property and precarious housing in Brazil.

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Key Words: Collective property, Precarious housing, Land regularization, Brazil

Gentrification and Gentefication in Post-Disaster Puerto Rico: Stories of Resilience and Struggle

Abstract ID: 1844.0.0.419.2025

Track 7: International Development Planning

Pre-Organized Paper Presentation

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This chapter, included in the Routledge Handbook of Precarious Housing, examines gentrification and gentefication in Puerto Rico in the wake of Hurricane María, illuminating the multifaceted forms of housing precarity experienced by residents amid disaster recovery. In line with the Handbook's aim to bridge Global North and South housing debates and explore precarious housing beyond simplistic binaries, the chapter highlights the entanglement of informality, exclusionary federal aid, market speculation, and migration in shaping housing insecurity on the island.

Hurricane María damaged over 1 million homes, disproportionately affecting informal, self-built housing often excluded from Federal Emergency Management Agency (FEMA) and Community Development Block Grant-Disaster Recovery (CDBG-DR) programs due to lack of formal property titles. Personal narratives like those of Rosa, Carlos, Juan, and María illustrate both the structural barriers to aid and the resilience of Puerto Ricans rebuilding with limited resources. These stories underscore how colonial legacies, legal exclusion, and bureaucratic inefficiencies compound vulnerability in the context of disaster.

The chapter further explores how federal recovery programs, such as the R3 and Title Clearance Program, fall short in addressing informal housing, forcing residents to navigate a complex aid system while facing competition in an increasingly commodified housing market. Gentrification and gentefication processes are central to this tension. Diasporic Puerto Ricans, empowered by remote work and tax incentives like Act 22, are returning to the island, investing in property, and often unintentionally displacing long-term residents. While these investors may bring capital and revitalization, they also drive up prices, limit affordable options, and challenge the cultural continuity of existing communities.

Gentefication, defined as a form of gentrification led by affluent Latinx individuals, complicates traditional narratives of displacement. In places like San Juan and Cabo Rojo, even well-intentioned diaspora returnees contribute to real estate speculation and a shrinking pool of affordable housing. Simultaneously, global trends such as the rise of short-term rentals (e.g., Airbnb) and U.S.-based investors purchasing properties for vacation or retirement exacerbate the crisis, converting community homes into commodities.

The chapter also highlights forced migration off the island, as thousands of families—especially those with children—relocated to the U.S. mainland due to destroyed housing, school closures, and stalled recovery. Those who stayed were often older or less mobile, continuing to rebuild under precarious conditions with limited formal support.

In conclusion, the chapter advocates for a multidimensional response to housing precarity in Puerto Rico—one that recognizes informality as a legitimate mode of urbanization and retools aid systems to be more inclusive, culturally competent, and community-driven. Recommendations include expanding aid eligibility criteria, regulating speculative investments, promoting affordable housing, enforcing short-term rental policies, and investing in title regularization. By amplifying the voices of those on the margins, this chapter aligns with the Handbook's broader goal: to reconceptualize precarious housing in ways that address systemic inequalities, colonial legacies, and global housing commodification.

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Key Words: Housing, Disaster, Recovery, Informality, Equity

In Defense of Autogestão: Overcoming Barriers to Collectively Managed Housing in Brazil and Uruguay

Abstract ID: 1844.0.0.720.2025

Track 7: International Development Planning

Pre-Organized Paper Presentation

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The majority of urban housing production for individuals with zero to low incomes in the Global South has occurred through self-help construction in initially informal and precarious settlements. Until the late 1990s, public housing ownership and, to a lesser extent, social rental housing were minimal. However, the new millennium has seen state-sponsored financialization of low-income housing, with large-scale developers leading massive construction projects.

This paper focuses on an often-overlooked approach to low-income housing development led by the third sector, known in Brazil as Autogestão and in Uruguay as Autogestión y Ayuda Mutua. The Uruguayan model of mutual aid cooperative housing was launched in 1970 and has withstood various neoliberal restructuring and neo-developmental policies. This model, which has inspired Brazilian housing movements to propose similar programs and policy reforms, is membership-based. This means that the future residents of the houses take charge of all stages of housing development.

The main objective of this paper is to define autogestão housing production, explain how it differs from other forms of participatory and cooperative housing, and highlight its importance as a form of third-sector housing production. The paper also identifies the challenges faced by autogestão housing, which include bureaucratic obstacles, market-oriented urban development practices, and ideological opposition from various perspectives.

Since 2017, the author has been involved in Participatory Action Research projects and international service-learning capstone experiences with housing movements in São Paulo, Brazil. These movements have many years of experience in drafting programs and producing low-income housing projects through self-management and mutual aid. These engagements resulted in the co-production of reports, physical interventions, grant applications, and capacity-building materials that informed this paper. In March 2023, the author conducted fieldwork in Montevideo, Uruguay. Data was collected through interviews with seven cooperatives at various stages of development, from renovation projects to those still under construction. Uruguay's case is crucial for understanding policy transfer, but it is especially significant due to the durability of its institutions.

The housing and cooperative movements driving these projects in Brazil and Uruguay are undoubtedly the key factors behind the above-average success of these initiatives in a favorable political and institutional environment. They are also responsible for the resilience of these efforts under periods of neoliberal governance. This paper discusses alternatives to overcome the bureaucratic obstacles and market-driven urban development practices, particularly regarding the issue of urban land. Additionally, it reflects on the ideological and ethical questions raised by critics across the political spectrum.

Citations:

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Key Words: Low-income housing, Self-managed, mutual aid, Cooperatives, Housing movements, Brazil and Uruguay

Housing and Land - Reflections from Latin America 1.0

Abstract ID: 1840.0.0.376.2025

Track 7: International Development Planning

Pre-Organized Session Summary

Session Includes: 1844.0.0.270.2025, 1844.0.0.206.2025, 1844.0.0.170.2025, 1844.0.0.351.2025

Flavia Leite [University of California, Berkeley] flavia_leite@berkeley.edu, organizer

Over 83% of Latin America's (LA) population lives in urban areas, and issues of access to affordable housing, the right to the city, and the distribution of land values are central to the region's urban future and are actively debated among social movements, state, and private actors. For this same reason, LA cities have developed some of the most innovative policies and instruments for providing housing, land-based financing strategies and infrastructure. Nearly 30 years after Brazil's City Statute and Colombia's Land Use Law, it is time to critically assess the trajectory and implementation of housing and land policies in the region. This panel is part of a two-part series dedicated to this task. Part I focuses on housing, exploring how state actors regulate and finance housing and infrastructure in LA. The papers examine how state action (or inaction) allows for the rise of corporate landlords, unequal housing subsidies, increasing residential mobility, and spatial inequality.

Learning Objectives:

- Learn how housing policy design, socioeconomic conditions, and institutional practices influence residential mobility and access to public subsidies for low-income homeowners in Brazil.
- Learn about the role of the state in the emergence of corporate landlords in Latin America and the impact of these private actors in the region's housing market.
- Learn about subnational actors' access to climate finance for social infrastructure in Amazonian cities, discussing what is being financed, from which institutional sources, and in which communities.

Returning the Keys: Residential Mobility for Low-Income Homeowners in Brazil

Abstract ID: 1844.0.0.270.2025

Track 7: International Development Planning

Pre-Organized Paper Presentation

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Despite the construction of over eight million housing units since the launch of the Minha Casa Minha Vida (MCMV) program in 2009, Brazil's housing deficit has been persistently increasing. Scholars point to a combination of factors to explain this paradox. On one hand, housing regulations and other exclusionary policies have made formal housing more inaccessible, and under constrained economic conditions, low-income families were pushed toward informality (Maricato, 2014; Rolnik, 2022). At the same time, MCMV itself has often operated more as a stimulus to the real estate sector than as a response to the housing needs of Brazil's low-income population, leading to a mismatch between what is built and where the housing deficit is concentrated (Shimbo et al., 2022; Cardoso et al., 2018).

This paper introduces a novel explanation that remains largely unexplored in the literature: the possibility that MCMV fails to reduce the housing deficit also because many low-income families do not remain in the units they receive. Focusing exclusively on the lowest-income tier of the program, this research shows that many beneficiaries exit the program by informally selling or renting out to relatively higher-income people — frequently returning to their previous informal homes. In other words, those who leave the MCMV program return to become part of the housing deficit.

This research adopts a mixed-methods approach that combines quantitative and qualitative data. Using panel data from Cadastro Único, Brazil's unified registry system for low-income people, I identify beneficiaries of the MCMV (Faixa 1) in the city of São Paulo and monitor changes in their residence, family and socioeconomic characteristics, over time. Importantly, I differentiate between two types of residents: those forcibly relocated to MCMV units through favela removal policies, and those who voluntarily applied to the program. Using a survival analysis approach, I estimate the likelihood of remaining in an MCMV unit over time and identify the factors associated with early exits. I find that housing stability varies substantially across demographic and project characteristics. Women with children and older individuals are more likely to remain in their MCMV units. Also, those living in projects with lower condominium fees are also more likely to remain in place. Importantly, those who were forcibly relocated tend to leave more quickly than voluntary movers.

To give texture to the quantitative findings, I draw on over 50 semi-structured interviews with MCMV residents in 10 projects in the city of São Paulo. Many interviewees describe the high cost of housing, in terms of condominium fees and utility payments, as the main reason for leaving their newly allocated apartments. Others describe social isolation, distance from work, and lack of adaptation to condominium living as reasons for informally selling and renting these apartments. Some respondents even expressed a preference for monetizing their home (by renting and selling) over long-term homeownership.

Taken together, these findings call into question the equation of housing formality with a permanent improvement in housing conditions. While MCMV expanded access to ownership on paper, its ability to generate stable housing outcomes is limited by both program design and people's preferences. For some low-income families, MCMV housing can be a long-term home, but for others it is better used as an asset that they can tap into through informal sale or rental to supplement their low incomes (Spader & Quercia, 2011). These findings raise important

questions about the sustainability of large-scale homeownership policies, and their ability to address the housing deficit, highlighting the need to rethink them in light of the everyday strategies and priorities of the urban poor.

Citations:

- Shimbo, L., Bardet, F., & Baravelli, J. (2022). The financialisation of housing by numbers: Brazilian real estate developers since the Lulist era. *Housing Studies*. <https://doi.org/10.1080/02673037.2022.2033175>
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Key Words: Homeownership, Latin America, Residential Mobility, Housing

Disentangling the State's Role in the Emergence of Corporate Landlords in Santiago, Chile

Abstract ID: 1844.0.0.206.2025

Track 7: International Development Planning

Pre-Organized Paper Presentation

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The growing connection between housing and finance has altered how housing is perceived and defined. Indeed, housing financialization processes are taking place globally, with international actors playing a role in shaping the financial aspects of the housing market (Aalbers, 2016). The incorporation of new actors into the Latin American housing market, particularly "corporate landlords," is creating significant shifts in the expansion and structure of housing patterns. This trend is establishing new practices and financial instruments. Institutional investors, such as investment funds, insurance companies, family firms, and listed real estate companies, can be described as financial actors who own and manage residential buildings, offering thousands of units for rent. Corporate landlords use specific real estate instruments to invest in the residential rental market, such as equity funds, hedge funds, or REITS (Real Estate investment trusts).

Currently, four countries in Latin America have the presence of corporate landlords: Chile, Colombia, Mexico, and Brazil; while this is still a new trend, the escalation of this model is increasing fastly. In Latin America, the model's appearance is related to new multifamily high-rise buildings expanding in downtown areas of metropolitan cities. For example, in Santiago, Chile, by 2023, more than 130 buildings will be under operation with more than 30.000 units. On the other hand, in Bogotá, where 45% of the population lives in a rental housing solution, this new real estate business has also arrived through the hands of local and international corporations.

Through the housing financialization process, the State has been key to the development and proliferation of corporate landlords worldwide, creating the mechanism, regulation, and instruments to allow this process. For example, in Spain, State intervention played a crucial role in strengthening the participation of private investors. Similarly, the active role of the State in the promotion of a subsidy system for the homeownership and mortgage debt system in Latin America; countries such as Chile and Mexico are examples of the economic and financial transformation of the housing market. However, little has been studied on the connections between state policies and the arrival of corporate landlords, the role of local governments, and specific local mechanisms and regulations that have allowed the possibility of a new rental market trend.

This paper looks to untangle the State's role in the emergence of corporate landlords in Latin America. Thus, to understand and identify the legal and financial regulations and strategies that allow the development of Corporate Landlords. Specifically, this paper analyzed the legal framework and institutional capacities by looking at the Chilean case. Through in-depth interviews with public officials and staff members and document analysis of legal and financial regulation, this paper provides an understanding of how housing deregulation has permitted the expansion of corporate landlords in the region.

I argue that by analyzing the Chilean case, this research will contribute to the understanding of the impacts of corporate landlords in the region and examine the relationship between the State and landlords, looking at the implications of the political economy of Latin American cities and the consequences to the local housing affordability crisis.

Citations:

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Key Words: Housing Financialization, Corporate Landlords, Latin America, Rental Regulation

Climate Adaptation Financing in the Rapidly Urbanizing Amazon

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Track 7: International Development Planning

Pre-Organized Paper Presentation

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The Amazon region intersects urbanizing areas in Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, and Venezuela. Seismic climatic changes to its biosphere—through deforestation, severe droughts, forest fires, fossil fuel extraction—and their concomitant impact on land use, settlement patterns, water resources, and, critically, Indigenous communities who have long stewarded rural lands, is precipitating major challenges in the Amazon. These challenges have resulted in the displacement of vulnerable groups and rapid, unplanned population growth. In extant financially scarce resource contexts, sub-national groups and municipal governments therein have an acute need for climate finance to both stem displacement and to better accommodate urban growth in the Amazon to ensure more sustainable and equitable urban futures. Despite a diverse and complex host of public and private financing sources supporting climate mitigation and adaptation actions, scholarship knows little about how well cities and subnational groups in this region fare in securing funds to tackle the intersecting crises of climate change, urban poverty, Indigenous displacement, and their implications for urban development. Research on urban climate adaptation in the Amazon region is scant. Instead, scholarship on the Amazon has primarily focused on biodiversity, climate change, hydrology, and hydropower within the region. Notable exceptions include research by Inoue (2012) on Amazonian municipalities, Malhado (2017) on climate governance and regulatory frameworks for agricultural expansion, and Londres et al. (2023) on place-based sustainability initiatives led by local grassroots organizations with extended engagement in the Amazon.

Building on this smaller body of research, we examine the landscape of institutional climate finance available to and accessed by subnational players in the Amazon biosphere, with a particular focus on understanding those who have successfully secured funds for adaptation. We ask a basic but complicated question: where and what does climate finance reach within the urbanizing Amazon? More specifically, in this paper, we explore which projects get financed, from what institutional sources, and which communities and geographies. Drawing on a novel dataset comprising financial data and projects financed by over twenty multilateral climate finance funds and coupling this with environmental, socioeconomic, and geospatial data, we analyze the interscalar and urban governance of climate finance in the region. This paper identifies characteristics among sub-national actors that have accessed climate finance (particularly for adaptation), the nature of climate projects financed, and the technical aspects of that finance in explicitly addressing the Amazon region's urbanization and climate change challenges. Although there has been significant progress in monitoring biodiversity and bioclimatic uncertainty and deforestation using geospatial techniques, we show that an information gap persists, especially when it comes to up-to-date information on rural urbanism, extended urbanization, and proto-urbanism as emergent fields of research and on Amazonian settlements as targets of urban climate funding. We conclude with key recommendations to institutions financing climate adaptation in the region to better ensure climate finance collaborations are attuned to the needs of subnational governments and Indigenous groups as they confront rapid urban growth, dynamic and cascading climate stress, and environmental inequities across rural, peri-urban, and urban areas in the Amazon biosphere.

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Key Words: Amazon, urbanization, climate, finance, adaptation

Designed to Include, Structured to Exclude: How Brazil's MCMV Policy Fails Its Poorest Beneficiaries

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Track 7: International Development Planning

Pre-Organized Paper Presentation

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Minha Casa Minha Vida (MCMV), Brazil's flagship housing policy, has delivered over 8 million units since 2009. Designed to increase homeownership for low-income households through supply- and demand-side subsidies, MCMV operates within two competing objectives: reducing the housing deficit and promoting economic growth. Fifteen years after its inception, the literature on MCMV indicates that economic growth ended up being prioritized to the detriment of reducing the housing deficit. Several authors have pointed out this contradiction and analyzed how the program outcomes serve the real estate sector, but not Brazil's low-income population (Klintowitz, 2016; Shimbo et al., 2022; Rolnik, 2019; Cardoso, 2013; Paiva, 2024). While these critiques focus mainly on implementation outcomes, little attention has been paid to the program's design—specifically, how homeownership is constructed as a policy solution for the housing deficit and whether affordability is truly achieved.

This paper addresses that gap by asking whether MCMV, as currently designed, effectively delivers homeownership to its intended target groups. By answering this question, we show that MCMV's design systematically benefits higher-income households within each income bracket, undermining the goal of increasing access to affordable housing and homeownership for lower-income groups. We provide empirical evidence of how affordability is distributed across income groups participating in the program and propose a broader research agenda for evaluating mass homeownership programs in Brazil through the lens of affordability.

We analyze MCMV administrative data linked to Brazilian census data to identify patterns in access and affordability across income brackets and regions. Using the universe of MCMV-financed mortgages, we estimate the maximum affordable mortgage payment for beneficiaries in each income range and compare these values with the actual unit purchased and household income. We find that as housing prices increase, beneficiary incomes don't keep up—calling into question the program's assumption that higher-priced units go to people with proportionally higher incomes. Our findings reveal a troubling pattern: higher-income households within each bracket are more likely to access the cheapest units, leaving lower-income eligible households with limited or no viable options. In practice, this means the upper end of each income range disproportionately benefits from the available housing supply.

Secondly, by analyzing income eligibility levels across different phases of the program, we find that broader income brackets reinforce exclusion within the eligible population and reduce affordability. Moreover, our results reveal a spatial pattern of exclusion across Brazil, with intensity varying by municipality size and level of economic development.

These dynamics show how both State policy design and private sector practices interact to shape exclusion. In particular, we describe how the State plays a key role by designing income brackets too wide to capture the high levels of poverty and inequality in Brazil or account for the diversity of the over 5.5 thousand municipalities. This leads to poor targeting of public resources—especially under fiscal austerity—where political incentives favor subsidies to less risky, higher-income households. These findings are especially relevant for Brazilian housing policy given the recent MCMV expansions to higher-income groups, which risk deepening inequality.

This paper reveals the urgent need to reassess both the design and implementation of mass homeownership programs. We argue for recalibrating income thresholds, improving targeting, and guaranteeing affordability so that homeownership can truly advance housing justice. More broadly, our findings call for a housing policy agenda in Brazil that places affordability at its core—an approach still largely absent from current literature and policy debate.

Citations:

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Key Words: Housing Policy, Brazil, Homeownership, Affordability, Financialization

Track 7 Roundtables

Improving Development Finance for Sustainable Urban Infrastructure in the Global South

Abstract ID: 1843.0.0.291.2025

Track 7: International Development Planning

Roundtable Submission, Topical Discussions

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Urban finance is one of the most neglected aspects of urban planning. It is well established that major investments in public infrastructure are required in the Global South to increase economic growth, to promote inclusive development and to address the global climate crisis, among others. Needs are expected to surge as (mostly urban) population continues to grow, inequalities worsen, and climate change demands accelerate in many countries.

Urban governments play or could play a major role in providing more public infrastructure. Unfortunately, deficiencies in local and intergovernmental governance/accountability, planning and financing mechanisms result in underperformance on this front. Yet there is ample reason (and evidence) to expect subnational governments in many countries, particularly metropolitan and city governments, to contribute more to sustainable development through public investments, public revenue generation, and managing public functions that contribute to both local and national goals.

Innovations in funding are essential to alleviate infrastructure gaps. Much urban infrastructure in the Global South is financed by intergovernmental fiscal transfers and special mechanisms that provide concessional finance (often from international finance institutions like the World Bank) that require sovereign guarantees, making them risky for a finance ministry. Grants and subsidized lending for local infrastructure remain essential in many countries, but if inappropriately used they can discourage creditworthy cities from commercial borrowing and deprive disadvantaged local governments of grants and subsidized loans. Green investment funds and facilities to guarantee subnational debt, among others, could increase available financing and relieve some of the burden on national governments of financing urban investment and providing subnational debt guarantees.

More appropriately structured and targeted investment finance along, however, is insufficient. Sustainable urban investments require provisions to cover recurrent costs. Once infrastructure is built, it must be operated and maintained, and any debt used to build it must be paid off. Thus, in many countries, broader governance and fiscal reforms are needed. Recurrent revenue mobilisation is needed from both traditional (e.g., property taxation and user fees) and innovative (e.g., land value capture) sources. Implementation of even the best development plans depends on these funds.

A range of efforts are underway globally to help solve the sustainable infrastructure finance crisis. One such effort is the Sustainable Development Solutions Network (SDSN) Global Commission for Urban SDG Finance. This panel will report on research and efforts by this Commission and a range of other actors to meet the investment finance challenges faced by cities in the Global South.

Building on sessions at past ACSP conferences, the roundtable will consider these questions:

- How can new means to finance urban investment in the Global South reduce challenges with existing mechanisms, increase available resources, and target finance appropriately? What can cities do independently and what support/coordination is needed from higher levels of government, neighboring jurisdictions, and external organizations?
- How can cities use existing and develop new revenue sources for more effective and equitable operation and maintenance of infrastructure and to service any debt incurred to build it?
- How can planning academics and practitioners conduct better research and devise actions needed to improve urban finance for sustainable development planning?

This panel includes ACSP planning academics and practitioners from international development organizations working on these issues to share their ideas, findings and experiences. The panelists will offer comments and generate discussion among the roundtable participants.

Citations:

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Key Words: Urban infrastructure, Urban finance, Urban Sustainability, Climate resilience, Urban governance

Planning Developmentalist Cities: Who Plans, How, and What It Means for the Public?

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Track 7: International Development Planning

Roundtable Submission, Facilitated Debates

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Urban development driven by developmentalist capital states—whether through state-led infrastructure development, speculative urban redevelopment, or large-scale housing projects—remains the predominant force transforming cities across Asia (Doucette & Park, 2028), Latin America (López-Morales et al., 2023), and Africa (Panell & Pieterse, 2010). Today, we are witnessing diverse ways in which developmentalism—an ideology and practice that prioritizes economic growth and progress through strong state intervention—continues to shape planning and govern cities across different geographies. With the spread of neoliberalism and financialization, the traditional boundaries of developmental states as bureaucratic institutions have become more fluid. Moreover, distinguishing between ‘state’ and ‘non-state’ actors has become more challenging as these diverse forces become more intertwined in planning initiatives. Emerging and hybrid forms of developmentalism differ from conventional models in that states’ presence becomes more subtle, dispersed, and nuanced (Shin et al., 2020; Tomba, 2014) while also increasingly functioning at the urban scale (Doucette & Park, 2018). As social and spatial marginalization persists in developmentalist cities globally, these shifts call for a renewed analytical lens to reassess the challenges and potentials of developmentalist cities—past, present, and future—especially in contexts where the state is both omnipresent and absent.

In this context, we invite participants to critically examine fundamental questions of planning in contemporary developmentalist cities: (1) “Who are the planners in developmentalist cities?”, (2) “What planning goals do development projects serve for the public?” and ultimately, (3) “What does planning entail in developmentalist cities?” Through these discussions, we aim to deepen our understanding of the lived experiences of planning and its implementation on the ground. We also aim to raise critical theoretical questions regarding the applicability and transferability of planning theories from the Global North, such as communicative planning and equity planning, that have imposed specific responsibilities on planners.

By re-examining the multifaceted manifestations of planners in developmentalist cities, this session will discuss various possibilities for moving beyond existing theoretical frameworks of understanding developmentalist cities. These possibilities include but are not limited to (1) critically engaging with prevalent views that characterize the state as a centralized and omniscient figure and (2) highlighting the temporal dimensions when the state manifests through diverse interactions and encounters in planning projects. Towards the end of the roundtable, we will explore the broader question of what developmentalism means and how it has evolved in planning. By bringing scholars and practitioners working in diverse contexts of developmentalist cities, this session aims to foster collective reflections on alternative urban possibilities and futures.

Citations:

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Key Words: Developmentalist Cities, Planners, International Planning, State, Public

What research on urban China can offer planning scholarship?

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Track 7: International Development Planning

Roundtable Submission, Topical Discussions

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Over the past few decades, China's rapid urbanization has been a key shaper of global urban development. At the same time, ongoing geopolitical tension between China and the U.S. has greatly reduced scholarly exchange and knowledge about urban planning issues in contemporary China.

China's urban transformation over the past four decades has not only reshaped its domestic spatial, social, and political landscapes but has also become a critical reference point for understanding urbanization in the Global South/East and beyond. The country's large-scale infrastructure projects, planning institutions, experimental governance, and urban-rural restructuring have generated a wealth of empirical cases and theoretical provocations for the field of urban planning. Yet, amid intensifying geopolitical tensions and the contraction of academic exchange between China and the United States, research on urban China is becoming increasingly siloed and is often excluded from comparative dialogues that shape global planning discourses.

This roundtable will feature a range of scholars working on urban China, focused on the question of what research on China can contribute to broader planning research and policy. Participants will reflect on how empirical studies of China's urban development provide unique insights into major planning challenges, including transportation, infrastructure, housing policy and affordability, digital governance, climate resilience, and low-carbon urban transitions. Special attention will be given to how China's distinctive political economy, institutional arrangements, and experimental urbanism challenge conventional planning theories rooted in liberal-democratic contexts. This conversation will offer some comparative reflections on China's progress made in areas such as infrastructure planning, climate change adaptation/low-carbon planning, digital planning, and housing development—focusing on trends emerging in China in the last five years or so. Challenges facing China's urban development, such as population decline, real estate downturn, and the strain on local finances will also be touched on. The roundtable will reflect on what lessons research on China's development planning can offer cities in the U.S. and elsewhere.

Another area of conversation is the future of China-U.S. scholarly exchange on planning—focusing on issues such as professional exchange and Chinese students studying in U.S. planning programs. The roundtable also explores methodological and pedagogical questions. What challenges do researchers face when conducting fieldwork in China amid growing restrictions? How can planning programs in the U.S. meaningfully incorporate Chinese urban experiences into their curricula? How might we rethink comparative planning in light of limited data access, censorship, and declining academic exchange?

Finally, the roundtable will discuss the future of China-U.S. scholarly collaboration in urban planning. With fewer Chinese students entering U.S. planning programs and professional exchanges under strain, the roundtable will discuss strategies to maintain open, critical, and productive channels of dialogue across national boundaries. By placing research on urban China at the center of a broader conversation about planning theory, method, and

education, this roundtable aims to reinvigorate transnational engagement at a time when it is most urgently needed.

Citations:

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Key Words: China, exchange, planning, knowledge, international

Track 7 Individual Paper Presentations

Aspirations for a Post-digital Rural Landscape: A Typological Study of Digital Solidarity in China

Abstract ID: 1844.0.0.1134.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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Based on an 8-month fieldwork study, this research paper catalogs spatial manifestations in rural areas of China's Yangtze River Delta Region and examines the social and spatial processes that support their emergence, replication, and maintenance. It illustrates how village-centered digital solidarity is becoming a powerful engine for transforming the rural landscape into a post-digital era. That means, with the widespread adoption of digital technologies, these villages are encountering new opportunities for industry diversification and integration. This transformation is leading to a renewed focus on lifestyle changes for local farmers, residents, and "new" villagers.

Using a descriptive case study approach with ethnographic methods, this research examines villages that have undergone digitalization and have experience collaborating to learn, build, and operate digital tools and platforms for new rural businesses (such as e-commerce, Airbnb, and social media livestreaming). Through multiple site visits and in-depth fieldwork, I found these villages have developed social relationships that extend beyond traditional rural Chinese kinship and neighborly ties. Multiple groups now share compatible long-term visions for their village's future, forming lasting collaborative partnerships to pool resources and contribute to various development projects in one area. Many participants have even become permanent residents, settling in as new villagers and facilitating new forms of reciprocity in the villages.

Through analysis of planning documents and local government budgeting reports, this paper first examines the spatial transformation processes in the case study villages and investigates common space typologies that reflect, support, and amplify digital solidarity. Drawing on participant observation as a planning researcher and designer, along with semi-structured interviews with key stakeholders—including government officials at various levels, village leaders, new and old villagers, agricultural technology companies, large farms, rural tourism operators, and business coaches from poverty-alleviation foundations—the research reveals how social and spatial processes are deeply intertwined.

Despite widespread incentive policies under Rural Revitalization directives, rural development remains challenging, with few examples of stable, self-sustaining success. Infrastructural improvements, policy and funding support, or well-designed projects alone cannot guarantee success. This research offers a bottom-up perspective by examining the socio-spatial relationships between digital solidarity and post-digital rural spatial practices. It reveals where challenges, conflicts, negotiations, and shared interests emerge throughout these processes. This approach not only helps local stakeholders co-develop projects and build solidarity groups but also guides planners and policymakers in China and beyond to recognize and protect the subtle features of rural landscapes that allow solidarity to flourish and visions to materialize.

Citations:

- Qiao, Tianyu, and Zeqi Qiu. "The Dynamic Process of Social Capital Transformation and the Emergence of ECommerce

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Key Words: rural development, digital solidarity, rural governance, landscape fieldwork, rural planning

Betraying the Ballot: Planning as Currency in Goa, India

Abstract ID: 1844.0.0.591.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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Democratic planning around the world faces a critical challenge: the instrumentalization of planning institutions for political patronage. Benjamin (2008) argues that planning in India operates through informalized governance structures that privilege elite interests over formal democratic mechanisms. We argue that this isn't an Indian issue alone – one can look at Indonesia, where Suharto's regime created several parastatal land agencies headed by a coalition of military and political leaders, and monetized land on the periphery of Jakarta (Shatkin, 2017) and the US, where a few months ago federal interventions and changes in leadership within the Department of Transportation nearly derailed congestion pricing in New York City.

Special purpose governments (SPGs), Planning and Development Authorities (PDAs), and other parastatals have long been used in democracies to bypass local governments—whether to push through locally contested projects or separate infrastructure debt from municipal budgets (Foster, 1997). In Goa, India these entities serve an even more explicit political function. This paper argues that planning positions function as political capital, solidifying coalition governments and rewarding legislators who “defect” across party lines. We term this phenomenon “planning as currency.”

India's smallest state has developed a parallel governance structure through a proliferation of parastatal planning agencies, accommodating coalition legislators and centralizing land use and infrastructure planning, effectively circumventing constitutional mandates for local government autonomy and democratic checks and balances.

This study utilizes mixed methods including document analysis of appointment orders, legislative records, and land conversion approvals, supplemented by interviews with political actors and planning officials. We analyze the history of the parastatals, and appointment patterns of state legislators across nine key parastatal planning authorities from statehood in 1989 to 2024, documenting how these positions correlate with political defections and coalition formation in the state government at the cost of local autonomy.

Our findings reveal that planning positions—rather than cabinet berths—have become the preferred currency for political accommodation. Legislators reported to be the architects of the three most recent coalitions in 2017, 2019 and 2022 for example, have all been given the Town Planning ministry (Prabhudesai, 2021), arguably because this portfolio allowed them to dictate memberships of multiple PDAs. A state legislator we interviewed corroborated this, saying they “preferred a Planning and Development Authority (PDA) to a ministerial berth.”

We identify three mechanisms through which planning as currency operates: (1) Land monetization (Shatkin, 2017), a phenomenon observed across South and South East Asia, where the state through public policy facilitates the conversion of peri-urban land for capital interests, (2) infrastructure project allocation to a cabal of politically-connected contractors and developers (Heller et al, 2016), and (3) selective enforcement of regulations against some constituencies (Benjamin, 2008).

The consequences for planning practice are significant: climate-conscious objectives in Goa's Regional Plans, the State Agriculture Policy, and the State Action Plan for Climate Change are systematically undermined by a shadow planning regime that prioritizes elite interests over accountability. The deep empirical base and access to historical

records in Goa allows for an analysis of how planners and political scientists can anticipate plan monetization and strategise solutions in the future.

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Key Words: special governments, democracy, governance, india, planning history

Beyond the rural-urban divide: Trust in local government among three populations in China

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Track 7: International Development Planning

Individual Paper Presentation Submission

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The legacy of rural-urban developmental imbalance and China's household registration (i.e., the hukou system) institution stratify Chinese citizens into three populations — rural residents, urban natives, and rural-to-urban migrants. These three populations have fundamentally distinct values, lifestyles, and socioeconomic status. They have also been assigned to different tiers of social welfare. Effective governance of these diverse and divided populations in urbanizing China requires a deeper understanding of their potentially different political orientations and attitudes toward government. However, urban scholars have limited knowledge regarding the geography of political trust, especially how rural-to-urban migrants' attitudes might be different from their rural and urban non-migrant counterparts. Our study fills this knowledge gap by examining the trust levels of these three populations in the county-level governments where they reside. We utilize data from the China Family Panel Study (CFPS) in 2014 and employ the propensity score matching method to match rural-to-urban migrants and rural residents with comparable propensities to migrate. This comparison found that rural-to-urban migrants are 6.7% less trusting of the county government than their rural non-migrant counterparts. Such a comparison captures the joint effects of migration and residential environment (rural vs. urban) on individuals' political trust. Then the method of mechanical matching is used to compare rural-to-urban migrants and urban natives. This comparison found that rural-to-urban migrants are 3.5% less trusting than their urban counterparts. This difference reflects the joint effects of migration and institutional identity (rural hukou vs. urban hukou) on individuals' political trust. Without matching, people who live in the countryside are 8.2% more trusting in government than people who live in cities. Migrants' lower political trust levels signal a problematic citizen-government relationship, which generates challenges for both rural-to-urban migrants and local governments in fast-urbanizing countries. Different populations' various relationship with local government therefore merits additional attention to place-based policy to rebuild trust, complementing the existing policies mainly focusing on economic and social improvements.

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Key Words: rural-to-urban migrants, rural-urban divide, political trust, propensity score matching, urban citizenship

Bridging through NGO Collaborations: Polycrisis response in Lebanon and Turkey.

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Track 7: International Development Planning

Individual Paper Presentation Submission

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The world is facing a complex array of interconnected crises. From the persistent implications of the COVID-19 pandemic and hazards intensified by climate change to interrelated environmental, socioeconomic, and political crises, wars, and acts of genocide, we are witnessing increased exposure of ever-more vulnerable populations (Oliver-Smith, 2022). As these social, environmental, and natural hazards converge, the risk of compounded crises is rising, and collaborative action is increasingly viewed as necessary to deal with these challenges effectively and humanely as a community (Bryson et al., 2006). When compounded crises collide - they produce what has been termed “polycrises” - a phenomenon typified by interwoven and overlapping crises. This research seeks to understand how nongovernmental organizations (NGOs) providing shelter and basic urban services tackle the challenge of collaboration and bridging - a task increasingly required due to the growing complexity of overlapping risks and disasters.

This research compares the role of NGOs under different governance modes and asks how they manage to collaborate and bridge gaps across different actors and institutions when hit with multiple crises, i.e., in the case of polycrises. It focuses on Beirut (Lebanon) and Gaziantep (Türkiye), which have been struck by unprecedented natural and manmade disasters while also grappling with multiple protracting, overlapping, and interconnected crises. In February 2023, catastrophic earthquakes hit Southern Türkiye, causing mass displacement of 3.3 million people and forcing 2 million to take shelter in tent camps and container settlements. In August 2020 a huge blast, the largest non-nuclear explosion in human history, rocked Beirut, resulting in significant casualties and destroying more than 300,000 housing units. In addition, Türkiye hosts one of the largest refugee populations in the world, whereas Lebanon hosts the world’s largest number of refugees relative to its national population. In both countries, the most pressing need in the face of polycrises is providing shelter and basic urban services. Access to shelter and urban services is imperative for survival after disasters and crises. The majority of affected populations by the polycrises in Lebanon and Türkiye struggle to access shelter or are inadequately sheltered and live in overcrowded, precarious, and insecure conditions.

Whether NGOs are “thrust into” roles or voluntarily “step up” to address needs in crisis response, they often do so by forming collaboration activities and creating bridges across actors and institutions (Simo & Bies, 2007). In countries where governments are highly involved in disaster response, it is often state institutions that call for collaboration and coordinate actions. This has generally been the case in Türkiye, which has long-established earthquake response plans and institutions and has typically coordinated disaster response through its central government. However, even in the face of a strong role for the Turkish central government in disaster response, preliminary findings show that NGOs played important roles following disasters, as was documented following the devastating Türkiye-Syria earthquake of February 2023, particularly the cooperative and collaborative role played by nonprofit organizations such as Syria-focused nonprofits and others established to respond to the Covid 19 pandemic. In Lebanon, nonprofit organizations have always played a critical role in post-disaster response, often leading disaster and crisis response plans. They have deep historical roots, often predating the establishment of the state – and have fulfilled various roles, especially in response to disasters and crises. This role was exemplified after the 2020 Beirut Port Blast response which was completely governed by nonprofit organizations. Similarly to the 2023 Türkiye-Syria earthquake, previously established NGOs played an important role.

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Key Words: Polycrisis, Crisis Response, Collaboration, Bridging Organizations, Urban Governance

Claiming Right to the Waterscape: Spatialized Ambiguity and Politics of Placemaking in Chattogram

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Track 7: International Development Planning

Individual Paper Presentation Submission

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The right to access and shape urban waterscapes in Bangladesh is constrained by complex power dynamics defined by class, gender, religion, and caste. In the case of the city of Chattogram, urban Hindu fisher communities have thrived along varied water edges for almost five generations despite their exclusion from urban planning processes. My research explores how these communities claim their rights to the waterscape and hence to the city itself by using spatialized ambiguity as a discursive instrument. Building on Roy's (2009) argument that informality gets operationalized through ambiguity, I argue that ambiguity is neither static nor one-dimensional. In the case of the Hindu fisher communities in Chattogram, ambiguity serves as the basis for claims against external actors but also reproduces unequal social relations within the communities themselves.

I use the term 'waterscape' to refer to the deeply intertwined character of water and society. In the context of South Asian countries like Bangladesh, where informality is a way of life and a dominant mode of urbanism, the concept of waterscape provides a prism through which to investigate 'who controls, who acts, and who has the power to produce what kind of socionature' (Swyngedouw, 1999). Viewing waterscape through a socionatural assemblage lens (Ranganathan, 2015) provides a basis for reimagining the fluidity, permeability, and socionatural materiality of land, water, and in-between spaces and identifying the relational politics that shape the nature of contestation over such ambiguous spaces.

Following the decades-long trajectory of an urban Hindu fisher community's struggle to access the waterscape, I explore residents' politics of placemaking on different 'grounds' – land, water, and in-between spaces. The community, located in Akmal Ali Ghat along the waterfront of Chattogram City, constitutes a multiply marginalized urban minority in terms of class, religion, and caste. Residents identify themselves as "jaladas" (slaves to water) and still largely depend on fishing or fishing-related activities for their livelihoods. The community continues to confront the threat of diminishing access to the different "grounds" that constitute their waterscape. Based on 10 months of ethnographic research, I argue that residents center ambiguity as a discursive instrument in a variety of ways. Maintaining collective ambiguity over fishing ground territory in the fluid 'sea-ground' deters speculation from external actors. Meanwhile, calculated ambiguity surrounding 'khas' land—the damp, transitional coastal zone—allows the community flexible access to public land for various temporary uses. However, when securing rights to 'solid, unwet ground', the community seeks to eliminate ambiguity, asserting land claims through the production of historical documents. Placemaking on these various grounds thus becomes a mobilization of geographical imaginaries, where relationships with nature and the built environment are produced and reproduced by socialized, ecologized, spatialized, and embodied subjectivities (Subramanian, 2009; Sultana, 2009).

As my research demonstrates, the community pursues placemaking practices that are highly attuned to the socionatural ambiguities of the waterscape, thus challenging dominant waterscape planning strategies. At the same time, however, residents deploy ambiguity to maintain and reinforce hierarchies within the community itself. Examining this politics of placemaking will thus further our understanding of contested waterscape production in the context of informal urbanism.

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Key Words: Ambiguity, Informal urbanism, Placemaking, Waterscape planning, Bangladesh

Climate Action Lags in Himalaya: Local Plan Making in Sarkegad Municipality of Humla District, Nepal

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Remote communities all over the world are facing uncoverable consequences of climate change, even though their carbon footprints are none or minimum. Some of the dire impacts are unfolding in indigenous communities of the Himalayas, where the temperature is rising 1.5 times faster than the global average (Shrestha et al., 2012), resulting in more than 25% glacier loss in the region since the 1980s (ICIMOD, 2011). These changes have created an existential crisis for these communities, creating livelihood havoc and limiting essential ecological services (Pandey and Bardsley, 2015). The rugged geographies, limited options for basic needs, and generational investment gaps in public infrastructures interacted with climate change impacts and associated disasters, incubating social, economic, and cultural vulnerabilities in these Himalayan communities. With the case study of Sarkegad Rural Municipality of Humla District of Nepal, this study strives to explain the growing climate change impacts on Himalayan indigenous communities and the disconnect between these impacts and local planning efforts.

With 10,688 residents in eight wards, Sarkegad Rural Municipality is one of the seven municipalities of Humla district of Karnali Province, disconnected from the national highway networks. The Municipality is experiencing drastic changes in rainfall, snowfall, vegetation, and temperature patterns in recent years. Forest fires and disease outbreaks directly impact livestock and people's livelihoods (Thapa, 2023). The Karnali River, the longest glacier river in Nepal, flows through the municipality and has experienced significant seasonal flow fluctuation in recent years. This study uses 211 household surveys, 8 focus group discussions, and 15 key informant interviews to analyze the impacts of climate change in eight wards of the municipality and local planning efforts to adapt to these impacts. The study finds that the infrastructure and economic priorities overshadowed the climate adaptation actions in local development plans despite the widespread experience of the impacts among the residents of all wards. Local development plans could not mainstream climate change impacts in their future priorities. The situation of Sarkegad Municipality represents the growing climate threat and local planning gaps in the Himalayan regions. Municipalities in the area must be empowered with context-specific planning guidelines and tools to mainstream climate change in the local development planning efforts to build resilient communities in these remote regions.

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Accessed on March 25, 2025.

Key Words: Climate change impacts, Local planning, Himalaya, Climate justice, Nepal

Community-Engaged Design and City Making Processes: A Shifting Dialogue

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Professionally grounded spatial practices working in low-income communities blend the technical expertise of the design and planning professions with an understanding of localized needs. They emphasize social justice, community participation, and contextuality in creating functional and empowering spaces, responding to calls for inclusive and democratic approaches to city-building, and a deeper understanding of how urban spaces reinforce or challenge entrenched social inequities. The literature on how NGOs improve living conditions in low-income communities is well established. It includes studies of local and global networks that address various urban issues, from shelter and services (e.g., REHOUSE) to establishing poor women's collectives to manage credit and savings (e.g., Slum Dwellers International, Mahila Milan, SEWA). Such NGO efforts empower residents, particularly women, to gain control of their lives and resources. Their networked approach, connecting local efforts to global movements, has been pivotal in addressing inadequate housing and access to water and sanitation, among others. However, scholarship on how design practices and their technical assistance networks use architecture and urban planning to support poor communities is nascent.

Research on how architectural design can address housing deficits or improve public space through concepts such as self-help and sites-and-services focuses mainly on slum upgrading; few studies explicitly examine the work of justice-oriented professionally grounded spatial practices. Such practices help create spaces that meet technical shelter or infrastructure requirements, and respond to the specific needs of communities, incorporating local knowledge, indigenous and vernacular building traditions for creating sustainable solutions resilient to urban growth, environmental degradation, and the impacts of climate change. Yet, arbitrary conventional housing standards, building codes, and zoning regulations continue to render adequate shelter largely unattainable for the poor. Even sound building attempts outside of formal codes are deemed "illegal" and face the threat of eviction, thereby dissuading the poor from investing in permanent materials. Architectural NGOs are most active in disaster relief and community development (e.g., Habitat for Humanity, Open Architecture Collaborative, Emergency Architecture & Human Rights). However, in the last decade or so, funding from organizations such as the Re:Arc Institute has expanded their scope, shifting the dialogue between architecture and society.

We examine how professionally grounded spatial practices contribute to promoting socially and environmentally just cities, and how they engage in the collaborative creation and dissemination of urban knowledge. Our research draws on discourses of socially engaged architecture, which foreground working towards the public good through design activism, shifting focus away from architecture as an acritical and apolitical market-driven profession, and participatory planning practices in the global South, where poor communities engage with the state to improve their living conditions through coproduction. We present a qualitative case study analysis of two such practices in India and Indonesia, respectively, with expertise in architecture and urban planning. Content analysis, interviews, and site observations offers insights into the guiding principles, tools, methods, and partnerships they leverage to influence policy and shape the built environment. Our findings indicate that their projects are not only a response to persistent socio-technical problems (e.g., shelter, services, public spaces, urban resilience) but also a way to

understand the spatial experiences of diverse marginal subjectivities vis-à-vis city-making processes and establish communication among stakeholders to induce change.

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Key Words: design, spatial practice, community-engaged, global South, city making

Electricity Access Beyond the Grid: Reliability and Off-Grid Energy Use in sub-Saharan Africa

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Despite continuous efforts for grid expansion, electricity access in sub-Saharan Africa (SSA) remains uneven (IEA, 2022). While some areas have electricity, many households experience unstable supply and others remain entirely off the grid. Ensuring fair and reliable access is central to energy justice, which focuses on equitable distribution and just transitions promoting clean energy solutions (Jenkins et al., 2016; Sovacool & Dworkin, 2015). This perspective requires understanding both cases where grids exist but remain unstable and where grid access remains unavailable. Few studies differentiate between grid availability, household connection, and reliable electricity supply. This simplification may overestimate the benefits of electricity access and underestimate persistent barriers to technology utilization in sub-Saharan Africa. Thus, we examine two key aspects of electricity access in sub-Saharan Africa, assessing variations in access, connection, and reliability. First, we analyze how grid connection and stability affect the use of electricity-powered devices. Even in areas with grid access, frequent outages, high energy costs, or transmission infrastructure hinder adequate energy use. Instability is a pronounced problem as electricity can power devices like mobile phones and the internet, which is crucial for access to information, education, and social interactions (Blimpo et al., 2020; Ingrams, 2015; Aker & Mbiti, 2010).

Second, we investigate off-grid areas where households rely on decentralized renewable energy sources like solar, wind, and battery storage. Given that grid expansion is costly and challenging to maintain, identifying the characteristics of households adopting alternative energy sources and understanding the regional contexts in which these households are concentrated can inform targeted policies supporting sustainable energy transitions.

We utilize nationally representative Afrobarometer household survey data from 34 African countries to classify electricity access into grid availability, actual connection, and stable supply. We apply multivariate regression and quasi-experimental methods, including propensity score matching and synthetic control models to estimate the effects of electricity access and reliability while accounting for confounding factors.

Our findings contribute to the literature by explicitly demonstrating that stable and reliable electricity access significantly increases consistent technology usage among households. Furthermore, we empirically investigate how decentralized energy activities that utilize renewable sources operate and identify their potential to support stable energy use in off-grid regions. Patterns in the data suggest that households with stable electricity access are more likely to report frequent use of mobile phones and the internet, underscoring the importance of reliability in shaping everyday technology use. These insights highlight the need for policies prioritizing reliability enhancements, infrastructure expansion, and planned decentralized renewable solutions. By clearly distinguishing between various dimensions of electricity access, we apply the energy justice framework to emphasize a nuanced approach to achieving equitable and effective energy provision in sub-Saharan Africa.

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Key Words: Energy Planning, Energy Reliability, Decentralized Energy, sub-Saharan Africa

Fallowing the Fields, Feeding the Fabs: Uneven Ecologies of High-Tech Development in Taiwan

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Across the globe, the expansion of high-technology production has become a cornerstone of national economic strategy and geopolitical positioning—yet beneath this drive lies an extractive infrastructure that reconfigures ecological systems and territorial governance to sustain digital accumulation. In Taiwan, semiconductor production has become a defining force in contemporary territorial politics, anchoring the island's role within global supply chains while restructuring the ecological infrastructures on which everyday life depends. At the center of this transformation is water—reengineered, rerouted, and revalued to sustain high-tech manufacturing. While reservoirs, pipelines, and water recycling systems are heralded as solutions to climate risk and economic resilience, they simultaneously obscure the processes of dispossession and uneven development embedded in their operation. This article argues that the expansion of semiconductor science parks in Taiwan is underpinned by a hidden infrastructure of resource reallocation—where water is systematically redirected from agriculture to industry, enabling the metabolic functioning of chip production while intensifying socio-environmental precarity in rural regions. The study situates this process within broader debates in infrastructure studies and urban political ecology, treating water not as a neutral resource but as a site of political struggle and institutional restructuring.

The central research question guiding this study is: how has the demand for industrial water in Taiwan's semiconductor sector reconfigured hydrological governance and spatial planning, and with what consequences for agrarian systems and territorial equity? The article draws on multi-scalar fieldwork, including interviews with state officials, planners, and farmers; spatial analysis of land use and infrastructure; and a close reading of planning documents and water policy instruments. Empirically grounded and analytically attuned to institutional power, this approach uncovers how science parks—designed to operate semi-autonomously from municipal oversight—have come to dominate not only land use decisions but also the political economy of water allocation. Through mechanisms such as emergency fallowing policies, inter-basin water transfers, and infrastructural guarantees, state agencies have increasingly subordinated agricultural uses of water to the priorities of the semiconductor industry. These reallocations, though often framed as temporary responses to drought, have become normalized, codified through national security logics and planning exceptions that protect industrial continuity at the expense of rural sustainability.

The findings reveal a deeply uneven landscape, where rural regions bear the ecological burdens of an industrial strategy centered on global competitiveness. Since the early 2000s, over 400,000 hectares of farmland have been fallowed during water crises, with compensation regimes masking the structural erosion of agrarian water rights. Meanwhile, the institutional apparatus of planning—including recent spatial governance reforms—has largely failed to address these tensions, as science parks bypass conventional oversight and secure privileged access to national agencies and resource planning forums. In focusing on Taiwan's water reallocation regime, this article makes a broader intervention into planning scholarship by demonstrating how infrastructural systems—often imagined as technical fixes—operate as instruments of techno-industrial power and territorial control. Taiwan's case exposes the environmental and political contradictions of high-tech expansion under conditions of climate volatility and geopolitical insecurity, offering a critical lens through which to interrogate the ecological impacts of the digital economy's infrastructural expansion.

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Key Words: Water Infrastructure, Industrial Upgrading, Agrarian Landscapes, Urban Political Ecology

Finding the Best (and Worst) Alternative: Drinking Water Accessibility After the 2009 Zambia Flood

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Drinking water is a basic need, and it is crucial for planners and policymakers to understand how people respond to water crises (Lassiter, 2024), especially in the aftermath of natural disasters when water supply infrastructure faces significant strain (Zhai et al., 2024). The negative impacts of disasters on water accessibility are especially severe in the Global South, where infrastructure is vulnerable, and relevant utility services are often unreliable (Hargreaves et al., 2019; Dube et al., 2021).

We analyze short-term and long-term effects of the 2009 flood—the strongest and deadliest in Southern Africa in decades—on drinking water accessibility in Zambia, using population census and Demographic and Health Survey (DHS) data. Specifically, we analyze whether people’s ideal water source was negatively affected by the flood and, if so, how they chose alternative sources and what policy implications planners could draw from empirical results. As in many African countries, only a small proportion of households in Zambia have access to in-house drinking water supplied by the piped system. Even access to public piped water outside the property—the second-best option—is limited. Some local communities and organizations construct “third-best replacement infrastructure,” namely public boreholes and wells. In the worst-case scenario, people obtain drinking water from open water sources, such as rivers.

Zambia’s three western and southern provinces were affected by the disaster, while other seven provinces remained generally unaffected. We exploit this spatial setting and first present difference-in-differences estimates using 1990-2010 census data to document the flood’s immediate effects. We observe no significant effects of the flood on the access to in-house piped water, which was used by fewer than 20 percent of households, most of which belonged to the highest wealth quartile. In contrast, there was a 9-percentage point decline in access to public piped water (used by around 20 percent of households), corresponding to a 40-percent increase in the proportion of households that had to fetch water from various non-piped water sources.

We present more nuanced understandings of responses to the destruction of water supply infrastructure using 1996-2018 DHS-Zambia data. Compared to census data, DHS data include longer panels of surveys and encompass the specific types of non-piped sources (boreholes, wells, and open water). DHS-based estimates present numerically similar short-term effects: the flood had no significant effects on in-house piped water supply, but access to public piped water declined considerably. But the flood not only had short-term effects; these negative effects persisted nearly a decade.

We further study how people responded to the decline in public piped water. The flood did not increase the time households spent fetching water, but there was a sharp increase in the proportion of households using open water sources, accompanied by an insignificant increase in the use of boreholes and wells. For households without in-house water, the reliance on open water sources was a practical approach to maintaining acceptable travel times, yet it raises concerns about water safety, especially in socioeconomically disadvantaged communities that traditionally experience greater challenges in post-disaster recovery (Rivera et al., 2022).

Our results present key policy lessons. First, the recovery of water supply is fast only in wealthy communities, suggesting social inequality in disaster management. Second, in a country with vast freshwater resources such as Zambia, the destruction of infrastructure may not increase the difficulty of fetching water. But this is because

households prioritize accessibility over quality. Third, policymakers must closely monitor public health issues as people rely on open water sources in the absence of public pipes or replacement infrastructure.

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Key Words: water, Africa, infrastructure, disaster, public health

Flood Vulnerability and Leaders' Perceptions in Coastal and Rural Vietnam

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Climate-induced flooding increasingly threatens communities worldwide, particularly in low-lying areas with insufficient infrastructure. Effective climate adaptation strategies require integrating local knowledge and perspectives into community-based approaches (Ayers & Forsyth, 2009). This study comparatively analyzes flood vulnerability and community leaders' perceptions in two flood-prone communities in Vietnam—Da Loc, a coastal area experiencing urbanization pressures, and Ben Voi, a traditional agricultural inland community. Both areas share common vulnerabilities, including inadequate drainage systems, aging levees, and limited evacuation accessibility, yet exhibit nuanced differences shaped by their geographic and socioeconomic contexts.

Employing a multi-method approach, this study utilized community mapping, surveys, in-depth interviews, and Q-methodology to capture local risk perceptions and identify specific vulnerabilities, as recommended by van Aalst et al. (2008). Community mapping highlighted shared issues, such as frequent flooding of residential areas and critical infrastructure. However, differences emerged in perceived priorities: leaders in Da Loc emphasized improving urban drainage infrastructure and flood prevention facilities to cope with urban growth and tidal influences, whereas Ben Voi leaders prioritized maintaining agricultural productivity and enhancing levee management and rural economic support.

Q-methodology revealed three dominant perception typologies across both regions: infrastructure-focused, economic recovery-focused, and nature-adaptive strategies. While infrastructure improvements were broadly favored, the emphasis varied significantly between the communities, reflecting their unique geographical and socioeconomic circumstances. Da Loc leaders placed greater urgency on structural solutions and urban planning measures, while Ben Voi leaders stressed agricultural resilience and rural economic recovery. These differentiated responses underline the importance of adaptive strategies that recognize local contexts across multiple scales (Adger et al., 2005).

The findings suggest that a community-based adaptation (CBA) approach, recognizing both common vulnerabilities and local differences, can inform more targeted and effective climate adaptation strategies. This comparative perspective contributes valuable insights for policymakers and planners aiming to enhance resilience in similar flood-prone contexts.

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Key Words: CommunityBased Adaptation, Flood Vulnerability, Participatory Planning, Local Knowledge, Vietnam

Food Security from Genes to Fields: Planning Super-Rice Farms in China

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Food-based trade wars are a defining characteristic of contemporary geopolitics. In present-day China, the logic of national security is profoundly reshaping agricultural regions. Since the mid-2000s, the Ministry of Land and Resources has launched national campaigns aimed at increasing agricultural outputs under the “food security” imperative. Following directives from the central government, local state agencies have mobilized architects, planners, bioengineers, and agronomists to redesign agricultural villages into spaces optimized for corporate agribusiness and high-yield crop varieties. Through these interventions, experts have facilitated the transfer of farmers’ land to specialized agricultural enterprises (often state-owned), effectively transforming many small farmers into waged agricultural workers. The state expects that corporate control over rural land will enhance national food self-sufficiency in anticipation of future crises, including a war. This paper investigates these planning practices emerging at the intersection of agricultural efficiency and national security. It asks: What forms of spatial governance does food security take in present-day China? And what are their effects on agricultural villages? The paper argues that a new mode of planning has taken shape—one that interprets food security as a strategic imperative for national sovereignty, economic stability, and the political legitimacy of the Communist Party. This shift marks a departure from previous decades, when local governments prioritized rural land conversion for urban real estate development under what scholars called the “land revenue regime.” Findings reveal that under this emerging mode of governance, termed in this paper “food security regime,” local government officials have little choice but to plan for large-scale corporate agriculture at the expense of small farmers. The paper argues that the food security mentality and associated planning thinking are driving one of the most significant agrarian transitions in recent human history.

The paper examines the planning of hybrid super-rice farms as a case study for the territorialization of the food security regime. Hybrid super-rice, a high-yield staple cereal developed through the genetic modification of hybrid rice, plays a central role in state propaganda on food security and is now a symbol of the geopolitical strength of Chinese science. The paper combines multiscalar analyses of rice genetic design and agricultural planning documents with ethnographic research conducted in rural villages between 2015 and 2018. Findings reveal that bioengineers had initially designed hybrid super-rice as a universal solution to boost smallholder yields and strengthen small farmers’ economy. However, this approach failed to account for the high costs associated with its production, which requires precision farming techniques, mechanization, and large-scale landholdings. As food security concerns intensified in the early 2000s, the Ministry of Land shifted its focus from protecting small farmers to facilitating large-scale agribusiness. Local governments began hiring experts to restructure agricultural land within their jurisdictions, making it more attractive to corporate investors. Planning strategies prescribed farmland consolidation, land clearances, new road networks for industrial transport, hydropower-driven irrigation systems, and designated areas for potential eco-tourism development—all while reclaiming land use rights from villagers. Within the food security regime, the paper shows, high-yield varieties emerged as a “revolutionary” force: their improved genetic tied the state to the prescription of agribusiness land transfers and the national replanning of a corporate agricultural social space.

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Key Words: Food security, Agrarian planning, Urban-rural interface, China

From Presence to Reach: Community and Household Infrastructure under Climate Change in Africa

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Reliable access to basic infrastructure such as water, sanitation, and energy remains limited in many vulnerable settlements across African countries while climate change continues to reinforce associated social inequalities (Trisos et al., 2022). Although a growing body of literature has examined the intersection of infrastructure, urbanization, and environmental change (Anand et al., 2018; Beard et al., 2022; Dos Santos et al., 2017; Vanegas Cantarero, 2020), empirical studies tend to adopt either place-based or people-based approaches. The former emphasizes the collective management of communal and shared infrastructure, while the latter often explores practices of households and individuals in accessing infrastructure. While the interdependence between these levels has been widely acknowledged, few empirical studies have explicitly examined their interconnection.

Building on the literature, we examine the multilevel structure of infrastructure by analyzing the dynamics between the community-level infrastructure environment and actual household access and practices. The focus is to identify the factors that shape such configurations—particularly diverse settlement types and climate anomalies—given that rapid urbanization and heightened climate risks undermine infrastructure stability. The analysis centers on water, sanitation, and energy, which are essential for daily life and depend on interconnected systems across spatial scales. We address the following questions: (1) How do the presence of water, sanitation, and energy infrastructure at the community level and the reliability of household access diverge within and across communities? (2) To what extent do settlement types (urban, peri-urban, town, and rural village) and precipitation anomalies (droughts and heavy rainfall) affect infrastructure conditions at both community and household levels?

To address these questions, we construct a repeated cross-sectional data frame by harmonizing multiple sources over the past two decades, including Demographic and Health Surveys (DHS), Afrobarometer, Global Human Settlement (GHS) layers, and Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS). We use descriptive statistics to characterize infrastructure configurations and apply multilevel regression models to estimate the effects of settlement types and rainfall anomalies on both the presence of community-level infrastructure and the reliability of household-level access.

Our analysis reveals substantial disparities in infrastructure across communities, with limited coverage particularly in peri-urban areas and rural villages. Even where improved infrastructure exists at the community level, household access remains uneven—largely shaped by household-level characteristics and the degree of settlement urbanicity. In areas that repeatedly experience rainfall anomalies, household-level access and reliability are lower, regardless of the presence of infrastructure at the community level. These findings suggest that while infrastructure may be present to address climate risks, its delivery is constrained by compound social and environmental barriers. The study underscores a persistent disconnect between infrastructure presence and actual reach, highlighting the need for multilevel approaches to infrastructure and adaptation planning that incorporate both spatial and institutional variation across settlement types and climate conditions.

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Key Words: Infrastructure, Urbanization, Climate change, Practices, Africa

Hierarchy and Global South Network Embeddedness of Nepal's Urban System: A Transport Flow Analysis

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Track 7: International Development Planning

Individual Paper Presentation Submission

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In the context of globalization and regional integration, urban network research has progressively emerged as a critical lens for analyzing regional development disparities. Nepal, as a representative developing nation in South Asia, demonstrates an urban system persistently constrained by fragmented topography, inadequate infrastructure, and limited participation in globalization processes. These structural constraints have resulted in pronounced urban-rural dualism and lagging regional coordinated development. Recent years have witnessed transformative spatial restructuring of population mobility and logistics networks within Nepal's urban system, driven by the Belt and Road Initiative's implementation in the trans-Himalayan region. However, existing scholarship predominantly focuses on individual cities or conventional economic indicators, lacking systematic analysis of urban hierarchy dynamics and Global South network embeddedness through the lens of multimodal transport flows.

This study aims to address three pivotal research questions: 1) How to construct a hierarchical model of Nepal's urban system through multimodal transport flow data encompassing road transport, air connectivity, and cross-border logistics? 2) What spatial heterogeneity characterizes Nepalese cities' embeddedness within Global South urban networks? 3) Through what corridor-node-hinterland mechanisms do transport flow networks influence urban systems' globalization pathways? These inquiries critically examine the transformational challenges facing mountainous developing cities in global integration processes.

Adopting a tripartite analytical framework of "data integration-network modeling-spatial verification," this research first synthesizes OpenStreetMap road networks, domestic/international flight data, and World Bank logistics datasets. Subsequently, Social Network Analysis (SNA) quantifies node centrality metrics (betweenness, closeness) and community structures to delineate urban hierarchies. Spatial syntax modeling further deciphers topological characteristics of transport networks, complemented by field investigations validating how international investment projects drive urban network evolution. Preliminary findings reveal: 1) A multi-tiered urban hierarchy centered on Kathmandu, with a Kathmandu-Lumbini-Pokhara fan-shaped structure exhibiting core-periphery fractures in network power distribution; 2) Multidimensional interactions between core and border cities in Global South network embeddedness, particularly demonstrating 2-3 order deeper integration along Nepal-China cross-border highway corridors compared to administrative hierarchies.

This study elucidates Nepal's transport flow-driven hierarchical restructuring and reveals its Global South network embeddedness follows a "transit corridor primacy" principle. The conclusions challenge conventional administrative hierarchy determinism, proposing that mountainous developing nations require resilient transport network construction to achieve network power transition. Policy implications advocate establishing cross-border transport flow monitoring platforms and upgrading regional logistics hubs from corridor-oriented to platform-based models. Theoretically, this research pioneers an interdisciplinary analytical paradigm integrating transport geography and political economy for Global South urban network studies.

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Key Words: Urban Hierarchy, Network Embeddedness, Global South Network, Transport flows, Nepal

How Do Residents Construct and Modify Informal Housing in Informal Settlements of Dhaka, Bangladesh?

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Informal settlements are a prevalent type of housing worldwide, serving as spaces where millions build their lives, driving urban and socio-economic transformations. Recent studies underline the role of informal settlements as essential modes of housing production and forms of urban development (Dovey et al., 2020). Scholars increasingly advocate recognizing informal settlements as legitimate housing and as “permanent fixture(s) of the global urban landscape” (Pojani, 2019, p. 294). Urban resilience and sustainability efforts must start by including informal settlements in the conversation, rather than disregarding them as problems to eliminate. However, while informal settlements have been widely discussed in informal urbanism and housing debates, aspects of urban form and understandings of architecture remain understudied, and mostly disconnected from debates on incremental housing (Kamalipour and Iranmanesh, 2021).

Incremental housing consists of homes that evolve gradually, expanding or adapting over time. Within housing scholarship and architectural narratives on incremental housing, informal settlements are frequently framed as self-help solutions to housing shortages. Individuals and households drive this housing production, navigating financial, material, and labor constraints (Alam, 2023). In practice, incremental housing is not simply a linear process of improvement but is shaped by opportunities and limitations that change over time. So why do scholars and practitioners often assume a linear progression? I argue that a crucial area for further research is the lack of understanding regarding the networks of materials, knowledge, relationships, and power that influence these processes. Addressing this gap, this study asks: how do physical and social factors shape the construction and modification practices of informal housing? I draw on literature in urban informality and assemblage theory to construct my theoretical and methodological approach.

Assemblage theory examines socio-spatial interconnections, where identities and functions emerge through flows, alliances, and synergies (McFarlane, 2011). Using assemblage thinking as an analytical tool, the study examines how informal housing is built, rebuilt, renovated, and decorated, and how these housing processes inform approaches to urban informality challenges. This study was conducted in three informal settlements of Dhaka in the neighbourhoods of Karail and Tejgaon. These settlements were selected to provide a broad understanding of informal settlements of varying sizes, land status, and housing ownership types. Fieldwork conducted in June 2023 included an observational study, photography-focused visual methods, and in-depth interviews with 23 households. Purposive and snowball sampling were used to recruit participants. The length of interviews varied from 20 minutes to 1 hour, depending on the residents’ availability and weather conditions during the monsoon season.

By uncovering the socio-spatial assemblage of the residents’ housing processes, the study found informal housing to be a product of diverse social, material, and political forces interacting or counteracting one another. These forces should not be viewed in isolation but as part of a relational assemblage that adapts and transforms over time. The findings call for urban development policies that reflect the heterogeneous and dynamic nature of informal settlements, challenging the reliance on the hope that incremental housing will eventually lead to the end of precarity. Moreover, the study highlights the constraints and opportunities residents navigate, offering a counter-narrative to depictions of informal housing as either a site of heroic self-sufficiency or a space of inevitable

precarity. Instead, the findings foreground the everyday complexities of informal housing production and modification, demonstrating the nuanced realities of life in informal settlements.

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Key Words: informal housing, urban informality, housing assemblage

Inclusive Resettlement Design for Chinese Peri-Urban Land-losing Farmer Communities

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Peri-urban communities in China face complex transitions and reduced well-being due to rapid urbanization driven by decades of a neoliberal 'growth first' strategy (He&Wu, 2009), resulting in numerous resettlement communities for land-losing farmers following land expropriation and in-situ urbanization. While previous research has explored social and economic challenges, the built environment's role in facilitating rural-urban transitions remains underexplored. Current studies primarily focus on critiquing current paradigms and recognizing general patterns and space usage, leaving a research gap in providing systematic suggestions for future resettlement design that facilitates the rural-urban lifestyle transition for land-losing farmers. This research thus explores how community-level design can support a smoother rural-urban lifestyle shift for land-losing farmers in Chinese peri-urban resettlement communities. It pursues three objectives: identifying transition issues relative to built environment design, exploring transition-friendly design principles and programs for resettling existing communities, and developing a scalable and transition-sensitive spatial design framework.

Given the limited successful cases where resettlement was intentionally designed to address transition issues, this research incorporates a 'research-by-design' method, structured in three iterative phases: pre-design, design, and post-design (Roggema, 2017). In the pre-design phase, literature was reviewed, and three in-situ resettlement case studies with different distances to urban areas (Liede Village, New Tan Village, Daliushu Village) were analyzed using archival research, spatial analysis, observations, and interviews. Data on physical design, social dynamics, and programmatic initiatives from the cases were collected and analyzed through an adapted Peri-urban Turbulence framework (Hutchings et al., 2022), which categorizes infrastructure into five types—natural, engineered, social, institutional, and cultural—to identify service gaps affecting farmers' transitions. By examining how design solutions in the case studies restore, substitute, or enhance these infrastructures, the research derived design principles, objectives, and tools, synthesized into a design framework. In the design phase, the design framework was tested through the design of Jixing Community, a peri-urban resettlement site in Wuhan, China. In the post-design phase, both the design outcome and the framework will be analyzed to expose limitations and implications.

This research argues that a more inclusive design for land-losing farmers' resettlement is possible through: 1) Preserving and reinstating the natural and social infrastructures of the original farmers' community while enhancing the engineered and institutional infrastructures, 2) Ensuring authentic narratives that employ the spatial structure, landscapes, design elements, texts, and symbols of the original farmers' community, and 3) Enabling participatory design process and informal spatial adaptation.

Academically, this research introduces a potential peri-urban spatial prototype for reimagining the built environment of peri-urban areas and tests the explanatory usefulness of the newly developed Peri-urban Turbulence theory. Practically, it offers people- and community-oriented design alternatives for both China and the Global South, where rapid urbanization and large agrarian-skilled population present unique challenges. The research-by-design method offers a new lens to synthesize and analyze peri-urban issues, appealing to more tailored design alternatives in practice and engaging both academia and practitioners. Finally, this research calls for increased effort and attention to be focused on the peri-urban area as a major subject in its own right. This is particularly important as urbanization rates are expected to slow down, necessitating a more sustainable form of peri-urban area.

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Key Words: Peri-urban Turbulence, Resettlement Design, Land-losing Farmers, China, Inclusive Development

Informal Settlements: The Conflict of Land and Urban Image in Jakarta

Abstract ID: 1844.0.0.915.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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Informalities often encroach into formal structures and blur the boundaries between legalized land use and informal existence. Urban informality, a phenomenon where informal settlements blur the boundaries of legal land use, is often framed as a challenge unique to the Global South (Dovey, et.al. 2023). Yet, its manifestations reveal a global struggle between formal planning ideologies and the lived realities of marginalized communities. This research interrogates how informalities in the physical fabric of Jakarta are connected to how 'coloniality' is practiced as a form of power that categorizes people and wealth, consequently resulting in socio-spatial exclusion and uneven power dynamics in urban planning. Focusing on Jakarta Kampung Aquarium, the research addresses two questions: 1) How do formal representations of urban space juxtapose with the informal settlements? 2) What tactics do residents employ to reclaim agency over their environments?

We utilize a mixed-methods framework combining historical mapping, planning policy analysis and archival research. Historical mapping via Google Earth traces land-use transformations from 2003 to 2024, contrasting formal zoning policies with residents' functional adaptation of space. Planning policy analysis examines inconsistencies in Jakarta's regulatory frameworks, particularly the legal ambiguities highlighted in Regional Land Use Document No. 1 (2014). Archival research of newspaper articles and government records reconstructs the 2016 eviction and subsequent Community Action Planning (CAP) process initiated in 2017. It captures participatory engagement with residents, activists, and planners as grassroots tactics and political bargaining during elections and insurgent rebuilding post-eviction.

This paper contributes to understanding planning strategies in upgrading and formalizing informal settlements as a meeting of planning activities between those outside the formal regulatory procedures with state-mediated planning processes in 'cocreating informality' (Marlies and Huib 2022). Building on planning scholarship that reframes informality not as a "problem" but as a site of innovation and resilience (Holston & Sandercock 2020; Miraftab 2009), we demonstrate how co-production models like CAP might help mitigate displacement by integrating community voices. This approach stands in sharp contrast to top-down eviction policies while also navigating contested legalities of land. As such, these processes challenge Western-centered planning activities and its citizenship-centered divides toward more humane urbanism in responding to local and global displacements (Huq and Miraftab 2020). The study underscores the urgency of decolonial urbanism, advocating for policies that address historical injustices and redistribute spatial power.

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Key Words: Informality, Participatory Planning, Decolonial Urbanism, Community Action Program, Insurgent Planning

Intermediation Assemblages: Technology, Mobility and the Future of Work in Urbanizing India

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Track 7: International Development Planning

Individual Paper Presentation Submission

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The future of work in urban economies is being radically transformed by social, economic, and techno-political disruptions in labor intermediation. As digital technologies proliferate, a fundamental question emerges for urban theory: Does the smartphone herald an era of socio-economic mobility untethered from spatial proximity? Urban Planning literature has long posited cities as essential to economic development through agglomeration, concentration of labor, and productivity gains. Yet digital technologies potentially democratize information access beyond physical boundaries, challenging these assumptions. This paper investigates this question through research in Bengaluru, India's 'Silicon Valley'. India's trajectory—moving from agricultural labor directly to service-oriented work without an industrial transition—creates a unique laboratory for testing whether the urban advantage is being replaced, reconfigured, or complemented by the smartphone, the platform, and the gig economy. The study employed a year-long multi-sited ethnographic approach, examining migrants in Bengaluru while also tracing their journeys back to their places of origin in Assam. This methodological triangulation allowed for a comprehensive understanding of migration patterns, their social networks, and technological adaptations across geographical contexts; providing insight on how new socio-technical 'intermediation assemblages' are reshaping both labor markets and social institutions.

I argue that these assemblages manifest through three transformative shifts. First, friendship networks increasingly supplant kinship ties as primary information conduits, creating more diverse labor mobility pathways. Despite this however, 'caste logics' continue to graft themselves onto the ways individuals perceive the dignity and desirability of available work, demonstrating the persistence of traditional social attitudes alongside technological innovation. Second, digital technologies—social media, job-matching apps, and improved search interfaces—promote greater individuation in work-searching. Contrary to advocacy for stabilizing or formalizing gig work, many migrants strategically view the city as a flexible resource reservoir—a cash pool they can access or leave according to their individual needs. This flexibility, rather than job security or permanence, proves most valuable in sustaining their 'multilocal' households that maintain connections across multiple locations. Third, labor-intensive urban industries now embrace high worker turnover instead of prioritizing retention, transforming human intermediaries from enforcers of social discipline into professional transaction facilitators.

The empirical findings demonstrate that while digital platforms facilitate novel information conduits, they do not supplant the 'tacit knowledge' acquired through direct urban immersion. For labor migrants, the embodied understanding of market dynamics, wage structures, and livelihood strategies constitutes an irreplaceable foundation upon which digital intermediation mechanisms may subsequently augment access to opportunities. The physical act of migration and its attendant learnings remain prerequisite to effective labor market navigation, despite the proliferation of digital technologies. Once established within urban spaces, however, these technologies significantly expand migrants' informational horizons beyond the constrained social and institutional universes of rural life. The conceptual framework of socio-technical 'intermediation assemblages' thus elucidates how the dynamic interplay between social networks, technological platforms, and institutional arrangements generates distinctive new patterns of labor market access and mobility, reconfiguring traditional pathways without rendering spatial proximity obsolete.

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Key Words: Labor, Migration, Development, Technology, Informality

Land, Power, and Green Justice: Rethinking Growth Coalitions in China's Residential New Development

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Growth coalitions have historically been recognized as pivotal drivers of urban development. However, they currently face a significant challenge: adapting their strategies to promote equitable and resilient urban futures in light of evolving global trends. One pressing issue is the rapid urban expansion driven by these coalitions in China, which raises important questions regarding environmental justice—specifically, the availability of sufficient green spaces in newly built residential areas. This situation highlights the necessity of thoroughly examining how growth coalitions influence urban development while ensuring environmental justice. This study investigates the roles of various growth coalitions—comprising state-owned enterprises (SOEs) and foreign-funded ventures—alongside non-coalition actors, including public institutions, private developers, and individual entities, in influencing neighborhood-level vegetation, quantified using the Normalized Difference Vegetation Index (NDVI). We employ a dataset of 9,444 newly developed residential parcels from 2002 to 2021, incorporating city-level fixed effects to provide a more refined estimate of how different types of coalitions relate to greenery levels in these neighborhoods.

The results indicate that parcels managed by private enterprises or individual entities exhibit significantly lower NDVI scores compared to those led by coalitions that include SOEs. This finding suggests that development strategies associated with specific coalition types can enhance green coverage in urban areas. In contrast, foreign-funded joint ventures and government-led projects show no substantial difference from the baseline established by SOEs. Additionally, time trends reveal modest improvements in average NDVI scores, which are counterbalanced by increasing land price pressures in certain districts. By identifying the coalitions associated with reduced greenness, this study emphasizes the critical role of governance structures in influencing environmental justice within China's rapidly growing urban landscape. The evidence presented highlights the importance of collaborative governance models in fostering sustainable urban development.

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Key Words: Green justice, Growth coalitions, NDVI, Urban China, Residential development

Mapping the Implementation of Land Value Capture Instruments within CDMX Planning System

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Innovative land value capture instruments in Mexico City face social, legal, and institutional challenges that complicate their implementation. On the one hand, the city stands out for incorporating a series of “traditional” fiscal and land value capture instruments into its urban development apparatus (Bolaños et al., 2001; Smolka, 2013). On the other hand, “innovative” land value capture instruments have faced challenges that hinder the city’s capacity for conducting urban development. While property tax is reasonably well established, instruments like Contribucion de Mejoras (Improvements Contributions) report multiple years with minimum or zero income, and more sophisticated instruments like the Sistemas de Actuacion por Coperacion (Cooperative Action Systems) have been questioned and scrutinized by society due to its complex legal structure and opaque operation.

This situation becomes even more complex when we consider changes on the scale of the Polity that define the limits for this type of policy instrument's operation. In 2018, Mexico City enacted a new Political Constitution, which set in motion an institutional restructuring with direct effects on the architecture and operation of its planning system. My research aims to understand the challenges and opportunities this institutional restructuring offers for developing and enacting land value capture instruments by asking: What were the main challenges to implementing land value capture instruments between 2012-2018 and 2018-2024? Does recently enacted planning legislation provide ways for implementing land value capture instruments? I research these questions by examining the land value and urban planning instruments implemented during the last two city-level administrations. By bridging literature on urban planning, public policy, law, and grey literature, I examine the mechanisms that prevent land value capture from being enacted and identify structural and legal conditions that allow for its implementation under a renewed planning legal framework. I employ content analysis and in-depth interviews with local experts, state employees, and real estate developers to understand how different instruments have been deployed, as well as the main challenges to implementing this type of instrument. I argue that the implementation of innovative land value capture instruments has been hindered by their perceived character as obscure ad-hoc solutions that fail to fully integrate into a comprehensive long-term planning apparatus. The proposed research is relevant to discussions about Land and Housing in Latin America as it aims to identify how specific instruments fit within a larger planning system, and sheds light on how these interactions affect specific implementation efforts.

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Key Words: Land Use Value, Public Financing, Comprehensive Planning Systems, Mexico City

Mapping Urban Climate Action within the SDG Framework: A Global Analysis of Voluntary Local Reviews

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Track 7: International Development Planning

Individual Paper Presentation Submission

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As global temperatures approach the critical 1.5°C threshold above pre-industrial levels, the need for comprehensive climate action has never been more pressing. Successful responses require coordinated efforts across three critical dimensions: First, global cooperation is essential given the inherently transnational nature of climate challenges. Second, holistic strategies must address the complex interplay between environmental and societal issues. Third, particular attention must be paid to urban areas, as cities simultaneously represent major sources of emissions and frontline victims of climate impacts.

The past decade has seen significant progress in climate governance, particularly through the establishment of international frameworks like the United Nations' 17 Sustainable Development Goals (SDGs) adopted in 2015. Within this framework, Climate Action (SDG 13) serves as a foundational element for achieving the interconnected goals of people, planet, and prosperity, demonstrating how climate initiatives affect multiple sectors. Nations and cities worldwide have responded by implementing various climate action plans and programs.

However, critical gaps remain in our understanding of how effectively cities are aligning climate actions with other SDGs, and what factors determine successful integration. Current scholarship primarily examines this interconnectedness through three limited approaches: analysis of target overlaps within SDG 13, statistical correlations between SDG indicators, or expert assessments. While valuable, these approaches lack empirical examination of actual implementation practices at the urban level.

This study addresses these limitations by investigating how cities operationalize climate action within the SDG framework. Our analysis of over 300 Voluntary Local Reviews (VLRs) from 2018-2024 seeks to answer three pivotal questions: First, how do cities implement SDG 13 targets while pursuing broader SDG objectives, as revealed through their self-reported actions and outcomes? Second, to what extent do cities explicitly incorporate climate considerations when evaluating progress on other SDGs? Third, what contextual factors—including municipal resources, institutional capacities, and national policy environments—influence both climate action implementation and its integration with other sustainable development goals? Building on existing SDG target and indicator research, we develop systematic coding protocols for analyzing VLR content. Using NVivo, we identify and categorize climate-related actions and policy frameworks. Our quantitative analysis employs Linear Mixed Models to examine patterns across time and regions, assessing how variables like city resources and national priorities affect SDG 13 implementation and integration.

The study's significance operates at multiple levels. Theoretically, it applies the Pressure-State-Response framework to identify systemic barriers preventing optimal alignment between climate action and related challenges including poverty alleviation, energy transitions, and water management. Practically, it evaluates the suitability of the SDG framework—originally designed for national implementation—for guiding and assessing urban climate governance,

addressing emerging concerns about potential mismatches between global goals and municipal realities. By bridging this research-practice divide, the project generates actionable insights for policymakers, urban planners, and international organizations seeking to design more effective, integrated interventions. In doing so, it advances both scholarship and practice in sustainable urban development, while contributing to the broader field of applied urban planning research. The findings will help optimize the localization of global climate agendas while respecting the unique capacities and constraints of city governments.

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Key Words: Climate Action, SDGs, Voluntary Local Review

Multi-Scalar Urban Transformation: Global geo-politics in the streets of Old Havana

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Track 7: International Development Planning

Individual Paper Presentation Submission

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One of few alternatives to capitalism, Cuba represents an important opportunity to explore the impacts of economic and political transitions on urban space. The current post-socialist transition of Cuba has created opportunities for both locally and internationally driven economic interventions which are transforming urban space in several ways. This paper explores how Cuba's transition is impacting urban form at the neighbourhood scale, documenting changes in land use, built form, the movement of people and resources, and neighbourhood character, and tracing the multi-scalar catalysts of these changes through the municipal, national, and global scales.

Beginning with President Obama's efforts to normalize diplomatic relations between the USA and Cuba in 2017, through the Cuban leadership transition from the Castro family to President Diaz-Canel in 2019, and the impacts of his economic reforms, the most severe of which were implemented in the height of the COVID-19 pandemic, to the global impacts of the Russian invasion of Ukraine in 2022, and the rapid growth of the Cuban migration crisis in anticipation of the re-election of President Trump in 2024, this paper connects decisions made in faraway places to tangible changes one can observe while walking down any street in Old Havana, inserting the problematic of geographic scale "into the very heart of the urban question" (Brenner, 2003: 366).

Diaz-Canel's efforts to alter the structure and functioning of the centrally planned Cuban economy rely heavily on increasing the role of the private sector and severe monetary reform. The speed and opacity with which economic reforms are being tested on the island have created a de facto urban policy vacuum in which the form and function of space in the city is rapidly changing in response to both domestic financial and global geo-political factors. This paper traces this 'explosion of spaces' (Lefebvre, 1979), the multi-scalar flows of money, materials, people, and ideas that are changing the urban form of Old Havana, a neighbourhood which is particularly exposed to such territorial redifferentiation (Lefebvre, 1979).

The neighbourhood of Old Havana is a UNESCO World Heritage location, the site of the state's largest investment in heritage tourism efforts, one of the country's main tourist destinations, and one of the poorest and most racialized communities in the country's capital. Old Havana, abandoned first by wealthy colonial families moving to larger estates outside the walled city, and then by the Revolutionary government which invested in rural, rather than urban housing stock, became the site of economic tension when framed as a heritage tourism asset with the potential to stimulate the Cuban economy after the fall of its main economic ally, the Soviet Union, in 1989 (García, 2016). The multi-scalar influences of Cuba's current economic crisis can be traced through changes in this neighbourhood, highlighting how the country's transition has upset the tradition of urban master planning in the city (Segre et al., 1997), and making tangible global influences on urban space.

Inspired by Miraftab's (2021) attention to how forgotten places are "intensely nestled in global processes" and call for attention to "the socio-spatial dynamics of globalization" (139), this paper highlights how Cuba's post-socialist transition has created the conditions for unplanned urban development driven by multi-scalar actors beyond the city and state scales, and has undermined the power of urban planning authorities to direct urban change. This critical case study contributes valuable insights into the force of economic change on the face of the city, documenting how sixty years of strict master planning has been disrupted, radically changing the use of urban

space over the past five years, and traces the origins of these economic influences to the global scale, disrupting the metrocentric focus of planners on the local scale.

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Key Words: Scale, Post-socialist city, Cuba, Havana, Geo-politics

Negotiating Food Security and Development: Chengdu High-tech Monitoring Regime and Landscape Changes

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Track 7: International Development Planning

Individual Paper Presentation Submission

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For over 2000 years, Chengdu has been one of the most important grain-producing regions in the Yangtze River basin characterized by stable and high yields. However, as a rapidly expanding metropolitan region in western China, Chengdu has lost significant agriculture land and consequently agricultural productivity over the past three decades. 2018 was a turning point, as China prioritized food security as a national objective and formulated a strategy to balance preservation, security, and economic growth in land and resource governance. This paradigm shift optimizes the territorial structure of ecosystems, agriculture and urban spaces by leveraging a unified spatial big data “One Map” for coordinating planning decisions and real-time monitoring. Chengdu is one of the pioneers to implement this institutional and technological reform. The plan aims to preserve and manage exactly 277,898.88 hectares of “basic agriculture land”—demarcated by GIS polygons in the “One Map” system. This dedicated land is literally named “basic agriculture land polygons” (BALP) in the system and are constantly updated by satellite monitoring to enforce the preservation of agricultural production on the ground and ensure that only approved grains are cultivated. Chinese media report local conflicts arising from BALP surveillance and enforcement, particularly due to technical discrepancies. These include inaccurate detection of actual ground conditions, rigid and inflexible rectification standards that overlook original land use and agricultural production cycles, and challenges in conveying ground-level feedback to systems managed by higher government authorities.

This paper takes a technopolitical lens to understand the evolution, impacts and contradictions that arise from operationalizing the BALP systems. The study asks how the use of remote-sensing to define BALPs reflects the transformation of land institutions in Chengdu’s per-urban agricultural areas under the conflicting mandates of food security and development. How do communities navigate the strict enforcement of BALP rectification standards and the accompanying landscape transformations? Drawing from policy documentation, site observations, and mapping, two in-depth case studies demonstrate the complex changes in the physical landscape, crop choices and productivity, and everyday life to meet the needs of national food security.

The analysis shows that the demarcation of BALP through remote-sensing and monitoring regimes purely based on land cover data oversimplifies the complex social, ecological, and cultural processes already at play at the village-scale. Because of the centralized monitoring and information systems, the use of BALPs limits channels for negotiation and relegates the role village officials as mere implementers of land control targets, undermining their original autonomy and promise for grassroot self-governance through site-specific and localized strategies. Technologically, the discrepancies and errors in the monitoring regime negatively affect planning decisions, resulting in increased conflicts and inefficiencies in practice. Despite the challenges, the villagers refuse to simply comply. Instead, they have found creative ways to adapt, using a mix of strategies and local land-use practices to meet BALP monitoring requirements while still maintaining some autonomy over their land. Chengdu’s data-driven agrarian reform contributes to broader questions of monitoring, rural governance, and infrastructural transformation under the mandate of national security.

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Key Words: Data-driven Governance, Land Policy, Agrarian Studies, State-Local Relations, Peri-Urban Transformation

Opportunities and Challenges of Self-Financing Urban Development – Case of Sabarmati Riverfront

Abstract ID: 1844.0.0.1182.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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This paper examines the Sabarmati River Front Development Project (SRFD) in Ahmedabad, India, highlighting its opportunities and challenges in self-financing urban development. Initially proposed as a beautification initiative, the project included channelizing and narrowing the river, creating embankments, and developing recreational spaces. The SRFD aimed at addressing social issues by relocating approximately 14,000 slum families to safer housing and enhancing infrastructure through the construction of interceptor sewers and public amenities. The project's estimated cost was \$60 million, financed through the sale of reclaimed land, which was expected to generate \$76 million. A financial feasibility study projected an internal rate of return of 17.23% over ten years; however, actual financial results likely deviated due to political delays and funding challenges (Mittal and Byahut 2020; Bhatt 2016).

Key Insights are:

- The SRFD was designed to address both aesthetic and socio-economic issues in Ahmedabad.
- Key infrastructure developments included recreational spaces and housing for slum families.
- Financial projections indicated a positive internal rate of return, suggesting confidence in the project's viability.
- Political delays and funding challenges significantly impacted the project's execution.
- The project exemplifies the complexities of balancing financial feasibility with social responsibility in urban planning.

The paper reflects on the complexities faced in planning and executing a self-financed urban development project.

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Key Words: Land Value Capture, Real Estate Development, Land Development, Infrastructure Plan

Perspectives on governance, autonomy and efficiency from Bermuda's effort to end municipal elections

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Track 7: International Development Planning

Individual Paper Presentation Submission

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What is the value of urban local government? This question has often been raised in debates over how best to manage and deliver services and respond to urban residents' needs (Wagenaar et al., 2004). These debates reach back centuries but have persisted to the present in the form of disputes over municipal amalgamation, decentralization and subsidiarity. This project examines Bermuda's efforts to abolish elected municipal government. The case provides a useful window onto longstanding questions about the merits and demerits of municipal government and the value of urban autonomy. Bermuda's effort to radically limit municipal government seeks to replace locally elected councillors with central-government appointees and diminish local governments as sites of democratic decision making. To understand arguments for and against cities as sites of governance, this project draws on interviews with key informants familiar with the Bermuda case and examines how they view the arguments for and against urban local government.

Tensions between decentralization and centralization are a classic theme in spatial governance (Dickovick, 2011; Faguet, 2021). In the Bermuda case, which has been little researched, advocates on different side of this debate have expressed their positions in the media, legislative chambers and in court proceedings. This project builds on those public sentiments by interviewing key figures in the fight over the future of municipal government in Bermuda. The research makes a contribution by using this case as a lense for better understanding the tensions between decentralization and centralization which, while heightened in Bermuda, lie under the surface of many planning and policy debates in cities around the world.

The changes proposed to urban local government in Bermuda are found in the Municipalities Reform Bill 2019. Under the Bill, the government would appoint the mayors and half of councillors of all municipal corporations, while the remaining councillors would be appointed by the relevant government minister following recommendation by a selection committee. While the Act passed in 2019, the City of Hamilton appealed the case to the Bermuda Court of Appeal arguing that it was unconstitutional. The Court of Appeal in 2022 rejected the appeal. In 2023, the City of Hamilton launched an appeal to the Privy Council in London. The Judicial Council of the Privy Council (JCPC) is the final court of appeal of UK overseas territories and Crown dependencies. The JCPC heard the appeal and will render its decision in 2025.

This project draws on interviews with 12 key individuals familiar with the Municipalities Reform Bill 2019. These individuals were selected to include people both advocating for and against the changes. The interviewees were selected using purposive and snowball sampling. The results were coded into a series of non-overlapping thematic categories and patterns in the results were identified. The full quotes were then drawn upon to flesh out and provide detail on these patterns. The results indicate that most interviewees and members of the public do not support an end to local elections. Most view Bermuda's municipalities as centres of competent and relatively responsive governance and service delivery. Four key differences of opinion regarding the bill were identified across the interviewees. These are competing interpretations of how "efficiency" relates to municipal governance, divergent perspectives on the value of local autonomy, different beliefs regarding how best to respond to historic inequities in governance and differences in opinion concerning whether incremental revisions to democratic institutions are preferable to more sweeping changes. The paper concludes by drawing lessons from this effort to

abolish municipal elections for both Bermuda and other places experiencing debates over the scale at which urban decisions ought to be made.

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Key Words: Governance, Democracy, Spatial politics, Autonomy, Elections

Planning for transitional spaces: Understanding the rural-urban transformations happening in India

Abstract ID: 1844.0.0.741.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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Major work on Indian urbanization is concentrated on megacities; however, around one-third of all urban population growth in India can be attributed to the urbanization of rural areas, and 80% of total urban growth stems from organic growth rather than migration (Pradhan, 2017). This transformation of rural places involves declining employment in agriculture and increasing participation in a variety of non-farm economic activities (Ramachandran, 2019; Mukhopadhyay et al, 2020). Relatively little is understood about the structure of the emerging non-farm economy or its implications for urban planning, policy, and local economic development.

This paper focuses on the evolving role of land and labor in such places. We ask: (1) What factors are currently driving changes in the division of labor and new land-uses at these sites? And 2) How does the difference in India's urban and rural policy structure impact their process of urbanization? I explore how agricultural land is being converted for urban uses like housing, commerce, and infrastructure, driven by factors including population growth, market forces, and government policies. The study focuses on the interplay between land use conversion, labor shifts, and their impact on social stratification, livelihoods, and household decisions about land and work.

I investigated these questions by studying two small towns in Bihar, Ghoghardiha and Koath, at early stages of urbanization in the state of Bihar. Both sites are statutory towns with a population of around 18,000. Bihar's rapid economic shift away from agriculture, low official urbanization levels, and high migration rates make it a good case to study urbanization processes and livelihood transitions in resource-constrained contexts. The study relies on both primary and secondary data collection. The changing economic structures of the sites have been analyzed via conducting primary surveys and interviews at the sites. I also analyzed urban and rural policy frameworks via critical reading of government policy documents and economic surveys.

The study finds a coexistence of rural and urban economies in these small towns—similar to McGee's (1991) *desakota* regions. But unlike *desakotas*, these sites are far from established urban settlements. The present urban policies, though beneficial in some ways, place too much emphasis on infrastructure and entrepreneurship while negating the important and persistent role of agriculture in these urban towns.

The paper builds on existing work from Randolph (2024), who argues that because such places are urbanizing in unconventional ways—through a combination of natural population growth and out-migration—their planning and policy challenges differ from those of megacities in the Global South or North. The demand for decent employment opportunities, sustainable development, and effective land-use planning is distinct. Therefore, understanding the economic transformations occurring in these spaces is crucial, as is identifying how policies and planning instruments can support their economic development. My research seeks to address a critical gap in literature by understanding how current governance and planning strategies do and do not meet their unique needs.

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Key Words: Transitional, Rural, India, Urban, Policy

Planning from the Periphery: Brokerage, Dispossession, and Urban Expansion in Dhaka

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Track 7: International Development Planning

Individual Paper Presentation Submission

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This paper examines how informal and semi-formal land brokering practices drive urban expansion through dispossession and enclosure in the urbanizing edges of Greater Dhaka, Bangladesh. It asks: How are peri-urban spaces being transformed into real estate frontiers through locally embedded brokerage, and what are the implications for urban planning in rapidly growing cities of the global South? Drawing on ethnographic fieldwork and interviews in Kanchan, a municipality on Dhaka's eastern fringe, the study analyzes how land brokers—*jomir dalals*—mediate between real estate developers, state agencies, and partially dispossessed landowners to reshape the political and institutional dynamics of land governance.

The paper engages the theoretical lens of planetary urbanization (Brenner & Schmid, 2015), which emphasizes that urbanization extends beyond core city boundaries into dispersed infrastructural and ecological zones. Rather than treat the peri-urban as a passive site of sprawl, the paper demonstrates that it is an active and contested terrain where new modes of accumulation, regulation, and resistance emerge (Caldeira, 2017; Miraftab, 2009). This research reveals that land brokers are key intermediaries in this transformation, leveraging kinship networks, political patronage, and informal coercion to consolidate landholdings and facilitate speculative development. These processes are not merely technical, but deeply political and ecological: they disrupt agrarian livelihoods, undermine floodplain ecologies, and restructure local governance by aligning municipal planning processes with private capital interests (Tanzir et al., 2024).

Planning agencies such as RAJUK, once tasked with regulatory oversight, increasingly operate as facilitators of speculative real estate, sidelining ecological zoning and master plans like the Dhaka Metropolitan Development Plan. This undermines the legitimacy of planning and its capacity to balance ecological integrity, social equity, and urban growth. By foregrounding the material practices of land transformation, this paper contributes to planning scholarship in three ways. First, it advances a situated understanding of urbanization in the global South, where planning is less a matter of technocratic design than of managing contested claims over land and infrastructure (Miraftab, 2009). Second, it highlights how speculative real estate development mobilizes and transforms planning institutions themselves, producing a new urban regime that rewards enclosure over regulation. Third, it calls for a rethinking of planning education to better account for informal actors and peri-urban dynamics that are central to contemporary urbanization.

The findings resonate with critiques of abstraction in planetary urbanization theory (Storper & Scott, 2016), advocating for greater attention to local institutions, land markets, and the politics of dispossession. As Dhaka's growth accelerates, this research offers timely insights into how planners, scholars, and activists might engage the peri-urban not just as a zone of expansion, but as a site for democratic contestation over the urban future.

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Key Words: Dhaka, Peripheral Urbanization, Land Brokerage, Speculative Development, Dispossession

Public Discourses and the Politics of Aestheticization in Addis Ababa's Beautifying Sheger Project

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Track 7: International Development Planning

Individual Paper Presentation Submission

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This paper examines the elitization of urban space in African cities through the case of Beautifying Sheger, a riverside redevelopment project launched in 2019 in Addis Ababa, Ethiopia. As a flagship initiative of Africa's youngest reformist leader, the project reflects the new ruling party's urban development vision amid a broader political transition following years of domestic unrest. However, while positioned as a socio-technical imaginary balancing investment attraction, public benefit, and urban beautification, Beautifying Sheger has also sparked critical debates about inclusion, power, and spatial justice. Using a mixed-methods approach, this paper traces the project's development and analyzes public discourse on popular social media platforms through large-scale textual data analysis. The study highlights the risks of top-down urban development, where national leadership, foreign donors, and international expertise drive project design and planning with limited local consultation or capacity building. Sentiment and topical analyses using large language models reveal complex public perceptions, particularly regarding the project's social, political, economic, and environmental implications. The findings further demonstrate how key events, such as domestic political conflicts and the Covid-19 pandemic, triggered conflictual sentiments towards the project. By situating Beautifying Sheger within broader debates on aesthetics, power, and urban infrastructure, this paper foregrounds the entanglement of state infrastructural power and political legitimacy on the one hand and citizens' social differentiation and discursive agency on the other, which collectively shape the production and contestation of elite-driven urbanism in African cities.

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Key Words: urban redevelopment, aesthetics, public discourse, large language models, Addis Ababa

Public Values: The Techno-Politics of Land Value Capture in Bogotá (2000 - 2025)

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Land-value capture (LVC) – broadly understood as a series of planning instruments for the recovery by governments of land value increments generated by actions other than the landowner’s direct investments– has been subject to a uniquely mixed set of interpretations within critical geography and urban studies. Many global north critical scholars argue that LVC structures incentives for local governments to promote increases in land value to increase its fiscal returns, and inserts a logic of financialized land speculation into public planning departments (Ryan-Collins et al., 2017; Stein, 2019; Weber, 2021; Wolf-Powers, 2023). And yet in Colombia, LVC instruments such as land taxes, betterment levies, land readjustments and increase of zoning windfall gains have been promoted and defended by progressive planners, Marxist economists and leftist lawyers. Based on 8 months of field work among planners, urban economists, lawyers and think-tanks in Bogotá, this paper in part of a broader dissertation research arguing that land-value capture is an “abstract technology” (Ewald, 2020)

which does not carry a univocal political charge. Following STS scholars such as Callon, (1998, 2009) and Collier, 2011), it explores the relationship between technical expertise of economics, law and planning and politics, and argues that expertise is both shaped by and defines the conditions of politics and particularly, how land value is shaped as an object of government that is (or fails to become) “public”.

This paper specifically contemplates the relationship between the theoretical justifications for LVC and its fiscal design and implementation by focusing on one particularly politicized instrument: that of Participación en Plusvalías, or participation in land value increments. This instrument – contemplated in the 1991 Constitution – allowed municipalities to capture up to 50% of the land value increments resulting from government regulatory actions, such as changing land uses or density by zoning changes, and led one expert to claim that “few if any other countries have attempted to so directly incorporate Georgian principles into actual legislation at the national level” (Doebele, 1998). And yet, for all its ambitions, its implementation has largely failed to capture even a fraction of the original projected amounts, leading Participación – for which Colombia is a model worldwide – to be suspended during the current master land use plan. This paper will explore the minutiae of tax instrument design as a site of unexpectedly heated contestation in which familiar ideological divisions and the distinction between the technical and political is blurred. In doing so, I hope to destabilize some of the familiar categories of the critical LVC literature – particularly around the public-private binary – in order to identify new terrains of struggle over the right to the value of the city.

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Key Words: Land Value Capture, Techno-politics, STS, Fiscal studies, Colombia

Reconceptualizing Rural Transformation Amidst Urban-rural Circuits of Capital

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Research on rural transformation under urban-rural interactions has long been dominated by an urban-centric narrative, portraying the countryside as a passive recipient of urban expansion. This perspective has two key limitations: first, cross-sectional research paradigms overlook the dynamic cumulative effects of cyclical capital flows in reshaping rural socio-economic systems; second, rural transformation is often reduced to a passive response to unidirectional urban capital inflows, with macro-level political-economic narratives obscuring rural agency. To address these gaps, we extend Harvey's theory of the three circuits of capital to a long-term analysis of rural transformation under urban-rural interactions, aiming to reveal the cyclical patterns of urban-rural capital flows and the distinctive internal logic of capital circulation within rural systems. Additionally, drawing on the adaptive perspective of Complex Adaptive Systems (CAS) theory, this study highlights the capacity of diverse rural actors to respond to the embedded disruptions of urban capital. We argue that rural capital circulation under urban-rural interactions constitutes an active evolutionary process wherein rural systems transform external capital stimuli through adaptive interactions among multi-level actors.

Building on this theoretical foundation, we propose an innovative "External Switching–Internal Adaptation" framework and empirically validate it through a case study of Xiayang Village in Anji County, Zhejiang Province. Analysis of the village's developmental trajectory (1985–2024) reveals cyclical spatiotemporal linkages with Zhejiang's three urban capital circuits. Notably, its post-2020 shift toward an ecological camping industry exemplifies proactive engagement with urban capital's tertiary circuit, restructuring urban-rural value exchange: urban capital appropriates rural ecological and cultural resources, while rural systems leverage these as bargaining capital to catalyze self-driven transformation. This process fosters systemic adaptation anchored in environmental restoration, cultural identity, and economic value creation.

The findings underscore that sustainable rural transformation hinges on adaptive capacities to convert external capital shocks into endogenous developmental momentum, challenging static, passive conceptions of rural roles in urban-rural dynamics. This study advances a novel research paradigm transcending urban-centrism by bridging macro-political-economic structures and micro-level rural agency. It offers fresh theoretical and practical insights for rethinking China's urban-rural integration and global rural transformation, emphasizing rural systems' resilience and proactive agency in reshaping development pathways.

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Key Words: rural transformation, urban-rural interaction, circuits of capital, complex adaptive system, ruralisation

Renewable Energy for Whom? Recreating Idealized Futures with Solar Mini Grids in Uganda

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Despite a modest increase in access to electricity in Uganda, from 41% in 2000 to 47.1% in 2022, a stark rural-urban electrification gap persists: only 35.9% of rural residents are electrified, compared to 72% in urban areas. While 86% of Uganda's total electricity is generated via hydropower, the overall energy supply remains dominated by biofuels and waste (89%). This indicates continued dependence on non-renewable sources of energy among unelectrified and off-grid communities. With the occurrence of rapid urbanization and the urban sprawl shifting the energy use landscape in the Global South, energy planning has become paramount (Cajot et al., 2015).

We adopt the socio-technical energy transition (STET) framework to examine how the process of energy planning and transition occurs in the context of the Global South. STET provides a holistic and interdisciplinary lens that captures relation between technological development and societal change (Sovacool et al., 2021), thus making it useful for examining decentralized energy planning in rural contexts. Rooted in science and technology studies, STET integrates foundational theories such as Actor-Network Theory, Technological Innovation Framework, and Social Construction of Technology. This multifaceted approach enables a broader view of energy systems that encompasses "not only the natural and built components, such as energy resources or infrastructures, but the societal and institutional elements as well" (Li et al., 2015: 290).

Our study investigates the intersection between community-governed mini-grids, spatial dynamics, and idealized futures, questioning how community members experience and perceive changes in space and social dynamics in relation to the introduction of mini-grids and community governance. Specifically, we explore how the installation and location of mini grids influence individual and community-level understandings about opportunities for education, income-generation, and shifts social networks and dynamics. In addition, we will examine how the introduction of community-managed grids contributes to creating new understandings of space and alter idealized futures, or 'imaginaries', on how electrification and access to clean energy can shape community futures (Chateau et al., 2021). Our work addresses a major gap in the literature: whereas energy planning research often calls for collaborative planning, few studies center on the lived experiences and evolving aspirations of community members. Our research contributes to a more grounded understanding of energy transitions in sub-Saharan Africa.

We will conduct field research in the summer of 2025 in Kampala and Kiwumu (a peri-urban community near Kampala). Since 2021, Kiwumu has been successfully operating a 40kWp mini-grid with a battery capacity of 140kwh enough to power 300 homes and 60 businesses. The grid also enables productive use of energy through electrification of community maize milling and drying facility, along with other micro-enterprises. This case offers a unique opportunity to assess the long-term social and spatial impacts of decentralized, community-managed energy systems. In Kiwumu, we will conduct interviews and focus group discussions to investigate the downstream effects of mini-grid operation, such as community and 'prosumer' (producer + consumer) understanding of energy potential and resulting shifts in social dynamics and interactions. In Kampala, we will interview institutional actors involved in the upstream of grid installations, such as financing, policy implementation and creation of national agendas. Insights from diverse actors will allow us to identify any discrepancies between intentions of project providers and actual experience of end-users, thus offering insights for more responsive and inclusive energy planning.

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Key Words: Energy Transition, Community, Spatial Imaginaries, Uganda

Rural Attractiveness in China: A Multi-Source Data Analysis of Spatiotemporal Pattern and Mechanism

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Track 7: International Development Planning

Individual Paper Presentation Submission

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While urban areas have developed by attracting in-migration, rural areas have declined due to persistent out-migration. Globally, rural decline presents particularly severe challenges in developing countries, leading to expanding urban slums and deteriorating rural conditions (Liu & Li, 2017). In China, the rural population correspondingly declined from 82.08% to 33.84% since the 1980s, which threatens the sustainability of rural livelihoods (Long et al., 2012). Recognizing this crisis, China's Central Committee has consistently prioritized rural revitalization through its No.1 Policy Document for seven consecutive years since 2017.

Even as rural-to-urban migration remains dominant, a counter-trend is emerging - increasing rural in-migration across China (Cheng et al., 2024; Qi et al., 2022). According to the "2024 China Township Comprehensive Competitiveness Report," approximately 70% of the top 100 townships have achieved net population inflows. Systematic research on the attractiveness mechanisms of these in-migration-receiving rural areas is crucial for understanding new trends in rural population mobility and exploring the potential for rural development. Classic migration theory suggests that specific attractiveness factors must exist to draw migrants to destination locations (Massey et al., 1993).

However, existing studies on rural attractiveness in China have focused on micro-level analyses of single cases and overly relied on static national census data, failing to capture the dynamic nature and macro-level patterns of rural attractiveness. To address this gap, this research addresses a fundamental question: How can we precisely analyze the influencing factors and mechanisms of rural attractiveness in in-migrant-receiving rural towns across China?

Methodologically, this study combines census data with mobility big data for rural township-level analysis. We identify in-migrant-receiving rural towns using the Seventh National Census (2020). Baidu daily population flow data is then utilized to construct multi-temporal rural attractiveness indices. We analyze temporal trends using STL decomposition, spatial patterns through Moran's I statistics, and employ Random Forest models with geographical detector methods to reveal interactions among environmental, economic, social-cultural, and institutional factors across different regions.

Our research reveals spatially uneven and temporally dynamic patterns of rural attractiveness in China. Long-term attractiveness is primarily driven by economic opportunities and institutional factors, while short-term attractiveness is closely linked to natural amenities, including climate. Eastern rural areas, particularly in the Yangtze River Delta and Pearl River Delta regions, exhibit higher and more stable attractiveness compared to other regions. These findings underscore the complexity of rural population mobility and emphasize the need for differentiated revitalization strategies in China. This study advances theoretical understanding of rural attractiveness mechanisms in the Chinese context. It also offers practical experiences and methodological innovations applicable to other transitional economies, ultimately supporting more sustainable rural development strategies worldwide.

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Key Words: Rural in-migration, Rural attractiveness, Spatiotemporal Patterns, Big data analytics, China

Seeing from the Ground: Meso-level Land Use Planning in Metro Seoul, San Antonio, and Guadalajara

Abstract ID: 1844.0.0.286.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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Land use practice rarely happens according to plan or plans. Similarly, the 'rules' of land use, such as zoning, while under increased attention from scholars, are never followed in full and are always negotiated. This essay examines a component of the land use negotiations as it plays out in public offices where municipal employees review applications for development, drawing on interviews and observation, embedded ethnography and our own firsthand experience as employees of, zoning offices in metropolitan Guadalajara, Seoul, and a major city in the American South. The essay argues that the land use staff weave patterns of practice that can help them navigate the morass of threads of regulations, values, political pressures and expectations. Because the patterns are can be predictable and have structured expectations - and outcomes - of urban development, they are unwritten institutions.

To answer planners' mandate to make values explicit and advance equity, institutional analyses of daily practices must move beyond organizational, policy, and neo-institutional analysis to endogenize critiques of uneven power relations that permeate daily work and institutions (Bourdieu, 1990; Leffers and Wekerle 2020; Linkous and Skuzinski 2018). This paper suggests the term gray institutions to signal how institutions inherit and mostly reproduce inequalities, as well as to highlight the particular interstitiality of these repeated practices as they fluctuate along spectrums of legality, formality, and permanence. Grounded in the tradition of examining everyday actions among public-facing government administrators (Lipsky 1980; Zacka 2017), this article places utilizes a sociological institutionalist lens that places the array of sites (e.g. offices), actors (e.g. staff), materials (papers, spreadsheets) and actions(e.g. phrases and phones) as irrevocably embedded in the broader network of actors and discourses (González and Healey 2005; Healey 2018). The article argues that gray institutions are improvised-yet-lasting expressions of planning values, knowledge and power. More immediately, gray institutions offer an arena for planners to enact tangible, feasible shifts in what they do in ways that can compound or -ideally- eke away at systemic injustices.

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Key Words: zoning, daily practice, institutions, street-level bureaucrats, land use

Tax Equity and Legitimacy: An Experimental Survey of Property Taxes in Mexico City

Abstract ID: 1844.0.0.314.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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Land and the structures on it agglomerate significant wealth in cities. Property taxes represent an important mechanism for local governments to tap into this wealth to fund essential services and infrastructure. Yet levying this tax effectively requires accurately assessing the value of property. This prompts its own set of challenges since it not only calculating an unrealized value, but also constantly updating it to ensure that it captures changes in the market. Cities throughout the world have developed unique strategies to effectively calculate value. However, these often encounter technical and political limitations which may undermine tax efficiency and citizen trust in government processes. In this study, I ask: Does evidence of property tax inequity affect people's perceptions of government and its legitimacy to tax property? I address this question using a mixed-methods approach, involving three focus groups, elite interviews with government officials, and an experimental survey of 1,202 residents fielded in 120 neighborhoods of Mexico City. Results demonstrate that exposure to inequities in property tax calculation processes have small, but significant effects in shifting people's perceptions of government's legitimacy to tax property. For example, I find that individuals exposed to horizontal inequities in property tax calculation processes are eight percentage points more likely to view government's right to tax as illegitimate. Findings from this study contribute to scholarship on property tax inequity and offer experimental evidence that inconsistencies and inequities in administrative processes are consequential for how people perceive the legitimacy of taxation.

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Key Words: urban finances, property taxes, urban land, tax equity, government legitimacy

The Dual Impact of Competition in Rural Development Projects: Social Capital and Spillovers

Abstract ID: 1844.0.0.881.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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This study empirically investigates whether income-generating projects introduced under the Saemaul Official Development Assistance (ODA) program in 100 villages across Myanmar and Cambodia enhance residents' social capital—specifically trust, cooperation, and solidarity—and reduce poverty through improvements in living conditions, income, and capabilities. It examines not only the direct effects of these projects but also potential spillover effects on neighboring communities. Implemented by the Korea International Cooperation Agency (KOICA), the Saemaul ODA combines a top-down, government-led approach with self-help principles, resident participation, and competitive elements to accelerate rural development (Schwak, 2023). However, whether competition actually fosters cooperation and trust (Hutter et al., 2011), and whether project benefits extend to nearby villages (Su et al., 2022), remains contested. Prior studies also highlight the limited capacity of government-led support and local leadership alone to build strong community cohesion and sustainable social capital (Wahid et al., 2017).

To explore these dynamics, this study poses two main research questions: (1) Do villages that perform well in competitive income-generating projects also demonstrate higher levels of trust, cooperation, and solidarity? (2) Do their positive outcomes spill over into adjacent communities, improving local social capital and reducing poverty indicators such as living conditions and income? To answer these questions, I compiled a dataset based on field surveys and administrative data from Saemaul ODA agency in Myanmar and Cambodia. The dataset of this study includes each village's project performance (as the key independent variable), multiple indicators of social capital and poverty (dependent variables), and relevant control variables—such as population size, education levels, government support, and geographic characteristics.

Methodologically, this study develops and applies a Difference-in-Differences (DID) spatial regression framework to estimate both the direct impacts of these ODA projects (treatment) and their spillover effects on neighboring villages. By integrating a spatial lag term that captures interdependencies among geographically proximate communities, the analysis explicitly accounts for possible cross-village diffusion. Specifically, the empirical specification includes a treatment indicator (reflecting whether a village participates in the ODA project), a post-intervention time indicator, and their interaction. This setup isolates the direct effect of the intervention while simultaneously considering how changes in adjacent villages could feed back into each focal community. By estimating the model using Maximum Likelihood or similar methods, the study disentangles inherent policy impacts from broader diffusion dynamics arising from spatial clustering or cross-border externalities.

This research makes three key contributions. First, it provides empirical evidence that competition, within a government-supported, self-help-driven model, can enhance social cohesion. Second, it shows how successful project outcomes can diffuse through spatial village networks, underscoring the need for better planning to leverage these spillovers. Third, it offers practical insights for policymakers and practitioners on how to design rural development programs that effectively combine government support, resident participation, and strategic competition. In doing so, the study highlights how the Saemaul ODA model—by uniting top-down leadership with bottom-up engagement—can foster both social capital and poverty reduction across broader regional contexts.

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Key Words: community development, spillover effect, competition, social capital, spatial DiD

The Immediate Impact of an Integrated Resilient Development Project in Accra, Ghana

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Urban projects featuring resilient development have become popular, whereas limited studies have been invested in evaluating the impacts of these projects, especially regarding those that rely on bilateral/multilateral partnerships to enable their implementation. This paper addresses this research need by conducting an assessment regarding the impacts that the Greater Accra Resilient and Integrated Development Project (GARID), supported by the World Bank, has led. Two surveys were conducted in 2022 and 2024, respectively, to capture the baseline and midline of GARID's implementation. The paper proposes an assessment centering on resilience enhancement and inclusive growth with a Difference in Difference (DiD) design to demonstrate the changes occurring in the intervened neighborhoods in contrast to the comparative counterparts. The findings suggest that, since the initiation of GARID's interventions on the ground, it has significantly facilitated project transparency and stimulated notable bottom-up commitments to neighborhood improvements. Unexpected results have also emerged, such as learning that the residents' living satisfaction has declined during the assessing period; yet, these results are understandable, considering that the actual interventions have been delayed and the implementation is still in progress. GARID is found to conditionally enhance Greater Accra's regional resilience based on its immediate impacts thus far, and an optimistic view is promising regarding the upward outcomes that GARID will result in later. The project will benefit from expediting certain interventions to avoid temporal contestations, maintaining its extensive participatory activities, and initiating early discussion around sustainable operations and maintenance mechanisms. The experiences of GARID could provide fruitful lessons for other cities to advance their resilience investments.

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Key Words: Global South, Resilience, Case Study, Difference in Differences, International Development

The Third Sector's Quest for Livable Cities: The Evolution of Indonesia's Urban Civil Society

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Civil society, or the third sector, plays a range of pivotal roles in improving local urban planning, governance and management efforts. This paper attempts to map the evolving landscape of urban civil society in Indonesia since reformasi — the fall of the authoritarian New Order era in 1998 — primarily through a nationwide survey of urban civil society organizations (CSOs). This unique inquiry, which we believe is the first of its kind (and part of a multi-method qualitative study), seeks to explain the types of urban CSOs, their activities, their approaches and functions, how they support themselves, their impacts, and their evolving challenges and relationships to key planning and governance stakeholders. The sudden shift to democracy and extensive decentralization reforms made Indonesian civil society blossom. In the two ensuing decades democracy matured, and a series of decentralization iterations transformed the institutional arrangements for local governance and planning. In this new landscape of localized planning, urban CSOs increasingly assumed unprecedented roles as activists, advocates, intermediaries, and innovators working with hitherto disenfranchised communities and local governments. CSOs' involvement is making cities in this fast-urbanizing nation more livable — by being more inclusive of informality and more equitable in providing services, and more efficient and resilient by being more collaborative and technology-oriented. However, the CSO landscape is poorly appreciated and understood. A weak regulatory structure governing civil society and a yet diffuse, less organized third sector make for scarce data on CSOs. As a modest attempt to fill this void, our effort itself represents a collaborative endeavor between a local CSO and an academic institution bridging the Global South and North. Our nationwide survey of 84 CSOs that responded (120 contacted) was conducted, online and telephonically, in two phases — 48 in 2023, and 36 in 2024. Respondents were asked to suggest other CSOs. Analyzing the initial 40 responses snowballed to 48, and prompted the second phase. Those surveyed include CSOs from 19 cities and seven islands, and included think tanks, voluntary organizations, established and new non-governmental organizations (NGOs), informal associations, community-based organizations (CBOs), and grassroots organizations (GROs). We also conducted in-depth interviews with 14 CSOs. Descriptive and inferential statistics indicate that local civil society action is positively altering public discourse and sentiment; structural and contextual factors can impede the missions, longevity, and growth of CSOs; and CSOs are innovating with technology and collaborative arrangements to sustain themselves. For continued progress, we call for state and private sector stakeholders alike to promote local multistakeholder coalitions involving CSOs. We find that the national government's role is critical for creating space and much-needed support for civil society; local leadership can transform the third sector space; and CSOs are uniquely poised to respond in innovative ways.

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Key Words: CSOs, Indonesia, Third sector, Coalitions, Governance

Trading Bricks for Iron Sheets: Analyzing a Rebound Phenomenon in a Slum Upgrading Project in Kenya

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Track 7: International Development Planning

Individual Paper Presentation Submission

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Tackling the housing and services crisis in cities across Sub-Saharan Africa is a global priority to reduce poverty, yet it remains unclear how to achieve this goal. The United Nations (2024) estimates that the urban population living in slums in Sub-Saharan Africa grew at the fastest rate globally between 2017 and 2022, with an annual growth rate of 4.52%. This group made up over 53% of the urban population in Sub-Saharan Africa in 2022, the largest proportion in any region worldwide. These demographic trends indicate that the demand for improved housing and infrastructure in Sub-Saharan Africa will continue growing in the foreseeable future. Governments and international development organizations have explored strategies to improve the spatial conditions in slums, with slum upgrading being among the most widely accepted approaches today (Brakarz & Jaitman, 2013; Núñez Collado & Wang, 2020).

Although governments and international agencies have spent billions of dollars on slum upgrading projects worldwide (Werlin, 1999), studies have found that, in some projects, beneficiary households decided to move back to slums (Koster & Nuijten, 2012). This ‘rebound phenomenon’ (Debnath et al., 2019) questions the effectiveness of slum upgrading to improve residents’ living conditions in slums. Aiming to contribute to a better understanding of this phenomenon, I ask: What are the underlying causes of some beneficiaries’ decision to move back to slums? How does this decision impact their living conditions? What can urban policymakers learn about low-income households’ housing preferences by analyzing their decision to move back to slums?

I analyze the causes of the rebound phenomenon by examining the Kenya Railways Relocation Action Plan (RAP) in Nairobi, Kenya. RAP is a government-led housing program in Nairobi that provided subsidized rental housing to 4,700 households illegally occupying the railway reserve area in two of Nairobi’s largest slums. Ten years after its implementation, around 33% of the original beneficiaries decided to rent out their housing units and move somewhere else. I conducted semi-structured interviews with beneficiaries (n = 25) and key informants (n = 10) to identify beneficiaries’ main reasons for moving out from the upgraded units. Preliminary findings show two dominant reasons for renting out: (1) the mismatch between households’ expectations and housing characteristics and (2) an opportunity to secure a stable income. This paper challenges the commonly accepted assumption within the international development community that improved access to affordable and decent housing automatically translates into improved well-being for low-income households.

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Key Words: Slum Upgrading, Housing, Rebound Phenomenon, Africa, Urban inequality

Urban Displacement: Innovative and Inclusive Data Collection Approaches in the Global South

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Track 7: International Development Planning

Individual Paper Presentation Submission

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The global challenge of population displacement has continued to increase over the past few decades, with approximately 123 million people—or about 1.5% of the global population—currently displaced, according to the United Nations High Commissioner for Refugees (UNHCR). This includes internally displaced persons, asylum seekers, and refugees. The factors driving this increase are predominantly political conflicts and the adverse impacts of climate change. Furthermore, 76% of these displaced individuals reside in low-income countries, where resources to accommodate and support them are often limited. As cities increasingly become destinations for displaced populations, urgent attention must be directed toward developing adaptive and accurate data collection methods, including household surveys, to inform effective urban planning and policymaking.

Traditional data collection methods often rely on pre-crisis census data and consequently fall short in capturing the realities of populations in flux. The needs and demographic makeup of a community can drastically change following and during a crisis. Additionally, due to problems in accessing changing communities that may include “hidden” members who may be subject to political constraints, some conclude that randomization is not possible and that convenience or non-random samples may be necessary. I agree that in many communities, conventional randomization techniques for data-gathering are not possible, especially if administrative boundaries are not well defined and governance is limited. However, I argue that new methods can help ensure representative samples. But I also argue that other data best augment these samples.

I worked with community members to develop innovative sampling techniques tailored to communities hosting displaced populations. These techniques were applied in a case study in Juba, South Sudan. Collaborating with local chiefs, we documented informal urban area boundaries and implemented a strategy to randomly select households for a comprehensive survey, sampling 240 households across four distinct urban residential areas that include both internally displaced persons (IDPs) and host community residents. To augment the quantitative survey data with qualitative insights, we conducted approximately 75 semi-structured interviews and five focus group discussions (FGDs). Furthermore, these surveys and interviews were complemented by periods of participant observation within the community, engaging with local authorities, NGO staff, and community members. This multi-method approach, conducted over four timeframes from 2022 to 2025, was designed to provide a holistic understanding of the needs, challenges, and dynamics within these urban settings.

The problem of displaced populations is escalating at an alarming rate. The number of displaced persons, driven by conflicts and natural disasters, continues to rise dramatically. Over the past decade alone, this number has doubled, underscoring the severity of the crisis. The trend shows no signs of slowing down due to the increasing pressures of climate-related disasters, ongoing conflicts, and a glaring lack of sustainable long-term solutions for those uprooted from their homes. It is crucial that urban planners and policymakers rethink assessment methodologies to better inform strategic interventions. By reconceptualizing data collection processes, my research aims to guide the development of initiatives capable of serving both established residents and newcomers effectively. These initiatives require a nuanced understanding of urban displacement’s impacts on different community stakeholders.

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Key Words: Sampling Randomization, Displaced Persons, South Sudan, Research Methods, Urban

Urban Land Values in Santiago: Effects of the so-called “Chilean Miracle” on over-Appreciation

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Track 7: International Development Planning

Individual Paper Presentation Submission

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This paper examines the persistent rise in urban land values and its impact on housing affordability and wealth distribution, with a focus on Santiago de Chile. Chile, a country characterized by high inequality and recurring challenges in housing access, experienced significant land value increases in the 1990s. This period coincided with extensive demand-side housing subsidies, whose effectiveness may have been undermined by rising land costs. As a result, low-income households faced increasing difficulty accessing land, leading to smaller, less accessible, and sometimes informal settlements—a trend observed across Latin America.

This study has two primary objectives: (1) to construct a novel set of long-term, geographically controlled land value indices for Santiago de Chile and (2) to empirically test predictions from urban land rent theory regarding the impact of macroeconomic factors. The analysis focuses on the "Chilean Miracle" period (1990–1997), investigating how rapid land value appreciation contributed to housing unaffordability and social inequality.

Methodologically, the paper develops two distinct quarterly land value indices for Gran Santiago covering 1983Q4 to 2016Q2: the Índice del Precio del Suelo en Santiago (IPSS) and the Índice de Precio de Oferta del Suelo de Santiago (IPOSS). Both indices use a Laspeyres estimator based on land market offer data from a long-standing real estate consultancy. To ensure spatial comparability and temporal consistency—and to address biases related to arbitrarily defined zones (Modifiable Area Unit Problem)—a geographic spatial clustering approach (Automatic Zoning Procedure, AZP) is applied, consolidating the original 206 zones into 60 statistically robust clusters. The IPSS weights price variations by geographic surface area (approximated via property counts from the previous period), while the IPOSS weights variations by the number of market offers per zone, capturing market activity more dynamically. To analyze the short- and long-term relationships between land values and macroeconomic factors, the study employs Vector Error Correction (VEC) models, incorporating key determinants: economic activity (proxied by an economic development index and employment levels) and the real interest rate.

The theoretical framework is grounded in urban land rent theory, which posits that land rent is a residual value derived after accounting for production costs, reflecting locational advantages and metropolitan economic growth. Land value is conceptualized as the capitalization of this rent flow, discounted by the interest rate. Two core hypotheses are tested: (H1) metropolitan economic performance positively influences land values, and (H2) interest rates negatively affect land values.

Empirical findings confirm these theoretical predictions: the VEC models indicate that both IPSS and IPOSS are significantly affected by economic activity (positively) and interest rates (negatively). Additionally, land values in Santiago grew at a faster-than-expected rate during the "Chilean Miracle," even after accounting for macroeconomic fundamentals. This pattern aligns with literature linking this period to worsening housing affordability and socio-spatial inequality. Furthermore, the indices themselves show minimal causal influence on macroeconomic variables, supporting their interpretation as residual land values.

This study contributes to urban economics by introducing long-term, high-precision land value indices for a major Latin American city. These indices facilitate robust causal analysis of the relationships between land values and macroeconomic dynamics, offering valuable insights into urban development, housing markets, and inequality—particularly during Santiago's rapid economic transformation.

Citations:

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Key Words: Land value, Economic growth, Dynamic time-series, Santiago de Chile

Urban Spatial Transformation Induced by Shadow Education in China: A Case Study of Nanjing

Abstract ID: 1844.0.0.737.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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Over the past two decades, China has experienced extensive infrastructure expansion, particularly in office space construction. However, due to excessive supply and the economic downturn exacerbated by the COVID-19 pandemic, office vacancy rates in major Chinese cities averaged 30% by 2021, reaching up to 50% in marginal urban areas. In the post-pandemic era, the rapid proliferation of shadow education institutions has emerged as a significant driver of office space reutilization, influencing both the material and functional transformation of urban areas (Bray, 2023).

Shadow education, commonly referred to as private tutoring, comprises informal privately operated educational services that complement formal schooling (Zhang & Bray, 2021). In Nanjing, a megacity with over ten million residents, the intensification of educational competition compels families to enroll their children in supplementary tutoring to enhance academic performance. This growing demand has driven the expansion of shadow education, with the number of related points of interest (POIs) increasing from 1,910 in 2014 to 4,196 in 2022 (Liu et al., 2021). Since shadow education is not formally classified within China's land-use system, such institutions frequently repurpose existing built spaces—particularly vacant office buildings—thereby contributing to the adaptive reuse of underutilized urban infrastructure (Sun & Wang, 2021).

This study investigates two core research questions:

1. Spatial dynamics of shadow education: How has the spatial distribution of shadow education institutions evolved in Nanjing between 2014 and 2023? What spatiotemporal patterns differentiate various types of shadow education (e.g., youth-focused vs. adult-oriented tutoring)?
2. Mechanisms of spatial transformation: Which types of built environments have been favored by shadow education institutions (commonly vacant office spaces)? What are the spatial conversion processes, key actors, and sustainability implications of such transformations?

Methodologically, this study employs a spatiotemporal analysis based on large-scale location-based service (LBS) data from 2014, 2017, 2020, and 2023 to map and analyze the evolving spatial structure of shadow education institutions in Nanjing. A multivariate geographically weighted regression (MGWR) model is applied to examine the key determinants shaping their spatial distribution, incorporating variables such as land-use characteristics, real estate values, proximity to schools, and accessibility to public transit. Furthermore, bivariate spatial autocorrelation analysis is employed to investigate the interactions between shadow education expansion and broader urban spatial factors.

In the second phase, this study statistically analyzes the original land-use functions of sites now occupied by shadow education institutions, revealing a predominant transition from office spaces to tutoring centers. Two representative areas—Nanjing Library and Jishan Software Park—are selected as in-depth case studies, where clustering of shadow education institutions has not only facilitated office space reutilization but also stimulated adjacent service industries. Through historical policy analysis, stakeholder interviews, and field surveys, this

research explores the driving forces, transformation timeline, institutional actors, and spatial mechanisms underpinning this urban evolution.

By integrating spatial analysis, land-use adaptation, and educational geography, this study provides a novel perspective on the role of shadow education in shaping urban spatial transformation. Findings contribute to theoretical discussions on educational urbanism and offer empirical insights for policymakers seeking to optimize vacant office space reuse and urban renewal strategies.

Citations:

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Key Words: Shadow education, vacant land, urban transformation, revitalization, reproduction of space

Women's Work in the Indian Platform Economy: A View from Bangalore

Abstract ID: 1844.0.0.290.2025

Track 7: International Development Planning

Individual Paper Presentation Submission

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In India, despite accelerating economic growth and rising per capita income, women's participation in paid work has been markedly low. At the same time, the rise of the digital economy and the proliferation of digital platform firms have led to platform work being touted as a solution to this gender gap due to its promises of spatial and temporal flexibility and autonomy. My project critically examines these narratives through the study of gig workers and home chefs in the platform economy of Bangalore. Using a relational comparison approach based on interviews, ethnographic observation, and critical discourse analysis, I ask: (1) What are the motivations for women to participate in the Indian platform economy? How are they related to the extant conditions of social reproduction and to women's socioeconomic positionalities? (2) What are the avenues for resistance and agency that are provided or prevented by platforms and platform-mediated work?

In this project, I analyse the workflows and experiences of platform workers to posit that paying attention to the spatiality and temporality of women's socially reproductive work on platforms reveals them as sites where the divisions of caste, class, and gender are reproduced, reinforced, and facilitated. Paying particular attention to women workers' care contributions during the COVID-19 pandemic and beyond, I argue that belying their promises of flexible work, platforms are rendering women as flexible workers and as a reserve army of labour. Additionally, I find that through algorithmic control and surveillance, platforms are depriving gig workers even of forms of subaltern and everyday resistance. On the other hand, home chefs, due to their socioeconomic privileges are able to instrumentalise platforms to find avenues for agency and resistance through platform work. Based on these findings, I argue for reimagined solutions to the gender gap in paid work that centre women, for platform configurations that prioritise people over profits, and for increased attention from platform scholars and planners to the spatiality of women's work.

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Key Words: Platforms, Labor, Women, India

Track 7 Research in Motion (RiM)

The Informal Armatures Approach as a Non-Standard Planning Toolkit: Potential Applications in China

Abstract ID: 1842.0.0.1001.2025

Track 7: International Development Planning

Research-in-Motion Presentation Submission, Research currently in process

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Since its introduction in 2019, China's National Territorial Spatial Planning (NTSP) system has been gradually implemented with a top-down approach, integrating multiple parallel systems to resolve conflicts. This has led to more efficient planning, sustainable growth, and improved long-term territorial and urban development. However, as a rapidly developing, multi-ethnic country, China faces complex and dynamic territorial, environmental, urban, socio-economic, and cultural conditions that are constantly shifting. After years of rapid economic growth, urban development in China has reached a point of saturation, requiring more nuanced responses to design contexts that differ from previous centralized and highly homogeneous urbanization models. The system has also been less effective in addressing immediate challenges faced by local communities.

The concept of Informal Armatures (IA), introduced by Professor David Gouverneur in applied research, offers a promising alternative toolkit for contexts experiencing fast-paced urbanization in countries with emerging or fluctuating economies. This approach effectively addresses the complex, interrelated environmental, urban, and socio-cultural challenges in a simple yet adaptable manner.

This research explores two central questions: From a technical perspective, how can the IA Approach contribute to planning and design practice in China? What does the IA Approach offer in terms of research methods and theoretical frameworks for exploring urban development and industrial operation models?

A multipronged methodology underpins this study, combining an in-depth review of the Informal Armatures concept, comparative analyses between China's socio-cultural and economic contexts and those of other developing nations, theoretical analysis of China's NTSP system, ethnographic observations, and semi-structured interviews with design institutions, local authorities, NGOs, and community members through past and ongoing design projects.

This paper argues that the IA Approach, while primarily focused on addressing challenges in developing countries, can offer valuable insights for China's newly implemented NTSP system. It serves as a supplementary non-standard planning toolkit, responding to China's evolving economic landscape and sustainable development goals. As an applied research model, IA can provide significant contributions in the following areas: a) addressing current environmental, urban, and socio-economic conditions at various scales, b) recognizing site-specific factors, c) offering flexibility in the face of change and uncertainty, d) fostering community engagement in the planning, design, implementation, and management of urban habitats, thereby alleviating the managerial and economic burdens on governments at all levels, e) acknowledging the nation's rich cultural diversity, f) supporting new settlers with spatial and managerial strategies, and g) facilitating rural revitalization. Additionally, the IA Approach

systematically identifies the main factors shaping urban and rural development. Its theoretical framework offers a valuable reference for Chinese planning professionals and scholars as they adapt to new development models and transition from executing top-down strategies to serving as communicative nodes within a complex, interconnected planning system.

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Key Words: Informal Armatures, China, Planner's Role, International Planning, Non-Standard Planning

Women, Work, and Mobility: Navigating Urban Infrastructure in Mumbai's Platform Economy

Abstract ID: 1842.0.0.1093.2025

Track 7: International Development Planning

Research-in-Motion Presentation Submission, Research currently in process

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Women have more options to work due to the quickly growing platform and gig economy in urban India (NITI Aayog, 2022), particularly in major Indian cities like Mumbai. Despite the fact that these platforms provide flexibility and alluring economic opportunities, their potential to benefit from their labor is usually linked to the worker's ability to move within the urban fabric (Vecchio et al., 2022). Mobility for women engaged with platforms is influenced by a web of limitations created by various factors, including uneven urban infrastructure, socio-cultural norms, and platform rules and regulations that determine how far, freely, and under what circumstances women can move. Women have unique difficulties as independent workers in cities like Mumbai, where transportation can be unreliable and public spaces are frequently gendered (Phadke et al., 2011). Research on digital platforms has grown, primarily focusing on economic instability, and labor precarity and rights. However, focus on mobility is limited, and studies on digital platforms frequently overlook women platform workers and their specific spatial challenges (Bauriedl & Strüver, 2020). This study fills these gaps by examining the impact of urban infrastructure on the mobility of women platform workers in Mumbai and identifying planning strategies to address their mobility issues. The research employs a qualitative approach, utilizing semi-structured interviews and participant observations of women working at Urban Company, a digital platform with one of the largest female-dominated beauty and salon verticals. This study's Mumbai setting adds much more depth and significance by situating the research within one of India's dynamic and most densely populated urban centers, where intersections of class, caste, gender, and rapid urbanization shape women's spatial (im)mobility and experiences in the platform economy (Kuttler, 2022; Phadke et al., 2011). To build a more equitable urban environment for all, this study emphasizes the importance of planning interventions that consider the specific mobility needs of female platform workers.

Citations:

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Key Words: Spatial Mobility, Urban Infrastructure, Gig and Platform Economy, Women Workers

Track 8 – Land Use Policy and Governance

Track 8 Pre-Organized Session Summaries and Abstracts for the Sessions

Experts, Friends and Enemies: Networks in Decisionmaking and Disputes

Abstract ID: 1840.0.0.1106.2025

Track 8: Land Use Policy and Governance

Pre-Organized Session Summary

Session Includes: 1844.0.0.294.2025, 1844.0.0.749.2025, 1844.0.0.484.2025, 1844.0.0.368.2025, 1844.0.0.1087.2025

Joseph Weil Huennekens [Columbia University] jsh2228@columbia.edu, organizer

Networks of decisionmakers and advocates have long been theorized as critical in paradigmatic land use disputes. These networks can be spaces of negotiation, opportunity and improvisation, or simply closed arenas for regimes of elites, owner-advocates, and developers. Yet amidst the growing understanding of 'gray' legalities at the intersection of housing, environment and land use action, and the increasing importance of social analyses for land use processes, how can careful study of cases trace ways in which networks and relationships interact with land use outcomes? This panel will draw on in-depth cases of contested land use, highlighting some of the specific alliances, tactics, coalitions, and mobilizations of official planning documents, regulations and judiciaries that are used to intervene in contested development.

Learning Objectives:

- Audience members will learn about housing justice struggles, land use conflicts, and environmental disputes through the specific lens of planners-in-action.
- Audience members will learn about case-study as a methodology suited for close empirical study of how planning policy and contestation is enacted on-the-ground.

'Gray' Densification: Incremental Multifamily Approvals in New York

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Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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Most scholarship on densification considers either formal or informal processes. Formal densification typically consists of zoning reforms: rule changes which allow denser buildings over a large territory (Kazis 2023). Informal densification typically consists of conversions: the unpermitted addition of new units in existing homes (Wegmann and Mawhorter 2017). Yet, a wide array of practices exists in-between the two poles of formal/informal, including practices of housing production (Fawaz 2017).

Building on what Yiftachel (2009) labels “gray space” and what Baird-Zars (2023) calls “gray institutions,” this paper attends to “gray” densification. Specifically, “gray” densification describes one-off, site-specific approvals that accrete to eventually constitute an informal change in land use policy. Using a case study research design, the paper documents two cases in New York where a significant number of new housing units have been created through a different practice of “gray” densification: area variances in the suburban town of Ramapo and half-block rezonings in the urban neighborhood of Harlem.

In the first case, the suburban town of Ramapo, New York, thousands of new units have been facilitated through case-by-case variance exceptions, which allow for construction beyond the requisite zoning envelope. In the second case, the Central Harlem neighborhood of New York City, hundreds of new units have been facilitated through small half-block rezonings, usually developer initiated. Drawing from archival resources (plans, environmental review documents, agendas), permitting data, and a self-constructed database of land use approvals, the paper highlights how these one-off approvals form precedents which eventually accrete to become a “shadow” zoning code.

These two examples of “gray” densification serve as “black swan” cases, showing that – at least in some political and institutional contexts – site-specific approvals actually help facilitate housing production. This finding is in contrast to much of the planning literature, which tends to argue that discretionary approvals contribute to the supply crisis. The paper ends by considering the implications of “gray” densification on land use governance and planning outcomes, noting the diversity of approaches that exist between the binary of formal and informal.

Citations:

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Key Words: densification, variance, zoning, housing

Relationships to Action: Fair and Accountable Flood Adaptation in US Coastal Frontlines

Abstract ID: 1844.0.0.749.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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Frontline communities demand and deserve protection from flooding, along with repair from past harms, celebration of strengths, and fair planning processes (Morris et al. 2024). While large-scale investments are necessary for coastal flood adaptation, advocates emphasize the importance of integrating the strengths of residents and community-based organizations alongside governmental agencies (ibid). Yet relatively little research to date has foregrounded the specific components of the networks and initiatives that have protected frontline communities beyond formal plans, which frequently lag in participation and 'justice issues' (Rekien et al. 2023).

Addressing this research gap is urgent: urban flood adaptation epitomizes many of the built-in challenges of equitable action, with complex and compounding factors that are highly contextual at the physical and social scale, block to block, and creek to creek (Sun et al. 2024); and which are particularly sharp for frontline and environmental justice communities (Liao et al. 2019). Nevertheless, equity remains amorphous in most adaptation plans (Angelo et al. 2022), and coastal adaptation processes continue to prioritize short-term, hierarchical relationships and transactional exchanges (e.g. USACOE 2025).

Building off a multi-year co-produced research project led in partnership with an umbrella environmental justice organization, this project examines the experiences of 22 leaders in these spaces nationwide, across state agencies, consultancies, local government and community-based organizations. Through using snowball sampling to select participants and conducting multiple rounds of long-form interviews, which were then analyzed and refined in collaboration with participants, we explore how local networks enable fair and accountable spaces for decision-making and problem-solving. We define these spaces as those that marshal the resources of the many entities involved and simultaneously advocate for the protection and inclusion of groups historically left out of formulas, investment, and protection in coastal adaptation planning.

Our initial findings suggest that equitable actions stem from long-term relationships and networks of respect underpinned by values, such as the understanding that everyone engaged brings valuable knowledge and experiences. Further, we identified key roles and arenas for action that dynamically interplay to foster equitable planning processes. These roles - facilitators who connect people and resources, educators who foster knowledge exchanges, mediators who create spaces for diverse stakeholders, defenders who advocate against injustices, and mentors who guide communities to long-term empowerment - collectively inspire new modes of action and lay the foundation for successful, relationship-centered planning.

Citations:

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Key Words: relational planning, flood adaptation, frontline communities, implementation, process

Who Says Where's Good? The Evolution of Good Cause Eviction Laws in New York State

Abstract ID: 1844.0.0.484.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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“Good cause” or “just cause” eviction laws (GC) are regulations barring landlords from evicting tenants unless they have a specific allowable reason. Although some versions of good cause laws have existed in various parts of the U.S. since the 1970’s, the specifics of these laws vary across states and municipalities (Urban Law Annual, 1981; Vasquez and Gallagher, 2022). Many of these differences regard the housing stock that GC laws cover. GC laws have spread across New York State in the past few years, evolving to cover different stock with each new iteration and network of supporters, contenders, and decision-makers (Been et al., 2024; Card et al., 2025).

A few municipalities passed local-level laws starting in 2021, but legal challenges from landlord groups led to courts requiring New York to pass state-level enabling legislation. This requirement led advocacy groups and policymakers to develop a multi-scalar policy approach to GC with a state-level enabling policy that would govern New York City’s GC, while also allowing other municipalities to adopt their own versions. After the state passed GC in its 2024 budget, 13 municipalities have passed GC ordinances.

This case study examines the New York State landscape of GC laws, assessing the ways in which municipal GC ordinances came to align and differ as well as the details of what segments were determined by the state versus left to the municipalities. In the process of these laws being passed, ruled against, enabled by the state, and then passed or re-passed by municipalities, a complex network of decision-makers shaped and re-shaped the specifics of each ordinance, changing what housing stock is covered and what is exempt. Who comprised these networks of inter- and intra-municipality actors? What stock did these different actors aim to cover, and what stock is covered today? In addressing these questions, this paper provides insight on how the multi-scalar regulation of housing stock is composed, contested, and reconstructed.

Citations:

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Key Words: Housing, Networks, Regulation, Municipalities

Deepening Injustice: How Climate Adaptation Undermines Communities' Adaptive Capacity

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Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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Several climate adaptation scholars have analyzed adaptation plans, highlighting their failures and negative consequences—such as how development policies and practices have created uneven vulnerabilities or failed to mitigate climate risks and introduce new challenges for affected communities. Scholars have argued that climate adaptation and land-use planning must center on climate justice and be fully integrated into planning processes to prevent the reproduction of vulnerabilities, and some advocate for prioritizing justice first and climate later. However, there is a lack of studies that critically examine how these adaptation efforts actively undermine the adaptive capacities of communities that have historically been well-equipped to cope with environmental challenges.

This study addresses this gap by offering a different perspective that enhances our understanding of climate adaptation, focusing on deeper political dynamics, development discourse, and socioenvironmental injustices. The study examines the riverside community in Bang Ban, Ayutthaya, Thailand. Ayutthaya has historically thrived with a water-based way of life for 400 years. Today, the city has transformed into a typical land-based urban area, but remnants of its water-based lifestyle remain. Several riverside communities maintain aspects of this way of life, such as building elevated houses to withstand seasonal floods and using boats for secondary transportation. Despite being well adapted to floods, the Bang Ban community is experiencing increasingly prolonged and severe flooding each year. I hypothesize that climate adaptation plans in Thailand are undermining their adaptive capacity by using flood management strategies to prioritize capital accumulation at their expense.

I demonstrate their capacity to be proactive despite their challenges by asking Who gets to adapt (from water-based to land-based). What are communities adapting to? How can climate adaptation be socially just? This study draws on political ecology and discursive institutionalism to untangle the interplay between climate adaptation plans, flood management strategies, and the situation on the ground. It employs a mixed-methods qualitative approach, including semi-structured interviews with government officials, policymakers involved in floodwater management, local NGOs, scholars specializing in flooding in central Thailand, politicians, and residents of the Bang-Ban community. Interviews were conducted in Thailand from June to August 2023, including 15 participants. Additionally, the study analyzes governmental floodwater management plans, irrigation strategies, and provincial comprehensive plans, supplemented by news articles and media coverage.

We find that government officials and policymakers, particularly in the water sector, impose flood protection infrastructure such as dikes, diversions, and water gates not only to manage water but also to amass political power and sustain their status quo. The water sector employs governance schemes that integrate climate-protective infrastructure, flood zoning, and flood management strategies into the daily governance of the Bang-Ban community. However, rather than enhancing resilience, these strategies undermine the community's adaptive capacity and normalize their suffering under unjust practices. The findings contribute to the literature on historical institutionalism in planning by extending beyond the concept of path dependence to examine the recursive practices of promoting discourses, ideas, and projects that sustain institutional persistence. Additionally, this study sheds light on infrastructure and climate adaptation scholarship, moving beyond the notion of maladaptation to highlight how adaptation strategies actively erode the adaptive capacity of communities that have long lived with

floods. The overarching goal of this study is to emphasize the urgency of embedding socioenvironmental justice into development practices.

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Key Words: Climate adaptation, discourse, flooding, infrastructure, institutions

Knowledge, Space, Power - The Relevance of Territory in Understanding the Caribbean

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Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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This paper advances a theoretical framework for understanding housing as a spatial technology through which borders, sovereignty, and governance are produced and contested. At the intersection of urban planning, political geography, and critical race and Indigenous studies, I argue that housing cannot be fully understood without accounting for the spatial logics of partition, border, and camp—three formations that illuminate how racialized and colonial power operates at the edge of state control and within the domain of planning.

By examining the architecture and logic of the partition, I trace how spatial division—whether through national boundaries, settler-colonial land regimes, or redevelopment projects—functions as a violent tool of disaggregation and displacement. The border emerges not only as a geopolitical line, but as an apparatus that prefigures housing conditions—determining who may dwell, under what conditions, and with what claims to space, land, or recognition. Finally, I theorize the camp as an increasingly normalized housing typology for the stateless, the racialized poor, and those cast outside formal planning paradigms. Camps, whether in the form of refugee settlements, encampments of the unhoused, or temporary labor housing, reveal how the state orchestrates both inclusion and abandonment through spatial containment.

Situating this inquiry within transnational planning contexts, I show how these spatial forms do not exist outside planning, but are often its unspoken infrastructure. From the demolition of public housing to the proliferation of gated tourist enclaves and informal settlements, planning becomes visible not as the agent of equity, but as a participant in the bordering and partitioning of life. Through this lens, housing becomes a critical site where power circulates—through policy and absence, through mapping and unmapping, and through the shifting terrain of legality and informality.

By reframing housing as a political, ontological, and epistemological site rather than a mere policy output, this paper contributes to debates on planning's role in reproducing—or resisting—the architectures of coloniality, racial capitalism, and displacement. I call for a renewed theorization of planning as a field of networked action—where borders and sovereignties are made and unmade—and argue that our understanding of housing must extend beyond shelter to include the spatial and historical conditions that delimit who gets to dwell, and who is rendered perpetually out of place.

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Key Words: Caribbean, coloniality, border urbanism, Spatial Governance, Housing Justice

The Role of Political Intermediaries in Urban Governance in the United States

Abstract ID: 1840.0.0.560.2025

Track 8: Land Use Policy and Governance

Pre-Organized Session Summary

Session Includes: 1844.0.0.269.2025, 1844.0.0.458.2025, 1844.0.0.235.2025, 1844.0.0.498.2025, 1844.0.0.155.2025

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Urban governance increasingly relies on intermediaries who navigate between elected officials, bureaucratic structures, and civil society. These intermediaries, ranging from street-level bureaucrats to nonprofit organizations, play crucial yet understudied roles in shaping policy implementation, resource allocation, spatial form, and community participation in planning processes. As cities face mounting challenges related to employment, migration, and housing affordability, the role of these intermediary actors has become more significant in determining how policies translate into practice and how community needs are represented in decision-making arenas.

Learning Objectives:

- Understand how bureaucrats and nonprofit organizations exercise discretion in translating urban policies into practice, often transforming outcomes in ways not anticipated by formal planning processes.
- Examine the mechanisms through which political intermediaries negotiate between elected officials, bureaucratic structures, and civil society to shape resource allocation and community participation in decision-making arenas.
- Explore theoretical frameworks and methodological approaches for assessing how intermediary actors either advance or impede equity and justice in urban planning and governance.

Professional Discretion and Diverse Property Claims After the 2022 Hermits Peak / Calf Canyon Fire

Abstract ID: 1844.0.0.269.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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Networks of assistance providers help residents navigate complex disaster recovery processes. These include FEMA staff members alongside state program, nonprofit agency and foundation staff. Those interacting directly with residents can exercise discretion in ways that influence recovery outcomes (Jerolleman et al, 2024; also see Lipsky, 2010). In FEMA claims processes, claims navigators are instrumental in helping residents access recovery aid and document their losses although they may not demographically represent the impacted communities (Rivera, 2016). FEMA has widened the range of documentation allowed to access recovery aid for land and property, and yet residents continue to face challenges obtaining this aid (Flordio, 2022). Residents from places impacted by disasters take jobs in the recovery to help their communities. While these local recovery professionals have knowledge about local specificities, they also face constraints from the state apparatus (Scott, 2020). This project seeks to answer the following questions: What authority and discretion do intermediaries have who work directly with impacted residents in the post-disaster recovery environments? Does the authority and discretion differ for locals who accept jobs in the recovery apparatus? This project draws on a case study about the 2022 Hermits Peak / Calf Canyon Wildfire recovery efforts in New Mexico, utilizing interviews, news coverage, and documents produced by FEMA and the State of New Mexico Department of Homeland Security and Emergency Management. This project contributes to planning practice and theory by exploring how local professionals and street-level bureaucrats aid in the unique situations inherent to local community differences.

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Key Words: disaster recovery, street-level bureaucrats, wildfire, local diversity, land tenure

Who Represents Whom in the Planning? A Case of Political Alienation in Boyle Heights California

Abstract ID: 1844.0.0.458.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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Boyle Heights, a historic Latino barrio in East Los Angeles, presents a puzzling contradiction. Despite decades of systematic dispossession and a celebrated tradition of Chicano activism, the neighborhood experienced prolonged political quiescence following the movements of the 1960s-70s. This paper examines a fundamental contradiction in urban governance we term the "representational paradox": how growing political representation of marginalized communities paradoxically diminishes their political voice.

Drawing on analysis of media records, campaign finances, and political communications (1986-2015), we demonstrate how this paradox manifests in Boyle Heights' urban planning politics through five interrelated mechanisms. Class difference and ethnic identity function as complementary forms of symbolic capital enabling specific community members to gain recognition as legitimate representatives. Politicians like Jose Huizar leveraged professional credentials to gain external legitimacy while employing cultural authenticity to maintain constituent support, creating what Bourdieu terms a "cleft habitus."

As interests diverge between voters and external supporters, power increasingly favors the latter. Campaign finance analysis reveals Huizar's 2015 campaign raised nearly \$950,000, with 42% from real estate interests—showing structural dependence on forces threatening constituents' spatial security. Representatives develop sophisticated legitimization strategies: delivering symbolic policies over substantive ones; intensifying cultural identification to obscure class divides; and controlling communication channels to monopolize legitimate discourse.

When recognized as legitimate, representatives penetrate constituents' conceptual spaces and establish control over legitimate discourse. In Boyle Heights, Huizar transformed opposition to gentrification into cultural celebration while facilitating Downtown's \$20-25 billion transformation. This creates profound misrecognition, where residents cannot coherently identify sources of their dispossession.

By conceptualizing territorial dispossession across material, conceptual, and subjective dimensions, we demonstrate how dispossession from conceptual space represents an equally significant form of alienation as physical displacement, explaining prolonged political quiescence despite ongoing threats to spatial security.

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Key Words: Representative, territorial dispossession, symbolic capital, political alienation, Los Angeles

Nonprofits as Intermediaries: Street-Level Organizations in the Mission District of San Francisco

Abstract ID: 1844.0.0.235.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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This paper develops a theory of political intermediation by examining nonprofits (street-level organizations) in San Francisco's Mission District. Using ethnographic fieldwork and interviews with nonprofits, local officials, and residents, I analyze how these organizations function as crucial mediators between government and communities in the context of state devolution and administrative decentralization.

I advance three interconnected arguments: First, I demonstrate how nonprofits create a landscape of selective representation, where their varying degrees of representational legitimacy determine which community voices influence planning processes, raising critical questions about democratic accountability in decentralized governance. Second, I argue that these organizations simultaneously embody characteristics of civil society, but have also function as quasi-governmental bureaucracies, developing unique forms of discretion that differ from traditional street-level bureaucrats when interpreting and implementing policies. Third, I examine competitive collaboration dynamics among nonprofits, revealing how funding ecosystems place nonprofits in paradoxical positions that shape their intermediary roles. In particular, by forming strategic coalitions to increase political leverage while differentiating approaches to secure resources.

The Mission District case illuminates how street-level organizations navigate these tensions while mediating between formal policies and community needs the implementation of a street vending ordinance. This research challenges traditional conceptualizations of bureaucratic structures by revealing how the boundaries between state and non-state actors have become increasingly porous in contemporary urban governance. Understanding this complex landscape is essential for developing more nuanced theories of urban governance that account for the increasingly prominent role of nonprofit intermediaries in planning processes.

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Key Words: Urban governance, Street-level organization, Public administration, Bureaucracies, State devolution

Informal Management: Flexible State Practice and Co-Production of Public Space in Queens, NYC

Abstract ID: 1844.0.0.498.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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During the summer of 2020, at the height of the COVID-19 pandemic, street vendors transformed a small plaza in the New York City neighborhood of Corona, Queens into a bustling marketplace, offering a variety of Latin American food and all sorts of goods, from masks and hand sanitizer to toys, artisanal crafts, and clothing. In addition to providing the neighborhood with affordable goods and food, the market, which at its peak was home to over 100 vendors, served as an important source of livelihood for immigrant residents suffering from the pandemic-induced economic downturn. But the Corona Plaza vendor market, integral as it was to the neighborhood's social and economic resilience, existed for years in a legal limbo. Vendors at the market lacked street vending permits and licenses and the plaza itself was technically off-limits to street vending of any kind.

For three years, the market emerged as an example of bottom-up planning, as vendors organized themselves to self-manage the public plaza. This process of informal spatial management by vendors is documented in other work by the author. For this paper and presentation, I focus on the role of the state during this process. The state was by no means absent from this example of self-management. Caught between what at the time were two politically, operationally, and ethically unacceptable poles – expel vendors from the plaza in the midst of the pandemic or officially endorse what was technically illegal behavior – planners and policy makers managed the situation through a mix of flexibility, forbearance, and creative policy practice that often worked the edges of legality, utilizing the space between laws/policy as written and practiced to create conceptual and physical space for ongoing discussions about the future of the plaza.

This paper presentation seeks to answer three major questions. First what specific mechanisms and strategies, both formal and informal, were used by planners and public administrators to open space for flexible management and negotiation of the informal use of space at Corona? Second, how did the decisions and values of individual bureaucrats shape the approach to managing the plaza? Finally, what lessons can be drawn from this exceptional moment, when, in the midst of the pandemic, planners and administrators embraced informality to co-produce a more inclusive approach to public space management?

Drawing on theorizations of the grey spaces of plans and policy (Yiftachel 2009), this paper presentation argues that planners can and should embrace a more “fluid” form of governance (Certomá et al. 2020), leaning into the space opened for negotiation at the level of policy implementation (Lipsky 1980) to work in and through values of temporariness, incrementalism, and flexibility, positing the informal as a productive epistemology of planning rather than as a deviation from norms in need of correction (Roy 2007, Bhan 2020).

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Key Words: Urban Informality, Public Space Management, Governance

Representations of Substandard Housing in the Media

Abstract ID: 1844.0.0.155.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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Communication scholars have examined how media coverage of housing has the potential to shape the public's perception of housing needs or problems and preferences regarding policy responses. Following the literature of social constructivism, Martin (2021) argues that "housing problems are not simply objective facts [...]. Rather, decisions to focus on particular housing issues reflect the outcome of contests among policy makers, advocates, experts and the general public about which issues are worthy of time and attention and the nature of these issues" (Martin 2021, p.361). Other than underscoring the generally negative outlook of the media on urban problems, most of this work has also highlighted the recurrence of matters of habitability, social order and the deservingness of residents when constructing framing of housing issues in the media.

While previous work has focused on selecting newspapers with contrasting ideological viewpoints/ political slant (Nello-Deakin, S. (n.d.)), our work here focuses on sampling different socio-spatial and housing contexts: constrained geography, minimally regulated or unconstrained growth or widespread vacancy (Herbert et al., 2022), which play out differently according to the existing growth pattern of a city (stagnant, shrinking, growing cities, etc). Particularly, this project examines one aspect of housing issues in the media: substandard and non-compliant housing.

We ask how newspaper articles in Los Angeles, CA, Houston, Tx, Boston, MA, and Baltimore, MD between 2000 and 2024 construct a portrait of housing affordability and quality and its relationship to code enforcement by identifying those actors responsible for the causes and solutions to substandard or non-compliant housing?

We gather newspaper articles for the metro areas and time periods listed above through the database NexisUni, from a list of keywords refined for their ability to call up items of interest. With each news article as a unit of analysis, we follow Entman's framework, and code them to identify five framing elements: how the problem is defined, actor responsible for causes, possible solutions, actors responsible for the implementation of the solutions, and moral evaluation of the problem. Given the focus of our work, we additionally code housing type. We then analyze the frequency of references to particular housing types, conditions, actors, and policy solutions into a quantitative content analysis (Matthes, 2009, p.351) that lets us estimate the prevalence of some actors and solutions represented in the media. Finally, we count and graph the connections between the values across elements to analyze the different framings of substandard housing.

We find that the type of housing brought to the spotlight by the media as substandard – and in need of attention – varies across context. On the other hand, the actors deemed responsible for these conditions and its solutions vary less and continuously portray an image of personal responsibility for conditions of substandard housing while calling for improved, although not always increased, oversight from local government and code enforcement.

This study provides insight into how media narratives can influence political responsibility and policy and resource allocation (White & Nandedkar, p.214) by examining representations of substandard housing as matters of personal failings as opposed to structural deficiencies in the provision and regulation of housing across different contexts.

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Key Words: Substandard Housing, Housing Governance, Housing Code-Enforcement, Urban Governance

Understanding the Centrality of Land Development: Exploring Methods and Conceptual Lenses

Abstract ID: 1840.0.0.508.2025

Track 8: Land Use Policy and Governance

Pre-Organized Session Summary

Session Includes: 1844.0.0.268.2025, 1844.0.0.277.2025, 1844.0.0.162.2025, 1844.0.0.370.2025, 1844.0.0.432.2025

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We are witnessing the centrality of land development to how local governments build, fund, and govern cities, as well as how we live our urban lives. Land questions continue to configure key issues in municipal finance, urban inequality, and spatial production. How land has been governed and developed has fundamentally shaped access to resources, opportunities, and political power within cities. Land is embedded in socio-political relations, and studying land involves engaging with various actors, planning practices, techniques, histories, and institutions. This session invites researchers to explore the centrality of land issues through various methodological approaches—from mapping, geospatial analysis, ethnographic observations, and interviews to other creative methods—and conceptual lenses. Through this panel, we aim to examine how these approaches shed new light on processes of exclusion while also exploring how land can be re-embedded socially to make cities more inclusive.

Learning Objectives:

- To learn about global land development practices and engage with emerging debates on methodological approaches and conceptual frameworks for understanding the politics of land development.

The City That Has Said Yes: Mapping the Workings and Spatiality of Density Tools in New Taipei City

Abstract ID: 1844.0.0.268.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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Since the 1990s, New Taipei City has had an active and speculative land and property development market, leading to the growing construction of residential buildings as well as a worsening housing affordability problem in the city. In this paper, we focus on a set of zoning-based density tools that municipal planners and government officials have deployed to enable, accelerate, and intensify urban land development. Our goal is to pry open the workings of these density tools to shed light on how they have deepened the treatment of land as an investment target by real estate capital even though these tools are couched in public interest discourses promoted by the local authority. We map out how these tools work technically and the spatial outcomes they produce. To make sense of the material and spatialized consequences of these density tools, we engage scholarship on the politics of land development in general and the regulatory techniques of planning tools in particular. Recently, housing affordability crises in American cities have spurred the “city of yes” movement – a set of discursive and regulatory practices that aim to expand housing construction by relaxing zoning restrictions and granting higher density. Yet, planning scholars and community organizers continue to debate whether the so-called “yes in my backyard” movement is an effective fix to the housing affordability challenge or merely a supply-side dressing that cloaks the deepening hold of real estate capital over urban spaces. For example, there has been a call to “unlock” the right to build as a part of the land value capture strategy to address housing shortage and affordability challenges (Furman Center, 2014). Yet, there remains a strong critique that the “city of yes” movement lacks an understanding of how financialization works to monetize land and housing while producing too little affordable housing to make a meaningful difference in equitable development (Rodríguez-Pose and Storper, 2020; Curren, 2021; Sclar, 2019; Shih and Chiang, 2024). This paper builds on and contributes to this important and growing body of debates by examining three major density tools in New Taipei City: density bonusing, TDR, and rezoning. Density bonusing grants developers additional buildable floor area in exchange for privately funded public facilities, such as providing open spaces, or on condition that certain planning requirements, such as using green building materials, are met. TDR is a technique of fungible air rights. It allows developers to produce taller, bulkier, and larger-scale projects if they purchase air rights from land parcels that are reserved for public facility uses under the city’s zoning regulations. Rezoning changes industrial land or farmland to a residential zone that permits higher-density property development. Working in tandem, these three regulatory techniques have ushered in large-scale land development as well as infill-style urban redevelopment. We combine three major data sources: meeting minutes from the Municipal Urban Planning Review Committee, the city’s records of TDR cases, and the national government’s land and housing sales registrar. Our analysis sheds important light on the quantity of buildable density granted by these tools, where they are built and in what type of development, and the neighborhood changes that they have enabled.

Citations:

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Key Words: Density tools, Supply-side approach, Mapping, Land development, City of yes

Governing the Public Realm: Negotiating Air, Light, Mobility, and Property Rights in East Midtown

Abstract ID: 1844.0.0.277.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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When entrepreneurial local governments sponsor land development projects in partnership with private interests in a context of global competition for investment, they increasingly negotiate taking on project risk in exchange for public benefit. To better understand how the public private negotiations shape public outcomes, we explored the East Midtown rezoning in New York City. Through an analysis of planning documents, the project's financial instruments and projections of future revenues, and a set of strategic interviews, we center how the public private relationship was negotiated. Of particular interest is the negotiation between the public provision of land use rights through rezoning and air rights along with public capital expenditure, tax breaks, and risk sharing to produce anticipated public benefits. These public benefits can take a variety of forms including increased property tax revenue, private investments in public infrastructure, overall economic growth, and affordable housing. We describe these negotiations and consider land development as a strategic tool to produce public benefits. We conclude the paper with a consideration of equity. As public benefits are negotiated through the process of public/private land development, a critical concern for planners and society is who gets to decide what public benefits emerge as well as the management of resulting negative externalities.

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Key Words: Land, Air Rights, TDR

Redevelopment, Property Rights, and the Right to the City: The Political Implications in Seoul

Abstract ID: 1844.0.0.162.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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Scholars have proposed the existence of a distinct culture of property in Singapore, Hong Kong, Taiwan, and Korea, with some hinting that such a strong inclination toward property ownership may be sustaining and reproducing speculative urbanization (Haila, 2017; Hsu & Hsu, 2013; Ley & Teo, 2014; Shin & Kim, 2016). However, these studies often lack empirical evidence or critical analysis of the roots of this propensity. To address this gap, further research is needed that critically examines the various manifestations of a culture of property in these regions, focusing on the origins, conditions, and mechanisms of such a culture (Haila, 2017). This study contributes to this line of inquiry by investigating the manifestation of a culture of property in Seoul, South Korea. Drawing from discourse analysis of interview data and historical analysis of legislation and the institutional framework that governs redevelopment, this study demonstrates the deep entanglement between redevelopment, property rights, and rights to the city. I argue that the property rights-oriented redevelopment system in Korea, established in the 1970s, effectively marginalizes renters as secondary citizens while rendering redevelopment a “private matter” concerning only property owners. This perception shapes the urban landscape differently from the West, where concepts like “the right to stay put” and “the right to the city” are championed by renters, empowering them to challenge displacement and advocate for more inclusive urban futures (Marcuse, 2009; Newman & Wyly, 2006), while in regions with a dominant culture of property, the emphasis on property ownership limits the political possibilities and poses challenges for imagining alternative urban futures.

The paper first traces the history of redevelopment engaging with Korea’s developmental history. Particular focus is placed on understanding the sociopolitical factors, institutional framework, and legislations that have governed and facilitated large-scale redevelopment in Seoul, South Korea. By doing so, the paper highlights how property rights have become seen as the only legitimate interest in redevelopment, entrenching the exclusion of renters as key stakeholders in urban transformation. The paper pivots from this historical perspective to provide a more contemporary, in-depth examination of the mechanisms in which a culture of property is sustained. Drawing on 36 interviews with residents, both property owners and renters, and government officials, I demonstrate how the internalization of a property rights-oriented mind normalizes displacement, eviction, and exclusion. In the end, I argue that a culture of property, which positions property rights as the paramount determinant of whose voice is heard in shaping cities, leads to significant and consequential political outcomes.

Citations:

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Key Words: Redevelopment, Property Rights, Rights to the City, Culture of Property, Exclusion

From Flower Farms to High-Rises: Reading Peri-Urban Land Transformation in Greenbelts, South Korea

Abstract ID: 1844.0.0.370.2025

Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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This paper examines how peri-urban flower farms in the greenbelts of the Seoul Metropolitan Area (SMA) have been made 'developable' for state-led urban development through technical, regulatory, and discursive planning tools. Cities have sought to control urban growth by restricting development around their perimeters through greenbelts, which are widely implemented in places such as London, Baltimore (Maryland), Toronto, Seoul, and Beijing. Globally, greenbelts face persistent pressures for deregulation, often justified by the need to expand urban housing capacity. The South Korean government has been at the forefront of greenbelt deregulation, developing high-rise residential buildings on the peri-urban SMA. Initially introduced in the 1970s, greenbelts were a land-use regulation prohibiting large-scale urban development, densification, and housing production for three decades. Since the 2000s, however, greenbelt land development has become the primary mode of housing production in the SMA, South Korea.

Among the more than 20 official land use categories in South Korea, greenbelt housing developments primarily target peri-urban farmland, which has long been home to flower farmers. As a result, ten of the SMA's 34 flower farming communities have either disappeared or are facing imminent displacement as high-rise buildings take over low-rise floriculture communities (J. Choi, 2014, pp. 40–53). Local communities emphasize that greenbelt development has become a zero-sum game against them. In contrast, official planning rhetoric highlights that the development is for the greater good, using 'low-value' land damaged or used in undesirable ways. The images of flower farmers' polytunnels—greenhouses made of plastic covers and steel pipes—are communicated as an example of inappropriate peri-urban land use in policy discussions and media reports. However, the rationales, as well as the counter-rationales behind the politics of land development, have not been sufficiently explored.

Peri-urban land developments have been central sites where contemporary urban dynamics unfold globally (Caldeira, 2017; Keil, 2017). Informed by scholarly discussions that view land as a social relation and a political-economic process (Balakrishnan & van Maasakkers, 2021; Li, 2014), this paper examines how peri-urban flower farms in the SMA are made 'undesirable' and, therefore, 'developable' for housing projects in greenbelt land regimes. I explore this issue through a case study of Gwacheon City, where over 90 percent of the city's land is designated as greenbelt and has a high concentration of flower farmers. In my analysis, I examined the greenbelt land grading system and the evolving peri-urban land use regulations. Furthermore, I conducted ethnographic observations and 41 semi-structured interviews with land development experts, local floriculture communities, and former staff at the municipal government.

The resulting content analysis of interview scripts, documents, and photographs demonstrates that flower farms have been marginalized in official land use planning narratives through socio-political and aesthetic claims about peri-urban ideals. The socio-political narrative positions high-rise residential developments as the ultimate planning goal for societal progress, diminishing greenbelts' potential to accommodate alternative land uses, livelihoods, and opportunities in the peri-urban SMA. The aesthetic claims, which are often framed as environmental issues, focus on the exterior appearance of flower farmers' polytunnels and portray them as unsightly structures that make greenbelts appear 'white' rather than 'green.' By examining multiple entry points to interpreting the land—land use categories, the materiality of built structures constituting the landscape, and the lived experiences of local

residents—this paper situates the peri-urban land development within the broader landscape of contemporary urban politics in South Korea.

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Key Words: Peri-Urban Land, Greenbelt, Land Use Planning, Flower Farms, Case Study

Externalities and the Logic of Public Development Planning in New York City

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Track 8: Land Use Policy and Governance

Pre-Organized Paper Presentation

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Planners and policy makers have increasingly relied on market logics and market rationales in how they think and act. This is particularly true when it comes to land use planning and land development. The critique of the centrality of “highest and best use” in land use planning has a long history (Fainstein, 1991, Swanstrom, 1997, Wolf-Powers, 2005). Few scholars, however, have explored the extent to which planners have abandoned the obligation to address market failures introduced by the existence of externalities. Economic externalities have long played a role in justifying planning (see Klosterman, 1985), and even the most anti-interventionist of theorists, such as Hayek (2007), see a role for planning when it comes to dealing with both negative and positive externalities (as well as public goods). Land use planners in New York City, however, have forgotten even this narrowly economic justification for planning.

This paper presents the case of the Brooklyn Marine Terminal (BMT) project on the Brooklyn waterfront as an example of planning that is uneconomic even from the perspective of the most orthodox economists. BMT is a freight infrastructure project that will benefit the entire New York City region, but its planning process has erased those benefits to the larger region. A properly functioning set of piers at the BMT would yield more efficient freight movement via water and thereby fewer trucks on the road (and the congestion, pollution, accidents, and road wear and tear that come with those trucks). In spite of clear positive externalities, the planning for this project is being conducted within a conceptual framework that requires infrastructure costs incurred in stabilizing and modernizing the piers to be paid for by revenues generated on site. We assert that planners in New York City, in arguing that development on public land must somehow “pay for itself,” have erased from their thinking the concept of the public sector’s obligation to correct market failures by facilitating the internalization of negative externalities and the capture of external benefits. We make this argument not because we believe that planning should be constrained to solely addressing issues of externalities and public goods (as per Hayek), but to say that planning has shrunk in its logics to an even more conceptually reduced form than even free market idealists have advocated. New York City planners and economic development officials maintain that they are acting pragmatically; we argue for a different definition of pragmatism (Healey, 2008); for the incorporation of social rationality into public decision-making (Friedmann, 1987); and at the minimum for a restored adherence to the uncontroversial premise that the internalization of market externalities is an appropriate role for government.

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Key Words: land development, planning theory, New York City

Track 8 Roundtables

Resident Engagement in Housing Reform: What difference does it make?

Abstract ID: 1843.0.0.562.2025

Track 8: Land Use Policy and Governance

Roundtable Submission, Topical Discussions

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This roundtable will feature Pacific Northwest scholars studying public engagement in local housing reform efforts. They will discuss what impact different engagement strategies have—whether they lead to meaningful change or simply draw the same participants and preserve the status quo.

Typically, housing reform conversations and research focus on zoning reform policies and outcomes, while providing little or no attention to how the public was engaged during the creation and implementation of said policies. This may be due to housing reform traditionally being taken up by legislative bodies or housing/planning commissions, both of which commonly only offer public comment periods as their public engagement method. However, as housing policy reform has become more urgent, more methods are being taken up by jurisdictions to engage residents in these efforts.

Dr. José W. Meléndez will highlight insights from an ongoing project investigating the public engagement efforts in addition to the development code revisions and update process in response to Oregon, in 2019, becoming the first state to push middle housing zoning changes at the state level (HB2001). The research team completed a comprehensive inventory of 11 cities public engagement methods, in addition to interviewing planning staff in 10 of the 11 cities that were involved in the HB2001 implementation. He will share both the innovative coding scheme used to code cities efforts that was based on democratic goods that are essential in democratic institutions that engage lay members of the public and the resulting typology.

Dr. Anaid Yerena, will highlight insights from when the City of Tacoma implemented the Home In Tacoma zoning and development standards package in November of 2023—a bold policy shift aimed at increasing housing options, promoting affordability, and advancing equitable urban development. In this roundtable describe the key changes introduced through the new Urban Residential zones, including expanded housing typologies (e.g., backyard cottages, rowhouses, and townhomes), updated parking regulations, flexible lot standards, and requirements for tree preservation. The conversation will also highlight the City’s innovative Housing Equity Champions program, a grassroots initiative designed to ensure underrepresented communities have a meaningful voice in shaping Tacoma’s housing future.

Dr. Rachel Berney will highlight insights from the Equitable Development Zoning (EDZ) project, which aims to align land use policies with equitable development goals by removing regulatory barriers that hinder community-led projects, particularly those combating displacement and enhancing cultural networks. In July 2023, the City Council adopted zoning code changes to facilitate these objectives. Additionally, Seattle introduced policies in 2021 to support faith communities in developing affordable housing on property they own or control. This initiative (the

Religious-Organization Owned Property ordinance (ROOP)) grants religious organizations more flexibility to redevelop their land with long-term, income-restricted affordable housing, thereby contributing to the city's efforts to address the affordability crisis and support community-driven development.

Finally, Dr. Damian Pitt is a member of the citizen advisory commission for the current zoning rewrite process in Richmond (VA), which like many other jurisdictions is tackling all of these issues in real time, including allowing for much more missing middle housing. Dr. Pitt will provide initial commentary on how the efforts undertaken in the PNW can be taken and applied elsewhere in the country, while also highlight relevant issues that may be regionally/context dependent. He will moderate the discussion between researchers and participants.

Citations:

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Key Words: Housing reform, Community engagement, Middle-housing, Zooming reform, Pacific Northwest

Track 8 Individual Paper Presentations

Are Plans and Policies Integrated for Community Flood Resilience in Indigenous Communities?

Abstract ID: 1844.0.0.465.2025

Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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As a manifestation of weather extremes, various types of natural hazards are rising in many parts of the world. These include extreme heat, wildfire, and – in the case of many coastal communities – flooding. For instance, the infamous Mississippi River Flood of 2011 has caused an economic loss of over \$2.8 million in the state of Louisiana (National Oceanic and Atmospheric Administration, n.d.). Similarly, in the summer of 2021, southern Louisiana experienced a heavy thunderstorm, which brought one foot of rainfall within merely 24 hours (Di Liberto, 2021). This strong rainfall led to severe flash floods, which many communities were left with no means to cope with (Di Liberto, 2021). While the impacts of flooding are devastating, they are more concerning since their burdens tend to fall disproportionately on populations that have been historically disenfranchised. Indigenous communities are oftentimes one of these communities being disproportionally impacted (Colchester, 2004; Robertson, 2015).

The physical environment in which a community is embedded plays a substantial role in shaping its resilience to natural hazards. As an important force behind the physical environment, urban planning is thus an activity with much potential to promote resilience. This is particularly so when planning policies are coherently oriented toward this purpose. However, when the policies are not integrated, as empirically found to be commonly the case, they can instead weaken resilience. Recognizing this, several studies have been conducted in recent years to evaluate plan integration. Nonetheless, no study has touched on the context of Indigenous communities. We pioneer in this study to adopt and apply the Plan Integration for Resilience Scorecard-TM (PIRS-TM) (Berke et al., 2019; Yu et al., 2023; Malecha et al. 2019) – a well-established method for plan integration evaluation – to an Indigenous community and its surrounding localities in the southern United States. We illustrated this method in the reservation and addressed the following research questions:

1. Is the plan network integrated in promoting community resilience to flooding?
2. Is the plan network paying enough attention to the Indian reservation when promoting community resilience to flooding?

We find that the land-use / development plans are integrated overall in promoting community resilience for current and future flood risks, particularly the former. By comparing the results between the reservation and the surrounding communities, we also assess if the plans are prioritizing the tribal community when promoting resilience – the more fundamental policy reasons behind such are also highlighted. These findings can directly contribute to refining the plans being examined. The methodology demonstrated has an even broader significance as it illustrates the approach to evaluate plan integration that other Indigenous communities can utilize.

Such knowledge is significant for planning practitioners since it enables the continuous tracking of their performance regarding plan integration for resilience. It also allows for identifying policies contributing to the integration and those working against it. These conclusions can, in turn, help practitioners refine their plan ecosystem to more effectively support the community's hazard resilience.

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Key Words: PIRS-TM, Indigenous communities, Hazard vulnerability, Community resilience

Compactness in Shrinking Cities: Rethinking Density for Urban Adaptation

Abstract ID: 1844.0.0.603.2025

Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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The compact city model, widely promoted as a sustainable urban development strategy, emphasizes densification, mixed land use, and transit-oriented growth (Kikuchi et al., 2022). Previous studies have found a significant contribution of compact city policies to sustainable urban development in high-density cities (Bardhan et al., 2015). This is true for such land-use planning approaches that were primarily designed to regulate and direct urban growth, but often proven inadequate in shrinkage scenarios (Galster G., 2019). However, its application in shrinking cities, where areas are of low density, presents a fundamental paradox: while compact city strategies rely on pro-growth planning, shrinking city solutions often align with degrowth principles, advocating for de-zoning, adaptive reuse, and managed contraction.

This study argues for a nuanced land-use framework, leveraging densification where compact urban forms persist while allowing for strategic de-zoning in areas undergoing long-term decline, as a more effective response to shrinking city conditions. In doing so, it addresses how compact city strategies and urban shrinkage spatially intersect in small and medium-sized cities, what built environment characteristics define compactness, and how densification can be aligned with urban decline to better serve existing residents. To capture this complexity, we develop a comprehensive compactness metric that integrates traditional urban form indicators, such as density, land use mix, and accessibility, with computer vision-derived data from street view images. With the advancement of computer vision, street view images may provide new data of both subjective and objective variables of an urban scene. Advances in computer vision enable the extraction of both subjective and objective variables from urban scenes, allowing us to incorporate perception-based attributes like safety, beauty, and vibrancy alongside built environment features such as vegetation, buildings, roads, and pedestrian activity (Naik, et al., 2017; Zhang et al., 2018). We apply principal component analysis (PCA) to synthesize these variables, distinguishing between compact and dispersed urban patterns. Using a spatial clustering approach, we classify urban areas into distinct typologies, differentiating compact urban forms from areas experiencing decline, as well as transitional spaces that exhibit characteristics of both. Our study focuses on small and medium-sized South Korean cities (populations around 100,000), providing an empirical foundation for understanding spatial adaptation in shrinking urban environments.

Findings reveal distinct spatial zones where compact city principles remain viable mainly concentrated in the city center area, contrasted with the outer parts where urban shrinkage. This suggests different planning approaches are needed for cores and peripheries. Rather than treating compactness and shrinkage as mutually exclusive, this study proposes a hybrid land-use framework: targeted densification in urban cores while facilitating strategic de-zoning in peripheral areas. By redefining compactness as a concept adaptable to shrinkage rather than growth, this shifts viewing city centers not as engines for economic expansion, but as attractive living environments that prioritize well-being of the existing residents. This study contributes to land use policy discussions by offering a spatially explicit evaluation of compact city feasibility in shrinking urban contexts, bridging the gap between smart growth ideals and shrinking city realities.

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Key Words: Compact city, Shrinking cities, Land use planning, Urban form, Computer vision

Detecting First-Floor Elevation with Mobile LiDAR: Implications for Flood Damage Analysis

Abstract ID: 1844.0.0.89.2025

Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Restricting development in flood-prone areas is essential for long-term flood risk management. However, many U.S. cities continue to permit development in vulnerable coastal and riverine areas (Highfield et al., 2013; Hino, 2023) due to population growth, the appeal of waterfront living, and low flood risk perception (Akhter et al., 2021). Many U.S. floodplain communities, including New York, NY; Houston, TX; and Tampa, FL, have permitted floodplain development in accordance with building codes—such as freeboard requirements, which mandate elevating structures an additional height above the Base Flood Elevation (BFE)—established based on the guidance of the Federal Emergency Management Agency (FEMA) (Aerts & Botzen, 2012; City of Houston, 2018). Although these measures have been widely implemented, empirical evidence on their effectiveness remains scarce, largely due to difficulties in monitoring flood damage and in precisely assessing first-floor elevations.

This study examined the effectiveness of first-floor heights in mitigating flood risk on Davis Islands in Tampa, Florida, in the aftermath of the 2024 flooding caused by Hurricanes Helene and Milton. The research questions are: (1) How has first-floor height changed over time on Davis Islands? (2) How do different elevation measures (ground elevation, relative first-floor height, and absolute first-floor height) influence the likelihood and extent of flood damage? (3) What is the critical first-floor height threshold that significantly reduces the likelihood of flood damage? This study uniquely utilizes first-floor elevation data, captured through mobile LiDAR, to accurately represent flood risk exposure in terms of height. Additionally, it incorporates ground-truth flood damage data, combining the author's windshield survey with storm damage assessments from the City of Tampa. To answer the questions, this study employs a combination of descriptive analysis, regression modeling, and predictive visualization to examine ground elevation, and relative first-floor height, and absolute first-floor height influence flood damage on Davis Islands.

The findings of this study underscore the crucial role of elevation in mitigating flood damage. The scatter plot of first-floor height and year built reveals a clear shift in first-floor height trends before and after 1980, reflecting changes in construction practices and elevation standards over time. In the regression results, both ground elevation and relative first-floor height significantly reduce the likelihood of flood damage. However, ground elevation exerts a slightly stronger protective effect per foot, suggesting that site selection (i.e., choosing higher terrain) may be as important or even more important than elevating structures alone. The regression result of absolute first-floor height also demonstrates a strong negative relationship to flood damage, with higher elevations significantly lowering the probability of flood damage. Furthermore, the predicted probability curve shows a steep decline in flood risk for buildings elevated up to 10–12 feet, after which the risk stabilizes at near-zero levels.

These findings contribute to a deeper understanding of the relationship between first-floor elevation and flood damage, offering critical insights for policymakers and urban planners seeking to strengthen flood resilience in coastal communities. Additionally, the findings support FEMA's guidance on elevating buildings' first-floor height above the BFE for floodplain development. This research highlights the importance of data-driven evaluation of building code regulations in mitigating flood impacts amid increasing climate-related hazards. It also underscores the role of advanced technology, showcasing how building elevations obtained through mobile LiDAR can serve as empirical indicators of flood damage.

Citations:

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Key Words: first-floor height, mobile LiDAR, mitigating flood damage, community resilience

Do New Towns Have Lower Carbon Footprint? A Case from South Korea

Abstract ID: 1844.0.0.338.2025

Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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The Paris Agreement's emphasis on global greenhouse gas reduction and carbon neutrality has prompted various countries and cities to propose and implement carbon neutrality policies, with South Korea, for example, establishing its 2050 Carbon Neutrality goal in 2020. Decarbonizing cities are essential since energy use in urban areas account for about 71% of global carbon dioxide emissions. Existing research examined how urban land-use structure, continuity, and shape complexity affect carbon emissions. Since the 1990s, South Korea has built New Towns outside Seoul to manage population growth and housing shortage. These towns feature large parks, community facilities, public transit, and stringent building codes for enhancing energy efficiency. Analyzing these urban features is crucial to understanding their effectiveness in reducing energy and carbon footprints.

Master-planned New Towns in Korea present an opportunity to test whether various emerging urban planning concepts such as sustainable development, Smart City, and net-zero city have yielded their intended effects. The first phase of the new town development primarily focused on addressing housing shortage problems creating bedtowns around the city. The second phase focused on large-scale urban planning to prevent haphazard development and promote sustainable development, incorporating green transportation, public transit systems, and ecological parks. The third phase of new town development emphasized increasing green space, transit-oriented infrastructure, and smart city technologies. New towns are evolving their plans to develop into sustainable cities by expanding from merely addressing housing issues to incorporating new technologies to address carbon neutrality.

In this research, we analyzed whether the planning elements for decarbonization including energy efficient buildings, public-transit system, and large park system functioning as carbon sinks have contributed to reducing the carbon footprints of New Towns. We first analyzed the association between carbon emissions and various urban and environmental factors including variables representing 1st, 2nd, and 3rd phases of New Towns at the administrative district dong level in Seoul Metropolitan Area consisting of city of Seoul, the city of Incheon, and Gyeonggi Province. As New Towns were developed in phases, the analysis period was set to years of 2000, 2010, and 2020 during which each phase of New Town developments were completed or nearly completed. To isolate the carbon reduction effects of New Towns, we divided administrative districts in the SMA with similar residential areas as the comparison group.

Our preliminary findings suggest that New Towns built in later phase with energy efficient buildings and large park systems slightly reduce carbon emissions in the comparison group. Environmental factors such as the park area and green area have always negative correlations with carbon emissions in every analysis. As the number of vehicles was a significant variable correlated with carbon emissions only in the 2020 analysis, this suggests that the farther New Towns in later phase were built from Seoul, the greater the dependence on automobiles.

From these findings, we may be able to identify which of the planning factors (e.g., land use pattern, density, and transportation) could effectively reduce carbon emissions in large residential development projects like New Towns. Although this study focused on the Korean cities, the planning implications derived from this study could shed

insights into developing effective decarbonization strategies for large-scale residential development projects in other countries.

Citations:

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Key Words: New Town Developments, Urban GHG Emissions, Urban Decarbonization, Climate Change Mitigation, Land Use Planning

Do Smart Growth Policies Lead to More Compact Residential Subdivision Patterns?

Abstract ID: 1844.0.0.1012.2025

Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Land use policies in local zoning and subdivision ordinances of U.S. planning jurisdictions have largely favored automobile-dependent, low-density development by capping residential density, restricting allowable land uses and housing types, and prioritizing automobile infrastructure over infrastructure for other modes of transportation. To create more sustainable development patterns, planning scholars and smart growth advocates have urged local jurisdictions to amend their ordinance texts and maps to integrate smart growth policies that promote high densities, diverse land uses, interconnected streets, accessible destinations, and nearby transit (Talen, 2012). As local governments have gradually reformed or are considering reforming their ordinances, empirical evaluations on the extent to which the prescribed ordinance changes have resulted in more compact development are necessary to inform and improve future land use policies.

In this study, we seek to fill knowledge gaps regarding the relationship between smart growth policies and development outcomes. Studies in this area include Song's (2005) spatial analysis of subdivision design following the implementation of smart growth instruments, in which she observed some positive changes in subdivision design following the implementation. Song's (2005) analysis provided valuable results, but she did not establish direct links between specific local policies and the observed spatial patterns. In the past few years, relevant assessments have primarily investigated the impacts of zoning reforms on housing densities and diversities (e.g., Dong, 2025; Huennekens, 2023). These studies have generally documented positive changes while also acknowledging the influence of other factors, such as market forces, socio-demographic characteristics, and fiscal policies, on development outcomes. In other words, the planning literature has yet to provide adequate empirical evidence on the effectiveness of many of its prescribed smart growth policies, especially those intended to promote land use mix, street connectivity, and accessibility for non-auto users.

Our study seeks to answer whether planning jurisdictions that have adopted certain smart growth policies have indeed developed more compact residential subdivisions than those that have not. Our sample is 13 Wake County planning jurisdictions that have integrated smart growth principles into their ordinance texts and maps at varying levels. To address the question, we created an inventory of land use regulations and zoning districts for each sample jurisdiction and conducted a spatial analysis—using metrics adapted from Song's (2005) study—to measure density, land use mix, housing diversity, and internal street connectivity in subdivisions developed between 2011 and 2022. We then examine whether the results of the subdivision spatial analysis are associated with the presence of certain relevant land use policies.

Our preliminary analysis indicates that subdivisions with higher street connectivity and greater housing density are located in jurisdictions that have included additional regulations promoting street connectivity and larger zones for higher-density or multi-family housing. However, jurisdictions that permit a wider range of housing types and select commercial uses in residential zones have not necessarily developed new subdivisions with greater housing or land use mix. The limited number of subdivisions with mixes of single-family, multi-family residential, and commercial uses appears to be primarily the result of planned unit developments (PUDs), with some enabled by traditional neighborhood development (TND), conditional zoning, or mixed-use district regulations. This finding echoes David's

(2015) conclusion that municipalities in Michigan were more successful in achieving compact development patterns through PUDs than through other land use regulations.

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Key Words: Smart growth, compact development, zoning reform, spatial analysis

Geographies of Transfer: Building Data Systems for TDR Management

Abstract ID: 1844.0.0.773.2025

Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Transfer of Development Rights (TDR) is a much-discussed, but comparatively rarely used, land use planning tool whose use in the US has reflected the popular shift towards market-based policies (Linkous, 2016). Under TDR programs, development rights are transferred from sending sites—often historic or environmental protection areas—to receiving sites. In addition, local governments have adopted TDR tools for urban growth control or enable special projects under increasing development (Chiodelli & Moroni, 2016). However, despite significant attention, few studies have analyzed transaction-level details, such as limited data on credit prices and lack of transparency (BenDor et al., 2022; Linkous, 2017).

This study seeks to determine how TDR programs collect, manage, and distribute data on program operations. Using TDR program data, we also seek to understand how transfers shift development rights spatially across jurisdictions (and neighborhoods with defined socio-economic characteristics). Based on these evaluations, we also seek to establish a flexible and extensible data model that would allow a wide range of TDR programs to improve their operations and outcomes.

We rely on the TDR program database constructed by BenDor et al., (2022), which consists of 375 programs across 39 States. We contacted all 375 programs and received 20 responses (18 useful for analysis and 7 with location identifiers) that included some form of data on transactions within TDR programs. Mapping the sending and receiving sites of these 7 programs onto US Census Tracts, we performed paired Wilcoxon tests to compare the neighborhood socio-economic characteristics of sending or receiving sites.

We assessed the organization of collected data using entity-relationship (ER) model in database design (Chen, 1977), mapping out common relationships between attributes and entities in even the most complex programs. We applied normalization techniques to structure a data model that collected data necessary for TDR program monitoring and evaluation, as well as for reducing redundancy and improving data integrity. Finally, we created a master ER diagram – a conceptual map for understanding data needed to track transactions and programs – depicting this data model.

Our results suggest widespread data scarcity – either in what was collected or distributed – in TDR programs. We found that TDR transactions are typically recorded in scattered formats, such as tables, permits, and deeds, rather than in unified databases. Most TDR programs record acres transferred, approval dates, site entitlements, zoning, location, and transaction status, while credit fees and calculation details appear less consistently. Additionally, ad hoc notes often clarify merged cases or special program conditions. Overall, TDR program operations reflect a many-to-many relationship between sending and receiving sites, whereby credits can flow through a variety of transfer pathways. Transfers are complex, often occurring in phases across repeated transactions, with calculations tailored to match sending site capacity with receiving site demand.

We propose a data model that connects sending and receiving sites, which each can represent hierarchical objects consisting of parcels or groups of parcels, to TDR credit “banks” – accounts representing amassed TDR credits that have yet to be fully transacted to receiving sites. These connections occur through transactions. The transaction

table connects the other three tables, respectively, with a primary key for sending site ID, receiving site ID, and a composite key for sending bank ID and receiving bank ID.

The proposed database allows the systematic tracking of TDR transactions, which is flexible for program adjustments or changes. This academically supports transparency and reproducibility in research and bridges theory and practice, practically performs advanced program evaluation, and reveals institutional constraints and governance issues.

Citations:

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Key Words: TransferDevelopmentRights, database design, land use policy, growth management, urban technology

How Just is TOD? The Incorporation of Transit-Oriented and Just City Planning by Brazilian Cities

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Transit-oriented development (TOD) is a worldwide approach that aims to achieve compact and sustainable urban growth, relying on zoning overlays and high-quality transit systems. While the TOD model has been associated with increased transit ridership, creating mixed-use, and mitigating greenhouse gases, it has also been criticized for spurring gentrification and displacement. The model has evolved in the academic field and planning sector to incorporate inclusivity and equity concerns into proposed frameworks. However, there is much to learn about how local agencies articulate the TOD concept and theoretical ideas of justice in their plans, especially comprehensive plans. This research helps address this gap by evaluating the relationship between transit-oriented planning and just city planning. It builds on a preliminary analysis of 39 comprehensive plans from all Brazilian cities with an operational rapid transit system (BRT, LRT, and Metro). It draws on an exclusive database that expands the analysis of comprehensive plans to the 145 most populated Brazilian cities, therefore allowing for enough variation. It aims to answer the research question: Which Brazilian cities have the most transit-oriented plans, and how does transit-oriented planning relate to just city planning?

We apply a range of advanced natural language processing techniques to this end. In particular, we use semantic network analysis - Word2Vec embedding - and dictionary analysis to capture the contextual relationship of the two concepts (Just City and TOD), their prevalence, and networks, with the data analysis expected to be completed by May 2025. Three different dictionaries are adopted to capture the TOD concept and its nuances based on distinct frameworks: the 6-D framework developed by TOD scholars, which is well-established in the literature, and the TOD frameworks developed by the ITDP and the WRI, which have been applied in the Brazilian context by academics and practitioners. To capture theoretical ideas of justice in the planning documents, we build on the Just City theory, proposed by Susan Fainstein.

The hypothesis is that cities with a more TOD-oriented general plan are more likely to embrace values that promote justice in urban planning. We anticipate similar results from our preliminary study: a disparity in adopting the TOD model across different cities. Despite the growing interest in TOD as a framework for achieving sustainable urban mobility and development, we anticipate a significant gap between the acknowledgment of TOD principles and their effective implementation. Despite the TOD principles' presence in the planning documents, land use and transportation integration goals remain fragmented. This study will provide exploratory findings with policy implications.

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Key Words: TOD, just city, comprehensive plans, word embedding, dictionary analysis

How Useful Can a Land Use Planning Approach Be in Mitigating Coastal Vulnerability?

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Climate change is no longer considered preventable by human intervention. Studies show that even with rapid carbon neutrality, global warming and sea-level rise are inevitable. Thus, adapting to climate change and disasters has become crucial. Coastal cities, in particular, must address these challenges.

Coastal areas hold high value as tourist and residential zones, leading to extensive development and continued demand. This increases coastal vulnerability and complicates adaptation efforts. South Korea, a peninsula with limited land and mountainous terrain, faces heightened risks of coastal disasters and land loss due to sea-level rise.

Assessing vulnerability and verifying urban planning's role in mitigation are essential. This study employs the Coastal Vulnerability Index (CVI) and a land-use planning approach to analyze (1) current and (2) future vulnerabilities under sea-level rise. Five land-use scenarios are then applied to highly vulnerable areas to assess mitigation effects.

The InVEST Coastal Vulnerability Model was used, integrating climate change scenarios into CVI while allowing easy visualization. This model evaluates coastal vulnerability considering regional characteristics. With growing concerns over worsening vulnerability, it is crucial to examine changes over time. After assessing present and future vulnerability, land-use scenarios were applied to high-risk areas. This aligns with the idea that land-use planning supports long-term disaster prevention.

Scenarios were applied within 500m of the shoreline and included: (1) full development, (2) preservation of ecologically valuable areas while continuing planned developments, (3) preservation with minimal development in low-ecological-value areas, (4) full preservation of valuable areas with no planned developments, and (5) complete conservation. Land cover maps were reconstructed based on urban planning data to observe changes in vulnerability. Unlike previous studies that simplified scenarios, this study explicitly incorporated development plans and ecological value.

Results showed high vulnerability in two regions: Kkotji Beach (west coast) and Wonpyeong Beach (east coast), both exceeding a 3.7 vulnerability score pre- and post-sea-level rise. Scenario applications revealed:

Kkotji Beach exhibited significant differences in vulnerability across scenarios due to concentrated planned developments, high exposure to sea-level rise, and clustered ecologically valuable areas. In contrast, Wonpyeong Beach had few planned developments and evenly distributed ecological value, leading to minor vulnerability changes except in the full development scenario.

South Korea lacks systematic policies for coastal vulnerability mitigation. Most measures focus on structural approaches, with limited vulnerability assessments. While structural solutions offer short-term benefits, unintended consequences have increased advocacy for non-structural approaches.

This study contributes by comprehensively assessing coastal vulnerability and empirically demonstrating the effectiveness of non-structural approaches. It also highlights land-use planning's potential to shift policies away from structural responses.

Comparing Kkotji and Wonpyeong Beach, findings indicate that while preserving natural areas is crucial, restricting development in high-risk zones should be a priority to mitigate coastal vulnerability effectively.

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Key Words: Coastal Vulnerability, Sea Level Rise, Vulnerability Index, InVEST model, Coastal disaster

Instagrammable Neighborhoods, Youth, and Revitalization of HUA: An Individual Perception Analysis

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Historic urban areas (HUA) are currently facing an unsustainable threat to urban vitality due to the pressures of an aging population. In response to the Chinese government's initiative to promote youth-friendly cities, local authorities are exploring diverse strategies aimed at attracting young adults to reside in HUAs. At the same time, social media platforms, such as RED note, have a growing impact on young people's activity preferences and daily lives. And the prevalence of social media has led to the emergence of instagrammable neighborhoods, enabling traditional residential districts to adopt new-era urban functions. In fact, despite the aging population, outdated infrastructure, increasingly noisy living environments, these neighborhoods exhibit vibrant rental markets with relatively lower rents. It may appeal to the young generations who are seeking affordable entry points into big cities. Therefore, it is both a challenge and an opportunity of neighborhood revitalization.

This study selects a representative instagrammable neighborhood, i.e. Kexiang in Nanjing, China, as its empirical case study, which is identified through 7862 RED note posts. The built environment and vitality characteristics are captured by clustering 246 panoramic videos of public spaces in the HUA from a pedestrian perspective. A stated-preference (SP) questionnaires is further designed to collect the activity preferences and intentions of various public spaces. Anonymous participants were required to provide information on their socioeconomic background and current activity habits in the public space. Furthermore, participants made sequential choices, including binary public space preferences and ultimate residential selections between scenes selected from the aforementioned clustered panoramic video samples. An SEM-logit model was then applied to capture both tangible and intangible factors that influence activity decisions, e.g. visual and auditory perception, historical-cultural as well as vitality atmosphere. From the influencing factors and participants' residential choice between two scenes, it identified peoples' preferences regarding public space activities and residential choices, evaluating the feasibility of youth inhabitation in these neighborhoods and propose improvement strategies.

The model results demonstrated distinct preference patterns for different public space scenarios among different demographic groups. And it would reveal potential correlations between existing vitality characteristics, environmental attributes, and behavioral patterns, which helps to assess the risk of unsustainable vitality, such as over-commercialization or cultural homogenization. The preliminary analysis indicated that social media significantly shapes young people's choices public spaces and accommodations, as they show strong interest in visiting online-viral public spaces and consider online recommendations when selecting settlement cities. Moreover, newly renovated environments and supporting facilities accompanying internet popularity in trendy neighborhoods are particularly significant for youth. These internet-tailored changes meet their entertainment and social needs. It further offers valuable insights for urban planning and policy decisions. Since local governments could have several potential urban renewal strategies for these neighborhoods, including converting existing residential properties for commercial redevelopment aligned with current viral trends. Alternatively, they could focus on preserving residential functions and attract new residents through targeted improvement of residential environments. Our research provides a framework to identify neighborhoods suitable for commercial development versus those better maintained as residential communities. This long-term perspective helps prevent short-sighted commercial transformations driven by uncertain internet trends that may undermine original community values.

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Key Words: Historic Urban Area, Youth-Friendly, Social Media, Public Space, Individual Perception

Interlinking Transit-Oriented Development and Zoning Reform: A Comparative Study of Four U.S. Cities

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Cities are complex systems shaped by the interplay of policies and the dynamic interactions among urban elements. Zoning reform and transit-oriented development (TOD), as two important tools for improving accessibility, housing affordability, and sustainable development, have attracted significant scholarly and policy attention (Freemark, 2023; Mathur and Gatdula, 2023). However, there is still a limited understanding of how these policies interact with each other in theory and practice, and how their coordination impact urban dynamics. To bridge this gap, this study conducts a comparative case analysis of New York, Minneapolis-St. Paul, Seattle, and Miami.

First, I draw on two major strands of academic literature to build a theoretical framework that understands the relationship, complementarities, and potential tensions between the two policies: (1) zoning reform as a prerequisite for TOD, including tools like upzoning, mixed-use allowances, and parking requirement reductions, to set the conditions for TOD success (Ibraeva et al., 2020). (2) TOD projects as a catalyst for zoning reform, by impacting density, parking ratio, and housing affordability (Soliz et al., 2024).

Then I chose New York, Minneapolis–St. Paul, Seattle, and Miami for in-depth comparative study based on their diverse geographic, demographic, and political contexts, as well as their active engagement in both TOD initiatives and zoning reform efforts. The case study integrates content analysis (zoning code changes, TOD projects, plans, reports and local policies) and spatial analysis to trace the implementation pathways and temporal-spatial coordination between TOD and zoning reform.

Preliminary findings suggest that cities where zoning reform preceded TOD implementation, such as Minneapolis-St. Paul, tended to exhibit stronger regulatory alignment and land use readiness, facilitating more cohesive and equitable TOD outcomes. Seattle also demonstrates strong coordination, with zoning updates and reduced parking minimums closely tied to TOD goals, enhancing walkability and mixed-use development. In contrast, cities like Miami, where TOD efforts preceded substantial zoning reform, often faced barriers such as restrictive land use patterns and community resistance, limiting the transformative potential of TOD investments. Similarly, New York is undergoing rezoning after TOD to address concerns about compatibility with existing neighborhoods and commuting patterns. These results contribute to a more nuanced understanding of how TOD and zoning reform can be strategically integrated. Planners and policymakers can draw on these actionable insights to maximize the potential of TOD and zoning reform in achieving sustainable and equitable urban development.

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Key Words: Zoning reform, TOD, Planning practice, land use

Land use configuration and its synergistic effects on heat island: roles of urban functional zones

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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In the context of the growing urban heat island (UHI) effect, mitigating high land surface temperatures (LST) has become a key goal in urban planning. Identifying the key drivers of LST, especially the role of land use spatial configuration, is crucial for optimizing urban spatial layouts. Existing studies tend to focus on individual factors, such as building density, often overlooking the mechanisms of land use spatial configuration and its interactions with other key factors influencing LST. These gaps hinder a comprehensive understanding of LST drivers and limit the guidance for optimizing functional zoning in urban planning. To address these gaps, this study focuses on urban functional zones in the central city of Nanjing, using a LightGBM model combined with the SHAP (SHapley Additive exPlanations) framework to systematically analyze the nonlinear and synergistic effects of land use configuration on LST. The findings show that spatial configuration significantly affects LST, with distinct impacts across different functional zones. Moreover, strong interactions between spatial configuration and other key factors were identified, particularly between agglomeration and building form, fragmentation and the natural environment, as well as patch density and human activity factors. These innovations provide a refined methodology for high-precision analysis of spatial configuration and offer theoretical support for optimizing functional zoning in urban planning.

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Key Words: Urban heat island, Urban functional zones, Land use configuration, Non-linear effects, Synergistic effects

Local Land Use Governance & the Energy Transition: How Ordinances Shape Solar Development

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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One challenge of the climate crisis is that even a successful energy transition will catalyze waves of new infrastructure development and transform great swathes of the physical landscape. Building out renewable energy sources, particularly cost-effective, ground-mounted, utility-scale solar projects, will use large tracts of land to generate electricity, particularly affecting residents in areas with high solar radiation and cleared land near transmission lines. Yet, while the U.S. has set ambitious energy transition goals to meet its stated policy ambitions of zero CO₂ emissions by 2050, land use is largely shaped by local ordinances and zoning rules.

This study investigates how local ordinances influence solar development, examining the growing prevalence of zoning restrictions that facilitate, constrain, or outright block new development, addressing 1) What types of local ordinances are being adopted to regulate solar energy development, and how have they evolved over time? 2) How do we distinguish between reasonable local governance and unreasonable restrictions? 3) What factors predict the adoption of restrictive local solar ordinances?

By analyzing these questions, this study contributes to planning scholarship at the intersection of land-use regulation, energy infrastructure siting, and climate policy in a decentralized governance system. Utilizing a database of local ordinances and solar capacity growth by county, this study classifies land-use regulations as supportive, neutral, or restrictive, distinguishing between ordinances that impose moderate development conditions (e.g., setbacks, screening) and those that function as de facto bans (e.g., moratoria, excessive buffer zones). Second, using an event study analysis, I study whether counties with increasing solar capacity are more likely to pass restrictive ordinances. Following this, I use a difference-in-differences model to investigate what local political, economic, and geographic factors predict adoption of reasonable regulations compared to policies so restrictive they function as proxy bans. This approach distinguishes local governance choices that shape responsible solar development from those that act as barriers to decarbonization.

Preliminary findings indicate that the number of local solar ordinances has increased significantly in the past decade and their content varies widely, with a growing number instituting strict permitting barriers that function as bans compared to ordinances that impose workable setbacks or other siting requirements. Counties with rapid solar capacity growth appear more likely to pass restrictive ordinances, suggesting a reactive regulatory response. Additionally, the political misalignment between local and state governments—where the local majority party differs from the state—appears to predict ordinance adoption, highlighting tensions in governance structures.

This study builds on a growing body of work quantifying how local land-use regulation shapes energy transitions. As states seek to accelerate renewable energy permitting and siting, understanding how local rules act as regulatory guardrails or as obstacles to progress is critical. For practitioners, the study offers evidence on the types of local regulations regulating solar energy development. For scholars, this study contributes to multi-level governance research about how decentralized regulatory power affects the feasibility of national and state climate policies.

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Key Words: renewable energy siting, local governance, zoning ordinances, energy transition, Land-use policy

Preservation or NIMBYism? Tension Between Historic District Designation and Zoning Reform in Seattle

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Many American cities continue to experience housing affordability challenges due to housing shortage and rising prices, leading to the Yes In My Back Yard (YIMBY) movement and zoning reforms aimed at increasing residential supply. However, these supply-focused solutions frequently trigger significant opposition from residents who utilize various tactics to defend their neighborhoods (Einstein et al., 2020). Within the ongoing affordability crisis, the role of historic preservation remains controversial as to whether it limits housing supply or provides affordable housing (Cheong, 2020). Nevertheless, recent evidence suggests that historic district designations may be strategically utilized to resist change and maintain the status quo within higher-income and predominantly white neighborhoods (Choi et al., 2025).

In order to explore how tensions between historic preservation and housing affordability are reflected around zoning reforms, this research examines Seattle's case of three newly designated National Register Historic Districts and the recently legislated upzoning plan under the Mandatory Housing Affordability (MHA) program. A case study using various archival and document sources allows us to investigate how the procedures of historic district designations and upzoning plan development intersect and mutually influence each other. We also conducted a semantic network analysis of letters of interest submitted during the designation process of the three historic districts, aiming to identify various stakeholder perspectives and central themes of their narratives. This network approach maps the relationships between words, enabling the identification of prevailing topics and frames by revealing structural patterns in textual data (Segev, 2021).

The case study reveals that the designation of Mount Baker Park and Ravenna-Cowen North historic districts during the zoning reform process resulted in their exclusion from the City's final upzoning ordinance. This finding implies that the designation of a National Register Historic District, despite its honorary status, may serve as a de facto barrier to upzoning initiatives, especially in single-family zoned neighborhoods. In addition, the case of the Wallingford-Meridian Streetcar historic district with the semantic network analysis demonstrates contrasting narratives between opponents and supporters of historic district designation, highlighting significant tensions between neighborhood preservation and housing affordability. While opponents resist historic district designation, arguing that it can worsen housing affordability challenges and conflict with ongoing zoning changes, supporters advocate for it with an emphasis on long-term residency, neighborhood identity, and architectural character. Lastly, Seattle's case illustrates that the decision-making process for historic district designation remains largely detached from planning issues such as zoning and housing affordability, despite the shared concerns of planning and preservation regarding the neighborhood built environment (Minner, 2016).

Our findings provide a better understanding of the complex relationship between historic preservation and housing affordability within zoning changes. These findings also suggest policy implications for mitigating the tension between preservation and affordability, including a more integrated designation process that considers planning agendas and housing policies, as well as more flexible and inclusive land use policies to preserve neighborhood character while increasing development capacity. Moreover, insights from this study help identify common ground between sustainable growth and historic preservation, highlighting opportunities for cooperation between preservationists and housing advocates to find better solutions.

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Key Words: Historic District, Housing Affordability, Zoning Reform, Neighborhood Preservation, Upzoning

Research and Policy Perspectives on Land Use Planning in Wildfire Management

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Wildfire threats are intensifying across the US, making land use planning increasingly critical to comprehensive wildfire management. Despite this importance, a significant lack of consensus exists among academics and practitioners regarding how these strategies should be classified, adopted, or implemented within disaster management frameworks. This inconsistency directly impacts funding mechanisms, implementation timelines, and institutional responsibilities. Our systematic review examines how academic and policy documents classify various land use planning strategies within the traditional disaster cycle (preparedness, response, mitigation, adaptation, and recovery). By analyzing classification patterns across these domains, we identify key trends and consensus gaps that affect wildfire risk reduction efforts and policy implementation.

Land use planning serves a unique integrative role in wildfire management, bridging research and practice while connecting emergency response with long-term resilience building (Srivastava & Laurian, 2006; Mockrin et al., 2020). The classification inconsistencies identified by previous research directly impact planning implementation by affecting funding eligibility, timing, and resource allocation (Stevens et al., 2010; Berke et al., 2015; Lyles et al., 2014). For planning professionals serving as intermediaries, these discrepancies create significant challenges in navigating between research frameworks and policy requirements (Harris et al., 2011; Paveglio et al., 2018). While existing literature acknowledges the benefits of standardized terminology for interdisciplinary wildfire management efforts (Steelman & McCaffrey, 2013; Abrams et al., 2016; Thompson et al., 2018), there remains a notable gap in systematically analyzing how land use strategies are classified across academic research and policy applications. This gap is particularly significant for planning literature, as terminology inconsistencies not only complicate communication between researchers and practitioners but also hinder strategy implementation by affecting funding eligibility, allocation timelines, and inter-agency coordination mechanisms (Burby et al., 2000; Muller & Schulte, 2011; Calkin et al., 2014).

Following PRISMA guidelines, we analyzed 92 peer-reviewed articles (2013-2024) and 41 state/federal policy documents from high-risk western states. We constructed a structured evaluation protocol with five land use categories (building regulations, vegetation management, subdivision regulations, zoning regulations, and preventative strategies) encompassing 23 indicators. For each document, we systematically identified land use strategies and their corresponding disaster phase classifications. Our analyses included quantitative consensus score measurements, temporal pattern identification through heat mapping, and disciplinary cross-comparisons to assess classification variations.

Key findings reveal a fundamental "prevention-readiness dichotomy" between academic research and policy frameworks. Academic literature predominantly classifies land use strategies as mitigation measures (74%), while policy documents distribute them more evenly between mitigation (51.6%) and preparedness (40.5%). This dichotomy echoes longstanding tensions in planning theory between comprehensive and incremental approaches (Hopkins & Zapata, 2007). The severe underrepresentation of adaptation (3.1% academic, 2.6% policy) and recovery (1.8% academic, 0% policy) classifications reveals an "incomplete disaster cycle" that undermines comprehensive resilience planning.

These findings highlight the need for integrative "phase-spanning frameworks" that acknowledge planning's unique boundary-spanning role and the multi-phase functionality of land use strategies. Policy systems should be revised to support flexible, multi-phase application of strategies rather than forcing single-phase categorization that may reduce their effectiveness.

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Key Words: Wildfire Risk Reduction, Land Use Planning, Research-Policy Gap, Policy Analysis, Systematic Review

Rethinking Gated Communities through Pareto Optimality: Evaluating Urban Access and Efficiency

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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As the expansion of gated communities reshapes the spatial fabric of East Asian cities, concerns over spatial inequality, access restriction, and fragmentation of the urban public realm have intensified. These communities, often equipped with physical barriers and controlled internal pathways, have been widely criticized in planning discourse for promoting social exclusion. However, most existing critiques remain grounded in normative frameworks and offer limited tools for empirically assessing whether such configurations are not only inequitable but also economically inefficient.

This study reframes gated communities not merely as socially unjust, but as spatial configurations whose efficiency can be objectively evaluated using the concept of Pareto optimality. Rooted in welfare economics, the Pareto principle asks whether a reallocation (or redesign) can improve at least one party's outcome without worsening another's. In applying this to urban space, the study investigates whether selectively opening internal paths within a gated complex can reduce pedestrian travel costs for external users without significantly increasing burdens on residents.

The empirical case focuses on a representative gated apartment complex in Busan, South Korea. The complex restricts public access through internal walkways, forcing surrounding residents to detour to reach shared urban infrastructure such as subway stations. Using QGIS network analysis, ten origin points were defined around the complex to represent plausible pedestrian routes to a nearby station. Two spatial scenarios were modeled: (1) a closed state (current condition) and (2) a partially open state with select internal paths made accessible.

To compare both user groups under a shared metric, travel distances were monetized using Korea's Value of Time (VOT) standard. For internal residents, cost changes resulting from increased foot traffic were modeled using Crowding Penalty coefficients, which quantify discomfort as a multiplier on base travel cost. This framework produced a cost-balance model, allowing direct comparison between external benefits and internal costs.

Results showed that external pedestrian costs consistently decreased in the open scenario. However, internal discomfort costs only increased along certain routes, primarily those crossing central zones. Peripheral internal routes absorbed additional traffic with minimal burden. One route, in particular, exhibited a net social benefit, with no group incurring a loss—thereby meeting the conditions for a Pareto improvement.

These findings suggest that urban efficiency and equity need not be opposing goals. By empirically identifying spatial scenarios where both can coexist, planners can move beyond binary debates (e.g., full openness vs. complete enclosure) and pursue strategic, data-driven design interventions. The study aligns with James Buchanan's concept of procedural Pareto improvement, advocating for rule-based, consent-driven transitions toward greater social benefit.

Ultimately, this research offers a transferable planning methodology that integrates spatial analytics, cost theory, and behavioral modeling to assess the efficiency of urban design. It repositions gatedness not as a fixed condition, but as a modifiable variable within the urban system—subject to empirical evaluation, design optimization, and policy innovation.

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Key Words: Gated communities, Pareto Efficiency, Network Analysis, Urban accessibility, Planning Evaluation

Rich-Get-Richer Urbanism: Branding and Complexity in Post-Crisis Urban Change in South Korea

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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This paper explores how branding dynamics have reshaped the spatial and structural configuration of urban housing development in Seoul. Projects backed by strong and recognizable apartment brands, which are developed by a small group of dominant construction firms, tend to be larger in scale, more centralized, and disproportionately concentrated in high-demand, desirable neighborhoods. These developments have come to symbolize not only physical quality but social status, investment potential, and access to superior amenities. As a result, they attract greater consumer attention, command higher prices, and shape perceptions of urban value.

In contrast, developers lacking brand capital are increasingly excluded from prime locations and large-scale opportunities. Many are confined to small peripheral projects or pushed out of the market altogether. This polarization represents a sharp departure from earlier, more evenly distributed development patterns. Where once a range of developers operated across diverse neighborhoods, today's market shows increasing consolidation around a handful of top-tier brands. These dynamics reflect a fundamental shift in the housing system—one in which spatial inequality and developer concentration reinforce each other over time.

The paper argues that Seoul's housing market has transitioned into a complex adaptive system, which is marked by feedback loops, emergent behaviors, and preferential attachment. Branding operates not merely as a marketing tactic but as a structural mechanism that governs how housing is produced, consumed, and valued. Through processes of cumulative advantage, popular brands gain increasing visibility and market share, while lesser-known firms struggle to compete. This preferential growth dynamic, where success begets more success, leads to escalating disparities in spatial development, housing accessibility, and economic opportunity.

Such developments challenge conventional planning assumptions rooted in equilibrium-based thinking. Traditional supply-side policies, which rely on increasing unit numbers or controlling prices, assume a relatively neutral market landscape. However, when perception, status signaling, and brand loyalty significantly influence demand, these policies fail to address the deeper forces driving inequality. Housing markets shaped by branding and feedback do not passively respond to more supply; they actively evolve in ways that concentrate advantage and reshape urban form.

As branded apartments become objects of speculation and prestige, their development increasingly drives up land values, reinforces neighborhood stratification, and limits affordability. Even where housing supply grows, it may do so in forms that are inaccessible to most households. This reinforces exclusionary geographies and undermines the goal of equitable urban development.

The study suggests that planners and policymakers must adopt new frameworks capable of grappling with complexity. Branding should be understood as an emergent force that co-evolves with consumer preferences, institutional incentives, and market structures. Effective interventions must move beyond simply adjusting supply or setting price controls. Instead, they should consider structural reforms such as regulating branding practices, democratizing development opportunities, or incentivizing inclusive and diverse housing provision.

This analysis contributes to broader urban theory by applying complexity thinking to housing systems. It highlights how emergent behaviors and nonlinear interactions between consumers, firms, and institutions reshape markets in ways that traditional models overlook. By identifying branding as a key mechanism in Seoul's housing transformation, the paper offers a new lens for understanding inequality and proposing policy solutions in rapidly evolving urban contexts.

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Key Words: Complex Systems, Urban Branding, Preferential Attachment, Housing Market Dynamics, Emergent Urban Change

Spatial Heterogeneity of Urban Morphology's Impact on PM2.5 and Carbon Emissions

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Urban spatial morphology, shaped by the expansion of built-up land and socio-economic spatial structure, reflects the dynamics of urbanization. Understanding its relationship with PM2.5 concentrations and carbon emissions is essential for advancing regional sustainable development. This study constructs a scale–structure–form analytical framework to evaluate urban morphology within the Beijing-Tianjin-Hebei urban agglomeration from 2014 to 2024. Using data from national air quality and meteorological monitoring networks, the China Land Cover Dataset, gridded CO₂ emissions, and socio-economic indicators, we measure urban scale through land consumption and population size; structure through the land-use Shannon index, development compactness, and average building height; and form through area-weighted shape indices, area–radius scaling, and vertical morphology such as building height. The geographical detector model is applied to analyze the spatial heterogeneity of urban morphology's impact on PM2.5 and carbon emissions. The results reveal that: (1) from 2014 to 2024, PM2.5 annual mean concentration decreased by 9.19%, while carbon emission intensity increased slightly by 0.31%, indicating that air quality improvements were largely driven by end-of-pipe controls and policy enforcement rather than systemic industrial or energy transitions; (2) scale indicators exhibit the strongest correlation with concentration trends, while structural indicators align more closely with spatial distribution, forming a spatial gradient of higher values in northern and southern areas, lower in the center, and increasing from inland to coastal zones; (3) land-use compactness emerges as the most critical spatial determinant. The spatial autocorrelation between PM2.5 and carbon emissions evolved from weak to strong, peaking with significant positive correlations during 2019–2022. This relationship is nonlinear across spatial scales, suggesting that compactness influences differ once certain thresholds are crossed. This study reveals the coupling mechanism between urban morphological evolution and the spatial distribution of PM2.5 and carbon emissions. It further proposes a resilient morphological interval balancing air pollution mitigation and carbon reduction, offering empirical evidence and planning insights for integrated spatial governance in high-density urban regions.

Citations:

- Simulation of land use spatial pattern of towns and villages based on CA–Markov model
- A new landscape index for quantifying urban expansion using multi-temporal remotely sensed data
- The role of data resolution in analyzing urban form and PM2.5 concentration
- Unveiling seasonal disparities in urban form: Exploring scale and intensity effects on PM2.5 concentrations
- Impact of Compact City on Carbon Emission Reduction Based on Urban Size: A Spatial Analysis Using Satellite Imagery

Key Words: urban spatial morphology, PM2.5, carbon emissions, spatial heterogeneity, urban agglomeration

State Growth Management Regulations and Fossil Fuel Emissions

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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This article investigates the relationship between state level growth management regulations and their influence on carbon emissions in urban regions. A growing body of literature has examined the role of state policies in shaping local development outcomes, including urban sprawl, social vulnerability, and exposure to environmental hazards (Anthony, 2004; Wei & Ewing, 2018). These studies underscore the capacity of state level policies to direct the form and function of urban areas through regulatory frameworks and planning mandates. Concurrently, there is growing consensus across planning literature on the critical role of urban form in influencing urban emissions (Falahatkar & Rezaei, 2020). Given that growth management policies are explicitly designed to guide urban form and land use decisions, it is reasonable to hypothesize that such state-level policies exert both direct and indirect influences on carbon emissions within urban areas.

This study contributes to this emerging line of inquiry by empirically examining the extent to which state-mandated growth management frameworks affect emissions at the urban scale. Specifically, the analysis focuses on the relationship between state growth management regulations and per capita carbon emissions across U.S. Metropolitan Statistical Areas (MSAs). To capture the variation in state-level planning mandates, we draw on data from a 2022 study conducted by the American Planning Association (APA), which systematically evaluated eight core planning requirements embedded within state planning legislation. Our dependent variable, is derived from high-resolution estimates of fossil fuel CO₂ emissions (2022), created by the Vulcan Project at Northern Arizona University. This dataset offers spatially explicit, annualized data on CO₂ emissions from fossil fuel combustion across all U.S. regions, disaggregated by sector (Gurney et. al. 2019).

We use partial least squares structural equation modeling (PLS-SEM) to model the relationships as it allows for modeling complex relationships with small sample sizes without imposing strict distributional relationships (Hair et al. 2019). The results of the analysis provide empirical evidence that state-level planning policies influence urban carbon emissions through both direct and indirect pathways. Metropolitan Statistical Areas (MSAs) located within states exhibiting stronger and more comprehensive planning mandates were associated with significantly lower per capita fossil fuel CO₂ emissions. Furthermore, the strength of state planning mandates was positively correlated with key indicators of urban form and urban activity—suggesting that such policies shape not only emissions outcomes directly, but also the structural and functional characteristics of urban areas. The associations between urban form and activity measures were also found to be statistically significant, reinforcing the interconnected nature of spatial planning, urban functionality, and environmental performance.

These findings underscore the critical role that state-level growth management frameworks play in climate change mitigation, both by guiding land use patterns and by fostering more sustainable forms of urban development. In a national context marked by the absence of a coordinated federal mandate on emissions reductions, and amid increasing political sensitivity surrounding climate policy, this study highlights the capacity of state governments to act as critical levers of climate governance. By strategically leveraging their policies, states can influence local development trajectories in ways that contribute meaningfully to climate mitigation objectives, particularly promoting compact, efficient, and economically vibrant urban areas.

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Key Words: State Planning mandates, Urban Emissions, Urban form and function, Climate change mitigation, MSA

The Impact of Boundary Governance on Land Use in Development Zones: Empirical Evidence from Nanjing

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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This study interrogates how boundary governance mechanisms shape land use patterns in Chinese development zones, with particular focus on boundary adjustment as a critical policy instrument. Confronting the theoretical paradox wherein existing literature predominantly frames administrative boundaries as barriers to regional integration, we argue that such boundaries constitute sophisticated governance tools that actively reconfigure urban spatial order. Through examining Nanjing's development zones—exemplary cases within China's most economically dynamic Yangtze River Delta—we reveal the dual nature of boundaries as both spatial constraints and institutionalized policy levers.

Our methodology combines three analytical approaches: 1) Spatial statistical analysis of land use change (2000-2020) using remote sensing data and planning archives; 2) Institutional analysis of 132 boundary adjustment documents across 12 national/ provincial-level zones; 3) Semi-structured interviews with 28 planners and zone administrators. The multi-scalar investigation bridges the gap between macro-level policy analysis and micro-level spatial governance practices.

Key findings demonstrate three governance paradoxes: First, the centralized boundary management system produces compressed urbanization characterized by hyper-concentrated industrial clusters and perforated development patterns. Second, jurisdictional overlaps between local governments and zone authorities create ambiguous borderlands—zones experiencing 2.3 times more boundary adjustments than other areas—where infrastructure provision lags behind by 5-7 years due to fragmented administrative responsibilities. Third, the coexistence of land expansion and contraction generates conflicting territorial logics, particularly evident in the misalignment between ecological redlines and economic development boundaries.

This study has three theoretical contributions: 1) it redefines the boundary of development zones as a dynamic governance interface, rather than a static spatial separation; 2) It determines the evolutionary movement of boundary governance - promoting the evolution of spatial boundaries in different periods of development zones and the construction of governance systems; 3) It reveals how scalar politics between different administrative levels is achieved through controversial boundary adjustments. In fact, we propose a transitional framework for boundary governance that emphasizes three synergies: a cross departmental coordination mechanism for boundary management, dynamic boundary assessment indicators incorporating ecological constraints, and a cross-border benefit sharing model.

This study deepens the understanding of urban industrial spatial governance and provides key insights for regions striving to address similar tensions between the economic development boundaries and social governance boundaries of development zones. The Nanjing case provides empirical evidence for rethinking the role of boundaries in shaping the urban landscape of development zones.

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Key Words: Boundary, Spatial Governance, Development Zones, China

Understanding the Next “D” in Polycentric Cities – The Importance of the Distribution of Centers

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Polycentric development refers to an urban structure characterized by multiple centers or hubs—such as employment, commercial, or activity zones—rather than a single dominant core. In recent decades, this approach has gained prominence in urban planning for its potential to enhance city sustainability, particularly by shaping travel behavior. Traditionally, polycentric development has been evaluated either through a polycentricity lens or via the “5D” framework which includes density, diversity, design, destination accessibility, and distance to transit (e.g., Park et al., 2020). However, one critical aspect has often been overlooked: the spatial distribution of (sub)centers. This research introduces this as a new, sixth “D” factor, arguing that it is essential for accurately measuring polycentric development and understanding its influence on sustainable outcomes.

The spatial arrangement of these centers—specifically, how they are positioned relative to one another and the populations they serve—can significantly influence travel behavior. Well-distributed centers could shorten travel distances by bringing jobs, services, and amenities closer to residents, a key mechanism for advancing urban sustainability. The study emphasizes that it is not sufficient for centers to merely exist or host evenly distributed activities; their spatial configuration is equally critical.

Historically, research on polycentric development has focused primarily on commuting trips (Eldér, 2014), due to limited data on other trip types. To broaden this scope, this study uses large-scale mobility datasets to examine non-commuting trips, such as those for dining, recreation, or maintenance (e.g., shopping or errands). It explores how the built environment, including the distribution of centers, affects these trips. This broader perspective is vital, as non-commuting trips account for a substantial portion of urban travel and influence sustainability outcomes.

This study employs gradient boosting decision trees (GBDT), a machine learning technique well-suited to capturing non-linear relationships between the built environment and travel behavior (Ding et al., 2018; Wagner et al., 2022). GBDT also models the interactions among independent variable through its tree structure, reflecting the complexity of travel behavior, where factors like center distribution might not influence travel in linear way. The analysis includes 83 metropolitan statistical areas (MSAs) in the U.S., each with at least one subcenter, and grouped into six clusters based on size and polycentric development patterns. This clustering accounts for the heterogeneity among metropolitan areas, recognizing that the effects of polycentricity vary by context (Næss, 2022).

Findings show that the distribution of (sub)centers significantly influences travel behavior, particularly within certain MSA clusters. The proposed “D” factor has a clear non-linear effect on travel distance, varying by MSA type and trip purpose. The results suggest that, beyond having evenly distributed activities, the spatial arrangement of (sub)centers should be considered a critical component of polycentric development. Moreover, the varying effect of this factor highlights the need for context-sensitive planning approaches. Traditional factors, such as population density and land use diversity, remain consistently important across all clusters, underscoring their foundational role in sustainable urban design. However, destination accessibility (e.g., distance to centers) shows varying patterns, suggesting it interacts differently with polycentric structures.

For planning implementations, we argue that attention must be given not only to the presence of multiple centers but also to their spatial arrangement. Planners must ensure centers are strategically positioned and that activities within them are well-distributed. Simply creating multiple centers is not enough, their layout matters.

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Key Words: polycentric development, subcenters, urban spatial structure, machine learning

Unraveling the Urban Regeneration Paradigm in Seoul: Path Dependency in Redevelopment Policies

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Track 8: Land Use Policy and Governance

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Urban redevelopment policies have long shaped the trajectory of cities, balancing economic growth, housing supply, and social equity. In South Korea, Seoul's redevelopment policies have undergone significant transformations, reflecting broader shifts in governance, market forces, and political ideologies. Initially driven by state-led clearance projects, redevelopment has evolved into market-driven models and, more recently, public-private hybrid approaches. However, despite efforts to shift toward urban regeneration policies emphasizing community-led, sustainability-focused development, the persistence of redevelopment paradigms raises critical questions about the institutional inertia embedded in South Korea's urban planning framework. This study applies a historical institutionalist approach to examine the path-dependent evolution of urban redevelopment policies, analyzing the regulatory frameworks, governance mechanisms, and stakeholder interactions that have influenced Seoul's urban transformation.

This research aims to answer three key questions: (1) What are the underlying institutional mechanisms that have sustained redevelopment policies despite policy shifts toward urban regeneration? (2) How have urban redevelopment policies evolved through mechanisms such as path dependence, layering, drift, and conversion? (3) What are the implications of these institutional dynamics for the future of urban regeneration and land use governance? By investigating these questions, this study seeks to provide insights into the structural constraints have shaped Seoul's urban landscape.

Methodologically, this study employs a comparative historical analysis of Seoul's urban redevelopment policies, tracing their evolution from the Joint Redevelopment model of the 1980s to the New Town projects of the 2000s, the Urban Regeneration policies of the 2010s, and the recent Fast-Track Integrated Planning initiatives of the 2020s. Drawing on primary sources such as government policy documents, legislative records, and media reports, the research highlights the institutional path dependencies that have constrained meaningful transformation.

Findings reveal that while urban regeneration policies were introduced in the 2010s as an alternative to large-scale demolition-based redevelopment, regulatory inertia, governance structures, and private sector incentives have maintained the dominance of redevelopment-oriented approaches. The case of Changsin-Sungin, which transitioned from an urban regeneration project back to redevelopment following policy shifts in 2021, illustrates the fragility of urban regeneration policies when confronted with market forces and resident preferences. The study further demonstrates that urban redevelopment has been entrenched as a primary mechanism for housing supply, particularly due to the privatization of redevelopment financing, the dominance of construction firms, and the role of land speculation in shaping planning decisions.

The New Town projects of the early 2000s demonstrate institutional drift, wherein policies initially aimed at balancing redevelopment with public investment in infrastructure ultimately became an extension of private-led redevelopment models. The shift from the public-led Urban Regeneration of the 2010s to the Fast-Track Integrated Planning model of the 2020s further exemplifies paradigm regression and path dependence, as urban regeneration gives way to mechanisms for reviving private-led redevelopment that had been stalled for a decade.

Ultimately, this study underscores the importance of historical institutional analysis in understanding why certain urban policies persist despite changing political and social priorities. The case of Seoul provides broader lessons for cities globally, particularly those facing tensions between market-driven redevelopment, social equity, and the need for sustainable urban regeneration.

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Key Words: Urban Redevelopment, Urban Regeneration, Land Use Policy, Institutional Change, Path Dependency

Urban Densification through Vertical Extensions: Potential and Social Sustainability Implications

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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This paper studies the role and social implications of vertical extensions of existing buildings as a form of densification. Vertical extensions involve stacking additional residential floors on top of existing buildings. Densification is a key concept in contemporary urban planning. However, there are widespread concerns that densifying residential areas may lead to displacement and gentrification, especially through replacement constructions, where often older, more affordable housing is demolished and replaced with new denser buildings (Davidson and Lees, 2005). However, there are forms of "soft densification", such as garden infills of building extensions, which avoid demolition (Bibby et al., 2020).

In particular, vertical extensions are of growing interest as they are often environmentally more sustainable than replacement constructions. They do not reduce urban green space, and by reusing existing structures, they typically result in lower embodied greenhouse gas emissions. This becomes increasingly important for reducing lifecycle emissions (Röck et al., 2020).

Many cities, such as Barcelona, Paris, and Geneva, have a long tradition of vertically extending mid-rise multifamily houses. Also, in US cities, like NYC or Boston, vertical extensions are becoming increasingly popular. Yet, their potential for urban densification and social impact on residents remain largely unexplored. Therefore, this paper asks the following research questions: (1) How effective are vertical extensions compared to replacement constructions in creating additional housing units? (2) What are the social impacts of vertical extensions, i.e., can existing residents remain in the buildings and what are the socioeconomic characteristics of new inhabitants? (3) Can land use policies foster vertical extensions?

Using linked annual administrative data on all buildings and individuals from 2010 to 2023, we analyze vertical extensions in the urban areas of Zurich and Geneva in Switzerland.

We employ spatial methods to identify locations and types of vertically extended buildings. We investigate whether inhabitants could remain in their apartments post-extension and analyze the socioeconomic characteristics of residents in the existing and added units. A comparative case study of Zurich and Geneva provides insights into how different policies within a similar institutional and geographical context influence densification through vertical extensions.

In total, we identified 1068 vertical extensions and analyzed 6711 individuals affected by them.

Our findings reveal that vertical extensions are mostly concentrated in city centers and primarily occur for multifamily houses rather than single-family homes. However, they contribute less to densification than replacement constructions: in Geneva, 1.5 times fewer units were created, and in Zurich, 6.6 times fewer. In terms of displacement, the majority of long-term residents can remain in 87% of vertical extensions in Geneva and 42% in Zurich, showing that vertical extensions can preserve affordable housing. However, apartments built on top tend to be expensive, with new residents having 44–72% higher incomes than the existing residents.

Moreover, we find that local policies are key to the frequency of vertical extensions. Geneva's planning policy encourages landlords to vertically extend rather than demolish, resulting in approximately three times more extensions than Zurich.

These outcomes have important implications for urban planners and researchers: Vertical extensions can contribute to densification while allowing existing tenants to remain in their homes, making them a more socially sustainable alternative to replacement construction. Yet, while they help preserve affordable housing, added units on top tend to be expensive. The study also highlights that local governments can encourage vertical extensions through targeted policy measures, such as in Geneva.

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Key Words: urban densification, displacement, soft densification, land use policies, housing affordability

Urban Development Impacts on Natural Areas: Evidence from Two River Basins in Eastern China

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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Spatial configuration of land cover is crucial for determining the impact of urban growth and regulating land use management. However, quantifying these influences remain uncertain. This study introduces a new index, the Urban Impact Weighted Interspersion and Juxtaposition Index (UIW-IJI), to calculate the potential influence of urban development on natural area. Using the Lake Tai Basin and the Qiantang River Basin as study areas, we examine the spatial relationship between UIW-IJI and urban sprawl, evaluated by the landscape expansion index. We adopted the China Land Cover Dataset (CLCD) to form a 300 m grid from 2004 to 2019 and applied a bivariate Anselin Local Moran's I method. Results revealed three distinct patterns of influence caused by urban development: stable influence across most areas, gradual decline near major urban centers, and rapid intensification around Lake Tai urban agglomerations. The analysis identified a geographically uneven distribution of urban influence, with persistent pressure in central and eastern regions while southwestern areas showed emerging influence only in recent years. Furthermore, the transition expansion-oriented to infill-dominated urban development (>70%) has not necessarily reduced pressure on natural lands. Instead, it has shifted the impact pattern from widely dispersed to locally concentrated, leading to more concentrated ecological pressure in northeastern cities. These findings provide insights for urban planners and natural resource managers, emphasizing the need to balance land use efficiency with ecological conservation through targeted protection measures. This study demonstrates the importance of incorporating UIW-IJI into ecosystem management and sustainable urban planning strategies.

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Key Words: urban-natural interaction, urban impact index, urban expansion index, infill development, environmental governance

Why Create a Land Bank? A Qualitative Exploration of Four Communities in Missouri

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Track 8: Land Use Policy and Governance

Individual Paper Presentation Submission

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In urban planning circles, the phrase “land banking” is emerging with increased frequency, whether it be at conferences, in discussions on housing affordability or in articles about urban environmental sustainability. However, ask people, including planners, what land banking is, and responses will be varied and likely contain several, “I’m not really sure,” “It’s confusing” or “I don’t know.” This is because though land banking has been around for over fifty years, it is only recently that the concept has grown in popularity and come to light as a useful planning tool. So, which is the correct answer; is it a tool for addressing housing affordability or environmental sustainability? The answer can be both, or neither and much more.

Defined, land banks are publicly created agencies that acquire abandoned, vacant and/or tax-delinquent properties for short- or long-term strategic redevelopment purposes. Land banking allows communities to transfer such properties for a variety of purposes in an efficient manner that bypasses onerous tax foreclosure procedures and property title clearance processes.

This research examines the “why” of land banking through a comparative case study of four cities in Missouri: Kansas City, St. Joseph, St. Louis, and Springfield. The research involves qualitative interviews with planners who engage in land banking activities and land banking experts at each case site location. These individuals were chosen for qualitative examination due to their knowledge of the history, challenges and purpose associated with their respective land bank. The interviews in this research were coded inductively, as the research is exploratory in nature and there is little academic research in the Planning discipline on land banking.

The study finds that each of the four municipalities has a different overarching purpose for the utilization of land banking, including the creation of affordable housing, to address social justice concerns, and the rehabilitation of aging housing stock to stabilize neighborhoods. It also finds that a lack of clarity or conflicting purposes for the land bank are common and somewhat problematic to each case site. The findings have been developed into five themes and implications for planners. For example, the study finds that the primary driver of land banks in Missouri is housing affordability, with an emphasis on homeownership. However, the land banks are not set up to give preference to the creation of affordable housing, and land often goes to the highest bidder. The implication for this particular finding is that land banks should have a clear purpose, and operating structures that support this purpose.

The objectives of this paper are several. First, it addresses the question, “Why might communities consider land banking?” Secondly, it aims to shed light on the fact that there can be ambiguity associated with land banking. As such, it aims to point land banking advocates towards the importance of a clear purpose and supportive operational systems. Finally, the paper serves as a starting point for future research which examines land banking outcomes. For example, do such efforts result in measurable outcomes such as a greater amount of affordable housing or more equity in communities? It is hoped that this research will assist communities interested in understanding why land banking is a tool worth pursuing to achieve a myriad of planning and community outcomes.

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Key Words: land banking, urban revitalization, qualitative research, vacant land

Track 8 Research in Motion (RiM)

40 years of Urban Growth, Expansion, and Intensification in the United States

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Track 8: Land Use Policy and Governance

Research-in-Motion Presentation Submission, Research currently in process

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Innovative remote sensing, cloud computing, and machine learning algorithms have led to a veritable explosion of data on urban growth. One example of this is the next generation of the National Land Cover Database (NLCD). Released in the Fall of 2024, it expands to an annual dataset covering 1985-2023. The NLCD was previously limited to a 2001-2021 range with a latency of 2.5 years, so the new version doubles the temporal range and increases the volume of an already massive dataset by more than four times. This provides new opportunities to study urban growth, a spatio-temporal process that necessarily takes time and operates over decades more than individual years. This research leverages this capability toward two research objectives: 1) to conduct the first four-decade study on the quantity of urban expansion in the US, including drivers of non-linear change; and 2) to understand how the physical quality of urban landscapes has evolved, possibly in relation to changes in expansion.

Past research has examined growth patterns in the US during the 1980s and 1990s (Fulton et al. 2001, Alig et al. 2004), finding a range of drivers accompanying a period of accelerating land consumption. Richter (2020) revisited these earlier studies, finding a rapid decline since 2001 that stood in stark contrast to earlier trends. There are a variety of social-economic, physical, and built variables related to this decline (Richter and Bixler 2022). However, there is no systematic analysis of growth trends and drivers that accounts for BOTH the acceleration and subsequent decline in the rate of expansion.

Augmenting the analysis of the quantity of urban land is a closer examination of its qualities. Specifically, we look at the NLCD urban imperviousness layer, which is the percent of developed land through which water can penetrate. Developed land cover and imperviousness are often conflated, but it is important to differentiate between the two. For example, lawns are often included in “developed” land, even though they are pervious. In the last two decades, there has been a “Hardening of the American Landscape” (Muller and Mitova 2023) that has seen increasing levels of imperviousness associated with increased urban heat island and hydrological impacts. As urban imperviousness changes so too does the urban environment. The imperviousness of the US urban landscape has not been examined as frequently as expansion of developed land, constituting a ripe opportunity for spatio-temporal analysis.

This Research-in-Motion presentation fills the aforementioned research gaps on the quantity and quality of urban land in the US. The full Annual NLCD (1985-2023) is analyzed to understand trends at three scales: contiguous US, metropolitan statistical area (MSA), and municipality (using US Census Places geography). The latter is particularly insightful as it allows for assessment of how regional structure may be shifting, including changing rates of urban infill in core cities or more intensification in suburban jurisdictions. Future research will integrate housing production and land use regulation to better understand the direct and indirect implications of urban growth.

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Key Words: Urban Expansion, Urban Imperviousness, Intense Suburbanization, GIS, Urban Analytics

Are Communities Planning for Multi-Hazards? Analyzing cobenefits and tradeoffs with two communities.

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Track 8: Land Use Policy and Governance

Research-in-Motion Presentation Submission, Research currently in process

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Climate change and under-regulated urban growth put cities at risk of multiple hazards that compound and cascade to weaken the coping capacities of people, places, and habitats. Planners and policymakers are already shaping multi-hazard exposure by influencing development trajectories, allocating infrastructure, setting design standards, and providing services. Yet, empirical evidence on what characterizes effective multi-hazards planning is limited. Most research on hazard mitigation is either siloed into individual hazard types or discussed as broad adaptation standards. The few planning studies that do analyze multi-hazards (Chang et al., 2019; Srivastava & Laurian, 2006) rarely also consider the interactions between specific multi-hazards and greenhouse gas emissions control (Georgescu et al., 2024; Grafakos et al., 2019). In the absence of systematic and holistic guidance on multi-hazards planning, we risk overlooking opportunities to proactively avoid losses and identify sources of maladaptation.

To address these gaps, this study offers a novel methodology to systematically evaluate the state of planning for multi-hazards. The method called Integrated Climate Adaptation Plan Evaluation (I-CAPE) was developed in collaboration with municipal partners in the City of Tucson and Pima County during their general plan updates. We first conducted a systematic literature review of 178 peer-reviewed and grey literature and developed a beta version of I-CAPE. Next, using standard content analysis procedures (Lyles & Stevens, 2014), we piloted I-CAPE with three versions of the City and County general plans- the old versions, the drafts, and the final plan updates for four relevant hazards- heat, drought, wildfire, and flood. Finally, through focus groups with city partners, opportunities to advance integration were discussed using three questions:

1. How can planning processes advance multi-hazard mitigation while also integrating across broader climate change adaptation and emissions control goals?
2. What are the policy co-benefits and tradeoffs in advancing multi-hazard mitigation?
3. What are the opportunities and barriers to further multi-hazards planning at the local government level?

The contribution of this study is three-fold. First, we introduce a novel method to comprehensively analyze and ground truth local-level multi-hazards planning. Second, to the limited longitudinal plan evaluation studies, we offer new insights on the changes in attention to multi-hazards. Third, given the impact emissions control can have on multi-hazards mitigation (Georgescu et al., 2024), I-CAPE also diagnoses policy synergies and tradeoffs between controlling greenhouse gas emissions and multi-hazards mitigation. Preliminary findings reflect improving recognition of multi-hazard risks over time in city and county plans, but unsystematic policy inclusion for multi-hazard mitigation. Plans and planners indicate a lack of data that communicates the interactions between different hazards in time and space, leading to unintended maladaptation and inconsistent support for policies with synergistic benefits across hazard types. These findings pave the way for more empirical research to better understand how different types and scales of plans can effectively address multi-hazards exposure and address tradeoffs.

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Key Words: multi-hazards, plan evaluation, collaborative research, integrated climate action

Brownfield Redevelopment and Urban Planning: Exploring Local Strategies and Policy Implications

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Track 8: Land Use Policy and Governance

Research-in-Motion Presentation Submission, Research currently in process

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Brownfields—abandoned, idled, or under-used industrial and commercial facilities—have emerged as a significant urban planning challenge as well as an opportunity for urban revitalization in the United States (Yount, 2003). Given the environmental benefits of utilizing the existing built-up lands, the effective reuse of brownfields is increasingly recognized as a sustainable alternative to greenfield development. Infill development on these under-used sites helps limit land consumption, reduce infrastructure demands, and make better use of existing resources.

Since the 1990s, when the U.S. EPA launched its brownfield agenda, scholars have examined how federal and state programs incentivize brownfield redevelopment. These efforts have employed a range of tools, including legal mechanisms like the Brownfields Revitalization and Environmental Restoration Act, and financial incentives such as grants and tax credits (Andrew, 1996). Brownfield redevelopment efforts have also employed technical assistance through pilot projects and remediation planning, and public-private partnerships (Heberle & Wernstedt, 2006; De Sousa et al., 2023). This body of literature offers a robust understanding of how higher-level policies attempt to stimulate site cleanup and reuse. However, there is limited evidence on how local governments, especially municipal planning agencies, shape or respond to brownfield redevelopment challenges within their jurisdictions.

In this study, we investigate how local planning efforts contribute to brownfield redevelopment process. Using brownfield location data from EPA, we selected 30 cities with a substantial presence of brownfields and located in diverse geographic and regulatory contexts. We analyzed the planning documents from these cities to gain a broad understanding on how municipalities approach brownfield redevelopment. We then identified three cities with successful brownfield redevelopment projects and conducted in-depth case studies that included planning document review, policy analysis, and semi-structured interviews with local planners and stakeholders. This approach enabled us to examine how municipal planning frameworks, inter-agency coordination, and local strategies contributed to successful brownfield redevelopment.

We found that successful brownfield redevelopment projects were largely driven by active local governments that integrated brownfield efforts into broader urban development strategies, such as infill development, smart growth, and affordable housing initiatives. These cities did not rely on a single model; rather, they employed a range of tools tailored to their context, including proactive planning to secure federal or state funding and the formation of public-private partnerships to mitigate financial risks. Some cities also leveraged flexible remediation standards and aligned brownfield sites with land-use and economic development plans.

This research contributes to urban planning scholarship by underscoring the importance of planning efforts at the local level for brownfield redevelopment and identifying scalable best practices. Based on these findings, we offer actionable recommendations to strengthen local capacity and support for more effective brownfield redevelopment initiatives.

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Key Words: Brownfield Redevelopment, Resource Development, Local Governance, Urban Planning

Co-Producing Heat Resilience: Exploring the Evolution of Phoenix's Shade Plan

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Track 8: Land Use Policy and Governance

Research-in-Motion Presentation Submission, Research currently in process

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As cities across the globe face escalating climate risks, extreme heat has emerged as an urgent and inequitable hazard, particularly in urban environments where the built environment exacerbates temperature extremes. Despite its significance, most cities do not have standalone heat plans. Instead, heat-related strategies are often fragmented across comprehensive, hazard mitigation, and adaptation plans. These documents may influence heat risk through land use and infrastructure decisions, but usually fail to center heat explicitly or address the uncertainty (Keith et al., 2024). As a result, extreme heat planning remains underdeveloped, with few empirically grounded examples of dedicated heat planning.

This research addresses this gap by evaluating the development and implementation of the Shade Phoenix Plan, a recently adopted and innovative approach to urban heat adaptation and governance. Using a mixed-methods approach that integrates plan evaluation, participant observation, and the co-production of knowledge, this study offers an embedded analysis of how local governments are responding to extreme heat through formal planning processes. Through an internship with the City of Phoenix's Office of Heat Response and Mitigation (OHRM), our research team directly participated in the city's planning process, contributing to the revision and implementation of the Shade Plan, and observing the collaborative dynamics that shaped it.

Phoenix is a critical case for this research. As one of the hottest cities in the United States, Phoenix is at the forefront of heat governance and has recently taken steps to institutionalize its efforts, including the creation of the Office of Heat Response and Mitigation (OHRM). The 2024 Shade Phoenix Plan marks a significant evolution from the city's previous 2010 Tree and Shade Master Plan. Unlike its predecessor, which focused solely on increasing tree canopy, the new plan incorporates both natural and built shade as essential tools for reducing heat exposure and improving public health. This dual approach is particularly important in arid cities like Phoenix, where resource constraints, such as water availability, can limit tree-focused interventions. Built shade, including shade structures and buildings, offers a more immediate solution in the short term (Turner et al., 2023). Preliminary findings indicate that the plan has improved substantially over time, largely due to an iterative planning process supported by internal collaboration and external partnerships. The city's use of interdepartmental liaisons has ensured cross-departmental feedback, while partnerships with academic institutions like Arizona State University and the University of California - Los Angeles have provided updated shade data to inform decision-making. External support from organizations such as Bloomberg Philanthropies also played a key role in accelerating the plan's development and implementation.

Crucially, participant observation within OHRM revealed important gaps in the plan that may not have been evident through document analysis alone. Feedback meetings after each plan evaluation iteration highlighted the need to: (1) explicitly frame heat as the central concern of the plan, (2) address uncertainty and long-term risk management, and (3) clarify how public engagement will continue post-adoption. These findings underscore the value of embedding researchers within planning processes to generate actionable insights and build more responsive plans.

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Key Words: heat planning, shade, knowledge co-production, governance, urban resilience

Effectiveness of Delaware's Growth Strategy: Longitudinal and Spatial Trends and Policy Coordination

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Track 8: Land Use Policy and Governance

Research-in-Motion Presentation Submission, Research currently in process

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Delaware enacted its growth management program in 1999 to guide development, protect natural resources, and prevent urban sprawl. This policy emerged in response to a 67% population increase between 1960 and 1998, a nearly 50% increase in residential areas between 1984 and 1992, the loss of approximately 48,000 acres of farmland from 1983 to 1994 and the loss of 42,000 acres of wetlands between 1951 and 1981 (Delaware Office of State Planning Coordination (OSPC), 1999). The growth management program is centered on a system of mandatory review and voluntary compliance, where the state of Delaware sets broad goals and priorities for growth and preservation through its "Strategies of State Policy and Spending"; and reviews comprehensive plans, map amendments, and major subdivisions for consistency with state goals. State review is mandatory, but compliance with state review is left to the discretion of local governments. The "stick" is that the state will not support infrastructure investments in areas where the state prioritizes preservation.

Existing scholarship presents conflicting perspectives on Delaware's growth management status. Some exclude it due to its lack of mandatory compliance mechanisms (Landis, 2019; Anthony, 2004), while others argue its centralized oversight qualifies it as a growth management state (Weitz, 2020). Nonetheless, Delaware remains understudied in broader growth management research, leaving critical gaps in understanding how its growth management program shapes land use outcomes. Further, questions remain regarding the effectiveness of Delaware's growth management efforts, particularly in Sussex County, which faces increasing development pressures, and has grown 70% faster than the state of Delaware at a rate of 169% over the past 50 years (Sussex County Comprehensive Plan, 2019).

Our paper examines how Delaware's growth management program has impacted development in Sussex County and its 25 municipalities. First, we examine changes in land cover and urban density in Sussex County from 1982 to 2017 (before and after growth management), using data from the National Resources Inventory (NRI). We also investigate changes in development patterns from 2004-2024 in areas where the state favors growth and areas where the state favors preservation. Changes in development patterns will be examined by calculating the annual proportion of development occurring in priority growth versus preservation areas, based on georeferenced residential building permit data and development project approvals between 2004 and 2024. Further, land cover change analysis will be conducted by overlaying Multi-Resolution Land Characteristics (MRLC) land cover datasets with Delaware's Strategies of State Policy and Spending maps to identify and quantify the conversion of land to urban uses within priority preservation areas. By combining statistical, spatial, and policy insights, our paper contributes to a deeper understanding of the dynamics of state-led planning and decentralized land use decisions in the context of growth management.

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Key Words: Growth Management, Land Use Policy, Development Patterns, Spatial Analysis, Longitudinal Study

Impact of Consultants on Zoning Reform in Oregon

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Track 8: Land Use Policy and Governance

Research-in-Motion Presentation Submission, Research currently in process

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Oregon passed zoning reform in 2009 that required cities with populations over 10,000 to allow duplexes on single-family lots, while those with populations exceeding 25,000 must permit triplexes and quadplexes (ORS 197.758). Although the reform mandated cities to implement changes, the state provided no guidance on engaging the public in discussions regarding amendments to development codes (Meléndez et al., 2024). Each city determined the level of community involvement needed for the state-mandated ordinances, which could include hiring consultants to assist in the engagement process, either by applying for technical assistance grants from the Department of Land Conservation and Development or using their own funds, or a combination of both.

Loh and Norton (2015) contend that significant concern exists regarding the role of consultants in the planning process, positing that their influence may compromise the authenticity of community-driven planning initiatives. Barry et al. (2024) argue that a technocratic shift is taking place in public participation, as planners work together with practitioners from various fields who contribute different skill sets to the participatory process. Research on the role of planning consultants in public participation in the planning process is gaining increasing attention. It underscores the importance of recognizing the validity of planning outcomes, particularly when there's a chance that consultants might prioritize their own interests or those of local officials over the community's needs.

This research examines the role of consulting firms in shaping and implementing community engagement during zoning reform processes by asking the following questions: What were the key differences in the strategies used by firms for public engagement in zoning reform across cities? How did the firm's strategies shape the design of community engagement methods during zoning reform processes? How did variations in consultants' approaches influence how cities organized public engagement activities and incorporated community feedback into zoning reform decisions?

This research utilizes data from a large dataset related to a project on Learning from Housing Policy Innovation in Small and Midsize Cities. Data from interview transcripts with city employees will be analyzed qualitatively to identify codes relevant to the research questions. This study will employ an inductive approach aimed at condensing raw textual data, establishing connections between research objectives and findings, and developing a framework of underlying experiences or processes evident in the data (Thomas, 2006). This research will explore interview transcripts to reveal how the firms' methods and preferred techniques influenced community engagement.

This will include an analysis of the tools and techniques employed by each firm and the frameworks used in each city. Additionally, this study will emphasize how each firm identifies stakeholders and ensures that marginalized or underrepresented voices are included. Furthermore, the findings may clarify whether consultant-led planning processes result in positive or negative outcomes.

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Key Words: role of consultants, consultants approach, community engagement, land use regulation

Pre-disaster Development Policies Shape Coastal Vulnerabilities: Lee County, Florida

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Track 8: Land Use Policy and Governance

Research-in-Motion Presentation Submission, Research currently in process

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The frequency of coastal floods around the United States has risen sharply over the last few decades, and rising seas point to further acceleration (M.K. Buchanan et al. 2020). Coastal communities are vulnerable to extreme coastal flooding, and socially vulnerable populations continue to be disproportionately affected. Regional and local land development policies, plans, regulations, and funding programs play critical roles in shaping or mitigating local disaster risks and vulnerabilities. Throughout this century, governments at every level have emphasized programs that ease the development and use of lands exposed to hazards with little attention to the long-term sustainability of that development (Burby, Deyle, Godschalk, & Olshansky, 2000). Nevertheless, there is limited understanding of how and whether pre-disaster development policies align with hazard mitigation goals to minimize risks. Vulnerabilities often depend on structural constraints which are exogenous to the community, such as unequal distribution of wealth and resources within the society, market forces, political systems and governance (Gaillard, 2010). This study investigates the ways in which pre-disaster development policies shape social and physical vulnerabilities by examining Lee County, Florida, prior to Hurricane Ian. Using geospatial and descriptive quantitative analysis, we analyze the National Structure Inventory (NSI) and U.S. Census demographic and socioeconomic data to assess vulnerabilities at the Census Block level. We complement this analysis with data from 300 household surveys and 1,600 physical assessment surveys, collected by our team, to capture pre-Ian social and physical vulnerabilities at the building and household level. To draw a connection between pre-Ian vulnerabilities and development policies, we conduct qualitative coding and analyses on forty-one policy, planning, regulation, and funding documents for Lee County from 2000 to 2022. The findings highlight the critical role that development policies play in shaping disaster vulnerability, demonstrating how decisions related to land use, urban planning, infrastructure investment, and resource allocation can either reduce or increase social and physical exposure to hazards.

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Key Words: Development Policies, Coastal Flooding, Lee County, Florida

Who Runs Detroit? Philanthropy, Public Projects, and the Future of Urban Governance

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Track 8: Land Use Policy and Governance

Research-in-Motion Presentation Submission, Research currently in process

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Today, urban governance is no longer the exclusive domain of the state. It increasingly involves a hybrid, dynamic network of public, private, and quasi-public actors who negotiate responsibilities and shape urban outcomes through collaborative frameworks (Bevir, 2011). Some scholars view this as an evolution toward more networked, participatory decision-making (Pierre, 2000). Others criticize it as a consequence of neoliberal urbanism—processes that have encouraged privatization, decentralization, and the rise of public-private partnerships (Harvey, 1989; Jessop, 1997).

In this paper, I argue that governance shifts in cities impacted by economic decline or state retrenchment—where authority and functions once held by the public sector are assumed by non-state actors—can create a path dependency that prevents local governments from regaining their capacity to govern. I suggest this path dependency may be more pronounced in certain urban sectors than others, depending on the scale of non-state involvement and the institutional strength of the public sector in those domains.

Using Detroit as a case study, my research asks whether the erosion of public authority and growing involvement of non-state actors—particularly philanthropic foundations—transforms the state from a regulatory body into a facilitating entity. By examining the influence of foundations in financing and shaping urban revitalization projects across sectors such as transportation (QLine), greenways (Joe Louis Greenway, Dequindre Cut), and mixed-use development (Detroit Riverfront), I aim to understand whether the state's role shifts across projects and over time. I also investigate why foundations invest in certain initiatives, why their influence concentrates in specific sectors, and what this reveals about the balance of authority between the state and non-state actors. Ultimately, this analysis explores whether the weakening of public sector capacity—and the resulting reliance on private funding—is more pronounced in particular areas of urban governance.

I employ a qualitative methodology combining document analysis with fieldwork to trace the influence of foundations across revitalization projects in Detroit. Data sources include foundation reports, project proposals, and public funding records. I conduct semi-structured interviews with planners, city officials, directors and staff from philanthropic institutions, and members of community associations, advisory groups, and coalitions. To complement these interviews, I attend public meetings related to ongoing projects such as the Joe Louis Greenway, to observe engagement processes and stakeholder interactions in real time.

My findings suggest that the influence of foundations in Detroit's revitalization is neither uniform across time nor consistent across sectors. The level of state authority varies between pre- and post-bankruptcy periods, shaping how much control public institutions retain. In some instances, the state acts as a coordinator, while in others it continues to lead project design and implementation—even alongside strong philanthropic partners. These patterns suggest that foundation involvement is often guided by strategic considerations such as impact or alignment with regional policy goals, alongside filling governance voids.

This research contributes to debates on hybrid governance and the restructuring of urban power by offering a framework to understand how philanthropic influence manifests across time and space, and what it reveals about the shifting architecture of public authority. It indicates that when foundations take on roles previously occupied by the state, they may entrench governance trajectories that become difficult to reverse. Ultimately, this study offers

insight into how cities like Detroit—marked by disinvestment and devolution—are governed today, and what this governance signals about the changing role and capacity of the public sector.

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Key Words: Urban Governance, Philanthropic Foundations, Urban Revitalization, Detroit

Track 9 – Food Systems, Community Health, Safety

Track 9 Individual Paper Presentations

Balancing Solar Expansion and Farmland Retention: Local Planning Responses in Minnesota

Abstract ID: 1844.0.0.696.2025

Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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As planning scholars and practitioners across the United States work to tackle climate change, renewable energy development has emerged as a key strategy. Solar energy is poised to play a significant role in decarbonization, but its expansion on farmland presents both opportunities and challenges (O'Shaughnessy et al., 2023). While solar leases provide stable income for some farmers, utility-scale projects primarily target large landowners, further concentrating land and wealth (Maguire et al., 2024). Small and mid-sized diversified farms are key to strong regional food systems, as they typically use more sustainable practices, grow a wider variety of crops, and sell directly to local markets (Wright & Annes, 2020). However, high land costs and restrictive tenure practices make it difficult for many of these farmers, particularly those from underrepresented groups, to retain land (Horst & Marion, 2019). Planners—who play a crucial role in shaping land use policy and farmland protection efforts (Poggi et al., 2018)—must navigate energy-agriculture tensions carefully. Without intentional policies, the push for renewable energy could unintentionally deepen inequities in farmland retention and weaken regional food systems.

This research examines how local governments approach farmland retention amid solar energy development. I focus on Minnesota, a state with significant utility-scale solar development and large-scale commodity farms, but also with an active local foods culture and state and regional efforts to support diversified and underrepresented farmers. I compare four counties selected for their differences, including the presence of small and mid-sized farms, permissive vs. restrictive zoning ordinances, and significant vs. minimal large-scale solar development. My methods include document review of land use plans, zoning regulations, and agricultural policies for the extent to which local governments ensure farmland retention within the context of solar development. Semi-structured interviews with county planners and superintendents, agricultural extension agents, and representatives from organizations supporting underrepresented farmers provide insight into how these policies function in practice, highlighting both constraints and opportunities for small and mid-sized farmers.

Results indicate that while county-level plans and policies generally permit solar development on agricultural land, they lack clear mechanisms to integrate farmland retention protections with solar energy planning. State law restricts solar development on high-quality farmland, yet local policies fail to expand on this protection by including provisions that enable small and mid-sized farmers to benefit from smaller-scale solar projects. Interviews reveal that planners and local officials recognize the risks solar development poses to underrepresented farmers, particularly those who rent land. However, they frequently cite county-level farmland protection programs and

beginning farmer loan programs as sufficient safeguards, even though interviews reveal persistent barriers to land retention. This suggests a need for more deliberate policy coordination between solar energy planning and farmland retention across all levels of government.

This research contributes to planning scholarship and practice by emphasizing the need for integrated approaches that balance solar expansion with farmland retention. The paper concludes with policy recommendations for planners and decision-makers to better align solar development with farmland retention and robust regional food systems.

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Key Words: farmland, regional food systems, solar energy, land use, underresourced farmers

Beyond Customer's Perspective: Exploring Neighborhood-Level Determinants of Thriving Foodscapes

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Background: A thriving foodscape is essential for neighborhoods' prosperity, resilience, and overall well-being. In the U.S., with a few notable exceptions (e.g. food pantries), most people meet their daily nutritional needs through retail food businesses like grocery stores, restaurants, and coffee shops. Neighborhoods with limited food retail options either trap residents with limited mobility in the "food apartheid" [1] or push them further away for more options.

While meaningful progress has been made through public and civic investments, efforts that focus solely on subsidizing and educating customers have often proven ineffective at sustaining retailers' long-term interest and commitment [2]. Food retail businesses do not emerge randomly; they result from careful calculus within specific neighborhood contexts. Prior studies have revealed a variety of financial and managerial factors in business (re)location outcomes [3, 4], while structural factors at the neighborhood and regional levels that predict food business survival remain underexplored.

Objective: To address this gap, this paper explores the impact of neighborhood determinants at multiple levels on the survival and sales of food retail outlets. Specifically, this paper answers the following questions: (1). To what extent do neighborhood characteristics influence the survival and performance of retail food businesses? (2). How do factors at multiple levels (city, neighborhood, district), if exist, interact with one another?

Methods: This paper focuses on neighborhoods in nine major cities, covering 7,234 Census Block Groups (CBGs). The two outcome measures, namely food business survival and performance, were sourced from SafeGraph and Replica, respectively. We included 21 independent variables across three nested geographic levels. At the district level, we incorporated six variables on store characteristics (e.g. store type, physical setting) and ambient built environment features. Neighborhood-level variables ($n=11$) were measured using two catchment area definitions. Fixed administrative boundaries were applied to place-based variables, such as property crime rate, historic redlining status, and macro-level built environment features. In contrast, egocentric neighborhoods [5], defined by human travel patterns, were used to capture socioeconomic conditions. Finally, city-level variables ($n=4$) were added to control for macroeconomic and policy environments. For statistical analysis, we fitted multilevel mixed-effects regression models (negative binomial for survival and OLS for spending) with a random effect of city membership.

Results: Over the last five years, the number of grocery stores and restaurants in the nine cities dropped by 16.7% and 19.2% respectively. Food spending has decreased by a smaller margin (-8.6%), likely due to population loss and the growing share of online grocery deliveries.

In the regression models, the factors with the strongest effect on food business survival included neighborhood crime rate ($b=-0.86$, $p<.001$), residential population density ($b=0.85$, $p<.001$), and street network connectivity ($b=0.07$, $p<.01$). For every 1% increase in property crime rate, 2.3 restaurants and 0.6 grocery stores closed. Factors predicting spending changes also included household income and commercial land use. An interesting finding was the varying size of egocentric neighborhoods: neighborhoods with more outside were more resilient, whereas isolated neighborhoods were more vulnerable to closures and spending drops.

Implications: These findings underscore the need for comprehensive assessment and more structured investments in regional infrastructure and neighborhood amenities beyond temporary charity-form subsidies. Lessons learned from this paper will be of use to economic development planners and policy makers to develop long-term objectives and justify capital investment programs for the benefit of local food businesses.

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Key Words: retail food outlet, built environment, multi-level modeling, foodscape, urban retail

Challenging Urban Development in Puerto Rico through Agroecology

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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In their influential 1987 model, Thomas R. Johnston and Christopher R. Bryant categorized farmers' adaptations to peri-urban development pressures, distinguishing between positive adaptations—vertical expansion, horizontal expansion, and engagement with non-farming activities—and negative adaptations, selling and abandoning farming. Recent studies have utilized this framework to analyze farmers' responses to urban development (Elhadary et al., 2013; Inwood & Sharp, 2012; Levi, 2007; Ruoso, 2020). However, I argue that the Johnston-Bryant model neglects responses that neither adapt nor accommodate development but actively resist it. In this study I use post-development theory to examine small-scale agroecological farmer's resistance to development in the context of Puerto Rico.

Critical development scholars define development as a globally constructed standard imposed predominantly between the 1950s and 1990s, replicating Western lifestyles at the expense of diverse cultural, ecological, political, and medicinal practices (Escobar, 1995; Gudynas et al., 2018; Patel & Marya, 2021; Rahnema, 1997). Since Truman's 1949 speech categorizing large global populations as "underdeveloped," development justified extraction, industrialization, and dispossession, especially in Asia, Africa, and Latin America, using North America and Europe as benchmarks (Kothari et al., 2019). This imposed modernity (also understood as a neocolonialism) often caused profound environmental degradation and social injustice, portraying regions as economically unproductive and incompatible with modernity (Sargeson, 2013).

Manifestations of development include agro-extractivism and urban growth machines. Agro-extractivism promotes agribusiness reliant on pesticides, fertilizers, genetically modified organisms, and digital technologies linked to mining and petroleum, degrading ecosystems and human health (Dunlap, 2023). Urban growth machines depend on lands and people deemed "developable" to sustain expansion (Molotch, 1976; Pfeffer & Lapping, 1994). In contrast to these linear growth-focused processes that sustain a "one-world world," post-development scholars highlight over 70 examples of resistance to the uni-verse created by development, emphasizing grassroots self-management and decentralization through the pluriverse, which includes agroecology (Kothari et al., 2019; Esteva, 2022).

This study examines agroecological farmers' resistance to development in Puerto Rico. State-led development "with an American hallmark" drove Puerto Rico's 20th-century modernization (Dinzey-Flores, 2018), targeting prime farmlands for urban encroachment (López et al., 2001) and permitting residential developments, industrial solar farms, and Airbnbs on fertile soils (Ramos-Gerena, 2024). Therefore, in this paper I ask: How do agroecological farmers challenge urban development in Puerto Rico? Which post-development elements are present in this resistance? What are agroecology's limitations as a pluriverse example, and why do they exist?

I employed iterative phronetic analysis (Tracy & Hinrichs, 2017) of semi-structured interviews with sixteen agroecological farmers in Puerto Rico who identify as agroecologists (participants or graduates of El Josco agroecological school, n=1,000) and farm visits in areas facing developmental pressures. Findings suggest agroecological resistance aligns with post-development perspectives, utilizing community land trusts, land protection campaigns, and solidarity-based exchanges. Recognizing and strengthening these practices as resistance

beyond positive and negative adaptations to development is vital for protecting valuable farmland in Puerto Rico and elsewhere.

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Key Words: Urban Development, Farmland Protection, Post-development, Agroecology, Puerto Rico

Changing Urban Foodscape: Evaluating Food Access Trends in the Kansas City Metro Area

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Food accessibility is a critical determinant of community health outcomes, health equity, and wellbeing. While prior studies have investigated disparities in healthy food access and its impacts on health outcomes at the local level (Leonard et al., 2018), very few studies have explored the changing foodscape or food access patterns over time within an urban area (Kolak et al., 2018). The Kansas City Metro Area (KCMA), like most other major metropolitan areas in the U.S.A., has undergone significant changes in food access in the past decade due to urban growth, demographic shifts, and COVID-19 pandemic. However, food insecurity is still a major concern in this area with low-income and minority communities facing growing disparities in accessing fresh and nutritious food sources. In this study, we explore how food access patterns in the KCMA have changed over time and what socio-economic factors have contributed to this change. We evaluated food access using the Modified Retail Food Environment Index (mRFEI), which measures the proportion of healthy food retailers relative to total food outlets (Luan et al., 2015). We collected food store location data from Data Axle and calculated mRFEI at the census tract level for two time periods (2011 and 2024). We mapped mRFEI values to identify the spatial and temporal patterns of food access in the KCMA. We also applied spatial regression to evaluate how the shifts in mRFEI are correlated with different socio-economic and demographic factors.

Our results show that healthy food access, measured by mRFEI, has undergone significant changes in KCMA between 2011 and 2024. Although the number of healthy food stores and their spatial coverage have increased, disparities in healthy food access have also increased at the same time. This disparity has disproportionately impacted areas with marginalized populations, particularly low-income households and racial and ethnic minorities. The declining mRFEI scores observed in these areas suggest a deterioration in the quality of the local food environment over time. Conversely, wealthier communities have seen improvements in food access, reinforcing longstanding socio-economic inequalities. Our analysis further reveals a strong correlation between declining mRFEI values and socio-economic variables, highlighting the role of economic disinvestment, restrictive land use policies, and transportation barriers in perpetuating food insecurity. These findings underscore the urgent need for systemic interventions to address food inequities in the KCMA. Possible policy solutions and planning initiatives to improve healthy food access are discussed, which can be expanded to other cities and communities.

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Key Words: Food insecurity, Food deserts, Healthy food access, Urban planning, Community Health

Depression and the Role of Outdoor Leisure Activities: a MF-DCCA Approach

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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A growing body of research has highlighted that exposure to outdoor environments, whether through passive contact or active participation in leisure activities, serves as an important protective factor against depression. Proximity to green spaces and engagement in outdoor physical activities have been consistently associated with improved mental health outcomes across various populations.

Within this context, the COVID-19 pandemic presented an unprecedented global shock, profoundly affecting mental health and significantly disrupting daily life. Among its many consequences, depressive disorders have attracted considerable attention, with mounting evidence reporting substantial increases in their prevalence. Physical distancing measures, lockdowns, and restrictions on outdoor activities disrupted individuals' daily routines and severely limited access to recreational spaces, likely exacerbating feelings of isolation, loneliness, and depression. Alarming, the World Health Organization (WHO) reported a 25% increase in the global prevalence of depression and anxiety during the first year of the pandemic, raising urgent concerns regarding its long-term mental health implications.

At the same time, the pandemic created a quasi-natural experimental setting, wherein outdoor activities experienced a sharp decline due to pandemic-related restrictions, with regional variations depending on local policies. This setting provides a valuable opportunity to systematically examine the complex and multifractal nature of the relationship between outdoor leisure activities and mental health outcomes, particularly depression, using advanced time-series techniques.

Motivated by this backdrop, the present study investigates the impact of outdoor leisure activities on depressive disorders during the pandemic. Specifically, we focus on depression-related healthcare visits (ICD-10 F30–F39) as the primary outcome. To capture the dynamic and multifractal relationship between depression-related healthcare visits and outdoor leisure activity indicators—such as the availability of parks, playgrounds, and natural green spaces—we employ multi-scale multi-fractal detrended cross-correlation analysis (MF-DCCA). The dataset consists of healthcare service usage data provided by the Health Insurance Review and Assessment Service (HIRA), aggregated at the ward (Dong) level, spanning from January 2018 to January 2023, encompassing two years before and four years after the pandemic outbreak.

The study has two key objectives: First, we aim to identify structural changes in depression-related healthcare visits during the pandemic period using advanced time-series analysis. Second, we explore the multi-scale cross-correlations between outdoor activity indicators and depression trends, with particular attention to the potential buffering role of outdoor leisure infrastructure. By providing empirical evidence on the mitigating role of outdoor environments, this study offers valuable insights for public health interventions and urban planning, especially in designing resilient cities capable of promoting mental well-being during future pandemics or other large-scale disruptions.

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Key Words: Mental Health, Outdoor Activities, MF-DCCA, Time-Series Analysis, COVID-19

Effects of Indoor Residential Crowding and Outdoor Green Space on Mental Health in Beijing, China

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Central Theme: This study investigates how different aspects of the built environment at varying geographical scales relate to mental health outcomes, particularly depressive symptoms, among urban residents in Beijing, China. It uniquely explores how these relationships differ between local residents and migrants—two groups with distinct residential entitlements under China’s hukou system. The research aims to reveal how built environment inequalities translate into mental health disparities and how these effects are further moderated by gender and marital status.

Approach and Methodology: The study utilizes survey data collected in 2022 from 989 adult residents across 40 communities in Beijing. Depressive symptoms were assessed using the validated 10-item Center for Epidemiologic Studies Depression Scale (CESD-10). The analysis focused on two key environmental exposures: household-level indoor residential crowding, measured as average square meters per capita, and neighborhood-level outdoor green space, defined as the share of vegetated area within a one-kilometer radius of each community. Logistic regression models with district-fixed effects and extensive socioeconomic controls were employed to assess the associations. Subgroup analyses examined differences by migrant status, gender, and marital status. Multiple robustness checks were conducted to validate the findings.

Findings: Results show that both residential crowding and green space availability are significantly associated with depression, but these effects are group-specific. Residential crowding significantly increases the likelihood of depression among local residents, especially single and female locals, but not among migrants. In contrast, lower green space availability significantly raises depression risk among migrants, particularly male and married migrants, but shows no effect for local residents. These divergent effects suggest that the psychological relevance of physical environments differs across population groups, shaped by social and institutional contexts such as hukou status, family structure, and gender roles.

Implications to Planning Scholarship and Practice: This study underscores the importance of multi-scalar and demographically sensitive approaches of planning to improve people's mental health. It calls for planning strategies that integrate household- and neighborhood-level interventions—such as improving living space standards and enhancing neighborhood green infrastructure—while also addressing group-specific vulnerabilities. Mental health-promoting interventions should be tailored to recognize the distinct needs of vulnerable subpopulations, including female and single local residents as well as male and married migrants. These findings contribute to planning scholarship by providing empirical support for incorporating spatial justice and demographic specificity into healthy city frameworks, particularly in rapidly urbanizing and institutionally segmented contexts like China.

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Key Words: greenspace, park, well-being, inequality, migration

Ethnic Grocery Stores as Third Places: Evidence from Google Places Data on Immigrant Well-Being

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Ethnic grocery stores are more than retail spaces; they function as “third places” for immigrant communities, offering social infrastructure that supports cultural continuity, mental health, and belonging. This study investigates the role of Asian grocery stores, especially Korean-founded chains like H Mart, as informal community hubs that enhance immigrant well-being in the United States. Drawing on Google Places review data, name-origin analytics, and state-level mental health statistics, we empirically examine how these stores operate as social anchors and whether their presence correlates with improved mental health outcomes in Asian American communities.

This mixed-methods study proceeds in two stages. First, using the Google Places API, we identify over 1,000 Asian grocery stores across the U.S. and collect review data, including reviewer names. Name-origin analysis via NamSor enables us to infer the likely ethnicity of reviewers, helping construct a demographic profile of store patrons. We use geospatial methods to map the ethnic composition of each store’s customer base, examining regional variations (e.g., co-ethnic patronage in Korean enclaves vs. pan-ethnic or multicultural engagement in diverse metros).

Second, we statistically analyze whether the density of Asian grocery stores in each state correlates with mental health outcomes using Behavioral Risk Factor Surveillance System (BRFSS) and National Health Interview Survey (NHIS) data. Regression models control for Asian population share, median household income, and urbanization level to isolate the association between ethnic grocery store presence and mental health outcomes. These variables are important, as areas with higher Asian populations may naturally have more ethnic stores and different health baselines, while socioeconomic status and urban-rural differences can independently affect community well-being. We assess whether higher Asian grocery density correlates with reduced frequency of poor mental health days, especially among Asian Americans. To explore causal mechanisms, we will explore difference-in-differences analysis and spatial lag models, accounting for temporal store expansion and regional clustering.

Preliminary findings suggest that these grocery stores not only serve primarily co-ethnic clientele but also attract diverse communities, acting as both bonding and bridging social capital spaces. Higher store density is associated with modest but significant reductions in mental distress, suggesting these stores provide critical informal supports often overlooked in urban policy. We argue that ethnic supermarkets should be recognized as valuable social infrastructure, particularly in immigrant-dense or underserved neighborhoods.

Our findings are expected to contribute to urban planning and public health in three keyways. First, we provide empirical evidence that ethnic supermarkets function as critical third places that support immigrant integration, social capital, and well-being. Second, we demonstrate a novel methodological approach by combining crowdsourced location data, onomastics, and health survey data to study social infrastructure at scale. Third, we offer policy implications: local governments should recognize ethnic grocers as community anchors and consider partnering with them for outreach and inclusion programs.

This research offers actionable insights for cities seeking to foster inclusive, resilient communities. As COVID-19 underscored the need for trusted, culturally relevant gathering spaces, our findings emphasize the importance of preserving and supporting ethnic grocery stores as “a home away from home” for millions of Americans.

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Key Words: ethnic grocery stores, third places, immigrant well-being, social infrastructure, Google Places data

Exploring Preventive Infrastructure: A Qualitative Study in India

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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In accordance with Master Plan standards, Delhi displays a strong hierarchy of social infrastructure established at the neighborhood, district, and city level, which is a part of people's everyday lives. Despite established infrastructure, quality of life has declined due to sedentary lifestyles, neglect of ecological resources, social exclusion, and other critical elements leading to elevated occurrences of lifestyle diseases. Moreover, infrastructures that should amplify connections within groups and encourage people to interact across differences may be underperforming due to social perceptions and inequities among the adjacent neighborhoods.

A growing body of literature supports the associations between urban green infrastructure and the health of adults. Despite theoretical frameworks that emphasize the role of the urban environment on health, literature has ignored the various destinations within and outside the neighborhood people frequent in their everyday lives. This project advances urban planning studies by rethinking social and physical infrastructure presence in neighborhoods, or lack thereof, as contributors to health. This research introduces a novel concept of 'Preventive Infrastructure' (PI), defined as non-health infrastructure or neighborhood spaces that people frequent in their everyday lives, encourage positive health behavior such as walking and cycling, and induce positive perceptions such as safety, and inclusivity. This study explores intentional physical activity, such as exercising, cycling, and walking with the intent to improve health status and quality of life, as well as unintentional physical activity, such as walking, to conduct daily/weekly chores.

Drawing on focus groups and open-ended interviews with residents in the closely located low-income and high-income neighborhoods through a case study in Delhi, India, this grounded theory study aims to examine the neighborhood spaces identified as PI by residents of these neighborhoods and understand associated health behavior and perceptions of place. The collected narrative data from focus groups and interviews was coded sentence-by-sentence for description and analysis in Atlas.ti. The residents identified local commercial areas, neighborhood and city parks, religious institutions, and neighborhood streets as PI.

The analysis revealed that the commercial area despite being recognized as 'not pedestrian friendly' by shared consensus, was explored on foot by residents of all neighborhoods. Furthermore, residents belonging to high-income neighborhoods critically discussed the shortcomings of neighborhood parks and their intent to 'drive to the nearest city park' for intentional physical activity. Conversely, residents belonging to low-income neighborhoods felt 'accepted' in middle-income neighborhood parks for relaxing after a day's work, walking, and socializing with friends. Study participants also discussed their mode of access behavior with respect to the locations of Temples, Gurudwara, and Mosques. Neighborhood streets were recognized as spaces inducing both positive and negative perceptions, despite being used by residents for socializing, and intentional and unintentional physical activity.

This research has become more critical because of the Indian government's recognized health aspirations for the city. The forthcoming 2041 Delhi Master Plan, envisions 'A People's City' that is environmentally sustainable, livable, and economically and culturally strong. Despite a strong vision, the community's voice remains absent from the draft. Furthermore, the city planning process has disregarded the varying needs of different socio-economic groups that comprise the planning area unit. Deriving from the community voice providing new perspectives on the topics,

the project will further encourage social policy interventions, such as equitable infrastructure distribution in neighborhoods.

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Key Words: Health Behavior, Community Engagement, Lifestyle Diseases, Neighborhood Design, Delhi

Exploring the moderating role of retail environment on farmers market use and healthy eating

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Background: Farmers markets (FMs) are increasingly recognized for their multifaceted contributions to community development, public health, and social cohesion [1,2]. During the past two decades, the number of FMs in the United States has grown significantly, rising to over 8,700 by 2024. While existing studies have primarily focused on economic and accessibility factors that encourage visits to FM [3], the role of the retail environment in shaping behaviors within FMs remains underexplored. This study addresses two research questions to examine the relationship between the retail environment and FM attendance: 1. What is the relative role of accessibility and retail environment characteristics in shaping various shopping behaviors within FMs? 2. How does this influence, if it exists, vary based on individual perceptions and motivations (e.g., utilitarian vs leisure-oriented shoppers) regarding different aspects of FMs?

Methods: A cross-sectional survey was conducted in 2024 among customers (n=695) at nine FMs in Johnson County, Kansas. The survey collected data on demographics, behavioral outcomes related to FM travel, and perceptions and satisfaction with the physical and social environments. The primary behavioral outcomes of interest were visit frequency, dwell time, money spent, and fruit/vegetable purchases. The measurement model applied confirmatory factor analysis (CFA) on intrapersonal perception and satisfaction ratings, both on a five-point Likert scale. For hypothesis testing, separate structural equation models (SEM) were fitted as regression models for endogenous variables related to FM attendance, using exogenous factors derived from the CFA. Specifically, the analysis tested both indirect and moderating effects of environmental perception factors on FM attendance outcomes.

Results: In Johnson County, FM visitors were predominantly female (78.5%), aged 60 or older (44.9%), and held a bachelor's degree (76.2%). The gender and age representation aligns with findings from previous surveys conducted in the US [3]. Among respondents, 59.3% reported attending farmers markets frequently (five or more times per season). Most visits (88.5%) lasted one hour or less, with the majority of customers staying between 15-30 minutes. The CFA models identified four latent factors (LVs) for both customers' perceptions and satisfactions, namely accessibility, physical environment, social environment, and market products, consistent with the survey's predefined structure.

The SEM models revealed distinct influence pathways between shoppers' perceptions, satisfaction, and behavioral outcomes. Controlling for socioeconomic status and distance to FMs, visit frequency was positively associated with satisfaction with accessibility through a direct effect ($\beta=0.23$, $p<.001$) as found in prior studies [4], and perceptions thereof through an indirect path ($\beta=0.03$, $p<.001$). In contrast, retail environment ($\beta=0.11$, $p<.001$) and product LVs ($\beta=0.24$, $p<.01$) were the only significant predictors of dwell time and money spent. Finally, the model revealed bi-directional moderating effects of individual perception on the relationship between satisfaction and behavioral outcomes. Perception factors could either positively moderate the relationship as a form of (dis)confirmation of expectation [5] or reduce the influence of satisfaction with other factors through a compensatory trade-off.

Implications: This study suggests that a desirable physical and social environment aligned with customers' perceptions significantly promotes longer stays at FMs. This can be pursued both as a goal itself and as a lever for more positive changes, such as strengthening social capital and encouraging healthy diets. This message could be useful for policy makers, market managers, and urban designers to make informed decisions in fostering an inviting FM environment through policy guidelines, site selection strategies, and operational management practices.

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Key Words: farmers market, retail food environment, structural equation model, expectation confirmation, health behavior

Exploring the Nonlinear Impacts of Zoning Policies on Food Access Inequities

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Food access inequities remain a persistent challenge in urban environments, shaped by the complex interplay of land-use regulations, transportation networks, socioeconomic inequality, and racial segregation. Although “food deserts”, defined as areas with limited access to affordable and nutritious food, have been widely studied (Fitzpatrick, Greenhalgh-Stanley, & Ver Ploeg, 2015; Lu & Qiu, 2015), the specific role of zoning on these disparities remains underexplored. While much of the literature focuses on supermarket density, proximity to food outlets, and income levels (McKenzie, 2014; Kuai & Zhao, 2017), scholars increasingly recognize zoning policies as foundational drivers of spatial food inequities. Zoning shapes whether neighborhoods can accommodate commercial food retail, particularly full-service supermarkets, and influences whether residents rely on automobile-dependent shopping centers or have access to food in walkable, mixed-use areas (Smith, 2012; Hamidi, 2020).

Despite increasing awareness of zoning’s influence, few studies integrate zoning, transportation, and food pricing into a unified framework. Most rely on linear models and examine land use, mobility, and affordability separately. Zenk (2004) and Smith et al. (2010) show that poverty and race correlate with food access disparities, yet policy drivers like exclusionary zoning and transportation inequities remain under-addressed. This study addresses these gaps by examining how zoning, interacting with transportation access and food pricing, shapes food access. The research addresses three questions: (1) What are the key factors influencing food access in cities? (2) How do zoning regulations affect food access in food desert areas? (3) How to improve food access through store availability, land use, and transportation access?

To address these questions, this study proposes a multi-stage machine learning framework designed to capture the nonlinear and interdependent effects of zoning, transportation, and food pricing on food access. First, Convolutional Neural Networks (CNNs) are applied to zoning and land-use maps to extract high-dimensional spatial features that reflect the built environment’s potential to support food retail. These features reduce dimensionality and serve as structured representations for subsequent analysis. Next, a nonlinear regression model, such as a Random Forest, leverages these extracted features along with transportation accessibility and food pricing data to estimate the combined and interacting effects on food access outcomes. To explore how zoning policy changes might improve food access, Reinforcement Learning (RL) is introduced as a simulation tool, enabling counterfactual testing of zoning reform scenarios under varied land use and transit configurations. This integrated approach not only accommodates complex, nonlinear relationships but also enables policy-relevant insights into the effectiveness of land use reforms. The empirical analysis centers on Dallas and Fort Worth, offering a comparative lens across two Texas cities with distinct zoning structures and transportation systems.

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Key Words: Machine Learning(ML), Spatial Modeling, Zoning policy, Food Access, Transportation Access

Heat Exposure and Older Adults' Outdoor Walking in Houston, Texas, USA: a cross-sectional study

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Background-The escalating global temperatures pose significant challenges to human health and mobility, particularly in urban environments where heat exposure is intensified by the urban heat island effect [3]. Older adults are among the most heat-vulnerable populations due to age-related physiological changes, chronic conditions, and socio-economic factors [1]. Walking, an essential form of physical activity, provides numerous health benefits [5] and serves as a vital mode of transportation. However, extreme heat conditions can deter walking, compromising mobility, public health, and the quality of urban life [4]. Despite extensive research on how the built environment promotes walking [2], fewer studies address how heat exposure impacts pedestrian behavior, particularly among older adults. This research focuses on exploring the complex interactions between thermal comfort, urban design, and outdoor walking, with an emphasis on these vulnerable populations.

Methods-The data for this study came from a NSF-funded project, which collected GPS and accelerometer data from 53 older adults including 653 walking trips in Houston, TX, USA. This dataset includes monitoring of participants' walking trip movements and physiological measures, such as blood volume pulse (BVP) and Galvanic Skin Response (GSR) collected using E4 wristbands. Climate data was collected from the Texas Evapotranspiration Network, Texas A&M AgriLife Extension Service. Descriptive statistics and multivariate regression are conducted to quantify changes in walking speed, destination choice, and walking distance during extreme heat days compared to milder conditions defined based on the Comfort Formula (COMFA) heat stress levels.

Preliminary Results-We found that more extreme heat-stress conditions resulted in higher mean skin temperature (31.75°C vs. 32.72°C, $p < 0.001$) and altered walking behaviors. Participants decreased their average walking speed (2.80 m/s to 1.89 m/s, $p < 0.001$) and reduced their overall walking distance (2.8 km to 1.7 km, $p = 0.001$). Physiological responses reflected increased thermal stress, as demonstrated by nearly doubled GSR levels (5.84 to 11.12, $p < 0.001$). These findings highlight the significant impact of heat risk conditions on skin temperature and walking patterns.

In addition, future analyses will integrate demographics, built environmental conditions, and microclimatic features of the walking route, including sidewalk shading, tree canopy coverage, and ground surfaces, with GPS data to evaluate their impact on walking behaviors. This integration enables the identification of specific urban design elements that promote or hinder older adults' walking and mobility in hot weather.

Conclusion-The study underscores the importance of climate-adaptive urban designs in supporting older adults' pedestrian mobility under extreme heat. Utilizing GPS and physiological monitoring data, this research revealed significant impacts of increased heat stress on older adults' walking behaviors and physiological responses. By integrating these findings with analyses of urban microclimate and built environment factors—including sidewalk shading, tree canopy coverage, and ground surface materials—the study is expected to offer actionable insights into specific urban design features that can mitigate the adverse effects of heat exposure.

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Key Words: Heat exposure, Older adults, Walking behaviors, Thermal comfort, Urban design

Home Mortgage and Cognitive Function in Older Adults: Examining Neighborhood-level Patterns

Abstract ID: 1844.0.0.425.2025

Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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As cognitive health is crucial for maintaining independence and well-being, cognitive decline has emerged as a significant public health issue in aging societies. According to the Centers for Disease Control and Prevention, approximately one in nine adults aged 45 and older experience subjective cognitive decline. The deterioration of cognitive health is associated with diminished quality of life, increased neuropsychiatric symptoms, heightened disability, and a substantial rise in healthcare expenditures, posing great challenges for aging individuals and the entire society. While existing research has extensively explored individual-level risk factors, such as educational attainment and health behaviors, neighborhood-level factors remain largely overlooked. Neighborhood conditions play a crucial role in shaping the physical and social environments in which people are living, potentially influencing cognitive functioning and risks for dementia. One key neighborhood-level indicator reflecting local investment and housing security is the number of home mortgage loans issued to a neighborhood. Mortgage lending reflects economic stability, community investment, and neighborhood desirability, all of which could shape the cognitive health of residents. However, the relationship between neighborhood mortgage density and cognitive function in older adults remains underexplored.

To address this gap, the present study examines the association between neighborhood mortgage lending and cognitive function in older adults across the United States. We integrate data from the Health and Retirement Study with neighborhood-level mortgage lending data from the Home Mortgage Disclosure Act Longitudinal Dataset. The study sample includes HRS participants aged 50 and older, and cognitive function is measured using the summary cognitive status score derived from standardized assessments conducted via telephone, face-to-face interviews, or internet surveys. The observation period spans from 2012 to 2020, covering five waves of data that are pooled for analysis. The primary exposure variable, neighborhood mortgage density, is calculated as the total number of mortgage loans issued within a neighborhood from 2011 to 2020, adjusted for the number of households in that neighborhood. To account for the nested structure of the data, we employ a three-level linear regression model using a mixed-effects approach following a previous study. The first level captures within-individual variations in cognitive scores over time, incorporating time-varying individual covariates such as age, smoking status, alcohol consumption, cardiovascular risk factors, mental health status, and physical health conditions. The second level accounts for between-individual variations, including demographic characteristics such as gender, race, and educational attainment. The third level captures neighborhood-level factors, including mortgage density, racial composition, poverty rate, homeownership rate, median household income, and median property value.

The study aims to determine whether mortgage density is a significant predictor of cognitive function, hypothesizing that residents of neighborhoods with lower mortgage density, indicative of disinvestment and economic instability, face an increased risk of cognitive impairment. Additionally, we examine whether individuals from marginalized racial and socioeconomic groups are more susceptible to cognitive decline in these underinvested neighborhoods. By elucidating the relationship between mortgage lending and cognitive functioning, our findings will contribute to a more comprehensive understanding of geographic determinants of

cognitive health. This study will provide valuable insights for policymakers, planners, and public health professionals seeking to develop targeted interventions that mitigate cognitive decline risks associated with neighborhood-level economic disparities, ultimately fostering healthier aging environments.

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Key Words: Cognitive Decline, Mortgage Lending, Dementia, HMDA, Aging

How do Technologies Help Aging in Place? Evidence from Rural China

Abstract ID: 1844.0.0.430.2025

Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Background and Research Questions-The world's population is aging, and most older adults prefer to remain in their own homes within their communities rather than move to nursing homes (Roy et al., 2018). Many experts propose that technologies can help enable community living (Kleinman et al., 2021). Prior research has primarily focused on older adults' acceptance of individual technologies, such as social robots, remote monitoring devices, smartphones, and Telehealth, as well as the availability of technology to support aging in place in urban contexts (Lyu & Forsyth, 2024; Peek et al., 2014). However, little is known about how a broad range of technologies is currently being used by older people, particularly in rural areas of less developed countries.

This paper draws on fieldwork in rural China to explore the comprehensive use of technology in older adults' daily lives. Specifically, we address two questions: (1) How are technologies currently being used to help older people age in place in rural China? (2) How does the domestic environment support or inhibit such use?

Methodology-One of the authors implemented the field work in China from June to August in 2024, supported by collaborators in China. Using convenience and snowball sampling, we conducted interviews with 44 rural residents aged 60 and above across three regions in China. Data collection methods included 1) in-depth interviews and 2) systematic photography in interviewees' homes and the adjacent environment.

New Findings-This paper finds that older adults are using a combination of both older and newer technologies to support daily life across various domains, including health, safety, mobility, social connections, and everyday activities. These technologies help maintain older adults' agency within their environment. Meanwhile, rural homes are often poorly designed for safety and accessibility, making it difficult to use certain technologies, particularly those supporting mobility.

Implications for Planning Research and Practice-We advocate for more research in planning and community development to better understand older people's needs and enhance technology use for aging at home. Future studies could further examine how social factors like community services, ethnicity, and gender influence technology adoption.

In planning practice, addressing environmental barriers to technology use is essential. Local governments and organizations can provide guidance to rural residents and builders on age-friendly home design and renovations, while public awareness campaigns, subsidies, and local technical support can further assist older people in using technology to support aging in place.

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Key Words: aging in place, technology, housing, rural, China

Impact of Transport Resilience on Local Food Security During Disruptions

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Transportation systems play a vital role in linking urban communities to food sources, yet the resilience of transportation systems and how it influences local level food security is not well understood (Raub et al., 2021). When severe weather disrupts transportation, vulnerable populations encounter difficulties accessing nutritious food, exacerbating existing inequities in food security (Zeuli et al., 2018). Despite the recognition of these interconnections, prior research often analyzed transportation resilience and food security independently, with limited exploration of their intersection (Delgado et al., 2023). This study addresses this critical research gap by examining how transportation network resilience impacts food accessibility during extreme weather events. We hypothesize that areas with more resilient transportation infrastructure maintain better food access during disruptions, but that this relationship varies across socioeconomic characteristics.

We took the Kansas City Metropolitan Area as our case study and explored transport resilience and food security at the census block group level. Our methodology includes developing a Transportation Resiliency Index (TRI) incorporating measures of redundancy, mobility, and vulnerability. We paired this with mobile phone-based foot traffic data to food stores to create a Retail Food Activity Index (RFAI) that captures real-world mobility patterns rather than assuming local food accessibility based on distance to stores. We applied spatial regression models to evaluate how trips to healthy food stores (as measured by RFAI) is influenced by transport resilience and distance to stores after controlling different socioeconomic variables. We developed this model for both normal weather conditions and a major snowstorm period.

Our analysis reveals significant patterns in food store visits during both normal and snowstorm conditions. Transportation resilience emerged as one of the most significant predictors across both scenarios, with its influence intensifying during disruptions caused by the snowstorm. Our model results also reveal stark socioeconomic disparities, with areas containing higher percentages of low-wage residents experiencing reduced food access, mirroring patterns of infrastructure inequality documented by Sullivan and Novak (2024). These findings have significant implications for planning practice and policy. Aligning with recommendations from Loreti et al. (2022), this study underscores the critical need to integrate transportation and food system planning to advance equity and resilience. This research provides a transferable methodology for identifying at-risk areas and a framework for developing targeted interventions to address food security at the local level.

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Key Words: Food security, Transportation resilience, Extreme weather events, Infrastructure equity

Implementing California's SB 1000: Community Perspectives on Food Access and Environmental Justice

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Senate Bill 1000 (SB 1000), California's "Planning for Healthy Communities Act," mandates cities and counties to integrate environmental justice (EJ) elements into their general plans, directly addressing disparities related to food access, environmental health, and equitable development. While SB 1000 represents significant policy progress, the effectiveness of its implementation remains uncertain. Recent analyses point to uneven municipal capacity, limited political will, and a lack of community integration in the implementation of SB 1000 (Zuñiga & Méndez, 2023). This paper critically evaluates how municipalities are adopting SB 1000 provisions, focusing specifically on food access in the cities of Richmond (urban context) and Gilroy (rural context).

Using a mixed-methods approach, this study combines a comprehensive statewide analysis of city general plan policies related to food access and environmental justice with in-depth case studies of Richmond and Gilroy. Our methods include policy analysis, stakeholder interviews, and extensive community engagement through workshops and public meetings involving grassroots groups and local organizations. Findings highlight distinct local implementation pathways shaped by historical context and community capacity. In Richmond, while the city's EJ element references food justice and reflects a history of activism, many organizers were not directly involved in its development and expressed surprise about the law and the city's efforts. In Gilroy, advocates were generally aware of planning efforts but had limited engagement in shaping the EJ element. In both cities, community workshops provided spaces for residents to evaluate local plans, demand accountability, and mobilize around persistent food insecurity challenges, particularly those shaped by land use constraints and systemic disinvestment. These findings reflect calls to empower grassroots actors in food systems governance and link food justice to environmental justice frameworks (Purifoy, 2013; Siegner, Acey, & Sowerwine, 2020).

These cases also underscore the disconnect between community-driven justice goals and formal planning processes, a gap scholars have argued must be bridged to meaningfully address structural inequities in food access (Agyeman & McEntee, 2014). Our research underscores the critical role grassroots activism and participatory governance play in shaping effective policy outcomes. It also contributes to the broader discourse on food justice planning by illustrating how community engagement can push planners to move beyond narrow food security goals, using food to address structural injustices related to land use, housing, and racial equity (Horst, McClintock, & Hoey, 2017).

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Key Words: food justice, environmental justice, participatory planning, community engagement, policy

Leveraging the Physical, Mental, and Social Benefits of Urban Green Spaces: Insights from Coastal VA

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Track 9: Food Systems, Community Health, Safety

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Access to green spaces in urban areas offers numerous mental and physical health benefits (Hartig et al., 2014, Wilson et al., 2024). However, physical proximity to public green space does not always mean that those benefits accrue to people who live nearby. This paper documents “pull factors” as well as reported barriers to green space usage among residents who live within walking distance (i.e., 0.10 mile) of two public parks located in coastal Virginia (i.e., Norfolk and Portsmouth) using a household survey where participants were recruited using a novel, multi-modal strategy that included postcards, emails, and SMS text messages.

While both of the green spaces are open to the public and each is separated from an adjacent lower-income neighborhood by a high-volume street, they differ in the type and intensity of vegetative cover (e.g., turf grass versus forested), facilities available (e.g., ball fields, picnic shelters, walking trails), and activities that generally take place. We hypothesize that the green space that offers access to water, is largely forested, has walking trails and greater biodiversity will be associated with increased mental wellbeing, while indicators of social cohesion will be higher for residents visiting the other green space (Roe and McCay, 2021). We also expect that these benefits as well as the frequency of visits will be moderated by perceptions (e.g., pleasantness, safety, fascination) of each green space (Roe and McCay, 2021).

With a response rate of over 18 percent we statistically analyze differences within and between the two residents groups with respect to a battery of established physical and mental health measures and discuss the implications of the resident insights shared for efforts to increase green space usage within lower-income neighborhoods. Finally, we reflect on the strengths and weaknesses of leveraging techniques like SMS text messaging as a survey recruitment technique and of using a multipronged approach more generally.

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Key Words: green space, mental health, social interaction

Measuring Subjective Well-being Along the Urban Continuum in the Chennai Metro Region, India

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Exploring the factors that influence human well-being and how to enhance it is an increasingly important area of research and policy, given its central role in fostering healthy, productive societies (Diener, 2009; Durand, 2015). Researchers and policymakers globally are moving beyond objective indicators like income or health to embrace subjective well-being (SWB)—which includes evaluative, emotional, and eudemonic dimensions—as a key marker of societal flourishing (Helliwell et al., 2024; Oguz et al., 2013). Among the many contributors to SWB, the built environment plays a significant role (Das, 2022), making it a critical consideration for urban planning. However, most empirical studies examining links between SWB and the built environment are concentrated in high-income countries, leaving a gap in knowledge about rapidly urbanizing regions of the Global South.

This study addresses that gap through the first detailed assessment of SWB and its infrastructural, social, and environmental correlates across the urban–suburban–periurban continuum in the Chennai Metro Region of India. Using a bottom-up survey design, the authors collected data from over 2,400 residents—roughly 800 from each zone—measuring SWB dimensions using validated tools. Respondents rated their satisfaction with over 40 infrastructural, environmental, and social attributes across spatial scales, while also providing socio-demographic and culturally specific information. The data were analyzed using regression models to identify significant correlates of SWB. A novel prioritization framework was used to classify these correlates into three categories: foundational (basic needs), consistently important (important across contexts), and added bonuses (beneficial primarily for those already well-off). The research was guided by four key questions: How do SWB levels differ across the urban continuum? Are there disparities in SWB across income, caste, gender, and religion? Which factors most strongly correlate with SWB in each context? And how can infrastructure be prioritized to enhance well-being and equity?

Notably, the study found that periurban residents reported the highest levels of both evaluative and emotional SWB, despite having fewer resources than their urban and suburban counterparts. Chennai's overall evaluative SWB score (7.2/10) was significantly higher than India's national average (4.1/10) and comparable to scores in several U.S. cities. Income was the primary driver of SWB disparities in urban and suburban zones, while such disparities were less pronounced in periurban areas, indicating unique dynamics at the rural–urban fringe. Unexpectedly, participants from Other Backward Castes reported higher evaluative well-being than those from upper castes, challenging assumptions about caste-based privilege and prompting further investigation.

Several infrastructural, social, and environmental attributes—including home size, water quality, heating and cooling, internet and phone connectivity, air quality, access to education and places of worship, and the ability to influence neighborhood decisions—emerged as foundational correlates (priorities) of SWB. The priorities identified in Chennai distinguish its infrastructure needs from cities in more developed countries, where basic services are typically a given (Das, 2022), emphasizing the need for context-sensitive planning.

This study contributes significantly to urban planning by showing how SWB data can inform more equitable and responsive infrastructure development, offering actionable insights for policymakers aiming to build inclusive, thriving cities. The study's findings will help policymakers and researchers understand how local infrastructure

affects well-being, identify targeted planning interventions, promote equity in SWB outcomes, and compare infrastructure–well-being links between India and the U.S.

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Key Words: subjective well-being, neighborhood planning, built infrastructure, health equity, India

Modeling the Impact of Urban Heat Islands and Heatwaves on Elderly Health in Seoul

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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[Research questions, Objectives] The urban heat island (UHI) effect refers to the phenomenon where cities maintain higher temperatures than surrounding rural areas (Oke, 1982), while heat waves are periods of extremely high temperatures. The interaction between the two exacerbates heat stress in urban environments and has public health implications (Cheval et al., 2023; Son et al., 2023). This study aims to simulate the impact of this interaction on public health in Seoul, and sets up three conditions: A baseline scenario (current urban design and heat wave response), a heat island mitigation scenario (such as expanding green spaces), and a heat wave preparedness enhancement scenario (such as strengthening cooling centers). The research question is: “What are the public health impacts of UHI and heatwave interactions, and how does each scenario improve health outcomes?” The aim is to provide policy insights.

[Data and Method] The study combines a systematic literature review with system dynamics modeling. The literature review analyzes the relationships between UHI, heat waves and public health, and a systematic literature review and expert workshop are used to refine model parameters and ensure objectivity. The system dynamics model includes temperature, green cover, building materials, heat wave frequency, and health indicators (such as heat-related mortality). The three scenarios are simulated over a 10-year period and are run for Seoul as it is representative of a city with severe UHI (Kim et al., 2019). The baseline scenario evaluates the current situation, while the Heat Island Mitigation scenario increases green space by 20%. Finally, the Enhanced Heat Wave Preparedness scenario doubles the number of cooling centers and strengthens the heat warning system to provide policy insights by comparing the impact of each scenario on public health, especially the health of the elderly.

[Main findings] A systematic literature review highlighted the negative impact of the interaction of UHI and heat waves on the health of vulnerable populations. Simulations show that in the base case scenario, UHI and heat waves will increase heat-related mortality among vulnerable populations (elderly, low-income). In the heat island mitigation scenario, temperature reduction reduces health risks, especially for vulnerable populations in urban centers. In the enhanced heat wave preparedness scenario, emergency room visits are reduced, and public education improves immediate response. While both intervention scenarios are effective, reducing UHI may favor long-term temperature reduction and enhanced preparedness may favor short-term improvements in health outcomes. Previous studies have largely relied on statistical analysis or short-term observations to assess long-term and dynamic impacts (Kim & Baik, 2005). This study overcomes this by utilizing system dynamics to model changes over time and specifically analyzing vulnerable populations' health impacts.

[Implications] The study suggests integrating UHI reduction strategies and enhanced heat wave preparedness in urban planning. UHI reduction strategies include expanding green space and using sustainable building materials, while heat wave preparedness includes installing cooling centers and strengthening warning systems. This provides both long-term climate risk adaptation and short-term emergency response capabilities. In particular, urban design to protect vulnerable populations is important, for example, by creating green spaces near concentrations of elderly people or installing cooling centers in public facilities. Such measures will contribute to reducing health inequalities in high-density cities like Seoul, strengthening climate change adaptation, and ultimately increasing the sustainability of urban planning.

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Key Words: public health, urban heat island effect, heatwaves, system dynamics, scenario planning

Overcoming Barriers to Restore Public Vacant Lots into Thriving Community Gardens in Chicago

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Introduction: While always a part of city life, vacant lots have recently attracted increased attention among diverse groups in United States cities. This interest is not only due to the challenges vacant lots bring to communities—such as an increased risk of vandalism, illegal dumping of trash, and discouragement of potential homebuyers or renters—but because restoration of vacant lots holds the potential solution to these challenges. Studies show that increased safety, economic development, and enhanced food security are among the benefits of vacant lots restoration, particularly in low-income communities (Anderson et al., 2019; Branas et al., 2018). As part of the cities' efforts in restoration of vacant lots, the city of Chicago makes over 2,000 vacant lots available for sale to residents through the ChiBlockBuilder program. Looking at the application data for the Woodlawn neighborhood on the South Side of Chicago, it's evident that there were only 13 submissions in 2021. With over 1,000 vacant lots in this neighborhood (Dickhut & Haller, 2014), there is an opportunity for increased community participation in restoration of these lots especially in developing community gardens.

Objective: This research aims to identify barriers to restore city owned vacant lots into community gardens in Woodlawn, Chicago.

Methodology: This study employed key informant interviews with two stakeholders and a focus group discussion with members of community gardens in the Woodlawn neighborhood.

Results: Preliminary findings identify the opportunities for promoting existing programs. These include enhancing the program visibility through robust community outreach, highlighting the positive impact of vacant lots among communities, integrating both environmental and artistic elements into vacant lots restoration, and exploring innovative funding (such as carbon credits) to support the expenses associated with lots restoration.

Additionally, findings indicate several barriers to the lots' restoration including lack of transparency on available lots for sale, uncertainty from potential administrative changes that may impact the program's long-term existence, and the absence of a comprehensive community development plan to restrict the returning of these vacant lots into the inventory.

Conclusion: This project contributes to the ongoing efforts to seek equitable and meaningful solutions to restore city owned vacant lots in Chicago. Addressing these findings can pave the way for a more sustainable vacant lot restoration that reflects residents' needs and emphasize the potential for inclusive and community-driven solutions in Chicago and beyond.

Citations:

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Key Words: Vacant Lots Restoration, Community Gardens, Chicago

Perceived Pedestrian Environment Characteristics Across Different Socioeconomic Status Neighborhoods

Abstract ID: 1844.0.0.996.2025

Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Socioeconomic status is one of the main determinants of public health, especially in the case of obesity, as it is connected to physical activity, and more specifically to recreational walking (Frank et al. 2003). Improving physical environment characteristics, and perceived pedestrian environment characteristics in particular, research suggests, might be the key to increasing recreational walking behavior. The purpose of this study is to identify the common pedestrian environment characteristics in different socioeconomic status neighborhoods for more effective short-term intervention in the built environment which might increase the amount of recreational walking and help improve public health.

Research shows that walking behavior is influenced by pedestrian environment characteristics (Sallis et al. 2011). For example, pedestrian infrastructure (such as presence of sidewalks, crosswalks, streetlights), aesthetics, traffic and crime safety are influential on walking behavior. Moreover, the perceived measures of pedestrian environment characteristics, which have associations with walking behavior, include perceived pedestrian infrastructure (such as presence of sidewalks, crosswalks, streetlights), perceived aesthetics, and perceived traffic safety (Toker, 2015) .

The objectives are to identify perceived pedestrian environment characteristics in different socioeconomic status neighborhoods and to search for statistically significant patterns of commonalities among the best and worst perceived pedestrian environment characteristics among these neighborhoods.

A questionnaire for assessing the perceived quality of pedestrian environment was developed. The questionnaire was designed to ask open ended questions identifying two best and two worst characteristics of sidewalks and streets in an area. A total of 3,016 questionnaires were administered in four sites with different socioeconomic status in and around City of Los Angeles. A content analysis was conducted to identify codes to categorize the responses to questionnaire questions. Then, we conducted a quantitative analysis to compare the similarities among four areas, where these questionnaires were administered.

The results show that despite the variety in income, education, and race/ethnicity configuration, there are statistically significant patterns of similarities among best and worst characteristics of pedestrian environments in those four sites. For example, cleanliness and landscaping are among the most liked characteristics, whereas trash and lack of landscaping are among the least liked characteristics in all four sites. Similarly, safety and traffic are mentioned in all four sites by the respondents.

Although different socioeconomic status neighborhoods might have different physical environment characteristics, ultimately it is the perception of residents in a neighborhood that establishes how walkable the environment is for them. Therefore, the commonalities across socioeconomic status are crucial intervention points for urban planners and policy makers.

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Key Words: pedestrian, perception, walkability

Residential Heat Exposure and Health: Evidence from the American Housing Survey

Abstract ID: 1844.0.0.96.2025

Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Urban heat resilience is emerging as a major planning issue, yet research and planning has predominantly focused on outdoor environments, with less attention to the indoor residential settings where Americans spend most of their time. Our study addresses this gap by answering two key questions: (1) What indoor thermal burdens do U.S. households face and what are the largest barriers to thermal health? and (2) What mediating housing and socioeconomic factors are prevalent and what explains their prevalence? We specifically test hypotheses about heat health outcomes related to housing tenure (renting vs. owning), housing type (with special attention to manufactured housing), air conditioning (central AC vs. other options), and energy insecurity.

Our analysis uses the 2023 American Housing Survey (AHS), a nationally representative sample of U.S. households, and specifically a new heat risk module in the AHS that the authors proposed and refined in collaboration with U.S. Census Bureau staff. We employ descriptive statistics and regression models to examine three primary health outcomes: (1) whether households were uncomfortable due to heat for 24+ hours in the past year, (2) whether household members visited emergency departments for heat-related illness, and (3) whether heat interfered with their sleep. Independent variables include housing characteristics, household characteristics, and geographic setting. After identifying particularly high rates of heat-related health challenges in the four West Coast core-based statistical areas (CBSAs) for which specific data were available in the AHS, we conducted additional metro-specific analyses.

Our descriptive analysis reveals significant disparities in heat exposure and outcomes by housing type and characteristics. Nearly 14% of renters reported being uncomfortably hot compared with 8% of homeowners. Households in smaller multifamily housing buildings and manufactured housing had the highest rates of thermal discomfort and sleep disruption. Lower-income households consistently reported worse heat health outcomes across measures.

Preliminary regression analyses revealed several patterns at the national level. Renters experienced greater thermal discomfort and poorer sleep quality compared with homeowners. Households living in newer housing – units built since 2000 – had better heat health outcomes, as did households with central AC relative to window AC. Residents of metropolitan areas reported more thermal discomfort and sleep disruption, but were less likely to visit emergency rooms for heat-related illness, compared with residents of rural areas. There were inconsistent, and mostly non-significant, associations between variables related to race, ethnicity, and income with health outcomes. Our analysis of West Coast metropolitan areas identified central AC access and functionality as the most consistent factors associated with heat health outcomes across all four metros.

This research addresses a gap in urban planning scholarship, which has primarily studied disparities in exposure to outdoor temperatures (e.g., historical inequities due to redlining), as well as planning interventions to reduce the urban heat island and provide short-term emergency response during heat waves. Our findings highlight the importance of planners and housing policy makers analyzing heat exposure in indoor residential environments.

The disparities identified — including for renters, residents of older buildings, and those without central AC — indicate the need for targeted interventions through building codes, “right to cooling” standards, weatherization, energy assistance programs, and heat-health awareness education programs. By linking housing characteristics with heat-related health outcomes, this research provides evidence for policy interventions that integrate housing policy with other urban planning interventions to increase climate resilience.

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Key Words: housing policy, climate adaptation, adaptation planning, extreme heat, affordable housing

Spatial Equity in O2O Fresh Produce E-commerce: Complementing or Replacing Traditional Markets?

Abstract ID: 1844.0.0.66.2025

Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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For a long time, urban residents had to personally visit shops to buy fresh produce, a vital nutrient source that includes fruits, vegetables, fish, poultry and so on. Over the recent decade, increasingly matured online-to-offline (O2O) e-commerce has made fresh produce available at doorstep through efficient logistics, waiving more and more physical shop-visits. O2O fresh produce e-commerce can be viewed through the lens of Platform Urbanism, which argues that socio-technical assemblages of technology firms, service providers, and end users has transformed everyday life across cities and will improve urban life quality in a bottom-up manner (Barns, 2020; Caprotti et al., 2022). This paper examines the impact of O2O e-commerce on the fresh produce market in China, focusing on Shanghai as a case study, where O2O fresh produce delivery services have significantly altered shopping behavior since their emergence in 2015. While platform urbanism offers geographical and temporal flexibility, suggesting more equitable access to service regardless of socioeconomic status (Richardson, 2020), we argue, based on our case, that platform urbanism instead contributes to unequal spatial distribution of benefits. This is explored by examining three platform-based O2O fresh produce e-retail models: front-loaded warehouse (qianzhicang), warehouse-store integration (cangdianyiti), and community group purchase (shequtuangou). We aim to provide a nuanced understanding of how different models have reconfigured the digital-physical relationship of urban spaces.

A mixed method is used for this research. Various big data sources are collected, including fresh produce delivery Point of Interest (POI), residential Area of Interest (AOI), street-level census data and real estate transaction records. These are supplemented by first-hand survey and interview data on household purchasing behavior. We begin by using Kernel Density Analysis to visualize the spatial distribution of the three models, which is compared with that of traditional wet markets. These density maps, overlaid with spatial data of population density, age demographics, and economic status, allow us to identify well- and under-served residential areas. Then we analyze the spatial catchments of the three models and evaluate the respective food accessibility for residents in different regions. By comparing these platform catchments with those of traditional wet markets, we investigate whether and to what extent fresh produce platform retail services can make up for the service blind spots of offline stores. Furthermore, statistical analysis is conducted to examine associations between O2O service coverage and various spatial attributes, including housing price, population age, and types of urban districts.

Our preliminary findings show that O2O fresh produce services tend to thrive in already well-served, younger, and wealthier neighborhoods but provide less support for under-served regions that rely largely on traditional markets. This suggests an exacerbated digital divide between well- and less-established urban areas. Our study provides insights to urban planners and policymakers on how platform urbanism reshapes urban landscape and service distributions, calling for their attention on the potential spatial inequalities in residents' access to fresh produce.

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Key Words: O2O (online to offline), fresh produce delivery, food accessibility, platform urbanism

Spatiotemporal Heterogeneity in Waterfront Environments and Public Emotions via Explainable ML

Abstract ID: 1844.0.0.594.2025

Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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Background/Purpose-Waterfront spaces provide ecosystem services and impact residents' emotions and well-being, particularly during public health emergencies like COVID-19 (He et al., 2024). While research has examined urban public spaces and emotional health at city-wide scales (Liu et al., 2021; Ma et al., 2020), few studies investigate waterfront environments within the 15-minute City concept, which is an urban planning model promoting accessibility to essential services within a 15-minute journey. Understanding these relationships requires explainable AI approaches that address non-linear associations and geographical interpretability (Xing & Sieber, 2023).

This study aims are constructed as follows: (1) What is the relative importance (RI) ranking of waterfront life circle environmental variables in influencing public emotions during different periods? (2) How can these nonlinear associations and threshold effects be quantitatively assessed and interpreted? (3) To what extent do these associations spatially and temporally vary?

Methods-We studied Shanghai's Huangpu River and Suzhou Creek waterfront spaces using a 150m grid (8,876 spatial units). Public emotional data came from Weibo posts from September 2021 (pandemic, 40,497 posts) and 2023 (post-pandemic, 84,225 posts). Environmental variables included built environment characteristics, perception elements, and microclimate measures. We employed Geographically Weighted Random Forest (GWRF) with SHAP values to quantify variable importance, addressing spatial heterogeneity absent in traditional models (Grekousis et al., 2022).

Results-Analysis revealed significant non-linear associations and spatiotemporal heterogeneity:

Microclimate variables: Temperature was most influential during the pandemic, with positive emotional effects within comfortable ranges (10-28°C) but negative effects at extremes. This pattern varied spatially, with stronger positive effects in areas with high blue-green coverage and negative effects near transportation hubs.

Perception environment variables: Sensory elements showed high importance across both periods, with positive effects emerging above a 0.1 threshold. Natural elements dominated during the pandemic, while artificial elements gained significance post-pandemic, especially in central urban areas.

Built environment characteristics: The associations between development density and sentiment displayed complex nonlinear patterns. Floor area ratio exhibited negative emotional impacts when below 1.5, but positive impacts when exceeding 1.5. Transit accessibility demonstrated moderate importance, with its positive effects particularly concentrated in central districts during the pandemic and in suburban areas post-pandemic.

Temporal comparison revealed a shift from microclimate factors during the pandemic to perception elements post-pandemic, reflecting changing public priorities and waterfront usage patterns.

Conclusions-This research advances our understanding of waterfront environments and public emotions through an innovative explainable ML framework combining GWRF and SHAP models. We incorporated diverse environmental variables beyond conventional measures and revealed complex non-linear associations varying

across space and time. Findings demonstrate as to RI, there is a shift from microclimate factors during the pandemic to perception elements post-pandemic, reflecting evolving public priorities.

By focusing on the 15-minute urban model, this research provides implementable planning recommendations. Policy makers can develop targeted strategies for different waterfront contexts, emphasizing temperature and natural elements during crisis periods while enhancing artificial and sensory elements during normal periods. This spatially-explicit approach enables planners to prioritize interventions in specific areas with maximum emotional benefit potential, creating more resilient urban waterfront environments adaptable to changing public needs.

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Key Words: Environmental resilience, Public wellbeing, Waterfront life circle, Spatial heterogeneity, Explainable ML

Taking on the food industry: government capacity to change food environments in Bolivia

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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The food industry and much of the public health sector has often encouraged a personal responsibility approach to improving diet-related health outcomes, focused on interventions like raising awareness and nutrition education (Lusk 2014; Brownell and Warner 2009; Vermeluen et al. 2020). This individual choice approach, however, is limited in its effectiveness (Murimi et al. 2017). A social determinants framework instead calls for a greater focus on food environments – “the collective physical, economic and policy conditions that influence people’s food and beverage choices and nutritional status” (Perrez-Ferrer et al. 2019). This framing places more responsibility on governments to enact structural changes that require less personal agency, such as policies, regulations and zoning changes that shift the availability, affordability, and desirability of food in the environment (Adams et al. 2016; Minaker et al. 2011). Research is limited, however, about the capacity of government agencies to effectively carry out such interventions, especially in the Global South (Turner et al. 2020; Turner et al. 2018) where food environments are rapidly changing (Popkin and Ng, 2022).

Our study addresses this research gap by examining the implementation of Bolivia’s 2016 “Law for the Promotion of Healthy Eating” (Law 775), a multisectoral national food policy that is the cornerstone of efforts to address the country’s burgeoning public health crisis centered on diet-related chronic diseases (Jones et al. 2018). Focusing on the three components of the law, we examine the conditions under which local governments have the capacity – and motivation – to regulate powerful industry groups, reshape existing retail landscapes, and curtail harmful marketing needed to shape healthier food environments.

Our methods include over a dozen key informant interviews to learn about the role of national actors in carrying out (or obstructing) Law 775, including government ministries in health, agriculture and consumer protection, multi-lateral organizations (e.g., the UN Food and Agriculture Program), the food industry, and international NGOs. We then used a positive deviance framework to identify three municipalities where components of Law 775 were implemented with higher fidelity and compare them to municipalities with lower fidelity, matched based on population, food environments (e.g., mountainous highlands vs. tropical lowlands), and economic factors. In these six municipalities, we interviewed front-line staff and key informants to learn about on-the-ground factors and actors that facilitated or hindered implementation, including municipal directors of health, members of Municipal Committees on Food and Agriculture, agriculture extension agents, public health NGOs, and market vendor and restaurant unions.

Our findings identify key barriers (e.g., establishing uniform standards for front-of-pack nutritional labeling; opposition from the food industry) and facilitating factors that enabled implementation of Law 775 (e.g., persistent, respected policy champions; co-developing strategies with local food vendors to help them transition to offering more healthy options in ways that retain the viability of their business; engaging in creative and cross-sector public mobilization). Working in partnership with the Ministry of Health, our findings are informing efforts to improve and scale up the core tenants of Law 775 in Bolivia. As more governments in the Global South embrace the notion that diets are a social issue, our study also offers guidance about the various paths other governments at both local and

national levels can follow to build their capacity to intervene in food environments (Vermeluen et al. 2020; Ng et al, 2022).

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Key Words: Food environments, Global South, food systems planning, policy implementation, public health

Walkable Food Access for Active Seniors: A Comparison of Planned and Traditional Urban Areas

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Track 9: Food Systems, Community Health, Safety

Individual Paper Presentation Submission

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This study investigates the association between food outlet density and walking-based food purchasing behavior among active seniors (aged 60–69) in two distinct urban areas of Sejong City, South Korea: Goun-dong, a master-planned new town, and Jochiwon-eup, a traditionally developed district. Sixty participants (30 from each neighborhood) maintained 7-day food environment diaries, recording their walking-based food purchase frequency, walking duration, and the density of food retail Points of Interest (POIs) within an 800-meter radius of their residences.

Descriptive statistics indicated that, despite Goun-dong's significantly lower average POI density (5.74 POIs/km²) compared to Jochiwon-eup (47.78 POIs/km²), participants in Goun-dong reported more frequent (0.60 times/week) and longer (8.5 minutes/week) walking-based food purchasing activities. However, correlation analyses in Goun-dong revealed a moderate positive association between POI density and walking duration ($r = 0.36$, $p = .052$) and a weaker positive correlation with walking frequency ($r = 0.31$, $p = .100$). These p -values exceed the conventional threshold of 0.05, indicating that the observed associations are not statistically significant. In contrast, no significant relationships were observed in Jochiwon-eup, where high food outlet density did not correspond with increased walking-based food purchasing behavior.

The significance of this study lies in its comparative analysis of walkable food access across different urban typologies—a systematically planned new town and a naturally evolved traditional district. By exploring whether urban density truly influences walking behavior, this research highlights how urban form and planning principles may affect active seniors' walking-based food purchasing behavior, contributing valuable insights for the development of age-friendly urban environments.

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Key Words: Food Environment, Walking Accessibility, Active Seniors, Urban Form Comparison, Food Outlet Density

Track 9 Research in Motion (RiM)

Campus Infrastructure and College Students' Health-Related Mobility: A Location-Based Study

Abstract ID: 1842.0.0.757.2025

Track 9: Food Systems, Community Health, Safety

Research-in-Motion Presentation Submission, Research currently in process

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College students face significant health challenges, particularly during academically stressful periods like exams and public health crises such as flu season and the COVID-19 pandemic. Prior research has shown that the surrounding environment, a college campus in this case, can significantly shape people's behaviors and influence their health and quality of life¹. However, empirical evidence remains limited, particularly regarding the longitudinal interactions between students and campus environments.

Using Texas A&M University as a case study, this study addresses this research gap utilizing longitudinal mobility data from ADVAN Research (January 1, 2018, to December 13, 2021) to examine how students interact with campus sports facilities and green spaces over time and how these interactions influence their health mobility patterns during stressful exams and public health crises. ADVAN Research data has been recognized as a valid and accurate global point of interest (POI) database². This study considers students' weekly visits to health-related destinations, including health facilities & services, drinking places, tobacco stores, and grocery stores, as dependent variables. The weekly visits to these target POIs are measured as the percentage of the student housing census block groups (BGs)' population that traveled to the corresponding POIs per week. Independent variables include critical events, including midterm exams, final exams, flu seasons, and the COVID-19 pandemic, which are known to affect students' academic life experience³. Each variable is coded as a dummy variable to indicate the event occurrence. Students' weekly visits to campus sports facilities and parks are considered moderators. We controlled for key confounding factors such as socio-demographic characteristics. After data cleaning, the final dataset includes 45 student housing BGs with 8,742 observations. Mixed-effect models were utilized to examine the impacts of key academic events and health crises on students' health-related mobility, and the moderating roles of campus sports facilities and green spaces in the relationship.

Descriptive analysis revealed consistent mobility patterns linked to key academic events and public health crises. POI visits peaked during the first week of classes and midterms, and dropped significantly during summer and winter breaks. Notably, visits to various POIs, such as drinking places, campus parks, and sports facilities, surged at the start of each fall semester. Results of mixed-effects models further showed that midterms, finals, flu seasons, and the COVID-19 pandemic significantly impacted students' health-related mobility. We found that frequent visits to campus sports facilities and green spaces significantly moderated student travel behaviors during these challenging times. Students who frequently visited campus green spaces were less likely to visit health-risk locations such as drinking places or tobacco stores during midterms, finals, and the pandemic, and were more likely to go to health-promoting destinations like grocery stores during flu seasons and the pandemic. Conversely, during

flu seasons and the pandemic, frequent use of sports facilities was associated with increased visits to health-risk locations, such as drinking places or health facilities & services.

These findings highlight the significance of integrating green infrastructure and sports facilities into campus planning to positively influence students' health-related behaviors and overall wellbeing. The dual role of campus green spaces and sports facilities during exam periods and public health crises highlights their complex influence on students' mobility decisions and lifestyle choices. Targeted environmental interventions during such challenging times can help promote health mobility patterns, lower healthcare demand, and ultimately foster more resilient, healthier campus communities.

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Key Words: Campus Infrastructure, Location-based Research, Geolocation Data, Health-related Mobility, University Planning

Effect of biophilic design and engagement activities on health and cognitive performance of seniors

Abstract ID: 1842.0.0.623.2025

Track 9: Food Systems, Community Health, Safety

Research-in-Motion Presentation Submission, Research currently in process

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According to the World Health Organization (WHO), the global population aged 60 and above is projected to reach 1.4 billion by 2030. Population aging has substantial implications for public health, as seniors are more vulnerable to health risks compared to other age groups. Declines in physical and cognitive performance in advanced age contribute to increased incidences of chronic diseases, reduced self-efficacy, and impaired mobility, ultimately hindering social participation and decreasing overall well-being of seniors. Amidst this rising concern, there is a growing interest in developing strategies for healthy aging by promoting physical activity, enhancing mental health, and fostering social connectedness (Keating, 2022).

Most relevant studies analyzing the health-promoting effects of nature-related designs or activities suggest that contact with nature is linked to enhanced physiological and psychological well-being (Shuda et al., 2020; Ulrich et al., 1991). An outdoor experiment conducted in Keelung City, Taiwan, found that walking in green and blue spaces promotes physiological relaxation and improves positive mood of young adults (Yin et al., 2023). Chan et al. (2023) also conducted an indoor experiment, suggesting that both young adults and seniors experienced an enhanced emotional well-being as they became closer to nature. However, previous studies that conducted human-subject experiments have primarily focused on young adults, while research involving seniors remains limited and presents two key limitations. First, most studies have adopted passive exposure to natural environments rather than active engagement through participatory activities. Second, they have largely overlooked the variation in physical and cognitive performances within the elderly population. Researchers have typically defined seniors by chronological age, using criteria such as 60 or 65 years. However, since health conditions tend to change more rapidly in later life than at other stages of the lifespan, it is essential to consider individual differences in health status among older adults.

Against this backdrop, we conduct an experimental study to investigate the effects of garden-based activities on seniors, with particular attention to the role of active engagement in enhancing the health benefits of nature. We hypothesize that: (H1) garden-based activities will positively affect physiological indicators, psychological well-being, and cognitive performance; (H2) active engagement will lead to greater improvements in well-being than passive exposure; and (H3) garden-based activities will show beneficial effects regardless of participants' level of physical performance.

The study is carried out in "Life Garden", a therapeutic green space located in Gwangmyeong-si, South Korea, designed to support cognitive health and promote social interaction among elderly populations. A total of sixty seniors aged 65 and above participated in the study. The experiment was structured into four phases: (1) initial adaptation, (2) pre-treatment measurements, (3) garden-based activities, and (4) post-treatment measurements. During the garden activity phase, participants autonomously engaged in programs within the garden for 30 minutes.

We employ statistical models and neurophysiological analyses to evaluate the effects of the treatment. RM ANOVA is used to compare pre- and post- treatment outcomes. Additionally, we visualize brain activity maps using EEG measurements to identify changes in neural activation patterns during cognitive testing before and after the

treatment. Finally, SEM is conducted to construct a path model that demonstrates the complex relationships between participants' characteristics, degree of engagement, and measurements. Through this study, we aim to provide empirical evidence on how biophilic design and participatory engagement in therapeutic gardens can promote healthy aging.

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Key Words: Therapeutic garden, Human-subject experiment, Senior, Physiological indicators, Cognitive performance

Examining Urban Greenery's Distribution, Visibility, and Accessibility in Relation to Crime Rates

Abstract ID: 1842.0.0.337.2025

Track 9: Food Systems, Community Health, Safety

Research-in-Motion Presentation Submission, Critique related to a hot topic in planning research

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This study investigates how the distribution, visibility, and accessibility of urban greenery influence crime rates at street and neighborhood scales. Despite evidence linking urban green spaces with reduced crime, existing research rarely examines detailed street level relationships or clearly differentiates these three dimensions. Thus, this paper addresses 3 specific questions:

- 1) Evaluate the distribution, visibility, and accessibility of urban greenery at the block and street level;
- 2) How the distribution, visibility, and accessibility of greenery at the street-level greenery, correlates with crime rates;
- 3) How the distribution, visibility, and accessibility of greenery at the block level, coupled with the presence of vulnerable populations, diverse ethnic groups, and varying age demographics, impact crime rates.

To answer these questions, this research focuses on Chicago and uses multiple data sources, including Google Street View images, satellite vegetation data, and crime records. Greenery is measured with three metrics: NDVI (Normalized Difference Vegetation Index) for vegetation cover, GVI (Green View Index) for visible street greenery, and a new GWI (Green Walkability Index) for green space accessibility. We analyze crime data from 2018–2023 (violent and property offenses) across 801 census block groups. We also conduct a detailed case study in the high crime neighborhood of East Garfield Park. Socio-demographic factors are controlled. We use negative binomial regression to link green metrics to crime counts and apply geographically weighted regression (GWR) to examine how these relationships vary by location.

Preliminary results show that areas with higher vegetation cover, more visible street greenery, and better access to parks tend to have lower crime rates: areas with greater NDVI values, higher street-level GVI, and improved GWI consistently exhibit fewer violent and property crimes. Importantly, the crime reduction effect associated with greenery is especially pronounced in disadvantaged neighborhoods characterized by higher poverty levels and ethnic diversity, indicating a strong interaction between socio-demographic context and green space effectiveness in crime prevention. The study also finds that improving the visibility and accessibility of greenery is more effective in reducing crime than increasing the total green space. Cities should prioritize enhancing street greenery, walkable access, and park entrances in high-crime areas. Green spaces should also integrate with other crime prevention strategies such as public lighting and pedestrian-friendly environments. This approach would create safer and more inclusive urban spaces.

These findings support theories of environmental justice and Crime Prevention Through Environmental Design (CPTED). They also emphasize the importance of data-driven strategies in urban planning. Future policies should use geographically weighted regression and machine learning to assess the impact of greenery on different communities. This would help create targeted interventions and support the development of safer, more equitable, and more sustainable cities. This analysis of the greenery and crime link suggests that greening urban areas is a promising strategy to enhance public safety and promote environmental equity. Importantly, the crime reduction effect associated with greenery is especially pronounced in disadvantaged neighborhoods characterized by higher

poverty levels and ethnic diversity, indicating a strong interaction between socio-demographic context and green space effectiveness in crime prevention

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Key Words: Urban Greenery, Crime Prevention, Street View Imagery, GIS, Environmental Justice

Green Space and Cognitive Aging: The Moderating Role of Life Transitions in Urban Environments

Abstract ID: 1842.0.0.395.2025

Track 9: Food Systems, Community Health, Safety

Research-in-Motion Presentation Submission, Research currently in process

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Cognitive decline that accompanies aging, defined by reduced abilities in language, memory, executive function, and reasoning, poses a significant challenge to the quality of life of older adults. It also places growing pressure on the sustainability of healthcare systems worldwide, especially as aging becomes a dominant global issue. While many personal, lifestyle, and genetic factors influence cognitive health in older adults, one pivotal factor that has gained increasing attention in recent years is urban design and the attributes of the built environment. In particular, access to green space is considered a key aspect of the built environment, linked to better cognitive function, a lower risk of dementia, and slower cognitive decline. Accessibility to neighborhood parks, community gardens or open spaces can become significant resource that contribute to enhancing cognitive abilities in older adults by positively influencing their mood and behaviors, supporting active aging, promoting relaxation, and enhancing recreational opportunities.

While many studies have linked increased access to green spaces with lower rates of cognitive impairment, the findings remain mixed, suggesting that this relationship is more comprehensive and not uniform and may be influenced by various contextual and sociodemographic factors. Studies have shown that life transitions like retirement, driving cessation, or changes in Marital status (like widowhood) have the potential to influence cognitive decline as they can substantially modify daily routines and environmental exposures, potentially intensifying or mitigating the benefits derived from green spaces. To address this research gap, this study leverages longitudinal data from the Health and Retirement Study (HRS) to investigate the complex relationship between green space, life transitions, and cognitive aging by analyzing their interactive effects over time.

We operationalize cognitive function using a composite index derived from multiple cognitive function assessments in HRS, including measures of immediate and delayed word recall, serial 7s subtraction, and backward counting. For an analytical approach, a linear mixed effects model is used to examine whether the relationship between green space and cognitive function is moderated by key life transition factors, including retirement, driving cessation, and marital status change. By accounting for both life transitions and longitudinal green space exposure, this study seeks to uncover how green space interacts with personal life changes to shape patterns of cognitive aging. By identifying when and for whom green space is most beneficial, the findings can inform the design of age-friendly, walkable neighborhoods and guide equitable green infrastructure investment, especially in communities with limited access.

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Key Words: Cognitive aging, Green space exposure, Life-course transitions, Retirement, Health & Retirement Study

Indigenous Foodways in Transition: Navigating Urban Encroachment in Malaysia's Peri-Urban Landscapes

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Track 9: Food Systems, Community Health, Safety

Research-in-Motion Presentation Submission, Research currently in process

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The rapid expansion of urban areas is reshaping landscapes and food systems, often at the expense of Indigenous communities (Skinner et al., 2016; Whyte, 2018). In Malaysia, urbanization increasingly encroaches upon Indigenous lands, threatening food security by reducing access to traditional food sources and exacerbating land tenure insecurity, which undermines Indigenous sovereignty. The Temuan Indigenous people, who have historically depended on forest-based food systems (Nicholas, 2000), are particularly affected by these pressures. As forest resources become increasingly scarce, many Temuans are adapting by engaging in small-scale farming, shifting from traditional foraging practices to cultivated food production (Diansyah et al., 2022). These shifts raise critical questions about the extent to which the Temuans can maintain control over their food systems amid ongoing urban expansion.

This study examines how the Temuan in Hulu Langat—a rapidly urbanizing district 16 miles from Malaysia's capital, Kuala Lumpur—navigate transformations in their food systems. Using a qualitative research design, this study draws on semi-structured interviews with Temuan farmers and elders, NGO representatives, and government officials. In addition, participant observation is used to gain deeper insights into the Temuan's food cultivation and harvesting practices, while document analysis provides a broader contextual understanding of policies and regulatory frameworks affecting Indigenous land tenure. By integrating these methods, this research explores how shifting subsistence practices and land tenure insecurity shape Indigenous food sovereignty.

Preliminary findings suggest that while some Temuans leverage peri-urban agricultural opportunities, structural barriers—including insecure land tenure, restrictive policies, and limited market access—continue to threaten their food security. While traditional food cultivation practices persist, many households are shifting toward market-oriented farming, growing cash crops such as bananas, corn, and chili to generate income. This transition reflects an increasing reliance on market-driven agriculture, often at the expense of traditional foodways. Moreover, while collaborations with non-Indigenous institutions offer pathways for resource-sharing, land tenure insecurity and institutional constraints continue to hinder long-term food sovereignty in peri-urban Indigenous communities.

These findings contribute to existing scholarship on Indigenous knowledge systems and food security by illustrating how land governance, market integration, and food sovereignty intersect to shape Indigenous adaptation strategies. Without secure land tenure and institutional support, Indigenous food sovereignty will continue to erode, exacerbating economic precarity and food insecurity. This highlights the urgent need for policies that recognize Indigenous land rights, enhance access to agricultural resources, and foster equitable partnerships that empower Indigenous communities to sustain their food systems in the face of rapid urban transformation.

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Key Words: Food systems, Indigenous knowledge, Food security, Food sovereignty, Indigenous land rights

Planning for Health Equity: Enhancing urban environments to support women's safety and independence

Abstract ID: 1842.0.0.48.2025

Track 9: Food Systems, Community Health, Safety

Research-in-Motion Presentation Submission, Research currently in process

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Urban planning plays a crucial role in shaping built and social environments. These environments then influence social equity and public health (Braverman, 2023), including for survivors of intimate partner violence (IPV). IPV is a pervasive health issue in the United States. While approximately a quarter of men experience IPV during their lifetime, women experience it at significantly higher rates -- 41% compared to 26% -- and are far more likely to suffer severe physical harm, including battery, rape, and murder (CDC, 2024). These risks are even greater for women with marginalized identities, such as those who are low-income, disabled, LGBTQ+, immigrants, Indigenous, Black, and Latinx.

Historically, urban planning has been used as a tool of social control, including in ways that reinforced gender disparities (England, 1991). Many of these planning practices contribute to conditions that heighten women's vulnerability to IPV, yet the field remains slow to address its role in perpetuating gender-based health risks (Frye et al., 2008). Even though vulnerability to gender violence is socially constructed, including through public infrastructure and policy making, because the resulting manifestation of violence often occurs in private spaces, IPV has often been overlooked in planning discourse (Sweet & Ortiz Escalante, 2010). However, with targeted policies and interventions, urban planning can help reduce IPV risks and support survivors.

This study explores how specific aspects of urban planning -- such as housing, land use, transportation, economic development, real estate development, and social infrastructure -- can aid in both the prevention of IPV among women and support the recovery of female-identified survivors. Through a systematic literature review in urban planning, public health, and social work, we identified key infrastructure and policies that impact women's ability to achieve safety, stability, and economic independence. Our analysis paid special attention to intersectional risk factors, including race, income, immigration status, disability, and sexual/gender identity (e.g., lesbian, bisexual, and trans/nonbinary women).

Based on our findings, we propose a novel framework to guide urban planning policy and practice, categorizing interventions into three core dimensions: housing access, economic independence, and social infrastructure. These findings suggest that urban infrastructure and policymaking play a critical role in shaping access to social, economic, and material support -- factors essential for preventing IPV and aiding recovery. Through key planning interventions in these areas, this research provides actionable guidance for urban planners seeking to create safer, healthier, and more equitable cities. Planners have a responsibility to shape environments that support vulnerable populations, including IPV survivors, and future research should explore how this gender-centric framework can be applied across diverse urban contexts.

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Key Words: Intimate partner violence, Gender, Urban health, Health equity

The Impact of Crime on Urban Park Visitation Patterns: A Longitudinal Analysis in Austin, Texas

Abstract ID: 1842.0.0.950.2025

Track 9: Food Systems, Community Health, Safety

Research-in-Motion Presentation Submission, Research currently in process

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Urban parks are vital public spaces providing significant recreational, social, and environmental benefits, yet maintaining safety within these spaces continues to pose challenges in diverse urban environments (Rigolon & Flohr, 2014). Crime incidents occurring in or near urban parks directly influence public perceptions and visitation patterns, potentially diminishing community cohesion and overall well-being (Fleming et al., 2016).

This research systematically explores how crime incidents influence park visitation patterns, employing rigorous quantitative analysis through fixed-effects regression models. Crime incidents are categorized into: (1) family violence, involving violent incidents among family members; (2) nonfamily violent offenses, explicitly violent crimes (e.g., assault, robbery), as well as burglary due to its potential confrontational nature and associated threat perception (FBI UCR, 2023); and (3) nonfamily nonviolent offenses, consisting of vandalism, drug-related crimes, and regulatory offenses. The analysis captures crime's immediate and cumulative effects on public behavior and perceptions over distinct temporal intervals (7-day, 30-day, and 60-day lag periods).

Austin, Texas, serves as an ideal study area due to its rapid urban growth, demographic diversification, and increasing public concerns regarding crime in parks. The city explicitly prioritizes park safety, equity, and community engagement in its comprehensive 10-year park master plan, *Our Parks, Our Future* (City of Austin, 2019). Additionally, extensive publicly available crime and visitation data make Austin uniquely suited for generating insights relevant to local policy development and broader metropolitan applications across the U.S. (U.S. Census Bureau, 2025).

Data utilized in this analysis include detailed daily park visitation metrics sourced from geospatial mobility datasets, crime incident data provided by the City of Austin Police Department, and comprehensive demographic and environmental variables. The study employs Geographic Information Systems (GIS) to spatially and temporally align crime occurrences with park visitation patterns across the City of Austin, Texas. Regression modeling accounts for park-specific attributes such as accessibility, amenities, weather conditions, and demographic characteristics including socioeconomic status, racial composition, and age profiles.

Initial results indicate detailed relationships between crime and park usage. Our intervals (7, 30, and 60 days) were selected based on prior literature, which indicates that community reactions to crime events evolve over short-, medium-, and long-term periods. Short-term analyses (7-day lag) reveal limited immediate impacts on visitation across most crime categories, suggesting brief community responses to recent criminal events. In contrast, medium-term analyses (30-day lag) identify significant negative effects of nonfamily nonviolent and regulatory offenses on park visitation, highlighting persistent concerns about safety that discourage public usage. These effects notably diminish at the longer-term interval (60-day lag), suggesting that public perceptions of safety recover over time.

This research contributes critical insights for urban planning, community health, and safety policies by elucidating the temporal dynamics of crime impacts on public park utilization. By identifying the specific crime types and

temporal windows influencing park visitation, the study provides actionable recommendations for targeted crime prevention strategies, inclusive urban design, and equitable resource allocation. Ultimately, this research underscores the importance of integrated planning approaches that foster resilient, safe, and inclusive urban park environments.

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Key Words: Urban Parks, Crime Prevention, Visitation Patterns, Public Safety, Longitudinal Study

The Impact of Food Scarcity on Cognitive Function: A Case Study of the East Side of Buffalo, NY

Abstract ID: 1842.0.0.734.2025

Track 9: Food Systems, Community Health, Safety

Research-in-Motion Presentation Submission, Research currently in process

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Chronic food insecurity, defined as a persistent lack of access to adequate food (Headrick et al., 2024), is a growing public health challenge that disproportionately affects low-income and marginalized populations (Garrity, 2024). The prevailing discourse around chronic food insecurities predominantly focus on physical health implications of food scarcity, food sovereignty, food justice, food supply chain marginalization, and environment and climate (Raja et al, 2024) but often overlooks the effects of food insecurity on cognitive load, decision-making, mental health, and cognitive function. This paper adds to the literature by drawing on the food scarcity literature to examine the cognitive function and decision-making of individuals who are focused on solving immediate food-related problems. In particular, we draw on scarcity theory from scholars Sendhil Mullainathan and Eldar Shafir, to probe (1) the psychological burden of making decisions related to food in environments with limited access and how that affects other areas of decision-making (thus, ways that the mental load of food insecurity impacts an individual's overall cognitive function) (2) whether scarcity-driven cognitive load leads to tunneling and impose mental bandwidth tax, where individuals experiencing food insecurity become tunneled visioned, concentrating primarily on short-term food needs at the expense of long-term decision-making, (3) whether food scarcity creates self-reinforcing cycles (scarcity traps) in which decisions made under cognitive overload lead to worsening circumstances and further depletion of cognitive resources.

The empirical analysis unfolds in a case study of Buffalo, NY, a city where nearly 30% of households experience low food access, with many living in areas that lack grocery stores with fresh produce and affordable food options (Raja & Ma, 2008; Lipman et al., 2025). We employ a qualitative analysis utilizing multiple data sources, including interviews with residents and key stakeholders (e.g., community-based organizations, city government officials, religious and community leaders who work closely with food insecure populations), government documents, reports from academics, oral histories, and analysis of newspaper articles and reports. Findings contribute to new knowledge on how food insecurity might deplete mental resources and increase cognitive load, potentially explaining why individuals facing food insecurity often struggle with everyday decision-making. Also, by identifying which cognitive functions are most impacted by food insecurity (e.g., memory, attention, problem-solving), the study provides a nuanced understanding of the mental toll of food insecurity beyond just the physical aspects.

This research enhances planning scholarship by enriching our comprehension of the social determinants influencing cognitive functioning, especially within underprivileged communities, and will emphasize the significance of food security in general well-being and cognitive health. The findings hold practical significance for policymakers, social workers, and urban planners who formulate interventions for food-insecure populations. Understanding the cognitive strain of food insecurity may promote the incorporation of cognitive support services (e.g., mental health resources and decision-making tools) into food assistance initiatives, and urban planners may

utilize these findings to create conditions that alleviate cognitive burdens for food-insecure individuals, including enhancing access to dependable and affordable food sources.

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Key Words: Food insecurity, Cognitive load, Decision-making, Mental health, Cognitive function

Track 10 – Planning Education, Process(es) and Law

Track 10 Roundtables

Affect in Planning Pedagogy: Preparing Practitioners for Uncertain Futures

Abstract ID: 1843.0.0.836.2025

Track 10: Planning Education, Process(es) and Law

Roundtable Submission, Panel Interviews

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In light of mounting crises and instability and increasingly unpredictable futures, it is becoming clear that planners require a dynamic and adaptable skill set that goes beyond the conventional technical skills valued in planning. Sandercock (2023, p. 267) refers to relational awareness, humility, patience, presence, intentionality, and courage, what she calls “being skills”, as key to the effective training of planners. Her concern echoes earlier calls on interpersonal effectiveness (Argyris and Schön, 1972), and critical pragmatism (Forester, 2013), among others. Education scholarship names these aspects of training as “affective learning.” This panel aims to bring together planning scholars to explore the design of educational experiences that foster affective learning that supports the development of inclusive, adaptive, and ethical planners.

Affective learning encompasses values, interests, feelings, attitudes, motivations, and behaviors (Shepherd, 2008). However, it remains merely a tacit outcome in many planning curricula; students muddle through group work and community-engaged projects without adequate preparation or support through the relational complexities that arise, leaving them vulnerable to burnout (Lyles and Swearingen White, 2019). Attention to the affective dimension has become even more urgent in the wake of the COVID-19 pandemic, which has created new challenges for many of our current students as they lost several years of social-emotional development due to remote schooling. Despite increasing agreement on the importance of affective learning in planning pedagogy, Wilson (2020, p. 2) points out that many planning instructors are “ill-equipped to facilitate constructive conversations...where our students can talk through their blind spots and develop the emotional capacity and cultural humility (Sweet 2018) required to fully grapple with the implications of systemic inequities in their own work.”

Drawing on their combined experience teaching affective capabilities in planning and publishing about their importance, our panelists will discuss affect as a critical framework for both instructors and students to make sense of their experiences in and beyond the classroom. We will share our experiences designing and implementing pedagogical activities to engage students in affective learning. We will discuss student-designed activities and simulations that recreate multi-stakeholder engagements around complex problems. Many of these activities focus on the embodied experiences of conflict and negotiation with no easy answers.

Teaching that centers affective learning demands that instructors show up differently in our classrooms by modeling reflective practice with vulnerability, humility, and power-sharing. Key to supporting instructors is surfacing the institutional and structural considerations for creating contexts that support and value affective learning. We are mostly a group of early career women scholars who are shouldering much of this emotional labor in and around typical tenure expectations; and we know that our colleagues of color are shouldering even more. It is critical that we do not just ask more of junior planning faculty members, but that we also discuss how senior faculty members can support and create conditions where this work is valued formally in tenure and promotion.

The panel will make contributions to the development of affective capabilities across three scales: our students, ourselves, and one another. The panel will explore affective learning as a frame for engaging wicked planning problems with students. It will offer educators tools for designing environments and activities to support future practitioners in cultivating affective capabilities. And it will also generate discussion about how instructors can support themselves in engaging in this critical emotional labor without burning themselves out, so that we can support each other within and across institutions.

Citations:

- Sandercock, L. (2023). *Mapping possibility: Finding purpose and hope in community planning*. Routledge.
- Shephard, K. (2008). Higher education for sustainability: Seeking affective learning outcomes. *International Journal of Sustainability in Higher Education*, 9(1), 87–98. <https://doi.org/10.1108/14676370810842201>
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Key Words: Planning education, pedagogy, higher education, affective learning, community engagement

Indigenous Planning Teachings in a Colonial World

Abstract ID: 1843.0.0.756.2025

Track 10: Planning Education, Process(es) and Law

Roundtable Submission, Topical Discussions

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Indigenous peoples everywhere have been stewarding their lands and resources, planning their communities, and passing on their knowledges for millenia. In this roundtable, Indigenous planning scholars and educators offer insight into the continuous challenges and contradictions Indigenous educators face when teaching about Indigenous praxis in colonized planning contexts (such as the unique challenges Indigenous communities face due to land tenure). We will use a facilitated discussion to explore ways to train a new generation of planning professionals - both Indigenous and non-Indigenous learners - to work in better partnership with Indigenous peoples, Nations and organizations. Particularly, we pay attention to some of the Indigenous pedagogies, knowledges, methods and principles used by educators to counter conventional planning curriculum. With experience grounded in their work in planning schools in different geographies, the participants discuss the importance of land-based and community learning, somatic practice, oral traditions (and more!) in Indigenous planning learning spaces. After the facilitated discussion, the audience will be invited to participate in a broader discussion about Indigenous planning education in a time of great uncertainty.

Citations:

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- Jojola, T. (2008). Indigenous planning—An emerging context. *Canadian Journal of Urban Research*, 17(1), 37-47.
- Lopez-Huertas, M. J. (2025). Planning in Re-existence: Decolonial Cracks and Indigenous Futurities. *Journal of Planning Education and Research*. <https://journals.sagepub.com/eprint/RJZPZGC8AG9ZT58YSKKD/full>
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Key Words: Indigenous, planning, pedagogy, knowledges, education

Making Learning Outcomes Our Own: Debating the Use and Value of Program-Level Learning Outcomes

Abstract ID: 1843.0.0.751.2025

Track 10: Planning Education, Process(es) and Law

Roundtable Submission, Facilitated Debates

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Current accreditation standards require undergraduate and graduate programs in urban planning to define and measure program-level learning outcomes (PLOs). Most recently, standards have changed to require direct measurement, sparking the creation of many diverse systems of assessment (Goldman, 2023). A recent commentary by Ann Forsyth (2025) called for abolishing PLOs entirely, and also proposed a set of alternative approaches to measuring PLOs to reduce the burdens on academic programs.

The purpose of this roundtable is to learn how a diverse set of programs have implemented PLOs, hear faculty's honest perspectives on their value, and debate the path forward for our field. Led by faculty not formally involved in the Planning Accreditation Board, the goal is to foster a robust exchange of views for how learning outcomes and the broader accreditation standards should foster academic excellence, avoid burdensome or unproductive procedures, and advance academic program interests.

Citations:

- Forsyth, A. (2025). Daring to Stop: Challenging Program-Level Learning Outcome Measurement in Urban Planning Accreditation. *Journal of Planning Education and Research*.
<https://doi.org/10.1177/0739456X251314198>
- Goldman Laurie S. 2023. "Are They Learning What We're Teaching? "
<https://www.planningaccreditationboard.org/wp-content/uploads/2023/10/OutcomesAssessmentTraining.pdf>.
- Németh Jeremy, Long Judith Grant. 2012. "Assessing Learning Outcomes in U.S. Planning Studio Courses." *Journal of Planning Education and Research* 32 (4): 476–90.

Key Words: Learning Outcomes, Planning Pedagogy

Next-Gen Planning Education: AI-Powered, Online, and Asynchronous

Abstract ID: 1843.0.0.759.2025

Track 10: Planning Education, Process(es) and Law

Roundtable Submission, Topical Discussions

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Planning education is entering a new era—one where artificial intelligence (AI), online platforms, and flexible formats are reshaping how we teach, learn, and engage. As programs expand hybrid and fully online offerings, a key challenge emerges: how do we deliver skills-based courses in digital and asynchronous formats without losing the richness of interactivity, critical thinking, and practical application?

This roundtable brings together faculty who are leading the way in designing future-ready planning curricula. From AI-assisted design and visualization to asynchronous simulations and cloud-based tools, we'll explore how digital innovation is enhancing core courses, urban design studios, and so on.

Panelists will share practical strategies for using modular content, AI-powered feedback systems, and interactive web tools to create engaging, project-based learning experiences—no matter the delivery format. We'll also dive into cutting-edge practices, including using customized ChatGPT models to assess student proposals and provide real-time feedback. Looking ahead, we'll explore the untapped potential of Large Language Models for planning education—from policy ideation to scenario-building and beyond.

Join us for a lively and forward-thinking conversation on what it means to prepare the next generation of planners in a world where classrooms are virtual, tools are intelligent, and the possibilities are wide open.

Citations:

- Wang, Wanyu, and Jesse Rodgers. "Online Teaching in Planning Education: Lessons Learned from the COVID-19 Experience." *Journal of Planning Education and Research* (2020). <https://doi.org/10.1177/0739456X20964563>.
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- Holmes, Wayne, Maya Bialik, and Charles Fadel. *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Boston: Center for Curriculum Redesign, 2019. <https://curriculumredesign.org>.
- Fareri, Andrea, and Claudio Paris. "Rethinking Planning Education with AI and Big Data: New Tools, New Skills, New Challenges." *Urban Planning* 8, no. 1 (2023): 216–227. <https://doi.org/10.17645/up.v8i1.6255>.
- Brodie, Carolyn, and David McNally. "Artificial Intelligence and Education: Will Technology Reshape the Planning Classroom?" *Planning Theory & Practice* 23, no. 3 (2022): 472–489. <https://doi.org/10.1080/14649357.2022.2072631>.

Key Words: Education, Online, Hybrid, Asynchronous, Artificial Intelligence

Preparing the Next Generation: Encouraging AICP Participation Among Planning Students

Abstract ID: 1843.0.0.728.2025

Track 10: Planning Education, Process(es) and Law

Roundtable Submission, Topical Discussions

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This roundtable explores how accredited planning programs can support and increase participation in the American Institute of Certified Planners (AICP) exam among students and recent graduates. As planning education evolves to meet the demands of the profession, certification is becoming an increasingly important credential for students entering the field. In this session, we highlight how students themselves are creating a culture of support around AICP prep—organizing study groups, peer mentoring, and information sessions. We'll share examples from planning programs that have actively encouraged AICP engagement through curriculum integration, advising, and professional development efforts. We will also share the efforts of APA in these endeavors.

Our goal is to facilitate a collaborative conversation on what's working, what challenges persist, and how we can collectively improve access and participation in the AICP exam process. Participants are invited to share their own experiences and learn from others, while also identifying ways that ACSPP institutions can support certification as part of a broader professionalization strategy. We hope to gather examples from several schools and generate recommendations for wider adoption across planning programs.

Citations:

- American Planning Association (APA). 2022. AICP Candidate Pilot Program Evaluation. <https://www.planning.org>.
- Brodie, Julie, and Thomas Oxford. 2017. "Supporting Student Success Through AICP Candidate Pilot Programs." *Planning Magazine*, March. <https://www.planning.org/planning/2017/mar/supporting-student-success/>.
- Edwards, Mary M., and Lisa K. Bates. 2011. "Planning's Core Curriculum: Knowledge, Practice, and Responsibility." *Journal of Planning Education and Research* 31 (2): 172–183. <https://doi.org/10.1177/0739456X10394411>.
- Laurian, Lucie. 2009. "Trust in Planning: Theoretical and Practical Considerations for Participatory and Deliberative Planning." *Planning Theory & Practice* 10 (3): 369–385. <https://doi.org/10.1080/14649350903229826>.
- Sanchez, Thomas W. 2021. "Planning Accreditation, Employment Outcomes, and Equity." *Journal of Planning Education and Research*. <https://doi.org/10.1177/0739456X211035701>.

Key Words: AICP, Planning education, Integration, Practice, Certifications

Under Review: Addressing Critical Challenges in Urban Planning Journals

Abstract ID: 1843.0.0.100.2025

Track 10: Planning Education, Process(es) and Law

Roundtable Submission, Topical Discussions

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Ann Forsyth [Harvard University] aforsyth@gsd.harvard.edu

Urban planning academics and the journals they rely on for disseminating scholarship face an increasingly complex and rapidly changing publishing landscape. This panel will explore several critical challenges that directly affect both faculty and journal editors, including the growing difficulty in securing qualified reviewers, the surge in manuscript submissions and resulting reviewer fatigue has placed strain on the peer-review system. This raises concerns about timely publication and the overall quality of reviews, and ultimately, the quality of publications. Additionally, the recent proliferation of academic journals presents further complications, including maintaining high-quality standards, ensuring meaningful readership, and achieving sufficient scholarly impact. The expansion of available publication outlets, combined with citation inflation, complicates evaluations of scholarly contributions, which are important for faculty making strategic publishing choices and for institutions assessing publications in promotion and tenure decisions. Experienced panelists, including journal editors and senior faculty members with extensive knowledge of these dynamics, will lead discussions on practical approaches and innovative strategies to address these issues. Audience members will be actively invited to engage with panelists, share their experiences, and contribute to a vibrant exchange of ideas aimed at ensuring the ongoing rigor, relevance, and accessibility of urban planning scholarship.

Citations:

- Franck, G. (1999). Scientific communication—a vanity fair? *Science*, 286(5437), 53-55.
<https://doi.org/10.1126/science.286.5437.53>
- Edwards, M. A., & Roy, S. (2017). Academic research in the 21st century: Maintaining scientific integrity in a climate of perverse incentives and hypercompetition. *Environmental Engineering Science*, 34(1), 51–61.
<https://doi.org/10.1089/ees.2016.0223>
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Key Words: planning, research, publications, scholarship

Track 10 Workshops

Inclusive Pedagogical Techniques and Applied, Experiential Learning

Abstract ID: 1841.0.0.525.2025

Track 10: Planning Education, Process(es) and Law

Professional Development Workshop Submission

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Planning issue: Planning education and practice occur through close, sustained, and at times contested engagements involving instructors, students, course materials, and communities and as such, the classroom can mirror the real-world experiences of planners. The imperative for applied-experiential planning education is longstanding and connected to attempts in the field to integrate planning theory and practice (Peattie, 1969: 52–54; Friedman and Hudson, 1974), teach professional skills, build communicative practice, and directly address issues of power and knowing. The contemporary context necessitates a renewed engagement with engaged instruction, particularly geared toward equitable and inclusive pedagogies that acknowledge complex student needs, professional anxieties, and ethical implications related to planning. This workshop explores pedagogical innovations in planning education with a particular focus on applied-experiential learning techniques (Tyson and Low, 1987). We will present new pedagogical approaches, course materials, and practices that pair scholarly engagements with planning pedagogy, course materials, and the testing and application of classroom techniques. The workshop will build in extensive time for participant feedback, comments, questions and answers, and space for other attendees to share pedagogical innovations of their own, and associated reflections on payoffs and challenges. To that end, attendees will be asked to bring to the workshop one classroom activity, material, technique, or approach that they might like to share.

Workshop approach and methodology: The workshop will open with two short presentations by Profs. Stefan Chavez-Norgaard and Jane Rongerude. These presentations will situate applied, experiential learning in planning within these faculty members' literary and scholarly inspirations and include a high-level discussion of how each faculty member integrates applied, experiential learning techniques and professional soft skills into their classrooms. Prof. Chavez-Norgaard will open with a short, 10-minute intervention focused on client-based partnerships in the classroom, discussing a Winter 2026 course partnership with Lincoln Institute of Land Policy. Prof. Rongerude will follow with a short, 10-minute intervention focused on peer assessment and her scholarship focused on improving fairness and utility of peer assessment processes. Following opening framing presentations, both Prof. Rongerude and Prof. Chavez-Norgaard will share short class micro-interventions and solicit feedback from other workshop attendees. In a final portion of the workshop, attendees will share their own pedagogical innovations, solicit comments and questions, and discuss the benefits and drawbacks of these approaches to teaching.

Findings and Implications: We expect that the workshop will be tremendously useful to ourselves and to other attendees, in identifying novel teaching practices and approaches, discussing what works and does not work for students at various levels (i.e. master's programs, undergraduate programs), and creating a community of practice of planning scholars committed to inclusive pedagogy and to applied, experiential learning in varied course

contexts.

Implications: We hope to create a forum of scholars committed to inclusive pedagogy and to bridging the ‘knowing-doing’ gap between planning theory and practice. To that end, we seek to seed ideas for research on planning pedagogy that can be tested and refined through classroom settings, forming the basis for a future academic journal article special issue with contributions focused on the theory, practice, and results of innovative experiential learning and applied techniques in planning. We envision a forum that could include, but would not be limited to, a special-issue engagement in the *Journal of Planning Education and Research*, or *JPER*, for example.

What will the audience learn from your workshop: Workshop attendees will learn about planning education tools that can structure relationships between planning programs and practicing planners from the public, private, and civil-society sectors. They will experience and pilot teaching and learning tools and offer feedback to planning scholars.

Reminders for attendees: Attendees will be asked to bring to the workshop one classroom activity, material, technique, or approach that they might like to share.

Citations:

- Friedmann, J., & Hudson, B. (1974). Knowledge and Action: A Guide to Planning Theory. *Journal of the American Institute of Planners*, 40(1), 2–16. <https://doi.org/10.1080/01944367408977442>.
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- Peattie, L. R. (1969). Teaching and learning for planners. *Journal of the American Institute of Planners*, 35(1), 52–54. <https://doi.org/10.1080/01944366908977829>.
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- Su, C., & Jagninski, I. (2013). From Toxic Tours to Growing the Grassroots: Tensions in Critical Pedagogy and Community Development. *Journal of Urban Affairs*, 35(1), 103–121. <https://doi.org/10.1111/juaf.12003>.

Key Words: Planning education, Inclusive pedagogy, Experiential learning, Community engagement, Professional development

Using Art in Planning Pedagogy and Practice

Abstract ID: 1841.0.0.687.2025

Track 10: Planning Education, Process(es) and Law

Professional Development Workshop Submission

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Planning decisions often respond to the emotional reactions of people to their environments. Proposed ‘efficient’ or ‘logical’ urban solutions sometimes evoke outrage and catalyze resistance from citizens. Planning with care requires planners to have the skills to understand peoples’ affective (emotional) and embodied experiences of the city. Creative practice, including art, performance, and games, can be used to engage both communities and policymakers in responding to urgent urban challenges, allowing planners to effectively and ethically support inclusive, just communities.

Planning practitioners, researchers, and educators are increasingly valuing the skills required to engage with the affective responses of community members, as well as realizing the importance of attending to the affective experiences of planning students. Engaging with the ‘affective domain’ in shared spaces such as community meetings and classrooms can be uncomfortable or unfamiliar (Sandercock, 2003), and planning pedagogy increasingly demands that we build affect-sensitive competencies for ourselves and among our students. Scholarship in and beyond the domain of planning has illustrated how art can be used to access sensitive topics (Kocsis, 2024), to connect with vulnerable populations (Leavey, 2017), to address power imbalances (Finely, 2008), and to support the decolonization of knowledge (Mignolo, 2009). The use of art in planning scholarship and practice is growing, while formal training opportunities for planners, both practitioners and teachers, are scarce.

To further support the discipline’s ability to engage with the affective domain, in this workshop planning scholars with extensive arts-based research experience will lead participants through a three-part learning activity:

Exploring the value of arts-based research for planning: We will present the theoretical foundations for the use of art in planning pedagogy and practice, grounded in our emergent work on the role of emotion and embodiment in planning. (30 min)

Experiencing the value of arts-based research for planning: Participants will rotate through 2-3 different stations (stations will include digital art, photo-based methods, drawing based methods, games, and performance options) at which they will engage in an arts-based activity to learn how these methods feel from the perspective of students or community members. (30 min)

Planning for the use of arts-based research in planning: Workshop leaders will facilitate small-group discussion and engagement with arts-based methods. Participants will be invited to think through how they would use arts-based methods in either research, practice, or education. Each group will be asked to draw on the methods introduced through stage 2 of the workshop and develop a proposed arts-based activity for either community engagement,

teaching or research, thinking through the logistical, conceptual and ethical considerations of using different types of art in different contexts. (30 min)

Participants will leave the workshop with a basic understanding of the philosophical underpinnings of the use of art for paying attention to affective experiences in planning. They will be provided with a list of resources for further reading on the connections between art, affect and planning. They will gain first hand experience participating in arts-based activities, and then apply that experience in the final activity, in which they develop blueprints for the use of arts based methods in their own work. Participants will also be invited to join a network of planning scholars working in the arts/affect space within and beyond planning, helping to grow the critical mass of planning scholars with arts experience.

What will the audience learn from your workshop: Participants will learn how art can be used to engage with affective experiences in planning. They will gain first hand experience participating in arts-based activities. Participants will develop blueprints for the use of arts-based methods in their own work.

Reminders for attendees: Art materials will be provided. Participants interested in exploring digital methods should bring a charged and wifi connected tablet or laptop. Prepare 1 sentence describing the context in which you're like to use art in your work.

Citations:

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- Leavy, Patricia. 2017. Handbook of arts-based research: Guilford Publications.
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- Mignolo, Walter D. (2009). "Epistemic disobedience, independent thought and decolonial freedom." Theory, culture & society 26 (7-8):159-181.
- Sandercock, L. 2003. Cosmopolis 2: Mongrel Cities of the 21st Century. London: Continuum.

Key Words: Arts-based methods, Affect, decolonization, community engagement, planning pedagogy

Working with Journalists: How to Ensure that Your Message Gets Out

Abstract ID: 1841.0.0.888.2025

Track 10: Planning Education, Process(es) and Law

Professional Development Workshop Submission

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The decline of the local media and its replacement with social media presents a challenge for planners. Local journalism has variously been described as watchdogs of our civic institutions, a check on government power, and a part of our social capital. Many of the activities of planners have a local impact on a single neighborhood or the community. Yet the general public does not always understand the planning process or the importance of local planning efforts. To communicate that message, planning faculty are often called upon by journalists in mainstream media – television, radio and podcasters, and decreasingly, newspapers and magazines – to present and interpret the events happening in a community. In this capacity, planners are often called up to provide information that serves the public interest by educating the public about issues of concern to the community. While planning faculty have an opportunity to present our message via social media, that message is often sent to an echo chamber or worse it can reinforce the polarization of the community over certain issues. The mainstream media remains a viable option for getting out the message about the role of planning in the community. In this workshop we will explore the relationship between journalists and planning faculty to understand how journalists think about planning issues. We will consider how trends in journalism affect the role of journalism at the local level. We will explore how planners can become partners with local journalists to get out the message about the importance of urban issues and how to address them in the context of the local planning process. We will address how to ensure that our research and teaching is incorporated into public interest journalism instead of contributing to polarization. We will explore the challenges of crafting a message for a general audience while ensuring that the journalist can communicate it effectively to the public. Finally, we will allow some time for participants to explore how they could be a more effectively communicate with journalists to ensure that public understands the planning processes and outcomes and their impact on the community.

What will the audience learn from your workshop: We will explore (1) the relationship between journalists and planning faculty; (2) how planners can become partners with local journalists to get out the message about the importance of urban planning; and (3) explore how they could be a more effectively communicate with journalists.

Reminders for attendees: Bring along your stories - both your successes and failures - about working with journalists. This will be an interactive workshop.

Citations:

- Kamurski, L., Arena, V., Drijfhout, Y., Mendez, C., Pach, P., & Piskorek, L. (2023). The Impact of Digital Media on Urban Discourse: The Journalist's Perspective. *International Journal of E-Planning Research (IJEPR)*, 12, 1, pp. 1-20. DOI: 10.4018/IJEPR.326059
- Jankowski, A. (2024) Community Journalism Playbook: Reporting on Urban Planning in Your Detroit Neighborhood. [Master's Thesis, University of Michigan] <https://taubmancollege.umich.edu/student-work/the-community-journalism-playbook-reporting-on-urban-planning-in-your-detroit-neighborhood/>
- Richards, I. (2012). Beyond City Limits: Regional Journalism and Social Capital. *Journalism*. 14, 5 <https://doi.org/10.1177/1464884912453280>

Key Words: journalism, communications strategies

Track 10 Individual Paper Presentations

Cultivating Mindful, Creative, and Analytical Skills for Participatory Modeling and Planning

Abstract ID: 1844.0.0.104.2025

Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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Participatory modeling (PM) is a collaborative approach to building and using models (e.g., photography, mapping, causal loop diagramming, fuzzy cognitive mapping, system dynamics modeling, and agent-based modeling) to understand, design and test solutions to a complex problem, for which a desirable action is hard to define and coordinate. Engaging in PM helps elicit diverse stakeholder knowledge and collaboratively produce solutions; this process can strengthen relationship-building, empathy, trust, systems thinking, and collective agency for planning and decision-making.

The complexity and wide range of the problems addressed through PM cannot be studied within a discipline alone. Standardizing an approach across a wide range of theoretical frameworks, methods, and applications remains elusive and thus difficult to teach and to learn. Additionally, while there is increasing recognition of the critical role of diverse and non-modeling stakeholders in collaborative planning processes, PM and community engagement practices have not fully coalesced. PM tends to focus on the goals of interdisciplinary knowledge co-production for decision support, while community engagement tends to focus on ensuring a representative and ethical engagement, with or without scientific support. The inherent difficulty of collaboratively handling complexity makes PM uncertain and open-ended, creating significant challenges in the training of future PM practitioners and researchers. This uncertainty typically creates discomfort and anxiety among participants, hampering social learning and leading to disenchantment and disengagement.

Facilitation is critical in supporting continued productive engagement through the challenging aspects of the PM process: conceptualization and sense-making, understanding and management of uncertainty, and conflicting values and goals. The skills needed for the task range from active listening, to synthesizing diverse views, to moderating equitable, honest and respectful interactions, all while keeping the collective on task within the resource and time constraints. If PM practice is not attentive to different voices, to the importance of listening, and to the positionality of the facilitator and engaged stakeholders, the modeling efforts may not lead to the social learning necessary for transformative changes in policy and behavior. Understanding both how facilitation can enhance the participatory experience and how specific modeling techniques (tools and conceptualization approaches) can leverage joint learning and solution-building for complex problems are critical to inform the training of future PM practitioners and scholars.

This paper proposes a pedagogical framework for PM training that builds on the practice of mindfulness, improv theater, and conceptualization of complexity to cultivate the skills necessary for the successful support of the joint modeling and planning effort. Central to this effort is the goal to purposefully include stakeholders' diverse values and knowledge, designing models as "glass boxes" that are more transparent to both inform and interpret by

diverse participants, and creating an environment of playful collaborative exploration and creativity. We provide a qualitative analysis of students' uptake and integration of facilitation skills from data collected during a PM course taught by the lead author, including students' reflection on their learning journey, as well as anonymous course evaluations. We observe that systematically cultivating mindfulness and improvisational skills as part of the class greatly enhanced the learning experience and confidence that students felt in their ability to co-design and facilitate PM processes. While the ability to conceptualize complexity with different tools is critical, that alone was not enough for students to effectively deal with the many moving parts and inevitable uncertainty of a PM process. We conclude with implications for training.

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Key Words: Participatory modeling, Meditation, Improv theater, Facilitation, Pedagogy

Downscaling Transformation in the Classroom to Prepare Future Practitioners

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Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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Uncovering the complexity that planners navigate in their praxis can foster a sense of defeat among future practitioners about the transformative potential of the profession. For some planning students, creating change through planning systems feels like “10 steps forward and 8 steps back” because of the depth of polarization among publics, the complexity imbued in institutions, and the extreme power held in the hands of the few. In this context, planning educators must balance introducing students to the nexus of challenges that underpin planning praxis without fostering overwhelming defeat about future practitioners’ ability to advance transformative outcomes. One pedagogical approach planning educators have adopted to support this balancing act is community-engaged learning (Harwood & Zapata, 2014; Miller, 2014). Community-engaged learning (CEL) commonly refers to a well-scoped project that asks students to engage with, and often devise a response to, a problem a community partner is actively facing (Taylor et al., 2016). Despite incorporating CEL into planning pedagogy, its impact on training future practitioners for the “chaotic world of uncertainties” they will inherit remains underexplored (Rooij & Frank, 2016, p. 482).

I ask: To what extent does community-engaged learning in planning pedagogy train students with capabilities that support change-making on complex challenges? This paper explores this question via a mixed-methods study of CEL delivered in undergraduate planning courses at the University of British Columbia in Vancouver, B.C. I conducted an abductive analysis of qualitative data gathered through semi-structured interviews with undergraduate students, classroom observations, and students’ final assignments in six courses.

The results show the extent to which CEL introduces students to how planners navigate plurality, institutional complexity, and power dynamics in pursuit of transformative outcomes. As students actively contend with this structural nexus in their CEL project, I explain the mechanisms for moving students through a transformative learning process, where their prior understanding of the discipline is called into question and reformulated as they gather new information. Through collaboration and feedback, community partners show students what is and is not possible to achieve in their praxis, a dynamic I refer to as ‘bumping into constraints.’ Bumping into constraints reveals that the avenues for change students once believed in may not be viable or at least are more complex than they initially thought. Such realizations downscale students’ understanding of transformative planning praxis and reveal that most transformation is made up of incremental actions. Thus, in this paper, I argue CEL has the potential to enhance future planning praxis by creating opportunities for students to build the foundations for navigating institutionally complex, pluralistic, and power-laden structures to create radically incremental change. However, if the mechanisms of CEL are not well understood and utilized, this potential will be lost.

This paper makes three contributions. First, by systematically examining the impact of CEL in planning pedagogy, I advance ongoing conversations in planning education that explore how educators can equip students to become impactful future practitioners (Keyes & Fischer, 2024). Second, I advance a connection between transformative learning theory and transformative planning praxis by showing that through CEL, students learn that transformation is a radically oriented but incremental process. Third, I contribute to professional development efforts in pedagogy and practice by providing empirically based recommendations for planning education to produce more aptly trained practitioners for the workforce. Together, these insights contribute to conversations in planning theory and pedagogy about how to prepare future practitioners for transformative praxis.

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Key Words: transformative praxis, community-engaged, future practitioners, professionalization

Environmental Planning Education in US Universities: Pedagogies and Gaps Amidst Emerging Challenges

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Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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Environmental planning is a critical subfield in planning education, equipping future practitioners with the skills to address pressing environmental challenges. In the context of changing environmental and sustainability issues, the planning pedagogy in higher education in this field remains underexplored. This study investigates the teaching and learning approaches of environmental planning in U.S. universities. Based on Bloom's Taxonomy (1956), Quality Matters Standards (2018), Fink's Taxonomy (2013), and best teaching practices, this study addresses two primary questions: (1) How do current environmental planning courses align with pedagogical frameworks to promote effective learning outcomes and students' experiences? (2) How do higher education environmental planning courses empower students to deal with emerging environmental challenges?

The research uses a structured two-tier process to analyze 60 environmental planning courses from 32 undergraduate and 28 graduate planning programs in the United States. First, programs accredited by the Planning Accreditation Board (PAB) were identified. Second, environmental planning courses within the program were assessed for course objectives, instructional methods, assessment strategies, and student engagement practices using six key dimensions (Fink, 2013): Foundational Knowledge, Application, Integration, Human Dimension, Caring, and Learning How to Learn.

The findings reveal that Foundational Knowledge and Integration are the strongest course components. However, Application, Human Dimension, Caring, and Learn How to Learn exhibit notable gaps, indicating that while students gain a strong conceptual base, the practical and reflective dimensions are underdeveloped across courses. Within these six dimensions, further analysis of specific teaching practices (Flaudi, 2013; Hopkinson, 2010) highlights strengths in teaching clarity and organization and alignment of assessments with higher-order Bloom's Taxonomy skills. Including interdisciplinary content and engagement through fieldwork and community projects are less consistent in university-level environmental planning courses. Conversely, problem-based learning and flexibility remain rare among them, underscoring a need for more adaptable, student-centered approaches.

This study proposes a framework for environmental planning pedagogy, highlighting exemplary practices while identifying areas for improvement. It serves as a guide for educators to strengthen course design and practice-ready graduates, with findings that hold significant implications in refining curricula to equip students with the essential skills needed to tackle contemporary environmental planning challenges in the United States and beyond.

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Key Words: Environmental planning, Pedagogy, Curriculum analysis, Bloom's taxonomy, Fink's taxonomy

Market-driven Curriculum Design and Assessment in Planning Education for Improved Employability

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Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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The Association of Collegiate Schools of Planning promotes that member schools instill in future planners a deep commitment to serving the public interest, strong Planning knowledge, technical as well as people skills, and values that they will need in practice, as put forth in periodically-revised Accreditation Standards. The knowledge and skills that are needed as professionals in the field are constantly evolving at a fast pace affecting what the job market demands of graduates from Planning Accreditation Board (PAB) accredited programs. Various programs have been creative in devising ways to respond to market needs and improve graduate employability. The University of Puerto Rico Graduate School of Planning (UPR-GSP) is among these.

In 2005-2006 the UPR-GSP designed, conducted and instituted a market study to determine the knowledge, skills and values that the local job market was demanding from its graduates. It included the development of student, alumni/ae and employer databases as well as drafting protocols and forms for interviews, surveys and focus groups that would take place every 5-to-7 years, contributing to the School's self-study required for accreditation. The findings of each study round enabled the Program to draft (2016) and implement (2019) a new curriculum with significant changes in graduate competence profile, required content, learning experiences, and theory-practice balance. As a crucial component of the new curriculum, the School designed an Assessment Plan, built over similar principles of responsiveness to market needs, to measure Program Effectiveness, Learning Outcomes and Labor-Market Readiness. Thus, it feeds from the periodical market study with its surveys, interviews and focus group to students, alumni/ae and employers. However, it also includes the application of a 37-indicator rubric organized into eight learning domains that captures the knowledge, skills and values of the UPR-GSP Student Competence Profile as a result of the triangulation of PAB Accreditation Standards; Institutional Vision, Values and Strategies; and Market trends. The Plan contains at least two assessment activities for each domain. It is revised every three years and uses an online platform for tracking progress over time. Now it is being used to evaluate the effectiveness of specific core courses, to differentiate the way in which the topics are addressed through the curricular sequences and to identify topics to be explored in elective courses.

The UPR-GSP Masters in Planning Program has proven very effective, attaining 100% of achievement in all measured learning domains as well as 100% employability within one year from graduation, with 97% in planning and planning-related jobs. This paper documents the case as a noteworthy practice for Masters in Planning Curricular Design and Assessment Tool. It seeks to identify What are the critical components in meeting market demands from the curricular design standpoint in Planning? What stakeholder groups need to participate in such design approach? How do curricular ties to market needs affect graduate job readiness and employability? What role does assessment tools play in a Planning Program's ability to quickly adapt to changes in market trends? It will analyze the results of the UPR-GSP's market studies and learning assessment outcomes from 2005-2006 to present and test for a correlation with curricular changes. This will be complemented with interviews with market study participants, particularly Program graduates and their employers, to evaluate the effectiveness of the actions that UPR-GSP has taken. The goal is to identify lessons learned that can be adapted and implemented by other PAB-Accredited Masters in Planning Programs.

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Key Words: Planning Education, Curriculum Design, Learning Assessment, Competence Profile, Employability

Mediating Between Technical Possibilities and Democratic Values: Planning Education in the Age of AI

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Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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The advent of generative AI, particularly Large Language Models (LLMs), signifies a transformative moment in planning education and practice; however, this is merely the latest chapter in the evolving relationship between planning and technology. Throughout modern planning history, there has been tension between adopting cutting-edge tools and ensuring equitable access. From early concerns about large-scale modeling empowering technical elites (Lee, 1973) to contemporary debates regarding algorithmic bias (Acolin & Kim, 2024), planning has struggled to harness the benefits of technology while alleviating its potential to reinforce existing inequities (Kontokosta, 2021). Throughout this technological evolution, planning education has served as both a gatekeeper and catalyst, significantly influencing which technologies the profession adopts and shaping how these tools are deployed to serve the public interest. Unlike previous technological innovations, LLMs have the potential to impact every aspect of planning - from analysis to communication to public engagement. At the same time, this technology can be accessed by both practitioners and community members, potentially altering dynamics between these groups in ways that either democratize planning knowledge or create new forms of technical centralization.

This paper addresses a critical research question: How can planning education integrate LLMs while preserving planning's core values and enhancing its unique disciplinary perspective? To answer this, it is important to first understand planning education's responses to previous technological advancements. Our research combines a historical analysis of planning's technology adoption along with the evolution of planning education standards and requirements, revealing patterns that can inform current approaches to LLM integration in planning curricula.

Our findings trace the field's adoption of technologies from the 1950s mainframe era to the advent of GIS, followed by the adoption of web-based services through to AI, machine learning, and LLMs. This historical analysis reveals that planning's engagement with technological innovation has consistently featured three critical dynamics: the gradual democratization of technology, planners' role in guiding technology using equity-centered frameworks, and planning schools' adoption of new technologies to prepare students for the real-world applications of emerging tools.

Using this analysis in relationship with Bloom's Taxonomy and Freire's principles of humanizing education, this paper outlines the importance of integrating LLMs into education while preserving and advancing planning's commitment to serving the public interest. It positions planners as essential guides in technological application, following the historical principle that technology should address community-defined problems rather than dictate the planning agenda (Klosterman, 1997). The future of planning technology depends not only on the tools we create but also on how we implement them—a question that requires planning's unique perspective on the relationship between technical means and democratic ends. This research concludes that planning education stands at a critical juncture where its approach to LLMs will significantly shape whether these technologies enhance planning's values or further entrench technocratic practices in the profession.

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Key Words: artificial intelligence, planning education, large language models, technology ethics, planning history

Mind the Gap: Planning, Plans and Not So Much Progress

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Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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A primary objective of planning is to implement policies and practices that enhance our quality of life. Understanding whether we have made progress in doing so is the focus of evaluation against criteria and reflection on experiences. In the United States, community comprehensive plans are an expression of community intention concerning land use. They typically acknowledge current conditions, goals a community wants to achieve in areas such as housing or open space or mobility, and policies to support such achievement. These plans guide planning-related decisions until changes in conditions, goals, and/or policies necessitate a new plan. Understanding what makes a good plan is a focus of the plan evaluation literature and assumes a nexus between plan document and on the ground outcome. Most evaluative studies provide a cross-sectional assessment, delivering insights into the state of practice at a particular point in time.

Although the plan evaluation literature is extensive, there is only a small subset of studies that provide longitudinal insights regarding plan quality progression. Longitudinal plan evaluation studies are opportunities to assess learning from previous planning efforts, providing practitioners with insights from examining the impact of prior policies on existing outcomes. There have been five longitudinal plan evaluation studies since 2003 and their outcomes are inconsistent, highlighting both gains and losses in plan scores over time (Brody, 2003; Conroy & Wilson, 2023; Lukasiewicz et al., 2020; Lyles et al. 2023, Stevens & Senbel, 2017). The variation in outcomes highlights potentially unexplored influences on plan content during the preparation process.

Influences on interstitial plan development provide a key area for understanding the longitudinal changes in plan scores. Brody (2003) argues that “plans adapt over time to the needs, knowledge base, and experiences of a particular community” (p. 191) and notes exogenous factors and engagement as influencing “plan learning” for hazard mitigation components of comprehensive plans. Implementation success is also a potential driver of score changes. What remains unexplored is the role of the prior plan as a reflective target in the plan development process. Therefore, the research question that guides this work is: How do planners use prior plans to inform the planning process for new plans?

To address this question, I begin with an overview of the role of reflection and learning in planning processes and provide a conceptual framework accounting for its potential influence. I then present the two-phase methodology used to gain insight to respond to the research question involving a survey and interviews of planners in 28 communities whose plans were the target of the Conroy & Wilson (2023) study. Using a conceptual framework of plan influences, survey data, interviews with planning professionals, and thematic analysis I find that while prior plans serve as reference points, planners prioritize engagement and emerging policy concerns over reflection on past plans and processes. Additionally, structural constraints such as multiple and concurrent planning processes limit reflective practices. I highlight the need for intentional reflection strategies and procedural opportunities to improve planning outcomes. This study is important for planning educators and practitioners to understand the role reflection and learning play in plan-making.

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Key Words: reflective practice, plan evaluation, planning process, sustainable development

Paralysis or Empowerment: Climate Anxiety, Hope, and Action in Urban and Environmental Education

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Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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Climate change has emerged as a central component of curricula in urban and environmental planning programs, but our understanding of how climate education impacts student mental health, wellbeing, and behavior remains limited. Learning about the environmental drivers, societal impacts, and political responses to climate change can be overwhelming for many students, but it can also spur students to engage in pro-environmental behavior and political action (Moore et al., 2019; Short, 2010). In fact, climate anxiety and hope can both impede or facilitate the transition from learning to doing (Anderson et al., 2013; Short, 2010). Given that many young adults are experiencing climate anxiety (Hickman et al., 2021), it is important to assess whether students' cognitive-emotional response to the climate crisis is resulting in paralysis or empowerment.

We address this concern by analyzing survey data gathered in undergraduate courses on urban and environmental subjects at the University of California, Irvine to address the following research questions:

- How are students' experiences of climate anxiety and climate hope associated with their engagement in different types of climate action?
- What are the implications for urban and environmental education?

Survey questions included the following: cognitive-emotional responses to climate change, associated physiological symptoms (e.g., difficulty sleeping or concentrating), and impacts on work and relationships; beliefs about potential pathways to climate solutions and the ability to pursue them successfully; self-reported engagement in a range of pro-environmental behaviors; and self-assessed knowledge of climate science and policy.

Exploratory factor analysis was conducted to reduce survey items into composite variables. Climate anxiety, climate hope, and climate literacy all emerged as distinct factors, along with three types of climate action: individual behavioral change (i.e., consumer behavior), discussing climate change, and political action. Multivariate regression was used to assess and compare the association of climate anxiety and climate hope with the three types of climate action, while controlling for climate literacy, STEM majors, previous environmental coursework, gender, and race.

Results indicate that educators within planning and environmental programs need not be anxious about climate anxiety among their students. Many students experience both anxiety and hope simultaneously, indicating that one does not necessarily inhibit the other. Moreover, anxiety may actually be more productive than hope when it comes to empowering students to take various types of action on climate change. Climate hope is only significantly associated with individual behavioral change, while climate anxiety is significantly associated not only with individual behavioral change, but also with discussing climate change with others and engaging in political action. Engagement in a wider range of climate actions may take a greater emotional toll on students than individual behavioral change alone. However, anxiety may also motivate students to move beyond incremental changes to private consumer behavior, pushing students to connect with others and engage in political action. While additional research is necessary to establish a direct causal link between climate anxiety, climate hope, and climate action, these results indicate that worrying, hoping, and doing can productively co-exist in university classrooms.

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Key Words: Climate action, Climate anxiety, Climate hope, Pedagogy

Planning through Community-University Partnership: A Meta-Analysis of EPIC-N Publications

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Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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University-community partnerships can play an important role in addressing local planning challenges aligned with global sustainability frameworks, especially for local government with limited resources. The Educational Partnerships for Innovation in Communities Network (EPIC-N) offers a structured approach to connect universities with communities to collaboratively address real-world planning challenges. Despite the history and number (~40 domestically) of EPIC-N programs, however, there remains a lack of synthesis on the types of projects these partnerships undertake, how these projects with the United Nations Sustainable Development Goals (SDGs, a metric EPIC-N uses), and the thematic priorities they represent. This research addresses that gap through a meta-analysis of publications discussing EPIC-N and EPIC-N projects. Given the limited literature, it uses projects done by multiple universities to represent the breadth of project emphases, and uses nine years of projects done through the University of Washington's Livable City Year (LCY) program as an example of longitudinal project emphases for comparison.

The research is guided by three core questions: What are the dominant themes across EPIC-N-affiliated projects? How are these projects aligned with the SDGs? And in what ways does LCY differ from or reflect broader EPIC-N patterns in terms of thematic focus and institutional orientation?

Peer-reviewed publications of EPIC-N programs and projects were reviewed and categorized according to thematic content, and SDG alignment. The analysis identified seven recurrent domains: urban governance and policy, food systems and urban health, community development and partnership, transportation and mobility innovation, environmental health, technology integration and smart cities, and urban sustainability and resilience. These categories served as a framework for comparing program emphases and for situating LCY within the broader network.

Preliminary findings suggest that while there is consistency in values—particularly around equity, sustainability, and applied research—programs diverge in focus depending on institutional context and local partnerships. Programs based in planning or public policy departments frequently emphasize governance, infrastructure, and land use, whereas others may focus more on education, technology, or public health. The LCY program, for example, reflects a particularly integrative approach, with an emphasis on governance, land use, and cross-sector collaboration across university and community stakeholders.

This study contributes to planning scholarship by offering empirical insight into how university-community partnerships are operationalized and how they engage with global development frameworks such as the SDGs. It also engages with broader debates on the role of universities in advancing urban innovation and sustainability transitions through interdisciplinary, place-based engagement (Evans, Karvonen, & Raven, 2016, p. 3; McCann & Ward, 2010, p. 176). This research builds on existing scholarship examining the role of higher education institutions in catalyzing sustainability transitions and multi-scalar community engagement (Brundiers & Wiek, 2011, p. 108; Wiek, Xiong, Brundiers, & van der Leeuw, 2014, p. 432). In addition to its academic contribution, the findings have practical relevance for institutions seeking to design or evaluate community partnership models. Understanding

cross-institutional trends and especially thematic gaps—particularly in relation to SDG alignment—can inform more intentional, equity-driven approaches to program design, local engagement, and policy collaboration.

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Key Words: Community Partnership, Urban Planning Education, Sustainable Development, EPIC-N

Preparing Planners for Emerging Issues: Adapting the Planning Curriculum for Distributed Work

Abstract ID: 1844.0.0.1084.2025

Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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Office-based work, the predominant economic activity in the post-industrial United States, is rapidly changing due to artificial intelligence (AI), automation, robotics, and distributed work arrangements, such as remote and hybrid work. Work is a crucial "spatiotemporal peg" that shapes overall spatial structure and activity-travel patterns (Ben-Elia et al. 2014).

Accordingly, hybrid and remote work, where employees work from diverse locations such as their homes, offices, and third places, at any time of day or night, have socio-spatial and economic consequences. For example, the shrinking spatial footprint of offices, rising office vacancy levels, increase in home-based working, and the migration of remote and hybrid workers to desirable alternative locations call for reimagining commercial real estate, local economic development, and housing practices in cities and metropolitan regions (Adikesavan, 2025).

Building on research about planning for the emerging geography of distributed work (Adikesavan and Ramasubramanian 2024; Zenkteler et al. 2019), this paper argues for adapting the planning curriculum to empower future planners with the tools and competencies for tackling the land use and policy planning shifts, challenges, and opportunities associated with distributed work. This assessment aligns with the American Planning Association and Lincoln Institute of Land Policy's 2023 and 2024 Trend Reports for Planners, which urge planners to prepare for the emerging impacts of distributed work on urban, suburban, and peri-urban areas.

This paper presents the findings of an online survey (N = 95) and semi-structured interviews (N = 15) conducted with US and Canadian planning instructors in the spring of 2025. The survey and interviews seek to understand:

- 1) How do planning instructors currently address planning for distributed work in their courses?
- 2) What are planning instructors' opinions on curricular concerns related to distributed work?

Examples of curricular concerns include, a) planning domains impacted by distributed work (land use, transportation, real estate development, local economic development, housing, public finance), b) appropriate learning unit (subtopic of a core course, standalone elective), c) level of education (undergraduate, graduate, or continuing education), d) mode of instruction (online, in person, blended), and e) timeline for curricular change (1-2 years, 3-4 years, more than five years).

The survey and interviews provide much-needed insights into the extent to which the impacts of distributed work on the built environment are currently addressed in planning programs, the planning domains affected by distributed work, and appropriate curricular choices for empowering future planners with the skills and competencies to formulate informed and nimble planning responses to distributed work. These insights are supplemented with pairwise Spearman correlation coefficients that estimate the relationship between instructors' opinions and their respective research interests, institutional affiliations, and professional backgrounds. Finally, the survey results and thematically analyzed interviews provide an evidence base for provoking discipline, program, and instructor-wide discussions and actions to adapt the planning curriculum and address the emerging socio-spatial and economic impacts of distributed work.

Citations:

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Key Words: Curricular Design, Work-Environment Ties, Future of Work, Mixed Methods

Professional Identity Formation in Planning Students

Abstract ID: 1844.0.0.856.2025

Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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Professional preparedness is an enduring concern in planning education (Argyris & Schon 1992; Greenlee et al. 2015). While students often equate professional preparedness with technical skill acquisition, planning educators recognize that affective dimensions, such as values, judgment, and behaviors, are necessary to become an effective practitioner (Greenlee et al. 2015; Forester 2013). Reflection plays a critical role, but planning educators need tools to support this emotional and intellectual development process, particularly as students confront the field's historical injustices and their implications for professional identity.

This paper introduces the Professional Identity Formation (PIF) framework to planning education, translates its key components for planning practice, and demonstrates its application by analyzing students' reflective essays. PIF is an iterative process through which students integrate the knowledge, skills, values, ethics, and behaviors of their profession into their pre-existing identity. PIF has emerged as a key outcome in medical education because a strong professional identity is associated with improved patient safety outcomes, lower levels of physician stress, and greater workforce retention (Fitzgerald 2020). This suggests that the PIF framework may be useful for planning educators concerned with supporting students in developing personal resilience to confront the intersecting crises of our time.

The core dimensions of PIF include actions and behaviors; knowledge and skills; values, beliefs, and ethics; context and socialization; and group and personal identity (Fitzgerald 2020). PIF requires reflection and is not merely a process of wholesale adoption of a profession's norms; the goal is not for all students to adopt a singular "planner" identity. Rather, it is an emotionally intense deconstruction and reconstruction process that students undergo to determine whether and how they "fit" into a profession and forge a path forward for themselves (Sarraf-Yazdi et al. 2021). PIF should be used to create supportive learning environments that explicitly foster this identity formation process, enabling students to identify their unique approach to practice (Schön 1987).

This study adapts PIF for planners by translating the five dimensions of PIF using material from the American Planning Association (APA) and the Planning Accreditation Board (PAB). We leverage this framework in a directed content analysis to qualitatively code three cohorts of student responses to a reflective essay assignment known as the Planning Philosophy Statement (PPS). The PPS prompted students to articulate their motivations, core values, and unique strengths, as well as to grapple with their identities and positionality. By comparing APA and PAB articulations of what a planner ought to be with students', we identify important challenges students face in integrating professional norms and unique conceptions they have about what planners should do and be.

We found that students defined the role of the planner in contrast to the profession's history of perpetuating systemic harms. Yet, their values largely aligned with PAB's accreditation standards (DEI; Sustainability; Professional Responsibility). However, student phrasing often diverged, using terms like service, accountability, collaboration, and lifelong learning, which reflects a broader conception of Professional Responsibility. Additionally, over a third

of the identified values were unique, offering us insights into these students' aspirations for the field's evolution: These included open-mindedness, creativity, flexibility, perseverance, and humility, among others.

This study presents the PPS as a pedagogical tool for exploring professional identity, bridging skill acquisition with affective learning. It demonstrates PIF's relevance in planning practice, empowering students to critically engage with the field's history and build confidence to shape its future.

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Key Words: planning education, pedagogy, professionalism, professional identity, emotions

Student-Led Learning in Sustainability Education & Practice: A Case Study of a LEED for Cities Project

Abstract ID: 1844.0.0.239.2025

Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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There has been a shift in sustainability education from traditional didactic teaching toward student-centered, transformational learning (Lee et al., 2022). Student-led learning builds on the principles of student-centered learning and offers students greater autonomy in defining tasks, tools, and resources throughout the learning process. In planning education, student-led learning has been recognized for its potential to enhance student engagement and ownership; however, it also faces persistent challenges (Purkarthofer & Mäntysalo, 2022). These include limited student mobility between project roles and constrained opportunities for students to exercise meaningful decision-making, often due to the short-term nature of academic projects (Purkarthofer & Mäntysalo, 2022).

While prior research in sustainability education has identified general benefits and barriers, the specific mechanisms through which student-led learning can effectively support both student development in sustainability and the advancement of municipal sustainability goals, particularly within applied projects, remain underexplored. To address these gaps, this study explores how a recent LEED for Cities certification project functioned as a high-impact student-led learning opportunity. The central research question guiding this study is: What are the key mechanisms that facilitate a LEED for Cities certification project to function as an effective student-led learning opportunity? In this student-led certification application project, undergraduate and graduate students of planning, design, environment, systems engineering, and other majors at Cornell University helped the City of Ithaca achieve LEED for Cities Gold certification in 2024, in collaboration with city officials, LEED professionals, and their faculty advisor.

The study combines in-depth interviews with documentation analysis. We plan to conduct around 15 semi-structured interviews with students, city staff, and other stakeholders, and analyze project documentation, including internal memos, meeting notes, and communications. Interviews with students will illuminate how they navigated project planning and management, transdisciplinary teamwork, and the application of sustainability concepts through the LEED framework, while those with city staff will reveal how they perceived the project's contributions to municipal sustainability goals and the practical value of student collaboration. Analysis of project documentation will support the reconstruction of the project timeline and decision-making processes, helping to contextualize and triangulate themes emerging from the interviews.

Preliminary findings reveal several unique mechanisms adopted by this project that contribute to successfully addressing challenges in student-led projects. First, the LEED for Cities offered a structured process yet flexible operational system, enabling students to take initiative in engaging with sustainability metrics. Second, the student members operated as an ongoing project team across multiple semesters, ensuring the project's continuity from start to finish. Third, the team is restructured by student leaders each semester based on project needs, which allows students to work across disciplines and continuously improve themselves to keep up with the new demands of the project.

This case study contributes to planning education by highlighting important mechanisms through which performance-based sustainability frameworks like LEED can serve dual roles: supporting student-led learning and

advancing municipal goals. It offers a replicable model for integrating professional frameworks into planning curricula. In a moment when planning education seeks more engaged and socially relevant pedagogies, this case study demonstrates how student-led certification projects can build transdisciplinary capacity, systems thinking, civic engagement, and mutual learning relationships across sectors.

Citations:

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Key Words: student-led learning, planning education, sustainability, LEED, transdisciplinary

Sustainability Competency-Driven Planning Education: Insights from a Galapagos Study Abroad Program

Abstract ID: 1844.0.0.817.2025

Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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Higher education is essential for preparing students to advance sustainability as professionals, leaders, and citizens. Its effectiveness hinges on both curriculum content ("what to learn") and pedagogical approaches ("how to learn"). Since the 1990s the content of sustainability education has evolved from a focus on scientific and technical knowledge to a more holistic scope, which now encompasses collaboration with diverse stakeholders, understanding complex social systems, fostering personal growth through critical thinking, and driving societal change. Transformative learning, established as the central pedagogical approach for the UN Decade of Education for Sustainable Development (ESD, 2005–2014), emphasizes a process that empowers learners to critically examine their assumptions, beliefs, and values. UNESCO positions higher education as a key platform for ESD implementation and promotes transformative learning for developing key sustainability competencies (SCs): systems thinking, anticipatory thinking, normative reasoning, strategic action, collaboration, and integrated problem-solving.

Planning education in the US has followed a similar curricular trajectory, though pedagogical evolution has been gradual despite progressing in the right direction. While the Planning Accreditation Board's standards emphasize infusing equity and sustainability into knowledge and skills, including principles of sustainability, resilience, justice, and professional ethics, its instructional requirements remain narrowly focused on "appropriate student access and timely completion." Notably, planning pedagogy has expanded in recent decades to incorporate experiential and community-engaged methods designed to empower students in addressing real-world sustainability challenges. However, curriculum assessments continue to prioritize content mastery and technical skills, leaving scarce evidence of how these new approaches develop broader sustainability competencies (SCs) that transcend specific subjects.

This paper develops a pedagogical design and evaluation framework grounded in Discipline-Based Education Research (DBER), focusing on planning education. We propose a SC-oriented model that integrates content and pedagogy through key elements: (1) discipline-specific foundations in sustainable cities and landscapes; (2) research-informed, place-based and community-engaged learning approaches; (3) problem-centered inquiry through structured research questions; (4) evidence-based teaching evaluations using the SC framework; and (5) linking pedagogical methods to learning outcomes for improvement.

We piloted this framework to design and evaluate a three-week 2024 summer field school in Ecuador's Galapagos Islands, enrolling 36 students from three universities (USFQ:16, UOregon:13, HKU:7) across diverse disciplines and backgrounds. The program implemented three pedagogical methods: (1) research-driven inquiry through sensory data collection during homestays and excursions, (2) open pedagogy co-creating knowledge with local communities on San Cristóbal Island, and (3) action-based learning developing community proposals. We evaluated learning outcomes using pre-/post-program surveys measuring shifts in sustainability definitions and self-reported competencies across sustainability categories. The post-program survey also examined specific teaching method effectiveness.

The 2024 Galapagos field program assessment reveals that immersive, community-based education fosters sustainability competencies more effectively than traditional classroom instruction. Pre- and post-program evaluations using the SC framework showed significant gains in systems thinking, reflective practice, normative reasoning, and collaborative abilities. These results offer support for the SC-driven DBER framework in curriculum development, emphasizing both knowledge acquisition but also the practical abilities needed for impactful sustainability actions.

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Key Words: Edu. for Sustainability, Sustainability Competency, Planning Education, Transformative learning

The Patriarchal Curriculum: A Critical Analysis of Gender in Core Planning History & Theory Courses

Abstract ID: 1844.0.0.42.2025

Track 10: Planning Education, Process(es) and Law

Individual Paper Presentation Submission

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In this paper, we examine the ways in which gender is covered (or not) in core history and planning theory courses across U.S. graduate programs accredited by the Planning Accreditation Board (PAB). This involved an examination of syllabi for these core classes. To obtain syllabi, we contacted department or program heads of all ($n = 113$) member schools of the Association of Collegiate Schools of Planning (ACSP) via email in March 2022. We received 98 responses total ($98 / 113 = 86\%$). Twenty-two respondents indicated that their program was not accredited ($98 - 22 = 76$). Of the remaining 76 programs, 12 respondents were unable or unwilling to share syllabi ($76 - 12 = 64$). Thus, we received 81 syllabi for 64 programs. We excluded 18 of these syllabi for a variety of reasons. Thus, we analyzed a total of 63 syllabi across 54 accredited programs.

The analysis focused on examining the listed readings. First, we determined how many of the readings were authored or coauthored by women and non-binary scholars. To identify the gender of authors we relied on information that exists in an author's public record, including usage of the pronouns he, she and they. Preliminary findings indicate that there were an estimated 3,500 unique readings listed across the 63 syllabi. Of the unique readings, we found that 95 percent were authored or coauthored by men and the remaining five percent were authored and coauthored by women and non-binary scholars.

We also found an estimated 60 readings covered the topic of gender and planning. Rather than being evenly distributed across the 54 accredited programs, we also found that these 60 readings were in the syllabi of less than 10 percent of programs. This means that the remaining 90 percent of programs were not covering the topic of gender at all in their core history and theory courses.

We conducted a content analysis of the readings that focused on gender and planning. We identified classic readings on this topic that were published at in the 1980s and 1990s. They included readings authored by Hayden (1980), and coauthored by Sandercock and Forsyth (1992), for example. We also found several more recent readings by Doan (2007) and Beebeejaun (2017) published in the 2000s and beyond. We recognize the importance of the classics, but we also point to new and interesting work that women and non-binary authors are contributing to the urban planning lexicon. We urge that these author's readings be included in our graduate planning education, and not in some elective course that students opt into but in the core curriculum (Anacker, 2024). We call for instructors to be cognizant of utilizing the scholarship of women and non-binary scholars, and we advocate for gender equity and justice to be included in PAB standards for curricula of accredited core planning courses.

Citations:

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Key Words: planning education, planning history, planning theory, gender

Track 10 Research in Motion (RiM)

Engagement and Service-Learning in Planning Education: Understanding Student Learning Outcomes

Abstract ID: 1842.0.0.299.2025

Track 10: Planning Education, Process(es) and Law

Research-in-Motion Presentation Submission, Research currently in process

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Service-learning has become a key pedagogical strategy in urban planning education, offering students an applied, experiential approach to learning (Forsyth et al., 2000; Reardon, 1998). By engaging with communities, students gain direct exposure to the complexities of urban problem-solving, bridging classroom theory with real-world practice. Additionally, service-learning fosters university-community partnerships, building trust and laying the foundation for future collaboration (Baldwin & Rosier, 2017). More recently, critical service-learning has emerged as a deeper framework that extends beyond hands-on experience to encourage reflection on systemic inequalities and long-term civic engagement (Mitchell, 2008; Sandercock, 1999). While service-learning is well integrated into studio-based design education, less is known about its impact in non-studio planning courses and how it prepares students for professional practice. There is also limited research on how working in multi-disciplinary teams influences student understanding of collaborative planning, stakeholder engagement, and policy-based urban interventions.

This paper examines a graduate-level Urban Design and Development course that uses a critical service-learning model to engage students in brownfield redevelopment. Over the past seven years, the course has brought together students from urban planning, landscape architecture, real estate development, and architecture to work in multi-disciplinary teams. Students collaborate with communities to develop urban design visioning proposals through field research, stakeholder engagement, and public presentations. The course simulates real-world professional practice, emphasizing collaboration across disciplines to address complex urban issues.

Drawing on survey responses and in-depth interviews with students who completed the course—many of whom have since entered professional roles—this study evaluates how service-learning contributes to student learning and professional preparation. Students consistently valued the service-learning model for its role in enhancing critical thinking, practical skills, and real-world problem-solving. Working directly with communities and stakeholders deepened their understanding of the regulatory, environmental, and social dimensions of brownfield redevelopment. Importantly, students from non-planning disciplines reported that the experience increased their interest in planning and helped them better understand the planner's role.

The findings also point to challenges that shape student experiences. The effectiveness of service-learning varied depending on the project's location, the depth of community engagement and participation, and the structure of interdisciplinary collaboration. While most students found team-based work across disciplines to be valuable, some encountered difficulties navigating differences in language, methods, and expectations—highlighting the need for intentional facilitation. The organization and framing of service-learning experiences play a critical role in shaping their success and professional relevance.

This study contributes to ongoing discussions on planning pedagogy by demonstrating how service-learning enhances applied learning, critical engagement, and professional preparedness. Findings reinforce the importance of university-community partnerships while also offering insights into refining service-learning models to improve student outcomes, particularly in non-studio planning education. Furthermore, the study underscores the need for longitudinal relationships with communities to facilitate a critical service-learning orientation.

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Key Words: service learning, applied learning, community engagement, urban planning pedagogy, SLOs

Navigating Climate Anxiety and Nurturing Hope in Planning Education

Abstract ID: 1842.0.0.8.2025

Track 10: Planning Education, Process(es) and Law

Research-in-Motion Presentation Submission, Innovative practices, concepts, and ideas for pedagogy

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Planning and climate change education have increasingly become intertwined as urban centers bear the brunt of climate disruption. Growing awareness and concern about climate change as a pervasive urban problem means planning educators cannot avoid addressing some aspect of the climate crisis in their teaching.

Teaching about climate change presents a unique set of challenges to educators because unlike fields of study where greater knowledge leads to greater student engagement, greater knowledge of climate change tends to induce feelings of hopelessness and apathy that can lead to disengagement (Li & Monroe, 2019). Critical perspectives on climate change can also cause a dilemma for students as they begin to realize that they are implicated in systems of injustice. Teaching strategies designed to support students as they navigate the discomfort associated with this realization are vital to effective planning education.

Research documenting the emotional impacts of teaching and learning about climate change reveals that the topic can be conceptually overwhelming and emotionally disheartening for students and educators alike (Siperstein, 2015). Efforts to increase students' knowledge and concern about the environment have improved awareness about climate change, but these efforts have also heightened climate anxiety and ecological distress, evoking a mix of emotions including fear, outrage, hopelessness, and despair (Verlie et al., 2021). As anxiety about the magnitude of the environmental problems planners face becomes increasingly widespread, planning educators must be prepared to help students navigate the emotional dimensions of climate change education.

This Research-in-Motion presentation explores the effectiveness of teaching strategies for managing climate anxiety and cultivating hope in planning courses. The presentation addresses the following key question: Do reflection-based assessments contribute to reducing climate anxiety among undergraduate students? The presentation shares findings from a study designed to measure the effectiveness of reflection-based assessments in an undergraduate course on urban climate justice. Surveys were used to measure the effectiveness of the assessments for reducing anxiety over the duration of the course, and focus groups were held to gather student perspectives on the value of the reflective exercises. The study offers empirical evidence that clarifies the value of reflection-based assessments as a strategy for encouraging students to engage with the emotional dimensions of climate change.

Building on previous studies grounded in educators' personal experiences and insights, this presentation draws on empirical data to offer guidance regarding the effective implementation of reflection-based assessments as a climate change teaching strategy. Findings are useful for educators concerned with navigating climate anxiety and nurturing hope in planning education.

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Key Words: Climate anxiety, Environmental education, Planning pedagogy

Transformative Pedagogy: Lessons from a Community-Engaged Learning Course on Homelessness

Abstract ID: 1842.0.0.642.2025

Track 10: Planning Education, Process(es) and Law

Research-in-Motion Presentation Submission, Innovative practices, concepts, and ideas for pedagogy

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Community-engaged learning pedagogies are central to planning education and have been the focus of significant inquiry (Botchwey & Umemoto, 2018; Lung-Amam, Harwood, Sandoval & Sen, 2015; Sieh & Frank, 2018; Tryon & Stoecker, 2008). At its most fundamental level, CEL provides robust learning opportunities for students while also meeting the needs of the community partner(s) involved with the learning process (Botchwey & Umemoto, 2018). CEL can and should be analyzed and understood from multiple vantage points including students, educators, and community partners. Different pedagogical frameworks have been used to do this. In this Research in Motion presentation, we focus on the impacts of CEL on students who have participated in a two-course series on homelessness. We use the framework of transformative pedagogy which is defined as “activist pedagogy combining the elements of constructivist and critical pedagogy that empowers students to examine critically their beliefs, values, and knowledge with the goal of developing a reflective knowledge base, an appreciation for multiple perspectives, and a sense of critical consciousness and agency” (Ukpokodu 2009, 43). In developing this course series, the authors hypothesized that it had the potential to contribute to homelessness solutions in three ways: 1) in the short-term, through shifts in student and public attitudes and reduction of stigma associated with people experiencing homelessness; 2) in the medium term, through contributions to the intervention research and subsequent policy and program recommendations, and 3) in the longer term, by creating a pipeline of exceptionally knowledgeable, aware and compassionate students who bring their experiences and critical consciousness regarding housing and homelessness to their social networks and future careers.

The aim of this Research in Motion presentation is to share preliminary lessons learned from a CEL course series, Urban Challenges: Homelessness in San Diego, offered in the Department of Urban Studies and Planning at UC San Diego. Approximately 100 students have completed the course series over the past five years. The curriculum includes considerable hands-on community engagement, including participation in field research and meaningful interactions and co-learning with people who have lived experience of homelessness. The authors used a mixed-methods approach to assess the impacts of this pedagogical approach including classroom observations, pre- and post- course survey analysis, student written reflections, and collective post-field debriefs. The authors will present the findings from their data, share the course design and approach, and discuss broader impacts on students, community partners, and the research itself. The authors look forward to presenting this work-in-progress and engaging with attendees in their session.

Citations:

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Key Words: Planning Education, Transformative Pedagogy, Community Engagement, Homelessness

Track 11 – Regional Planning

Track 11 Individual Paper Presentations

A Disaster Planning Integration Toolkit for Rural Illinois

Abstract ID: 1844.0.0.1127.2025

Track 11: Regional Planning

Individual Paper Presentation Submission

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Rural communities across the United States face persistent hazard mitigation planning challenges. Such communities have aging populations, limited fiscal capacity, geographic isolation, and insufficient access to technical expertise or digital infrastructure (LADRC, n.d.; Natural Hazards Center, 2021). Despite these constraints, federal and state programs frequently require rural jurisdictions to develop formal Hazard Mitigation Plans (HMPs) to qualify for critical disaster mitigation funding (Federal Emergency Management Agency [FEMA], 2021). Many rural governments lack the internal capacity to create such plans (Frazier, Walker, Kumari, & Thompson, 2013). This gap between institutional requirements and local capacity is further compounded by the overwhelming number of national and state-level resources, which are rarely integrated in a way that makes them easily accessible to the communities that need them most (Cwiak & Butterfass, 2024).

Since rural communities often lack the resources to support their own hazard mitigation planning processes, public agencies such as University Extensions play a critical supporting role. These institutions, often housed within state universities, frequently engage graduate planning students to assist in the development of rural hazard mitigation plans. Within this organizational framework, this research asks: How can graduate planning leverage newly learn't skills to help address long-standing gaps in rural disaster mitigation planning?

Graduate planning students with a data science background can offer a solution – an integrated decision support system that ingests all relevant planning data and offers customized planning support information laying the foundation for planning. One such project is the Disaster Planning Integration Toolkit for Rural Illinois (DPIT) developed in partnership with the University of Illinois Extension. DPIT begins with an automated extraction and analysis of over 100 demographic, economic, housing, environmental, and infrastructure indicators. It delivers an interactive county map organized by a “resilience level”; a downloadable, county-specific report detailing statistical trends and unique vulnerabilities; a searchable library of curated disaster planning and resilience resources; and dynamically embedded guidance on hazard mitigation based on each county’s risk profile. The latest iteration of DPIT is available online at: <https://arpitabanerjee1996.github.io/>.

DPIT demonstrates how technology can bridge critical gaps in planning capacity in rural areas by offering scalable, low-barrier pathways for communities to initiate and strengthen hazard mitigation efforts. While not a replacement for traditional planning processes, tools like DPIT serve as powerful force multipliers—automating labor-intensive tasks such as quantitative and spatial data analysis reduces the planning load on public agencies, freeing up institutional resources for high-impact activities like personalized grant support and community engagement. The

creation of DPIT also highlights how skills in coding, automation, and data analysis can offer young planners—regardless of institutional affiliation or geographic origin—new pathways to make meaningful contributions to under-resourced planning contexts.

DPIT illustrates how emerging planners can complement traditional, community-centered institutions through data science and automation skills. DPIT was recognized through the 2022 ACSP Diversity and Inclusion Fellowship and received subsequent funding for scaling across 12 states in the North-Central Region. This project demonstrates the broader applicability of open-source, locally developed planning tools as adaptable infrastructure for regional collaboration and institutional impact.

Citations:

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Key Words: Hazard Mitigation, Decision Support Systems, Rural Planning, Regional Planning, Planning Tools

A Spatial Approach to Shrinking Areas and Infrastructure Optimization in Regional Planning

Abstract ID: 1844.0.0.11.2025

Track 11: Regional Planning

Individual Paper Presentation Submission

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Urban shrinkage is a growing concern in regional planning, driven by demographic decline, economic contraction, and infrastructure inefficiencies. This study applies a spatial approach to identify shrinking areas, analyze their functional roles, and propose infrastructure optimization strategies for urban readjustment. Using time-series VIIRS nightlight data, we detect urban contraction by assessing the spatial patterns of decreasing luminosity. By integrating land use data and infrastructure shapefiles, we examine which land use types experience the most significant decline and identify critical infrastructure vulnerabilities in shrinking regions. To understand functional centers and their spatial dynamics, we employ point-of-interest (POI) data and key infrastructure locations to extract urban centers. We then calculate the functional center index at the municipal level, incorporating built infrastructure, residential population, and mobility patterns. To assess the spatial relationships between declining population mobility and infrastructure utilization, we conduct a BiflowLISA analysis. This enables us to determine whether infrastructure use intensifies or diminishes in response to population decline, leading to the quantification of spatial connectivity strengths. Using network block modeling, we redefine urban planning zones by delineating optimized functional territories, including special interest zones within broader planning areas. These sub-regions are further analyzed through demand-supply matching to classify regional typologies and derive the characteristics of priority management zones. Finally, we conduct a facility-type-specific optimal location analysis, evaluating existing infrastructure efficiency and simulating the impact of relocation or restructuring. The study tests heuristic models, spatial probabilistic change analysis, and geographically weighted regression (GWR) to derive the most effective infrastructure configurations. This research contributes to urban and regional planning by providing a data-driven framework to address urban shrinkage through spatial identification, functional analysis, and infrastructure reallocation. The findings offer insights into optimizing infrastructure investments, enhancing spatial efficiency, and promoting sustainable urban readjustment.

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Key Words: Urban shrinkage, urban readjustment, network block modeling, functional centers, spatial analysis

A Visitor-Enriched Census in the U.S. Cities Using Large-Scale Mobile Positioning Data

Abstract ID: 1844.0.0.847.2025

Track 11: Regional Planning

Individual Paper Presentation Submission

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Census data, as a traditional data source of resident socio-demographics, provides valuable information for decision-makers, researchers, and the public. While numerous efforts have been made to develop more comprehensive data products based on published census datasets, most approaches treat census units as static and independent entities, overlooking their interactions. In this paper, we introduce the "visitor census" dataset, a semantically enriched census that incorporates human visitations extracted from large-scale mobile positioning data. We identified and validated the potential home locations of 3.58 million anonymous mobile phone users across seven U.S. metropolitan statistical areas in July 2021 and utilized home detection results to enrich the socio-demographic profile of the places users visited. The proposed data generation framework is adaptive, allowing future integration of diverse socio-demographic features at varying spatial and temporal scales. Overall, this visitor-based census represents an effort to enrich resident-based census knowledge by incorporating mobilities and spatial interactions in human digital traces, bridging the gap between aggregated and individual analysis, as well as between conventional census and mobile phone data.

Citations:

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Key Words: Census, Visitor, Mobile positioning, Home location estimation, Spatiotemporal big data

Analysis of Factors Driving Retail Vacancy Rates in Korean New Towns and Reduction Measures

Abstract ID: 1844.0.0.575.2025

Track 11: Regional Planning

Individual Paper Presentation Submission

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[Research questions, Objectives] Vacancy in multi-owned retail properties has become a growing issue across Korean new towns, with some areas exceeding 40% vacancy. This study investigates structural causes of rising vacancy and explores strategies for sustainable reduction. Key research questions include: (1) What building- and district-level factors are associated with higher vacancy? (2) How do successful commercial areas differ from high-vacancy ones? (3) What planning interventions could mitigate persistent vacancies in new towns? This research aims to inform retail planning in Korea's new towns, where uniform development models often fail to reflect local market demands and demographic realities.

[Data and Method] The analysis uses micro-data from the Korea Real Estate Board's 2024 Q4 Commercial Property Dataset. A multilevel framework was applied: building-level variables were derived by grouping units with identical physical traits; district-level data were based on official vacancy statistics and 500m buffers around district centers to capture surrounding facilities and context. Ordinary least squares (OLS) regression identified key predictors, and K-means clustering classified commercial district types. To improve model robustness, multicollinearity was tested using VIF, and log transformations of the dependent variable were applied when needed.

[Main findings] Results show that both tenant composition and spatial context affect vacancy. At the building level, higher proportions of food & beverage, medical, educational, and retail tenants were linked to lower vacancy, highlighting the importance of mixed-use synergies. Proximity to bus stops also significantly reduced vacancy. At the district level, anchor facilities (e.g., department stores, hospitals) were associated with lower vacancy, while districts with large area but weak demand drivers—especially innovation cities—showed the highest vacancy rates. Clustering revealed five distinct district types, confirming that commercial viability is shaped by the interaction of land use and socio-economic factors.

[Implications] This study underscores the need to revise standardized retail planning approaches in Korean new towns. The findings suggest planners should promote tenant diversity, ensure transport accessibility, and secure anchor facilities to support commercial vitality. For low-demand areas like innovation cities, differentiated strategies such as flexible land use or targeted activation policies are essential. The multilevel methodology offers a useful framework for analyzing commercial vacancy elsewhere, contributing to urban resilience and retail sustainability in the face of demographic and economic shifts.

Citations:

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Key Words: Retail Vacancy, New Town Planning, Multilevel Analysis, Commercial District, Urban Sustainability

Analysis of Jobs-housing Balance in Shrinking Cities

Abstract ID: 1844.0.0.396.2025

Track 11: Regional Planning

Individual Paper Presentation Submission

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Central Theme-The jobs-housing balance has been proposed as a strategy to address urban issues such as long commute distances, congestion, air pollution, and class segregation (Blumenberg & King, 2021; Cervero, 1989). However, shrinking cities not only face population decline but also experience job and housing losses, along with challenges in maintaining public services due to reduced revenue (Weaver et al., 2017). As a result, residents in shrinking cities may find it difficult to work where they live, as job opportunities may be located farther from their homes. Additionally, the decline in public transit service quality may exacerbate the issue, leading to longer commutes and increased reliance on automobiles. The extent of jobs-housing imbalance may also vary depending on a city's location within a metropolitan area. Some urban areas struggle with numerous job opportunities but limited housing availability, while others face the opposite challenge (Sultana, 2002). While previous studies have examined jobs-housing balance and shrinking cities separately, limited research has explored how jobs-housing balance manifests in the context of population decline. Specifically, the relationship between population change and jobs-housing balance remains relatively unknown. This study seeks to investigate how jobs-housing balance changes in response to population change. The central research question is: How is population change correlated with shifts in jobs-housing balance?

Methodology-This study employs descriptive analysis to examine whether population change is associated with shifts in jobs-housing balance. Descriptive analysis is particularly useful for providing a detailed account of a social phenomenon, especially when it is relatively unexplored or lacks comprehensive documentation (Thomlison, 2001). To analyze these relationships, this study uses American Community Survey (ACS) 5-year estimates from 2010 to 2019. Cities are categorized into four types based on total population trends and locations in metropolitan areas: (1) Growing central cities, (2) Shrinking central cities, (3) Growing non-central cities, and (4) Shrinking non-central cities. Descriptive analysis will be used to examine trends in jobs, resident workers, and jobs-housing balance across the four city types, along with the number of cities experiencing changes in these variables. Additionally, the paper will explore whether these trends differ and how they evolve over time based on city type.

Relevance-This study aims to enhance our understanding of the dynamics of jobs-housing balance in shrinking cities. If trends in jobs, resident workers, and jobs-housing balance differ across city types, this research will provide valuable insights into how jobs-housing balance has evolved and how it might be improved in shrinking cities. Additionally, this study will help assess whether total population change is associated with shifts in jobs-housing balance.

Citations:

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Key Words: Shrinking city, Jobs-housing balance, Descriptive analysis

Beyond Dispersion: The Role of Age and Political Fragmentation in Regional Job Center Geography

Abstract ID: 1844.0.0.536.2025

Track 11: Regional Planning

Individual Paper Presentation Submission

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Research on the spatial organization of regional employment overwhelmingly focuses on single metropolitan areas. Additionally, recent empirical studies have shifted toward examining general measures of employment dispersion, such as the share of urbanized land occupied by jobs, while methodological research on identifying job centers has stagnated. Hence, empirical studies comparing regional differences in employment geography, particularly in terms of job center formation patterns, remain limited. Using block-level employment data, we adapt a spatial model to identify job centers across the 100 most populous regions of the United States and describe regional variation in employment centralization, concentration, and density. Using regression analyses, we evaluate how these differences in economic geography may be explained by regions' age, workforce characteristics (e.g., education level, age, industry), and the plurality of political cities. Respectively, these proxy for a region's car-orientation, the agglomeration patterns of different industries, and the effects of cities competing for economic activity. Our findings suggest that a region's age and plurality of municipalities most strongly influence the centralization of regional employment.

Citations:

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Key Words: job centers, economic geography, political geography, spatial structure, metropolitan planning

Cross-border Governance and Coordination in City Regions: A Case Study of the Yangtze River Delta

Abstract ID: 1844.0.0.1079.2025

Track 11: Regional Planning

Individual Paper Presentation Submission

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Economic globalization has driven local economic development, increasing the need for "regional competitiveness." As large cities reach their expansion limits, the emergence of the city-region has become essential. National strategies address economic decentralization, intercity competition, and fragmented growth. China is gradually overcoming spatial barriers imposed by administrative boundaries, with the Yangtze River Delta (YRD) leading cross-border integration under national policy guidance.

This paper first examines the challenges encountered in the YRD's integration process and explores potential solutions. It then delves into cross-border development issues within the Yangtze River Delta Ecological Green Integrated Development Demonstration Zone, focusing on industrial collaboration, ecological governance, and institutional frameworks. Finally, it proposes strategies, from institutional innovation to regulatory enforcement, to improve interjurisdictional project implementation within the existing system.

Research Questions:

What are the primary conflicts in integrating ecological protection, industrial development, and infrastructure systems in YRD?

How effective is the Executive Committee in resolving cross-jurisdictional conflicts and promoting institutional innovation?

How does the YRD's governance balance top-down planning with market-driven collaboration to reconcile tensions between economic growth and ecological protection?

Methodology-A mixed-methods approach integrates policy analysis, semi-structured interviews, and case studies. Policy documents are reviewed to understand institutional frameworks, while interviews with government officials, urban planners, and private stakeholders provide governance insights. Empirical data on economic and environmental collaborations assess governance effectiveness.

Key Findings

1. Government policies in the YRD are no longer singularly based on national entrepreneurship and inter-city competition. It is the promotion of inter-regional cooperation guided by national policies to enhance overall competitiveness.
2. The empirical evidence suggests that YRD Eco-Green Integrated Development Demonstration Zone faces some challenges
 - a. Governance: The Executive Committee is slow in promoting efficiency due to the lack of legal compulsion and the large number of subjects involved.
 - b. Economic and Industrial: The demonstration zone remains in an early investment stage, with fragmented fiscal policies due to intergovernmental competition.
 - c. Ecological Barriers:

The integration process is hampered by the different functional positions resulting from the industries in different regions

- d. Infrastructure Coordination: The involvement of multiple departments with ambiguous roles has led to early-stage confusion, while inconsistent regional standards create critical bottlenecks.
- e. Public Engagement: Weak civic participation undermines policy credibility and long-term integration expectations.

3. A New Geopolitical Regime

YRD governance now embodies networked intergovernmental collaboration, balancing market forces with national directives. Unlike Western neoliberal models that dissolve administrative boundaries, YRD retains them, reinforcing hierarchical governance. Its trajectory is shaped by central government ideology, local economic incentives, and regional platforms. The shift from top-down orders to adaptive, multi-stakeholder negotiations marks an evolving institutional framework.

This study explores China's unique cross-border governance in mega-city regions, highlighting the interplay of administrative fragmentation and market forces in regional integration. It advocates for adaptive governance that balances state mandates with local incentives, contributing to debates on state rescaling, institutional innovation, and ecological coordination.

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Key Words: Regional Integration, Cross-border Governance, state entrepreneurialism, China, Yangtze River Delta

Digital Technology Utilization and Its Impact on Change in Total Factor Productivity in Korea

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Track 11: Regional Planning

Individual Paper Presentation Submission

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General-purpose digital technologies have long been recognized as a key driver of economic growth, contributing to enhancing productivity (Romer, 1986; Solow, 1957). In recent years, their integration into economic systems has accelerated, playing a transformative role in reshaping the systems (Ding et al., 2022). However, despite these benefits, digital technologies have also raised concerns about inequality, as the level of digital technology utilization varies significantly across firms and regions. Moreover, the expected productivity improvements by digital technologies are not always realized, which is referred to as the productivity paradox (Brynjolfsson, 1993; Brynjolfsson et al., 2017).

However, studies examining the factors that influence digital technology utilization and how its impact on change in productivity varies across regions and industries remain limited. Addressing this gap is essential for informing effective regional economic development policies. This study aims to deepen our understanding of spatial disparities in digital technology utilization and the association between digital technology utilization and total factor productivity (TFP) change in Korea. Specifically, it addresses the following questions: (1) How does digital technology utilization differ based on enterprise characteristics? (2) What factors influence whether enterprises utilize digital technology? (3) How is spatial disparity in the utilization of digital technologies? In what ways are regional disparities in digital technology utilization affected by regional characteristics? (4) How does the utilization of digital technology impact changes in firms' total factor productivity, and how do these effects differ across industries and between the Seoul Metropolitan Area (SMA) and non-SMA regions?

This study primarily draws on data from the Survey of Business Activities in Korea (2018–2022), which provides information on firms' digital technology utilization, sales, employment, assets, industry classification (2-digit), geographic location, and other business-related factors. The preliminary results of our data analysis indicate that: (1) firms with larger employment sizes are more likely to utilize digital technologies. In addition, non-manufacturing firms exhibit a higher likelihood of digital technology utilization compared to manufacturing firms; (2) several factors, including firm size, industry classification, changes in business operations, and the entry into new business areas, influence the extent of digital technology utilization; (3) the average digital technology utilization rate is higher in the Seoul Metropolitan Area (SMA) compared to non-SMA regions. At the provincial level, a higher proportion of the STEM (Science, Technology, Engineering, and Mathematics) workforce and graduate student population is positively associated with digital technology utilization across Korea's 17 provinces; (4) in both the SMA and non-SMA regions, the positive impacts of digital technology utilization on TFP growth rate are more prominent for non-manufacturing firms than for manufacturing firms. These positive effects are more substantial in non-SMA regions than in the SMA. These findings provide empirical insights into how firm-level and regional characteristics influence digital technology utilization and how the resulting productivity improvements vary across industries and regions in Korea.

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Key Words: Digital Tech Utilization, Total Factor Productivity, Spatial Disparity, Panel Data, Random Effects Model

Do HSR New Towns Develop as Planned? A Network and Typology Analysis in the Yangtze River Delta

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Track 11: Regional Planning

Individual Paper Presentation Submission

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High-Speed Rail (HSR) has the potential to facilitate the movement of people, capital, and technology between cities, reshaping regional economic structures. Building new towns or economic zones around HSR stations has become a common strategy for many cities. China has the world's longest HSR network and continues to expand, with new towns planned for almost all new HSR stations. These new towns often take the form of megaprojects, and unreasonable planning can present significant challenges. Research suggests that HSR new town planning often faces issues such as excessive distance from city centers and overly ambitious planning standards, leading to financial and governance challenges. Moreover, the success implementation of these projects is closely related to their location and urban economic attributes. Based on this, we hypothesize that planners' overestimation of a city's position within the HSR network leads to irrational planning, which contributes to planning failures.

This study examines 93 HSR new towns in the Yangtze River Delta, China's most developed city cluster. We collected planning indicators such as type, name, planned area, population, year of planning, and year of construction. Additionally, we obtained land use data of the host cities, railway maps, and train schedule data for a selected day in 2024. First, we conducted a latent class analysis on the planning indicators of HSR new towns to summarize their general characteristics. Second, we proposed a "Planning Realization Index" to measure the proportion of developed land within the planned area. Finally, we constructed both a physical HSR network and a schedule-based HSR network and analyzed the correlation between the Planning Realization Index and the complex network attributes.

Our findings reveal that the indicators of HSR new town planning vary across cities of different levels. The HSR stations in cities with weak political influence are often located far from urban centers makes them vulnerable to the "siphoning effect" from larger cities. If their new town plans are too ambitious, implementation challenges arise. Additionally, both the planning and implementation of HSR new towns are linked to the urban development stage, cities that have reached a certain scale threshold tend to achieve more successful HSR new town development. Compared to the physical HSR network, the train schedule network exhibits stronger polarization, reinforcing regional inequalities in development conditions and often leading to a mismatch between new town plans and available railway resources. Therefore, beyond the construction of railway infrastructure, greater attention should be paid to balanced and innovative operational models.

The study identifies four core issues in HSR new town planning: location, scale, function, and service. Based on these, we propose a compact development strategy emphasizing performance evaluation, demand estimation, and adaptive measures. By innovatively analyzing the mismatch between spatial planning and railway service resources, this research provides new insights for policymakers and urban planners in China and other countries engaged in HSR development projects.

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Key Words: High-Speed Rail (HSR), New Town Planning, Latent Class Analysis, Complex Network, Plan Evaluation

Exploring the Economic Functions of South Korea's Small and Medium-Sized Cities

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Small and medium-sized cities (SMCs) play a crucial yet often overlooked role in regional economic systems. Traditional regional planning and economic development theories predominantly focus on large metropolitan areas or export-oriented industries, leaving the contributions of SMCs significantly underexplored (Bell & Jayne, 2009), particularly their service sector specialization. Analyzing the economic roles and potential of SMCs is essential to fully understand functional interdependencies among cities of varying sizes within regional systems (Demazière, 2022).

This study investigates the functional positioning of South Korean SMCs by analyzing their service sector specialization and the inter-city relations that emerge from these specializations. Specifically, it examines: (1) What patterns of service sector specialization are evident among SMCs within regional systems? (2) How do these specializations shape inter-city complementarities and functional dependencies within regional networks?

Employing economic base theory and spatial interaction modeling, this research utilizes employment data sourced from the Korean Statistical Information Service (KOSIS) covering SMCs in South Korea. Location quotients (LQs) are calculated across the key service subsectors, including healthcare, education, retail, tourism, and professional services, to identify city-specific specialization profiles. These specialization profiles provide the basis for modeling intercity flows of service-based interaction using the Multiplicative Competitive Interaction (MCI) model (Nakanishi & Cooper, 1974), calibrated with origin-destination (OD) data on floating population. This approach estimates the relative pull of each city based on its functional attractiveness and spatial accessibility.

The study is expected to identify distinct typologies of SMCs based on their service sector configurations. Some cities are anticipated to function as regional service hubs, specializing in higher-order services and attracting significant non-resident populations, whereas others primarily depend on local consumption-based activities and exhibit asymmetric dependencies with neighboring cities. By comparing observed flows with specialization profiles, the analysis highlights both functional complementarities—where cities provide distinct but complementary services—and dependencies—where some cities disproportionately rely on others for access to key services.

Ultimately, this study contributes to the regional planning discourse while supporting prior research on the differentiated roles of SMCs within regional economic networks (Meijers & Burger, 2017). The findings offer valuable insights for planners and local government in South Korea, assisting them in strategically allocating resources, enhancing inter-city collaboration, and sustaining essential services, especially in cities experiencing demographic or economic challenges.

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Key Words: small and medium cities, service sector, specialization, inter-city relations, spatial interaction model

HSR Station Areas' Impact on Enterprise Networks: Spatial Evolution & Drivers in Shanghai Metropolitan

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Background: High-speed rail (HSR) networks drive regional development through their 'spatio-temporal compression' effect, enabling cross-regional enterprise layout optimization and industrial transfer gradients. This fosters economic complementarity and high-quality economic growth among cities. HSR station areas act as catalysts for integrating transportation, industry, and urban development, serving as critical nodes for inter-city interaction and spatial connectivity. International experience in Japan, France, and other countries has shown that HSR accelerates industrial clustering around stations and the formation of HSR economic zones and belts.

Existing Studies: Existing research on HSR station areas focuses on their impacts on cities along rail lines and regional industrial structures. However, studies remain limited in exploring their dynamic evolution and driving mechanisms. Existing studies on HSR station areas' industrial spatial structures primarily focus on land use patterns, industrial planning, and influencing factors such as accessibility and policy interventions. Among these, Pol's (2002) 'Three Development Zones' concentric model exemplifies research into industrial layouts, proposing a layered spatial framework to optimize economic activities around stations. Recent work highlights that HSR station areas can spur technological innovation and industrial upgrading by facilitating industrial transfers within city clusters. This study innovatively links HSR station areas with inter-city business networks of different industry types and explores the impact mechanisms of HSR frequency, station location, infrastructure quality, and other factors on these networks.

Methods: This study investigates the spatial characteristics and evolution of enterprise networks within HSR station areas in the Shanghai Metropolitan Area, leveraging the region's dense HSR network. Using Qichacha's headquarters-branches enterprise data (2015–2024), we construct an enterprise linkage network where headquarters are located within the metropolitan area and branches are within the 20-minute isochrone circles of 45 HSR stations. Social network analysis (SNA) and geospatial techniques are applied to examine network patterns and evolution trends (2015–2019 vs. 2020–2024). A multivariate quadratic assignment procedure (MQAP) is employed to identify how HSR station attributes (e.g., hierarchy, frequency, infrastructure quality) influence regional enterprise networks across industries.

Results: (1) Spatial Patterns: The enterprise network exhibits a 'multi-core radiating' structure, with HSR stations categorized into four types: 'network-oriented' (high connectivity), 'outward-oriented' (strong external linkages), 'isolated' (limited connections), and 'inward-oriented' (local-focused). (2) Evolution Trends: While the network shows uneven development, trends toward balanced growth emerge. Transfers primarily involve labor-intensive secondary industries (e.g., manufacturing) and knowledge-intensive tertiary industries (e.g., finance, technology). (3) Driving Mechanisms: Five dimensions influence enterprise networks: station hierarchy, HSR frequency, business environment, infrastructure quality, and station-city integration. Factors such as city administrative level and station location significantly enhance network formation. Practically, this research provides empirical evidence for optimizing HSR station design, inter-city industrial layouts, and dislocated industrial development strategies, contributing to sustainable regional development frameworks.

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Key Words: HSR Station Area, Enterprise Network, Shanghai Metropolitan, Driving Mechanisms, MRQAP

Insights for Regions in Planning Equitable and Positive Outcomes Under Climate Migration

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Climate change impacts are already increasing human mobility both within and beyond country boundaries. Estimates of domestic climate migration vary considerably, with the World Bank projecting that, absent significant climate change mitigation and adaptation, globally up to 216 million persons may be internally displaced by 2050. Within the U.S., projections based on sea level rise alone suggest 13 million displaced by 2100. Both planned and unplanned individual level movements raise significant equity and practical issues for households and for sending communities, receiving communities, and regions. Preparing likely receiving areas to equitably and successfully welcome in-comers provides an opportunity for positive transformative change.

The Lincoln Institute of Land Policy and UMass Amherst faculty gathered a trans-sectoral and multi-disciplinary group of 23 lived and learned experts for 1.5 days of facilitated discussion to illuminate the current state of knowledge and practice in the US related to climate domestic in-migration. Prior to the workshop, we surveyed the expert group on key issues that need to be better understood and discussed, as well as their pre-meeting knowledge of key challenges for climate-related mobility. Researchers coded and then analyzed transcripts of the workshop to identify key themes. This paper highlights key findings from the survey and workshop supplemented by background literature.

The paper highlights justice issues that include attention to language accessibility, services that align with actual needs, and assuring that renters are not left out of services and funding available to displaced homeowners. Local NGOs often provide the first-contact with new incomers, and while this can work well, it can create burn-out among the providers. Increased competition for housing creates significant challenges for both incomers and the receiving communities.

Focusing in on receiving areas, participants think that urban areas (83%) and small towns (58%) should expect a mix of local and long-distance in-comers, and the most certain receiving areas are those that are inland of major metropolitan areas (82%). Receiving communities should anticipate pressure on housing supply (the only question with a 100% agreement), infrastructure (92%), social integration (83%), jobs (75%), and development in hazard and ecosystem areas (58%). According to respondents, the best steps likely receiving areas can in preparation include increasing affordable housing (91%), building climate-adapted infrastructure (64%) and new infrastructure with capacity for denser development (64%), updates of zoning and land use planning regulations (64%), and pursuing federal or state grants for the actions above (55%). Levers for change include professional practice, all levels of government, and community-level NGOs.

The different implications of post-disaster pulse-movements of large but mostly temporary populations, versus slow-onset-event driven relocations from such hazards as sea level rise, heat, wildfire evacuations and loss of

homeowner insurance are poorly understood but important. This suggests the need for differentiated ‘fast’ and ‘slow’ event planning and policy tools.

Most climate-related movers stay within their current metropolitan or cultural region. Participants were hopeful that regional planning that anticipates likely sending and receiving areas could facilitate more positive outcomes for all. One novel approach to this is creating within-region ‘sister cities,’ where likely sending areas partner with their likely receiving areas to ensure smooth outcomes for both.

Achieving justice for both in-comers and existing residents will be complex and needs to be centered in policy and practice discussions. Proactively addressing these regional planning challenges provides a higher likelihood of positive outcomes from the population changes that are underway.

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Key Words: regional planning, climate change, demographics, migration

Longitudinal Analysis of Changes on Urban Center Dynamics in the U.S. Metropolitan Areas (2010-2020)

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Urban centers are pivotal in shaping the spatial structure of a region, influencing various aspects such as public transportation demand, economic agglomeration, energy consumption, infrastructure and facilities use, and overall quality of life (Anas et al., 1998). By analyzing the evolving spatial patterns and characteristics of these centers, policymakers can gain a clearer understanding of whether regional development is trending toward centralization (marked by increasing population or employment in the central business district, or CBD), decentralization and polycentricity (with emerging employment centers outside the CBD), or generalized dispersion (characterized by weak spatial clustering and low overall density) (Hajrasouliha and Hamidi, 2017; Bartosiewicz and Marcińczak, 2020).

Few studies (if any) have investigated changes in spatial structure and characteristics of centers at a national level using a longitudinal approach. This study seeks to fill this gap by addressing the following key questions: (i) What are the overall trends in spatial changes within MSAs: is there a shift toward centralization, polycentricity or decentralization (dispersion)? (ii) How has the number and nature of urban centers in MSAs evolved between 2010 and 2020? (iii) Are emerging centers outside the CBD fostering more sustainable, balanced growth, or contributing to urban sprawl?

To answer these questions, we used spatial statistics (Local Moran's I) to identify the main centers (CBDs) and applied Geographically Weighted Regression to identify subcenters based on employment and population data from the Longitudinal Employer-Household Dynamics (LEHD) and the decennial census in 340 MSAs across the US for 2010 and 2020. To avoid the impact of the COVID-19 pandemic on the results, we used 2019 employment data for the analysis. We applied multiple criteria to distinguish employment nodes from urban centers, following and improving the earlier works (Hamidi, 2015; Park et al., 2020). The results show that while the number of employment subcenters increased over time (from 1,011 in 2010 to 1,035 in 2020), monocentric regions also grew, with 12 MSAs exhibiting this trend from 2010 to 2020. Additionally, the majority of MSAs experienced generalized dispersion, characterized by a decline in both CBDs and subcenters from 2010 to 2020, which contributed to increased sprawl development.

These findings have significant implications for urban planning and policy and sustainable development, as it informs decisions related to efficient land use, equitable access to resources, reduced environmental impact, and the promotion of balanced regional growth. Understanding these dynamics will guide strategies to optimize resource distribution, and ensure that growth aligns with environmental, social, and economic sustainability goals. The longitudinal dynamics of urban centers identified in this study would also inform regional planning strategies by helping to pinpoint areas that require intervention to mitigate urban sprawl or promote more centralized, or polycentric development.

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Key Words: urban form, compactness, polycentricity, employment centers, regional planning

Longitudinal Analysis of Two Decades of Urban Sprawl in the U.S. and Its Transportation Impacts

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Urban Sprawl is one of the most highly cited built environment risk factors to health (risk of obesity, high blood pressure, diabetes, heart attack, respiratory diseases, etc.), safety (higher risks of car crashes and fatalities), community wellbeing (lower likelihood of upward mobility, racial discrimination, higher transportation costs, lack of social capital, etc.) and environmental and climate impacts such as air pollution and disruption of wildlife habitat (Ewing and Hamidi, 2015). Yet, most cities and metro areas in the U.S still continue to sprawl. The big unanswered question is who has been sprawling the most and who has been the most successful in mitigating sprawl? What actions, policies and interventions could be effective in mitigating sprawl? While causes and impacts of sprawl have been widely studied, effective solutions remain a major gap, mostly due to the lack of longitudinal studies to measure changes in sprawl over time and its link to smart growth policies.

This comprehensive national study aims to measure changes in sprawl in the last two decades (2000-2020) and to provide policy recommendations to cities and local governments on how to mitigate urban sprawl through the following steps 1) Measuring two decades of urban sprawl in the US urbanized areas (UZAs) in 2000, 2010 and 2020 based on an earlier work by Hamidi and Ewing (2014 and 2015) which incorporates 21 built environmental features for all urbanized areas, counties, and metro areas in the US, 2) Ranking urbanized areas, based on their degree of urban sprawl over time; 3) Identifying who sprawls the most and who has been the most successful in mitigating sprawl along with best practices that could be adapted by other local governments; 4) Quantifying long-term transportation impacts of sprawl such as commute mode share and the average journey to work drive time.

Census UZAs are selected as units of analysis because UZAs are the only census geographies that expand systematically with urban development over time. Counties and metropolitan areas have fixed boundaries and hence tend to appear more compact over time. Our measure of urban sprawl consists of 21 variables representing four urban form dimensions including development density, land use diversity, activity centering and street connectivity. We employ principal component analysis to combine variables into these 4 factors and develop an overall measure of compactness/sprawl for U.S. urbanized areas in 2020. Next, we apply the same factor coefficients of 2020 to data for 2010 and 2000, in order to generate consistent measures of compactness for 2000 and 2010 and allowing longitudinal comparisons.

We expect the compactness rankings to generally remain consistent across years while observing a general pattern of an increase in the degree of sprawl between the three census years. This study also showcases UZAs that have the most significant positive changes in their compactness score and the associated land use policies that have led them to become more compact over time.

Findings of this study have direct policy implications as public and policymakers could explore the degree of sprawl in their jurisdiction and the effectiveness of anti-sprawl policies over time.

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Key Words: Urban Sprawl, car-oriented development, smart growth, transportation, Longitudinal Analysis

Medical Reterritorialization: The Space of Capital, Healthcare, and Entrepreneurial Hospitals

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Research Question and Significance-This research explores the role of entrepreneurial hospitals in reshaping territorial orders within China's evolving institutional and political economy. It focuses on the corporatization of the former Suqian People's Hospital and introduces the concept of "medical reterritorialization" to examine how hospitals, especially public tertiary ones with increasing autonomy, act as territorial actors by mobilizing capital, healthcare services, and institutional power. Specific questions answered in this research include: How do corporatized hospitals participate in reconfiguring territorial orders? What roles do public hospitals, state-owned enterprises, and local governments play in forming cross-jurisdictional city-regions? And how are these practices embedded in and driven by broader pro-market coalitions and state policy experiments?

Approach and Methodology-Through the case of Suqian Drum Tower Hospital, the study interrogates the formation of a hospital-led city region that transcends administrative boundaries, involving actors from municipal governments, state-owned enterprises, and tertiary hospitals. The study adopts a mixed-methods qualitative approach combining archival research, firm-level data, and over 16 interviews with stakeholders, including healthcare professionals, administrators, government officials, and patients. This case is analytically situated within a theoretical framework that connects Foucauldian and Deleuzian notions of territorialization (Deleuze & Guattari, 1987; Elden, 2013) to emerging literature on non-state actors' roles in spatial governance (Harrison, 2021).

Meaningful and New Findings-The findings demonstrate that medical reterritorialization constitutes a unique spatial strategy driven by pro-market coalitions, not merely state mandates. It reveals how corporatization served the strategic interests of all three actors: the Suqian local government, constrained by fiscal shortages, sought to offload hospital management and attract external investment; Jinling Pharmaceutical diversified its business portfolio to address surplus challenges and expanded its market reach; and Nanjing Drum Tower Hospital extended its brand and service territory in response to limited financial support from its home city, while the Suqian municipal government, facing fiscal constraints, used its deregulatory authority to legitimize this restructuring.

The result is a hospital-led city region where inter-city flows of medical resources transcend jurisdictional borders and redefine spatial order. Hospitals function as territorial actors by controlling the mobility of "human and non-human things" (Deleuze & Guattari, 1987; Wang & Zhao, 2024). The resulting city-region reflects both the uneven development between large and small cities and the entrepreneurial drive to capitalize on healthcare as a spatial fix for fiscal and institutional crises (Wu, 2016). The research shows that hospitals are not merely service providers but territorial entrepreneurs.

Relevance-This study makes three key contributions to planning. First, it challenges state-centric theories of territorial governance (Wu, 2016) by foregrounding the autonomy and agency of hospitals as actors that exercise control through both capital and expertise. Second, it advances the theoretical lens of "medical reterritorialization" to understand healthcare infrastructure as a tool of spatial reordering in city-region formation. Third, it calls attention to the entanglement of public services and speculative capital, with implications for equity, governance, and infrastructure planning. For practitioners and educators, the study offers a new lens on health-sector urbanism and invites a critical rethinking of how essential services are instrumentalized in entrepreneurial urban governance.

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Key Words: Hospital, Corporatization, Territorialization, Healthcare, Regional Governance

Navigating Distributive Equity: How Power and Race Shape MPO's Allocation of Transit Benefits

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Track 11: Regional Planning

Individual Paper Presentation Submission

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U.S. metropolitan planning organizations (MPOs) play a crucial role in shaping regional public transit benefits. However, planning scholarship has yet to fully explore how institutional arrangements of MPO influence their regional decision-making. To fill this gap, our research examines the impact of the power structure and racial composition of MPO decision-making boards on the allocation of transit benefits. Integrating distributive/procedural justice theory, representative bureaucracy theory, and systemic power theory, we develop a theoretical framework to explore how institutional arrangements of MPOs influence their decision-making, particularly regarding distributive equity and the prevention of unwanted urban freeway constructions.

We construct an innovative dataset encompassing the decision-making boards of the four largest MPOs in California and Texas, including racial and gender data for 58 board members, along with information on 18,590 MPO-approved transportation projects. Additionally, we supplement our dataset with spatial traffic data and socioeconomic characteristics of each local government from various sources. Our conditional logistic regression analysis indicates that a higher ratio of minorities on MPO decision-making boards generally leads to more equitable outcomes. However, the power structure and institutional rules result in heterogeneous impacts. Overall, our research advances the practical understanding of MPO decision-making processes related to regional transit benefits in the U.S. and contributes to theoretical discussions on how the institutional arrangements of public organizations can promote equitable decision-making.

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Key Words: Regional planning, MPO, regional equity, decision-making

Optimizing Urban Planning with TRIZ and NLP: Addressing Rent-Seeking and Pareto Inefficiency

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Track 11: Regional Planning

Individual Paper Presentation Submission

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[Research Questions] Urban planning is meant to serve the public good strategically. However, it increasingly leans toward normative practices that result in plan overproduction serving narrow interests (Davies, 2024). Rather than maximizing social utility, many plans are politically motivated or focus on stakeholder benefit maximization, often framed in technocratic language that obscures their limited scope (Ablo, 2022). Planning practices also tend to emphasize redistribution—benefiting one group at another's expense—rather than pursuing Pareto improvements, thereby misusing resources and eroding planning legitimacy.

This study addresses two research questions: (1) How can rent-seeking incentives and Pareto inefficiencies be identified in urban planning documents? (2) How can a systematic 'planning diet' framework be developed to filter out unnecessary plans based on these criteria?

[Data and Method] To answer these questions, we extend the NLP-TRIZ framework of Wang et al. (2023) and apply it to urban and regional development plans in South Korea, including redevelopment and regeneration projects where inefficiency and stakeholder conflict are prominent. We collected all relevant planning documents published since 2000 and vectorized them using LLaMA, a large language model-based NLP technique.

Drawing on definitions of rent-seeking and Pareto optimality (Krueger, 1974; Buchanan, 1962), we predefined inefficient planning patterns—such as benefit justification for specific groups, exaggerated impacts, evasive implementation language, privatization bias, vague rationales, and spatial branding. We also vectorized keywords representing these patterns and used cosine similarity and TF-IDF to identify inefficiency signals in the text corpus.

We then applied TRIZ problem-solving principles to assess whether proposed plans represented optimal solutions. This involved abstracting each plan's core problem and comparing proposed solutions to a pool of functionally similar solutions drawn from South Korea, the EU, and the U.S. since 2000. We assessed excessiveness and distributional imbalance to determine whether each plan was a necessary intervention.

[Main Findings] Of the 6,762 plans reviewed, 41.3% showed strong signals of rent-seeking based on semantic analysis. TRIZ-based evaluation revealed that 28.9% proposed interventions lacking characteristics of Pareto improvement, offering limited or imbalanced stakeholder benefits compared to alternatives. For example, some riverfront redevelopment plans improved tourist amenities but displaced low-income residents without compensation. These results suggest a significant share of planning efforts are inefficient. Our findings support the feasibility of a "planning diet" framework combining semantic and structural diagnostics to improve planning legitimacy and efficiency.

[Implications] This study demonstrates the importance of tools that assess the efficiency and fairness of planning practices. The proposed planning diet framework integrates semantic filtering and TRIZ-based evaluation, offering a method to identify rent-seeking risks and promote Pareto efficient interventions. Policymakers can use this approach to eliminate unjustified plans, ensure equitable benefit distribution, and enhance the legitimacy and resource efficiency of urban planning systems.

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Key Words: Rent-seeking, Pareto optimality, LLaMA, TRIZ problem solving, Regional development

Planning for Disaster Resilience in Central Appalachia

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Central Appalachia is a region with complex histories, deep contradictions, and extremes that reveal important patterns, practices, and possibilities for planning for disaster resilience. The incredible ecological and cultural diversity, vast forests and rich resource deposits, abundant water and unspoiled lands of Central Appalachia position the region as a key site for climate-adaptive development and in-migration. As climate impacts intensify, the region also faces heightened risk of catastrophic flooding linked to a legacy of extractive industrial activity which compounds the perpetual challenges associated with broken infrastructure, significant health disparities, and underinvestment into housing, education, social services and economic development. The framing of Central Appalachia as a climate haven well within the new boundaries of 'the human climate niche' is increasingly drawing people who have the means to relocate to the relative safety of a climate resilient geography even as the region contends with uneven economic development, ongoing ecological degradation, and insufficient infrastructure and services. It is clear that climate pressures are threatening to deepen existing inequities in the region and that planners have a special responsibility to address historic challenges while also contending with mounting climate threats. Drawing insight from content analyses of climate resilience plans across Central Appalachian planning districts and semi-structured interviews with planning professionals, this study explores how the region is planning for climate resilience while simultaneously addressing ongoing needs and also asks whether recent disasters, including catastrophic flooding associated with Hurricane Helene, has shifted regional priorities for climate resilience. For planners and communities concerned with disaster resilience, it is essential to leverage planning tools, to build community and coalitions of care, and to develop governance and finance strategies that can not only contend with compounding socio-ecological disaster, but perhaps more importantly to interrupt the structural drivers of harm that have shaped contemporary material realities and precarious lived experiences for people across Central Appalachia and beyond.

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Key Words: disaster, resilience, migration, Appalachia, health

Planning Support System for Urban Resilience: Integrating Economic, Demographic, and Social Aspects

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Urban resilience planning involves addressing multiple, interrelated uncertainties, including environmental risks, economic volatility, and demographic changes. Conventional planning approaches often prove inadequate in addressing the complexities and dynamic nature of these challenges. Planning Support Systems (PSS) represent an innovative approach by integrating diverse data sources, modeling spatial interactions, and simulating alternative scenarios. By translating complexity into meaningful and accessible visualizations, PSS enhances stakeholders' understanding, facilitates informed dialogue, and promotes effective collaboration. Consequently, these systems foster adaptive, flexible, and transparent planning processes, essential for the development of resilient urban systems.

This study aims to present a comprehensive PSS designed to explore urban climate change scenarios, simulate future urban dynamics, and evaluate the impacts of policy and planning interventions on the urban scale. The core of the PSS integrates interactive models of economic development, demographic shifts, and urban land-use changes, facilitating the examination of their complex interactions with climate change effects, including increased flooding risks, heatwaves, and infrastructure vulnerability. The proposed PSS emphasizes the social dimensions of urban resilience planning and policy. By specifically focusing on vulnerable populations and acknowledging varying economic capacities among urban residents, this study assesses urban resilience through the lens of social vulnerability, rather than treating resilience merely as an aggregated, city-wide concept. Utilizing this innovative and dynamic tool, urban planners and policymakers can systematically assess multiple climate-related scenarios, test the effectiveness and social implications of proposed interventions, and ultimately determine the most effective strategies to strengthen resilience of urban systems.

The implications of this study are significant for both academic research and practical urban planning applications. Academically, this research advances theoretical understanding of urban resilience by elucidating the complex interactions among urban subsystems and demonstrating how these interactions shape overall urban resilience. Practically, urban planners, policymakers, and stakeholders can leverage this comprehensive Planning Support System to enhance decision-making processes, improve disaster preparedness, and optimize resource allocation. Most notably, by supporting anticipatory and proactive planning strategies, the proposed PSS significantly advances the development of urban planning and policy frameworks that foster resilient, equitable, and sustainable urban environments.

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Key Words: Urban Resilience, Planning Support System, Planning Simulation, Policy Evaluation

Reimagining Industry in the City: Digital Manufacturing and the Return of Urban Production

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Industries that had previously relocated away from urban centers are increasingly returning, with major cities once again emerging as hubs of industrial activity (Gornig & Werwatz, 2018; Park, 2023). This re-urbanization of industry is largely driven by advancements in digital technologies, which facilitate agile, customized production while enabling cleaner, more compact, and highly efficient manufacturing processes. These technological developments have renewed the viability of industrial operations within dense and verticalized urban environments (Lane & Rappaport, 2020; Park, 2024).

This study examines how digitalization enables urban manufacturing through a case study of a 3D printer-based eyeglass frame production facility located in Seoul, South Korea. A mixed-methods approach was employed, combining qualitative methods—such as field observations and interviews—with quantitative analyses, including GIS-based spatial analysis and statistical comparison. The analysis contrasts the Seoul-based digital manufacturer with a traditional eyewear frame producer in Daegu that relies on conventional mass production techniques.

Findings reveal that traditional manufacturing processes involve multiple complex stages, require substantial floor space for equipment and storage, and generate considerable environmental externalities—including air and water pollution, material waste, and surplus inventory—making them ill-suited for urban contexts. In contrast, the 3D printer-based production model supports customized, small-batch, on-demand manufacturing. This streamlined process enhances productivity and spatial efficiency, making it feasible to establish vertically integrated factories even within high-density urban areas. Furthermore, digital manufacturing significantly reduces pollution and material waste, allowing for clean production in mixed-use urban settings that integrate residential, commercial, and office functions. By examining the spatial and operational integration of digitally driven manufacturing within the urban fabric, this study offers policy-relevant insights for designing future productive cities that harmonize production, consumption, and living.

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Key Words: Digitalization, Productive city, Urban manufacturing, 3D printing, Eyeglass frame production

Seattle Comprehensive and Climate Action Plan Metric Assessment

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Urban planners use planning goals and policy tools to manage current and future needs. In the United States of America, this work often takes shape through the development and adoption of comprehensive plans and, more recently, climate action plans. Washington State's Growth Management Act (GMA) stands out in mandating that cities over a certain size prepare and maintain comprehensive plans on a recurring basis. These living documents are shaped by years of internal analysis, political negotiation, and public engagement. They aim to define actionable objectives for implementation over the lifespan of the plan. In large cities such as Seattle, this can mean managing hundreds of planning policies spanning dozens of thematic areas.

Researchers across disciplines have developed a wide range of methods to assess planning goals—particularly those focused on equity and sustainability. However, far less is known about how planning agencies themselves measure success. Which metrics do they prioritize? How do they assess progress toward broad and often aspirational policy goals?

Cities operating under tight budgets, short timelines, and political constraints must make deliberate choices about which metrics to adopt and monitor. Understanding the measurability of policy objectives, and the data and indicators used to evaluate them, is therefore critical. In recognition of these challenges, Washington State passed CR-101 in 2024, initiating an update to the GMA that requires cities to include both actionable and measurable climate-related objectives.

This study investigates three core questions:

- (1) What data and metrics is the City of Seattle using to assess implementation of its Climate Action and Comprehensive Plans?
- (2) To what extent are the goals and policies articulated in these plans measurable using the metrics provided—or at all?
- (3) How were these metrics selected, and do they align with Seattle's long-term equity and sustainability priorities and do these meet the needs of cities residents?

The analysis employs keyword-based coding to categorize policies and goals in Seattle's comprehensive and climate plans by major planning domains (e.g., transportation, land use, equity, sustainability). Where metrics are explicitly stated, their linkages to policy objectives will be mapped and their evaluative capacity assessed using a systematic literature review. For policies that lack associated metrics, the analysis will determine whether and how they could be meaningfully measured. Qualitative interviews with planning staff and community members will provide additional insight into the selection of metrics and their perceived impact on Seattle communities.

If cities are to meet the challenges of climate change, redress historical injustices, and equitably support multispecies urban communities, their plans must be more than aspirational. Measurable and implementable policies are essential. As urban systems grow in complexity, cities must not only plan for the future—they must also be accountable to it.

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Key Words: Planning metrics, Equity, Sustainability, Climate Action Planning, Comprehensive Planning

Spatial Heterogeneity of HSR on Innovation Collaboration in Shanghai Metropolitan

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Background-High-speed rail (HSR) has provided new spatiotemporal conditions for regional innovation collaboration by shortening intercity travel times and reducing the costs of cross-regional factor flows. Existing studies confirm that China's HSR networks are associated with enhanced regional innovation collaboration intensity, primarily through mechanisms such as knowledge spillovers and human capital reorganization (Yang et al., 2021). However, the spatial mechanisms underlying these effects remain unclear. Prior research predominantly relies on aggregate regional analyses, neglecting heterogeneity among internal spatial units (Hanley et al., 2022), and focuses on network structures while overlooking the spatial relationships between HSR networks and innovation activity hubs, leading to homogenized findings that fail to guide differentiated planning practices (Cao et al., 2023). Addressing these gaps, this study focuses on two core questions: How does the HSR network's impact on the evolution of regional innovation collaboration patterns? How do these effects differ across spatial units within the region?

Objectives and Methodology-This study examines the spatiotemporal impacts of HSR networks on innovation collaboration within the Shanghai Metropolitan Area, using two core datasets: patent partnerships (2015–2024) from China's National Intellectual Property Administration and HSR operational metrics (e.g., train frequency, station proximity to industrial/academic hubs). The analysis proceeds in three stages: (1) Network Evolution employs Social Network Analysis (SNA) and a quadrant classification method to identify district typologies (e.g., core hubs vs. peripheral nodes) based on static collaboration intensity and dynamic growth (Cao et al., 2023); (2) Global Effects quantify HSR's influence using a Dynamic Spatial Durbin Model (DSDM), isolating mobility efficiency and spatial alignment as key drivers (Elhorst, 2010); (3) Heterogeneity Analysis applies Multiscale Geographically and Temporally Weighted Regression (MGTW) to reveal how HSR impacts vary across spatial hierarchies, guiding differentiated policy strategies to optimize innovation networks (Fotheringham et al., 2017).

Key Findings-The Shanghai Metropolitan Area's patent collaboration network has evolved from single-core agglomeration to polycentric synergy, with peripheral districts significantly enhancing their network centrality and fostering a more balanced innovation landscape. Regarding driving factors, the combined effect of HSR's train frequency and equivalent travel time significantly enhances inter-county knowledge spillover and resource mobility. Additionally, innovation synergy is markedly strengthened when HSR stations are located in close proximity to the industrial/population centers of counties. Spatial heterogeneity further reveals that HSR drives stronger innovation restructuring in peripheral regions than in saturated core zones: peripheral areas leverage reverse spillover effects (e.g., access to distant expertise) to narrow gaps, while core regions face diminishing returns due to local HSR network saturation.

Significance-This study proposes a spatial differentiation framework for high-speed rail (HSR) impacts on innovation networks by integrating HSR mobility efficiency and station-industry proximity. It reveals stronger innovation growth in peripheral regions through resource borrowing, while cores face saturation-driven inefficiencies due to over-concentrated local activities. Methodologically, it combines global-local spatial analytics (DSDM + MGTWR) to bridge macro-micro planning gaps, offering tools for regional policy synergy. Practically, it advocates differentiated

policies, optimize HSR access for peripheral regions and align stations with innovation clusters in core zones to address spatial mismatches.

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Key Words: High-Speed Rail Networks, Innovation Collaboration, Spatial Heterogeneity, Multi-Scale Analysis, Shanghai Metropolitan

The Cityhood Movement and its Innovations in Racialized Political Rhetoric

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Track 11: Regional Planning

Individual Paper Presentation Submission

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The 'Cityhood Movement', a wave of incorporations primarily among affluent suburban communities in the South, is rapidly changing the balance of power and resource distribution in metropolitan regions. The codification and concentration of political authority in local hands promises to have a dramatic effect on how counties provide for their low-income residents, as well as how wealthy enclaves control their contributions to regional prosperity. The rhetoric used by incorporation advocates to garner local support frequently simplifies and ultimately dismisses the tension between these competing priorities. Language appealing to abstract notions of freedom, self-determination, individual liberty, and responsible governance is deployed, exciting residents who often chose homes outside of the city because of the freedoms that unincorporated areas purport to offer. These appeals to revered American values seem, on the surface, to be broadly beneficial to all residents, regardless of which side of the new incorporated city limits one finds themselves. However, despite the popularity of these virtues, the result has most often been new cities that are more white, more affluent, and more exclusionary. Careful scrutiny of many incorporation campaigns reveals that much of the rhetoric invokes these values in order to justify the building of political and social barriers to accountability in diverse metro regions.

This paper will discuss the use of carefully tailored, highly evocative political language in the Cityhood Movement to legitimize and promote incorporation efforts. I argue that the rhetorical framing during these campaigns frequently utilizes implicit racial language, which has the potential to simultaneously provoke suburban hostility against urban minority residents and mask this hostility by pairing it with established, legitimate conservative political priorities. The analysis utilizes two case studies: Sandy Springs, Georgia, a well-established city just outside of Atlanta which is widely seen as a model for incorporation and innovative administration efforts; and St. George, Louisiana, formed from the unincorporated outskirts of Baton Rouge, which in 2024 won a legal challenge to its successful incorporation referendum. Using content analysis of local print and online news sources as well as social media, government, and advocacy websites, this research will decipher the language and imagery used by advocates and organizers to garner public support. A demographic analysis using U.S. Census and electoral data will provide a complementary study of the residents of these incorporating communities to gain some insight about who these appeals are focused on reaching. An engagement with Critical Discourse Analysis and Stratification Economics literature will provide a framework through which to evaluate these forms of public speech. These theoretical approaches will enable a discussion of how wielding language, ranging from barely disguised racial dog-whistles to appropriated Civil Rights terminology, can be potentially effective in focusing longstanding outgroup hostility for the purpose of political action. Lastly, this paper will briefly discuss the broader implications of the success of such appeals in facilitating this incorporation trend.

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Key Words: Incorporation, Rhetoric, Dogwhistle, Cityhood, Speech

Understanding the Spatial Relationship Between Planned and Individual Factory Locations in Korea

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Track 11: Regional Planning

Individual Paper Presentation Submission

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South Korea's industrial development has historically been driven by the strategic construction of planned industrial complexes. These government-designated areas; equipped with infrastructure and regulatory support have attracted firms by offering agglomeration economies and efficient land use. However, over time, the rigidity and limitations of these planned zones have led many businesses to seek individual locations outside designated areas. This shift has resulted in a proliferation of individually located factories, particularly in suburban or non-urban areas. While planned and individual locations serve different roles in industrial spatial structures, existing research has often treated them as independent systems, neglecting their potential spatial interactions and mutual influence. Analyzing the relationship between planned and individual factory locations is essential for understanding the broader dynamics of industrial space. Individually located factories are not randomly scattered; rather, they often cluster in proximity to planned zones to leverage shared infrastructure, labor markets, and supply chains. At the same time, the unregulated expansion of individual sites has raised concerns about environmental degradation, inefficient land use, and regional inequality. Moreover, spatial clustering patterns vary significantly across industries; sectors with strong input dependencies, logistical needs, or resource constraints tend to favor specific location types. Despite these complexities, few empirical studies have jointly examined both location types while accounting for industry-specific locational behavior.

This study addresses two research questions: (1) How are the spatial distributions of planned and individual factory locations related? and (2) To what extent do industrial characteristics affect these distribution patterns? To answer these, we first conducted a bivariate Local Indicators of Spatial Association (LISA) analysis to identify spatial clusters based on the density of planned and individual factories across all Eup, Myeon, and Dong administrative units. This allowed us to classify the entire country into four distinct spatial types (H-H, H-L, L-H, and L-L) based on joint concentration levels. To test the second hypothesis, which concerns the role of industrial characteristics in shaping these spatial types, we constructed a classification model using the XGBoost algorithm. This machine learning approach allowed us to handle non-linear relationships and imbalanced data while providing interpretable results through SHAP (SHapley Additive exPlanations) values. This process enabled us to quantify the influence of key explanatory factors; particularly industry type; on the probability of each spatial cluster type.

The results show that H-H and L-H clusters dominate the country, especially in provinces like Gyeonggi-do. National and general industrial complexes had the strongest influence on clustering, followed by industrial type. Resource-oriented and basic materials industries were more likely to appear in densely clustered areas. These findings suggest that industrial policy should expand its focus beyond designated complexes to include their surrounding zones, and that location strategies should be tailored to sector-specific spatial behaviors. Local governments may also use this framework to craft regional strategies that support balanced, sustainable industrial development.

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Key Words: Industry, Policy, Distribution, Location

Using Co-visitation Patterns to Understand Economic Vitality in Retail Clusters

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Track 11: Regional Planning

Individual Paper Presentation Submission

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Retail businesses are increasingly affected by a range of external changes, including demographic shifts, economic cycles, and the growth of e-commerce (An & Chung, 2025). Given the role of retail in providing local populations with daily needs and sustaining regional economic vitality (Guy, 2007), it is important to examine which type of spatial layouts of retail businesses meet people's consumption needs and attract more visits, thereby informing planning for local retail resilience. This study seeks to answer the following questions: (1) how does the relatedness between retail categories moderate the impact of agglomeration on a retail store's foot traffic? And (2) does the moderating effect of retail category relatedness vary between urban and suburban areas, if so, what specific forms of land use development are associated with these variations?

Agglomeration is a central concept in the urban retail literature (Sevtsuk, 2014). Businesses benefit from a common pool of consumers who prefer either one-stop shopping for various goods or easy comparison of similar products. Essentially, stores offering either complementary or competing products can benefit from co-location. This theory of agglomeration and related spatial measures (e.g., density and proximity) have been widely used in previous studies to explain how spatial clustering affects the vitality and resilience of local commercial areas (Kickert & vom Hofe, 2018). However, the complementary or competing relationships between retail subcategories have been largely defined based on industrial classification standards, rather than consumers' actual co-visiting patterns, due to limited data.

We measure the complementary and competing relatedness between retail categories by leveraging Advan Research's Point-of-Interest (POI) visit data, which provides information about commercial brands visited by the same consumers in a day for each POI. We employ these aggregated co-visit patterns to measure the relatedness among 26 retail and food & accommodation subcategories (NAICS 44, 45, 72). Normalized co-visit counts within- and between-categories are used to define the complementary and competing relatedness, respectively. Our regression model tests whether this category-specific relatedness variable strengthens the effect of proximity to other POIs on each POI's foot traffic. Furthermore, our study area, Atlanta metropolitan area, which experienced rapid suburbanization, presents a unique setting to investigate how the retail agglomeration effect varies across areas developed in different historical periods. We incorporate longitudinal census and land use data to examine the association between retail agglomeration patterns and commercial land use development.

We expect that our novel measure of complementary and competing relatedness between retail categories can deepen our understanding of retail agglomeration by reflecting consumers' co-visiting behavior. Our empirical results can assist retail businesses in reorganizing facilities for foot traffic growth, by suggesting how a particular mix of retail categories can strengthen the agglomeration effect. Furthermore, our comparative analysis at the metropolitan scale can provide insights into how differences among neighborhoods in terms of development periods and land use patterns are associated with the current economic conditions of local retail areas, informing sustainable retail development in diverse contexts.

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Key Words: Retail, Economic Vitality, Agglomeration, Suburbanization, Point-of-Interest

Track 11 Research in Motion (RiM)

Intercity ecological synergy: community structures and drivers from ecosystem service flows

Abstract ID: 1842.0.0.323.2025

Track 11: Regional Planning

Research-in-Motion Presentation Submission, Research currently in process

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Given the dynamic and spatial externality of the ecosystem biophysical processes, cross-regional synergistic governance has become essential for achieving sustainable ecological management, especially the involvement of multiple cities. The effectiveness of governance depends on the network's overall collaborative capacity and the tailored governance strategies aligned with local ecological linkages within that network. However, previous studies often characterized inter-city ecological linkages by static indicators (e.g., geographic proximity), ignoring the spatial dynamics of ecosystem service flows (ESF).

Based on the spatial mechanism of ecosystem service flow (ESF), this study used ESF as the indicator to characterize ecological linkages, aiming to examine the quantitative identification and spatial visualization of inter-city ecological relationship networks and propose effective cross-regional ecological governance strategies accordingly. Taking the Yangtze River Delta region (YRDR) with 40 cities in China as the study area, we chose carbon sequestration (CS) and water yield (WY), representing directional and omnidirectional ESF respectively, to construct ecological relationship networks among the cities. Then, we analyzed the overall network and community structures of inter-city ecological relationship networks by complex network and community detection methods. Finally, using multiple regression analysis of continuous matrix variables, we compared the key drivers of these two ESFs at global and community scales to explore cross-regional ecological governance strategy.

The results showed that: (1) The supply-demand pattern and flow characteristics of ESs shaped the structure of inter-city ecological relationship networks. Although carbon sequestration flows (CSF) and water yield flows (WYF) covered more than 90% of the YRDR, ecological linkages did not necessarily exist between geographically proximate cities. (2) The CS relationship network exhibited a distinct "core-periphery" structural pattern, while the WY relationship network showed a relatively balanced distribution. Nevertheless, both networks revealed clear local community structures. Influenced by differences in flow mechanisms, the community structures of the CS and WY relationship networks were distributed along the north-south and east-west axes, respectively. Cross-community ecological linkages were crucial in maintaining the overall network transmission function. (3) In addition to cities, certain cities that played a crucial role in network control and transmission also deserved attention for future ecological protection. These cities were critical for enhancing efficiency in ecological resource allocation and flow across the cities. These included geographically central cities within areas of surplus or deficit in ES supply and transitional cities linking these zones. (4) Spatial heterogeneity, including topography, land use distribution, and precipitation, were key factors influencing CSF and WYF. Notable examples included the zonal arrangement of woodland–agricultural land–construction land and the coupling effects between topography and land use types. These factors exhibited varying effects at both global and community scales. (5) Spatial planning strategies for optimizing the CS relationship network should prioritize strengthening carbon sink zones between

fragmented communities and refining carbon compensation zoning based on each community's diverse ES supply-demand relationships. Meanwhile, optimizing the WY relationship network required hierarchical, coordinated management of water-use structures and efficiency, alongside promoting regional integration and cross-regional collaboration. This research framework integrated ESF into the city network study, providing critical decision support for cross-regional ecological planning and governance.

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Key Words: Ecosystem service flows, Complex network, Community detection, Nesting spatial model, Intercity synergy

Preparing for Climate and "Compound Urban Crises" with a Community-Based Regional Equity Approach

Abstract ID: 1842.0.0.902.2025

Track 11: Regional Planning

Research-in-Motion Presentation Submission, Research currently in process

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In U.S. metropolitan regions, unfortunately, “compound urban crises” often highlight regional inequalities, particularly when it comes to climate vulnerability, infrastructure, preparedness, resilience, and response (Westman et al., 2022). To more equitably prepare for these types of crises in U.S. metropolitan regions, we need metropolitan governance in the form of boundary-crossing institutional arrangements, which we are calling “emergent climate regionalism” (Ashcraft and Rosan, 2022). “Emergent climate regionalism” relies on regional institutional relationships to mobilize resources and build capacity. Working at the regional scale offers an “intermediary space” that functions as both the “problemshed” and the “solutionshed” (Ashcraft and Rosan 2022; Balsiger and VanDeveer, 2010). In addition, we argue that an equity index framework (informed by community data and an asset-based approach) can help us prepare for “compound urban crises” (Rosan, C. et al., 2022). We draw on recent examples of regional climate crises in the U.S. to propose guiding questions for research on how “emergent climate regionalism” (focusing on local political arrangements and institutions) and equity framing better prepares communities for “compound urban crises” (Ashcraft and Rosan, 2022).

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Key Words: climate, resilience, regional, equity, crisis

Track 12 – Planning History or Planning Theory

Track 12 Pre-Organized Session Summaries and Abstracts for the Sessions

New Trajectories for Exploring Public Space

Abstract ID: 1840.0.0.273.2025

Track 12: Planning History or Planning Theory

Pre-Organized Session Summary

Session Includes: 1844.0.0.98.2025, 1844.0.0.263.2025, 1844.0.0.113.2025, 1844.0.0.101.2025, 1844.0.0.80.2025

Tali Hatuka [Tel Aviv University] hatuka@tauex.tau.ac.il, organizer

The forced social fragmentation of a global pandemic has been followed by political polarization, violence, and contestation that have highlighted the fragility of the public domain. What can scholars and practitioners of urban design do to help? The central theoretical challenge for understanding public space lies in developing a close sensitivity towards the everyday as it is phenomenologically experienced and endogenously shaped while also remaining attentive to ongoing historical transformations in the very idea of publicness in times of war, terrorism, and violence. The very fragility and precariousness of publicness is, however, also what makes it precious. The promise of publicness lies in expanding the capacity for coexistence across heterogeneity --nurturing 'convivialism,' the art of living-with. How do we as urban design scholars and practitioners conceptualize the relationships between the public, publicness, and public space?

Learning Objectives:

- Searching for new ideas and terminologies to address publicness
- Addressing the ways we can better support and protect public space
- Discussing spaces that promote convivialism, and how do they do this

A Call for More Open-ended Public Space

Abstract ID: 1844.0.0.98.2025

Track 12: Planning History or Planning Theory

Pre-Organized Paper Presentation

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Critiquing the Habermasian public sphere, Fraser (1990) argues that a strict separation between the state and civil society creates “weak publics.” This is the condition where a public is invited to take part in the opinion formation but not in decision-making. Such a conception of public sphere, she notes, built upon socioeconomic inequalities, might appear to generate equity in political participation, but it creates exclusions of multiple counterpublics—women, the working class, minorities, youth, and other subaltern publics—searching for spaces of discursive contestation, identity formation, and political action. Building on Fraser’s work Crawford (2008) expands the idea of multiple counterpublics to the physical realm of public space where it translates to the need for and production of “multiple sites of public expression” visible in “everyday public spaces.” She provides a refreshing view of the many publics, counterpublics and public spaces alive with use and meaning in the contemporary city. In these trivial and marginal spaces, the emerging micropolitics begins to outline new possibilities for democratic practice. While Crawford’s observations highlight the value of everyday public spaces, city agencies, neighborhoods and community groups can in fact deliver public spaces that can become multiple sites of expression by intentionally expanding the typological offerings by providing open-ended public space.

The large disruptions in the status quo, such as the global recession and the pandemic have allowed for more tactical urban strategies that public institutions and community agencies should channel to promote the distribution of control and agency in public space. Grounded in open-endedness, such new public spaces can operate in the realm of possibilities informed by recent interpretations, be open to experimentation and thus always be comfortable in the imaginaries for creative use, play, care, economic sustenance, and more.

This idea is not new. A vast potential of public space—visible in tactical, temporary and other bottom-up urbanisms—exists in the residual and liminal spaces where new explorations of etiquette, norms, behaviors, interactions and use determine new possibilities for individual and group expression and the creation of new subcultures and identities. What is new is the call for an intentional expansion of the typological offerings of public spaces to include the various types of open-ended spaces, as a few cities have experimented with. The ability of people to have choices in their desired behaviors is a good indicator of open-endedness, adaptability and flexibility. Creating opportunities to appropriate space as needed and the choice of props are ways to communicate the openness of public space. The physical layout cannot predetermine every use but when its designers and managers anticipate variations, deviations and transgressions, only then can public space support a rich public life. Providing for these unknown possibilities nested in diversity and difference may seem challenging but these are the opportunities that urban designers, architects and planners crave to advance their work. In the spirit of Fraser, Ruddick, Young, and others who stress the plurality of the public, open-ended public spaces also highlight the different symbolism and embodiments of public space—the way it can present itself in distinct ways as civic, social, restorative, kinetic, exchange, and symbolic space.

Good public space is dialogic. It is a place that celebrates commonalities and unites. More importantly, by making the disparities of individuals and groups visible, it accepts and welcomes difference. In increasingly heterogeneous societies, the interaction of multiple publics is critical for civil society. But first cities must deliver the typologies of public space that afford participation through agency. Open-ended public space offers the spatial conditions for active and passive co-presence and mixing.

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Key Words: Public space, Civil society, Open-endedness, Interaction, Heterogeneity

Random Walks in Public Space

Abstract ID: 1844.0.0.263.2025

Track 12: Planning History or Planning Theory

Pre-Organized Paper Presentation

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This presentation focuses on new categories that may assist in understanding contemporary publicness. We are aware that the process of naming such categories is not neutral. Historically, conceptualization has been a methodological engine for defining the role, essence, and criteria that the public domain has taken on. For instance, in the early 20th century, authors like Georg Simmel and Walter Benjamin described public space as a domain of unique experiences and states of consciousness. In the 1930s, modernist architects like Le Corbusier emphasized the role of public space as the support for the wellbeing and leisure of urban dwellers. Top-down developments of parks and public spaces in cities worldwide followed the modernist guidelines well into the 1950s. In the early 21st century, with the climate change crisis, new global hegemonic struggles, and industry '4.0', the debate about the public domain has come to be associated with terms such as resiliency, ecology, digitization, artificial intelligence, and enhanced commodification. By introducing new categories for the study of publicness, our search could be viewed as a moment in this ongoing evolutionary process. We propose an 'index' that, as said above, is not meant to be a definitive, static or entirely self-consistent. To the contrary, the emphasis is on the messy and varying arrangements of publicness at different latitudes and locations, with a keen interest for the interstitial, tactical, and improvised manifestations of social life. On the one hand, the index format extends the preoccupation of classic vocabulary of urban theory; on the other, the lemmas proposed do not seem to match any already established categories – rather, they reassemble and redistribute previous concerns in the context of new social configurations and visibilities. Compiling an index is similar to shuffling a deck of cards. It entails randomness, and indeed, seeks to procure for it. Attaining randomness is "a mixing process (for example, a group action) acts on the system, over time continually transforming the configuration of the system". Such an iterative mixing process suits the nature of the public domain itself, although in matters of life (as in social and urban life), there is no entropic end-state to be attained. Still, the index format supports disassemblage and reassemblage: new links between ideas, texts, and visuals suggest that the public discourse is as plural as public space itself, and can be populated and developed indefinitely. Random walks in public spaces thus offer a fragment in the evolving process of imagining urban life and finding new terms to both analyze and transform it without resorting to any intrinsic, necessary order. With this in mind, we invite the reader to consider that there is no single recipe for evoking or stirring publicness. All rigid patterns are part of top-down strategies that aspire to control and govern space – but, in the margins of the patterns, or between their lines, there always remain the errant illuminations of randomness.

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Key Words: Publicness, Event, Experience, Index, Sensing/Imagining

Rescaling Territorialities of Inclusion: Finding Local Solidarities in a World of Nationalism

Abstract ID: 1844.0.0.113.2025

Track 12: Planning History or Planning Theory

Pre-Organized Paper Presentation

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This paper has three main aims. The first is to highlight the ways that rising nationalism provides new forms of conflict and tension among citizens at the sub-national scale, and by so doing place limits on local solidarity and an inclusive public sphere. The second is to identify possible urgencies or problems that might help transcend nationalist polarization or other forms of exclusion. The third is to dig more deeply into the evidence that shared ecological precarity might form the basis for new forms of unity built on a closer examination of climate crisis and/or an understanding of relations between non-human and human forms of life in the Anthropocene. The paper uses case study materials from three different sites across the US and Mexico, and offers a discussion of new territorial forms of planning practice that might be marshalled to advance greater citizen solidarity.

Citations:

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Key Words: inclusion, territory, Anthropocene, public sphere, solidarity

Sensing Conviviality and Contestation in Urban Marketplaces

Abstract ID: 1844.0.0.101.2025

Track 12: Planning History or Planning Theory

Pre-Organized Paper Presentation

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Urban marketplaces act as dynamic arenas where multiple activities and publics converge. Beyond the exchange of goods, these spaces facilitate interactions with the surrounding urban fabric and the diverse communities that live and work nearby. Outdoor markets, with their temporary and movable stalls, are particularly vital for migrant communities, serving as both economic lifelines and social hubs. However, they can also be sites of both conviviality and contestation, especially amid rapid demographic shifts and neighborhood change.

Scholarship on public space, particularly through ethnographic and participatory research, has shown how spaces and temporalities are negotiated across community groups. However, there is still little known about how different groups experience and negotiate inclusion in these spaces through a multisensory lens. As both cooperation and conflict shape marketplaces, they pose challenges in capturing and measuring the quality of social interactions, particularly as these interactions unfold across multiple sensory dimensions.

This study develops systematic methods for sensing and measuring the interactions that shape these public spaces by employing a market neighborhood in Sicily (Italy) as a case study. A key approach involves positioning a GoPro camera to document 24-hour cycles of activity from a nearby bell tower, capturing how different groups and activities occupy the same space at different times and revealing key moments of transition. Complementing this, audio recordings map the evolving soundscape, identifying patterns of sonic overlap that correspond to shifts in users and uses. Together, these visual and auditory data points allow for an analysis of when, where, and how public space is shared, sequenced, or contested.

By identifying these sensory nodes of transition, the study introduces a methodological framework for deeper mixed-methods inquiry. Follow-up interviews with users of the space offer insight into whether these overlaps foster conviviality or heighten tensions. Understanding these dynamics can inform strategies for mitigating conflict and enhancing the capacity of public spaces to nurture co-presence and coexistence. Through this approach, the research contributes to broader discussions on urban design, publicness, and the conditions that encourage convivial public space in contentious communities.

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Key Words: multisensory urbanism, public space, contestation, inclusion, street vendors

Public Realm Journeys of Inclusion Between the Formal and Informal Divide

Abstract ID: 1844.0.0.80.2025

Track 12: Planning History or Planning Theory

Pre-Organized Paper Presentation

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The urban realm is meant to be an inclusive space for all city dwellers. A vibrant urban environment thrives on the participation of diverse actors engaging in activities, interactions, negotiations, and self-expression, embodying the principles of inclusion.

A common research question examines the inclusion of informal dwellers in the city, driven by the perception that these populations are often marginalized or excluded from urban life. While some scholars challenge this perception—interpreting it as myth, synergy, or genuine exclusion—an underexplored issue is how informal urban spaces function and how their residents create public spaces in relation to the formal city. This research specifically investigates how these spaces foster inclusion for their inhabitants and what sensory experiences (auditory, visual, and olfactory) within these distinct public realms can teach us about inclusion and publicness. Furthermore, it explores how such insights can inform the development of a more inclusive urban realm.

To address these questions, we conducted one-hour sensory journeys in four neighborhoods in Medellín, Colombia, with a primary focus on Moravia. These journeys aimed to assess the dynamics of inclusion by observing and analyzing public realm activity. This method quantifies the intensity of interactions—measuring their frequency and characteristics—while also assessing their quality. Data from these sensory journeys inform unstructured interviews, deepening the understanding of interaction dynamics and linking the physical attributes of public spaces to their capacity for fostering inclusion.

The process of signaling inclusion involves a complex interplay between the sender, the characteristics of the signal, the medium of transmission, and the receiver's interpretation. Signals can be generated intentionally or unintentionally by individuals, collectives, or authorities, and their effectiveness depends on temporal and spatial factors, as well as the chosen medium. Some signals are reinforced through legal frameworks, digital platforms, or sensory experiences, while others may be hindered by structural inequalities, misinterpretation, or exclusionary practices. The way receivers process these signals—shaped by cognition, language, and behavior—determines their affordance, meaning whether they enable or restrict participation in urban spaces. Although inclusive signals can foster social trust, expand agency, and promote collective action, their impact remains constrained by broader systemic barriers such as economic disparities, security concerns, and displacement.

Under informality, a signal of inclusion is a visceral, physical, or normative process in which a local actor informs a spatial intruder of an acceptance of coexistence and an affordance for engagement in the public sphere.

The findings reveal a multitude of interactions in Moravia's public spaces, where impromptu exchanges between foreigners and residents contribute to an actively inclusive environment. However, this inclusivity is not uniform across the neighborhood. The presence of both inclusive and non-inclusive spaces suggests that the factors fostering inclusion in informal settlements may not be easily transferable or replicable in other urban contexts. This underscores the complexity of translating these insights into broader urban planning strategies.

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Key Words: Signals, Inclusion, Informal settlements, Urban Violence, Urban Form

Out(sider) Preservation: The Field Beyond Regulation and Lists

Abstract ID: 1840.0.0.530.2025

Track 12: Planning History or Planning Theory

Pre-Organized Session Summary

Session Includes: 1844.0.0.517.2025, 1844.0.0.217.2025, 1844.0.0.491.2025, 1844.0.0.441.2025

Andrea Roberts [University of Virginia] aroberts318@virginia.edu, organizer

In a time when United States government agencies and nonprofits in historic preservation are losing staff, authority, and funding, what does progress look like? Are justice aims met by fighting to preserve the regulatory complex currently under attack, or should planners rethink the field from the outsider or marginal corners of communities instead? How do professional planners operate on behalf of outsiders? In this session, panelists explore outsider preservation practice through radical planning, Black geographies, Black feminism(s) lenses, and critical heritage studies discourse in Europe and Asia. The framework for outsidership unpacks the field's underlying premises, illuminating emerging, bottom-up practices allowing planners to envision a new historic preservation paradigm. The Outsider Preservation concept, in which every connotation of the outside is engaged, encourages planners to revise thinking about who is determined to be a legitimate preservation practitioner.

Learning Objectives:

- Implications of current preservation regulatory apparatus' destruction.
- Strategies for leveraging bottom-up promises to fill in current gaps in the regulatory complex.
- History of placemaking and planning as a form of resistance to tyranny.

Outsider Preservation: A Reparative Framework for Historic Preservation

Abstract ID: 1844.0.0.517.2025

Track 12: Planning History or Planning Theory

Pre-Organized Paper Presentation

Andrea Roberts [University of Virginia] aroberts318@virginia.edu, presenting author

Repair is a product and a process that includes cessation, restitution and repatriation, compensation, satisfaction, and rehabilitation. In this talk, Andrea Roberts asks what the necessary infrastructure for reparative historic preservation practice, research, and education is, with both affective satisfaction and compensation as equal aims. The author invites engagement with the challenges and opportunities to build education, intellectual, and economic infrastructures that foster reparative preservation, specifically within the context of ethnographic cultural landscapes and places. She suggests that these infrastructures are the places, moments, and repositories of new visions for preservation that foreground the dance between atonement, recognition, restitution, and compensation—framing reparative work as necessitating beginning at the root of the historical wrongs hinted at in public history. Roberts presents her attempts at reparative preservation work in classrooms, scholarship, autoethnographic inquiry, and virtual platforms. She describes unearthing her familial relationships to enslavement and land accumulation rooted in Texas' founding, the co-creation of The Texas Freedom Colonies Project, and finally, her most recent endeavor, The Outsider Preservation Initiative, an expansion of her work in Texas, intended to return the power of place preservation and regeneration to descendant community members in the Mid-Atlantic, the Gulf Coast, and the West.

There is plenty of on-street parking in front (recommended). There are two accessible parking spaces in the lot behind the building.

Citations:

- Andrea Roberts, Brent Sturlaugson, Nick Axel, Lori Brown, Łukasz Stanek, DK Osseo-Asare, Anna Livia Brand, Rashida Ng, Vita Wells, Kounkuey Design Initiative, Sara Jensen Carr, Melanie Samson, Where Is My Land, "Field Notes on Repair: 7," Places Journal, November 2024. Accessed 24 Mar 2025. <https://placesjournal.org/article/field-notes-on-repair-7/>
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Key Words: historic preservation, reparative, heritage, protest, emerging

Challenging Preservation Paradigms: Prioritizing intangible cultural heritage in Richmond, VA

Abstract ID: 1844.0.0.217.2025

Track 12: Planning History or Planning Theory

Pre-Organized Paper Presentation

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Despite its rich historic and cultural resources, Richmond, Virginia has never created a plan or process for identifying, evaluating, and conserving these resources. In early 2022, soon after the adoption of Richmond's new city-wide Master Plan, the City initiated a planning process for its historic resources. While many Richmonders were eager to discuss the protection of their historic properties from redevelopment pressures and the threat of historic designation to affordability, other Richmonders were more interested in discussing intangible cultural heritage. In the years leading up to the launch of the preservation planning process, much attention focused on the challenges of reclamation and preservation of historic burial grounds of Black Richmonders.

In the northside of Richmond, a quasi-governmental organization mismanaged and neglected East End Cemetery and Evergreen Cemetery, as descendants and advocates called for greater transparency in the organization's practices, and the creation of a comprehensive cultural landscape analysis of the two adjoining cemeteries. In Downtown Richmond, social justice advocates and activists had recently won a 20-year battle for the reclamation of the African Burial Ground in Shockoe Bottom, much of which had been used as a university parking lot. With this context in mind, the launch of a preservation planning process was met by many members of the community ready to challenge the power asymmetries that dismissed what Roberts (2025) calls "outside preservation" priorities.

Using Richmond as a case study, this paper examines the process of drafting Richmond's Cultural Heritage Stewardship Plan. The authors, who both served on an advisory board for the planning process, analyze how this planning process challenged the norms of which historic resources qualify for preservation, whose expertise is engaged, and how individuals, institutions and community organizations facilitate alternative futures imagined through people-centered preservation. Through document analysis of materials associated with the planning process, participant observation and semi-structured interviews, the authors grapple with cultural heritage as process, and the challenges to centering the stories and memories that people ascribe to intangible, erased or contested places as valuable historic resources. The authors offer recommendations for rethinking the narrative, approach and tools for realizing a new historic preservation paradigm that prioritizes community-based values and dialogue about how and why places matter.

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Key Words: Cultural heritage, Intangible, Historic Preservation, Memory, Planning

Promoting Equitable Preservation and Development Through Hyper-local Community-based Storytelling

Abstract ID: 1844.0.0.491.2025

Track 12: Planning History or Planning Theory

Pre-Organized Paper Presentation

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This presentation responds to an urgent call for reimagining preservation practices and sustainable urban futures amid declining resources and institutional challenges. The author positions preservation-based storytelling as an innovative form of Outsider Preservation. Drawing from her doctoral research and tangential nonprofit work as the founder of Urbanist Media and the Urban Roots podcast, this work illustrates how outsider-focused community-based storytelling helps reframe public perceptions of everyday Blackness by challenging the definition of Black representation, that historically silenced community voices can also preserve cultural heritage and scrutinize preservation and planning frameworks that continue to perpetuate displacement and erasure through (re)development. This research investigates the function of storytelling to preserve and elevate marginalized Black community leaders who are traditionally seen as outsiders within historic preservation discourse.

Through critical and futurist theoretical lenses, the author's contribution will highlight preservation-focused and community-based storytelling (via oral histories) as an effective methodology for reclaiming community agency, asserting place-based identities, and influencing equitable urban planning and policy-making processes. Specifically, outsider storytelling emerges as a powerful strategy to address power imbalances, actively resist erasure, and preserve the intangible cultural practices that underpin community resilience. One case study (accomplished through oral history and Black archival research) raises awareness around outsider cultural and community preservation by leveraging first-person narrative stories of Black life along the Indiana Avenue corridor in Indianapolis, Indiana. The collection of resident-led oral histories was not only a new primary resource for research, but the accounts served as the foundation for nonfiction audio storytelling work by way of documentary-style podcasting. This type of care work uncovered new forms of grassroots preservation and nontraditional planning methods that have successfully thwarted top-down development pressures encroaching on Black cultural spaces along Indiana Avenue, including the Ransom Place National Register Historic District and the Madam Walker Legacy Center National Historic Landmark. This human-centered work challenges conventional preservation paradigms by elevating historically excluded (outsider) voices and prioritizing community-driven narratives and reparative actions in the built environment.

Ultimately, these efforts seek to transform the field by introducing previously unexplored equitable preservation and planning practices where hyper-local community-based storytelling engenders restorative justice, heritage reclamation, and inclusive neighborhood regeneration. For example, coupling the Indiana Avenue resident-led oral histories with archival data and field recordings (tours of the local historic places led by community members) enabled a more holistic understanding of place-based community legacies and the proliferation of preservation efforts driven by African American long-term residents with generational connections to Indiana Avenue. By drawing a throughline from past to present, the audio-documentary podcast traced the historical disinvestment and contemporary growth and development along the corridor, revealing the complexities and strengths of community participation (of those who have been viewed as outsiders) when it comes to equitable preservation-based development.

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Key Words: Preservation, Storytelling, Planning, Community, Equity

Protests, Preservation and Grassroots Community Activism at Marcus-David Peters Circle

Abstract ID: 1844.0.0.441.2025

Track 12: Planning History or Planning Theory

Pre-Organized Paper Presentation

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In response to the murder of George Floyd by Minneapolis police officers in 2020, the resurgence of the Black Lives Matter (BLM) Movement not only resulted in protests and marches in the streets but also confronted symbols of white supremacy in the built environment, especially monuments. In Richmond, Virginia, the Black Lives Matter (BLM) Movement protests converged on Monument Avenue, and overnight protesters graffitied the Confederate statues that dominated the avenue for over a hundred years. The epicenter for the BLM movement converged in the Robert E. Lee Circle which was reclaimed by community organizers and activists and renamed Marcus-David Peters Circle after a young Black man who was killed by Richmond police officers while experiencing a mental health crisis in 2018. Marcus-David Peters Circle served as a space for gathering, healing, expression, and embodied Black resistance and liberation against tactics and structures of whiteness and white supremacy in Richmond.

During the BLM protests, family members of Marcus-David Peters, community organizers and activists brought forward a list of demands to City of Richmond officials. The list of demands addressed systemic racial injustices and police brutality in Richmond as well as called for removal of Confederate statues on Monument Avenue. By September 2021, all Confederate statues were removed from Monument Avenue including the graffitied Lee statue which was recognized by the New York Times in 2020, as one of the most significant examples of US protest art since World War II. During the Lee statue removal, all signage, memorials and other items were also removed from Marcus-David Peters Circle. The city engaged local museums and organizations in future preservation efforts surrounding monumental spaces on Monument Avenue which included transferring Confederate statues to the Black History Museum and Culture Center of Virginia.

In this chapter of my dissertation research, I examine how city government and preservation institutions engage grassroots community activists and organizers in monument removal and preservation of Marcus-David Peters Circle, a symbol Black resistance and liberation in Richmond. Using content analysis, observations, and interviews, I examine the case study of Monument Avenue through the lens of key time periods beginning with reevaluation of Confederate statues in 2018, the reclamation of spaces on Monument Avenue during the 2020 Black Lives Matter (BLM) Movement, and lastly, removal of Confederate statues along the avenue in 2021. This paper analyzes the ways in which cities and museums respond to resistance in monumental spaces and how city actions to preserve the memory of Marcus-David Peters Circle also meant control over the process and the space. Lastly, themes from my findings demonstrate what it means to remove the Confederate statues on Monument Avenue and how reclaiming at Marcus-David Peters Circle symbolizes resistance to tactics of white supremacy and systemic racial injustices in Richmond's landscape. My dissertation research contributes to preservation planning discourse by building an understanding about the ways in which local governments, organizations, and museums engage the voices of grassroots community activists and organizers in reparative processes surrounding removal of the Confederate statues and symbols of anti-Black racism and white supremacy.

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Key Words: Monuments, Memorialization, Historic Preservation, Cultural Landscape, Social Movements

Track 12 Individual Paper Presentations

"Invisible" Smaller Cities: Knowledge Production of China's Everyday Urbanism and A Manifesto Forward

Abstract ID: 1844.0.0.962.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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As China enters the era of "new urbanization," urban knowledge is also undergoing a renewing process. Recent Chinese urban studies are witnessing an "everyday turn": alternative epistemologies are promised to emerge from ethnographic studies focusing on everyday urban practices. However, this shift remains biased toward megacities, neglecting experiences of smaller cities. Drawing on Louis Althusser's "symptomatic reading," I argue that this overlook is not incidental but a product of a hegemonic mode of knowledge production that marginalizes the everyday life of smaller cities. Through a content analysis of China's everyday urbanism literature, this article decodes the mechanisms of this exclusion and proposes an alternative agenda to put smaller cities onto the map of urban studies.

This knowledge structure operates through two theoretical moments. First, the concept of "everyday" is shaped by Henri Lefebvre's Marxist humanism, framing everyday life within a teleological narrative of "state's governmentality – local adaptation – gray spaces of negotiation." Such a teleology flattens the variety of everyday urban experiences. Second, the meta-discourses of urban China further constrain research viewsheds. "The Great Urban Transformation" prioritizes the "successful" urbanization stories of the largest cities, while "Neoliberal Urbanism" isolates urban experiences, rejecting relational analyses that could include smaller cities. These two moments are thus co-constituted: the first nullifies the structural question of why smaller cities matter, while the second provides an answer that prioritizes megacities while overlooking smaller cities – an indisputable answer because the question is never asked.

To break this cycle, the question "Why do smaller cities matter?" has to be revived. Its answering constitutes a two-step movement, a manifesto, for a research agenda for alternative everyday urban knowledge from smaller cities. The first movement is a structuralist analysis revealing how China's regional urban conjunctions historically exploit smaller cities, making them a "necessary periphery" via political, economic, and ideological forces. The second movement attempts to turn this historical unimportance into theoretical primacy. Through a "dialectics of periphery," it argues that peripheries like smaller cities are the de facto frontiers where the Chinese growth machine re/de-constructs itself. This opens a window for alternative studies from the smaller cities that situate the differentiated everyday(s) within urban conjunctions, trace the everyday functioning of these conjunctures, and look for lines of escape. Since the epistemological premise of this retheorizing attempt is a relational one that incorporates not only smaller cities on the "periphery" but also megacities in the "center," this theorizing practice will lead to a radical redrawing of a new map of urban studies that recognizes the fluidity and openness of everyday life across all Chinese cities.

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Key Words: Everyday Urbanism, Conjunctural Analysis, Dialectics of Periphery, Smaller Cities, Chinese Urbanism

A Blues Epistemology for Reparative Planning

Abstract ID: 1844.0.0.1042.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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This paper builds on attempts to explore a theory for reparative planning (Franke, 2019; Williams, 2020; Song, 2021; Lewis, 2022), using a meshwork approach to further still move towards a relational and politically productive theorization for planning futures. The paper proceeds with special focus on a spatial praxis model of property transformation called the community land trust (CLT), and conceptualizes the CLT as an example of the kinds of planning infrastructures people build in times of great threat and struggle. The CLT model was first used in the United States by Slater King, Martin Luther King Jr.'s cousin, and has quietly labored at the intersection of land, housing, climate, and environmental justice for nearly six decades. The paper builds on a theory of reparative planning through the experience of the CLT, seeing the history of the built environment as entangled with the contemporary experience of all space: ecological space, urban space, rural space, and economic space. The paper uses the CLT as a portal through which we may elaborate on the possibilities and horizon of reparative planning, with attention to the ways in which the CLT brings into focus the spatial and embedded remains of older property practices that continue to reproduce subjectivities and embodied experiences across the lifespan and across the human and more-than-human worlds. The paper theorizes an entanglement between body and landscape as identified by frontline CLT communities across environmental and climate justice movements, that can lend greater depth to the literature on reparative planning.

In order to braid this entanglement to our thinking about the possibilities of reparative planning, the paper offers an analytical discussion of Blues Epistemology as one method to help us think about a process or mechanism for continuously moving towards reparative planning. The paper will put Blues epistemology into conversation with synchronic and diachronic theories from planning, Black, feminist, geographic, and Gramscian studies, in order to understand the potential and limitations of our work to repair through planning. Blues epistemology is a term coined by the late scholar Clyde Woods, in his book *Development Arrested*. Woods offered the framework as a Black social theory of space, arguing that race mattered in the organization of post-civil rights development in the Mississippi Delta, and that resistance to these histories of racial capitalism could be found if one was looking – specifically in blues music. For Woods, the makers of the blues were “sociologists, reporters, counselors, advocates, preservers of language and customs, and summoners of life”, chronicling grief, survival, and resistance against white racial violence. The paper will conclude with key considerations as we search for ways to reassemble people and place towards greater belonging, sustainability, and mutuality.

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Key Words: Reparative planning, Blues epistemologies, Black/Decolonial studies, Gramscian studies, climate futures

Arguing with Images: Visual Thinking and Reviving the Lost Art of Planning Theory Graphics

Abstract ID: 1844.0.0.1024.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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This paper examines the underestimated potential of graphic visualizations to shape and catalyze planning thought. We typically employ diagrams to buttress the written word and assume the images are a neutral mirror of the text. But graphics can do more than merely translate text-based ideas into visuals. They frame debates, steer thinking, and tacitly constrain or expand our planning imagination. As a spatial field and as applied social scientists — and as prolific producers and consumers of maps, plans and charts — planners consider themselves as doubly savvy visual thinkers. Yet our field often uncritically views these graphics as unproblematic, passive illustrations of planning ideas. Just because planning is a spatial discipline, it isn't automatically a visually savvy discipline.

Planning has a long history of using graphics to illustrate the discipline's concepts. The chronological parade is well-known: garden city magnets, Geddes' "valley section," City Beautiful watercolor plans, Burgess's concentric zones, rational diagrams of urban grids and zoning, Le Corbusier's radiant city, HOLC's "redlining" maps, Mumford's regions, interstate highway maps, and new urbanist transects. The field employed these graphics to sell these foundational ideas to a larger audience. Yet this graphic practice has declined in recent decades, arguably diminishing the persuasive reach of planning concepts.

Planning scholars have not abandoned graphics altogether (and architects certainly haven't). We continue to create an abundance of figures for publications (a task made easier in the age of statistical software, GIS, Excel and Adobe). But most of these graphics are data visualizations, reference or thematic maps, classification tables, representations of relationships between variables, Venn diagrams, chronologies, or flow charts of planning steps.

Yet if one looks specifically for contemporary graphics that do analytical work and assert normative claims, the examples are thinner and less frequent. Has planning backed away from effectively using graphics to visualize the field's central debates and entice viewers to embrace new concepts? Are planning theorists neglecting a powerful rhetorical and analytical tool? And if this is true, should we be concerned and do something about it? Or have we — in our disciplinary evolution from architecture's stepchild to an applied social science — left behind the designer's visual tools and become a text- and data-based field?

I retrace a century's history of planning's most influential graphical ideas, explore the decline in this practice, and advocate for reengaging the visual argument. I develop several typologies of planning graphics based on their analytical composition; quantitative versus conceptual representation; and engagement with space (e.g., topological vs. topographical). I develop a hierarchy of the use of planning graphics (from weak to strong): (1) Ornamental: without substantive value-added; (2) Highlighting: drawing attention to key points in the text — visually stimulating but adding no unique information; (3) Distillation: providing the same information as the text but in a concise, concentrated, expedient format (graphics as an aide-mémoire); (4) Visual thinking: constructing ideas beyond the limitations of text. These do work that the text cannot. This final step is the most interesting, moving from visual communication to visual thinking.

Captivating visuals are not just decoration; they compel us to think more creatively and advocate more effectively for our profession's ideas. They can challenge outdated ideas, prod us to explore and express innovative ideas beyond the boundaries of writing. Graphics can have a life, logic and story of their own. The larger goal of this

paper is to critique the traditional use of diagrams in planning's intellectual history and promote more critical and reflective visual thinking in contemporary planning theory.

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Key Words: planning theory, planning history, visualization, graphic design, planning communication

Balancing Heritage Conservation and Community Vitality: Case Study of Nanjing Heritage Communities

Abstract ID: 1844.0.0.1026.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Under the context of "stock-based development", historic urban residential areas represented by heritage communities are confronted with dual imperatives of vitality enhancement and cultural preservation. On one hand, authorities aim to optimize demographic structures within aging heritage communities through youth-friendly policy interventions. On the other hand, as critical carriers for the conservation and transmission of cultural heritage, these heritage communities necessitate the preservation of their cultural cohesion and social identity, while sustaining the social fabric embedded within. This context necessitates urgent exploration of innovative planning interventions, which are capable of sustaining historical preservation and community cohesion in heritage communities undergoing demographic changes.

Considering previous studies based on physical environment investigations and big data analytics fail to adequately delineate heterogeneous population groups within heritage communities, while traditional community participatory conservation approaches lack systematic strategic frameworks to address demographic transitions, this study attempts to investigate the following key questions from the perspective of micro-level individual choices: 1.How might "youth-friendly" policies alter heritage community demographics and social structure? 2.What perceptual differences exist between locals and young residents regarding historical spaces, and how might these affect identity and integration? 3.How can community-based conservation methods be adjusted or supplemented under the new conditions? The research specifically focuses on community public spaces, which serve as primary focus of urban renewal initiatives, and have been demonstrated to hold significant connections with living heritage preservation and community cohesion.

This study collected 246 panoramic video samples of typical public spaces in Nanjing's historic urban area. Two sites surrounding Nanjing University, both characterized by heritage communities and youth gathering areas, were selected. One site has strong community participation and cultural heritage preservation, while the other is roughly the opposite. A stated preference (SP) questionnaire was designed to analyze respondents' socioeconomic attributes and spatial preferences. Structural equation modeling (SEM) quantified influencing factors of spatial selection of different social groups, while Multinomial Logit Model further elucidated the impact mechanisms of these factors/utilities on spatial choices.

Preliminary analysis indicates: 1. Despite divergent subjective evaluations of visual experiences and activity atmospheres, local residents and potential young residents exhibit shared understanding of historical-cultural elements, showing potential for socio-cultural symbiosis; 2.Lack of historical and cultural awareness may affect the activities of some young residents within the community, hindering their social integration and may compromise the vitality and cultural integrity of heritage community; 3. While historical elements exert considerable attraction on tourist populations, they demonstrate insufficient capacity to foster cultural identity formation and community integration among potential residents.

Finally, this study explores the convergence between living cultural heritage preservation and public space revitalization in historic urban areas. It examines the potential for cultural integration between potential young residents and local heritage communities through empirical research, while analyzing the balance between

sustainable community vitality and heritage conservation under varying policy interventions and demographic compositions. This study further explores how traditional community-participation-based heritage conservation strategies adapt to changes in population structure and residents' social networks, and how planners and government can provide support in this process.

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Key Words: Historic Urban Areas, HeritageCommunities, Urban Vitality, Public Space, Youth-Friendly Policy

Benevolence For Sale: The Real Estate Turn in Public Housing of Colonial Manila, 1934-35

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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In his comparison of public housing policies of the British and Dutch Empires, Harris (2009) concludes that colonial housing policies followed larger shifts in colonial policies, reflecting the priorities of the colonial government. For example, municipal policies of kampong improvement in the Dutch East Indies (now Indonesia) reflected the imperial “ethical policy”, which acknowledged a need for reparations on account of the benefits the Dutch had extracted. British housing policies were also driven by a colonial imperative, designed to appease indigenous unrest and justify colonization by presenting housing as beneficial to the colonized. This top-down conceptualization of policy design is complicated by the American-occupied Philippines, where U.S. realtors engaged in developing public housing for the Filipino urban poor.

This paper aims to contextualize and re-evaluate what I see as a “real estate turn” in the public housing of colonial Manila in the mid-1930s, characterized by an influx of private sector participation in what is conventionally considered a public endeavor – providing housing for the urban poor. What motivated these realtors to engage in public housing? How did the global political context of the 1930s enable the real estate turn? How does this trajectory compare with housing policies of other colonial Southeast Asian states? What are the implications of the real estate turn for the following decades of housing policy in Manila?

To answer these questions, I conducted historical archival research in the Bentley Historical Library and the Special Collections at the University of Michigan in Ann Arbor, Michigan, and the American Historical Collection at Ateneo de Manila University in Quezon City, Philippines. The central primary source for this study were the correspondences and planning documents in the Joseph Ralston Hayden Papers at the Bentley Library – donated to the library by the eponymous professor of political science at the University of Michigan and Vice Governor General of the Insular Government of the Philippines from 1933 to 1935.

I examine three distinct but overlapping epochs of public housing in colonial Manila: the sanitary barrios (1900-1910s), barrio obrero (predominantly 1920s), and the real estate turn (1930s). I analyze how the sanitary barrios and barrio obrero arose from contrasting visions of housing, the former as a colonial mode of sanitizing the city (Mactal, 2009) and the latter as the result of workers’ demand for housing as a mode of social justice (Ocampo, 1977). I examine how these antecedent policies influenced the project design of two projects launched in 1934 by American real estate developers Walter E. Olsen and Colin M. Hoskins. Highlighting the financial and institutional innovations that these two realtors introduced to public housing, I trace how these projects prefigure the private sector's domination of public housing in the Philippines after independence in 1946 (Pante, 2019).

I argue that the real estate turn in Philippine public housing is distinct from other colonial Southeast Asian states in three ways. First, the real estate turn symbolizes the contradictions of the American colonial system and reflects its planned retreat. Second, the administration’s involvement of real estate developers facilitated the hybridization of colonial and non-colonial visions of housing. Last, the real estate turn was a watershed moment that prefigured private sector involvement and domination of public housing in the Philippines.

This historical analysis of housing projects in colonial Manila calls for a reinterpretation of how colonial housing policies, which have been understood to be dictated primarily through colonial imperatives, have been influenced

by complex interactions with native initiatives for equitable housing. It also reveals new opportunities for understanding how colonial policies impacted trajectories of public housing in the post-colonial state.

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Key Words: public housing, real estate, colonial planning, Manila, Philippines

Contextualizing Gentrification Within the Long History of Racial Capitalism in Southwest DC

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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In this presentation, I explore gentrification's roots in historical racialized dispossession, through a case study of Southwest Washington, D.C. I apply a framework of racial capitalism (Dantzer, 2021) - with additional attention to settler colonialism and feminism - to Neil Smith's rent gap theory (1979) in order to understand gentrification's oppressive dimensions beyond class. Further, while research typically focuses on immediately precedent disinvestment to determine the presence of a rent gap and thus gentrifiability, I argue that this disinvestment alone does not provide a full picture of the racialized dispossessions which ultimately shape gentrification – and which gentrification reproduces. The project investigates how interconnected processes across Southwest's history before gentrification – from settler-colonial conquest to disinvestment to urban renewal – have exploited and reproduced a racist theory of value in relation to property. These varying but pervasive and persistent dispossessive processes do not simply happen to occur in the same space, and are not merely metaphorically similar or different instances in a pattern. Rather, they are directly connected and lay the groundwork for subsequent processes, leading up to present gentrification. Taking into account a much longer history of the production of racialized and devalued space can offer a more comprehensive view of gentrification's fundamentally dispossessive nature, and shed light on how racial regimes of property (Bhandar, 2018) reproduce themselves in different forms across time into the present.

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<https://doi.org/10.1080/01944367908977002>

Key Words: Gentrification, Racial capitalism, Urban renewal

Eugenics and Urban Renewal in San Juan: Displacement and Embodied Resistance along Caño Martin Peña

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Historically, urban planning used eugenic discourses that constructed marginalized communities as places with individual and collective pathologies. In this paper, I discuss how the historical logics of colonial and state powers used public health discourses to clean the city from poverty and informality to advance modernity in San Juan (Puerto Rico). This happened through federally funded urban renewal and slum clearance programs in self-made settlements along Caño Martin Peña. This was expressed in the displacement of self-made neighborhoods through forced rehousing to other settlements along Caño and public housing in multiple waves, destroying some of these communities and substituting them for urban development projects and high-income housing. I particularly examine the cases of Tokio and Fanguito, paying attention to how each temporality of displacement created additional layers of trauma and embodied health inequities for residents and the communities. I also examine the mechanisms of resistance developed over time by residents to avoid new waves of displacement and create community spaces to rebuild their social web of connections and heal. Methodologically, I use archives to reconstruct the official policies and discourses of the public health and planning departments. I also conduct oral histories with displaced residents from Tokio and Fanguito to center their embodied experiences and collect audiovisual archives like old plena songs to recover collective narratives.

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Key Words: Public health, Urban renewal, Housing, Forced displacement, Community health

Exploring the Potential for a Collective Turn in Planning Theory

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Agonistic planning, rooted in Chantal Mouffe's (2000, 2013) agonistic pluralism, emphasizes disagreement and contestation, which are essential for addressing deep-seated inequalities. However, by endlessly embracing disagreement, it struggles to translate conflict into concrete political transformation and legitimate decisions, as mere recognition of disagreement is insufficient for systemic change.

This paper reassesses agonistic planning in light of populism theory, which, despite sharing key principles with agonism, has been largely overlooked in planning discussions. Like agonism, populism derives its strength from opposition, fostering alternatives and pushing planning into the political sphere. However, populism is easily dismissed due to its association with negative traits, such as the marginalization of minorities and oversimplified antagonisms. This rejection, however, overlooks the full potential of agonism: the mobilization of collective power to address structural oppression in planning.

The paper focuses on the logic of populism itself (Laclau, 2005), independent of its ideological connotations, and on hegemony theory (Laclau & Mouffe, 1985), which underpins both Laclau's populism and Mouffe's agonism. It asks: What kind of theoretical approach to planning could address both decision-making and systemic change, balancing the dynamic interplay between policy stabilization and challenging the potentially oppressive status quo?

To explore this question, the paper investigates the roles of 'opening' and 'closure' in planning theory. It argues that systemic change requires both creating political space for contestation (opening) and consolidating it for decision-making (closure). Hegemony complements the openness with a closure, offering a way to navigate contested spaces by providing a "theory of the decision taken on an undecidable terrain" (Critchley and Marchart, 2004), enabling decision-making despite ongoing disagreement. The paper proposes a framework that balances these dynamics by fostering collective will formation and unity. The four-step approach outlined here illustrates how unity emerges not by erasing differences but by working through and engaging with them. The framework also emphasizes the need to recognize distinct levels at which planning operates at different stages.

The framework follows a four-step process:

1. Opening at the level of everyday politics – Initial struggles and contestations emerge around particular planning issues.
2. Opening at the level of meanings and identities – Disputes escalate as planning issues gain broader political significance, often transcending their original purpose.
3. Closure at the level of meanings and identities – Temporary fixation of meanings occurs, leading to the emergence of collective identities.
4. Closure at the level of everyday politics – The reconfiguration of social order, marked by new discourse and political fronts, influences decision-making on the planning issue.

By reframing closure as complementary to openness, this framework reconciles planning's transformative goals with the practicalities of decision-making. It places decision-making at the center of planning democracy, ensuring that systemic change does not remain an open-ended contestation but results in meaningful political transformations.

Integrating populist logic into planning theory enhances reflexivity in decision-making, revealing the inherent tensions in planning processes. Planning decisions are not neutral; they reflect hegemonic discourses that prioritize certain interests while disadvantaging others. The collective turn anticipated in this paper shifts the focus of citizen participation from simply aggregating individual opinions toward incorporating collective stances that more effectively challenge existing power structures. This shift highlights the dynamic nature of the discursive field in which planning decisions and solutions are made.

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Key Words: Planning democracy, Populism, Post-foundational theory, Systemic change, Collective will

Freedom cities in the long twenty-first century

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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During his campaign and in his administration's discussions with promoters since, Trump has expressed his interest in building "Freedom Cities", independent cities constructed on federal lands managed by corporations based on their own regulations. In conception, Freedom Cities function as crypto-based anarcho-capitalist, libertarian fiefdoms from which corporations can operate their global enterprises. In one sense, Freedom Cities are the latest, high tech evolution of extraterritorial spaces for capital to escape the "tyranny" of nation-states, following on the heels of charter cities, seasteading, and network states. This paper, however, situates the Freedom City imaginary and its geopolitical implications within the lineage of spaces of exception that function as critical nodes of articulation within each cycle of the long durée of capitalist evolution as conceived by Arrighi.

Arrighi (1994) posited that the evolution of the world capitalist system has passed through four "long centuries" characterized by systemic cycles of accumulation (SCA). In each cycle capitalist and territorialist actors organized and reorganized themselves on an ever wider geographical base to overcome the limitations of the previous cycle. While capitalists employ territory only to the extent that it increases capital accumulation, territorialists employ capital only as a means to expanding territory. In previous work, I have argued that power in the world capitalist economy has become more territorially disembedded with each SCA, as capitalist power has superseded territorialist power and that we are now entering a new long century in which capitalist accumulation is fully automated.

This paper argues that each SCA has entailed its own unique form of extraterritorial space of exemption that serves as a model node of articulation for the world capitalism of its time. During the Genoese SCA, the city-state proper (and Genoa in particular) coordinated the financing of Spanish colonialism. During the Dutch cycle, fortified trading posts, or "factories", operated as all-purpose points of contact between European traders and local inhabitants. In the English cycle, free ports like Hong Kong and Singapore opened up the factory model to capitalist traders of many nations. The model for the American cycle can be found in the export processing and special economic zones established to bypass local trade laws like import and export tariffs. Finally, in the emerging cycle of fully automated capitalism, it is suggested that Freedom Cities are conceived of as serving as nodes for articulating the vectors of information that organize fully automated capitalism (Wark, 2021).

The paper concludes by arguing that the Freedom City model is intended to serve as a model not only for capitalism's articulating nodes but also for a decentralized and fragmented technofeudal future. Curtis Yarvin, the Dark Enlightenment philosopher whose ideas circulate widely among Silicon Valley denizens (including notably JD Vance), calls for breaking up nation-states into a "patchwork" of monarchical feudal states with independent regulatory regimes that compete for citizens (Moldbug, 2008). If realized, this vision would bring world capitalism full circle to its city-state origins.

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Key Words: freedom city, cycles of accumulation, logic of power, fully automated capital

Henry Wright - Intellectual Formation and Foil to Clarence Stein

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Henry Wright (1878-1936) defied easy categorization, which may be why the full story of his considerable contributions has not been previously told. He wrestled with his identity as an architect, landscape architect, houser, and planner more so than any of his colleagues. His ongoing attempts to answer the question of how he fit within these parameters, or not, and what that meant for the professions and those whom these professions served defined his ongoing quest. This paper explores his training and early career that served to distinguish him from his better-known partner on Sunnyside Gardens and Radburn, Clarence Stein (1882-1975). In doing so, it assesses critical junctures in these professions during the early 20th century.

Prior to partnering with Stein, Wright worked as a landscape architect, architect, and planner. He characterized these professional personas as Architect, Landscape Architect, Landscape Engineer, Town Planner, and Architectural Real Estate Officer. He fully inhabited these professions in a range of contexts from community/board volunteer to consultant with prominent firms and as sole proprietor and, toward the end of this period, as planner with the City of St. Louis. What is fascinating here is not how advanced his considerations of site design/engineering, architecture, housing, and planning were, but his flexibility in moving between the planning, design, and development professions. Wright secured significant professional experience following graduation from the University of Pennsylvania in 1901 to his departure from St. Louis in 1923. This crucial 22-year period of his career is all but forgotten as he seemed to spring from nowhere in 1923 when he began his partnership with Stein and their celebrated landmark projects together.

This study uses primary and secondary sources and a comparative approach to assess the two architects' impact within the larger context of this period when the profession of planning was emerging and maturing. With a career that spanned from 1901 to 1936, focusing on a component of what Wright did from 1923 to 1932 while in partnership with Stein does a disservice to academic studies in these fields. This constrained view leaves considerable gaps in our understanding of the emergence of the planning profession, the evolution of early U.S. housing policy and large-scale design, innovative site design and regionalism studies, the impact of the European modernists on American architects/planners, and architecture and planning pedagogy.

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Key Words: History, Community, Regionalism, Housing

Introducing UndocuCrit to Critical Disaster Studies

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Social vulnerability, a widely used concept and method in disaster studies, is critical in understanding who is at most risk before, during, and after a disaster. A large body of social vulnerability research concentrates on quantifying and analyzing social determinants representing how vulnerable a community is to disaster. However, scholars have argued that social vulnerability is an insufficient basis to address inequality in exposure to disasters (Jacobs,

2019). Additionally, undocumented immigrant communities are deemed invisible in social vulnerability studies due to their pre-marginalized status and being undercounted in the US Census (Mendez et al., 2020). For these reasons, there is an urgent need to assess how to examine the application of undocumented status in disaster studies. This paper argues that using Undocumented Critical Theory (UndocuCrit) in critical disaster studies provides a reflexive research methodology that helps us understand the lived experiences of undocumented communities (Aguilar, 2019). UndocuCrit Theory derives from a lineage of Critical Race Theory (CRT), Latino/a Critical Theory (LatCrit), and Tribal Critical Race Theory (TribalCrit) that encompasses four principles: fear as endemic, state of liminality, sacrifice, and mentorship through engagement to share stories of resilience and adversities encountered by undocumented individuals. By centering the narratives of undocumented individuals, UndocuCrit challenges mainstream disaster research paradigms that overlook undocumented communities. Moreover, UndocuCrit encourages undocumented scholars to reclaim narratives to unveil the vulnerability of undocumented communities in the face of disaster that continues to be (un)studied. Drawing on UndocuCrit Theory, we propose that the lack of studying undocumented communities in disasters is due to the production of illegality. This production of illegality manifests in various ways, including the exclusion from formal disaster relief systems, fear of deportation hindering access to aid, and limited trust in government agencies during all stages of the disaster management cycle. UndocuCrit supported by insights from critical disaster studies, which challenges conventional understandings of disasters as natural phenomena, can further our understanding of the social, political, and historical dimensions of undocumented community's vulnerability in disaster contexts. By adopting UndocuCrit within disaster studies, disaster scholars and practitioners can adopt a more nuanced and inclusive approach to understanding undocumented communities' vulnerability.

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Key Words: UndocuCrit Theory, Critical Disaster Studies, Undocumented Immigrants, Disasters, Social Vulnerability

Inventing Neighborhood Stability: Planning, Class Distinction, and the Remaking Hyde Park-Kenwood

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Urban planning has long grappled with a central tension: how to manage the forces of urban dynamism while protecting neighborhood stability. Cities are engines of economic and social change, but residents experience them at the neighborhood scale, where social networks, safety, and opportunity are rooted. Throughout the twentieth century, planners sought to mediate this tension—sometimes with good intentions, often with exclusionary outcomes.

This paper examines how Hyde Park-Kenwood on Chicago's South Side became a laboratory for neighborhood-scale planning interventions aimed at managing racial and economic change. It argues that, over seven decades, planners, community organizations, and the University of Chicago strategically deployed—and at times invented—planning tools to reshape Hyde Park's public environment. Their goal was to maintain the neighborhood as an interracial, middle-class community of “high standards” amid forces of racial segregation and economic disinvestment.

Rather than a case of top-down planning imposed by elite institutions, Hyde Park's elite institutions collaborated with local residents and community groups to maintain the neighborhood's racial balance while persistently excluding low-income residents (Hirsch 1998; Chaichian 2017). This collaboration relied on a range of planning tools at different historical moments. In the 1950s and 1960s, Hyde Park was an early adopter of the federal “Conservation Area” model of urban renewal—an alternative to wholesale clearance that enabled selective use of eminent domain, targeted clearance of “blighted” properties, and public subsidies for private redevelopment. Invented largely by planners from the neighborhood, this model framed neighborhood change as a technical problem while reinforcing class boundaries and excluding the city's poorest residents.

In later decades, as federal funding waned, Hyde Park's planners and civic leaders adopted market-oriented tools to continue reshaping the neighborhood's commercial and public spaces. In the 1990s, amid rising fears of crime and disorder, local business owners, residents, and the University of Chicago formed the Ad Hoc Committee for 53rd Street—a grassroots planning initiative that framed street-level disorder, particularly the presence of Black youth, as the primary threat to stability. The committee's work led to the creation of a Business Improvement District (BID) and later a Tax Increment Financing (TIF) district that funded new redevelopment, including a hotel, restaurants, and redesigned public spaces to appeal to middle-class residents and visitors.

Drawing on archival research, meeting minutes, interviews, and the author's own experience growing up in Hyde Park-Kenwood, this paper reconstructs how neighborhood actors actively shaped neighborhood change. It shows how planners and residents rejected the idea that change was inevitable or outside of their control. Instead, they developed and refined planning interventions to stabilize property values, attract middle-class residents, and maintain racial and economic diversity—even as these efforts excluded low-income residents and reshaped public space to serve middle-class tastes.

By tracing the history of neighborhood-scale planning in Hyde Park, this paper offers a new perspective on the history and future of urban planning. It shows that neighborhood change is not simply the result of markets or macroeconomic shocks but also of intentional, collective efforts to deploy planning tools—sometimes inventively, sometimes coercively—in pursuit of a particular vision of stability. Hyde Park-Kenwood's long experiment in

neighborhood planning demonstrates that maintaining integrated neighborhoods is possible, but the work is difficult and not without costs. As cities today face gentrification and persistent disinvestment, this case offers critical lessons about the promises and perils of intervening at the neighborhood scale.

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Key Words: Neighborhood Planning, Urban Renewal, Racial Integration, Planning Tools, Exclusionary Development

Not Just the Loudest Voices: Planners' Views on Equity

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Equity is a core element of professional and academic planning institutional goals. Scholars view equity in distributional, procedural, or recognitional terms, or some combination of these, as well as from a teleological or deontological perspective. These theoretical perspectives have tangible implications for how planners define success and orient their work. In this study we first explore theoretical conceptualizations of equity, then present the results of an equity planning survey of Michigan planners. Our findings indicate that planners predominantly conceptualize equity in distributional terms. Additionally, when prompted to define equity, many framed their responses in terms of equality. However, some planners also acknowledge the importance of recognitional and procedural equity, suggesting a more nuanced engagement with these concepts. Planners often see equity in teleological rather than deontological terms. Our findings support understanding of how equity is operationalized in planning practice and offer insights into how theoretical frameworks can better inform and support equitable planning efforts.

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Key Words: Equity, Ethics, Planning process, Equality, Planner's triangle

Parks are Stolen Land Too: How State and Local Governments Return Land to Dispossessed Communities

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Two prominent movements, Land Back and the Movement for Reparations, demand land in response to the generations of harm caused by colonization and racialization. Another interrelated and growing movement is the Land Justice Movement, which was born out of agrarian struggles and the Food Justice Movement. Land justice focuses on equitable access to land as the basis for supporting the betterment of Indigenous and other land stewards facing marginalization around the intersection of race, class, gender, and other identities. Land justice holds land conservation practice at large accountable for its contributions to land dispossession beyond agricultural lands.

Each movement approaches redress for the harms of land dispossession from different perspectives. Because of the influence of agrarian and food justice movements, land justice has directed its focus on the issue of concentrated land ownership by a White majority and fiscal elites. In turn, the Land Justice Movement has focused on encouraging private landholders to transition their land to the stewardship of Indigenous and other dispossessed communities through innovative and reparative conservation-based estate planning. Yet, if the intent is to repair relationships harmed by all of land conservation practice, then how can public conservation lands meaningfully contribute to achieving land justice in the United States?

In the United States, land has been returned to Indigenous and other dispossessed communities through a variety of transfer mechanisms by private and public actors. Some of these events are reported in the news, and there have been a few projects across the United States documenting land returns, mainly with a focus on the Land Back Movement. Recent scholarly work has shed some light on the process for private landholders and the federal government to return land but not so much other public entities. So how are state and local governments returning land to historically oppressed communities?

This study uses protest event analysis to sift through news articles that cover land return events and identify those involving state and local landholders. Although there is no formal definition of a land return, for the purposes of this research, a land return describes a process of acknowledging the injustices of land dispossession while simultaneously and voluntarily extending land access to a dispossessed community through a variety of means. Because of the overlapping nature of the Land Justice, Land Back, and Reparations movements, land returns are a shared tactic across movements, and it would be difficult to qualify a land return event as purely about land justice. However, a focus on state and locally held conservation land may more closely align with land justice and may provide some tailored insights for that movement.

Although state and local governments are just as culpable in land dispossession, they can play a major role in land-based repair. While not an exhaustive list, this work will provide a glimpse into the types of tools and processes public actors have used for these reparative efforts. For the field of planning, a review of these events can increase awareness of the invisible factors that may hinder achieving the desired outcomes of a land return. Planning has long been complicit in land dispossession and in extending colonial relationships with land through land use restrictions and other social controls. Interrogating these taken-for-granted rules of engagement plays an important role in changing what relationships with land are legitimate and, ultimately, possible. In this current political

climate, it is essential to demonstrate the interventions at lower levels of government that may meaningfully contribute to the longer-term efforts of decolonization and repair.

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Key Words: Public Parks, Land Justice, Decolonization, Reparations, Land Conservation

Planning and its Spatiotemporal Traps: Rethinking Economic Value Capture and Planners' Roles

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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This article repositions planners as central actors in multi-scalar capital flow governance, moving beyond planning's traditional focus on local value capture intervention within the United States. By exploring multi-scalar regulators – from national to local actors – and intra-national dynamics that shape capital flows, the article highlights the limited spatiotemporal character of contemporary economic value capture instruments, drawing on a typology of these tax, fee, and land-based instruments. Ultimately, I call for planning scholars to reimagine planners as strategic urban governors responsible for safeguarding public interest goals and measures by coordinating multi-scalar regulatory responses to capital flows that assemble the built urban environment.

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Key Words: urban planning, capital, public interest, investment

Planning as Translation

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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In many postcolonial and settler-colonial contexts, urban planning operates at the interface of overlapping governance systems involving statutory institutions rooted in colonial legal codes and customary or Indigenous systems grounded in alternative epistemologies and claims to legitimacy (Mbembe, 2001). These hybrid institutional environments pose significant challenges to consensus-based planning models that presume shared rationalities (Watson, 2003).

This paper introduces Planning-as-Translation (PAT) as a conceptual and practical framework for planning in such settings. Drawing on Actor-Network Theory (Callon, 1984; Latour, 2005) and agonistic political theory (Mouffe et al., 2013), PAT reframes planning as the work of translation: mediating across institutional logics, legal frameworks, and spatial imaginaries to sustain functional engagement.

Through case studies from Ghana and comparative insights from critical Indigenous planning literature, the paper outlines three core dimensions of this translational labor – epistemic, institutional, and relational – and explores their implications for planning practice. It argues that translation offers planners a way to engage plural authority systems without allowing prevailing contestation to collapse into violence, institutional paralysis, or the hollowing out of the public interest.

PAT, thus, enriches planning theory and practice in contexts of institutional hybridity by providing a conceptual framework and preliminary practical strategies that emphasize pragmatism, accountability, and justice. The paper concludes by outlining future research directions for applying and refining the PAT framework across diverse postcolonial and settler-colonial urban contexts.

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Key Words: Hybrid governance, Institutional pluralism, Postcolonial planning, Translation, Agonistic planning

Planning for Turbines: The Urban Histories of Three Offshore Wind Communities

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Track 12: Planning History or Planning Theory

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Offshore wind (OSW) is an emerging industry in the United States. Its promise is often discussed in terms of opportunities for economic development (Glasson et al., 2022) and other community benefits, including the revitalization of ports, waterfront districts, neighborhoods, jurisdictions, and regions. These promises have deep implications for planning and planners (Jay, 2010; Avni & Teschner, 2019). In this paper, we contextualize OSW development within the urban and development histories of three portside OSW communities: New Bedford, Massachusetts; New London, Connecticut; and Turner Station, Maryland. What has brought these communities to this moment where OSW has become part of their redevelopment future?

New Bedford, MA is a commercial fishing port, seafood processing hub, and home to large populations of Portuguese, Cape Verdean, and Hispanic residents. The city has seen the rise and fall of both whaling and textile industries (Voyer, Pesch, Garber, Copeland, & Comeleo, 2000), and hosted social movements related to abolition, worker's rights, and civil rights. Today, the New Bedford Marine Commerce Terminal boasts easy access to the Atlantic Ocean and can support the construction, assembly, and deployment stages of OSW projects. New London, CT is home to a successful manufacturing industry. The city has a growing Hispanic population that has more than doubled in size since the 1990s. New London was once home to one of the world's largest whaling ports, much like New Bedford. Today, it hosts the only active East Coast OSW marshaling terminal with unobstructed ocean access at its State Pier, currently scheduled to support the deployment of multiple OSW projects. Turner Station, MD a historically Black community in Baltimore County, was supported by the neighboring Bethlehem Steel mill. While White steelworkers and their families were able to reside in Bethlehem Steel's segregated company town, Black families quickly outnumbered the space allocated to them. Excluded from the neighboring community of Dundalk, they settled in Turner Station, developing it into a vibrant, self-sufficient, and mixed-use enclave. Today, it sits adjacent to a major redevelopment effort which includes an offshore wind monopile manufacturing facility.

Using Sanborn maps, urban renewal plans, residential security maps, archival images, historic comprehensive plans, census data, local newspaper articles, oral histories, and spatial data, we tell the stories of these three communities and examine how the history of each community informs the trajectory of OSW development. In New London, urban renewal has not only left a legacy of displacement and distrust but also changed the demographics adjacent to the OSW area. In New Bedford, urban renewal and highway development has divided the city from the waterfront, and furthered racial inequities which may impact perceptions of offshore wind development. In Turner Station, local offshore wind development means a return of steel manufacturing jobs, which may offer a path towards community revitalization.

Examining the patterns of growth, decline, and revitalization (Hollander, 2017) in these frontline communities might better enable us to understand how OSW development efforts may be received and perceived by residents.

These historical contexts might also provide the lens through which to view the benefits and burdens of redevelopment broadly so that historical inequities are not reinforced in the future.

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Key Words: Redevelopment, Urban History, Port communities, Offshore wind, Energy transition

Planning with Synthetic Persons

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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The question of synthetic person is not as far-fetched as it may seem on the first glance. In recent debates about regulation of Artificial Intelligence, European Parliament explicitly considered whether it should establish “the status of electronic persons responsible for making good any damage they may cause.” (Bryson, Diamantis, and Grant 2017). Since then, the matter has become even more salient; the explosion of objects that are remarkably good at mimicking human actions (e.g. Generative AI, large language models, etc.) have entered into our cultural consciousness provoking widespread fascination as well as anxiety (Bassett and Roberts 2023). Despite this, planning theorists have yet to engage with them (Sanchez 2023). How should planning theories and processes account for synthetic persons?

In this paper, I argue that such accounting holds a mirror to our normative prescriptions and positive descriptions of planning. Representation, participation and communication are taken for granted in normative planning theories, prove to be a challenge with synthetic persons who have little political or spatial relationships. Meticulous accounting of accountability, rights and responsibilities for these persons pose special problems, as they do for other legal persons (e.g. organisations), however, are elided in common place theoretical frameworks. Relationships and interactions along with questions of legitimacy, among synthetic and non-synthetic stakeholders, raise both theoretical and pragmatic concerns. Without human interlocutors, communicative planning theory might fall apart. Or does it?

In a provocative article about environmentalism and artifice, Kreiger (1973) argued that the idea of natural is ‘artificially’ created. Fifty years later, we can pose similar questions about the role persons in planning processes. Drawing upon posthumanist traditions and actor network theories (Jon 2020), I explore how agency and responsibility is constructed and distributed in planning processes.

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Key Words: Generative AI, Planning Process, Agency, Actor-Network Theory

Plantation to Industrial City: Regional imaginaries in Charlottesville, Virginia 1877-1929

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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This paper explores the spatial development of the small localities of Albemarle County and Charlottesville, Virginia, as a case for understanding how the emergent production of regional spatial imaginaries facilitated the mingling of local plantation-based histories and spatial practices with the mainstream of U.S. planning practice by the 20th century. I use methods of critical landscape analysis (Grandison, 2001) and critical discourse analysis to examine archival materials pertaining to key moments in the Charlottesville area's urban development from after Reconstruction to the cusp of the Great Depression.

I combine and extend historical institutionalist approaches to urban history (Sorenson, 2009), systems frameworks (Walker and Salt, 2009), and southern regional planning history (Ramos, 2023) to examine how local actors in Central Virginia used images of the region's nested physical geographies to produce myriad intersecting, contingent, and often conflicting spatial imaginaries (Watkins, 2015) that activated shifting sets of political coalitions that undergirded the emergence of formal municipal planning in this place by the 1920s. I contend that these imaginaries had multiple functions in this process. Locally, development of small but highly visible historic and symbolic sites served as ways to convene flexible and increasingly inter-regional social coalitions of capitalist-class players who resourced local economic development from reconstruction to the cusp of the Great Depression. Over time, self-conscious depictions of symbolic sites and area lands situated the Charlottesville region within an emergent framework of national spatial imaginaries. At this scale, teleological narrations of the nation's history, and this region's place in that narrative helped fuel the region's broader touristic and residential urban development. At the same time, articulations of urban space at these same events helped popularize and test myriad narratives of social pathology that industrial-urban investors could draw on for broader legitimacy through appeals to reform, charity, and concern for the public good through philanthropic intervention in both the physical environment and academic institution-building at University of Virginia. I conclude that the physical and ideological work done by a shifting crew of nationally connected local city and county boosters in the regional articulation of the Charlottesville area helped elaborate the loosely aligned socio-cultural narratives drawn on by early social-scientists and planners by the early 20th century.

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Key Words: regional planning, racial capitalism, spatial imaginaries, urban history

Proximity vs. Priority: Citizen Participation in Neighborhood Planning in a Shrinking City

Abstract ID: 1844.0.0.169.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Planning aspires to achieve equitable processes and outcomes by fostering citizen participation, yet practitioners frequently encounter a fundamental tension: how to mobilize public engagement while ensuring that the public interest is not overshadowed by the personal interests of those who participate. This study explores this tension through the lens of spatial proximity, examining the underlying logic of citizen participation in neighborhood planning within the context of shrinking cities—urban areas marked by prolonged population decline and economic disinvestment. We focus on Youngstown, Ohio, a paradigmatic shrinking city in the U.S. Rust Belt, where decades of population loss have left behind a landscape dotted with vacant structures. Between 2015 and 2017, Youngstown implemented its Neighborhood Plans through a series of Neighborhood Action Meetings (NAMs), aimed at addressing blight. These meetings provided a unique opportunity to investigate how spatial relationships influence participatory planning decisions.

To conduct this research, we collected and analyzed minutes from all the NAMs. We extracted the names of all attendees and cross-referenced them with publicly available databases, including Whitepages and the Ohio Residents Database, to obtain their physical residential addresses. Employing a Gradient Analysis approach, we then assessed the spatial distribution of three distinct datasets within incrementally expanding buffer zones (ranging from 60 feet to larger radii) around attendees' addresses: a) vacancy survey data, independently compiled by a third-party organization with no vested interests, offering an objective baseline of vacant properties; b) suggested action items proposed by attendees during the meetings, which represent their preferences for planning interventions and potentially reveal patterns of self-interest; and c) demolition records from 2015 to 2017, documenting the actual interventions carried out by planning authorities and reflecting the tangible outcomes and benefits experienced by residents.

We find that attendees exhibited a clear spatial bias, disproportionately recommending vacant properties located near their own residences—most notably within a 180-foot radius—as targets for intervention. These nearby parcels were suggested at rates significantly higher than those situated farther away, suggesting that proximity plays a pivotal role in shaping participants' priorities. In contrast, the vacancy survey data and the demolition data, displayed a more uniform spatial distribution, with no evident clustering around attendees' addresses. This discrepancy highlights a disconnect between the preferences expressed through participation and the ultimate outcomes of the planning process.

We conclude that participants in Youngstown's NAMs tend to prioritize nearby problem properties—yet they do not reap disproportionate benefits from the plan implementation outcomes compared to non-participants. This finding challenges the assumption that participatory planning inherently translates into equitable or locally tailored results. Instead, it suggests that while spatial proximity strongly influences the issues participants raise, broader decision-making processes and resource constraints may dilute these preferences in implementation.

This study implies that planners must account for the spatial distribution of participants and its impact on both the planning process and outcomes. Striking a balance between encouraging robust citizen engagement and safeguarding the public interest requires nuanced strategies—such as diversifying participant representation or

integrating objective data into decision-making—to prevent participatory processes from being skewed by personal interest. In Youngstown and similar contexts, where resources are scarce, understanding these spatial dynamics is critical to achieving equitable and effective revitalization.

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Key Words: Citizen Participation, Neighborhood Planning, Shrinking Cities, Public Interest, Urban Vacancies

Reframing the American Dream: Manufactured Housing Attainability

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Manufactured homes (MH) have been part of the American housing landscape since the early 20th century. Planners, public administrators, and scholars have historically acknowledged that MH is an affordable single-family detached (SFD) dwelling option (Durst & Sullivan, 2019; Frantz, 2024; Wallis, 1991). However, unlike the conventional single-family site-built house, the Manufactured Housing Survey reports that in 2023, it accounts for less than 9 percent of new homes.

Over the past 50 years, researchers have documented the affordability and unique role of the mobile home (pre-1974) and the manufactured home (post-1976) in American culture. Wallis (1991) details the mobile home's evolution from its innovation to legislation. Into the 1930s, municipalities used economic development measures to attract the use (Wallis, 1991, p. 39), only a few years later to relegate them to inhospitable zoning districts. In the 1940s, its portability was nationally expedient to meet the housing needs of the wartime industry. Then, federal subsidization of suburban housing triggered by the postwar housing shortage heightened its perception as "equal but separate" (Wallis, 1991, p. 212). The Manufactured Housing Construction Standards and Safety Act of 1974 (MHCSS) acknowledged MH as part of the US housing system and guaranteed MH quality. It also designated construction standards and administrative procedures different from those used for conventional housing. Since then, metropolitan areas have continued to expand, supported by exclusionary municipal practices and policies (Rumbach et al., 2022), decreasing MH availability and increasing MH housing insecurity (Durst & Sullivan, 2019).

Recently, government agencies, national foundations, and professional associations have recommended ways to advance awareness of MH affordability and construction standards to update antiquated misperceptions. Akin to the current zoning reform for Missing Middle housing (MMH) and accessory dwelling units (ADUs), these activities from multiple perspectives suggest a "policy window" (Kingdon, 1984) opening for the re-evaluation of local MH regulations and policies (Frantz, 2024). Focusing on the 3Ps – problem, policy, and politics – of Kingdon's Multiple Streams Framework (MSF), this study evaluates recent research articles from several leading US academic journals with two objectives - evaluate opportunity and propose a framework for MH policy innovation. Building on the income ratio method, the conventional housing affordability metric, we advance an assessment framework of MH attainability that also incorporates community engagement and equity. The framework aims to guide municipal policy, administration, and planning activities while reframing MH affordability as attainability based on four components: affordability, accessibility, availability, and acceptability. Affordability and accessibility address spatial and transportation equity and household economics. Availability and acceptability address community engagement and equity based on municipal plans and policies, such as land use and zoning.

This research contributes to recent scholarship on MH affordability, particularly at the nexus of municipal development activities and community engagement. Since MH residents are mostly lower-income homeowners or tenants, traditional governmental procedures may fail to involve them adequately in planning and policymaking processes. Planning agencies are fundamental in setting the agenda for potential MH procedural and statutory reform. A more comprehensive understanding of MH attainability can enhance and promote equitable municipal practices aimed at providing a diverse range of housing options, including manufactured housing.

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Key Words: Attainability, Manufactured housing, Multiple Streams, Spatial equity, Zoning reform

Reinventing Utopias: Building China's Dream Town Through Visionary Planning

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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In modern history, many visionaries deployed utopian thinking and proposed ideal cities of tomorrow. These futurist urban utopias traveled across borders and cultures and transformed various local spaces and societies. As heightened global interconnectivity fueled transnational collaborations, China's urbanization emerged as a prominent arena for experimentation. Liangzhu-Wenhuacun—a comprehensively planned community in Hangzhou, China—epitomizes the cross-border and cross-cultural transplantation of urban ideals. This paper parses Liangzhu-Wenhuacun's conception and implementation to reveal the connections and disconnects between imagination and action. Findings suggest that Liangzhu-Wenhuacun was led by visionaries who rejected profit-driven developments, promoted livability and social progress, and sought to build an urban commons. They found inspiration from historical heritage and future imaginaries and incorporated various Chinese and Euro-American utopias. Despite the dominance of China's growthism, utopian thinking progressively enlightened Liangzhu-Wenhuacun's conceivers, managers, and residents, who embraced a pioneering, entrepreneurial spirit and nudged the development toward ecological, social, cultural, and physical innovation. These promising directions showcase that practicing utopianism can foreground important values and encourage value-aligned explorations. It can transform developments into living laboratories and shape space and people into transformative infrastructures. However, the imagination of China's dream town was caught in the persisting paradox between Westernization and Sinicization. Lessons from Liangzhu-Wenhuacun suggest that urban practitioners should leverage visionary thinking to inspire progressive imagination, transform everyday spaces, and nurture change agents. Meanwhile, future cross-border learning must foreground indigenous urbanisms and explore alternative cultures of modernity to resist capitalist exploitation and cultural homogenization.

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Key Words: visionary planning, urban utopias, planned communities, future imaginaries, cross-cultural practice

Revisiting Jan Gehl's Theory of Urban Safety: A Computational Method

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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This study evaluates Jan Gehl's principles of safe cities by analyzing perceived safety scores calculated using advanced computer vision models and around 1 million daytime street view images from 2010–2021 in Stockholm, Sweden. While widely referenced in urban design, Gehl's theory is developed and often tested on small datasets or observations, leaving its large-scale effectiveness unclear. Leveraging big urban data and multi-method regression analyses, we examine the relationship between perceived safety and built environment characteristics highlighted by Gehl. We find that most elements align with Gehl's theory, particularly greenery and sidewalk density, which are positively associated with perceived safety, while walls and higher speed limits are negatively associated with safety. However, street obstacles and bike lane density produce unexpected results, in contrast to Gehl's principles. Building upon these findings, two planning recommendations are summarized to enhance perceived safety for streets in city-center and suburban areas, respectively. This study grounds Gehl's theory in large-scale evidence, validating his framework and showcasing how advanced analytics and big urban data can inform planning strategies to enhance perceived safety in future cities.

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Key Words: Urban Theory, Big Data, Perceived Safety, Built Environment

Road Building, Bandeirantes, and Branqueamento: How Physical Infrastructure Whitened Brazil

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Occupying the interior of the Brazilian territory has long been a challenge and a goal for the Portuguese colonizers and subsequent Brazilian government. Starting in the seventeenth century, groups of violent, colonizing bandeirantes (pathfinders/bandits) began to enter the vast interior of South America attempting to claim land for Portugal and find mineral wealth. These attempts to colonize the interior of the country were invasions into indigenous land enslaving or murdering much of the indigenous population, but for the invaders, they were a means to exploit new land for agricultural cultivation, connect new markets to the consumption economy, and complete a centuries' old national integration project. The bandeirantes' incursions did populate the interior of the Brazilian territory, but still the vast majority of the population remained on the coast. At the turn of the twentieth century, Brazil underwent tremendous transitions by abolishing slavery and then becoming a republic in a coup which overthrew the Brazilian Emperor. New governmental leaders embarked on infrastructure development, using railroads and the telegraph to connect with and bring people into the interior, which had less than desired results. Brazil's coastal mountain range and rainforest hindered this inward expansion until a new technology arrived: the automobile. Public leaders and private elites saw roads as the panacea for national integration, but also a continuation of the bandeirantes' efforts. By the turn of the twentieth century, revisionist history valorized bandeirantes as national heroes responsible for bravely expanding Brazilian territory. The new republican leaders evoked these mythologized bandeirantes to influence and convince politicians and public opinion that this colonial national integration project initiated by the bandeirantes could finally be complete with roads for automobiles. Roads would connect the developed coasts to expand into new population centers in the interior. At the same time, the elites sought to "whiten" the Brazilian population through policies to attract European immigrants to Brazil, known as branqueamento (whitening). Instead of following the European theory of eugenics which sought to eradicate "inferior" races, Brazilian eugenics asserted that the white immigrants would improve the population through miscegenation, as they believed that the white genes would prevail over other races. This paper seeks to understand the connections between these two policy areas. In order to understand how racialized policies were expressed in physical interventions, I ask: How did the infrastructure policies of road building intersect with and achieve the Brazilian elite's desire to whiten the population? By examining primary documents from the 1870s to 1930 in Brazilian archives, evidence exists that supports roads as a tool to bring the newly arriving white immigrants into the interior. The language used by those implementing these policies was blatantly racialized but also there was a fascination with making the state and country more healthy, hygienic, better educated, and productive, all coded language for white. Brazil, and specifically the state of São Paulo, became majority white populations by the 1940s, and with this paper I aim to show how that was achieved with the aid of these newly constructed roads. I also situate this process into the theory of settler colonialism, where Brazil is not much studied because most literature on this subject originates in former British Colonies like Australia, Canada, and the United States and is in English, not allowing for easy entry by Portuguese speaking and writing scholars. I hope that this case will refine and expand the general theory of settler colonialism to include more places in the framework. This paper exposes how these policies and the physical interventions helped create contemporary Brazil, both territorially and also societally.

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Key Words: Brazil, bandeirantes, road building, whitening, settler colonialism

The location of groups in planning theory

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Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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There is extensive literature on the relationships between the state and groups in political theory. Despite the significance of groups in political theory, their location in planning theory remains ambiguous. Therefore, this paper explores the positioning of social, racial, ethnic, Indigenous, national, and minority groups within planning theory by tracing the coevolution between planning theories and political theories related to these groups.

Following the communicative turn in the 1990s, planning theory has developed concepts influenced by political theories of justice, such as just planning, the right to the city, the cosmopolitan city, and the just city, and has been more engaged with social and minority groups. In parallel, post/anti-colonial planning theorists have advocated for confronting the normalized colonial relations in the Global South. However, how the evolution of planning theory has been influenced by the evolution of different political concepts of groups remains indescribable.

Therefore, this paper explores the following questions: What happens to the social unit and relations conceptions when transformed from political theory to planning theory? How has planning theory transformed the political conceptions of groups? What is the location of racial, ethnic, and indigenous groups throughout this transformation? How has this transformation been applied in planning theory normative conceptions of spatial justice and 'what ought to be done' in planning?

This paper proposes a new typology of planning theories to provide a better understanding of the location of groups in planning theory. I argue that the development of the location of groups in planning theory has transformed with the evolution of various political schools of thought, including liberal, Marxist, and post/colonial.

The study demonstrates this transformation by examining three interconnected dimensions: each school's central social unit, the social relations among these units, and each school's normative concept of 'what ought to be' done in planning. It became evident that planning theory has constantly reinterpreted these dimensions of location, molding and integrating different political concepts to better align with the nuances of urban planning and the lived urban realities. As such, planning theory adapts political concepts to address the intersectionality of socioeconomic, environmental, and racial urban disparities and the hybridity of urban political power dynamics, identities, inter-group relations, and everyday spatial practices.

However, I argue that the positioning of groups within the evolution of planning theory and practice has been shaped by three dynamics: (1) colorblindness of dismissing race and ethnicity, (2) culturalization by categorizing minorities as 'cultural groups' focusing on their cultural features, not their civic context, and (3) subaltern by framing minorities as "oppressed" groups, which is limited in understanding the dynamic roles groups and their reciprocal relations with the state in different political and legal contexts. This framework reveals the colorblindness and culturalization of groups within Northern planning theory evolution and argues about the limitations of Southern planning theory to adequately characterize reciprocal, dynamic, shifting relationships between groups and the state.

As such, this study contributes to the discourse on urban planning in three ways. Firstly, it contributes a new typology of scrutinizing the evolution of the location of groups in planning theory, and its dialogue with the development of political theories. Secondly, it pivots the discourse from addressing cultural diversity in planning to

understanding state-group relations in planning. Thirdly, it broadens the perspective from a colorblind spatial justice standpoint to a deeper understanding of the rights of Indigenous, ethnic, racial, and immigrant minority groups in planning theory.

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Key Words: groups in planning theory, state-groups relations, minority rights, political theory, race in planning

Toward a Research Code of Ethics for Urban Planners

Abstract ID: 1844.0.0.10.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Urban planning research has profound implications for communities, yet the field lacks a comprehensive ethical framework to guide researchers, particularly when working with vulnerable populations. While the AICP Code of Ethics and Professional Conduct provides broad professional guidelines, it remains insufficient in addressing ethical dilemmas specific to research, such as community exploitation, research fatigue, and inequitable knowledge extraction. This paper argues for the development of a research-specific code of ethics for urban planners to ensure research aligns with planning's public interest mission, and proposes specific revisions to the AICP Code to better address these concerns.

Using Flint, Michigan, as a case study, the paper examines the ethical challenges associated with research in distressed communities. Flint, long a focal point for urban research due to its economic struggles and the 2014 water crisis, has experienced an influx of researchers—many with no prior connection to the community—leading to concerns about academic exploitation. While studying crises like Flint's is vital, researchers must ensure their work benefits the community rather than treating it as a means to secure grants or publications. Many residents experience research fatigue and skepticism, raising concerns about how constant surveying affects trust in academic institutions. Without clear ethical guidelines, planners risk contributing to harm rather than fostering positive change.

A revised research code of ethics for urban planners should emphasize participatory research models, ensuring that studies are designed with, rather than about, the communities involved. It should require stronger informed consent protocols that acknowledge research fatigue and skepticism in over-surveyed communities. Planners should also adopt trauma-informed approaches when working with populations affected by environmental crises, systemic neglect, or economic hardship. Beyond in-person data collection, researchers must navigate new ethical concerns related to AI, digital surveillance, and big data. As urban planning increasingly incorporates these technologies, stronger safeguards must be in place to prevent privacy violations, algorithmic bias, and the extraction of sensitive community data.

This paper also highlights the role of planning education in fostering ethical research practices. Many planning programs encourage students to engage in "real-world" research projects, but without proper ethical training, these assignments may unintentionally harm communities. For instance, student projects that survey residents about local conditions without clear follow-up actions can create unrealistic expectations, leaving communities feeling like subjects of academic exercises rather than partners in problem-solving. Similarly, when students propose ambitious redevelopment projects in distressed neighborhoods without fully considering financial or political feasibility, they risk offering false hope rather than actionable solutions. Integrating ethical research training into urban planning curricula would prepare students to engage with communities in ways that prioritize respect, transparency, and mutual benefit. By moving research practices up Sherry Arnstein's "Ladder of Citizen Participation," from tokenistic consultation toward genuine community power, planners can foster trust and ensure their work benefits the communities they study.

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Key Words: citizen participation, code of ethics, research methods, vulnerability, community engagement

Urban Foresight Practice in Planning

Abstract ID: 1844.0.0.63.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Urban planning has been experiencing various pedagogical shifts over the last few decades from evidence-based comprehensive planning to more community-based and culturally impacted planning approaches. Cities are no longer the local containers of economic and people activities, but rather sustainably networked places to accommodate the flows of goods and people (Dixon, 2023). That flow of people and goods is complicated more by the need to accommodate roughly two thirds (68 per cent) of the world's population by 2050, an increase of almost two billion more urban residents between 2024 and 2050. In addition, urban planners need to consider the intense technological and cultural transformations, expanding globalization, and new economic trends that create uncertain contexts. Uncertainty makes it difficult for mapping, monitoring, and coordination (Milica Stojanović, Petar Mitković, Mihailo Mitković 2014). Consequently, urban planning in the next few decades needs to accommodate the uncertain flows of goods and people and the changing contextual conditions in innovative formats such as strategic planning, vision planning, scenario planning and urban foresight (Yesim Parlakyildiz and Tulay Guzel 2020).

Karl Popper, 2008, argued that humans cannot predict the future because of the expected uncertainties, and that understanding present and past trends are not enough to find the most probable trajectory for the future (Batty 2018).

Foresight by Ben Martin, 1995, "is a process that systematically tries to look at the long-term of science, technology, economy and society in order to find areas of strategic research". According to Parlakyildiz and Guzel, 2020, urban foresight is "future thinking about general economic development of a city", within which communities need to detail the different aspects of urban life such as education, economy, industry, etc. Urban foresight in that sense involves a strategic vision, not necessarily in consensus but definitely robust for each sector and locality, that guides different planning aspects at a different sectoral or locational pace. Coordination and collaboration in urban foresight is subject to contextual uncertainty, complexity, and respect for multiple entity integrity that spans governmental bodies, private sector companies, development agencies, local institutions, etc. Milica Stojanović, Petar Mitković, and Mihailo Mitković (2014) recognized that the development of urban areas, considered in socio-economic and environmental terms, cannot be planned in a linear way, from intentions to plan, to action and planned outcome which brings us back to Banfield's argument of the Ends and Means of 1959. Countries that have created foresight research entities for anticipating the future of science, technology, urbanization and community development such as the UK, Japan, Singapore, Denmark, and the U.S.A, among others, have produced enough literature that we can use to understand the process and bring it to implementation.

This research paper argues that Urban Foresight as a necessary planning approach for the future, can be adopted by cities that have traditionally structured planning departments. I will be studying in detail the big picture plan for the city of Huntsville, Alabama, to see how a traditionally structured planning department, with a very busy operating schedule because of the city's rapid growth during the last decades, is capable of dealing with the concepts of multiple futures, loosely coordinated development projects in its different districts and different development aspects, and being flexible to accommodate uncertainties and contextual unforeseen change.

Citations:

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Key Words: Foresight, Uncertainty, Futuristic, Implementation, Huntsville

Urban Vitality or Urban Intensity: A Synthesis of Theory on the Built Form and Social Interaction

Abstract ID: 1844.0.0.1067.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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While there is a large, emerging literature that empirically tests theories of the built environment, pedestrian movement, and social interaction, the theories underlying these models are siloed. While some streams of literature show that pedestrians prefer to move to and through crowded spaces, other literatures observe these spaces and find that the same pedestrians go to great lengths to avoid one another. Therefore, it is difficult to interpret empirical results testing theories such as urban vitality, since these largely rely on simple indicators of pedestrian activity. Further, similar concepts such as social cohesion and urban vitality seem to have opposite relationships with built environment factors such as density. Does the colocation of pedestrians equate to meaningful interaction or good experiences?

In order to investigate this issue, I organize literatures around the concept of pedestrian colocation in public space. This includes two causal mechanisms: the mechanism whereby the built form induces public contact between individuals and the mechanism whereby individuals build a sense of place of social cohesion through this contact. Firstly, the work of urbanists such as Jacobs, Gehl, Whyte, Hillier, or Lynch (and later empirical work in this stream) includes both mechanisms, finding a positive relationship between built-environment factors such as mixed-use or density and outcomes such as vitality or vibrancy, indicating a busy, socially-connected public life. The transportation literature addresses only the first mechanism, finding generally supportive results to the urbanist streams of literature. However, rather than a social quality, this literature theorizes supply, demand, and travel cost as the main factors of moving to or through any public space. Finally, the symbolic interactionist literature theorizes about and observes these interactions close up, painting a more nuanced picture. Individuals may find cities to be intense, alienating spaces which cause them to withdraw from meaningful interaction. Accordingly, those who observe public spaces directly often find individuals taking strategic action not to interact. This literature, however, often does not account for why these individuals choose that space in the first place.

As of now, these literatures must learn from one another. Therefore, I attempt to bring these literatures together in a synthesis around the built environment, colocation in public space, and social interaction.

Citations:

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Key Words: Urban Vitality, Social Interaction, Built Environment, Civil Inattention, Theory Synthesis

What the #@&% is urban decline?: Resetting the practice and theory of urban planning

Abstract ID: 1844.0.0.667.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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In this paper, I take seriously the potential for urban planning to synthesize theory and practice. As a researcher and scholar of urban decline, I have taken on projects in cities that have experienced long-term population loss and economic precarity. This paper is an attempt to make sense of planning practice in declining cities while outlining an agenda for identifying and transforming the inadequacy of planning practice in the MAGA era.

This paper is partly inspired by the cyclical nature of debates within our field. I have studied, presented, and taught this material long enough to see innovative debates and new ideas in 2012 become innovative debates and new ideas in 2025. My goal is to rethink approaches to urban decline. More importantly, I see this intervention as an experiment pushing the field into more salient and vital directions to meet a moment synonymous with revanchism, austerity, and depoliticization.

Drawing from research in Detroit, MI and St. Louis, MO, I re-scale urban decline to match the public and profit-making interests in those places. I borrow and rework concepts from the literature on the production of decline (Akers 2013; Akers & Seymour 2018; Koscielniak 2023) to support a political program. I pay special attention to the presence of pipelines, processes, and contradictions that spatialize urban decline. As an educator, I have solicited student questions about their proper place in the geography of planning practice. White, middle class students articulate a desire to work in low-income neighborhoods and communities of color but disclose anxiety about their credibility as outsiders. They recognize disinvestment and destruction as elemental to the built environments of urban cores while also hesitating to presume they belong. Students need a theoretical and practical agenda that decline does not happen in cities but happens to cities. We need a re-centering of region, structure, and institutions. By rescaling decline as a process from anywhere we can rescale urban planning as a practice for everywhere.

I build this argument through three currents of political theory: Karl Polanyi's "double movement," agonistic pluralism, and the Black Panther Party. Polanyi (2001) encourages urban planners to denaturalize the market economy and organize around institutions that can embed profit, property, and development in social relations. The work of Mouffe (1999) and Ranciere (2010) on agonistic pluralism reminds planners that consensus is more often a camouflage for conflict than its resolution. Finally, the Black Panther Party (1966) reinforces the urgency of largescale transformation to dismantle old institutions and build new ones. We should undertake this project not because it salvages capitalism but because its stabilization advances our egalitarian and progressive goals of a post-capitalist and anti-racist system.

I have two major conclusions from this engagement. First, I believe our field needs a reinvigoration in theory equipped for the task ahead – now is not the time for retreat and bargaining. Urban planning has practiced peacemaking and collaboration when it needed struggle and criticism. It is no great revelation the field traded largescale change for deliberation and compromise (Forester 2013). This conviviality was never required by the prevailing political, economic, social, and infrastructural forces shaping cities and regions. Second, these forces have only provided the occasional opportunity for productive coordination and always on the condition practitioners neutralize the progressive components of their proposals (Swyngedouw 2011). Our commitment to advancing theory through experience and action was meant to translate egalitarian principles into practice – not

amputate them as a courtesy to bearable incrementalism. To rebuild our relevance to both growing and declining places (including nation-states), urban planning must practice politics, resist concession, and prioritize conflict.

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Key Words: politics of planning, planning theory, urban decline, agonistic pluralism, anti-racism

White Philanthropy, Black Excellence, and the Aesthetic Regime of Urban Repair

Abstract ID: 1844.0.0.455.2025

Track 12: Planning History or Planning Theory

Individual Paper Presentation Submission

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Philanthropic institutions have become central actors in contemporary urban planning, particularly in neighborhoods marked by racial dispossession. While their investments are often framed as reparative or equity-driven, these institutions operate as what Victor Ray (2019) calls racialized organizations, structures that do not merely reflect but actively reproduce racial hierarchies through their rules, resource flows, and legitimacy-granting practices. This paper examines how philanthropy, operating within this racialized organizational terrain, shapes the production of “Black excellence” as both an aesthetic strategy and a planning logic in cultural redevelopment efforts on Chicago’s South Side.

Based on two years of ethnographic fieldwork, the study traces how arts and cultural initiatives—many emerging from radical Black traditions of spatial reclamation—are increasingly filtered through institutional frameworks that prioritize visibility, scale, and fundability. In these settings, “community” is celebrated as a symbol, but community power is neither ceded nor co-governed. Organizations are structured to optimize philanthropic return on investment: curating programs, performances, and spaces that resonate with funder expectations while foreclosing demands for redistribution, accountability, or long-term control.

Within this ecosystem, properties are acquired through symbolic transactions, programmed seasonally, and securitized—often under the language of inclusion or care. Archives are privatized, participation is curated, and access to space is mediated through administrative control. The elevation of Black cultural labor is central to the legitimation of these projects, but that labor is embedded within an organizational structure that reproduces the very exclusions it seeks to redress.

While publicly positioned as models of equity, these philanthropic planning efforts rely on a familiar pattern: critique is delegitimized, refusal is recoded as non-participation, and aesthetic output is substituted for structural repair. Planning discourse remains largely complicit in this process, celebrating symbolic transformation while ignoring the underlying mechanisms of ownership and control. Racial capitalism persists not despite but through the aesthetics of inclusion.

By reading these dynamics through Ray’s theory of racialized organizations, this paper foregrounds how race structures the institutional conditions under which cultural planning unfolds. Philanthropy operates not only as a source of funding but as an organizing force—shaping what kinds of cultural work are supported, how community is defined, and whose claims are legible within redevelopment frameworks. Rather than dismiss these efforts outright, the paper calls for deeper attention to the organizational forms, governance structures, and power relations embedded in equity-oriented planning. It suggests that without structural accountability, even well-intentioned cultural initiatives risk reinforcing the very exclusions they aim to address.

Citations:

- Ray, V. (2019). A theory of racialized organizations. *American Sociological Review*, 84(1), 26-53.
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Key Words: Racialized Organizations, Philanthropy, Racial Capitalism

Track 12 Research in Motion (RiM)

Rethinking Planning: A social-ecological understanding of bed bugs infestation in subsidized housing

Abstract ID: 1842.0.0.738.2025

Track 12: Planning History or Planning Theory

Research-in-Motion Presentation Submission, Research currently in process

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Emerging spatiotemporal studies conducted in collaboration with planning scholars shows that bed bugs are unevenly distributed in the urban environment, often differentially affecting vulnerable and marginalized populations (Sutherland et al. 2020). Schneider (2019) argues that bed bugs pose a significant concern for urban planners because they are closely tied to the issues of economic development, housing insecurity, affordability, and quality, eviction, mobility, and health disparities. Bed bug infestation continues to disproportionately affect low-income neighborhoods, causing health disparities, housing insecurity and involuntary mobility. Because of this disproportionate impact on health and housing, scholars see bed bugs exacerbating the issues of social and environmental justice (Eddy and Jones 2011). Empirical studies provide evidence that bed bugs prevalence is highest and more likely to persist in low-income neighborhood, and in neighborhoods where eviction is more likely to occur (Hacker et al. 2022; Sutherland et al. 2020). However, we lack comprehensive understanding and systemic exploration of this issues. Through my ethnographic research I show how the bed bug infestation is embedded within a complex social-ecological system (SES). Such an understanding assumes that there is no single problem of bed bug infestation, rather different stakeholders experience and construct this problem differently. I ask: a) How do different stakeholders experience bed bug infestations, and how do structural inequalities shape the uneven burden of these infestations in low-income housing? b) How do the persistence and adaptive behaviors of bed bugs shape the everyday lives, practices and housing stability of these stakeholders, reinforcing or challenging existing socioeconomic-ecological vulnerabilities? My work will contribute to the current discourse of human exceptionalism within planning by opening to more-than-human perspectives and agency to rethink planning from the intersection of human-insect entanglement Houston et al. 2018; Basnet 2024).

Citations:

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Key Words: social-ecological system, planning theory, housing, multispecies entanglement

Urban Growth and Military Land Use in South Korea: Policy, Planning, and Institutional Responses

Abstract ID: 1842.0.0.398.2025

Track 12: Planning History or Planning Theory

Research-in-Motion Presentation Submission, Research currently in process

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As urbanization accelerates in South Korea, the coexistence of military installations and civilian communities presents complex land use challenges. These challenges arise from competing priorities, including national security, economic development, and local governance concerns (Shim, 2017). While previous studies have primarily focused on land disputes involving United States (U.S.) military installations within the U.S. (Appel & Smith, 2011), South Korea has seen relatively little planning-focused historical research on how land use incompatibility and base closure issues have evolved over time and the policy responses that have shaped these changes (Kim, 2018). This study seeks to address this gap by systematically examining the historical development and policy actions related to military land use in South Korea and assessing the applicability of an established theoretical framework—originally developed to analyze U.S. defense communities—to this context.

This research employs a comprehensive and systematic literature review to investigate how South Korea's planning and governance structures have influenced land use decisions. Through an analysis of national and local policies, historical records, and prior academic research, this study will assess whether South Korea's institutional responses reflect a reactive paradigm shift similar to that observed in the U.S. (Clanahan, 2021) or if alternative governance models have emerged.

This analysis examines United States Forces Korea (USFK) installations and their surrounding areas from the 1950s to the present. It is based on the premise that South Korea's defense and planning policies regarding military installations have evolved from a subordinate relationship with USFK to a more cooperative one. After the 1953 US–ROK Mutual Defense Treaty, major USFK bases were established nationwide, with national security and military priorities taking precedence over urban planning (Keum, 2022). However, since the 2006 signing of the Yongsan Relocation Plan (YRP) and the Land Partnership Plan (LPP), large-scale base closures and reconsolidation efforts have brought greater attention to collaborative governance. By tracing policy shifts and land use decisions over time, this study provides a structured understanding of the evolving relationship between military readiness and urban development in South Korea.

The findings from this study will offer planners, policymakers, and scholars valuable insights into how different governance systems mediate military-civilian land use conflicts. By identifying key policy trends, institutional strategies, and planning approaches, this research aims to inform more effective land use planning and intergovernmental coordination in defense communities. The insights gained may assist decision-makers in balancing military priorities with broader regional development goals, contributing to the broader scholarship on urban planning and governance in military-affected regions. Furthermore, applying perspectives from land use conflict studies on military installations in the U.S. to the South Korean context offers an opportunity to compare how similar conflicts unfold differently across national policy environments. The findings of this study may also serve as a useful reference for similar cases in regions such as Japan, Europe, and the Middle East.

Citations:

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Key Words: land use policy, planning history, military urbanization, global security, strategic relations

Urban Informality in Transition: Categorization and Understanding.

Abstract ID: 1842.0.0.1068.2025

Track 12: Planning History or Planning Theory

Research-in-Motion Presentation Submission, Research currently in process

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Informal urban practices, often described as self-organized urbanism, are increasingly central to how cities evolve across both the Global North and South. Yet, despite their growing relevance, these practices remain unevenly conceptualized in planning literature, making them difficult to meaningfully incorporate into planning theory and practice. This paper addresses that gap through a systematic literature review, following Xiao and Watson (2017), drawing on peer-reviewed sources from Web of Science, Scopus, and Google Scholar. Using a Boolean search strategy and a three-stage screening process, we identified 38 works published over the last two decades engaging with terms such as “urban informality,” “informal settlements,” and “self-organized urbanism.” Our analysis traces three key conceptual shifts: First, scholarship moved away from viewing urban informality as regulatory failure and instead frames it as a structural condition shaped by state dynamics, challenging the formal/informal divide (Roy, 2005). Second, work from the 2010s emphasizes regional and epistemological diversity, moving beyond universal and technocentric models (Varley, 2013). Third, recent studies position informality as central to social resilience, particularly in crisis contexts (Basile, 2022; Guerra et al., 2024). Taken together, these shifts reposition informality as more than a localized response, as they reveal its potential role in shaping systemic urban outcomes. Yet, the ways in which informal practices evolve from context-specific adaptations into broader structural transformations remain underexplored. By clarifying how urban informality is framed across the literature, this paper offers a stronger conceptual foundation for planning scholars and practitioners alike. It not only sharpens planners’ capacity to engage with informality as part of everyday urbanism but also identifies a critical direction for future research: tracing how informal practices move from reactive adaptations to drivers of structural urban change.

Citations:

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Key Words: Urban Informality, Self-organized Practices, Literature Review, Planning Theory, Epistemological Shifts

Track 13 – Technology, Society and Analytical Methods

Track 13 Pre-Organized Session Summaries and Abstracts for the Sessions

AESOP-ACSP: Sustainable AI: Study of Global Cities Assessing How AI Can Increase Sustainability

Abstract ID: 1840.0.0.750.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Session Summary

Session Includes: 1844.0.0.57.2025, 1844.0.0.183.2025, 1844.0.0.321.2025, 1844.0.0.545.2025, 1844.0.0.740.2025

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The session seeks to explore the intersection of AI and urban planning through the lens of sustainability. It will examine how AI can be applied to plan-making processes to create cities that are not only smarter but also more socially inclusive, economically resilient, and environmentally sustainable. Key questions to be addressed:

- 1) How can AI be adopted in urban systems to prioritize long-term sustainability over short-term gains?
- 2) What role can AI play in reducing urban carbon footprints, enhancing energy efficiency, and promoting circular economies?
- 3) How can cities ensure that AI-oriented planning fosters inclusive communities and equitable access to resources?
- 4) What plan-making frameworks and governance models are needed to ensure that AI technologies align with the principles of sustainable development?

This session aims to bridge the gap between technical innovation and sustainable development, and conceptualize Sustainable AI in the urban planning domain.

Learning Objectives:

- Bridge the gap between technological innovation and sustainable urban development.
- Explore how cities across the globe are being transformed by AI and its associated technologies
- Understand how AI can be a force for good—creating cities that are not only smart but also sustainable, equitable, and resilient for future generations

Using Natural Language Processing Models to Analyze the Five-Year Plans of Chinese Cities

Abstract ID: 1844.0.0.57.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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Plans are the essence of planning. No place exemplifies this point more than China, where national and local development plans are put forward every five years to guide its developmental directions. Analyzing these five-year plans (5YPs) provides insights into the cities themselves and the urban contexts in which such plans are formulated. While prior studies depended highly on experts' subjective knowledge in analysis and interpretation, our research applies natural language processing (NLP) models to analyze the 12th 5YPs of 286 prefectural-level (and higher) cities in China. The application of artificial intelligence, in the form of NLP models, is a key methodological innovation introduced here. Based on this approach, we partition these 286 cities into six mutually exhaustive and non-overlapping typologies. To assess the validity of these results, we compare the membership of those six clusters with the results reported by Xu and Heikkila (2020) who used human judgement to identify keywords from those same 5YPs. We then construct a contingency table indicating membership of each city in the Xu-Heikkila clusters and in NLP-generated clusters. A chi-square test on this contingency table affirms the correspondence between the human and NLP approaches, as it could not reject the null hypothesis at the one percent confidence level. This remarkable empirical finding demonstrates the potential for artificial intelligence applications to assist urban researchers in analyzing massive quantities of textual data pertaining to city plans.

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Key Words: Artificial intelligence, China five-year plans, Large language models

AI and Sustainability: A Pilot Study of 20 Global Cities

Abstract ID: 1844.0.0.183.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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Despite growing enthusiasm about artificial intelligence (AI)'s potential to improve urban sustainability (Kassens-Noor et al., 2022; Vinuesa et al., 2020), empirical evidence regarding its effectiveness and underlying success conditions remains sparse and fragmented. Most existing studies are limited in scope, typically focusing on single-case analyses or narrowly defined applications (Gupta & Degbelo, 2023; Zhang et al., 2022). Whether and under what conditions AI can increase urban sustainability remains unclear. This study focuses on 20 cities from 10 countries across three continents and addresses this question from three perspectives: governance, industrial, and the general public.

First, from the governance perspective, we examined how governments deploy AI to advance urban sustainability. We applied a three-step approach: interviewing city officials to understand their views on sustainability progress, analyzing historical data to track changes in key sustainability indicators, and comparing the performance of AI and non-AI cities to evaluate which demonstrates stronger sustainability performance.

Second, from the industrial perspective, we investigated the implementation of AI by the private sector across diverse businesses and the potential of these AI technologies to promote urban sustainability through a pre-post online survey. We asked companies located in the 20 cities about their current AI deployment, the motivations behind their deployment, and their perspectives on whether the AI technologies they deployed support the advance of urban sustainability.

Third, we examined public attitudes towards the use of AI in advancing urban sustainability, with a particular focus on the extent to which people are willing to accept AI into their lives. We conducted e-townhalls, i.e., online group discussions, with local citizens in the 20 cities in a metaverse environment to examine participants' levels of support for or opposition to the use of AI to pursue the Sustainable Development Goals. We also invited citizens to play an online game we developed, named Sustainability Quest: Pathways to Progress, to further investigate people's preferences for AI-based versus non-AI methods to promote urban sustainability.

We found that supportive policy environments, collaboration between cities and tech providers, and community acceptance can influence whether AI deployment translates into measurable improvements in urban sustainability. In addition, we observed that what works effectively in one city may differ significantly from another. Furthermore, we found that higher public acceptance of AI technologies is associated with stronger sustainability outcomes.

This study addresses a critical gap in planning scholarship by providing empirical evidence on AI's role in urban sustainability across global contexts. It highlights the necessity of tailored AI strategies aligned with local contexts to successfully deploy AI for urban sustainability. Urban planners must adopt context-specific AI strategies that account for local governance structures, industrial capacities, and community attitudes. Practitioners should proactively engage communities in AI decision-making processes, fostering transparency and trust to enhance public acceptance. In addition, our findings show the importance of integrating AI literacy into curricula to equip

future planners with the skills necessary to effectively navigate complex technological, social, and governance contexts. Planning education should emphasize interdisciplinary training, including collaboration with technology providers and community stakeholders, to prepare students to design and implement AI-driven sustainability solutions.

Citations:

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Key Words: AI, urban sustainability, governance, companies, public acceptance

Predicting Demand for Demand-Response Mobility in Suburbs with Probabilistic Graph Neural Networks

Abstract ID: 1844.0.0.321.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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Demand-response mobility services, such as ride-hailing provided by transportation network companies (TNCs), play a crucial role in complementing fixed-route transit by expanding service coverage and extending operating hours. While extensive research has focused on demand prediction for these services, most studies examine dense urban areas with high population density and developed fixed-route transit networks. In contrast, demand prediction in low-density suburban areas—where demand is inherently sparse—remains underexplored. Additionally, urban demand-response mobility is dominated by profit-driven TNCs, whereas transit agency-led services in low-density areas are designed to enhance mobility for residents rather than maximize revenue. This difference in service goals further underscores the need for exploration in low-density areas. To address these gaps, this study develops a multi-task probabilistic spatiotemporal graph neural network (MT-STPGNN) to predict demand for transit agency-led demand-response services in low-density suburbs. This deep learning approach incorporates spatial and temporal convolutional layers to capture spatiotemporal dependencies in service demand. The model quantifies uncertainty in sparse demand generation through discrete probabilistic modeling, whose estimated parameters enhance interpretability regarding the inherent sparsity of demand in such areas. It further employs a multi-task learning framework to regularize the graph learning process by integrating local built environment features and global sociodemographic characteristics. The experiment is conducted using real-world trip data from low-density suburban contexts in the Seattle region. The results demonstrate that MT-STPGNN outperforms baseline models in learning geographic context-based message-passing mechanisms within mobility graphs and generalizing to unseen graphs. Our approach provides valuable insights for planners and policymakers in forecasting demand for demand-response services and estimating service provision costs in low-density areas.

Citations:

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Key Words: Demand-Response Service, Travel Demand Prediction, Graph Neural Networks, Uncertainty Modeling, Multi-Task Learning

Using Multi-Source Social Media Data to Understand the Use of Green Spaces with LLM-based Approaches

Abstract ID: 1844.0.0.545.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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Green spaces are essential public spaces and play important in urban living environments. It has been proved in many studies that access to green spaces can directly benefit physical and mental health and have various positive effects on eco-system services, such as air quality, urban heat land and community identity (Wolch et al., 2014). Investigating the human activities within the green spaces, the functionality of green spaces, and the impact factors for visiting popularity is valuable for supporting green space design and guiding land use development around public green spaces. This study utilizes large language model (LLM) based approaches to simultaneously mine text and image data from multiple social media platforms to extract multi-perspective information on urban green space popularity, activities, and functionality. The coupling of the two types of data enables the extraction of a rich and comprehensive analytical frame for understanding how green spaces are used and how they might be improved.

Conventional methods used to extract popularity and functionality information on green spaces have typically relied on questionnaires and in-site observations, both resource and time-consuming processes (Lim et al., 2018). These approaches can also be context-dependent and produce less transferable data across regions. Some academic researchers have realized the gap and attempted to apply data-based analysis (usually using geo-located social media check-in or review data) in information collection for green spaces (Hamstead et al., 2018; Kovacs-Györi et al., 2018). Nevertheless, these studies typically focused on single perspective of green space information and single type of social media data. Other perspectives of information, and the geolocated social media images, which have the potential to deepen our insights into green spaces, were not frequently analyzed.

This study aims to propose an information extraction framework to extract richer, more professional, and multi-perspective information (popularity, functionality, and activities) for green spaces through the LLM-based analysis of multi-source social media data. The proposed green information extraction framework tightly couples LLM with vision encoder to simultaneously analyze text and image data from multiple social media platforms to investigate the green space popularity, activity functionality information. The City of Seattle is chosen as an application case to test the framework. Geo-located green space images collected from social media have the potential to provide comprehensive information but are seldom used because of the difficulty in collecting and parsing data. To address the challenges of the general problems in green space image datasets, including sparse dataset and high similarity between different green spaces, we use image augmentation and fine-tuning techniques. Through expanding the local dataset and pretraining the framework using local dataset, we were able to adjust the LLM-based framework to local context, and at the same time provide robust and powerful classifications. The extracted green space popularity is also modeled based on green space design features, provided services, locational attributes, and socio-economic features to indicate the planning and design principles for green spaces. The proposed information extraction framework has the potential to be used beyond green spaces, to extract all types of geolocations using images and texts to provide better analytic information for many fields.

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Key Words: Social media data, Urban green space, Large language model, Human activities, Popularity

A Study on the Impact Factors of Fire Incidents and Identification of Fire Risk Areas in Seoul

Abstract ID: 1844.0.0.740.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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This study analyzes the impact of socio-cultural, economic, and physical factors on fire occurrences in urban areas, focusing on Seoul, South Korea. Furthermore, the study seeks to differentiate the factors influencing fire occurrences by categorizing fires caused by human activity and those caused by physical factors, thereby classifying high-risk areas for each type of fire.

The theoretical foundation of this research is based on urban ecology theory and social disorganization theory. Specifically, the hypothesis is that informal social control based on social cohesion influences not only crime but also fire occurrences. To verify this, various socioeconomic factors, along with crime-related factors associated with these variables, were included in the analysis. Additionally, physical factors were also considered, as they cannot be ignored when analyzing fire occurrences.

To compile data on the factors influencing fire occurrences, this study utilized publicly available data, excluding data on fire and crime incidents, and made efforts to collect data at the smallest possible geographic scale.

The novelty of this research lies in the use of fire residuals as the dependent variable, controlling for population and the number of buildings. This approach aimed to isolate the effects of urban socioeconomic and physical factors on fire occurrences. The analysis was conducted at the census tract level, aiming to identify high-risk areas for fires on a finer scale.

For the final goal of classifying fire-prone areas based on the cause of fire, this study employed machine learning models. However, to ensure logical and justifiable variable selection and to interpret the results effectively, multiple regression analysis and spatial regression analysis were conducted at the administrative district and census tract levels. These analyses identified the variables to be applied for total fires, human-caused fires, and physically-caused fires.

The analysis results for fire causes are as follows:

First, factors influencing total fire occurrences showed that higher rates of violent crimes, unemployment, and single-person households were associated with an increased risk of fires. Additionally, areas with a higher proportion of commercial buildings were found to have a greater fire risk. High levels of violent crime, unemployment, and single-person households align with factors identified in social disorganization theory that weaken informal social control, particularly in commercial areas.

Second, for fires caused by human activities, areas with high rates of violent crime, unemployment, and single-person households exhibited higher risks of fires due to negligence or arson. However, areas with a higher proportion of residential buildings and higher building density showed lower fire risks. This can be attributed to the urban characteristics of Seoul, where areas with a high proportion of residential buildings and building density are typically high-density apartment complexes. These areas are likely to have stronger roles for residents and

managers, resulting in lower fire occurrence rates. In such areas, both informal and formal social control are stronger, leading to relatively lower fire risks.

Lastly, for fires caused by physical factors, violent crime emerged as the strongest factor. However, unlike total fires and human-caused fires, areas with a higher number and proportion of buildings older than 30 years, as well as a higher proportion of buildings with five or fewer floors, showed increased fire risks. This indicates that areas with clusters of older, low-rise buildings are more prone to fire incidents.

The significance of this study lies in its ability to provide a nuanced, spatially detailed understanding of urban fire risk, which can inform more targeted and equitable fire prevention and urban planning strategies in rapidly densifying cities.

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Key Words: Fire Incidents, Fire Risk, Machine Learning

Knowledge and Data Governance in an Era of Uncertainty

Abstract ID: 1840.0.0.975.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Session Summary

Session Includes: 1844.0.0.957.2025, 1844.0.0.758.2025, 1844.0.0.209.2025

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Some describe urban planning as the art and science of using evidence to inform actions in the public interest (Friedman 1987). Yet, planning practice and scholarship have remained largely silent about questions of governance of production, control, and broadcasting of data, especially data about/for/on behalf of communities. Debates about data governance have re-emerged as the federal government has removed data from the public domain. 'Disappearing' of data is not a new phenomenon, though it may take on varied forms. For example, researchers may gather data about communities and then 'disappear' from those communities. In this pre-organized session, we draw on Alcott's (2022) extractivist epistemological framework to wrestle with questions with questions of data governance in an era of political uncertainty. Papers in this session challenge extractive epistemologies, report on the state of the literature on equitable dashboards, and review proof-of-concept platforms.

Learning Objectives:

- Foster an understanding of the state of the literature/scholarship on equitable data dashboards
- Illustrate possibilities for proof-of-concept data platforms that have attempted to address questions of data governance in varied ways
- Share varied frameworks for ensuring ethical practices in data governance

Countering Extractive Epistemologies in the Wake of Crises

Abstract ID: 1844.0.0.957.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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Who owns (planning) knowledge? Who produces it, to what end, and for whom? These questions about knowledge governance - and consequently data governance - are central to planning practice and scholarship (Friedman 1987, 2020). Yet, a limited body of scholarly planning literature or practical guidance addresses questions of knowledge and data governance. This is not to say there is limited scholarship on data per se -- in fact, ACSP has an entire track dedicated to planning analytics. Rather, we contend that there is an absence of critical scholarship on questions of power, ownership, and control over data that impacts marginalized communities.

The limited body of critical planning scholarship on data governance has allowed the unchecked proliferation of extractive epistemologies (Alcoff 2022), especially as big data and AI are used uncritically. In the academic world, researchers may gather data from communities for their gains (e.g., publications and professional success) while communities are unable to access data or use it for their purposes. In the world of professional practice, the state may use digital data to expedite decision-making but often at the expense of people's freedom and well-being (e.g., use of digital data may result in enhanced surveillance, policing, etc.). To be sure, communities have resisted and reclaimed control over the use of data, as illustrated in the case of digital insurgents documented by Basile et al (2025) and others.

Drawing on the framework of extractive epistemologies of Alcoff (2022), this paper reflects on a series of cases from Buffalo, NY in which non-state coalitions resist, reclaim, and redefine knowledge and data governance in the wake of crises. The cases include three data initiatives - Seeding Resilience, Seeding Justice, and WNY/East Side Dashboard - which sought to reduce information asymmetry, improve data access, and advocate for transformation in the food system to varied degrees of success (Raja 2020). Seeding Resilience was launched in the wake of COVID 19 to provide quick access to food-related informational resources (using a simple google map); Seeding Justice was launched in response to the tragic massacre of 10 Black people to provide information and resources to impacted neighborhoods (using google forms and spreadsheets); and, finally, WNY/East Side Dashboard was launched using a public process (on an ArcGIS portal). All three cases illuminate the limits and possibilities of community-led governance in data efforts. Written by a team of researchers, community leaders, and technicians, the paper concludes with a data governance framework for planning scholarship and practice.

Citations:

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Key Words: data governance, GIS, extractive epistemology, data dashboards, food data

Designing IDRO: A Use-Case in Data Governance for Climate Resilience

Abstract ID: 1844.0.0.758.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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In an era marked by climate uncertainty and rapidly expanding digital infrastructures, questions of who controls, accesses, and governs environmental data have become increasingly central to equitable and effective planning. This paper reflects on the development of the Integrated Drought Resilience Observatory (IDRO) as a use-case to explore these challenges. Specifically, it asks: How feasible is it for a multi-stakeholder data consortium to promote equitable data governance in support of drought anticipation, preparedness, and adaptation across multiple geographic scales? IDRO is a modular, web-based platform currently being co-designed and developed by Yale CEA and UB BEVL in collaboration with IDRA (the international Drought Resilience Alliance), with the goal of integrating diverse data sources to serve a broad range of users and stakeholders. IDRO integrates a wide array of datasets—including satellite imagery, hydrological indices, soil moisture levels, community-reported vulnerability assessments, land use data, and relevant policy frameworks. It is being developed to serve a diverse range of stakeholders, including government officials, policymakers, data scientists, field experts, farmers, and concerned citizens. Each of these user groups brings distinct needs, expectations, and levels of digital literacy, which directly shape how data must be curated, presented, and governed.

This paper reports on the challenges and opportunities encountered during the initial phases of IDRO's development. It highlights the technical and governance complexities involved in accessing and integrating heterogeneous data sources—from publicly available datasets (e.g., NASA, FAO, UNEP) to proprietary geospatial information and community-generated data. The paper introduces a tiered data access model designed to accommodate varying levels of permissions, data sensitivity, and user expertise.

Key areas of focus include the development of metadata standards and interoperability protocols that support both machine-readability and human comprehension, as well as engagement strategies with local institutions and data custodians to address critical questions of data ownership, representation, and long-term stewardship.

Drawing on global and UN-aligned frameworks on data governance—such as the UN's International Data Governance Pathways and CIGI's Platform Governance model—the paper situates IDRO within a broader international conversation on ethical, participatory, and context-sensitive approaches to data governance. By presenting IDRO as an applied experiment in operationalizing these frameworks, the paper offers grounded insights into the governance of environmental data across local, national, and global scales.

Ultimately, this contribution aims to illuminate the complex challenges involved in integrating diverse data systems into community-serving infrastructures. It underscores the urgent need for data governance models that move beyond technical efficiency to prioritize accountability, equity, and usability as foundational design principles.

Citations:

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Key Words: Drought resilience, Data governance, data equity, Data Ethics, SDGs

Planning Without Data: Yeah, I've Never Read a Plan But Here's What We Should Do...

Abstract ID: 1844.0.0.209.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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Local land-use plans are essential for guiding future development, but the data within these plans are often difficult to compare. Regional coordination and plan evaluation is challenging. In response, this research reviews state and local data infrastructure guidance and compliance with a California use-case. To showcase what is possible, we also pilot a public-facing search engine for plans (PlanSearch.caes.ucdavis.edu). PlanSearch enables users to access plans and search for terms and phrases across over 600 land-use plans.

We intentionally centered equity in the platform design by relying on feedback from partners involved in real-time technical equity planning efforts. Throughout the research process, the team presented findings for feedback to state agencies and non-profit members of the California Environmental Justice Alliance (CEJA). CEJA helped motivate the state legislature to pass SB 1000 (Leyva) in 2016 (Cal. Gov. Code, § 65302(h)), which requires local plans to address Environmental Justice (EJ) in updates. EJ is defined in California law as “the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies” (Cal. Gov. Code, § 65040.12, subd. (e)). The resulting search engine allows CEJA and partners to see where plans address EJ, thereby improving technical planning assistance as well as informed planning efforts by the public (e.g., Brinkley and Wagner, 2021). By centering equity in the design process, the platform addresses the specific requirements of communities involved in environmental justice efforts. This focus on equity ensures that the platform is not only a technical tool but also a means to support fair and inclusive planning practices.

The platform's design leverages advanced technologies to streamline the extraction and indexing of data from land-use plans. The platform is designed using Python packages optimized for quickly extracting information directly from PDF documents and indexing with Elasticsearch. The code is open access and available on GitHub (Banginwar et al., 2023). By utilizing Python packages and Elasticsearch, the platform ensures efficient and accurate information retrieval. This technological approach allows users to perform comprehensive searches across a vast number of documents, facilitating better comparison and analysis of land-use plans.

Our platform provides a proof of concept that can be deployed elsewhere. For example, the United Nations sets Sustainable Development Goals but stops short of assessing progress, leaving such work for voluntary review. With this use-case, we demonstrate that even without uniform standards for plan formatting, the creation of digital platforms for archiving and searching across plans is feasible and enables large-scale quantitative analysis. Such considerations are important not only as planning seeks to address Environmental Justice and “anti-racist” futures, but also as local jurisdictions grapple with climate crises.

By enabling more accessible and comparable data, the platform can enhance regional coordination and support more effective planning outcomes. Even if people do not read the entire plan, they can gather policy-making ideas by searching and comparing, helping their local jurisdiction refine and tailor a new approach. In conclusion, the development of this open-access search engine platform represents a significant advancement in the field of urban planning. By addressing the challenges of data comparability and accessibility, the platform supports more informed and equitable planning decisions. As the platform continues to evolve, it holds promise for widespread adoption and impact, contributing to the creation of more sustainable and just communities.

Citations:

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Key Words: data, artificial intelligence, large language models, environmental justice, health equity

Using Smart Phone Data to Explore Neighborhood Connections, Change and Segregation

Abstract ID: 1840.0.0.641.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Session Summary

Session Includes: 1844.0.0.256.2025, 1844.0.0.500.2025, 1844.0.0.486.2025, 1844.0.0.479.2025

Lance Freeman [University of Pennsylvania] lancefre@design.upenn.edu, organizer

The papers presented in this panel utilize a relatively novel data set from smartphones to explore various facets of neighborhood residential mobility, neighborhood interconnectedness, and interactions between neighborhood residents. The first paper applies graph theory to understand how neighborhoods connect with others, and how these interactions change over time and space and vary with socioeconomic and demographic characteristics. A second paper examines if tenants of subsidized affordable housing sited in “higher opportunity” neighborhoods have daily patterns that align with the hypothesized mechanisms of social mobility. The third paper combines smartphone data with consumer trace data to demonstrate how daily mobility patterns influence subsequent residential mobility. The fourth paper creates neighborhood typologies based on patterns of network connectivity. The final paper explores the relationship between transit and neighborhood interconnectivity.

Learning Objectives:

- Identify neighborhood typologies based on interconnectivity.
- Explore the utility of smart phone data for studying neighborhood dynamics
- Identify potential predictors of neighborhood change that can be used to inform planning and policy making

Measuring Integration in Affordable Housing with Location Data

Abstract ID: 1844.0.0.256.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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Spatial integration - the physical proximity of diverse racial, socioeconomic and ethnic groups - has long been a hypothesized mechanism to fuel social equality in the United States. The central logic of contemporary affordable housing policy is the provision of a subsidy that can act as a spatial corrective of these growing inequities. Yet remarkably, very few nation-wide studies have leveraged data to examine the extent, patterns, variation of the hypothesized mechanisms of sociospatial integration.

Since the early 1990s, the primary form of publicly-subsidized affordable housing in the US transformed from public-funded housing developments in areas of concentrated poverty, to programs that enable 'mobility' on the theory that place and the opportunities that certain neighborhoods hold is a key mechanism to accelerate access to opportunities such as employment, better schools, better amenities, and social integration with more diverse sets of people. While researchers have conducted large case studies in this area, most notably on the quasi-experimental Gautreaux and Moving to Opportunity programs, what is lacking are standardized metrics to compare across geography, programs, and time.

This paper identifies the characteristics of neighborhoods, cities, and places that engender higher rates of social and structural integration. A novel data source from mobile phone locations for over 66 million people across the entire United States, documented every 15 minutes enables us to examine quantitatively and at scale the actual sites visited by anonymized individuals. Our research question is: Do tenants of subsidized affordable housing sited in "higher opportunity" neighborhoods have daily patterns that align with the hypothesized mechanisms of social mobility? We associate measures of social and spatial integration with different types of housing subsidies, while controlling for temporal measures such as the time of day, and day of the week, the CBSA, population density, and a set of demographic and neighborhood covariates and program requirements in order to understand whether residents in higher opportunity subsidized housing block groups (here called our HS group) are meaningfully different than our three categories of "control" block groups: higher opportunity unsubsidized (HU), lower opportunity subsidized (LS), lower opportunity unsubsidized (LU). We anticipate our initial findings to show that the HS group does not meaningfully higher rates of integration than the control groups.

Citations:

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<http://www.loc.gov/catdir/toc/ecip0510/2005009628.html>.
- Chetty, Raj, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez. 2014. "Where Is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States." *The Quarterly Journal of Economics* 129 (4): 1553–1623. <https://doi.org/10.1093/qje/qju022>.

- Galster, George C., and Jurgen Friedrichs. 2015. "The Dialectic of Neighborhood Social Mix: Editors' Introduction to the Special Issue." *Housing Studies* 30 (2): 175–91.
<https://doi.org/10.1080/02673037.2015.1035926>.

Key Words: neighborhood opportunity, subsidized housing, social integration, spatial integration

Mobility Networks, Spatial Segregation, and the Social Dynamics of Neighborhoods

Abstract ID: 1844.0.0.500.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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Mobility data provide a new lens through which to analyze neighborhood change. The study of neighborhood change has typically relied on residential locations to identify shifts in neighborhood composition. By extension, measures of spatial segregation have focused on the demographic or economic diversity within a given residential community, defined by geographic boundaries often associated with commonly-recognized administrative or political borders (Freeman 2009). How socially isolated a household is depends on more than just the connections within their neighborhood (Marcuse 1997; Wang et al. 2018). Instead, the mobility behavior of that household – to work, school, other events and activities – can influence the social connectedness of a community beyond place of residence. For instance, communities with rather tightly defined mobility patterns, such that members of the community rarely leave their home neighborhood, may experience different exposures and outcomes than those in another neighborhood with similar socioeconomic circumstances who are able to travel more widely throughout a city or region and thus interact, in some capacity, with other communities that may be different than their own (Prestby et al. 2020). Moreover, the strength of these connections, and the relationships between mobility networks of proximate communities, may influence community well-being, access to opportunity, and neighborhood change dynamics (Athey et al. 2021).

This paper applies large-scale mobility data and graph theory to understand how neighborhoods connect with others, and how these interactions change over time and space and vary with socioeconomic and demographic characteristics. We study the mobility networks of more than 45,000,000 devices across the U.S., aggregated to neighborhood geographies defined by more than 220,000 census block groups from 2019 to the present, along with numerous ancillary datasets. We specifically explore how the strength and breadth of connections between communities can be identified and analyzed using mobility networks to create a neighborhood typology across varying geographic scales, population densities, and land use types. We are concerned with both the extent of connections outside of one's home neighborhood and the heterogeneity in the income and racial make-up of the communities with which one engages. We further analyze how the emergent structure of community networks is associated with, and can predict, neighborhood change.

We find significant variations in the degree of heterogeneity between connected neighborhoods as a function of income and racial composition. In addition to differences across cities and land use types, we observe other attributes of the built environment that influence the strength and breadth of connections, and how neighborhood networks change over time. Beyond theoretical contributions, our research also has practical utility to neighborhood planners and policymakers who have had difficulty obtaining and analyzing localized data on a timely basis. The greater temporal granularity of mobility data, combined with its utility for analyzing neighborhood dimensions beyond residential patterns, allows us to develop indicators that can provide early-warning signals for planners and help to uncover neighborhood dynamics across varying socioeconomic, geographic, environmental, and demographic contexts. We acknowledge and actively address how the use of mobility data in the study of sociological processes in the urban context may be constrained by the potential for implicit and systemic biases in

the collection and processing of such data. These include representativeness issues with respect to spatial and temporal data coverage as function of technology diffusion and access, and bias emerging from disparities in coverage across socioeconomic groups.

Citations:

- Freeman, L. (2009). Neighbourhood diversity, metropolitan segregation and gentrification: What are the links in the US?. *Urban Studies*, 46(10), 2079-2101.
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- Wang, Q., Phillips, N. E., Small, M. L., & Sampson, R. J. (2018). Urban mobility and neighborhood isolation in America's 50 largest cities. *Proceedings of the National Academy of Sciences*, 115(30), 7735-7740.
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- Athey, S., B. Ferguson, M. Gentzkow & T. Schmidt (2021) Estimating experienced racial segregation in US cities using large-scale GPS data. *Proceedings of the National Academy of Sciences*, 118, e2026160118.

Key Words: neighborhood change, community connectedness, mobility data, neighborhood networks, spatial segregation

Neighborhood Identification using Large-Scale Mobility Data and Network Analysis

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Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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As urban populations grow, there is a rising demand for standardized definitions of cities and their internal structures to support effective planning, management, and sustainability efforts [1]. Traditionally, cities and neighborhoods have been defined using regional or national criteria that vary by geography and scale, often relying on administrative boundaries, topography, or arbitrary thresholds of population and building density. These approaches primarily emphasize the physical form of a city or a neighborhood as a way of distinguishing it from its surroundings [1,2,3]. Another way is to classify neighborhoods based on their function, using socioeconomic characteristics of their residents or composition of local businesses. For instance, Spielman (2013) defines neighborhoods based on shared social attributes such as age, income, or race, while Marti et al. (2022) identify them as clusters of homogeneous types of business establishments as a proxy of urban activity and the community they serve.

However, with the ubiquitous cellular network coverage and growing availability of granular, large-scale geolocation mobility data, reliance on such proxies is no longer necessary. These data sources, combined with advanced computational methods, offer a more dynamic and scalable way to analyze human interactions and connectivity, bridging both form-based and functional approaches to neighborhood delineation [2].

In this study, we use aggregated cell-phone mobility data from over 40 million devices at the census block group (CBG) level across the U.S. to measure inter-CBG connectedness and define functional neighborhood boundaries. We represent mobility patterns as a network, where nodes correspond to CBGs and edges indicate interaction strength between them. Network structure allows us to apply community detection techniques in order to identify strongly connected neighborhoods. In this study we use the Louvain Modularity algorithm, which is a hierarchical clustering algorithm that finds communities by maximizing a modularity score of the network [5]. Preliminary results of the neighborhood identification performed on the mobility networks from 2018 to 2024 reveals a relatively stable number of approximately 8,000 unique neighborhoods nationwide. Notably, the algorithm operates without prior geographic constraints, allowing it to identify distant but socially and functionally connected neighborhoods, such as transportation hubs or culturally linked communities. The hierarchical nature of this approach enables scalability, allowing for neighborhood identification at local, regional, and state levels, even across traditional metropolitan or state boundaries.

By quantifying inter-community relationships, this method provides critical insights into social and economic connectivity, with implications for neighborhood change dynamics. This temporally sensitive, high-resolution approach is particularly relevant in the post-pandemic era, offering applications for migration studies, urban planning, and human-environmental geography while complementing existing census-designated boundaries.

Citations:

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Key Words: neighborhoods, community detection, cell phone data, network analysis, urban extent

Divided Communities: How Transit Access Impacts Neighborhood Connectivity and Isolation

Abstract ID: 1844.0.0.479.2025

Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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In recent years, widespread mobility data has enabled the study of neighborhood connectivity, both who visits a neighborhood and where residents in the neighborhood go. Research on segregation and connectivity between neighborhoods show that residential isolation by income and race persist across space [2], while other studies find that connection patterns vary by city [4]. As we introduce spatial connections, it is essential to consider the urban topography that shapes movement between neighborhoods.

The built environment can both connect and separate neighborhoods, and these infrastructure investment and location decisions are not random. In the U.S., highways have historically displaced and divided communities of color. A recent study using Twitter data found that highways still act as barriers between neighborhoods, with cities known for using infrastructure to enforce racial segregation having higher barrier scores [1]. Public transit was primarily designed to connect residents to labor markets, often linking suburbs to central business districts while leaving gaps within cities. Additionally, proximity to public transit increases local land values, and expansion or new installations reshape surrounding areas [3]. As a result, access to public transit is neither independent of demographics nor evenly distributed across space.

To our knowledge, no studies have incorporated available public transit infrastructure into analyses of neighborhood connectivity using mobility data. Some studies look at the relationship between public transit use and overall connectedness of communities. Athey et al. [2021] found that higher public transit use correlates with lower rates of experienced isolation, and Phillips et al. [2021] found public transit use did not significantly contribute to creating evenness in connectivity. However, both studies did not consider the available public transit infrastructure or other barriers to connectivity.

In this study we aim to understand if transit access and other features of the built environment impact neighborhood isolation. We consider both transit infrastructure, like bus and subway stops, and accessibility (time to travel between neighborhoods) for multiple cities. We construct a city-level connectivity network, where census block groups serve as nodes and edges represent the proportion of monthly visits relative to the total possible. Based on the number and breadth of connections into a neighborhood, we find that the number of available bus and rail stops within census block groups explain 23.8%, 42.8% and 52.3% of connectivity variability in NYC, San Francisco and Philadelphia, respectively, and bus and rail have significant and positive coefficients with a 97.5% confidence interval for all cities. We also consider bikeshare station location and other infrastructure when relevant within the context of a city.

Next, we estimate neighborhood accessibility by estimating travel time across multiple modes of transit. We use OpenStreetMap for road network data on driving and biking and integrate GTFS feeds with OpenStreetMap via the Python UrbanAccess package for public transit, resulting in travel times that account for road type, walkability, and barriers like freeways and parks in both cases. By comparing these travel times to Euclidean distance, we create a transit accessibility metric that considers multiple modes of transportation.

Incorporating our multidimensional accessibility metric into the neighborhood connectivity network allows us to examine the link between urban topography and connectivity. This new understanding enables a holistic approach to addressing gaps in access which can predict how changes to urban topography may impact neighborhood connectivity, and as a result serve to inform policy.

Citations:

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- [4] Phillips, N. E., Levy, B. L., Sampson, R. J., Small, M. L., & Wang, R. Q. (2021). The social integration of American cities: Network measures of connectedness based on everyday mobility across neighborhoods. *Sociological Methods & Research*, 50(3), 1110-1149.

Key Words: Community connectedness, transit access, mobility data, infrastructure, public transit

Track 13 Roundtables

Accessible Zoning : Digital Tools That Bring Zoning to the Public

Abstract ID: 1843.0.0.948.2025

Track 13: Technology, Society, and Analytical Methods

Roundtable Submission, Topical Discussions

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Across North America, municipalities are revising their zoning codes to permit multi-unit housing in areas historically restricted to single-family homes. Cities such as Minneapolis, Edmonton, and Los Angeles were early adopters, introducing policies that allowed accessory dwelling units (ADUs) in backyards. More recently, an increasing number of cities are not only modifying zoning regulations but also permitting greater levels of density. In 2023, for example, the City of Toronto approved the construction of fourplexes on all single-family lots and is now considering allowing up to six units citywide.

Advocates argue that these zoning reforms are a crucial first step in addressing the housing supply imbalance. However, regulatory changes alone have proven insufficient, and several challenges remain. How can cities broaden the pool of housing creators to ensure these policies do not just benefit existing property owners? How can they effectively communicate increasingly complex zoning codes, which have become layered with overlays and exceptions, making it difficult even for experienced builders to develop scalable solutions? And is it possible to systematize infill housing across diverse lot conditions, enabling small projects to scale and benefit the greatest number of residents?

To address these challenges, new parcel-based digital tools have been developed. In California, the Community Planning Collaborative offers the ADU Accelerator, a GIS-based mapping tool that includes a cost calculator and a gallery of pre-approved designs. Similarly, Symbium provides a searchable platform for statewide property data, enabling Californians to determine what can be built on a given lot.

In Toronto, ReHousing, in collaboration with MIT's Civic Data Design Lab (CDDL), has developed a digital platform that analyzes zoning and building codes to assess the feasibility of accessory unit and multiplex development scenarios. This tool offers a map-based interface, project options, and cost analyses for residential lots. Additionally, ReHousing consults with the City of Toronto, using design testing to inform the implementation of its recent fourplex and sixplex zoning amendments.

Digital Tools like the ReHousing Platform's potential for impact is two-fold. They can allow municipalities to rapidly test the viability of different housing options across the city, giving quantifiable insights into the impact of new legislation. They can also create an accessible and user-friendly way for non-professionals to understand what is possible on their lot.

The success of gentle density policy initiatives relies not only on well-designed policy but also on providing support to those interested in uptake. There is potential to leverage data-driven approaches to do both.

For this roundtable, we convene developers of these digital zoning tools to dissect the complexity of making them so others can learn how to develop the same tools in their cities. Each participant will briefly present the complexity of their projects, followed by a facilitated discussion on the viability, challenges, and potential of these tools in advancing the housing goals set by recent zoning reforms.

We have four confirmed participants including people who have developed tools : Michael Piper Re-housing and University of Toronto ; Samantha Eby Re-housing and University of Toronto; Sarah Williams Envelope and MIT ; Siqi Zhu formerly of Google's Delve now at Sasaki Associates -- we also invited Paul Waddell of Penciler, Urban Sim and Professor Emeritus of UC Berkley Planning and Davis Driskell of Community Planning Collaborative - both of which have developed these tools

Citations:

- Waddell, Paul, et al. "Penciler: A web-based affordable housing development feasibility analysis tool." Handbook of Planning Support Science. Edward Elgar Publishing, 2020. 486-505.
- Depaolis, Jon, "New ADU Tools May Unlock Affordable Housing in Your Backyard.", American Planning Association Planning Magazine, September 26, 2024
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- Goodman, Laurie. "To Increase the Housing Supply, Focus on ADU Financing." Washington, DC: Urban Institute (2024).

Key Words: Zoning, Civic Technology, Housing, Public Engagement, GIS

Digital Capitalism Meets Urban Planning: Plotting the Future of Technology and the City

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Track 13: Technology, Society, and Analytical Methods

Roundtable Submission, Topical Discussions

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A wide array of literature has examined how the digital technology industry and digital tools intersect with urban planning processes and outcomes, from to a vast literature on smart cities to studies focused on the rise of remote and gig work (Mahmoudi, Levenda & Stehlin, 2020; Wells, Cullen, & Attah, 2023), e-governance (Van der Meer & Van Winden, 2003), disruptions in transportation modes, and the implications of platform real estate for housing markets and tenants (McElroy, 2024a; Fields, 2022; Shaw, 2020). More generally, scholarship has examined the racialized nature of digital capitalism (McMillan Cottom, 2020), how digital technologies creates the conditions for surveillance capitalism (Zuboff, 2019), and how these dynamics can shape even neighborhood-level dynamics (Payne, 2017).

Recent work on technofascism (McElroy, 2024b), digital authoritarianism (Akbari Kharazi, 2021), and urban political economy (Rosen & Alvarez León, 2022; Alvarez León & Rosen, 2020) suggests that digital technologies intersect with the means and outcomes of governance, creating the conditions for broader shifts in the foundations of society and cities. As technology firms, tools, and actors have become more embedded into both governance structures and policy, it is essential to question the role of urban planning in this space.

What is the role of urban planning in this historical moment? How are the digital and the city intertwined—and what does this suggest for the future of cities and society more generally? What are the implications for urban planning in an era where digital technology firms, tools, and actors have become increasingly embedded into both governance structures and cities? What tools and levers can urban planning offer to enhance democracy and promote equity? This roundtable draws together experts studying digital technologies and cities to explore these important questions at the intersection of digital, political, and urban geographies, critical technology studies, and urban planning.

Citations:

- Shaw, J. (2020). Platform real estate: Theory and practice of new urban real estate markets. *Urban Geography*, 41(8), 1037-1064.
- Payne, W. (2017). Welcome to the polygon: Contested digital neighborhoods and spatialized segregation on Nextdoor. *Computational Culture*, (6).
- Mahmoudi, D., Levenda, A. M., & Stehlin, J. G. (2020). Political ecologies of platform urbanism: Digital labor and data infrastructures. In *Urban Platforms and the Future City* (pp. 40-52). Routledge.
- Fields, D. (2022). Automated landlord: Digital technologies and post-crisis financial accumulation. *Environment and Planning A: Economy and Space*, 54(1), 160-181.
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Key Words: digital technologies, urban political economy, platform urbanism, digital capitalism, smart cities

The Promise and Pitfalls of Commercial Microdata for Planning Research

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Track 13: Technology, Society, and Analytical Methods

Roundtable Submission, Topical Discussions

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Novel sources of commercial microdata are likely to play a significant role in the future of planning research (Walter et al., 2024). From proprietary repositories of consumer data to cellphone location information, a growing array of data products hold incredible promise for advancing our understanding of population and housing dynamics within cities. However, the nature of these novel data sources remains poorly understood: generated and sold by private companies and often not initially designed with academic research in mind, such data sources are black boxes in terms of data collection methodology, reliability, and representativeness (Ramiller et al., 2024).

In light of the potential advantages and limitations of these datasets, this timely roundtable discussion will critically examine the evolving landscape of commercial microdata for planning research. This will feature consideration of commercial datasets that have recently been employed for research on planning issues related to gentrification and displacement (Greenlee, 2019), segregation (Xu, 2022), and post-Covid economic recovery (Chapple et al., 2022) – including consumer reference datasets (e.g. Infutor, Data Axle), consumer credit panels, and cellphone location trace data. Furthermore, this roundtable will consider the broader role that these and other sources of microdata might play in the future of planning research and the implications of relying more heavily on data produced by private companies, particularly given uncertainties regarding the continued provision of federal data.

Drawing on the firsthand research experiences of each participant, this roundtable aims to engage a broad audience of planning scholars with the landscape of commercial data sources available for planning research and to discuss the questions that planning researchers should consider when considering these data sources. Are these data sources sufficiently reliable for empirical planning research? Are there specific strategies that should be employed to leverage the unique features of these datasets and to overcome their limitations? What are the technical challenges and ethical implications that the use of such data entail? This conversation will provide insights into innovative methodological approaches and collaborative strategies to ensure a strong future for data-oriented planning research.

Citations:

- Chapple, K., Leong, M., Huang, D., Moore, H., Schmahmann, L., & Wang, J. (2022). The Death of Downtown? Pandemic Recovery Trajectories across 62 North American Cities (Research Brief). Institute of Governmental Studies, University of California, Berkeley. <https://escholarship.org/uc/item/9sj175mr>
- Greenlee, A. J. (2019). Assessing the Intersection of Neighborhood Change and Residential Mobility Pathways for the Chicago Metropolitan Area (2006–2015). *Housing Policy Debate*, 29(1), 186–212. <https://doi.org/10.1080/10511482.2018.1476898>
- Ramiller, A., Song, T., Parker, M., & Chapple, K. (2024). Residential Mobility and Big Data: Assessing the Validity of Consumer Reference Datasets. *Cityscape*, 26(3), 227–240.

- Walter, R. J., Tillyer, M. S., Ramiller, A., & Acolin, A. (2024). Scaling Down from the Neighborhood in Urban Planning Research and Practice: The Potential Benefits of a Micro-Scale Focus. *Journal of Planning Education and Research*, 44(4), 1937–1945. <https://doi.org/10.1177/0739456X231175593>
- Xu, W. (2022). The contingency of neighbourhood diversity: Variation of social context using mobile phone application data. *Urban Studies*, 59(4), 851–869. <https://doi.org/10.1177/00420980211019637>

Key Words: Big Data, microdata, residential mobility, displacement, housing

The State of Urban Spatial Analytics Education: Challenges and Opportunities in an Evolving Field

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Track 13: Technology, Society, and Analytical Methods

Roundtable Submission, Topical Discussions

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In recent decades, Geographic Information Systems (GIS) have been fundamental to spatial education in urban planning curricula. However, the rapid evolution of computational methods, data science, and spatial technologies has dramatically transformed how we conceptualize, analyze, and plan urban spaces. This roundtable discussion critically examines the current state and future directions of urban spatial analytics education at a pivotal moment of disciplinary transformation.

As traditional GIS platforms evolve and new computational approaches emerge, planning educators face important questions about curriculum development, pedagogical approaches, and alignment with professional practice. Is GIS becoming less relevant as claimed by some, or is it simply transforming into more specialized and computationally sophisticated forms of spatial analysis? The recent proliferation of terms like "urban analytics," "urban informatics," and "urban science" further complicates these questions, as does the ambiguity around what these emerging fields encompass and how they relate to established planning education.

This session brings together educators from various planning programs to discuss: What core competencies should constitute contemporary spatial analytics education for urban planners? How do we balance technical depth with planning theory and practice? Are planning programs adequately preparing students for evolving job markets, and what exactly are those markets demanding? What institutional and pedagogical challenges arise when teaching advanced technical skills within planning departments, which have traditionally emphasized policy and design? How might spatial analytics education evolve over the next decade as technologies like artificial intelligence, digital twins, and real-time sensing reshape urban planning practice?

Beyond technical considerations, this roundtable will address the broader implications of these educational shifts. As spatial analytics becomes increasingly sophisticated, questions of equity, ethics, and accessibility become paramount. How do we ensure that technical education doesn't overshadow critical perspectives on technology's role in urban governance? How can we make advanced spatial methods accessible to diverse student populations with varying technical backgrounds? What responsibilities do educators have in preparing students to apply spatial analytics in ways that advance social and environmental justice?

Through structured dialogue and audience participation, we will work toward a more coherent understanding of urban spatial analytics education's current challenges and future opportunities. Participants will share pedagogical innovations, curricular experiments, and insights from professional practice to help chart a course for spatial analytics education that is both technically rigorous and deeply engaged with planning's core commitments to the public interest.

The roundtable format will encourage frank discussion of institutional barriers, pedagogical challenges, and creative approaches to spatial analytics education, with significant time devoted to audience participation. Rather than simply cataloging the problems facing spatial education, this session aims to generate actionable insights for educators seeking to navigate this rapidly evolving landscape while preparing students for meaningful professional careers.

Citations:

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Key Words: Urban Spatial Analytics, GIS, Pedagogy

Urban AI in Planning

Abstract ID: 1843.0.0.1081.2025

Track 13: Technology, Society, and Analytical Methods

Roundtable Submission, Topical Discussions

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Urban Artificial Intelligence (UAI) integrates AI with urban planning, improving energy management, environmental monitoring, and public safety. Urban research benefits from a data-rich environment, incorporating large-scale data and computational techniques into city management, accelerating digital twin advancements. Digital twins—virtual models of urban spaces—analyze and simulate urban conditions using real-time sensor and camera data. UAI processes this data to anticipate urban dynamics, optimizing infrastructure and operations. Combined with immersive technologies such as virtual reality (VR) and augmented reality (AR), UAI enhances data-driven analysis and urban design, ensuring planning decisions reflect local priorities. This integration fosters collaboration across technical and policy domains, tackling complex urban challenges. UAI connects design, engineering, and spatial sciences through data-driven methodologies, including applied research and practical engagement. It streamlines urban planning by automating routine tasks, allowing professionals to focus on strategic decision-making and design evaluation. UAI enhances situational awareness in cities and strengthens resilience. However, responsible deployment is necessary to prevent unintended disparities. Encouraging broad participation ensures research and implementation reflect multiple perspectives, fostering confidence in AI-enabled urban solutions. In data-limited regions, UAI supplements existing information with public datasets and analytical modeling. Its effectiveness depends on well-structured training data and algorithms to minimize unintended biases. If left unchecked, bias in AI systems may lead to imbalanced outcomes, affecting communities. Planners should use representative data, document AI training methods transparently, and conduct ongoing assessments to maintain fairness. Clarity in data sources and responsible data management are essential, ensuring informed consent and ethical AI applications. Privacy safeguards, such as data de-identification and controlled access, protect individual rights. While UAI tools can be widely implemented, they must be adapted to align with each community's specific characteristics and priorities. Ultimately, UAI represents a multidisciplinary effort, advancing cities from automation to autonomy. This transition demands responsible AI integration to ensure fair and effective solutions to urban challenges. Ethical considerations remain key to ensuring UAI's long-term impact for researchers, policymakers, and communities. By engaging experts from multiple domains and incorporating local insights, UAI strengthens urban sustainability, efficiency, and resilience. Identifying effective interventions in a timely manner enhances service delivery. UAI can support a coordinated scientific and policy agenda, fostering collaboration between academia, industry, and municipal leaders to develop smart cities that are innovative, efficient, and responsive—provided it is implemented responsibly.

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Key Words: Urban AI, Digital Twins, Data-Driven Planning, Resilient Infrastructure, Responsible AI Deployment

Track 13 Workshops

Conjecture Mapping: Designing a Theory of Change for Planning Research and Practice

Abstract ID: 1841.0.0.450.2025

Track 13: Technology, Society and Analytical Methods

Professional Development Workshop Submission

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Planners are often responsible for designing engagement processes that aim to achieve particular social and political outcomes. This is especially true for those who employ participatory and community-based methods in their research and creative practice. Despite this widespread aim, there has been limited scholarship within planning literature offering techniques to assist planners in this design work. The field of learning sciences is deeply engaged in design-based research in both formal and informal environments that increasingly overlap with planning and development activities.

In this professional development workshop we introduce conjecture mapping, a tool developed within the learning sciences to aid design-based research, which can help focus engagement in planning. Conjecture maps offer a useful framework for developing and iterating on a theory of change in community-based research and creative practice. This involves considering how the elements of a research design might lead to desired outcomes while drawing attention to the observable interactions and artifacts which mediate this relationship.

Over the course of 90 minutes, participants will learn how to make and use conjecture maps to develop robust, interdisciplinary, community-based engagement designs. Workshop facilitators will offer their own maps as an example, based on interdisciplinary research studying community learning pertaining to infrastructure planning in Buffalo, New York; and land use planning in Seattle, WA. After reviewing the mechanics of conjecture maps generally, participants will complete a series of exercises to develop a map for their own research and/or professional project. Participants will offer constructive feedback to each other to improve their maps, which will ultimately strengthen the efficacy of the planning processes and research activities they design. By the end of the workshop, participants will feel confident in using conjecture mapping as a tool to aid in community-based planning research and practices.

Agenda:

- Introduction to conjecture mapping (10 minutes)
- Application to community-based research, with interdisciplinary examples (20 minutes)
- Design interventions exercise (15-20 minutes)
- Group reflection/iteration (15 minutes)
- Individual design conjectures exercise (15-20 minutes)
- Group reflection/iteration (15 minutes)

What will the audience learn from your workshop: Through this workshop, participants will learn how to describe the utility of conjecture mapping for planning research design and scholarship, and will apply conjecture mapping to their specific research projects or creative practices.

Reminders for attendees: Come to the workshop with an idea of a research project or creative practice for which you want to design a theory of change.

Citations:

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Key Words: design, planning methods, planning tools, community engagement, theory of change

Track 13 Individual Paper Presentations

A City Through Delivery Riders: Measuring the Utilization and Inclusiveness of Public Street Spaces

Abstract ID: 1844.0.0.440.2025

Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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As cities strive toward greater equity, public street spaces (PSS), as an integral part of cities, are increasingly recognized not just as transit routes, but as critical social infrastructure. Yet "who truly uses these spaces, how they are used, and who is left out" remains poorly understood. This study introduces a novel, data-driven framework to evaluate the utilization and inclusiveness of PSS using crowdsourced street videos and vision-language models, revealing hidden patterns of exclusion.

Previous studies on PSS have primarily relied on simplistic metrics such as pedestrian volume or the number of stayers to evaluate street vitality. However, these indicators fail to fully reflect the actual usage of street space. To address this gap, we propose the concept of utilization, a weighted measure combining pedestrian volume and activity types, to more accurately reflect street use intensity.

To evaluate whether the pedestrian composition is balanced and whether different demographics can access and use PSS equally and conveniently, we further introduce the concept of inclusiveness. Pedestrians are categorized into three types (adults, elderly, children), and their proportions are compared with census data to assess spatial equity.

Instead of relying on static imagery or mobile data, which lacks the granularity to capture activity diversity and demographic heterogeneity in real time, we leverage crowdsourced street videos captured by GPS-equipped cameras on delivery riders' vehicles in Beijing, gathering over 11,000 hours of real-life street footage across diverse streets throughout the day. We extracted 3 frames every 10 seconds from videos and construct the "Egocity Dataset", the largest fine-grained dataset of pedestrian street activity in Beijing to date, with over 115,000 annotated images.

To analyze who uses the streets and how, we developed the "LLaVA-PI (Pedestrian Identify)" model, a hybrid vision-language model (VLM). The model integrates DETA with a Swin-L backbone and a fine-tuned LLaVA-OV, enabling pedestrian identification by age group (adult, elderly, child) and behavior (walking, chatting, staying, etc.). Unlike traditional models, LLaVA-PI achieves high precision in interpreting complex pedestrian activities in real-world contexts (F1: 0.9583 for pedestrian identification, 0.8689 for activity classification). The recognition results were georeferenced and aggregated into 100 × 100 m grids, excluding grids with fewer than five observations, resulting in 2,106 valid grids representing spatial patterns of pedestrian dynamics.

Our spatial analysis reveals stark disparities. While high-utilization areas show richer behavioral diversity, they are often dominated by adults. Children and the elderly are systematically underrepresented across large portions of the street network, even in vibrant areas. These findings point to a troubling mismatch between urban vitality and inclusiveness.

In sum, this study presents a scalable, demographically aware method that leverages real-time crowdsourced videos and advanced vision-language models to evaluate the utilization and inclusiveness of PSS, aiming to diagnose spatial inequalities in public street life. The results call for a rethinking of urban design and policy to ensure that the right to the city—including its streets—is shared by all.

Citations:

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Key Words: public street spaces, spatial equity, utilization, computer vision, pedestrian behavior

A Multimodal AI-Agent Framework for Simulating Human-Centric Cumulative Exposure to Urban Heat

Abstract ID: 1844.0.0.319.2025

Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Urban residents are increasingly exposed to extreme heat as a result of climate change and urban densification—conditions that elevate health risks, reduce labor productivity, and undermine urban livability. While recent advances in artificial intelligence (AI) and geospatial technologies have opened new frontiers in modeling complex urban systems, most existing studies overlook how heat exposure accumulates through the lived, spatial experiences of individuals. People are often treated as passive recipients of environmental risk, rather than as active, mobile agents whose movements dynamically interact with their surrounding environments.

This study introduces a novel AI-agent framework that simulates human perception and behavior to measure accumulative exposure to urban heat. By fusing multimodal data—including street-view imagery, LiDAR-derived three-dimensional urban morphology, and satellite-based thermal metrics—perceptual agents evaluate micro-environmental risk across space and time. To enhance behavioral realism, we integrate a large language model (LLM)-driven system that generates diverse, data-informed daily travel profiles for simulated urban residents. Each agent is assigned an origin-destination (OD) pair, socio-demographic identity, and travel purpose based on plausible urban mobility and vulnerability scenarios. These agents navigate the city, accumulating heat exposure dynamically based on localized visual and spatial cues.

A case study in Los Angeles demonstrates the framework's ability to capture spatial inequality in cumulative heat exposure and identify priority areas for urban design interventions. The findings highlight the potential of AI-driven, human-centered modeling approaches to support climate-resilient and socially equitable urban planning.

Citations:

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Key Words: Heat Exposure, Multimodal data, AI-Agent, Machine Learning, Mobility

A Study of Collaborative Robot Adoption by Korea's Small and Medium-sized Manufacturers

Abstract ID: 1844.0.0.771.2025

Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This study explores the factors influencing the adoption of collaborative robots (cobots) by small and medium-sized manufacturers (SMMs) in South Korea, employing the Technology-Organization-Environment (TOE) framework combined with Innovation Ecosystem theory. Cobots, robots designed for safe and flexible interaction with humans, offer significant productivity gains and cost efficiencies, particularly for resource-constrained SMMs. Amid rising labor costs, workforce aging, and skill shortages, intensified by the COVID-19 pandemic, South Korea's industrial landscape has increasingly turned to automation to maintain competitiveness.

The literature review highlights that while the TOE framework provides a robust structure for exploring technology adoption, it has limitations in capturing interactions among organizations and external actors. Thus, Innovation Ecosystem theory, emphasizing collaborative arrangements among diverse stakeholders complements the TOE framework, offering a nuanced view of external influences and actor interdependencies critical in cobot adoption. Previous studies on cobot adoption in manufacturing primarily concentrated on profitability, skilled labor availability, and knowledge accessibility, largely neglecting the broader innovation ecosystem that can facilitate or impede technological diffusion.

The methodological approach involves qualitative analysis through semi-structured expert interviews with seven representatives from leading Korean cobot suppliers, system integrators, and research institutes. Employing a snowball sampling technique, the study ensures representativeness and depth, given the respondents' substantial industry experience. Data were collected between November 2023 and May 2024, systematically transcribed, translated, and coded using both theory-driven and data-driven approaches.

Technologically, cobot functionality, particularly concerning proper velocity and cost, emerged as primary concerns for adoption. While cobots are safer and cheaper than traditional industrial robots, their limited operational speed often falls short of SMMs' expectations, reducing perceived benefits. However, a holistic view of total costs, including ancillary and operational expenditures, indicates cobots offer substantial long-term savings compared to traditional robotics.

Organizationally, the SMMs' technical capabilities, prior robot experience, and managerial expectations significantly shaped cobot adoption. Notably, firms lacking prior robotic experience encountered barriers but also saw cobots as a user-friendly entry point into automation, provided adequate external support. A critical organizational issue revealed was the practice of ignoring safety regulations among some SMMs, undermining cobots' inherent safety advantages.

Environmental influences, notably policy programs and domestic supplier presence, were central to adoption dynamics. Government initiatives enhanced cobot trialability, reduced adoption costs, and fostered essential inter-firm collaborations. Competitive domestic suppliers and integrators significantly improved cobot accessibility by offering localized technical support and reduced prices, accelerating adoption.

The analysis underscores intricate relationships among technological, organizational, and environmental factors, and highlights the need for coordinated ecosystem-wide approaches for innovation. This comprehensive examination provides nuanced insights valuable to policymakers, industry stakeholders, and SMM managers. The findings emphasize that addressing cobot technological limitations, enhancing organizational readiness via external collaborations, and fostering a supportive innovation ecosystem are critical pathways toward successful adoption and sustained competitiveness in South Korea's evolving manufacturing landscape.

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Key Words: Cobot, SMMs, Korea, TOE, Interview

AI-Driven Approach to Optimize and Automate Shared Micromobility System Design and Planning

Abstract ID: 1844.0.0.461.2025

Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Shared micromobility systems, specifically dockless scooter-sharing ones, have rapidly expanded as flexible and sustainable solutions for short-distance travel, particularly addressing first- and last-mile gaps in public transportation. However, optimizing their design and planning remains a big challenge, as existing studies primarily rely on experience or metaheuristic algorithms, including genetic algorithms and ant-colony optimization, without fully leveraging data-driven geospatial analysis, artificial intelligence (AI), and plan-making automation. To address this gap, this study developed a multi-agent and multi-objective Deep Reinforcement Learning (DRL) framework for optimizing and automating scooter-sharing system planning through balancing system efficiency, multimodal integration, cost-effectiveness, and equity.

First, we represented the scooter-sharing system as a fully connected graph, where nodes referred to grid-based partitions of study areas, generated through grid-based bounding box subdivision and Voronoi tessellation, with each grid size less than 200 m x 200 m. Each node functioned as an agent in a multi-agent stochastic model using independent Markov-Modulated Poisson Processes (MMPPs) to simulate shared scooter arrivals and departures. The DRL framework formulated the planning problem as a Markov Decision Process (MDP), training agents to take actions (including whether to deploy a scooter and how many scooters are deployed for each grid) for achieving four key objectives: (1) Usage efficiency, maximizing daily ridership per fleet size; (2) Multimodal integration, ensuring scooter availability near transit stops, parking lots, and transportation hubs; (3) Cost-effectiveness, minimizing capital costs associated with fleet acquisition and parking site construction; and (4) Equity, ensuring fair access across all socioeconomic and geographic groups, quantified using the Gini index for scooter availability disparities.

Using Q-learning, the DRL approach generated optimized system planning schemes by adjusting the tradeoffs among various objectives. A case study in Gainesville, Florida, validated the DRL framework with synthetic scooter trip data, demonstrating that the scooter-sharing system after DRL-based plan-making optimization and automation can significantly improve service efficiency, reduce costs, promote multimodal integration, and enhance equity compared to the existing system. The results highlight the potential of AI-driven automation in micromobility planning, allowing planners to focus on defining objectives and evaluating final plans while leveraging computational methods for decision-making. This research contributes to the growing field of AI-powered urban mobility by introducing a novel data-driven modeling framework that integrates big data, geospatial analytics, and reinforcement learning for shared micromobility system optimization and automation, greatly improving plan-making efficiency. Our findings also provide crucial insights into sustainable transportation planning, supporting the development of more efficient, accessible, and multimodal urban mobility solutions.

Citations:

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Key Words: Scooter-Sharing System, Micromobility, System Planning, Plan-Making Automation, Reinforcement Learning

AI-Driven Optimization of Electric Vehicle Charging Station Placement

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Public Electric Vehicle Charging Stations (EVCSs) play a central role in transportation electrification planning. As the number of Electric Vehicles (EVs) continues to grow, there is an increasing need to expand charging infrastructure. While conventional site suitability analysis using GIS methodologies is widely applied, the advent of AI and AI agents presents new opportunities to enhance these practices. Peng et al. (2023) define the integration of AI into the planning process as Urban AI. Yet, the specific expectations and challenges of applying AI in domain-specific planning processes remain unclear.

To provide empirical case studies of Urban AI, this study examines the use of multiple AI applications and agents to improve future site planning. The study focuses on Austin, TX, establishing a baseline site suitability analysis based on the USDOE's Argonne National Laboratory guidelines by Kuiper et al. (2022). Charging station locations were categorized into three types: Transportation Network Company (TNC) hubs, corridors, and rural areas, each undergoing a separate site suitability analysis with a distinct set of variables. The variables were preprocessed in GIS as raster data. To further refine site selection, this study applied GeoAI to improve the site suitability analysis for additional public EVCS locations. The final GeoAI-based site suitability outcomes were then extended to develop a Generative AI (GenAI) model.

For GeoAI, land cover and parking lot classification were conducted using Landsat and high-resolution satellite imagery. These classifications were reviewed and validated with human oversight before integration into the analysis. The optimized site selections underwent a 3D evaluation using Google Earth Pro and were later overlaid with 3D meshes to visualize future scenario plans. Images representing the most suitable sites were used to generate real-time scenario footage using OpenAI's Sora. For GenAI modeling, the finalized site suitability analysis results were used to train a Pix2Pix model. The data were sampled to 512×216 pixels, with paired images prepared for computational modeling. The hyperparameters of Pix2Pix were set based on the original model presented by Isola et al. (2018).

The analytical results indicate that using GeoAI for site suitability analysis provides insights by generating more sophisticated results. Emerging accessible 3D visualization tools enable planners to evaluate sites remotely. Overlaying 3D meshes, such as public EVCS locations, gas stations, and parking lots, helps planners validate their assumptions and refine site selection. OpenAI's Sora reduces the cost of manual design by generating real-time footage that simulates human behavior in charging station environments. The optimized Pix2Pix model for site suitability planning successfully transformed Landsat images into site suitability analysis results, demonstrating an approach for conducting meta-analyses. Releasing such pre-trained models could benefit rural areas and tribal nations, where research resources are often limited.

Nevertheless, human oversight remains critical when integrating AI into the planning process. GeoAI estimates must be evaluated against land use regulations before implementation. The results generated by the Pix2Pix model are not always perfect, and Sora occasionally produces inaccurate footage. More importantly, using AI for scenario planning requires interdisciplinary expertise. While AI enhances planning practices, human planners must remain at the forefront. In planning, the involvement of diverse stakeholders highlights the importance of community

engagement in gathering local knowledge and building collective capacity (Innes and Booher, 2015). I propose Community Experience (CX), a fusion of community engagement and User Experience (UX), as a conceptual space to examine the role of AI in planning.

Citations:

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Key Words: Urban AI, Electric vehicle, Charging station, GeoAI, GenAI

AI-Driven Quality of Place: Consistency Between Planning Theories and Real-World Experiences

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Does traditional urban and architectural theory accurately capture the real-world quality of place (QoP) experienced by people? With recent advances in generative artificial intelligence (GenAI), this study evaluates whether the perceived spatial quality of indoor and outdoor environments aligns with Kevin Lynch's five elements of city image and Vitruvius' three principles of architecture. While prior research (Malekzadeh et al., 2025; Jang et al., 2024) has primarily focused on evaluating outdoor QoP, it has largely neglected the simultaneous consideration of indoor environments, where people spend a significant amount of time. This study bridges that gap by analyzing indoor and outdoor spatial qualities to offer a more holistic evaluation of QoP. By extracting spatial quality from Google Street View (GSV) panoramic images and Airbnb interior images, this study applies a GenAI model to systematically evaluate QoP dimensions and compare theoretical expectations with real-world user experiences. Our primary research questions explore the extent to which traditional QoP frameworks correspond with positive and negative user experiences and examine how differences between the quality of indoor and outdoor places affect user satisfaction across diverse urban contexts.

To address these questions, we conduct a comparative QoP evaluation across 10 global cities—Amsterdam, New York, Paris, London, Berlin, Hong Kong, Singapore, Tokyo, Sydney, and Mexico City. We apply Gemini 1.5 to assess GSV images for outdoor characteristics and Airbnb images for indoor quality. Lynch's five elements guide the evaluation of urban form and spatial legibility in GSV images, while Vitruvius' three principles provide a framework to assess the structural, functional, and aesthetic dimensions of indoor quality captured in Airbnb images. The GenAI model generates textual descriptions and assigns quantitative scores for each dimension, facilitating a systematic comparison between theoretical QoP expectations and real-world user experiences derived from Airbnb reviews. To further analyze user sentiments, we apply BERT for sentiment analysis, categorizing reviews into positive, neutral, and negative responses. Also, we use cosine similarity to measure the semantic alignment between AI-generated descriptions and user reviews, quantifying the relationship between user sentiments and the qualitative levels of indoor and outdoor spatial quality.

Preliminary findings suggest a positive correlation between indoor and outdoor quality across all cities, with regional variations reflecting diverse local contexts. Cities such as Amsterdam and Paris show stronger alignment between indoor and outdoor QoP dimensions and user sentiments. However, in cities like Hong Kong and Tokyo, indoor QoP factors exhibit greater variability, particularly in aesthetic satisfaction. Our analysis demonstrates that traditional QoP models capture fundamental qualities but often overlook the regional uniqueness and contextual variability of indoor and outdoor environments, leading to divergent outcomes across different cities.

These findings highlight the need for urban planning paradigms to transition from theory-driven QoP to adaptive, AI-assisted frameworks that account for localized preferences and evolving spatial perceptions. While GenAI models demonstrate promising potential in automating QoP evaluation and detecting discrepancies, they are not without limitations. Our analysis identifies biases in AI-generated QoP assessments, necessitating human intervention and oversight to ensure accuracy and reliability. To address these challenges, future research should focus on developing fine-tuning protocols and auditing tools that enhance GenAI's ability to capture nuanced

spatial qualities and mitigate biases. By integrating AI-driven dynamic QoP models into planning processes, urban planners can create human-centered environments that reflect spatial dynamics and societal expectations.

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Key Words: Quality of Place, Image of the City, Human Perception, Generative AI, Natural Language Process

Analyzing Vertical Spatial Density Differentiation in Central Urban Areas

Abstract ID: 1844.0.0.615.2025

Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This study aims to guide the rational and orderly growth of three-dimensional spatial morphology in high-density central urban areas. Unlike planar density, vertical spatial density refers to the building intensity at different height cross-sections of a city. The smaller the cross-sectional intervals, the more precise the characterization of the three-dimensional urban form. Currently, urban planning researchers primarily describe urban spatial morphology using planar density and vertical height. However, due to the concave-convex shapes of buildings and the spacing between structures, numerous void spaces emerge within building clusters, making traditional quantitative indicators insufficient for accurately capturing the complex topological characteristics of urban space.

To address this limitation, this study proposes an analytical framework for vertical spatial density in central urban areas. Using urban blocks as the fundamental research unit, we construct vertical density profiles at different height slices to quantitatively describe the three-dimensional spatial morphology of 20 high-density central urban areas worldwide. Based on intelligent clustering algorithms, morphological zoning is identified, followed by an analysis of the attenuation characteristics of vertical spatial density with increasing height and distance from the urban core. Finally, we explore regulatory approaches for managing three-dimensional urban morphology.

The case studies focus on 20 high-density central urban areas in economically developed cities across North America, Europe, and Asia. The data used include block vector data and building vector data with elevation attributes (2024), all sourced from open datasets.

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Key Words: Vertical spatial density, Differentiation, Urban morphology, Central urban area, Big data

Automating Plan Evaluation using Large Language Models

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Evaluating plans is a well-established field of research in urban planning. It is because plans, the printed currency of the profession, not only represent the outcome of the plan-making process but also serve as key inputs for informing local decision-making (Levy, Hirt, and Dawkins, 2009). To materialize their full potential, many argue that plans should be frequently evaluated against evolving plan quality principles to reflect the latest knowledge in urban planning and to foster continuous learning and improvement in professional practice (Berke and Godschalk, 2009). However, conducting plan evaluations routinely at scale has proven increasingly challenging.

The reasons are twofold. First, the rapid growth of digital plans—driven by regular updates to conventional plans (e.g., comprehensive and hazard mitigation plans) and the increasing development of new plans (e.g., climate adaptation and heat action plans) to address emerging urban issues—has led to an overwhelming volume of planning documents (Batty, 2022). Secondly, plan quality evaluation is a highly labor-intensive task, often requiring at least two human coders to content-analyze lengthy and technical planning documents to produce reliable evaluation results (Stevens, Lyles, and Berke, 2014). Hence, routinely evaluating a large number of plans can be both cost-prohibitive and unrealistic for most researchers and practitioners.

The rapid development of AI technology, particularly large language models (LLMs), offers transformative potential to automate plan evaluation, addressing many of the above-mentioned challenges posed by traditional, labor-intensive manual content analysis methods (Cugurullo et al., 2024). When used properly, these novel techniques could not only automate plan evaluations and other content analysis tasks but also improve the efficiency and accuracy of plan evaluation, facilitating better co-learning through a more comprehensive and nuanced understanding of diverse plans at scale.

Despite the promises, no study has examined these novel approaches' effectiveness in the context of urban planning, particularly for plan evaluation that require robust reasoning, complex domain knowledge, and nuanced contextual understanding. This research addresses this gap by systematically evaluating the performance of LLMs enhanced with retrieval-augmented generation (RAG) and multi-agent frameworks in automating plan evaluation. Using a recent study by Keith et al. (2023) that analyzed networks of plans for cities' resilience to extreme heat, we replicate their methodology to benchmark the performance of these advanced LLM techniques against traditional manual content analysis. Our findings demonstrate the best practices and identify key error patterns as areas of future improvements. We advocate integrating AI with human oversight as the new norm for future content analysis, leveraging AI's efficiency and precision in repetitive tasks and human's contextual understanding and domain-specific knowledge.

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Key Words: Urban AI, Large Language Model, Plan Evaluation, Extreme Heat, NLP

Beyond Traditional Visualizations: Evaluating Augmented Reality's Influence on Support for Urban Densification

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Augmented reality (AR) overlays digital information onto the real world and has been used widely in fields such as architecture and business. Yet, despite its potential, AR remains underexplored in urban planning. Kitchin et al. (2021) partially addressed this gap by highlighting challenges faced by Irish municipal planners in adopting 3D spatial technologies, including AR and virtual reality (VR). AR has the potential to be a valuable planning support tool, especially for changing public's support. In many US cities, opposition to new development—"Not In My Backyard" (NIMBYism)—stems from concerns about property values, traffic, public services, and neighborhood character. Given these concerns, it is important to understand how framing can shape public attitudes toward densification. Planning documents typically use positive framing, and prior studies (Buijs 2009; Whittemore & BenDor 2019) show how framing influences public perception. In this study, visualizations are used not as tools to introduce new frames, but rather to support and reinforce the existing framing from the description in plans.

The study evaluates scenarios reflecting the nationwide trend of transitioning to mixed-use and higher-density developments, such as common '5-over-1' projects, using a national panel of respondents to test various densification scenarios. It examines how AR influences public attitudes towards urban densification, addressing the following questions: (1) In comparison to traditional two-dimensional renderings, how does three-dimensional AR influence public support for urban densification? (2) How are these attitudes moderated by factors including the surrounding built environment, participants' values, concerns (traffic, scale, infrastructure, property values, services, resident appeal), technological proficiencies, and demographic factors? (3) How do varying levels of visualization engagement, such as immersion and interactivity, affect support for urban densification?"

In conducting a mobile web survey of 1,872 politically active residents across the U.S., the study adapts Whittemore and BenDor's (2019) research on framing and its impact on public resistance to urban densification to an AR. Participants are randomly assigned to either a 2D rendering or simulated AR, which includes 360-degree panoramic views seen through smartphones in real scale. They are then assigned to one of four hypothetical scenarios. The four density scenarios are: 1) a high-density urban environment; 2) a low-density commercial area; 3) a single-family residential area; and 4) an undeveloped area.

This study offers one of the first empirical tests of AR's impact on public support for urban densification, confirming that AR can increase support compared to 2D renderings. However, the effect is context-dependent. Support for densification declined in single-family residential areas, regardless of visualization type. While AR's immersive features increased support among participants who valued the quality of the built environment. Moreover, technological proficiency did not consistently translate into more favorable responses to AR.

These findings provide practical insights for municipalities on leveraging AR. For planners, AR presents a promising but nuanced tool for public engagement—especially when integrated with context-specific surroundings and framed to address local concerns. Simulated AR, in particular, offers a cost-effective and accessible alternative to fully immersive AR. It helps bridge the gap between technical feasibility and public participation. This research contributes to practical guidance for planners and the broader planning literature by revealing in what context and how AR can foster public support for urban densification.

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Key Words: Augmented Reality (AR), Urban Densification, Public Support, Visualization Tools, Public Engagement

Bio-Inspired Urban Form Analysis of Qinba Small Towns Using Big Data

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This research employs big data analytical methodologies to conduct a comprehensive examination of the morphological characteristics of 89 small towns in the Qinba Mountains region of Southern Shaanxi. By applying methodologies inspired by biological cell morphometric analysis (Yu et al., 2013; Losa, 2002; Lobo et al., 2016), this study aims to enhance understanding of the complexities inherent in urban form measurement. The morphological features of these towns are precisely quantified using six overarching indicators—dimensions, shape, spatial distribution, intensity, connectivity, and diversity—and their 15 sub-indicators (Fleischmann and Arribas-Bel, 2022). This meticulous quantification facilitates a comprehensive understanding of the spatial and functional configurations present in the small towns of this region. Advanced deep learning techniques and big data analysis methods are implemented, particularly utilizing the U-Net3+ network model to extract with high precision the architectural footprints of these small towns from remote sensing data (Qin et al., 2022). The U-Net3+ network, selected for its exceptional performance in image segmentation, is extensively applied in urban morphology analysis. Through the application of Python programming for calculating urban morphology indicators, this research quantifies the morphological characteristics of urban settlements at a significant scale. This investigation specifically addresses the coupling relationship between small towns and riverine systems, examining the influence of small watersheds on town morphology. Rivers constitute not only an integral component of the natural terrain but also a crucial consideration in urban development and planning processes. The interaction between rivers and urban settlements reveals the substantial impact of water bodies on urban form, expansion patterns, and spatial organization, particularly in mountainous small towns where rivers function as natural boundaries and ecological corridors, playing an essential role in maintaining ecological equilibrium and promoting sustainable development. Hierarchical clustering analysis of architectural form indicators reveals the spatial and structural nuances characterizing these small towns. Additionally, Grasshopper, a Rhino-based visual programming tool, is employed to refine town planning efforts, with its C# scripting capabilities enabling expeditious urban design developments that are fundamental for harmonizing town-river relationships and preserving ecologically significant areas (Naboni et al., 2019). In conclusion, this research innovatively approaches the study of small town morphology from the perspective of biological cell morphology, integrating deep learning, hierarchical clustering, Python programming, and parametric design tools to conduct an in-depth analysis of the morphological characteristics of small towns in the Qinba Mountain area of southern Shaanxi, while simultaneously exploring the complex coupling relationships between these settlements and their riverine environments, thereby providing scientific foundations and novel perspectives for small town planning, design, and ecological environmental protection.

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Key Words: Urban Morphology, Cell Morphometrics, Urban Analysis, Small Towns

Can Custom GPTs Improve Human Evaluation of Plans?

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Plans are foundational to urban planning, defining its identity and advancing the public interest when aligned with community goals. In concept, a well-crafted plan serves the public interest more effectively than urbanization undertaken without planning. Recognizing the importance of plans, scholars have developed well-established principles of plan quality and empirically examined how plan quality shapes urbanization and enhances community outcomes.

However, the increasing volume and complexity of plans make them labor-intensive and challenging to evaluate, limiting their practical use and theoretical advancement. Despite being digitally accessible, their scale deters comprehensive review and comparison. With most plans now online, emerging techniques in text analysis—particularly using Large Language Processing (LLP) models like ChatGPT—offer promising new approaches to analyzing, understanding content, and comparing plans.

This paper extends our prior research by using ChatGPT-4o to automate qualitative coding of plans. We developed a customized ChatGPT (Resilience-GPT) with prompts based on policy definitions and a dictionary of relevant terms to improve its ability to identify policy statements. As the actionable core of urban plans, policies translate broad goals into concrete directives for government action; without them, plans lack the structure and authority needed to guide decisions and drive implementation. We evaluate performance by comparing machine-coded outputs from the customized ChatGPT and ChatGPT model with manual coding across three policy attributes. This approach enhances methodological rigor and enables more scalable evaluations of plan quality.

Using an exploratory approach, we analyze policies included in the comprehensive plans adopted by two coastal cities. We focused on policies that affect community resilience to coastal flooding and sea level rise, a global concern. The analysis examined land use and environmental policies of both plans, assessing three key attributes: (1) Actionable: policy specifies a course of action to advance plan goals (1 = includes a verb; 0 = not actionable); (2) Physical Impact: policy impacts the physical/built environment (1 = impacts on the physical environment; 0 = does not); (3) Spatial: policy references a specific community location (1 = contains a mappable term; 0 = does not).

Resilience-GPT outperformed ChatGPT in most categories when compared to human coders. In League City, Resilience-GPT showed higher agreement for actionable (78.8%), physical impact (76.1%), and spatial (64.6%) attributes, while ChatGPT scored lower, especially for actionable (30.97%) and physical impact (44.2%). In Tampa, Resilience-GPT again performed better for actionable (91.9%) and spatial (70.3%) attributes, though ChatGPT had higher agreement for physical impact (94.6%). Despite these results, reliability measures for Resilience-GPT were below the 80% agreement threshold, except for actionable policies in Tampa. This indicates that while ChatGPT is not yet a viable substitute for human coding, Resilience-GPT shows promise, given the task's complexity.

Our use of ChatGPT for plan quality evaluation reveals the need for refinement. While it performs reasonably well, given the complexity of the task, its accuracy and consistency must improve. The next phase tests Resilience-GPT on a broader sample, building on models trained with data from two cities. By fine-tuning it with targeted plan sections containing policies, we aim to enhance accuracy across diverse plans. Future work will also apply sentiment analysis to evaluate how policies affect hazard vulnerability, training Resilience-GPT with clear definitions to assess whether policies reduce or increase vulnerability.

While not a substitute for human evaluators, customized models like Resilience-GPT offer a promising approach to efficiently and comprehensively assess and compare plans.

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Key Words: Plan Evaluation, Large Language Models, Custom GPT

Community-scale Microclimate Simulation Utilizing Lidar and Object-based Urban Tree Classification

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This paper has been submitted to the journal of "Landscape and Urban Planning" and is currently under review.

Urban climate and urban heat island effects, resulting from urban development and expansion, significantly impact human health and well-being. Urban forests play a vital role in regulating urban climate by cooling the ambient environment through shade and evapotranspiration, among many essential ecosystem services. Different human communities have distinct abundances, compositions, and patterns of urban forests, leading to varied cooling effectiveness and microclimate outcomes. While the general consensus is that planting more trees yields greater benefits, there is an increasing need to understand and document the forests' varied taxonomical, structural, and biophysical properties at a more granular scale. This understanding is crucial to predicting and comparing the consequent microclimate conditions across communities. In this study, we utilize high-density airborne point cloud data (58 pulses per m²) to differentiate trees based on their vertical and internal structures. We create a tree family and size classification map for all trees in two socioeconomically distinct communities in Portland, Oregon, USA. The Random Forest classifier, using LiDAR-derived metrics, classifies all tree objects into seven classes with an overall accuracy of 67.1%. Using the classified properties, we simulate and compare these forests' combined air temperature cooling effects and test alternative tree composition scenarios with the object-based ENVI-met model. The simulation results indicate that wealthier communities experience a more significant reduction in 1.5-meter-aboveground air temperature than less wealthy ones (0.23K cooler on average). This disparity in benefits is likely to widen further if current forest evolution trends persist. This study demonstrates a comprehensive workflow from generating object-based knowledge on urban trees to high spatial resolution microclimate simulation of the urban forests' composite effects. This approach can aid in practical urban forest quality monitoring and evaluation, supplement urban planning and management practices, and optimize the urban forest to facilitate cross-community ecosystem services equity.

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Key Words: Microclimate, Urban remote sensing, Ecosystem services, Lidar, Urban forest

Comparing Planner-Written Versus AI-generated Summaries of Public Submissions

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Large language models (LLMs) such as ChatGPT have drawn significant societal attention, with applications in everyday tasks like knowledge retrieval, text summarization, question answering, and text generation. In urban planning, emerging interest has focused on using LLMs for tasks like reading plans and analyzing public feedback. However, there is ongoing debate regarding the application of LLMs in the planning process. Moreover, researchers must engage planners in the development and testing of AI tools to improve planners' knowledge and perceptions of AI usefulness for planning practice.

The aim of this paper is to contribute to current literature on AI in urban planning with a focus on the research questions: How does a planner-written public submissions summary compare to an AI-generated summary? And What are the linguistic characteristics of planner versus AI-generated summaries? To address these questions, this paper uses linguistic analysis to investigate the similarities and differences between planner- and AI-generated public submissions summaries. By analyzing linguistic attributes such as word groupings, word usage, sentence lengths, and unique or repetitive phrases, this study seeks to identify key differences between the two types of text. Semi-structured interviews were also conducted with planning staff who wrote the public submissions summary to gain insights into how public submission reports are written by planners.

Drawing on 7,932 public submissions received in response to the public exhibition of an Explanation of Intended Effect: Changes to create low- and mid-rise housing by the Department of Planning and Environment (Sydney, Australia) in December 2023, we use ChatPDF to generate a summary of the 10 most common issues raised in the public submissions. ChatPDF (www.chatpdf.com) is an online software platform that utilizes the ChatGPT-4o model to allow users to engage with PDF documents. This recent concept is known as the Retrieval Augmented Generation (RAG) method. In basic terms, the user query or command is combined with relevant content from the PDF file(s), which is then passed to ChatGPT to generate a response. The RAG method is an alternative to the more technical process of fine-tuning an LLM with domain specific knowledge. Linguistic analysis of the planner-written and AI-generated public submission summaries was then undertaken using Nvivo.

The analysis reveals that ChatPDF replicated 4 of the 10 most common issues planners identified in their public submissions report. A further 4 common issues were partially identified but given different titles, while 2 common issues identified by ChatPDF were not discussed by the planners. At the syntactic level, the word length of the planner's summary is longer than that in ChatPDF's summary. The planners used shorter sentences. Both summaries used a similar number of unique words, while planners used more stopwords. The analysis indicates that planners exhibit a more nuanced language structure in their writing. A significant difference between the submission summaries is word usage from the submissions. The AI-generated summary exhibits a more negative tone by using phrases like "perceived failure", "widespread apprehension" and "raised alarms". The planner-written summary does not reproduce negative sentiment verbatim from the public submissions.

The use of LLMs in urban planning research and practice to support routine and repetitive writing tasks is almost inevitable and likely already occurring to some extent. While LLMs such as ChatGPT can produce text that is somewhat like human writing, it is important to understand how AI-generated texts differ from planner-written texts. This paper provides insights into the linguistic characteristic of each.

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Key Words: Artificial intelligence, Large language models, ChatPDF, public submissions

Computer Vision and GenAI Empowered Urban Design Workflow

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This paper envisions a novel integration of computer vision (CV) and generative artificial intelligence (GenAI) into urban design (UD) workflow and pedagogy. Urban designers today confront increasingly complex challenges as cities function as dynamic, multi-layered systems—a prevailing concept extensively discussed by scholars yet challenging to incorporate into UD practice. Despite rapid digitalization in other fields (e.g., finance, biology, and even the sibling subject, architecture —where technologies like AR/VR, BIM, and digital twins are widespread) - UD practice continues to rely on "outdated" tools like SketchUp or complicated GIS systems. We propose a new paradigm bridging the gap between UD education and practice by leveraging fine-tuned CV and GenAI applications to streamline and enhance three critical phases of the entire UD workflow (Gan et al., 2024; Jiang et al., 2024): 1) 24-hour site information collection through image generation, 2) user behavior prediction without GIS dataset enabled by customized CV and GenAI models on satellite imagery, and 3) iterative design ideation supported by GenAI. We seek to transform UD curricula and pioneer practical toolkits for educating next-generation urban designers, revolutionizing UD workflow into a collaborative, data-light, and responsive framework, addressing the discipline's longstanding challenges of complexity, data dependency, and slow iteration. It will also cultivate UD students' computational literacy, creative problem-solving, and critical analysis through a human-AI co-design framework.

Context: UD faces increasingly complex challenges due to the multi-dimensional nature of cities - a "complex system" (Batty, 2009) that is constantly evolving and influenced by multiple, often competing factors. With that said, the nature of urban designers' tasks is to work with vast amounts of data and stakeholders, necessitating advanced digital tools being carefully designed and fine-tuned.

Although the concept of Computer-Aided Design (CAD) can be traced back to the 1960s (Negroponte, 1975), it has not fundamentally broken through the built environment discipline's research innovation. Despite advancements in other industries, the digitalization of UD workflows remains low. Many firms continue to rely on outdated tools that require large amounts of data and slow computation times, hindering real-time, evidence-based design decision-making. The rapid adoption of Large Language Models (LLM) such as ChatGPT and GenAI-based tools in the broader design fields is an industrial revolution—one that is inevitable. A stark contrast to the rapid adoption of GenAI technologies in sectors like banking (e.g., GPT in customer service and trading) and even our sibling subject - architecture (e.g., AR/VR, BIM), where technologies such as Stable Diffusion and Midjourney have rapidly proliferated, UD, however, has yet to harness such advances fully.

To bridge the gap, we introduce GenAI tools (e.g., Pix2Pix, CycleGAN, and Diffusion) to modernize the UD workflow, enabling faster iterations, data-driven insights, and creative flexibility, allowing students to predict user behavior, generate day-to-night design transitions, and explore multi-modal design spaces efficiently throughout the entire UD workflow. The project will enable students to expeditiously generate solutions that traditionally require complex GIS simulations or extensive manual data collection. In essence, we envision this integration as the next

evolutionary step, akin to how efforts from Hillier (2015) in introducing Space Syntax broke through the bottleneck between urban studies and computational science.

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Key Words: Generative AI, Computer Vision, Urban Design Workflow, Public Space, Public Life

Decoding Urban Spatial Rhythms: An Integrated Big-Small Data Approach for Activity Pattern Analysis

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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As Jane Jacobs famously observed, the essence of vibrant urbanism lies in the complex "ballet of the sidewalk"—the diverse, overlapping patterns of human activity that generate urban vitality. Today, this ballet has intensified and accelerated, fundamentally transforming urban operational mechanisms and daily rhythms globally. Understanding human activities—their spatial distribution, temporal patterns, and interactions—is increasingly critical for sustainable urban planning, as these activities directly shape resource consumption, infrastructure demands, and environmental impacts. Traditional static analytical methods relying on Points of Interest and land use classifications fail to capture the dynamic nature of urban functionality and temporal variations in space utilization.

This study proposes a novel computational approach integrating big-small data fusion techniques to analyze urban spatial rhythms across various spatial units. Our methodology combines the extensive coverage of mobile phone signaling data with detailed insights from time-use surveys, creating a comprehensive technological framework for understanding urban temporal dynamics through advanced spatial analytics.

Using Shanghai as a case study representative of rapidly growing global metropolitan areas, we identified seven distinct daily activity patterns through computational clustering: maintenance and sleep, purchasing commodities, exercise and leisure, employment and education, eating and drinking, medical care, and travel. Through our decomposition algorithm, we extracted activity weights and dynamic population changes across spatial units. Statistical validation showed high goodness of fit ($R^2 = 0.94$) between decomposition results and employment data, while field validation confirmed the method's ability to identify primary activity patterns in specialized functional areas.

Our findings reveal three critical dimensions of urban activity dynamics: (1) spatial distribution patterns showing varying degrees of facility dependency across activity types; (2) temporal evolution of activity intensities demonstrating distinctive urban rhythms; and (3) complex functional combinations forming characteristic patterns of single-functional and multi-functional zones. These insights provide nuanced understanding of how urban spaces transform throughout daily cycles.

This methodology offers particular value for rapidly urbanizing regions in developing countries facing challenges of explosive growth, informal development, and limited planning resources. By leveraging widely available mobile data, our approach provides an accessible solution for cities with constrained technical capacity. The framework can be adapted across international contexts to address challenges of uneven development, infrastructure planning, and resource allocation in Global South megacities. The approach bridges the technological-methodological gap in activity-based urban analysis while offering practical applications in dynamic functional zoning, targeted service provision, and temporally-responsive urban management strategies.

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Key Words: Urban spatial rhythm, Daily activity pattern, Time series analysis, Multi-source data fusion, Crowd dynamic activities

Digital Mapping of Urban Imageability: A GIS-Based Assessment of Urban Image in San Antonio, Texas

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Track 13: Technology, Society and Analytical Methods

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The image of a city and the characters of its communities are fundamental to social and economic vitality, enhancing livability and attracting residents and visitors. However, market-driven urban sprawl and suburbanization have weakened the character of many urban areas. While communities with a strong character can attract new investments and younger, professional populations, such changes may sometimes disrupt the established community fabric, triggering gentrification. Developing a methodology to quantify the imageability brings the opportunity to examine development patterns in urban fabrics and provide a tool that can be used in diagnosing community characters in diverse urban contexts. The concept of city imageability has been primarily explored through cognitive mapping on five urban form elements – paths, nodes, landmarks, districts, and edges – introduced by Kevin Lynch (1964). Since then, only a handful attempted to digitally measure imageability using advanced tools such as network science techniques and social media analyses, visualizing Lynch's five elements on a digital map (Wessel et al. 2018; Filomena et al. 2019). However, there has not been an attempt to quantitatively diagnose the level of imageability across communities to calculate imageability index scores and analyze their relationship with local economic performance and investment patterns.

This study aims to suggest a new methodology to quantitatively measure urban imageability as a community diagnostic tool and evaluate its relationship with local economic performance and investment patterns through socioeconomic and gentrification measures. The overarching research question is: How does urban imageability, as quantified by Kevin Lynch's five elements, correlate with local socioeconomic characteristics and gentrification patterns in San Antonio? To answer this question, this study developed a GIS-based assessment of urban image and created an imageability index using San Antonio, Texas as a testbed. The imageability index was developed with the Open Street Map (OSM), an open-source data that supports the bottom-up approach Liu (2016) suggested in providing cognitive maps from the public. Another benefit of using OSM was its availability in varying cities globally, which helps to replicate the methodology. Using OSM, an overall Urban Imageability Index was produced by averaging the density values of all five elements at the census tract level using Kernel density analysis, yielding comprehensive scores between 1 and 10. The imageability scores were then compared with socioeconomic and gentrification measures – changes in property values, shifts in demographics (e.g., income and race), and new development patterns. Using multivariate regression models, we examined if socioeconomic characteristics, economic performance, and potential gentrification processes predict the imageability scores.

The results suggest that the overall high imageability score is significantly correlated with older building age and lower single family household proportion. When compared with the socioeconomic characteristics such as race and income, lower income Hispanic communities tend to have a higher imageability score. This reflects San Antonio's current demographic landscape, where historically marginalized Mexican American communities have endured long-term economic challenges. Yet their rich cultural heritage and strong community identity have significantly enhanced the area's imageability. This study offers a robust and replicable index mapping methodology to visually and quantitatively measure urban imageability, as a tool that can diagnose critical urban issues such as

gentrification, economic viability, and social vulnerability. Urban Imageability Index can identify underlying drivers that erode the imageability, providing a basis for targeted interventions to enhance community characters.

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Key Words: Digital mapping, Urban imageability, GIS, Kernel analysis, Kevin Lynch

Do green space accessibility analyses vary by which data source you use?

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Urban parks promote physical activity, public health, and overall well-being. However, measuring accessibility to these green spaces relies on spatial data sources that vary in coverage, accuracy, and digitization standards—potentially introducing bias into accessibility analyses. Due to the uneven representation of different communities in digital data, this bias could particularly undermine our understanding and provisioning of accessibility for underserved and disadvantaged communities.

This study investigates how data source selection influences park accessibility measures by 1) validating the accuracy of several common data sources that are each supposed to be complete and then 2) assessing their impact on calculated accessibility measures. It focuses on large public urban green spaces (LPUGS) and compares three widely used open data sources, OpenStreetMap, the Trust for Public Land (TPL), and Esri, to validate these LPUGS from different data sources against real-world park locations using satellite images and Google Street View. We select three validation study sites - Portland, Buffalo, and Vicksburg - representing variations in size, population, geographic region, and socio-demographic characteristics. Two researchers independently validate each LPUGS in terms of: (1) whether the sample represents a real-world LPUGS at this location using Satellite Images and Google Street View and (2) whether more than one sample represents the same real-world LPUGS. Then we calculate each data source's accuracy through precision, recall, and F1 scores.

After validation, we perform a network-based isochrone analysis at 15- and 30-minute walking thresholds to quantify park access through 1) the cumulative count of parks within each isochrone and 2) the cumulative park area within each isochrone. Then we test how park accessibility measures vary depending on the data source used. We hypothesize that these differences lead to different estimates of the number and total area of accessible parks, affecting how spatial equity is understood by researchers and planning practitioners.

We find that park accessibility measures do vary significantly depending on the data source used, which can bias empirical findings and policy decisions. In particular, OpenStreetMap and TPL capture more real-world parks but also have more false positives, whereas Esri has higher precision but lower recall, potentially underestimating access. These differences lead to different estimates of the number and total area of accessible parks, affecting how spatial equity is understood by researchers. We argue that relying on a single data source may introduce bias, underscoring the need for careful selection in accessibility research. This talk concludes with guidelines for planning scholars and practitioners to improve data source selection and use data-driven methods to mitigate data bias in accessibility analyses to improve park accessibility for all.

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Key Words: Accessibility, Parks, Spatial Equity, Walkability, Public Health

Enhancing Home-Work Commuting Prediction for Decarbonized and Climate-Resilient Transport Planning

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Understanding home-work commuting patterns is critical for addressing transport planning challenges, including transportation decarbonization, infrastructure resilience, and equitable access to employment (Cabanias-Tirapu et al., 2025; Tsutsumi & Tamesue, 2012). This study addresses two research questions: (1) How do traditional and emerging deep learning approaches compare in predicting home-work commuting flows across UK local authority districts (LADs)? (2) How do socioeconomic variables, spatial dependencies, and network structures shape commute behaviors? By tackling these questions, the research responds to the urban planning imperative of developing robust tools to forecast mobility patterns for sustainable future transport system under evolving demographic and economic changes, and climate disruptions.

The study develops and evaluates three models: a standard gravity model, a spatial econometric model, and a graph neural network (GNN). Data from the UK and Scotland Censuses were harmonized at the LAD level, integrating variables including population, household characteristics, housing rents, travel mode share, and travel times. The gravity model served as a baseline, using population and distance to predict flows. The spatial econometric model extended this by incorporating spatial dependencies between origin-destination pairs (LeSage & Pace, 2008). The GNN model, designed to capture non-linear relationships and network effects, treated LADs as nodes in a graph, with edges weighted by travel times and distances, while integrating node-level socioeconomic features.

Results in this study reveal significant differences in model performance. The GNN model achieved the highest predictive accuracy, highlighting its ability to model complex spatial and relational patterns. The spatial econometric model outperformed the gravity model, underscoring the role of regional interdependencies, such as spillover effects from neighboring areas, in shaping commuting flows. Feature importance analysis in the GNN identified population size, household counts, and private housing rents as critical predictors. Edge features, including travel times and distances, plays significant roles in measuring mobility patterns. These results suggest that commuting flows are shaped by multi-scalar socioeconomic dynamics and spatial network structures.

This study demonstrates the value of integrating machine learning and deep learning approaches for mobility analysis, which could be further applied to measure future commuting patterns under alternative decarbonization and adaptation policies, as well as climate disruptions. For example, future studies could apply these models to predict commuting shifts under scenarios such as increasing telecommuting adoption, accelerated electric vehicle uptake, and intensifying climate-induced risk to public transport systems. The harmonized UK-wide dataset supports data-driven decision-making for the DARE project, which aims to align sustainable transport planning with decarbonization goals and adaptation strategies. A key limitation of this study is the reliance on static census data, which underscores the need for longitudinal, high-resolution mobility datasets to enhance temporal forecasting.

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Key Words: Mobility Pattern, Transport Decarbonization, Deep Learning, Spatial Econometrics, Resilience

Evaluating Reconnecting Communities Program Highway Projects Using A Social Network-Based Metric

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Transportation infrastructure can facilitate the flow of people, goods, and information through cities (Bettencourt, 2021). However, as planners recognize, highways and other large facilities can also create barriers to walkable, accessible, and human-scale neighborhoods (Anciaes et al., 2016). This awareness has influenced a movement towards highway removal in the United States that is complemented by the desire to address the harms caused to communities by federally-funded highway construction (Mohl, 2012).

Between 2022 and 2024, the U.S. Department of Transportation's Reconnecting Communities Pilot (RCP) Program and Reconnecting Communities and Neighborhoods (RCN) Grant awarded approximately four billion dollars to projects that seek to remove, retrofit, mitigate, or replace existing facilities in order to reconnect communities harmed by past transportation infrastructure decisions. At present, however, there are few existing quantitative tools well-suited to assessing prospective and awarded projects based on their impacts on social connectivity rather than their impacts on mobility flows, trip routing, and other more immediate travel effects (van Eldijk et al., 2022). In this paper, we offer an easy-to-use toolset to quantify the impact of transportation barriers on social networks and apply it to 54 planning or capital construction projects financed by RCP and RCN.

Our method involves overlaying a selection of RCP and RCN project-identified barriers with spatial social networks constructed from Twitter mutual followership edges between geolocated users in 32 U.S. Core-Based Statistical Areas (CBSAs). For each site, we calculate a barrier score that compares the number of edge crossings in the real social network to the number of edge crossings averaged over randomized social networks (Aiello et al., 2025). These randomized networks are designed to preserve the location of nodes and the approximate length of edges but to rewire ties based on spatial gravity models that are insensitive to the presence of the highways expected to shape real world social relationships. We then contextualize the barrier scores by exploring associations with local-level data on income distributions, demographics, transit availability, land-use patterns, and more. Focusing on differences that are statistically significant, our findings suggest that some projects may have substantial potential to enhance social connectivity because they target highway segments with high barrier scores, while others seem likely to have a limited impact by this network-based measure.

This approach represents a first step towards a scalable, social network based toolset for policymakers and transportation planners interested in assessing whether existing or planned urban infrastructure projects cause barrier effects or community severance. We briefly discuss software and strategies that may assist in making these analyses faster and more accessible and identify paths for future research based on our exploration of RCP and RCN projects.

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Key Words: social networks, barrier effects, urban infrastructure, community severance

Examining the Association Between Urban Form and Carbon Emissions: Evidence From Seoul, South Korea

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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As cities account for a majority of global greenhouse gas (GHG) emissions, understanding how the physical form of urban environments influences energy consumption and carbon intensity is critical to formulating effective mitigation strategies. Despite increasing interest in spatially informed climate policies, existing research often overlooks the role of built form heterogeneity in shaping emission patterns. This study aims to address this gap by integrating high-resolution Local Climate Zone (LCZ) classification with spatial analysis of building-sector GHG emissions in Seoul, South Korea—a megacity characterized by diverse urban morphologies and high energy demand.

To classify LCZ types at scale, we applied a Convolutional Neural Network (CNN) model trained on Landsat 8 imagery and manually validated training areas across the Korean peninsula. The model produced a 100-meter resolution LCZ map with an overall classification accuracy of 83.3%, and particularly high performance for natural-type zones. Using this map, we extracted the LCZ types for 100m grid cells covering the Seoul metropolitan area and spatially linked them to grid-level energy consumption and emissions data. The GHG dataset was constructed from public building-level electricity and city gas usage records, provided via Ecoeye and the Forest Big Data Exchange. Emissions were calculated using standard CO₂ emission coefficients and normalized by the gross floor area (GFA) of each building, allowing us to estimate per-square-meter carbon intensity (CO₂eq/m²) for each grid.

Our results reveal clear spatial and seasonal variation in GHG emissions across different LCZ types. Compact zones (LCZ 1–3), characterized by dense, mixed-use, and vertically oriented buildings, consistently exhibited lower emission intensities across seasons. In contrast, open and low-density LCZ types (LCZ 4–6 and LCZ 9) showed significantly higher emissions, especially during periods of peak energy demand in summer and winter. For instance, LCZ 4 (Open high-rise) recorded the highest electricity-based emissions, while LCZ 5 and 6 demonstrated pronounced increases in gas consumption during colder months. These patterns suggest that urban density and spatial configuration directly influence heating and cooling energy demand, and hence, carbon outcomes.

In addition to within-grid characteristics, we examined the influence of surrounding LCZ environments using spatial regression models. The results confirmed significant spatial spillover effects: grids adjacent to high-emission LCZ types such as industrial or open residential zones showed elevated emissions themselves, even when their own built form was more carbon-efficient. This highlights the importance of considering not only local but also neighboring spatial structures in urban climate planning.

The methodological contribution of this study lies in the use of CNN-based LCZ mapping to overcome the limitations of conventional land cover data, which often lack climate-relevant resolution and functional accuracy. By combining this with normalized GHG emission data and multi-variable Ordinary Least Squares (OLS) regression, we demonstrate a scalable and replicable approach for quantifying the relationship between urban morphology and carbon performance.

Our findings offer practical implications for urban planning and policy. LCZ-based classification enables the identification of high-emission zones, the targeting of climate interventions, and the design of customized carbon reduction pathways that reflect the spatial complexity of real-world cities. As climate mitigation efforts become increasingly spatialized, tools that integrate remote sensing, deep learning, and environmental data will play a central role in shaping equitable and effective low-carbon urban futures.

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Key Words: LCZ, Carbon Emissions, Urban Morphology, CNN, Climate Resilience

Expert vs. Data-Driven Bike-Equity Measures: A Granular Analysis for the Bay Area

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Track 13: Technology, Society and Analytical Methods

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Equity in bicycle infrastructure remains a core challenge for transportation planning, particularly in rapidly urbanizing and economically diverse regions. This study presents a comparative analysis of bicycle equity measures for the San Francisco Bay Area, using a consistent set of 21 indicators applied at the census block group level. These indicators—covering infrastructure, demand, and social vulnerability—were identified through an expert survey involving regional planners, transportation advocates, and equity-focused practitioners.

We develop and compare three different bicycle equity indices: (1) an expert-informed model using weights derived from a Delphi process, (2) a data-driven model constructed using Principal Component Analysis (PCA), and (3) a GIS-based weighted overlay index. The expert-driven model aligns with a supply-demand framework, reflecting practitioner priorities on where infrastructure is most needed and which populations are most underserved. In contrast, the PCA approach extracts latent dimensions purely from statistical variance, without incorporating normative judgments. The GIS overlay model serves as both a spatial synthesis and a communication tool, applying weights in a layered decision-support format that can reflect either expert-defined or equal-weight assumptions.

To statistically compare the models, we apply paired-sample t-tests, Pearson correlation, and spatial autocorrelation techniques such as Local Indicators of Spatial Association (LISA). Our results reveal that equity rankings differ substantially across methods. Notably, block groups in Oakland and East San José consistently rank high in the expert-weighted and GIS overlay models—due to factors like infrastructural gaps, low vehicle access, and income-based need—but receive lower equity scores in the PCA-based index. This suggests that purely statistical approaches may overlook key dimensions of transportation justice when indicator weights are not guided by community-informed values.

This research provides a robust methodological framework for integrating expert knowledge with spatial and statistical tools in transportation equity analysis. For academic audiences, it highlights the epistemological implications of index construction and offers insight into the trade-offs between normative and empirical approaches. For planning practitioners, the findings demonstrate the importance of transparent and context-sensitive modeling methods when prioritizing investments in bicycle infrastructure at fine spatial scales. Together, these approaches offer a path toward more just, data-informed, and actionable transportation planning.

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Key Words: Bikeability, Bike Equity, Transportation Justice, Spatial Analysis, Community-led

Explaining the “Why” of Urban Perception at Scale: A Context-Sensitive Generative AI Framework

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Understanding how people perceive urban environments is essential for designing safer, livelier, and inclusive cities. To assess these perceptions at scale, planning researchers often rely on deep learning models applied to street view imagery. While effective at predicting scores, these models lack the capacity to explain complex human perception due to their reliance on predefined visual categories and manually crafted indices. Recent efforts to apply large language models (LLMs) for perception scoring offer some interpretability but remain influenced by researcher-defined aspects, providing limited insight into the reasoning behind specific perceptions. To overcome these limitations, we propose a novel approach that uses LLMs with vision capabilities to simulate how humans experience a scene, providing detailed, context-sensitive explanations of ratings to uncover the mechanisms of urban perception.

We applied our method to the widely used Place Pulse 2 dataset and retained 77,006 images after robustness-based filtering. We used LLMs to generate approximately six reasons per image per perception dimension, producing over three million explanations. Using human-voted scores as ground truth, we inferred the contribution and directionality of perception factors and validated the plausibility and coherence of the explanations by comparing them with human annotations. To extract meaningful insights from the large volume of explanations, we utilized BERTopic clustering and part-of-speech tagging to identify common themes and patterns. This systematic analysis organized the unstructured data into a coherent framework of insights. Additionally, we used the open-vocabulary detection model Grounding DINO to validate the presence and prominence of visual elements described in the explanations.

Our analysis produced a hierarchical typology with high-level categories encompassing social, natural, and built environment factors. At a more granular level, we identified more than a dozen thematic factors with adaptable subcategories that reflect regional and contextual variations. The typology also helps resolve contradictions in the literature by illustrating how differences in environmental characteristics shape urban perception. For example, while greenery generally fosters positive perceptions, it can have the opposite effect when poorly maintained or located in socially isolated areas. Similarly, density often enhances vibrancy but may lead to discomfort in overcrowded environments. In addition to clarifying these nuanced effects, our analysis uncovered emerging factors often overlooked in prior studies and revealed significant regional differences and variations along the urban-rural gradient. This flexible typology offers transferable insights across different urban contexts while allowing for localized adaptation, enabling planners to respond to specific needs and feedback.

By introducing a human-centered, explainable framework, our study deepens the understanding of urban perception mechanisms. Our two-stage process first enables LLMs to generate rich, context-specific explanations without restrictive instructions, then applies systematic analysis to extract patterns and transferable insights. This approach addresses key limitations of previous models and provides a flexible framework for further research and transparent, evidence-based decision-making. To mitigate the risk of LLM hallucinations, we incorporated validation and verification throughout our framework. Rather than applying AI to planning as a detached tool, our approach embodies a planning-relevant AI paradigm — a method grounded in urban knowledge that centers human perspectives and directly addresses planning challenges. Our open-source tools will facilitate the adoption

and adaptation of this framework across diverse settings, empowering researchers and practitioners to generate actionable insights and inform context-specific urban design and policy decisions.

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Key Words: Urban Perception, Explainable AI, Large Language Model, Streetscape Design, Localized Insights

Exploring the Potential and Bias of Generative AI in Assessing Pedestrian Safety Perceptions

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Pedestrian safety perception plays a crucial role in shaping both community dynamics and individual behavior. However, understanding travelers' perceptions of walking safety typically requires costly, labor-intensive surveys with limited sample sizes. Based on large-scale corpus, Generative AI (GenAI) can quickly and affordably simulate human safety perceptions on a large scale. Despite this potential, the representativeness and accuracy of such simulations remain unknown, especially for minorities and low-income communities.

This research examines the discrepancies between walking safety perceptions collected from GenAI and humans. We conducted a pedestrian safety perception survey based on Google Street View images (n = 331 with 12,596 images) in Columbus, Ohio. We then prompted ChatGPT, a leading Generative AI platform, to simulate the respondents' safety perceptions based on their locations and their demographic profiles. The AI-generated responses were then systematically compared with actual resident feedback. We used a logistic regression model incorporating resident demographics, neighborhood socio-economic profiles, road network characteristics, and built environment features of road segments.

We found that GenAI tends to overestimate walking safety perceptions of White respondents and male respondents. GenAI also tends to underestimate perceived safety in areas with higher population density, better road connectivity, and more regular street layouts. Conversely, GenAI tends to overestimate actual perceived safety in areas with high proportions of commercial land use and greater greenery visible in street imagery.

This study is the first to systematically uncover the potential and biases in generative AI's simulation of pedestrian safety perceptions across specific demographics and urban contexts. It highlights significant socio-economic and urban spatial factors contributing to these biases, emphasizing the need for future research aimed at enhancing the fairness and accuracy of AI-driven urban perception predictions. These insights have critical implications for guiding the equitable integration of AI tools into urban decision-making processes.

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Key Words: Generative AI, Pedestrian Safety, Large Language Model, Mobility Equity, ChatGPT

Exploring Tipping Points in Commercial Decline: Transitions in Multidimensional Urban Vitality

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Urban spatial change is often nonlinear, with incremental, fragmented shifts accumulating until they surpass a threshold, leading to sudden structural transformations (Batty, 2008). This is observed in both residential neighborhoods (Galster, 2018) and commercial districts, which are central to pedestrian activity and consumption. Early signs of decline, such as store closures or vacancies, may appear transient, but when combined with worsening vacancy, declining activity, and environmental degradation, these factors create a negative feedback loop that accelerates commercial decline (Hollander et al., 2018; Koster et al., 2019).

This decline is not only economic but also visible and social, with vacant storefronts, absent signage, and reduced pedestrian activity indicating the loss of vitality (Zukin et al., 2015). Once a tipping point is crossed, recovery becomes unlikely, and the area may enter an irreversible decline, aligning with nonlinear urban change theory (Hollander et al., 2018).

In this context, this study identifies tipping points in commercial decline by analyzing structural shifts in commercial vitality alongside visual, functional, and economic indicators. The research addresses: (1) Does a tipping point exist in the process of commercial street decline? (2) How do visual landscapes, business composition, and economic activity change before and after these tipping points?

To address these questions, we constructed a multimodal dataset comprising monthly building-level electricity consumption, points of interest (POI) data, employment statistics, and Street View images for major commercial districts in South Korea. Aggregated building electricity consumption at the commercial district level was used as a proxy for commercial vitality, and its validity was confirmed through correlations with pedestrian traffic and gross sales data within these districts. Tipping points of commercial decline were identified using spline regression and Multivariate Adaptive Regression Splines (MARS), methods designed to detect nonlinear shifts in vitality. For each tipping point, we compared changes in physical, economic, and business characteristics before and after the tipping point using t-tests or other statistical methods. Specifically, we analyzed Street View images using GPT-4o-based large multimodal models (LMMs) to classify visual indicators of decline, such as vacant storefronts and the loss of signage. Changes in business diversity and the number of jobs were assessed using POI and employment data.

This study provides empirical evidence of abrupt structural transitions in urban change, as observed in the decline of commercial streets. It also offers a methodological framework and diagnostic tools for evaluating commercial decline. The findings provide new insights for urban planners and policymakers in addressing retail decline and commercial revitalization.

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Key Words: Tipping Point, Urban Decline, Commercial Streets, Street Vitality

Fine-Tuning LLMs for Online Planning Participation Facilitation

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Public participation in urban planning processes remains constrained by technical jargon, power imbalances, and unequal access to participation opportunities. This research addresses the question: How can fine-tuned Large Language Models (LLMs) improve online public participation by making technical information more accessible and facilitating online discussion and idea sharing? While generalized LLMs have demonstrated capabilities in knowledge translation, they lack domain-specific expertise suited to the complex socio-technical challenges of urban planning participation.

This study will implement a novel methodological approach combining LLMs, agent-based AI, and established discursive frameworks. We will fine-tune an LLM using datasets primarily drawn from established community dialogue and facilitator training guidebooks that emphasize inclusive discussion techniques, conflict mediation, and power balancing strategies. These materials will be supplemented with planning-specific content, including technical document translations and planning dialogue transcripts, though the exact composition of planning materials remains flexible as we identify sources. This fine-tuning approach prioritizes enhancing facilitation quality while incorporating domain knowledge.

To evaluate effectiveness, we will conduct controlled experiments using simulated planning discussions with AI agents representing diverse stakeholders engaged in deliberation. These discussions will be facilitated by either a standard LLM or our fine-tuned model. We will employ a guided evaluation (G-Eval) framework—a structured assessment methodology using an independent evaluator LLM to quantitatively score facilitation quality across multiple dimensions. These include facilitation effectiveness, information accessibility, inclusivity metrics, and discussion outcomes. This blind evaluation will compare transcripts from both facilitation conditions using a standardized rubric.

We anticipate discussions facilitated by the fine-tuned model will demonstrate improvements in key metrics: more balanced participation, more accurate translation of technical concepts, greater inclusion of marginalized perspectives, and higher participant satisfaction. The fine-tuned model is expected to develop specialized capabilities in recognizing planning jargon, addressing power imbalances, and contextualizing technical requirements.

This research contributes to planning scholarship by developing quantitative metrics for evaluating participation quality in technologically mediated discussions. While focusing initially on AI-simulated discussions, this methodology establishes a foundation for future research involving human participants, providing a thoroughly tested model before deployment in a community setting. For planning practice, it offers a scalable approach to enhancing public participation that could supplement traditional engagement methods while reaching underrepresented communities. For planning education, it provides insights into communicating technical knowledge across barriers.

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Key Words: Public participation, Community engagement, Artificial intelligence, Language models, Facilitation

Floods that matter? Modelling multiple sources of flash flood reports in New Jersey

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Flash floods are particularly thorny to understand: they come quickly, can change course in seconds, and are most sensitive to unevenly enforced terrains of permits, pavements, and pipes. Despite computational and data advances in the fixed inputs typically used by risk modeling, accurate local predictions remain elusive, and officials and impacted frontline communities rarely find models to be of practical use. We draw on recent work on co-produced and community-led epistemologies as well as machine learning models to trace 'backwards' from reported flash flood incidents. Reported events reflect human interest, visibility and privilege of many forms, and we attempt to highlight these biases through signals from local government and frontline communities.

We use a layered mixed-methods approach to identify areas of risk, and also to tease at an underpinning theoretical curiosity: when, how and what types of flash flooding knowledge are used, and by whom? In our machine learning component, we combine events from the US National Oceanic and Atmospheric Administration's Storm Event Database with risk factors and non-flood points to train random forest model, which we evaluate at 300-foot intervals across the state of New Jersey. This builds on literature using crowdsourced data on flash flood hotspot and other hazard events, such as from 311 sources (Liu et al, 2024) or waze data (Esparza et al 2023). Others use community and crowdsourced data primarily to check errors and groundtruth flood forecasting data (e.g. Puttinaovaratt and Horkaew, 2020). We use a random forest model; variations of this have often been found to be most effective for flash flood modelling (Band et al 2020; Liu 2024), or at least relatively similar in accuracy to other approaches (Arabameri 2020; Hosseini et al 2020). This model is then contextualized and critiqued by more precise sources, such as county and municipal alerts, local community-based networks and social media groups. Our initial findings raise further questions on how multiple sources of knowledge can make sense and be of use to a range of residents, decision-makers, and community organizations at the frontlines of flash flood harm and response.

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Key Words: flash flooding, random forest, community knowledge, reported incidents, municipal readiness

From Hearing to Seeing: Linking Auditory and Visual Place Perceptions with Generative AI

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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People experience the world through multiple senses simultaneously, contributing to our sense of place. Prior quantitative geography studies have mostly emphasized human visual perceptions, neglecting human auditory perceptions at place due to the challenges in characterizing the acoustic environment vividly. Also, few studies have synthesized the two-dimensional (auditory and visual) perceptions in understanding human sense of place. To bridge these gaps, we propose a Soundscape-to-Image Diffusion model, a generative Artificial Intelligence (AI) model supported by Large Language Models (LLMs), aiming to visualize soundscapes through the generation of street view images. By creating audio-image pairs, acoustic environments are first represented as high-dimensional semantic audio vectors. Our proposed Soundscape-to-Image Diffusion model, which contains a Low-Resolution Diffusion Model and a Super-Resolution Diffusion Model, can then translate those semantic audio vectors into visual representations of place effectively. We evaluated our proposed model by using both machine-based and human-centered approaches. We proved that the generated street view images align with our common perceptions, and accurately create several key street elements of the original soundscapes. It also demonstrates that soundscapes provide sufficient visual information places. This study stands at the forefront of the intersection between generative AI and human geography, demonstrating how human multi-sensory experiences can be linked. We aim to enrich geospatial data science and AI studies with human experiences. It has the potential to inform multiple domains such as human geography, environmental psychology, and urban design and planning, as well as advancing our knowledge of human-environment relationships.

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Key Words: Soundscape, Generative AI, Sense of place, Place-making,

From Statehouse to City Hall: Mapping the 50-State AI Regulatory Landscape

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Artificial intelligence (AI) has potential to transform urban governance by reshaping how cities manage infrastructure, deliver services, and automating decision-making. However, in the United States, AI regulation is largely decentralized and emerging at the state level—creating a fragmented legal landscape with direct implications for local governments. While cities are often responsible for implementing AI tools, they must do so within the boundaries set by state policy. Despite AI's growing role in urban management, there is limited understanding of how state governments are regulating AI and what this means for cities. This study addresses this research gap by conducting a 50-state content analysis of AI-related legislation to explore how regulatory approaches vary and what these differences imply for urban planning and governance.

The central research question guiding this study is: How are U.S. state governments regulating artificial intelligence, and what are the implications for urban governance and planning? The study aims to (1) map the scope and themes of AI legislation across states, and (2) identify patterns in regulatory focus that may influence how cities govern AI adoption.

Existing scholarship highlights both the opportunities and risks of AI in cities—from improved efficiency to ethical concerns like bias, surveillance, and accountability (Kitchin, 2016; McGuirk et al., 2021). While AI has been widely discussed in the context of smart cities (Sanchez et al, 2023), few studies have systematically examined how U.S. states are laying the legal groundwork that shapes local implementation. Recent research also suggests that political, economic, and demographic factors influence whether and how states regulate AI (Parinandi et al., 2024).

This study employs a qualitative content analysis of AI-related legislation across all 50 U.S. states, using the National Conference of State Legislatures (NCSL) database as the primary source of data. The aim is to identify how state-level legislative activity around AI may enable, constrain, or otherwise shape the governance capacity of urban governments. While prior research has examined the political economy of AI policy adoption (Parinandi et al., 2024), this study builds on that work by focusing specifically on implications for cities and local governance. The legislation is coded along the following dimensions: urban governance relevance (such as mentions of municipalities, etc.), governance impact type (restrictive, enabling, procedural, etc.), theme (privacy, ethics, surveillance, smart cities, etc.), sector (transportation, environment, housing, etc..)

Preliminary analysis reveals wide variation in how states approach AI regulation. Some prioritize consumer protection and transparency, while others focus on economic opportunity and innovation incentives. These differences shape the legal environment within which cities must govern AI technologies—affecting procurement processes, service delivery models, and public accountability structures. Inconsistent or underdeveloped state frameworks may leave cities with limited guidance or protections when adopting AI tools. This study offers a foundational understanding of the evolving AI policy landscape and provides insights for urban planners and policymakers seeking to align local practice with broader regulatory trends

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Key Words: Artificial Intelligence, urban governance, state – local dynamics, smart cities

GA-Based Multi-objective Optimization of Pocket Park Renewal in Historical Neighborhoods

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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As China's urban renewal transitions into stock-based development, high-density historic neighborhoods face the complex challenge of balancing cultural heritage preservation, functional enhancement, and public demand. Focusing on Nanjing's Lotus Pond-Diaoyutai district, this study develops an intelligent renewal model that integrates dynamic genetic algorithm (GA) optimization with closed-loop collaborative governance, aiming to reconcile historical authenticity with modern urban vitality through data-driven spatial regeneration.

To address the limitations of existing static protection and unilateral decision-making models that lead to spatiotemporal dislocation, this study introduces innovations at both theoretical and technological levels:

1. Theoretical Innovation – Dynamic Synergistic Governance Framework: Conventional models rely on static protection or unilateral planning, neglecting the integration of technical tools, cultural values, and governance. This study pioneers a framework that combines dynamic GA-based optimization with collaborative governance, introducing the concept of “techno-emotional symbiosis.” A closed-loop system embedding real-time public feedback (demand articulation → AI-aided design → iterative refinement) is established to enable adaptive renewal.
2. Technological Innovation – Multi-objective Co-Optimization: Traditional approaches often emphasize single-objective optimization, overlooking the intricate spatiotemporal interactions characteristic of high-density urban environments. To overcome this limitation, this study proposes a self-optimizing framework leveraging NSGA-III GA-based multi-objective optimization. By incorporating dynamic feedback mechanisms, the framework facilitates continuous iteration, ensuring adaptive, data-driven decision-making in urban renewal processes.

The operational path is as follows:

1. Data Acquisition and Pre-Processing: QGIS is used to create 50-meter dynamic buffers around cultural and conservation units, while Amap API calibrates walking isochrones to ensure data timeliness and accuracy.
2. Preliminary Screening of Candidate Sites: Candidate pocket park sites are identified based on the Effective Green Space Service Area Ratio (EGSR) and land ownership, utilizing spatial topology analysis and buffer zone methods.
3. Multi-Objective Optimization: An NSGA-III algorithm optimizes three objectives—spatial service effectiveness (Voronoi-based 15-minute life-circle coverage), demand response intensity (minimizing the weighted sum of population density and path length), and industry synergy (assessed through a POI-based Functional Activity Ratio). This process yields a Pareto-optimal solution set and reveals non-linear spatial interactions across different parcel scales.
4. Public Participation Mechanism: A participatory framework is established by integrating online/offline surveys and interviews to extract resident demand keywords. Historical street imagery is processed with generative AI tools (e.g., Stable Diffusion) to produce design prototypes, which are then evaluated through real-time public voting via WeChat Mini Programs, forming an adaptive feedback loop.

This study is expected to provide novel insights into the siting and spatial layout of pocket parks in historic districts through intelligent optimization and public collaboration.

By integrating multi-source data fusion, GA-based multi-objective optimization, and collaborative design mechanisms, this study establishes a decision-making framework that bridges digital governance precision with heritage conservation. The proposed framework contributes to the development of a replicable "Nanjing Paradigm" for smart urban renewal.

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Key Words: pocket park, historical neighborhoods, genetic algorithm, urban renewal, collaborative governance

Generating Street-View Images Towards Global Sustainability Goals via Diffusion Models

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This research investigates how state-of-art diffusion models can generate realistic street-view images explicitly tailored to global sustainability objectives. Addressing the central question: How effectively can diffusion models convert quantitative urban metrics into visually comprehensible scenarios, our study bridges the gap between data-driven sustainability metrics and practical, visually intuitive planning tools, typically hindered by complexity and cost constraints. Urban sustainability planning is critical in addressing environmental impacts, climate resilience, and quality of life improvements amid rapid urbanization. Traditional methods, such as manual surveys and satellite imagery analyses, often suffer from limitations including high costs, insufficient resolution, and limited scalability. Recent developments in generative AI present opportunities to overcome these constraints by producing detailed and realistic urban visualizations. Diffusion models, characterized by their iterative noise-removal process, offer a significant advancement over previous generative frameworks like Generative Adversarial Networks (GANs), providing enhanced stability, controllability, and realism. This aligns with SDG 11 (Sustainable Cities) and the New Urban Agenda's call for innovative planning tools. Our research innovatively integrates diffusion models with spatial conditioning frameworks, enabling planners to visualize specific sustainability scenarios dynamically and accurately. We compiled extensive datasets containing approximately 32,000 street-view images from Chicago and Orlando, systematically sourced from platform of Google Street View. Following data acquisition, we conducted comprehensive preprocessing. We first covert the panorama into standard street-view images in four different directions. Then we split each image into two square images. Therefore, one panorama image can derive eight different street-view images. Semantic segmentation utilizing SegFormer—a Transformer-based model trained on the ADE20K dataset—accurately quantified urban elements such as buildings, greenery, roads, and sidewalks. Proportion of each element are calculated. Furthermore, the YOLOv12 object detection algorithm was integrated to enhance prompt richness by precisely identifying and localizing objects like vehicles, pedestrians, signage, and roads. These combined multimodal analyses informed detailed natural-language prompts, effectively guiding the stable diffusion models integrated with ControlNet to generate realistic urban street-view images reflective of specific sustainability metrics. Initial experiments demonstrated the model's exceptional accuracy in comparing generated and actual street-view images. Sensitivity tests revealed meaningful visual responses to adjustments in sustainability-oriented parameters. For instance, altering vegetation coverage within prompts significantly impacted perceived greenness, while adjustments to pedestrian and vehicle densities visibly modified urban functionality and livability scenarios. These findings affirm the capability of diffusion models to reliably encode and visualize detailed urban sustainability criteria, supporting scenario-based planning and decision-making. This study provides planners and policymakers with a practical, scalable visualization tool, significantly enhancing community engagement and informed decision-making in sustainable urban development. By translating quantitative sustainability metrics into clear visual representations, our method facilitates effective public participation, enabling stakeholders to intuitively grasp potential future scenarios. Future research will expand dataset diversity, refine model accuracy, and explore deeper integration with urban sustainability policy frameworks, reinforcing the practical applicability and broadening the accessibility of these powerful generative AI-driven planning tools.

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Key Words: generative AI, streetview imagery, sustainability

Generating Sustainable Land Use and Travel Patterns with Density, Diversity, and Design

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This research explores how AI models can create realistic urban images that show sustainable patterns based on the 3D framework—Density, Diversity, and Design. We address a key question: How can diffusion models translate urban metrics into visual scenarios to help planners design more sustainable cities? This work fills the gap between quantitative planning metrics and visual planning tools that are often too complex or expensive for many communities.

Urban planning requires balancing social needs, environmental concerns, and infrastructure development. The 3D framework helps evaluate how urban form affects mobility and quality of life. While existing visualization tools are resource-intensive, new AI technologies can create detailed urban images from data. Our research connects AI with urban metrics to help planners visualize different futures and make better decisions.

We train diffusion models using satellite images, land use maps, and urban metrics from Orlando and Chicago. We measured density through building counts and coverage; diversity using Shannon diversity; and design through street patterns and connectivity. Our approach uses diffusion models that create images by gradually removing noise—adapted with ControlNet to ensure the images reflect specific planning metrics. We improved the model's accuracy through specialized training, then tested how changing different urban metrics affects the generated images.

A comparative analysis of 3D metrics reveals substantial differences between Orlando and Chicago. Each city's imagery were collected over 4,800 km² areas centered on downtown, using a 90×90 grid of 1 km² tiles per city. Chicago exhibits a denser urban form with higher building footprint ratios, road density, and land use diversity, reinforcing the link between compact urban development and sustainable mobility. Our specialized training approach significantly improved the quality of generated images, reducing the FID score from 477.41 to 319.16 compared to the baseline ControlNet implementation, indicating substantially better alignment with real urban distributions.

Controlled experiments demonstrate that adjusting individual urban metrics produces meaningful and predictable visual changes in the generated images. When building density was adjusted to regional averages, the resulting images showed more evenly distributed building patterns and more efficient spatial utilization. Adjusting road density parameters resulted in more structured networks, while increasing intersection density created more balanced street grids that could better support sustainable transportation modes.

Further sensitivity analyses with metrics like average block size, road network complexity, and land use diversity revealed distinct impacts on urban form and functionality. For instance, enhanced amenity density visualizations showed improved livability with features such as park-shaped greenways and increased entertainment facilities. These findings demonstrate that diffusion models can effectively encode and visualize urban design principles, offering planners a scalable tool for scenario-based analysis.

This research offers a new way to connect metrics with visual planning tools. By using AI, planners can quickly create images of different development scenarios, making it easier to involve community members in planning discussions. Beyond just creating pictures, this approach can help cities work toward important goals like reducing carbon emissions. The tool can help planners design 15-minute neighborhoods where daily needs are within walking distance, transit-oriented developments, and other forms that reduce car dependency while creating healthier communities. By making advanced planning tools more accessible, more people can participate in shaping their communities. Future work will improve these models and explore how they can support better planning policies.

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Key Words: Generative AI, Urban Sustainability, Diffusion Models, Spatial Planning, Land Use

Generative AI-Driven Insights for AI Regulation, Governance, and Application across Cities

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Track 13: Technology, Society and Analytical Methods

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With the rapid progression of AI development, local governments have started to regulate, govern, and apply AI technologies in the public sector, such as in areas of planning, analytics, security, surveillance, energy, and modeling for decision support, automation, prediction, and service delivery (Yigitcanlar et al., 2024a). These efforts range from AI policy guidelines that outline regulated AI uses, public meeting notes of AI impacts in various sectors and communities, or specific AI use that enhances public services and urban planning (Batty, 2018, Luusua et al., 2023, Peng et al., 2024).

However, tracking these conversations and advancements across cities is difficult because there is no structured data and consistent tracking. The data collection process in prior research relies on manual search through searching engines and academic literature to review AI adoption at the local government level (Yigitcanlar et al., 2024a, 2024b), which is time consuming, and the data could be outdated quickly.

Public documents released by local governments are the perfect raw data to derive these insights, yet processing these data presents both conceptual and technical challenges, such as the defining the fuzzy semantic boundary of “AI-relevant documents”, and robust analyses on grey literature. Grey literature, such as public meeting notes and policy guidelines, is far less structured and hard to filter with straightforward rules.

Our study proposes a Generative AI augmented approach for analyzing text-based public documents (grey literature) released by municipality websites, generating insights into how cities vary in AI regulation, governance, and application efforts. Specifically, we implemented a Retrieval-Augmented Generation (RAG) process with prompt engineering to add tags and topic-specific summaries for each document and then aggregated insights across documents. With this approach, we can identify truly AI-relevant documents that meaningfully discuss the regulation, governance, and application of AI in cities, rather than those that simply mentioned the keyword “AI”. Our design of the RAG approach also ensures that the queries can be done in a cost-effective manner when processing a large number of public documents while minimizing hallucinations.

Our goal is to enable the public to see a high-validity, structured summary for questions like “what does city [name] talks about AI + [subtopic]” with explicit references to documents and paragraph chunks that support the summary. We will also evaluate how well the AI-generated topic and tag classifications and summaries are compared with the human-coded results. Our results will report on which cities have the most “AI-relevant” documents, which indicates their readiness to engage with AI on both policy and application fronts, and what cities have done with AI in regulation, governance, and applications.

Here we describe our methods in detail. First, we queried U.S. city government documents containing the keyword “Artificial Intelligence” between 2017 and 2024 from Overton, the world’s largest database for policy and grey literature (Overton, 2025). File links and meta-data (e.g. issuer, publish dates) for a total of 2,289 documents were identified.

Next, we create paragraph-level text embeddings to cross check with our topic definitions (e.g., AI applications in civic engagement) and add topical tags to documents. By filtering documents that have tags, we can remove documents that do not discuss AI in topic of interests. With the reduced number of documents, we then proceed to generate topic-specific summaries for each document and then use them as an additional input to generate a document-level summary about how AI regulation, governance, and application is discussed.

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Key Words: Cities, Generative AI, AI regulation, AI governance, AI application

Generative Urban Design: A Stepwise Approach Integrating Human Expertise with Diffusion Models

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Track 13: Technology, Society and Analytical Methods

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Urban design is a multifaceted process that demands careful consideration of site-specific constraints and collaboration among diverse professionals and stakeholders. The advent of generative artificial intelligence (GenAI) offers transformative potential by improving the efficiency of design generation and facilitating the communication of design ideas. However, existing GenAI approaches in urban design often fall short in addressing site-specific conditions and integrating expert input, creating a disconnect with real-world practices. Additionally, these approaches typically employ an end-to-end generation process, which overlooks the iterative refinement essential in practical urban design.

To bridge these gaps, this study presents a stepwise generative urban design framework that integrates human expertise with diffusion models. Instead of generating design outcomes in a single end-to-end process, our framework divides the process into three key stages in established urban design workflows: (1) road network and land use planning, (2) building layout planning, and (3) detailed planning and rendering. At each stage, diffusion models generate preliminary designs based on textual human instructions and image-based constraints, which can then be reviewed and refined by human designers. To evaluate the proposed approach, we introduce a comprehensive framework that assesses the fidelity, compliance, and diversity of the generated designs.

Experiments using data from Chicago and New York City demonstrate that our framework outperforms existing baseline models and end-to-end approaches across all evaluation metrics. It generates high-quality outputs with clear geometric boundaries that adhere closely to human instructions, including accurate compliance with road density, land use proportions, building height distributions, and open space ratios. In addition, the framework supports the generation of diverse design alternatives under the same constraints and goals, enabling efficient exploration of design possibilities. It also demonstrates an implicit understanding of urban design principles, such as generating well-connected road networks with reasonable intersections, aligning land use types with road hierarchies, forming continuous street interfaces through building arrangements, and capturing the relationship between land use and building form.

This study underscores the benefits of stepwise generation in preserving human control and facilitating iterative refinement, laying the groundwork for broader applications in context-sensitive urban design solutions. For planners, the framework enables efficient and diverse generation of design alternatives across stages, supporting evaluation, comparison, and iterative feedback. It also enhances public participation in urban redevelopment by providing near real-time visual outputs and an accessible tool for non-experts to explore and express design ideas. Additionally, the framework supports analysis of cross-city design pattern variations and urban style transfer, offering insights into how local context and design language influence planning outcomes.

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Key Words: Generative AI, Urban Design, Diffusion models, Satellite Imagery, Human-AI Interaction

GeoAI-Powered Traffic Modeling: A Framework for Predictive Spatial Analytics

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Track 13: Technology, Society and Analytical Methods

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Traffic congestion remains one of the most pressing challenges in metropolitan areas worldwide (Akhtar & Moridpour 2021). Rapid urbanization, population growth, and increased vehicle ownership place immense strain on transportation systems. The effects of congestion extend beyond daily commutes to broader concerns such as economic productivity, public health, and environmental sustainability. Traditional approaches to traffic management, such as lane expansion and fixed-time traffic signals, are often inadequate in rapidly evolving urban landscapes (Skartland 2023). These methods fail to accommodate fluctuating demand, spatial constraints, and the high costs associated with infrastructure development. As a result, there is a growing need for data-driven solutions that optimize traffic flow and improve urban mobility. The main research question is: how can GeoAI-based approaches optimize transportation infrastructure planning and reduce reliance on traditional reactive congestion management strategies, and what are the broader implications of integrating GeoAI and predictive analytics into the urban transportation planning framework?

This study leverages Geospatial Artificial Intelligence (GeoAI) and machine learning to analyze 15 years of historical traffic data from New York City, uncovering spatiotemporal patterns that inform predictive congestion management (Liu et al. 2024). Using time-series models such as ARIMA to capture seasonal trends and LSTM networks to model non-linear relationships, the research develops robust traffic forecasts for 2025–2029. By integrating geospatial analytics, the study identifies congestion hotspots with clustering techniques, offering fine-grained insights into traffic bottlenecks across boroughs and neighborhoods. In this study, Uber’s H3 Hexagonal Grid System is used to provide a scalable, hierarchical spatial framework that increases the precision of congestion mapping. Beyond predictive analytics, the study introduces an interactive AI-powered query portal powered by the LLaMA model, enabling urban planners and policymakers to explore traffic insights using natural language queries, and fostering a more responsive and adaptive approach to urban mobility management and transportation planning. This developed tool bridges the gap between complex data analysis and real-world decision-making by allowing users to identify congestion trends, evaluate infrastructure needs, and propose strategic interventions dynamically.

The urgency of developing such solutions is further emphasized by the environmental and economic impacts of traffic congestion. Addressing congestion is, therefore, not only a mobility concern but also a key component of broader sustainability initiatives. Many cities are prioritizing less energy-intensive transportation strategies, aligning with global efforts to reduce carbon emissions and promote efficient urban mobility (Kany et al. 2022).

Advancements in machine learning, AI, and geospatial analytics present an opportunity to transition from reactive traffic management to proactive congestion mitigation. Real-time data integration allows for the continuous optimization of traffic signals, route recommendations, and infrastructure planning. This study contributes to the growing discourse on smart urban mobility by providing actionable insights and scalable solutions that can be implemented in New York City and beyond. By combining predictive analytics, geospatial intelligence, and AI-powered decision support, this research paves the way for a future where urban transportation systems are not just reactive but anticipatory, reducing congestion, improving environmental sustainability, and improving the overall efficiency of urban life.

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Key Words: GeoAI, Traffic Modeling, Spatial Analytics, Machine Learning, Data-Driven Planning

Hierarchical Decoding of Spatiotemporally Stratified Urban Texture Using Deep Learning

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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As a physical manifestation of urban evolution, urban texture plays a critical role in sustaining spatial continuity and vitality in cities. In spatiotemporally stratified cities, functional transformations across historical periods have led to composite urban textures, with fragments from different eras spatially interwoven. These cities face dual challenges: (1) simplistic zoning, such as "old town/new town," fails to capture the complexity of heterogeneous textures, causing policy mismatches; (2) spatial incompatibilities between historical textures and contemporary functional requirements complicate preservation efforts.

To address these challenges, cities require: (1) research into the hierarchical structure and network of urban textures for cross-temporal integration, and (2) exploration of dynamic texture evolution to inform new urban construction. Previous studies show shortcomings in both methodology and theory: Methodologically, expert annotation is labor-intensive and inadequate for large-scale, multi-scalar analysis. Theoretically, image-based and typological approaches lack quantitative analysis, typically focusing on single temporal layers or scales, neglecting cross-era and cross-scale correlations.

This study introduces a "Knowledge- and Data-Driven Deep Learning Approach" for urban texture analysis, specifically tailored for spatiotemporally stratified cities. The approach addresses methodological inefficiencies using deep learning clustering models and overcomes theoretical limitations by integrating large-scale urban data mining and spatial autocorrelation analysis.

The methodology includes four steps: (1) Data processing: Using Nanjing as a case study, urban textures are segmented based on 2025 Google Satellite imagery and GIS-based maps, with expert knowledge and typological analysis used to classify textures from various eras. This forms a temporally-stratified, weakly-supervised dataset with labeled and unlabeled samples. (2) Model training: A hybrid deep learning architecture combining backbone networks (ResNet and Vision Transformer were tested for scale adaptability) and multi-task learning heads is developed. Supervised training on expert-annotated textures ensures domain-specific knowledge is captured, while self-supervised training enhances the model's ability to embed textures. (3) Hierarchical clustering: The DNN model encodes textures into embeddings, which are then hierarchically clustered to identify macro-scale typologies, followed by secondary clustering to reveal subtype variations (e.g., subcategories within Ming-Qing districts). (4) Validation and application: The model's accuracy is validated through comparison with ground-truth data. Spatial autocorrelation analysis identifies significant spatial patterns, which are correlated with urban vitality and functional adaptability indicators through Geographically Weighted Regression (GWR). This analysis helps guide adaptive conservation in modern urban contexts.

The study contributes in three key ways: First, it advances urban texture research by shifting from expert-driven to a knowledge- and data-driven approach, significantly improving efficiency and precision. Second, it reveals the hierarchical structure of urban textures across different eras, bridging temporal and spatial scales, with potential applicability to other cities. Third, it overcomes the static limitations of traditional morphological analysis by correlating hierarchical characteristics with key indicators, offering insights for urban renovation and historical conservation.

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Key Words: urban texture analysis, deep learning, hierarchical clustering, urban morphology, urban renewal

High-Resolution Urban Heat Stress Prediction Using a Multimodal Deep Learning Framework

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Track 13: Technology, Society and Analytical Methods

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Intensified by the dual forces of climate change and rapid urbanization, summer heatwaves are becoming more frequent and severe, resulting in substantial mortality and economic losses. In response to these growing risks, providing urban shade to limit sun exposure is increasingly recognized as one of the most efficient and cost-effective ways to reduce heat stress. However, empirical studies assessing the provision of urban shade and its direct impact on human heat exposure remain scarce, impeding accurate quantification of individual heat burdens. Additionally, the absence of multimodal frameworks capable of heat burden prediction represents a critical gap, restricting efforts to forecast heat conditions and to design effective optimization strategies.

To address these research gaps, our study employs a two-phase methodological approach. First, we quantify urban shade patterns using high-resolution 3D point cloud models and compute the Universal Thermal Climate Index (UTCI) through the SOLWEIG (Solar and Longwave Environmental Irradiance Geometry) model, integrating meteorological station data across Guangzhou. To overcome the computational limitations of physics-based models in real-time scenarios, we develop an advanced multimodal deep learning framework that integrates satellite imagery, 3D urban morphological metrics, geospatial coordinates, and semantic textual annotations of microenvironments in a unified predictive pipeline. This integrated approach enables high-resolution (1m), real-time UTCI predictions while preserving the physical accuracy of conventional modeling approaches.

The results show significant spatial variation in heat burden within cities, with higher UTCI observed in urban cores and densely built areas, and lower UTCI in vegetated or suburban regions. This highlights the effectiveness of tree canopy cover in reducing heat exposure through shading, while buildings, despite offering some shade, can worsen heat exposure by reflecting and absorbing solar radiation. Our multimodal machine learning model effectively captures these spatial patterns by leveraging the complementary strengths of integrated data sources, achieving high accuracy in predicting UTCI.

The primary contribution of this study lies in the high-resolution identification of urban heat burden hotspots and the development of a scalable, multimodal predictive framework. The findings provide scientific support for urban heat mitigation strategies by enabling precise localization of severe heat exposure areas. The high-resolution heat exposure prediction maps generated by the model offer policymakers and urban planners a quantitative tool to evaluate the effectiveness of interventions, thereby facilitating the design of more efficient climate adaptation strategies. Ultimately, this study provides practical guidance for addressing climate change and lays a foundation for fostering climate-resilient urban development.

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Key Words: Urban heat exposure, Thermal environment, Heat risk management, Multimodal prediction, Climate-adaptive design

Identifying ChatGPT's Preferences for Neighborhoods in London, New York and Rio

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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A great strength of generative AI systems like ChatGPT is the ability to respond to questions with interpretation and action, or sense-making action in cities. But these responses are based on the data used to create the LLM, and so the bias and preference in these training data are reflected back, albeit repackaged in a technological black box that invites users to interpret as neutral. Therefore, it is essential to make this bias/preference visible and demonstrate how they are a structural feature of generative AI that cannot be transcended.

This is particularly relevant in the context of urban planning, as this bias/preference shapes representations of cities and neighborhoods via responses to common user queries such as “How safe is Harlem for me to live?” or “Which are the best neighborhoods in Detroit for tourists to visit?” or “Which cities are the best places for entrepreneurs?” Urban planners are just starting to grapple with the implications of generative AI in daily practice, and this paper focuses on the representation of cities and neighborhoods that citizens interacting with these systems are likely to encounter.

To achieve this, this paper conducts an algorithmic audit of ChatGPT via a custom-built query engine for ChatGPT’s API (written in Python and shared via GitHub). Through several million pairwise comparative queries (e.g., Is Harlem, NY or Flushing, NY safer?) to ChatGPT’s API, we built a database of its responses when asked to compare U.S. cities with 250,000+ population (n=91) and neighborhoods in London (n=51), New York (n=74), and Rio (n=46). We devised 300+ queries (aggregated into larger meta-categories) on a range of subjective topics around quality of life, safety, and economic/social vibrancy, and used the results to rank cities and neighborhoods. A key element of this methodology is prompt engineering to ensure that ChatGPT provides consistent responses to subjective queries. After experimenting with a range of prompt formats and structures, we selected the one that maximized consistent responses and minimized refusals. We repeated each query multiple times to ensure that the responses were non-random and conducted sensitivity testing on possible factors (order of neighborhoods, length of neighborhood name, etc.).

Our analysis consists of three main parts: (1) analysis of non-standard responses/refusals; (2) ranking and geo-visualization; and (3) analysis of rankings (descriptive stats, correlations, ordinal logistic regression). The first part focuses on the factors associated with ChatGPT’s non-standard responses/refusals that are (based on our preliminary analysis) tied to (a) the subjectivity of the query and the design of ChatGPT to equivocate on “sensitive” questions, and/or (b) lack of data in the underlying LLM related to the query. The second part analyzes a selection of tables and maps documenting ChatGPT’s ranked preferences of cities and neighborhoods across a range of subjective topics. The goal of this is identifying potentially problematic patterns, e.g., minoritized neighborhoods deemed to be more problematic, or that certain places are ranked lower due to lack of data. The third step is identifying possible causal factors for the patterns based on standard demographic characteristics, as well as correlations behind the rankings.

The findings of this research will contribute to a better understanding of generative AI bias and inform strategies for mitigating these biases. Future research will compare ChatGPT responses to other AI models (such as DeepSeek), as well as strategies that cities and planners may use to counteract bias.

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Key Words: chatGPT, generative AI, neighborhoods, representation, computational methods

Integrating Machine Learning and GIS to Predict Crime Hotspots

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Urban crime analysis plays a critical role in shaping effective crime prevention strategies and informing urban planning decisions. As cities continue to grow and evolve, understanding the spatial dynamics of crime has become increasingly important for resource allocation, policy development, and community safety. Recent studies have demonstrated the significance of spatial and demographic factors in crime patterns. Schaible et al. (2021) revealed a complex interplay where nonprofit concentration may initially elevate crime but eventually contribute to reductions, particularly in crime-focused nonprofits. Similarly, Loukaitou-Sideris, Liggett, and Iseki (2002) emphasized the role of sociodemographic and environmental factors in shaping crime patterns at transit hubs. Hendey et al. (2016) found a positive association between higher concentrations of Housing Choice Voucher holders and property crime in vulnerable neighborhoods, which suggests the importance of understanding spatial dynamics in housing and crime relationships. In addition, Day et al. (2007) noted that while urban design improved pedestrian safety, its effect on crime was more complex, highlighting the need for a broader consideration of environmental and social factors in urban safety planning. Vachuska (2022) found that mobility networks, rather than geographical adjacency, are a stronger predictor of violent crime diffusion.

The literature underscores the need for refined models that incorporate both spatial and environmental factors to better understand crime dynamics. This paper addresses the gap in the literature as a critical urban planning issue by focusing on crime prevention through predictive modeling. Specifically, the authors focus on analyzing crime hotspots in Chicago by integrating demographic, environmental, and spatial factors with machine learning techniques to improve the accuracy and interpretability of crime hotspot predictions. The study aims to answer two key research questions: (1) What demographic, environmental, and spatial factors are most strongly associated with urban crime? (2) How can machine learning and GIS tools improve the accuracy and interpretability of crime hotspot prediction compared to traditional statistical methods?

In answering these questions, we employ a mixed-methods approach that combines Geographic Information Systems (GIS) mapping tools with machine learning techniques. The dataset integrates various sources, including nightlight satellite imagery, street network data, crime incident reports, and demographic indicators. This diverse set of data allows for a comprehensive analysis of factors contributing to urban crime and enhances the overall predictive power of the model.

The methodology consists of three main stages: (1) Data collection and preprocessing, including the filtering of nighttime crime incidents, normalization of spatial data, and processing of nightlight intensity; (2) Exploratory regression analysis to identify correlations between urban characteristics and crime rates, revealing that higher nightlight intensity and population density correlate positively with crime, while higher education levels correlate negatively and (3) Random Forest modeling, which outperformed traditional regression methods with an R^2 of 0.85 and MSE of 0.12, demonstrating its ability to capture complex spatial relationships.

The findings underscore the potential of integrating demographic, environmental, and machine learning-based spatial analysis for crime prediction. Unlike conventional regression models, the Random Forest model not only improves predictive accuracy but also uncovers nonlinear relationships often overlooked by traditional methods.

The model's superior performance indicates its utility in urban planning contexts, particularly for crime prevention strategies and resource allocation.

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Key Words: Urban Crime, Machine Learning, GIS Analysis, Predictive Modeling, Chicago

Integrating Next POI Recommendations to Predict Walking Behavior Changes Post-Development

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Walkable cities have become synonymous with sustainable lifestyles due to their positive impact on social, economic, environmental, and health facets worldwide. Consequently, urban policy paradigms have shifted focus from automobiles to pedestrians. This shift has led to the emergence of the concept of pedestrian impact assessment (PIA). PIA serves as a framework for analyzing the effects of development projects on pedestrian movement, allowing predictions of future impacts. Numerous studies have refined PIA evaluation methods using various analysis tools such as ArcGIS, Rhino3D, and Python.

One evaluation approach for PIA is the betweenness analysis, which is part of urban network analysis (UNA). This method provides analytical tools to estimate pedestrian flow at the street level using urban datasets that include sidewalks, buildings, stations, and their attributes. The results of the betweenness analysis are validated against real-world pedestrian traffic, as these results are simulated computationally. However, there are two primary limitations to betweenness analysis. First, the validation process is costly and time-consuming because pedestrian traffic must be collected manually. Second, it cannot detect individual flow, as it only presents aggregated pedestrian flow across regional street networks.

To address these limitations, we propose employing next point-of-interest (POI) recommendation systems to complement UNA and introduce a new method for PIA. The next POI recommendation is a machine learning model that predicts future locations using individuals' location-based social networks, which include contextual information like check-ins, reviews, timestamps, sociodemographic characteristics, and GPS tracks. Typically used in mobile digital advertising, such as taxicab rooftop billboards, we utilize the next POI recommendation in our study to predict changes in walking behaviors following development projects for the first time, integrating both individual and urban environmental factors. This approach allows us to predict pedestrian flow without needing the validation process.

We applied this research to the BostonWalks Study (BWS), a smartphone-based GPS tracking dataset created in collaboration between the Massachusetts Institute of Technology and Northeastern University. The dataset includes extensive GPS trip data and their attributes in the Boston metropolitan area. Unlike other GPS datasets, BWS features the largest walking mode share, making it suitable for developing PIA methodologies. Urban environments adjacent to GPS tracks are also included to train the recommendation model.

Our research addresses the following questions: (1) Do development projects affect individuals' walking behaviors? (2) What are the advantages of analyzing the impact of development projects on walking behaviors? Through these questions, we demonstrate that development projects influence the paths and patterns of walking behaviors by altering urban environments, such as changes in land use, public transit stations, and amenities. Furthermore, our study introduces a new analytical framework for PIA to examine the effects of development projects on walking. Future applications of this assessment can identify significant streets in pedestrian networks and highlight key urban environments that affect people's walking behaviors.

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Key Words: Impact Assessment, Development Project, Walking Behavior, The BostonWalks Study, Next POI Recommendation

Investigating Misinformation-Sharing Dynamics for Planning Information Integrity on Social Media

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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The public increasingly relies on social media for information, where information about local and regional policies and emerging events circulate rapidly. However, loose content moderation and engagement-driven algorithms exacerbate the spread of online misinformation. With misleading narratives, misinformation can distort public perceptions of planning efforts, undermine trust in planners, and fuel intergroup hostility. These effects pose significant barriers to integrating dissenting voices into participatory planning and hinder the effective implementation of planning policies and actions.

Current planning literature on misinformation has primarily examined issue-specific cases, such as 15-minute cities or false flooding reports during Hurricane Sandy, identifying the drivers of misinformation-sharing (e.g., cognitive dissonance), sentiment shifts, or role of influential users in misinformation diffusion. However, these studies have overlooked the temporal patterns of misinformation-sharing, such as frequency and time lags, or how message content evolves among general public users' sharing behaviors. These knowledges are critical for effective misinformation-mitigation. Also, unlike domains like public health, where misinformation is generated with wide range and large volumes of online activity, planning-related misinformation is typically localized in misinformation content and user engagement, as planning misinformation is usually tied to specific regions, policies, or interest groups. Thus, it remains understudied in terms of misinformation topics and semantic characteristics, and the temporal and collective dynamics of users' misinformation-sharing behaviors. Concomitantly, tools for detecting misinformation are usually designed for general topics, with few tailored to identify or analyze planning-related misinformation at scale within online communication data.

Thus, this study intends to investigate the landscape of planning misinformation on social media and address three core research questions: What are the textual and semantic characteristics of planning-related online misinformation? How can such misinformation and its evolution be effectively detected and monitored on social media? What temporal and network-based patterns characterize online users' misinformation-sharing behaviors?

We begin by compiling a collection of planning-related misinformation from public fact-checking datasets and categorizing it by planning issues (e.g., community design, transportation design, disaster preparedness), distortion types, and misleading textual features. To enable detection and monitoring, we fine-tune pre-trained large language models (LLMs) adopting the Proximal Policy Optimization algorithm with synthetic training data derived from our misinformation collection. Finally, we conduct case studies on real-world social media platforms and characterize user behaviors by analyzing temporal patterns of misinformation-sharing, communication network dynamics, and the association between user characteristics and misinformation-sharing patterns.

The expected outcomes of this study are threefold. The characterization of planning misinformation enables planners and researchers to proactively identify and interpret emerging misinformation trends. The fine-tuned LLMs can provide a scalable and accurate tool for real-time monitoring and early warning of misinformation threats. Furthermore, insights into users' misinformation-sharing behaviors can inform the design of targeted

mitigation strategies aimed at helping the public navigate misperceptions and strengthen trust in planning processes.

This study contributes to integrating the knowledge of online communications into the planning domain by uncovering how misinformation shapes public discussions on planning efforts. It can help planners in anticipating and mitigating misinformation risks that may obstruct planning efforts or crisis response.

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Key Words: Large-language Model, Misinformation, Online communication, Social media, Urban informatics

Leveraging large language models and generative AI in participatory planning support systems

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Recent advancements in planning support technologies have heightened interest in participatory planning support systems (PPSSs), aiming to effectively engage diverse stakeholders in urban planning processes. However, existing PPSSs often face challenges in facilitating deeper public participation due to limitations in practical utility and usability for general users. Emerging artificial intelligence (AI) technologies, particularly large language models (LLMs) such as ChatGPT, provide promising opportunities to overcome these barriers through their advanced semantic understanding, reasoning, and natural interaction capabilities. Additionally, deep generative models hold great promise for enabling the public to independently create high-quality, professional-level urban design alternatives, further enhancing stakeholder empowerment in planning processes. Despite their potential, the integration of LLMs and deep generative models into PPSS remains largely underexplored. To address these research gaps, this study proposes a novel web-based PPSS platform integrating ChatGPT and deep generative models into a multi-agent system framework. The platform comprises five interconnected components: (1) process, including problem definition, data analysis, design generation, evaluation, and decision-making; (2) stakeholders, encompassing residents, business owners, planners, and public officials; (3) tools, such as statistical models, GIS, visualization tools, decision-making models, and notably deep generative models that empower stakeholders—regardless of their technical expertise—to actively participate by generating their own urban design alternatives; (4) knowledge, comprising project-specific information, local contextual data, and planning knowledge; and (5) ChatGPT-powered agents, categorized as personalized agents (engaging stakeholders through understanding individual preferences and concerns), task agents (employing tools such as deep generative models to facilitate user-driven data analysis and design generation), persona agents (emulating diverse user perspectives), and a workflow agent (coordinating stakeholder interactions, ensuring effective communication, and building consensus). The proposed system was evaluated through a hypothetical sustainable urban regeneration case, the New Seollo Project in Seoul. Compared to the actual Seollo project, which faced significant criticism due to limited public engagement and controversial design outcomes, the new PPSS platform demonstrated substantially improved stakeholder engagement, greater inclusion of diverse public opinions, and innovative, community-based design outcomes collaboratively generated by stakeholders. The integration of LLMs and deep generative models significantly enhanced the usability and participatory capacity of the PPSS, demonstrating how emerging AI technologies can effectively facilitate meaningful and inclusive stakeholder participation in addressing complex planning challenges.

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Key Words: large language models, planning support systems, participatory planning, artificial intelligence, ChatGPT

Mapping Cultural Assets: A Comparative Analysis of Open-Source and Crowdsourced Data in Los Angeles

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This study examines the distribution of cultural assets, particularly murals and cultural centers, in Los Angeles using authoritative open-source and crowdsourced data. We address the question, “How do crowdsourced and open-source data vary in their representation of cultural assets?”. It is part of a broader research that examines the effectiveness of using digital data to evaluate spatial justice in cultural planning.

As digital data sources increasingly shape urban decision-making, it is crucial to understand the reliability, completeness, and representation biases in mapping cultural resources and their justice implications. By analyzing both datasets, we examine whether crowdsourced data, shaped by community participation, aligns with or diverges from open-source data maintained by government agencies. This comparison enables us to evaluate the effectiveness of digital data in examining cultural asset spatial distribution by identifying gaps and overlaps in cultural resource allocation.

We selected the city of Los Angeles as our study area because of its cultural vibrancy, diverse communities, and abundance of digital data. Both the crowdsourced and open-source data are spatially related to US census data, where we use the median household income data as a proxy for justice. We aim to understand how resources are allocated through targeted cultural planning efforts in Los Angeles, particularly those led by the Department of Cultural Affairs (DCA) which focus on murals and cultural centers. We collected data from various sources to examine these resources, including the Los Angeles County Open Data Portal, user-generated blogs such as Mural Map LA, and OpenStreetMap (OSM). These different sources reflect different approaches to cultural data collection.

We employed quantitative spatial methods to analyze these datasets, leveraging Geographic Information System (GIS) mapping and R-programming. Our methodology consisted of three key steps. First, we aggregated the cultural asset data with median household income data using GIS. Second, we conducted several GIS analyses, including directional distribution, Moran’s Index, and Getis-Ord Gi* hotspot analysis, to examine the spatial distribution of the cultural resources according to the different datasets and identify clustering and hotspot patterns. Third, we contextualized our findings with an analysis of cultural planning documents.

This analysis provides insights on (1) the spatial distribution of the different cultural resources and (2) the differences between open source and crowdsourced data types, given differences in data structure, and uses the findings to provide recommendations on improving data-driven planning. The results reveal notable disparities in spatial distribution between datasets, with significantly more coverage in mural data from user-generated blogs than open-source data. On the other hand, OSM data on cultural resources is closely aligned with the existing open-source data. Additionally, crowdsourced mural data is focused on tourist-centric regions, whereas OSM data indicated that cultural centers are more evenly spread across various communities. These differences highlight how distinct types of cultural assets are represented and spatially distributed in the city.

The findings reveal data labeling challenges and limitations in open-source and crowdsourced datasets. Further, there is a lack of clear definitions of cultural assets in cultural planning as a field. These discrepancies underscore the need for greater stakeholder collaboration, aligning with LA's cultural strategy. Additionally, the study sheds light on the importance of standardizing data definitions and adopting integrative approaches to cultural data collection and urban policy to ensure a more accurate, representative, and equitable mapping of cultural resources.

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Key Words: Cultural Planning, GIS Mapping, Geospatial Data, Crowdsourced Data, Open-source Data

Mapping Sociospatial Inequalities: Tourism, Living Heritage, and Urban Livability in Chania, Greece

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Tourism-driven growth in historic cities often creates tensions between economic development, urban resource strain, and the protection of living heritage. These conflicts manifest spatially, contributing to the displacement of long-term residents, land commodification, and the prioritization of tourist-oriented investments over everyday infrastructure. When communities are pushed out, customs and daily life rituals fade, weakening a city's living heritage and undermining the very qualities that attract tourists. This paper examines these dynamics in Chania, Crete, Greece—a continuously inhabited historic city now facing unchecked tourism expansion. In 2024, over 1.5 million visitors flew to Chania, a city of just 55,000 permanent residents, yet no regulatory framework exists to mitigate the strain on the environment, infrastructure, or local communities.

This research maps and visualizes the sociospatial inequalities unregulated tourism creates, investigating how it affects the stability and livability of long-term residents. Using a mixed-methods approach—including spatial analysis, fieldwork, interviews, and archival research—it advocates for a visibility-to-action strategy: by making spatial impacts visible, planners and policymakers can better recognize the need for regulatory intervention that protects both residents and living heritage. Data sources include Airbnb listings, rental platforms, public investment records, land-use maps, tax registries, census data, and more, as well as 12 semi-structured interviews with stakeholders ranging from politicians to resident advocacy groups.

To understand variations in the independent variables (e.g., green spaces, housing), the research uses GIS-based visualizations to compare Airbnb proliferation, rental price inflation, public investment distribution, and zoning mismatches across three neighborhoods: Old Town (tourism-dominated), Halepa (gentrifying), and Dikastiria (residential). These maps illustrate patterns of uneven development, inequitable resource allocation, and land-use conflict, illustrating how the city is increasingly shaped by external economic interests rather than residents' needs.

Findings show that short-term rentals are overtaking residential neighborhoods. In the Old Town alone, 794 of 2,072 buildings now host at least one Airbnb listing, while 53 operate as hotels—despite the area's residential zoning and heritage designation. Median nightly Airbnb rates (200 euros) are eight times higher than long-term rents (26.6 euros), creating enormous housing pressure. Essential workers, including teachers and healthcare staff, struggle to afford housing and are displaced or forced to spend over 50% of their income on rent. Ownership analysis reveals nearly half of hosts manage multiple listings, with some operating more than ten units—indicating commercial-scale activity. As one planner observed, "Traditional uses have disappeared since the law stopped protecting them. Knife-making shops are now tourist souvenir stores." Public investments reinforce disparities: urban design projects cluster in touristic areas, while residential districts face neglect, water shortages, and inadequate waste management. One official admitted, "Investors need to see their projects during a short walk in the city center, so we prioritize the parts they walk through."

This research highlights how seasonal volatility, data invisibility, and fragmented policy responses converge to undermine living heritage and urban livability in tourism-dependent cities. Chania is not unique, but part of a broader Mediterranean trend, where cities rely on the Sun-Sea-Sand (3S) tourism model, fueling land-use change, gentrification, and environmental strain. Overreliance on tourism creates monocultural economies, leaving cities

vulnerable to crisis. Without urgent action, cities like Chania risk becoming seasonal enclaves—vibrant for visitors, but uninhabitable for those who sustain it year-round.

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Key Words: Sociospatial inequality, Overtourism, Living heritage, Visualization, Mapping

Mapping Urban Heat/Cold Thresholds via Social Media and Machine Learning

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Extreme temperature events are intensifying across U.S. cities with deadly consequences, from Chicago's 1995 heat wave, which claimed 700+ lives, to Texas' 2021 winter storm, which caused 246 fatalities. While these events highlight growing climate vulnerabilities, traditional temperature warning systems remain constrained by fixed meteorological thresholds that fail to capture how residents actually perceive and respond to temperature extremes. Recent studies by Hondula have demonstrated significant spatial variation in human temperature sensitivity (Hondula et al., 2015), yet the field lacks a comprehensive framework to map these perception-based thresholds at urban scales.

This study addresses three critical limitations of current approaches. First, official warning systems use static thresholds that ignore local acclimatization patterns. Studies have shown that there is a certain gap in the temperature thresholds between residents in hot areas and those in cold areas (Gronlund et al., 2018). Second, while valuable, survey-based studies like the ASHRAE RP-884 database lack the spatial-temporal granularity needed for neighborhood-level analysis. Third, as White-Newsome has documented (White-Newsome, 2021), existing vulnerability indices often overlook important perception disparities in marginalized communities.

This study develops an innovative methodology to bridge these gaps through three key objectives. First, we quantify perception-based heat and cold thresholds by analyzing over 300,000 geotagged social media posts from social media (2014-2024) across 10 representative U.S. cities. We categorize posts along a 5-point thermal sensation scale using advanced NLP classification with a BERT model. Second, we employ adapted breakpoint analysis to identify precise temperature thresholds where post-frequency increases significantly. Third, we develop gradient boosting models that predict these thresholds by integrating multiple data streams: meteorological variables from PRISM climate data, urban form metrics from NLCD land cover, and socioeconomic factors from ACS 5-year estimates.

Our analysis reveals several important findings with direct policy implications. We document substantial regional variation in heat discomfort thresholds, ranging from 82°F in humid climates to 92°F in arid regions - a striking contrast to NOAA's uniform 90°F advisory threshold. The urban heat island effect emerges as a significant factor, with thresholds consistently lower in high-density neighborhoods compared to suburbs. Most critically, we find communities with higher poverty rates demonstrate heat sensitivity at temperatures lower than more affluent areas, highlighting important equity dimensions in climate vulnerability.

These findings support three key policy recommendations. First, we propose developing dynamic warning systems incorporating our threshold-adjusted approach to improve heat wave preparedness, particularly in sensitive neighborhoods. Second, our ML mapping identifies priority zones for targeted interventions like cooling centers and strategic urban forestry. Third, we introduce a new equity framework for evaluating climate justice in municipal heat action plans. This research aligns with multiple ACSP tracks, offering technological advances in ML/NLP for urban analytics, new indicators for housing quality assessment, and practical applications for climate adaptation planning.

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Key Words: Thermal thresholds, Urban climate adaptation, Machine learning, Social media analytics, Environmental justice

ML and GIS for Housing and Park Equity: Advancing Environmental Justice in Metro Atlanta

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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As urban environments grow increasingly complex, machine learning (ML) and geospatial data science have emerged as critical tools for addressing environmental management challenges related to housing, equity, and spatial resource distribution. This study presents an integrated analytical framework combining ML-based housing price prediction with spatial equity assessment of urban green infrastructure. Using regression-based ML algorithms—including Random Forest, Naive Bayes, and Neural Networks, the study models housing prices by incorporating diverse predictors: structural property attributes, socioeconomic and economic indicators, walkability scores, urban morphological metrics, and smart location variables such as proximity to transit and employment centers. Model performance is evaluated using RMSE and R^2 , with feature importance analysis revealing key spatial-economic determinants of property value.

Concurrently, the study investigates spatial inequities in access to green spaces by integrating park quality evaluation scores with demographic, environmental, and morphological data. Advanced GIS-based techniques—including Getis-Ord G_i^* spatial clustering, spatial regression models (GWR, SEM), and landscape metrics (fragmentation, connectivity, patch cohesion)—are employed to identify and quantify disparities in park access and quality across socioeconomic strata. The spatial configuration of the built environment is analyzed using urban morphology indicators such as block size, street network density, and building coverage ratios, which are linked to walkability and environmental accessibility. These components are further enhanced through the inclusion of walkability indices and smart growth criteria, providing insight into the environmental performance and sustainability of urban areas.

The results are visualized through interactive spatial equity dashboards and predictive surface models, offering transparent and actionable tools for policy and planning. By combining ML, spatial statistics, and landscape analysis, this research delivers a robust framework for urban environmental management. It enables planners and decision-makers to anticipate real estate dynamics, identify spatial injustices in green space provision, and support equitable and sustainable land use strategies. This dual-focus approach advances integrative environmental planning by promoting a balanced distribution of ecosystem services and socio-spatial opportunities in urban systems.

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Key Words: Machine Learning, GIS, Housing Price Prediction, Spatial Equity, Green Infrastructure

Mobility Disruption and Risk Perceptions During and After Hurricane Helene

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Hurricanes pose profound challenges to urban and regional infrastructure, particularly transportation systems that are vital for everyday functioning and emergency response (Washington et al., 2023; Swanson & Guikema, 2023). Disruptions from flooding, power outages, and damaged road networks can hinder access to healthcare, food, and shelter—especially in marginalized neighborhoods (Logan, 2006; Cutter et al., 2013; Fothergill & Peek, 2014). While prior research has documented infrastructure vulnerabilities and evacuation behaviors, less is known about how individuals' perceptions of risk influence mobility responses and how such responses vary across urban and rural contexts. This study investigates the urban and regional mobility patterns following Hurricane Helene, a Category 4 storm that made landfall on September 26, 2024, resulting in over 230 fatalities and widespread devastation across six southeastern states. We analyze spatial patterns of human movement during and after the hurricane by integrating real-time mobility data from CUBEQ GPS tracking with sentiment analysis from social media platform X (formerly Twitter). National Weather Service data—including precipitation levels and wind speeds—serve to control for local variations in storm severity. We ask two central questions: (1) How do post-hurricane mobility shifts reflect spatial patterns of resilience and vulnerability across different communities? (2) How do public sentiments—captured in real-time during the disaster—correlate with observed changes in mobility?

Findings highlight that while evacuation orders increased overall mobility, their effectiveness was uneven. Communities with higher income and educational attainment showed greater mobility adaptation, suggesting higher levels of adaptive capacity. In contrast, Black and rural communities demonstrated lower mobility response, underscoring persistent barriers to evacuation, such as transportation access, housing insecurity, and historical underinvestment in infrastructure. The severity of the storm—particularly wind and flooding—was negatively associated with mobility, indicating physical constraints on movement despite official evacuation efforts. Sentiment analysis revealed spatially patterned emotional responses. In areas where mobility declined sharply, sentiment data pointed to heightened distress or disruption, while stable or increased mobility often coincided with neutral or resilient sentiment, suggesting coping strategies or better access to recovery resources. This combined analysis of movement and emotion provides a richer, more nuanced understanding of how communities respond under crisis.

For urban planners, these insights offer actionable knowledge about how infrastructure, information flows, and social vulnerability shape post-disaster accessibility. Our findings suggest that physical mobility metrics alone cannot fully capture the capacity of a place to withstand and recover from disaster. Incorporating sentiment data allows planners to distinguish between distress-driven movement and adaptive responses, informing the design of more equitable and responsive emergency management strategies. By highlighting where and why mobility breaks down—and who is most affected—this study advances planning scholarship on disaster resilience, accessibility, and social equity. The integration of geospatial mobility data, public sentiment, and hazard intensity creates a novel framework for assessing and addressing spatial inequality in disaster contexts. Urban planning practitioners and researchers can leverage this approach to better identify at-risk populations and prioritize equitable recovery planning.

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Key Words: community resilience, mobility, Hurricane Helene, disaster response

Modeling Energy Consumption in Residential Buildings Using Micro-level Data

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Urban areas play a significant role in global energy consumption and greenhouse gas emissions, with residential buildings among the largest energy consumers in urban settings. Assessing the energy demand at the residential level is crucial for planning urban areas effectively. Residential building energy consumption depends on various factors that can be grouped into five categories: macroclimate, microclimate, building structure, users' behaviors, and energy sources.

The macroclimate influences regional energy demand, which changes over time. Seasonal weather variations correlate positively with outdoor temperature and residential electricity use (X.-X. Li, 2018). Perera et al. (2018) explore how climate change indirectly affects urban energy consumption. The microclimate also impacts building energy use significantly. Toparlar et al. (2018) show that areas near parks are cooler than dense urban zones, with an average temperature difference of 2.85 °C and corresponding differences in cooling energy demand. Trees improve the microclimate by providing shade and evapotranspiration, thus reducing land surface temperature (LST) and thereby lowering cooling energy needs (Aboelata & Sodoudi, 2019; Chen et al., 2021; Wang et al., 2016). Urban form influences the urban microclimate and energy consumption: denser structures raise LST, leading to higher cooling demands (Bruyns et al., 2021; Gracik et al., 2015; C. Li et al., 2019; Navamuel et al., 2018; Silva et al., 2017). The Urban Heat Island (UHI) is the resulting phenomenon that contrasts higher temperatures in urban centers as compared to temperatures in the rural hinterland (Boehme et al., 2015; Chun & Guldmann, 2014; Duan et al., 2019; Hu et al., 2020). Construction materials also impact energy use. Gunawardena et al. (2019) show that lightweight insulation materials can lower energy demand. Building ventilation (Pappaccogli et al., 2020) and insulation (Mutani & Todeschi, 2021) are critical. User behavior significantly influences energy use, with Mashhoodi (2020) examining how age, rental occupancy, and household size affect energy expenditure. Energy sources, pricing, and policies also play significant roles in energy consumption.

The above review shows the importance of conducting a comprehensive investigation to identify the factors influencing residential energy consumption. This study focuses on these factors, using curated building-level data for Washington, D.C. This dataset includes privately-owned buildings with gross areas exceeding 50,000 square feet and encompasses various factors related to the neighboring built environment (building density, green spaces, land uses), the microclimate (land surface temperature), and the socio-economic characteristics of residents, all captured within circular buffers centered on each building. The comprehensive data is curated using various sources, including Landsat remote sensing images, Lidar imagery, the American Community Survey, and municipality-level building data, which encompasses energy consumption records. Total building energy consumption is computed by combining electricity, gas, and oil consumption. Both regression and machine learning methods are applied to examine the complex relationship between building energy consumption and these factors. Initial findings based on regression analyses point to the significance of microclimate, building materials, and some socio-economic factors. By employing machine learning algorithms in conjunction with the Shapley values approach, non-linear relationships are explored, and a residential energy consumption model is developed that can be used to inform policy decisions and development.

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Key Words: Urban heat island, Microclimate, Building energy demand, Land surface temperatures, Machine learning

Negotiating Exceptions: Instruments for Zoning Variance in Local Public Meetings

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Research Question and Significance: This study investigates the instruments used by residents and developers in requesting zoning variances during public meetings across 280 U.S. cities (2006–2023). Drawing on 6,400 transcripts and leveraging Large Language Models (LLMs), we examine the legal, rhetorical, and procedural strategies deployed in these negotiations, as well as the influence of stakeholder groups and project types. The project evaluates how variance decisions reflect power asymmetries and whether public participation challenges or reinforces exclusionary zoning practices. Zoning is the legal framework shaping urban form in the U.S. Variances allow property-specific exceptions to zoning codes, typically reviewed in public meetings. While intended to democratize planning, such meetings often reinforce privilege. Scholars argue that affluent residents shape land use by opposing unwanted developments (Einstein, 2021), while others emphasize institutional dominance in decision-making (Checkoway, 1981; Moore & Caporale, 2025). Zoning variances have also become tools for protecting elite interests through uneven civic engagement (Fischer et al., 2022), often to the detriment of inclusive housing policies. This study contributes to zoning and governance research in two ways. First, it uncovers the specific rhetorical and legal tactics used in variance petitions (e.g., economic hardship, public benefit, and neighborhood compatibility), offering a detailed account of how stakeholders frame their claims. Second, it examines how different actors (e.g., individuals, developers, and advocacy groups) shape zoning outcomes, revealing intra-community power struggles and institutional bias in public processes.

Approach and Methodology: Using LLMs, we analyze 6,400 public meeting transcripts from LocalView. We first filter and classify variance cases through keyword detection, then consolidate related transcripts and categorize projects by type (e.g., single-family, multifamily, commercial, public infrastructure). Variance outcomes (granted/denied/pending) are tracked, and projects with unknown results are excluded. Next, we extract structured data on key actors: who filed the request, who opposed it, which third-party groups were involved, and their positions. Topic clustering and sentiment analysis then classify rhetorical themes and emotional tones (e.g., concern, anger, optimism) across three contexts: residents vs. institutions, residents vs. stakeholders, and resident vs. resident.

Expected Findings: We anticipate revealing common tactics used in variance negotiations and identifying systematic patterns in who influences zoning decisions. The study will highlight how exclusionary practices persist through institutional bias and disparities in civic power. By mapping discourse and sentiment, we aim to expose how planning meetings mediate public voice and policy outcomes.

Relevance: This work contributes to planning scholarship on zoning, participatory governance, and legal mechanisms, offering insights into more equitable planning practices. It advances planning pedagogy and scholarship by integrating LLM methods with governance analysis, offering new insights into how public forums function and often fail as equitable decision-making venues. This project deepens our understanding of institutional power, zoning law, and citizen participation, with practical implications for fairer urban development.

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Key Words: Zoning Variance, Public Participation, Land Use Governance, Large Language Models, Procedural Justice

Perception of Informal Urban Settlements via Explainable ML

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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With accelerating urbanization across the Global South, informal urban settlements—particularly urban villages—have become vital habitats for grassroots communities, providing affordable housing and supporting diverse livelihoods. These areas often develop spontaneously in the gaps of formal planning systems, playing a key role in absorbing migrant populations and sustaining urban labor forces. However, they typically suffer from spatial fragmentation, inadequate infrastructure, limited public services, and social marginalization. Despite their significance, urban villages are frequently excluded from mainstream urban planning discourse, and there is a lack of scalable, data-driven methods to evaluate and improve their public spaces from the perspective of actual users. This gap underscores the urgent need for context-sensitive, quantitative approaches that bridge built environment analysis with community-level spatial perception. This study addresses the following research questions: How do built environment features influence residents' spatial perception in informal urban areas? And how can these insights inform targeted design interventions in high-density contexts?

This study proposes a comprehensive evaluation framework for public space perception, integrating street view data, built environment data, and Point of Interest data. Using ResNet-50 and DeepLabv3+ technologies, physical indicators such as green coverage, interface permeability, and facility visibility are automatically extracted from street view images. These data are further combined with building metrics to assess the quality of the built environment in urban village public spaces.

Furthermore, given the distinctive temporal dynamics of urban villages—characterized by minimal daytime activity and heightened nighttime vitality—NPP-VIIRS nighttime light remote sensing data has been utilized to capture patterns of human activity intensity. Through radiometric normalization and urban boundary masking, this data reveals patterns of lighting intensity, serving as a proxy for economic vitality and spatial activity distribution.

Building on this, the study employs the SHAP-ICE dual-driven explanation framework to examine the key factors and non-linear effects shaping spatial performance, uncovering the intricate relationship between actual activity intensity and residents' spatial perception. The analysis further reveals that the topological integration of alleyways significantly enhances perceived safety, while activity intensity exerts a dual influence on both spatial functionality and social interaction—playing a pivotal role in space utilization and optimization. Moreover, K-means clustering is applied to identify three distinct spatial unit types: day-dormant, balanced, and night-active. For each typology, tailored design strategies are proposed, including tide-responsive street furniture and segmented lighting schemes to accommodate varying usage patterns.

This study validates the non-linear transmission relationship between the physical environment and social perception in urban villages, providing scientific quantitative evidence and a reference framework for the progressive renewal of high-density built environments. It also offers a transferable methodology and practical experience for planning and designing informal spaces in Global South cities.

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Key Words: Explainable ML, Big data analytics, Informal settlements, Grassroots, Progressive renewal

Performance-based Application of Alternate Coding Methods to Study Plans

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Content analysis using manual coding is an established method to study plans based on a predefined protocol (Norton, 2008). It involves human coders that read plans, often multiple times, to identify references related to predefined criteria or concepts. This method is highly resource-intensive, and hence, most plan analyses are limited to small samples that affects generalizability of their results. Recently, researchers have started experimenting with application of alternate methods to read plans. Specifically, some studies have used Natural Language Processing (NLP) techniques for topic modelling to determine key themes in large datasets of plans (Brinkley & Stahmer, 2021; Fu et al., 2023). However, there are still gaps in knowledge related to application of alternate methods for conducting content analysis based on a pre-defined protocol. In this research, we propose a performance-based application of alternate methods to code plans for increasing efficiency. We demonstrate this application by identifying references related to water conservation concepts in 114 comprehensive plans from drought-prone small communities across the U.S. We use term frequency-inverse-document-frequency (TF-IDF) and Boolean Query-based methods to code plans. Our analysis provides a methodology to test and apply alternate coding method and illustrates the utility of Efficiency and Convergence metrics for studying performance of these methods. Findings indicate that the suitability of methods used in this research depend on the accuracy required for the study context and the amount and nature of discussion (i.e. the vocabularic consistency and number of references for each concept). Future research involving plan analysis can replicate our methodology for an informed application of alternate coding methods to identify references in large datasets. Researchers can also use findings from this study to determine the suitability of TF-IDF and Boolean query-based methods for their analysis. They should note that these methods are not completely devoid of human effort and require measures to ensure accurate manual coding for training and precise checking of retrieved references.

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Key Words: Plan Analysis, Content Analysis, Alternate Coding Methods

Planning for Subjective Well-Being Using Social Media Data: The Non-Linear Impact of Accessibility

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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In recent years, scholars across economics, psychology, sociology, political science, and urban planning have increasingly shifted their focus toward subjective well-being (SWB), happiness, and life satisfaction—a movement often described as the “happiness turn.” This shift emphasizes mental health, emotional experience, and overall quality of life over traditional indicators such as economic output or productivity, which promotes people-centered urban policies, including the rise of “healthy cities” and “happy cities.” Despite increasing attention to SWB in diverse urban contexts, the specific factors that shape SWB within different urban environments—and how they interact—remain unclear. This study examines the relationship between the built environment and SWB by analyzing social media data from Jiaxing, China. We proposed an innovative method to employ Gradient Boosting Decision Tree (GBDT) models, and sentiment analysis of Weibo posts to reveal complex, non-linear relationships between SWB and different accessibility to urban amenities. The findings demonstrate that linear models fail to capture these nuanced dynamics, as the effects of accessibility on SWB exhibit threshold effects and context-specific variations. A further contribution of this study is the integrated use of both shortest distance and shortest travel time as measures of accessibility. This dual-dimensional approach provides a more comprehensive understanding of how individuals interact with urban amenities and underscores the need to differentiate the nature of various urban activities. It offers detailed insights for planners, emphasizing the need for targeted, context-sensitive strategies to enhance livability and subjective well-being in diverse urban settings.

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Key Words: Subjective Well-being, Accessibility, Non-linear effect, Built environment, Social media data

Platform Intersections: Food Delivery Networks and BPO Clusters in Makati

Abstract ID: 1844.0.0.969.2025

Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This study investigates the spatial reconfiguration of urban environments through platform capitalism, specifically examining how food delivery apps interact with labor geographies in a rapidly developing urban context. The research addresses critical questions at the intersection of digital infrastructure and urban planning: How are spatial patterns and labor relations affected by digital consumer platforms in Makati, Philippines? In what ways do these digital infrastructures interact with established global outsourcing networks? And what are the implications for urban governance and spatial justice?

Using a case study of the food delivery app Foodpanda and its operations in Makati City, Philippines, this paper builds on previously presented research to document how such platforms function as "infrastructures of extraction" (Sadowski, 2020), converting urban mobility into financialized assets while simultaneously responding to the socio-spatial requirements of transnational labor arrangements.

Quantitative geospatial techniques and computation analyses reveal the geography of digital consumption while qualitative interviews with executives and BPO managers provide context to offer insight into how delivery platforms are shaped by and responsive to local labor and consumption patterns.

This dynamic reflects what Jin (D. Y. Jin, 2025; D. Yong Jin, 2015) calls "platform imperialism" and contributes to a broader understanding of trans-urban infrastructures (Cuppini et al., 2022), where platform operations are governed by global capital flows but materialize through deeply localized social and economic relations.

These findings hold significant implications for planning policy and practice. First, they necessitate regulatory frameworks addressing the temporal asymmetry of platform-mediated urban services, particularly regarding transportation infrastructure, public space management, and safety provisions during non-standard hours. Second, they highlight the need for data governance policies requiring platforms to share operational data with municipal authorities to enable evidence-based planning interventions. Third, they suggest opportunities for integrating platform logistics considerations into zoning practices, including designating micro-logistics zones, rider rest areas, and dedicated delivery infrastructure in high-density commercial districts.

This research also contributes to planning scholarship by providing both conceptual tools and empirical methods for understanding the socio-spatial implications of platform urbanism. It advances theoretical understandings of how digital infrastructures reshape urban territories while offering practical approaches for integrating platform dynamics into planning practice.

By illuminating the complex interrelationships between global labor systems and localized platform operations, this study provides a foundation for developing more equitable governance models that address the structural inequalities reinforced or exacerbated by digital platforms in rapidly developing urban contexts.

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Key Words: platforms, Manila, platform urbanism, food delivery

Predicting Human Perception of Streetscape Quality with Attention-Enhanced CNN

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Urban environments are dynamic systems that critically influence pedestrian experiences, urban livability, and community well-being. Traditional research methods, primarily field observations and surveys, have provided valuable insights into how streetscape design affects human perception. However, these approaches are often limited in scope due to the high cost and time required to conduct extensive studies, making it difficult to generalize findings across diverse urban settings. In 2016, Dubey et al.'s seminal work, which leveraged a deep learning model trained on the globally sourced PlacePulse dataset, paved the way for inferring urban perception at scale and has since inspired a broad range of applications in the field.

Despite extensive work on visual perception and urban quality, significant gaps remain in the literature. Existing approaches typically offer limited interpretability for deep learning models used for predicting human perception and often lack the capacity to pinpoint which specific urban elements drive visual engagement. Moreover, many studies overlook the explanatory potential of integrating attention mechanisms to provide objective, fine-grained insights into how pedestrians visually process urban environments. These limitations highlight the need for methods that not only predict perception with greater accuracy, but also elucidate the underlying visual drivers that shape pedestrian experience.

In this study, we propose an attention-enhanced convolutional neural network (CNN) framework to predict human perception of streetscape quality. Our model is built upon the ConvNext architecture, a state-of-the-art deep learning model that incorporates self-attention modules. This design enables the model to focus on the most important parts of an image. We further enhance interpretability with GradCAM, a technique that generates visual "heat maps" to highlight the areas of an image that most influence the model's predictions. The model is trained on the PlacePulse2.0 dataset, which offers a globally diverse collection of urban images paired with human perception ratings.

For validation, we conducted an experiment with 87 subjects who evaluated 100 urban images using a pairwise comparison method across six perceptual dimensions (safe, lively, beautiful, wealthy, depressing, and boring). During the experiment, eye-tracking devices recorded the subjects' gaze patterns and created heat maps representing where and how long pedestrians looked at various elements in a scene. Following data collection, we compared these eye-tracking heat maps with our GradCAM-derived attention maps. To facilitate this comparison, we employed several evaluation metrics, specifically, the Dice score, Pearson correlation, and the Structural Similarity Index (SSIM), which measure the overlap between the two sets of highlighted areas, the linear relationship between them, and their structural similarity, respectively. Additionally, we overlaid these heat maps with semantic segmentation outputs, classifications of different image regions into meaningful categories, and performed regression analysis to explore how the attention ratios of specific urban elements relate to the corresponding perception scores, using segmentation-derived element ratios as a baseline.

Our findings show that integrating attention mechanisms into CNN-based models significantly enhances interpretability by revealing which visual elements, particularly building façades, sidewalk and greenery, most

strongly influence human perception of streetscape quality. These insights provide urban planners with a data-driven basis for identifying the key elements that capture pedestrian attention. For instance, the model can inform decisions on where to prioritize improvements in building design or green infrastructure, ultimately contributing to the design of more attractive, pedestrian-friendly, and sustainable urban environments.

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Key Words: Urban Perception, Attention Mechanisms, Streetscape Quality

Public Transit Route Design Using Reinforcement Learning with On-demand Micro transit Data

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Rapid urbanization coupled with dynamic demographic characteristics has created a temporal mismatch between the adaptability of public transit networks and emerging travel patterns, leading to increased reliance on point-to-point transportation options. These modal shifts toward private vehicles and ride-hailing services, characterized by direct connectivity but suboptimal passenger-to-vehicle ratios, subsequently exacerbate urban congestion. Addressing this challenge necessitates systematic identification of core travel needs and service gaps to enhance regional transportation efficiency by increasing public transit ridership. However, traditional transportation planning typically relies on static historical data and assumptions or limited surveys, necessitating substantial human and economic resources. This conventional approach inhibits efficient responsiveness to the dynamic and evolving urban mobility demands in contemporary metropolitan contexts. Therefore, this research utilizes four years (2016-2019) of origin-destination (OD) data from Tampa's downtown on-demand micro-transit service "Downtownner" to propose a methodological framework employing reinforcement learning (RL) for the automatic generation of optimized public transit routes. This reinforcement learning methodology transforms low-occupancy transportation OD travel patterns into practical public transit solutions, facilitating comparison with existing bus routes and offering new possibilities for future public transportation planning.

This research employs a data-driven approach to construct optimized public transit route networks directly from micro transit OD data. The methodological framework encompasses three principal phases: data preprocessing, route generation, and performance evaluation. First, temporal and spatial analyses are conducted on four years of Downtownner micro transit service data to identify primary travel patterns and demand densities. Subsequently, reinforcement learning algorithms are applied to integrate these discrete point-to-point demands into continuous route candidates, wherein the agent optimizes route configurations by maximizing passenger coverage while minimizing operational costs (Yoo & Lee, 2023). The RL model implements an adaptive reward mechanism that balances passenger coverage, walking distance, route length, and transfer convenience across multiple dimensions. Finally, the generated routes are comparatively analyzed against Tampa's existing transit network, evaluating differences in coverage, service efficiency, and responsiveness to travel demands. This "clean-slate" route design approach provides an objective benchmark that, through comparison with existing networks, not only precisely identifies service gaps in current systems but also provides data-driven support for route adjustments and system optimization based on actual travel demands. Through this methodology, the research demonstrates how dispersed point-to-point travel demands can be transformed into efficient public transit services, thereby reducing dependence on low-occupancy transportation modes and alleviating urban congestion.

By combining micro transit data with reinforcement learning, this research offers a viable pathway toward establishing more inclusive and sustainable urban transportation systems. Furthermore, this methodology demonstrates broad applicability across diverse urban contexts, particularly in regions experiencing rapid urbanization and evolving travel patterns, requiring only parameter calibration to accommodate specific local conditions and constraints.

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Key Words: Public Transit Planning, Reinforcement Learning, Route Optimization

PyRebuild: A Python-Based Simulator for the Dynamic Post-Earthquake Housing Reconstruction Problem

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Post-earthquake housing reconstruction faces a key challenge: damage assessments are reported gradually over time, while conventional scheduling methods assume that complete information is available at the start. This discrepancy can lead to inefficient resource allocation and delays in recovery. In this study, we address the research question: Can an adaptive (dynamic) scheduling approach—one that continuously updates reconstruction priorities as new information arrives—outperform a traditional static schedule in reducing recovery delays? We introduce PyRebuild, a Python-based simulation framework that models the temporal dynamics of damage report arrivals and dynamically allocates reconstruction resources. The framework employs a discrete event simulation approach and tests three scheduling algorithms: Longest Job First (LJF), Shortest Job First (SJF), and random assignment. Using data from the 2018 Lombok earthquakes reconstruction initiative, we evaluate these strategies under both static (complete initial information) and dynamic (gradual information arrival) conditions. Our validation metric is the Root Mean Square Error (RMSE) between predicted values and observed values. Our analysis shows that in five of seven regions dynamic scheduling yields lower RMSE, while in two regions static methods perform slightly better. These results indicate that the optimal scheduling approach depends on local damage patterns, emphasizing the need for adaptive planning in post-disaster reconstruction.

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Key Words: post-disaster recovery, housing reconstruction, dynamic scheduling, discrete event simulation, adaptive planning

Qualitatively-Informed Machine Learning for Thematic Coding of Large-Scale Text Data in Planning

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Noisy information environments present a complex challenge for planners - competing narratives, misinformation, and information overwhelm complicate the development and implementation of equitable planning solutions. While qualitative methods have traditionally been the most effective way to analyze such complexity in discourse, the volume of data generated on a daily basis is too large for traditional qualitative methods to handle. This creates a fundamental challenge: how can planners leverage large-scale data while preserving the depth and contextual nuance of qualitative analysis? Advances in computational text analysis, including natural language processing (NLP), offer powerful tools to bridge this gap, yet most automated methods struggle to replicate the rigor and interpretability of human-led thematic coding, especially with deeply contextual topic modeling. In particular, while supervised NLP models—trained with human-labeled examples—often outperform fully unsupervised approaches, it remains unclear how much human coding is necessary. While planning research excels in qualitative thematic coding to extract deep insight from textual data, methods for embedding this expertise into the creation of automated models are poorly understood.

We ask, how can well-developed qualitative thematic coding methods inform supervised NLP methods? This paper evaluates leading supervised topic modeling techniques and proposes a framework for defining the complexity of research tasks of interest to planners. We apply this approach to a multi-case study analyzing language used to support or obstruct renewable energy transitions. Drawing on 5,000 press releases from major oil companies, 250,000 media transcripts, and climate action plans from 96 cities, we hand-code a sample of each dataset using inductive, deductive, and abductive coding approaches. These codebooks serve as a foundation for defining task complexity—based on topic breadth, depth, and specificity—and for assessing the accuracy of supervised NLP models in identifying these themes. We then introduce a novel topic modeling method that applies triplet loss, a technique that refines document embeddings by distinguishing between similar and dissimilar examples traditionally used in computer vision. By structuring topics hierarchically, we create increasingly complex positive and negative training examples, improving model performance on nuanced classification tasks.

Our results reveal that both supervised models built from pretrained models (i.e., BERT) and from scratch (i.e., neural network with cross entropy loss) struggle to discern topics that are highly specific from similar language describing more general terms. However, training a topic model with triplet loss and increasingly complex examples leads to decreased false positive rates across all topics. This mirrors traditional methods of qualitative thematic coding, in which human investigation is able to discern irrelevant labels.

This paper offers three primary contributions to planning research and practice. First, it contributes to the growing literature on the use of NLP in planning research. While some applications are well-suited by out of the box large language models, we show these methods struggle with highly nuanced contexts which are common in planning problems. Second, this paper provides a clear framework for defining complexity in planning topic modeling tasks to aid researchers in choosing the appropriate NLP method. The criteria in the framework provide clear recommendations for the level of automation and amount of training data necessary for nuanced topic modeling. Finally, this paper proposes a novel method of using context informed triplet loss in topic modeling to reflect, but

not replace, human methods of qualitative coding. As computer-based methods of topic modeling become easier to use in planning contexts, planners and researchers need guidelines for matching NLP methods with research goals.

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Key Words: urban informatics, large language models, machine learning, qualitative coding, energy

Quantifying the Influence of the Built Environment on Our Emotion Using Geographic Explainable AI

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Understanding the intricate relationships between the urban built environment and public emotions is crucial for promoting human-centered urban planning strategies and sustainable social development. Although existing studies have provided valuable insights, the nonlinear mechanisms and threshold effects of multidimensional built environment factors on public emotions remain underexplored due to the limitations of research methodologies. This study developed a multimodal data analysis framework, incorporating social media data, machine learning modeling, and spatial statistical techniques. Using Shanghai, China, as a case study, we examined the spatio-temporal variation characteristics of public emotions and how different aspects of the built environment affect public perception. Specifically, we collected 122,054 Sina Weibo check-in data points posted in Shanghai from 2024, which were quantitatively analyzed using Natural Language Processing (NLP) to obtain sentiment scores. Furthermore, geocoding and spatial statistics techniques were employed to explore the spatial distribution and clustering patterns of public emotions across different times (weekdays and weekends, and different seasons). We constructed a Geographic Explainable Artificial Intelligence (GeoXAI) framework based on XGBoost and GeoShapley models. Partial dependence plots were utilized to analyze the nonlinear influence mechanisms and threshold effects of physical environment, visual landscape, and service facility factors on public emotion in different areas of Shanghai. Additionally, SHAP interaction values were used to interpret the interaction effects among built environment factors. The main findings are as follows: (1) Shanghai's public emotion was unevenly distributed spatially and displayed certain fluctuations temporally. (2) In the overall effect analysis, built environment, visual landscape, and service facility factors all exerted significant influences on public emotions, although the specific influence mechanisms and threshold effects differed. (3) Building density, subway accessibility, and business office density have the most significant impacts on public emotion on weekdays, whereas green visibility, visual diversity, and third space density have the most significant impacts on weekends. (4) In terms of spatial scale, park accessibility and financial and legal facility density have more pronounced effects in the urban central area, while building density and road network density have stronger effects in the broader area. (5) The degree of importance, nonlinear trends, threshold effects, and interaction effects of the same factor varied across different regions. This study contributed to a more nuanced understanding of the intricate relationships between multidimensional built environment factors and public emotions. The results can provide a scientific basis for the fine-tuned regulation of built environments at different scales, thereby promoting the development of human-centered healthy cities.

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Key Words: Built environment, Public emotions, Social media data, Geographic explainable AI, GeoShapley

Rethinking Underground Space Utilization in Metro Stations: A Case Study of Shanghai's Jingan Temple

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Introduction-Urban underground space (UUS) development has become crucial as cities face increasing surface space limitations. Metro station underground spaces serve as vital transportation and commercial hubs but often experience imbalanced utilization with congested and underutilized areas coexisting. This study examines Shanghai's Jing'an Temple Metro Station using an integrated approach combining Space Syntax analysis with data-driven methods to evaluate and optimize underground space performance, addressing the complex challenge of balancing pedestrian flow efficiency with economic benefits in UUS design.

Methods-This research employed Space Syntax analysis to quantify spatial properties of Jing'an Temple Metro Station's underground spaces, using Integration and Choice metrics to assess connectivity and identify central areas, while Visibility Graph Analysis evaluated visual accessibility. Data-driven methods supplemented this approach through: (1) field surveys measuring pedestrian flows; (2) user experience questionnaires; and (3) agent-based simulations modeling passenger movements under various spatial configurations. These methods enabled comprehensive assessment of spatial characteristics and user behaviors, informing optimization strategies validated through simulation testing.

Results-Space Syntax analysis revealed strong correlations between Integration/Choice values and pedestrian flow efficiency, with high-value areas functioning as critical distribution hubs. Visibility Graph Analysis showed highly visible spaces attracted greater passenger dwell time and enhanced user satisfaction. Agent-based modeling demonstrated that strategically positioned commercial areas amplify pedestrian gathering effects, with well-designed open dining areas effectively capturing pedestrian flows. The findings indicate that locating visible commercial hubs at secondary nodes along major pathways achieves an optimal balance between transportation functions and retail opportunities.

Discussion-This research contributes an innovative framework for underground space optimization by integrating Space Syntax with data-driven methodologies. The findings suggest three key strategies: enhancing Integration and Choice values of major corridors to improve flow efficiency; strengthening visual design of nodes to create clearer spatial networks; and prioritizing retail facilities in high-visibility areas to maximize commercial revenue. This study advances theoretical understanding of underground behavioral patterns while providing practical guidance for UUS optimization in high-density urban environments, with future applications potentially leveraging artificial intelligence to further refine spatial behavior analysis in smart city development.

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Key Words: Urban Underground Space, Space Syntax, Data-driven design, Metro Stations, Pedestrian Flow

Retrofitting Cities with Data: A 5R Framework for Sustainable Urban Transformation

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Urban retrofitting is a fundamental approach for achieving sustainable and resilient urban development in the face of contemporary challenges. The increasing prevalence of urban big data presents an opportunity to establish a robust analytical

framework for urban retrofitting, enabling more effective comparative studies and informed decision-making. This paper introduces a comprehensive 5R framework—Re-inhabitation, Re-building, Re-transportation, Re-capitalization, and Re-greening—to provide a multidimensional perspective on urban retrofitting. The 5R framework facilitates a holistic understanding of urban transformation processes and establishes standardized metrics for analyzing urban retrofitting initiatives using diverse urban big data sources. To demonstrate the adaptability and effectiveness of the 5R framework in a real-world context, we conduct a case study of Charlotte, North Carolina. By applying innovative methods for the integration and analysis of extensive datasets, our study offers new insights into the evaluation of urban retrofitting efforts, such as transportation accessibility, micro-scale building improvements, investment patterns, green space enhancements, and overall livability. This approach addresses existing research gaps by providing a structured set of indicators that assess each dimension of urban transformation comprehensively. Beyond academic advancements, the 5R framework offers practical tools for policymakers and urban planners to evaluate retrofitting interventions, quantify their outcomes, and understand the dynamics of evolving urban spaces. The insights gained through our research highlight the importance of using big data to enhance the scope and impact of urban development strategies, ultimately bridging the gap between theoretical concepts and real-world urban retrofitting applications. Our findings demonstrate the potential of the 5R framework to serve as a guiding model for more sustainable, data-driven urban growth and revitalization.

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Key Words: Urban Retrofitting, Big Data Analytics, Sustainable Development, 5R Framework, Urban Change

Route Choice Behaviors for Shared Bike Users: Visual Streetscapes and Gender Differences

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This study utilizes computer vision techniques with street view images and GPS trajectory data to understand bicyclist route choice behavior. Prior studies have shown that cyclists often prioritize safety and comfort over distance, favoring dedicated bike lanes and separated paths (Broach et al., 2012; Sener et al., 2009). While gender differences in cycling preferences are well established, with women typically displaying greater sensitivity to safety features compared to men (Hardinghaus & Weschke, 2022), several critical research gaps remain unexplored. First, the impact of street level visual elements such as urban greenery, sky visibility, and parking facility entrances has received minimal attention in bikeability literature. Second, the extent to which gender specific preferences influence trade-offs in route decisions remains underexplored, particularly under different departure times. Third, most existing research has concentrated on regular cyclists, leaving the unique behavioral patterns of shared bike users largely uncharacterized (Cubelles et al., 2023).

Our study addresses these limitations by combining computer vision techniques with street view images and GPS trajectory data to analyze shared bike user behavior in Seoul. Utilizing a Path Size Logit model and a constrained enumeration method, we generated plausible alternative routes for each observed trip. Street attributes include both traditional built environment features (e.g., bike lane, traffic road type, and intersection) and streetscape features derived from computer vision analysis of street-view imagery. These include greenness and sky visibility, features commonly examined in walkability research (Lieu & Guhathakurta, 2025), as well as parking facility entrances identified as potential safety interruption points where vehicles might cross cycling infrastructure. By integrating trip departure time and user gender, and applying a trade-off framework within utility function, we estimated the additional distance users would tolerate to avoid or seek specific route attributes

The results reveal that shared bike users generally prefer routes with bike lanes, increased sky visibility, more commercial land use, and higher greenery, while avoiding intersections without signals and minor traffic roads. Women exhibit stronger preferences for visual openness and environmental quality, favoring greenery, commercial density, and clear sky views. They are more deterred by illegal car parking and building entrances that interrupt curb continuity—factors associated with perceived risk. Interestingly, several route preference variables lost statistical significance during off peak hours, highlighting the temporal variability of cyclist decision making.

By integrating urban computing methods with discrete choice modeling, this research emphasizes the critical need for gender sensitive, perception aware cycling infrastructure design. More broadly, our study demonstrates how image-based analytics and behavioral modeling can collaboratively inform more inclusive and effective active transportation systems.

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Key Words: Bikeshare, Route choice, Travel behavior, Computer Vision, GPS

Seeing "HAI": Human Activities and Interactions Detection from Streetviews through LLMs

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Observational studies have historically played a crucial role in urban research, offering deep insights into human behaviors within public spaces, as exemplified by seminal works of scholars such as Jan Gehl and William H. Whyte. Understanding these human dynamics is particularly significant in today's context, where societal divisions appear to be deepening, influenced by digital echo chambers and increasingly segmented interactions. Against this backdrop, the concept of the "Town Square," articulated by Richard Sennett, becomes even more essential, highlighting the importance of public spaces that facilitate encounters among diverse groups.

In contemporary urban research, computer vision (CV) techniques have become increasingly prominent. However, their application has largely diverted towards relatively simplistic and less socially insightful metrics, such as the Green View Index (GVI), neglecting the nuanced complexities of human social behavior. Recognizing the inherent difficulty of observing and interpreting diverse human behaviors through traditional CV methods alone, this research leverages advancements in Large Language Models (LLMs) to address these challenges, aiming for incremental yet significant improvements in detecting social interactions.

Responding to these needs, the study introduces the concept of Human Activities and Interactions (HAI), defined as observable behavioral patterns within pedestrian environments. HAI encompasses a broad spectrum of social behaviors including various postures, visible actions, implied actions, group dynamics, and engagement modes, providing a structured taxonomy to systematically capture the complexity of human interactions in public spaces.

To operationalize the HAI concept, the research proposes a systematic, multi-step pipeline integrating CV with multimodal LLMs: (1) traditional object detection models first identify individuals within street-level images; (2) multimodal LLMs subsequently assess social groupings among detected individuals through relational reasoning; and (3) further LLM-based inference classifies specific activities and interaction modes within identified groups. Extensive, timestamped street-view datasets from diverse urban contexts underpin this spatial-temporal analytical approach.

It is important to note that this project is still a work-in-progress, and achieving accurate identification across the entire HAI taxonomy remains challenging. Nonetheless, substantial progress has already been made in specific areas such as group detection and activity recognition. Through customized annotation datasets and fine-tuning of multimodal LLMs (specifically Qwen-VL), our approach has demonstrated superior performance compared to general-purpose models like GPT-4o.

Preliminary results indicate that this integrated methodology effectively enhances the accuracy and detail of automated observations of human interactions. Ultimately, this innovative approach provides valuable tools and data resources for urban design researchers, enabling richer and more contextually informed explorations of social dynamics, thereby offering significant potential for future urban observational studies.

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Key Words: human activities, human interactions, LLM, streetview

Seeing What Matters: A New Metric for Understanding Pedestrian Visual Attention in Urban Crossings

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Where pedestrians direct their visual attention while walking is critical to understanding perceived safety, informing infrastructure planning, and guiding urban design. Eye-tracking studies often rely on the percentage of fixation duration on predefined Areas of Interest (AOIs) to gauge feature salience. However, findings are inconsistent, partly due to methodological limitations—such as limited control in naturalistic settings, treating foveal vision as single points, and failing to account for AOI size and visibility. As Gadsby et al. (2022) note, higher fixation percentages may reflect an AOI's size or visibility rather than a greater influence on perceived safety.

To address these limitations, this study proposes a novel eye-tracking metric: Size-Weighted Conditional Fixation Duration (SWCFD), which accounts for both the time spent fixating on an AOI and its relative size in the visual field. To evaluate this metric in real-world settings, we conducted a naturalistic eye-tracking experiment with 30 participants walking a 1.2-mile route, encompassing 15 intersections with varied built environment features. Participants wore Tobii Pro Glasses 3 to record their gaze behavior. We employed PSPNet (Zhao et al., 2017), a deep learning-based semantic segmentation model, to automatically annotate AOI categories and sizes across each fixation frame.

Compared to the traditional percentage fixation duration, we found the SWCFD metric more effectively highlights AOIs relevant to the crossing—such as people, vehicles, and poles/signs—objects that require active attention. In contrast, the traditional metric often emphasizes large or visually dominant AOIs like buildings, roads, and sidewalks, which are generally large in size but are less task-relevant. SWCFD also avoids aggregating fixations into discrete crossing events, preserving a larger sample size and enabling continuous analysis across different crossing phases. Using linear mixed-effects models, we found that both built environment features (e.g. signals, spatial openness, crossing distance) and individual factors (e.g., age, gender, route familiarity) influence gaze patterns.

By accounting for both fixation time and AOI size, our Size-Weighted Conditional Fixation Duration metric offers a robust and innovative indicator for AOI saliency and pedestrian alertness. This advancement enhances our understanding of pedestrian safety and supports data-driven urban design and infrastructure planning decisions.

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Key Words: Pedestrian, Eye-tracking, Urban crosswalk, Gaze metrics, Visual attention

Small-Area Estimation for Local Business Dynamics: Insights from Business Dynamics Statistics Data

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Despite the increasing availability of high-quality, longitudinal firm-level datasets, much research on business dynamics remains constrained to relatively coarse geographies—such as states or large metropolitan statistical areas (MSAs)—and access to the business-level microdata has been limited because most of them are commercial databases. As an attempt to address this data gap, this study explores the application of small area estimation (SAE) techniques to the U.S. Census Bureau’s Business Dynamics Statistics (BDS) at the county and MSA levels, with the aim of producing more granular measures of firm births, survival rates, and job flows. By combining BDS aggregates with auxiliary data from the American Community Survey, County Business Patterns, and other local administrative records, this study aims to explore how SAE methods can generate robust and reliable estimates of business dynamism at sub-county scales, including neighborhoods, census tracts, business improvement districts, and so on.

Our methodological framework centers on three complementary goals. First, we develop an SAE-based approach to “shrink” higher-level BDS indicators—such as establishment entry, exit, and net job creation—down to fine-grained localities, addressing the critical data-scarcity problem for small domains. Second, we validate the resulting estimates using multiple cross-checks, including comparisons with known ground-truth samples in populous counties and consistency checks across time-series data. Third, we incorporate spatial correlation structures to capture local patterns—such as clusters of entrepreneurship—that standard county- or MSA-level analyses may obscure.

In applying this framework to select urban regions across the United States, this study expects to find that localized estimates of business activity reveal significant intra-urban disparities. Some disadvantaged neighborhoods exhibit systematically lower rates of firm creation and survival, even when the surrounding areas show robust entrepreneurial activity. Such findings resonate with prior evidence suggesting that place-based factors—such as land-use regulations, transportation infrastructure, and neighborhood socioeconomic conditions—shape local firm dynamics (Haltiwanger, Jarmin, & Miranda, 2013; Decker et al., 2014). By linking small-area estimates to these contextual factors, this study highlights some entry points for targeted policy interventions, such as micro-finance initiatives and zoning reforms.

Beyond addressing methodological gaps, the results underscore SAE’s potential to transform how urban planners can measure and interpret business vitality at highly granular levels. Drawing on canonical work in SAE (Rao & Molina, 2015) and building on the extensive research on BDS, this study demonstrates a replicable approach for researchers and practitioners seeking to pinpoint both entrepreneurial “hot spots” and economic distress zones within metropolitan regions. This study argues that improving the spatial precision of business-dynamics metrics can spark new evidence-based policy debates—particularly around equity, localized economic shocks, and targeted growth strategies. By integrating cutting-edge statistical methodology with an underutilized depth of BDS data, this study hopes to contribute an actionable toolkit for analyzing local economic ecosystems. The findings of this study have implications for scholars, policymakers, and community stakeholders, illustrating the considerable promise of SAE methods to inform more equitable and effective urban economic development strategies.

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Key Words: Small Area Estimation, BDS Data, Sub-county Analysis, Business Dynamics, Built Environment

Smart Conversations in the City: AI Chatbots for Urban Management—A Case Study in NYC

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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With the rapid advancement of AI technology, urban planners and designers are increasingly exploring the use of AI tools to enhance citizen engagement in urban development. Given the conversational nature of chatbots, many public agencies have begun employing specialized chatbots to facilitate communication with residents, addressing their needs and answering their inquiries (Senadheera et al., 2024). Recent AI-powered chatbots, ChatGPT, demonstrate significant potential for understanding natural language and human interaction in cities (Ferrara et al., 2019). This capability opens new opportunities for rethinking the role of AI chatbots in encouraging individuals to share their thoughts and experiences regarding public spaces and services, thus enhancing public participation in urban issues (Hasan et al., 2023; Dortheimer et al., 2024). This paper investigates the feasibility of using AI chatbots to gather public opinions in urban spaces and discusses their potential applications in urban management. Using Washington Square Park in New York as a pilot study, we aim to develop an AI chatbot that encourages visitors to share their experiences and provides insights from public input for future park improvements. In this project, we created an AI-powered chatbot named 'ParkGen,' which utilizes a large language model (LLM), specifically Google's Gemini (chat-bison@001 model), to generate dynamic responses based on user input. ParkGen centers on 12 key questions aimed at engaging participants, including: "What motivates you to choose Washington Square Park over other locations for these activities?" and "Would you like to meet new people in Washington Square Park?", among others. Additionally, we used a rule-based chatbot, lacking advanced intelligence, as a control group to evaluate participants' preferences for interacting with ParkGen. The study was conducted in July and August 2024, recruiting 50 visitors to Washington Square Park aged 18 and over by approaching them in the park. Participants were invited to spend 10 to 15 minutes interacting with both chatbots about their experiences in the park, followed by a questionnaire assessing their interactions with each chatbot (e.g., willingness to share thoughts, trust in chatbot, perceived empathy and positive feelings). After data collection, the textual data obtained from these interactions, which mainly refer to 'user input', were analysed using natural language processing (NLP) techniques to extract public insights about their visit motivations and improvement concerns. By mapping the word cloud and calculating the TF-IDF scores, the results show that the visit motivations are around 'people watching', 'meeting friends', 'walk', 'music', 'sit' and 'eat', while the most common terms related to park improvement are 'drugs' and 'cleaning'. In addition, t-test results also show that participants have higher positive feelings and willingness to share their visits and thoughts with AI-powered chatbots compared to the rule-based chatbot. These findings show the potential of using AI-powered tools such as chatbots to encourage people to share their thoughts about the urban space during their visits, which could enrich people's experience in urban public spaces and enhance their participation in future urban management. However, this paper also found that people's interest in talking to the AI

chatbot decreased over time as they spent less time on each question, suggesting that user engagement may decrease as the novelty of the technology wears off, which is consistent with the findings of Dorteimer et al. (2024). This also inspires us to consider how the conversational intelligence of generative AI can be used to communicate urban issues to improve people's sustained engagement in public participation.

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Key Words: AI Chatbots, Digital Tools, Public Participation, Urban Governance, Civic Technology

Spatial Vulnerability Analysis of Historical Districts under Multi-Risk Scenarios

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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With the acceleration of urbanization, cities are facing increasing risks. In this context, historical districts have become areas of high vulnerability in cities due to their aging infrastructure, spatial constraints, and inadequate risk preparedness. These areas are not only important carriers of urban history and culture but also key targets for urban safety and resilience construction. However, existing research has mostly focused on vulnerability analysis under a single risk scenario, with less exploration of the impact of multiple risk superposition; in addition, discussions on vulnerability usually focus on a comprehensive perspective, with less in-depth analysis from a spatial dimension, which makes it easier to ignore the essential impact of physical space on vulnerability. Therefore, by exploring the spatial vulnerability of historical districts in the context of multi-risk scenarios, this study aims to provide a new theoretical framework for the prevention and control of risks in historical districts.

This study focuses on the historical district of Ciqikou in Chongqing—a representative historic area with complex terrain and dense urban fabric, constructs multiple risk scenarios from both natural and man-made risks, and identifies the vulnerable areas of the historical district under various risks by simulating the spatial vulnerability performance under different risk scenarios. On this basis, the spatial autocorrelation analysis method is further applied to explore the spatial distribution characteristics of vulnerable areas, revealing their spatial vulnerability features and distribution patterns. The research results indicate that the spatial vulnerability of historical districts is significantly enhanced by the combination of natural and human risks, and some areas have become hotspots of vulnerability due to issues such as aging building structures, materials, and infrastructure. Based on the analysis results, this study proposes targeted disaster prevention and mitigation strategies, providing a scientific basis for the protection and renewal of historical districts, as well as theoretical support for urban resilience construction and sustainable development.

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Key Words: Spatial vulnerability, Multi-risk assessment, Historical districts, Risk management

Spatio-Temporal Heat Stress at Bus Stops in Philadelphia: Microclimate Modeling and Explainable AI

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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The Urban Heat Island (UHI) effect poses significant risks to public transit users, particularly those waiting at bus stops, where prolonged exposure to extreme heat can lead to thermal discomfort, heat exhaustion, and severe health outcomes. While existing studies have analyzed urban heat exposure using coarse-resolution Land Surface Temperature (LST) data, few have examined hyperlocal heat stress at bus stops and its relationship with the surrounding urban environment. This research aims to answer three key questions: (1) How does heat stress vary spatio-temporally around bus stops? (2) What urban and socioeconomic factors influence these variations? and (3) How do these factors exhibit nonlinear relationships and threshold effects?

To address these questions, we integrate high-resolution, multi-source geospatial data with microclimate modeling to generate hourly 1-meter resolution Universal Thermal Climate Index (UTCI) data across Philadelphia for July 2020, typically the hottest month of the year. This dataset enables a fine-scale analysis of pedestrian-level heat stress rather than relying on conventional 30m LST data, which fails to capture variations in street-level thermal conditions. We analyze heat stress from two perspectives: (1) a 3-meter buffer around each bus stop, representing hyperlocal exposure, and (2) a 400-meter pedestrian walkshed, reflecting the cumulative heat exposure during a typical 5-minute walk to or from the stop. Furthermore, we employ an explainable machine learning framework, integrating Random Forest (RF) and SHapley Additive exPlanations (SHAP) analysis, to uncover the nonlinear relationships and threshold effects between heat stress and both socioeconomic and built environment variables.

Our results reveal substantial spatio-temporal disparities in heat stress across Philadelphia's bus stops: (1) Heat stress exhibits strong diurnal variation, peaking at midday and remaining consistently high until the late afternoon, with some stops experiencing prolonged extreme conditions beyond critical thermal stress thresholds. (2) Bus stops in socioeconomically disadvantaged areas are disproportionately exposed to high heat stress, particularly those in high-poverty neighborhoods. Conversely, stops in affluent areas with higher median household values show significantly lower heat stress exposure. (3) Green View Index (GVI) and Enclosure are the strongest mitigators of heat stress, offering effective shade and cooling benefits. (4) Urban environment variables exhibit complex nonlinear threshold effects, indicating that heat mitigation strategies should be targeted and equity-focused rather than applying uniform interventions.

This study underscores the urgent need for equity-driven urban planning interventions to mitigate heat stress for transit users, particularly in high-risk and socioeconomically disadvantaged neighborhoods. Our high-resolution heat stress mapping approach provides actionable insights for planners to prioritize interventions at bus stops facing extreme heat exposure. By bridging microclimate modeling, explainable AI, and urban planning, this research contributes to the growing discourse on climate-resilient cities and equitable public transportation systems. The methodological framework developed here can be replicated in other cities to inform sustainable and inclusive transit planning in the face of climate change.

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Key Words: Urban heat stress, Public transit equity, Explainable AI, Microclimate modeling, Urban resilience

Spatiotemporal Impacts of Purpose-Specific Human Mobility on Air Pollution

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Human mobility exerts significant influences on urban air pollution. Regrettably, most existing studies treated mobility as a homogeneous entity, neglecting that its effects may vary by travel purposes due to distinct spatiotemporal patterns. To address this gap, this study utilizes a trip purpose inference algorithm to classify mobility based on Beijing's three-month taxi trajectory data and examines its impact on air pollution using interpretable XGBoost-SHAP models. The correlational analysis indicates the substantial contribution of wind, temperature, and precipitation to air pollution. Human mobility's contribution is less significant than that of natural environments but greater than built environments. In the long term, the negative correlation between work- and home-purpose mobility and pollution challenges the assumption that more mobility always increases pollution. This study provides valuable experiences for sustainable urban planning and management globally, including promoting mixed-use development and work-residence integration, creating urban wind corridors and open green spaces, and adopting low-emission transportation while avoiding blanket traffic restrictions. Future research could examine causal relationships to understand the underlying mechanisms of these findings further.

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Key Words: Human mobility, Air pollution, Taxi trajectory data, Trip purpose inference, Machine learning

STEM on the Streets: Empowering Land Use Planning Advocacy with Civic Data Science

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Planning research and practice is often compartmentalized into quantitative and qualitative work. Local and indigenous knowledge can augment fact-based planning, especially through participatory approaches that recognize alternative knowledge and power in space-making, but rarely is the citizen resourced or empowered to leverage geospatial or statistical tools. In today's consultant-dominated ecosystem, asymmetries in data access and technical capacity favor those who can pay. This puts planners at a crossroads: Most state- and corporate-led planning lean on quantitative methods; community-based efforts rely on qualitative approaches. This methodological divide mirrors broader inequities in planning knowledge.

Forester (1989) called on planners to combat information inequity. Today, the proliferation of data and analytics techniques have created new possibilities—and responsibilities—for planners to build tools that democratize knowledge, bridge epistemic divides, and support collective agency. This paper presents a collaboration of quantitative and qualitative researchers, teaming up to create a framework for public-interest data praxis supporting grassroots planning advocacy in Goa, India. Using urban informatics tools to generate quantitative evidence, and interrogate land use planning, we demonstrate how technology informed by grounded issues can empower local actions. We highlight how the collaboration itself—between distinct methodological traditions—enabled new forms of planning practice. Flipping the “street science” model (Corburn 2005), in which planners qualitatively gather and interpret community perspectives, we shift toward enabling communities to independently produce research that informs their advocacy.

Our case examines the rezoning process in Goa, a coastal Indian state where residents contest investments in second-home developments fearing loss of future homeownership. To obtain a rezoning, developers must justify why their properties are fit for construction. Rezoning reports, prepared by private consultants, sideline community concerns by deploying technocratic language and selectively framed quantitative evidence. Institutional decision-makers tend to prioritize over villager-concerns. This left local residents at a disadvantage, not only being unfamiliar with planning jargon and protocols, but also vulnerable to manipulated data favoring clients over integrity. The Goa case thus exemplifies the information inequity: Those who can pay can play.

To address this challenge, we introduce our suite of tools:

amche.in, an open-source publicly accessible zoning atlas, hosts isolated maps owned by different municipalities to aid understanding of land use across the state.

Amche.Slope, an open-source slope map, classifies slopes according to statute, helping citizens interpret topography and verify claims.

CV4LandUse, a computer vision application, classifies and quantifies land uses from over 100 scanned land use maps. It applies pixel-based analysis to calculate land use percentages with speed and consistency, automating a process previously done manually in AutoCAD.

Project 39A, an online platform that tracks, simplifies, and maps rezonings statewide. A standardized spreadsheet and online training support a volunteer network: social workers relay the latest map and policy updates to villagers in their districts, while researchers assist them remotely in responding to rezoning reports.

More than a technological intervention, the toolkit operationalizes a hybrid methodology bridging quantitative applications with grounded, place-based insight. It illustrates how community advocates, equipped with analytical capacities typically reserved for institutional actors, can produce data-driven arguments that meet planning standards without losing local priorities. This offers a transferable model for participatory planning that reconfigures the engagement between expertise, evidence, and advocacy.

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Key Words: Participatory Planning, PGIS, Urban Informatics, Civic Analytics, Land Use

Striking a Pose: Using Pose Estimation Enhanced Computer Vision Models to Measure Public Life

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Track 13: Technology, Society and Analytical Methods

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Observing and measuring public life is essential for designing successful public spaces. As William H. Whyte famously noted, “The best way to know how people are using a space is to simply watch them.” His seminal work, *The Social Life of Small Urban Spaces* (1980), revolutionized urban design by using emerging technologies to observe and quantify human activity in public environments. While Whyte relied on manual video analysis, advancements in open-source computer vision (CV) have made automated observation widely accessible. Today, with just a camera, a small computer, and open-source software, anyone can extract actionable insights that once required extensive manual effort.

Despite this increased accessibility, most urban studies utilizing CV tools for public space measurement are focused on transportation and fail to capture the nuanced ways people interact within urban environments—such as socializing, sitting, or sports activities. This gap exists because most CV algorithms struggle to accurately detect these types of behaviors. In this study, we test the combination of pose estimation with CV recognition to improve the accuracy of activity detection.

To integrate this model into public space sensing, we developed a sensor system called the Public Life Sensor Kit (PLSK)—a freely available, open-source tool designed specifically for measuring public life. The kit was tested during a public space improvement project in Sydney, Australia, where it was evaluated against the Viva Sensor, a transportation-focused, off-the-shelf CV sensor kit, as well as traditional human observation methods. The results demonstrated that PLSK not only made data easier to acquire but also offered greater accuracy in cataloging key activities such as pedestrian movement, sitting, and socializing. Our study highlights the potential of pose detection for measuring public life and suggests that future sensors should incorporate these techniques.

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<https://doi.org/10.1080/24694452.2024.2313515>

Key Words: Public Space, computer vision, data collection, sensor kit, social interaction

The Digital Domain: Information Technology and the Decline of Out-of-Home Activity

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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From 2003 to 2019 Americans steadily reduced out-of-home time; this trend then accelerated sharply during the pandemic and has never reversed. Comparing 2023 to 2003, Americans on average spend about 80 fewer minutes per day out-of-home. This has important planning implications, including potentially less need for commercial and retail space, greater demand for spacious housing, and less justification for difficult or costly transportation interventions. The most obvious explanation for less out-of-home time is the increasing use of information and communications technology (ICT), such as smartphones, streaming video, social media, videoconferencing, and high-definition television, all of which are mostly done in the home and might lessen the appeal of going out. However, prior research on ICT and out-of-home time has reached inconsistent findings and has not observed post-pandemic behavior. To fill these gaps, we use data from the Centre for Time Use Research UK Time Use Survey, March 2023. It collected 3,784 one-day time diaries from 2,179 adults. We created variables measuring daily minutes spent on television, communication (social media, texting, and phone), computer games, and internet/other computer use. Our outcome variables are out-of-home time and travel time. We also include sleep as a benchmark variable to distinguish between substitution effects (e.g., social media replacing in-person socializing) and time budget effects (ICT reducing other activities because there is limited time in the day). We assume sleep duration has little impact on the propensity to leave home versus stay in, which we confirmed using seemingly unrelated regression: since sleep's coefficients across models of both in-home and out-of-home time are statistically indistinguishable, we conclude that sleep presents only a time budget constraint with respect to leaving home. By comparing our sleep and ICT coefficients in models of out-of-home and travel time, we can infer whether ICT is a substitute for going out (if ICT coefficients are significantly more negative than sleep's) or a complement to it (if ICT coefficients are significantly more positive). Using OLS regression with demographic controls, we find television and computer games are strongly and negatively associated with out-of-home time, suggesting both substitution and time budget effects. However, the coefficients for both communication and internet/other computer time are significantly more positive than sleep's, suggesting complementarity. ICT time in general is negatively and significantly associated with out-of-home time, but the magnitude of the relationship is similar to sleep's, suggesting only a time budget effect. Travel is negatively associated with TV and games, but this is likely only due to time budget effects, while internet/other computer use has a stronger negative effect that suggests substitution. Communication's coefficient, which is significantly more positive than sleep's, suggests complementarity with travel. Television, internet/other computer time, communications, and overall ICT time are all negatively associated with social time, with television time particularly substituting for in-person contact. People with children, higher-income people, the unemployed, retirees, and Black Britons are more likely to stay home if they play more computer games, and unemployed people are more likely to stay home if they watch more TV. We find no evidence that the relationship between ICT use and out-of-home time varies based on sex, marital status, age, or education. In sum, ICT appears to explain some of the long-term decline in going out, but the relationship varies by ICT type (communication technology might actually promote leaving home) and demographics. There is a very strong possibility of endogeneity in our findings, since ICT may lead to less out-of-home time but causality likely also runs in the opposite direction. Future research should address this limitation.

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Key Words: Activities, ICT, Travel

The Effect of Remote Work on Urban Transportation Emissions: Evidence From 141 Cities

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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The overall impact of working from home (WFH) on transportation emissions remains a complex issue, with significant implications for policymaking (Choo et al., 2005; O'Brien and Aliabadi, 2020). This study matches socioeconomic information from American Community Survey (ACS) to the global carbon emissions dataset for selected Metropolitan Statistical Areas (MSAs) in the US (Huo et al., 2022). We analyze the impact of WFH on transportation emissions before and during the COVID-19 pandemic. Employing cross-sectional multiple regression models and Blinder-Oaxaca decomposition, we examine how WFH, commuting mode, and car ownership influence transportation emissions across 141 MSAs in the United States. We find that the prevalence of WFH in 2021 is associated with lower transportation emissions, whereas WFH in 2019 did not significantly impact transportation emissions. After controlling for public transportation usage and car ownership, we find that a 1% increase in WFH corresponds to a 0.17 kilogram or 1.8% reduction of daily average transportation emissions per capita. The Blinder-Oaxaca decomposition shows that WFH is the main driver in reducing transportation emissions per capita during the pandemic. Our results show that the reductive influence of public transportation on transportation emissions has declined, while the impact of car ownership on increasing transportation emissions has risen. Collectively, these results indicate a multifaceted impact of WFH on transportation emissions. This study contributes to the policy debate by advocating for WFH as a strategy to reduce transportation emissions. Concurrently, policymakers can mitigate its unintended consequences by promoting public transportation and encouraging the adoption of environmentally friendly commute modes.

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Key Words: Remote Work, Carbon Emissions, Sustainable Mobility, Travel Behaviour, Transportation Planning

The Influence of Surrounding Amenities on the Elderly Neighborhood Park Visits in Seoul, South Korea

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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South Korea is on the brink of becoming a super-aged society, with the elderly population, aged 65 and older, expected to surpass 30% of the total population by 2036 and 40% by 2050. This demographic shift presents a significant challenge that requires effective response. Notably, the fact that two-thirds of Korean elderly do not meet the recommended physical activity levels outlined in the National Guidelines. As result, diseases linked to the insufficient physical activity among the seniors - such as cardiovascular and cerebrovascular diseases - are among the leading causes of the mortality among South Korea's elderly population, alongside cancer, COVID-19, and pneumonia as reported in 2024. Frequent park visits have been shown to promote physical activity, reduce sedentary behavior, enhance mental health, and foster social interactions among the elderly. Therefore, encouraging park visits among older adults can be seen as an appealing strategy for the South Korean government. Promoting park visits can help seniors meet the recommended physical activity levels while also contributing to the economy by reducing healthcare costs. It is understood that the park visit is influenced by the intrinsic and extrinsic factors of the park. The intrinsic factors include the park size and the availability of the park's internal facilities. The extrinsic factors, which relate to the surrounding environmental characteristics, also play a critical role. The observed key extrinsic factors include the land use diversity, average of the surrounding building age, and transport facilities which are represented by the bus stop density and proximity to subway stations. While these factors are well-documented, the influence of the park's surrounding characteristics on the visits remains under researched and inconclusive. The presence of open-source data and mobile phone data has led to a trend of research in investigating the surrounding facilities' effect on the park visits. Utilizing Point of Interest (POI) data and mobile phone trip data, several studies have suggested that the presence of amenities near parks can attract more visitors. Subsequently, parks located near convenient amenities and areas with high vitality are found to experience an increased number of visits. These findings suggest that the presence of surrounding facilities encourages park visits by offering greater convenience and contributing to a more vibrant atmosphere. However, despite these findings, no research has explicitly demonstrated a direct relationship between park visits and the utilization of surrounding amenities and leaves an open question as to whether surrounding facilities influence park visitation or vice versa. To address this gap, our research leverages aggregated mobile phone data, represented in Origin - Destination matrices which record the people trips, to analyze mobility patterns among the elderly park visitors in Seoul, South Korea. This research focuses specifically on the neighborhood parks in Seoul, South Korea which are commonly equipped with outdoor gyms, walking tracks, and other facilities designed to encourage physical activity. Through statistical analysis, this research aims to confirm whether the presence of surrounding facilities influences the elderly park visits—or, conversely, whether the elderly park visits impact the utilization of nearby facilities. This research contributes to strengthening the understanding of the interrelationships between the parks' surrounding amenities with the elderly park visits. Additionally, this research helps to provide insights into sound strategy for increasing the park visits among older adults - an underrepresented segment in recent trends on park visits studies.

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Key Words: Elderly, Park, Visit, Amenities

The Production of Spaces and Places by Urban Food Delivery Platforms in Kolkata, India

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Food delivery platforms not only enable interactions between food businesses and consumers and facilitate exchange (Langley & Lehson, 2017; Srnicek, 2016), they also act as portals of information exchange and tools for value extraction from locations unfeasible for traditional food businesses (Bauriedl & Strüyer, 2022). Using Cresswell's (2009) understanding of place, these platforms can be seen as aiding in the making and unmaking of "place" by reshaping the digital and physical experience of place through alternative representations of the city and by influencing changes in land use patterns. In this paper, I aim to reveal how these platforms produce pockets of disconnected spaces and disadvantaged places through platform affordances in the city of Kolkata, India.

I focus on the workings of Zomato, the leading food delivery company in India. As food businesses are highlighted in this "space of flows" (Castells, 2020) to maximize economic exchange, information that situates businesses in the physical world or "space of places" is de-emphasized. This enables the commercial exploitation of urban land unsuitable for traditional food business on the platform and makes it unnecessary for the business to be attractive to traditional consumers as they are tailored for delivery. I use restaurant location data scraped from Zomato's sitemap, online survey of cloud kitchen companies operating in the city, and field observations of a chain of restaurants and cloud kitchens in the city to identify locations that are adversely affected by these platform affordances.

Preliminary findings reveal that the combination of high platform visibility and low physical or local visibility of food businesses leads to the production of disconnected lots in disadvantaged neighborhoods. Their attractive virtual business-fronts conceal invisible 'ghost kitchens' in non-commercial neighborhoods. These areas not only bear the externalities of a commercial kitchen but are also robbed of the economic and social vibrancy that traditional food businesses bring to a street.

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Key Words: Urban Platforms, Spaces and Places, Food Delivery

Time Profile of U.S. Neighborhoods: Datasets of Time Use at Social Infrastructure Places

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Social infrastructure plays a critical role in shaping neighborhood well-being by fostering social and cultural interaction, enabling service provision, and encouraging exposure to diverse environments. Understanding time use offers a unique lens into population well-being, economics, social equity, and even poverty, as it reveals how individuals allocate their most finite resource—time—across various activities. Particularly, time spent at places like community centers, churches, meal sites, and cultural markets emerges as a vital indicator of social interactions and community engagement, underpinning social capital and meaningful relationships within neighborhoods. Thus, comprehensive knowledge of social infrastructure time use patterns is critical for informing urban planning and public health interventions.

Despite growing awareness of the importance and accessibility of social infrastructure, little is known about actual time use at these locations due to the absence of spatially-resolved national datasets. Existing national datasets, such as the American Time Use Survey (ATUS), have extensively explored demographic variations in time use but lack integration of spatial dynamics, leaving significant gaps in understanding spatial patterns of time allocation across neighborhoods. The predominant method for capturing time-use data relies on self-reported surveys, which often challenged for its respondent biases and limited spatial resolution. These limitations can hinder advancements in both time geography and public health, while impede comprehensive analyses across diverse geographic scales.

Existing knowledge body of time geography have emphasized human contacts and spatial accessibility, yet they predominantly focus on travel-time to locations rather than dwell time. Interdisciplinary studies examining the relationship between built environment and health highlight the importance of neighborhood contexts and daily activities for residents' well-being but rely heavily on self-reported data with inherent biases.

There is a lack of detailed spatial and temporal descriptions of how people engage with social infrastructure at the neighborhood level. This requires scalable, objective, and spatially explicit time-use data integrating both are needed to better inform urban policy and health research.

This study we develop four Social-infrastructure Time Use (STU) measures, and propose novel datasets spanning multiple geographic scales—from census tracts to metropolitan areas—across the 49 continental U.S. states from 2019 to 2024. Our STU measures incorporate three critical dimensions: length and depth of engagement, activity diversity, and spatial inequality. These datasets leverage anonymized and aggregated foot traffic data, enabling scalable, objective, and precise analyses of neighborhood-level social-infrastructure engagement. Preliminary analyses reveal significant variances in STU across time, space, and socio-demographic characteristics. Validation efforts confirm the robust population representativeness of the STU datasets, aligning well with existing national surveys while uncovering previously unrecognized nuanced patterns.

The novel dataset and measures offer comprehensive, comparable, and consistent benchmarking of time poverty in social infrastructure places across the U.S. This open opportunities for future studies to link STU with diverse public health, urban dynamic and environmental outcomes, providing vital insights for targeted interventions aimed at enhancing population well-being. Ultimately, our work offers scalable empirical evidence to advance

social infrastructure planning, improve health equity, and inform policy decisions aimed at fostering resilient, vibrant, and equitable urban environments.

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Key Words: time use, social infrastructure, big data, urban vibrancy, human dynamics

Understanding the impact of GenAI on planning and design: A survey targeting faculty and students

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Generative artificial intelligence (GenAI) applications, such as ChatGPT, DeepSeek, Midjourney, Stable Diffusion, and DALL-E, are emerging as a transformative force in urban planning and design. These technologies are trained based on huge existing data through large language models (LLMs) and can rapidly generate contents texts, charts, images, and videos for a variety of creative tasks that used to be completed by highly skilled professionals who have systematic training in planning and design. This starts reshaping how planners and designers conceptualize, visualize, and communicate urban solutions. Teachers and students in planning programs are facing a problem how they should deal with the immersion of GenAI. However, the interaction with GenAI in urban planning education and practice remains uneven, and perceptions of its value and potential consequences are not well-documented. In this study, we aim to explore the attitudes, usage, and perceived impacts of GenAI among faculty and students in urban planning programs provided by institutions in multiple countries and regions, including the US, the UK, Korea, the Netherlands, Mainland China, Hong Kong, and Macau. The study addresses three primary research questions: (1) What is the level of familiarity and actual usage of GenAI among planning faculty and students? (2) How do planning faculty and students perceive the impact of GenAI on job opportunities and requirements in planning? (3) How do planning faculty and students perceive GenAI influencing creativity, efficiency, originality, and overall quality of planning works? (4) What ethical and practical concerns are associated with the integration of GenAI into urban planning education and practice?

To address these questions, we use a structured online survey distributed to faculty and students across diverse urban planning programs at undergraduate and graduate levels. The survey captured scales on familiarity and frequency of GenAI usage, as well as measures regarding perceived benefits, workforce impact, risks, limitations, and ethical implications. The survey also includes open-ended questions capturing qualitative data on attitudes and perceptions. Our analysis combines statistical methods to assess patterns of AI adoption and thematic analysis to interpret qualitative responses.

The findings contribute new empirical insights into an emerging technological trend within urban planning and design education and practice. The paper highlights the necessity of thoughtful integration strategies, highlighting that careful consideration of ethical guidelines, training protocols, and inclusive access are critical to establishing a framework that integrates AI in planning and design. These findings will advance understanding of technology adoption in educational settings; it informs practice by clarifying practical benefits and pitfalls; and it supports planning and design education by providing evidence-based recommendations for curriculum development and instructional strategies. As urban planning continues to evolve rapidly in response to technological advances, this study offers valuable guidance for balancing innovation with ethical and practical considerations.

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Key Words: Generative AI, Planning and Design, Education, Ethical AI, Emerging Technologies

Universality in Urban Street Networks

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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Planning scholars and practitioners model street networks to understand or predict many phenomena, including traffic dynamics, accessibility to daily living needs, and the resilience and sustainability of urban forms. These analyses use various topological and geometric indicators to measure important street network characteristics: node degrees reveal streets' connectedness, betweenness centrality concentrations identify network chokepoints, straightness suggests network efficiency or lack thereof, orientation entropy indicates the consistency of its spatial organization, etc. Much research in recent years has sought to identify differences between different cities' urban street network characteristics, for example by developing morphological typologies to identify planning paradigms, or by using variation to explain walking or resilience outcomes. This paper instead argues that these indicators of street networks' geometric and topological form actually show remarkable universality—i.e., convergent homogeneity—across cities of drastically different origins and planning paradigms.

To test this, we model the street networks of every urban area in the world using 2025 Global Human Settlement Layer boundaries and covariates plus 2025 OpenStreetMap data via OSMnx. Then we calculate each street network's straightness, orientation entropy, average node degree, and the Gini coefficient of its weighted node betweenness centralities. Next, across all urban area street networks, we calculate each indicator's coefficient of variation (CV), a standardized measure of the dispersion of each's probability distribution. Then we compare these CVs to those of urban "size" indicators (population, built-up area, total street length, intersection count) and other urban characteristics (average built height, average elevation, population greenness exposure, air pollution concentration), selected to cover a variety of ratio scale probability distributions.

We find that urban street networks' geometric and topological form is consistently far more homogenous (CVs = 0.02 to 0.10) than the size indicators (CVs = 2.80 to 3.45) and the other urban characteristics (CVs = 0.28 to 1.58). Further, these patterns and differences hold across a variety of underlying probability distributions and rescaling (normalization). In other words, these properties are largely independent of the details and dynamics of the underlying urban system. Cities of drastically heterogeneous types and vintages converge on a consistently homogenous narrow set of universal indicator values. This "universality" tells us that many underlying processes—many kinds of cities and planning paradigms—converge to generate similar street network forms. Regardless of the location of the city or the size of its network, there is homogeneity among indicators of street networks' geometric and topological form, which we do not see in other urban characteristics.

These findings contribute a new understanding of universality in street network planning to urban science's quest for universal theory. We propose some candidate explanations for—and real-world implications of—the underlying process. Street networks' spatial embedding and quasiplanarity constrain their geometric and topological properties in ways that do not apply to other urban characteristics. More importantly, many but not all street networks are shaped by central planning. Yet urbanization that is centrally planned versus organically self-organized, urbanization from different historical eras, and urbanization in different world regions may generate very different cities and modes of urban living—yet they converge on a homogenous set of street network form characteristics. This universality is seen in other complex systems and contributes to complexity theories of cities and planning.

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Key Words: street networks, urban morphology, planning paradigms, complex systems

Urban Analysis of Shared Streets: Evaluating Pedestrian-Vehicle Conflict via Deep Learning Video

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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In urban environments, streets serve as critical infrastructure shared by both pedestrians and vehicles, fundamentally shaping the spatial scale of cities. Pedestrian safety is influenced by a combination of built environment characteristics and individual behaviors, while street design directly affects pedestrian-vehicle interactions through factors such as visibility, traffic volume, and speed (Stoker et al., 2015).

To enhance pedestrian safety and create more flexible traffic environments, planners have introduced the concept of shared space, which minimizes conventional traffic rules and promotes self-regulated interaction among road users, thereby transforming streets into more human-centered social spaces (Methorst et al., 2007).

South Korea's Pedestrian Priority Streets adopt this concept by allowing pedestrians and vehicles to jointly use the entire road space. However, post-implementation evaluations have primarily relied on qualitative surveys or manual counting of traffic flow and speed (Oh & Park, 2018), while most existing research on shared spaces has focused on developing methodologies for behavior or conflict analysis rather than on-site empirical evaluation (Orsini et al., 2023).

This study aims to overcome these limitations by developing an automated, AI-based analytical framework for quantitatively assessing pedestrian safety in pedestrian-priority streets and applying it to real-world urban street environments.

We conducted a comparative analysis using pedestrian-priority streets with both one-way and two-way traffic as the experimental group, and conventional streets of the same width (8 meters) as the control group. Pedestrian and vehicle movements were extracted from video footage using the YOLO object detection algorithm, and actual speeds and distances were estimated via homography techniques. Key indicators analyzed include spatial sharing between pedestrians and vehicles, frequency and location of potential collisions, and spatial patterns of avoidance behaviors.

Data were collected using 360-degree cameras across various time periods, including weekdays, weekends, rush hours, and lunch hours. Additionally, pedestrian characteristics such as age and gender were considered to examine differences in interaction patterns and avoidance responses.

By shifting away from traditional survey- or observation-based approaches, this research demonstrates the potential of video-based quantitative analysis to provide objective, evidence-based insights for evaluating the effectiveness of pedestrian safety policies. Ultimately, the framework offers a valuable tool for evidence-based urban planning centered on pedestrian-friendly design.

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Key Words: Computer Vision, Pedestrian Safety, Shared Space, Walkability

Urban Morphology and Compound Exposure: Unraveling the Temperature-PM2.5 Link

Abstract ID: 1844.0.0.186.2025

Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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While the effects of urban landscapes on singular environmental exposures have been widely studied, few investigations consider the compounded exposures people experience in daily life. This study examines two prominent environmental challenges in urban areas: urban heat and air pollution. Specifically, we analyze (1) the spatial and temporal dynamics of the air temperature (T)–PM2.5 relationship and (2) the influence of urban morphology on this association. To capture ground-level air T and PM2.5, we deployed co-located, systematically calibrated low-cost sensors across 50 sites in Denton County, Texas. To represent the diverse urban morphology, we integrated high-resolution satellite-derived land use and land cover maps alongside local climate zone (LCZ) maps, which account for both physical and structural attributes, providing a more comprehensive view of urban form. Over 200 landscape metrics were generated from these datasets to characterize urban patterns using traditional circular buffers and wind-wedges to account for wind effects on heat retention and pollution dispersal. Our modeling results reveal strong seasonal variations in the air T–PM2.5 relationship and identify key landscape variables that help mitigate compounded environmental exposures. These findings offer insights on the critical role of urban design in shaping air quality and thermal environments.

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Key Words: air pollution, environmental exposure, urban landscape metrics, compound exposure, low cost sensors

Using Daily Mobility to Predict Residential Mobility

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Track 13: Technology, Society and Analytical Methods

Pre-Organized Paper Presentation

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Differences in economic resources, residential preferences, and discriminatory practices have been the primary explanations for how households sort themselves across neighborhoods along dimensions of class and race (Galster and Godfrey 2005; Ellen 2000). Demographers have further unpacked these explanations to show that economic disparities experiences with discrimination and especially preferences are mediated through social networks and day-to-day living experiences. Maria Krysan and Kyle Crowder are perhaps the most influential proponents of this latter approach developing the Structural Social Sorting Perspective (SSSP) (Krysan and Crowder 2017). They argue racial-ethnic differences in daily activities and geographic experiences are important predictor of segregated residential patterns (Krysan and Crowder 2017, 183).

Facets of the SSSP have been tested using qualitative interviews that ask respondents about their experience and knowledge of other neighborhoods and how that influenced subsequent moves. Researchers have typically relied on respondent recall to infer how daily experiences impact subsequent choices (McDaniel 2025). Such an approach is certainly informative, however, suffers from several shortcomings. First respondents' recall is fallible. Second, respondents might attach more salience to some experiences than others. This could be due to respondent error or quite the questions failing to prompt the appropriate answers. Finally, the sample sizes used in previous research didn't allow researchers to infer the strength of the connections between different neighborhoods. We reason in neighborhoods with stronger connections, as evidenced by a greater volume of daily visits between two neighborhoods, residential mobility connections between those neighborhoods will be greater as well.

In this paper we utilize two relatively novel data stats to examine how daily mobility experiences might inform future residential mobility. We use smartphone data to document patterns of daily mobility. Our smartphone data is derived from 45,000,000 devices across the U.S., aggregated to the census block group from 2019 to the present. From this data we construct network pairs that show how linked to census block groups in a city are to other block groups. This allows us to infer the degree of daily exposure between two census blocks groups. We then use information on the strength of these connections to predict residential mobility flows based on consumer reference data also aggregated to the census block group level. Consumer reference data from Infutor include individuals' first and last names, date of birth, residential location and start date, as well as inferred demographic information. The data include around 80- 90 percent of the population (Ramiller et al. 2024).

Our research will be among the first to demonstrate how daily mobility patterns influence subsequent residential mobility. In doing so our research will make two important contributions. First, we will demonstrate the utility of both smartphone data, and consumer trace data for studying patterns of daily and residential mobility. Second, we will show how daily mobility patterns are linked to patterns of residential mobility. In doing so we will further our ability to understand patterns of neighborhood change.

Citations:

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Key Words: Residential mobility, Big data, Daily mobility

Visual Narratives of Huntsville Alabama: Scoring Community and Place Dynamics Using Instagram Data

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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This research investigates the relationship between the built environment and the intangible qualities of Sense of Place (SoP) and Sense of Community (SoC) in Huntsville, Alabama, using geo-located Instagram posts as a novel methodological framework. Building on prior exploratory studies, we analyzed data from over 450 points of interest (POIs) within Huntsville and its adjacent two-mile radius. The study introduces a scoring system that decomposes SoP and SoC into measurable components, allowing for a deeper understanding of how urban spaces influence mental well-being and community engagement.

The scoring system operationalizes SoC through four dimensions: membership (a sense of belonging), influence (the ability to impact one's community), fulfillment of needs (access to resources), and shared emotional connections (collective experiences). Similarly, SoP is evaluated through four elements: place attachment (emotional ties to a location), social bonding (interpersonal connections fostered by the space), place dependence (functional reliance on a location), and place identity (the role of a place in shaping self-expression). These constructs were quantified using text mining algorithms applied to Instagram posts, comments, and captions generated through image classification techniques. Image analysis employed Faster R-CNN Inception ResNet V2 for object detection and BLIP (Bootstrapping Language-Image Pre-training) for image captioning, enabling the identification of urban features such as public art, seating areas, green spaces, and pedestrian infrastructure.

The results revealed significant correlations between components of SoP and SoC. Place attachment exhibited a very high correlation with place identity ($r = 0.959$), indicating that individuals who strongly identify with their place are also likely to feel deeply attached to it. Membership showed a strong correlation with social bonding ($r = 0.925$), suggesting that individuals who feel a sense of belonging in their community are more likely to experience interpersonal connections in shared spaces. Influence demonstrated a significant connection with place identity ($r = 0.839$), reflecting how individuals who perceive agency in shaping their environment often express stronger identification with their locale. However, fulfillment of needs showed weaker correlations with other factors, suggesting it may operate independently of socio-emotional constructs like attachment or identity.

Additionally, the analysis highlighted similarities between highly frequented POIs and lesser-known locations. Underutilized spaces often share visual features with high-scoring areas, such as mixed land use, pedestrian-friendly designs, or public art installations. This finding underscores the latent potential of lesser-known spaces to foster community engagement and enhance urban livability.

This research offers a practical methodological approach for urban planners by leveraging publicly curated image and text data from Instagram to quantify intangible qualities like SoP and SoC. The novelty lies in using text mining and image classification techniques to evaluate mental well-being expressed in social media posts. By mapping these attributes across Huntsville, this study enriches our understanding of the interplay between the built environment and mental well-being while providing actionable insights for designing inclusive urban spaces that promote social cohesion.

Citations:

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Key Words: Instagram, Sense of Place, Sense of Community, Text Mining, Image Classification

What and Where Are the Problems? Revealing Walkability Inequity Using Street View Images and ChatGPT

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Track 13: Technology, Society and Analytical Methods

Individual Paper Presentation Submission

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A better understanding of walkability conditions in minority neighborhoods requires close attention to streetscape features that often pose significant barriers to walking in these communities (Adkins et al., 2017; Koschinsky et al., 2017). However, assessing such features across large geographic areas remains challenging due to the high cost of field audits and the limited scope of off-the-shelf computer vision models. Specifically, these models can capture only typical environmental features (e.g., greenery) and their quantitative attributes (e.g., amount), which are insufficient for a comprehensive evaluation of walkability (Liu & Sevtsuk, 2024; Park et al., 2025).

To address this gap, this study leverages Google Street View (GSV) and ChatGPT to conduct an automated and comprehensive walkability assessment in the City of Los Angeles, California. Recent studies have begun to explore the use of ChatGPT in interpreting visual information for built environment evaluation, highlighting its emerging potential in urban analytics (Crooks & Chen, 2024). The study aims to identify detailed walkability issues and examine their spatial distribution, with a particular focus on minority neighborhoods. For each GSV image, ChatGPT is prompted to generate both a numeric walkability score and a narrative description of observed walkability issues. These large-scale textual outputs are then analyzed using natural language processing techniques—specifically, Latent Dirichlet Allocation topic modeling—to extract structured, topic-specific walkability problems.

Findings reveal that minority neighborhoods not only exhibit lower walkability scores but also disproportionately experience issues such as unkempt streetscapes, deteriorated sidewalk conditions, and a lack of traffic calming measures. Validation using both human raters and semantic segmentation models confirms the reliability of ChatGPT-generated walkability assessments. By providing a scalable and nuanced evaluation of walkability, this study offers critical insights to inform more equitable planning interventions and resource allocation.

Citations:

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Key Words: Walkability, Inequity, ChatGPT, Street View Image, Text Analysis

Track 13 Research in Motion (RiM)

Beyond Objective Metrics: Interpreting Multi-dimensional Park Perceptions with Large Language Models

Abstract ID: 1842.0.0.644.2025

Track 13: Technology, Society and Analytical Methods

Research-in-Motion Presentation Submission, Research currently in process

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Understanding the general public's perceptions of urban amenities is critical for effective urban management to enhance residents' livability. Conventionally, the park evaluation relies heavily on objective measures that quantify available resources (e.g., tree coverage) or through labor-intensive survey methods to solicit subjective feedback. More recently, emerging crowdsourced user-generated reviews on social media platforms offer a cost-effective alternative for capturing users' opinions and experiences in a scalable manner. Nevertheless, previous data-driven research was limited to assessing the users' sentiment within parks; its narrow focus often rendered it challenging to identify targeted strategies for park amenity enhancement for governance. Various other dimensions, including accessibility, functionality, attractiveness, or maintenance, could derive direct implications for park management, which is poorly addressed in the existing literature.

To address the research gap, this study systematically compares, for the first time, three types of deep learning models—Contrastive Language-Image Pre-training (CLIP) models, text embedding-based models, and Large Language Models (LLMs) for predicting three dimensions (perceived accessibility, functionality, and attractiveness) of urban parks using manually curated labels derived from Google Maps reviews. Leveraging the model with optimal performances, over 66 thousand user reviews were subsequently analyzed to quantify multi-dimensional perceptions across 158 urban parks in Hong Kong. Secondly, by integrating the park perceptions, we innovate existing walking accessibility to parks measurement with a quality-based Enhanced Two-Step Floating Catchment Area (E2SFCA) approach. The bivariate Local Indicators of Spatial Association (LISA) analysis allows comparison between quality-based and the prevailing size-based accessibility metric to identify neighborhoods demonstrating disparities in actual experiences and supplied park capacities. Finally, to uncover the underlying impact pathways of each dimension, it further examines the influence of various characteristics, including park interior features (e.g., specific facilities), built environment attributes (e.g., land use mix), street qualities (e.g., aesthetics), as well as the nearby sociodemographic profiles and temporal factors.

This study demonstrates that the finetuned domain-specific LLM achieves optimal predictive performance—yielding accuracy between 83% and 91% across different perception categories—outperforming zero-shot and few-shot prompted LLMs and other models. The subsequent spatial equity analysis uncovers insights often overlooked in conventional accessibility assessments focused solely on park capacity. Despite minor variations caused by different network buffer settings, clusters of low-quality yet high-capacity were consistently identified in several northern neighborhoods of Sha Tin and Yuen Long Districts, offering new perspectives for park provision and management in Hong Kong. Lastly, the study enriches the literature by elucidating the nonlinear effects of environmental attributes on public perceptions.

To summarize, this research proposes a comprehensive analytical framework that leverages state-of-the-art LLMs to advance the evaluation of public park perceptions. Integrating user-generated data and advanced AI techniques enables the identification of priority areas for park improvements through perception-driven, data-informed analysis to advance spatial equity assessments. Most importantly, the findings offer evidence-based recommendations by highlighting key characteristics that shape park perceptions, thereby informing policy decisions and guiding long-term park management strategies to improve urban quality of life.

Citations:

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Key Words: park perception, walking accessibility, LLM, spatial equity, online reviews

Generative AI for Urban Planning: Opportunities and Challenges

Abstract ID: 1842.0.0.657.2025

Track 13: Technology, Society and Analytical Methods

Research-in-Motion Presentation Submission, Critique related to a hot topic in planning research

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This presentation explores the potential opportunities and challenges of Generative AI (GenAI) for urban planning by presenting key empirical findings from recent work conducted by our research group, Smart Cities for Good at Virginia Tech. Since the release of ChatGPT in November 2022, an increasing number of urban planners and GIScientists have begun examining how GenAI tools might be integrated into planning practice (e.g., Ye et al., 2025a, 2025b).

In a recently published study (Jang and Kim, 2025), we employed two widely used multimodal large language models (LLMs)—OpenAI’s GPT-4o and Google’s Gemini 1.5 Pro—to assess their ability to identify built environment features such as sidewalks and streetlights from street-view imagery. We compared the GenAI-based results with those produced by a conventional deep learning-based computer vision method. The findings underscore the considerable potential of GenAI for built environment auditing—an essential but often resource-intensive task for planning agencies such as Metropolitan Planning Organizations (MPOs). Importantly, unlike conventional deep learning approaches, which typically require substantial computing resources (e.g., high-performance computing) and technical expertise (e.g., coding skills), GenAI-based methods may broaden participation in advanced urban analytics. With user-friendly interfaces such as interactive chatbots, GenAI offers a more accessible entry point for planners and practitioners to engage with AI-assisted tools.

At the same time, our findings reveal a critical limitation: the uneven geographic performance of GenAI tools. A series of empirical studies conducted by our group have examined GenAI’s spatial capabilities, including its ability to extract location-specific environmental issues (Kim et al., 2024) and respond to spatial queries (Renshaw et al., 2025). These studies consistently show that GenAI performs better in densely populated, affluent urban areas than in sparsely populated, economically disadvantaged rural regions. These geographic differences highlight potential ethical concerns (e.g., biases) in the use of GenAI for urban planning.

Drawing on these findings, I will discuss the ethical implications and the importance of responsible GenAI use in both research and practice. As AI technologies continue to evolve rapidly, it is crucial for planning professionals and scholars to be prepared for this new technological landscape. In this context, I will introduce the concept of AI literacy and explore how planning education can adapt to better prepare students. Specifically, I will share insights from a newly developed course at Virginia Tech, GenAI Applications in Social Science, designed to foster critical engagement with GenAI in urban planning contexts.

Overall, this presentation offers a timely opportunity for planners to critically reflect on both the potential and limitations of GenAI in urban planning. This presentation will stimulate meaningful discussions among planning researchers and practitioners on this critical and evolving topic in the AI era.

Citations:

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Key Words: Generative AI, ChatGPT, Built Environment, AI literacy, Biases

Graph neural networks for travel demand choice: an alternative graph with nest structures

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Track 13: Technology, Society and Analytical Methods

Research-in-Motion Presentation Submission, Research currently in process

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Discrete choice models (DCMs) have been a cornerstone for travel mode choice analysis. These models provide a sound analytical framework for explaining individual decisions and deriving behavioral indicators. A family of DCMs widely used for decades is based on random utility maximization, including the multinomial, nested, and mixed logit models (MNL, NL, and MXL). However, these conventional models are commonly restricted by their computational efficiency and handcrafted utility specification. To address the limitation in handcrafted utility specification, deep neural networks (DNNs) have been adapted for choice analysis in many recent studies, which have demonstrated their capacity of automating utility specification and improving predictive performance upon conventional DCMs. However, a critical missing in existing DNNs is the ability to capture the correlations among alternatives.

To address the challenges, this study proposes an alternative graph to represent the relationships among travel mode alternatives, thereby reframing the conventional discrete choice model by graph neural networks (GNNs). Firstly, we use the designed nested alternative graph to represent the alternative correlations between utilities rather than directly adapting sufficiently flexible neural networks into an existing GEV model. We categorize the seven travel modes into three components: vehicle, active, and public transit. Within the vehicle component, the driver, taxi, and passenger nodes are fully connected. The active component includes bike and walk, while the public transit component consists of bus and metro. Let's name a one-layer graph neural networks with an alternative graph consisting of disconnected components with full connectivity in each component as nest-specific utility (NSU) GNN. We can replicate the key choice probability form in the nested logit model due to the additive nest-based aggregation form. The NSU-GNN generalizes the existing automatic feature learning capability of DNNs to further account for correlations between alternatives with compound utilities. We then apply NSU-GNN alongside benchmark models, including DNN architecture with alternative-specific utility functions (ASU-DNN), MNL, and NL, to predict travel mode choice in datasets collected from 2018-2019 Chicago My Daily Travel Survey and 2019 Tampa Bay Regional Travel Surveys. Results demonstrate that NSU-GNN consistently outperforms all benchmark models in terms of prediction accuracy for travel mode choice.

This study makes contributions in two main areas. Theoretically, the NSU-GNN generalizes the MNL, NL, and ASU-DNN models in terms of model representation and substitution patterns, while retaining the utility-based interpretation. It introduces utility maximization theory to establish novel theoretical foundations for incorporating deep learning techniques, such as GNNs, into travel behavior analysis. This paper further explores the hierarchical relationship among NSU-GNN, ASU-GNN, MNL, and NL, showing that NL is a special case of NSU-GNN, while MNL is a special case of ASU-GNN. This approach integrates traditional discrete choice models with GNNs, bridging classical econometric methods with modern machine learning techniques. Empirically, the NSU-GNN significantly outperforms the benchmark models, and addresses key limitations of existing DNN-based choice models in differentiating properly the substitution patterns for correlated/non-correlated alternatives. NSU-GNN retains the strengths of DNNs, like automatic utility specification and high predictive performance, while effectively modeling relationships among choice alternatives. Overall, this study introduces deep graph choice models (DGCMS) and

designs NSU-GNN towards an interpretable, robust, and transparent computational choice modeling framework for more reliable decision support.

Citations:

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Key Words: demand modeling, mode choice analysis, graph neural network, deep learning

Investigating the Impact of Urban Morphologies on UHI

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Track 13: Technology, Society and Analytical Methods

Research-in-Motion Presentation Submission, Research currently in process

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With the advancement of global climate change and urbanization, the issue of urban heat island(UHI) in high-density areas has become increasingly severe, posing significant threats to human health and urban sustainability. Urban form has been recognized as a key factor influencing the urban heat island, as it determines the environmental structure of buildings and microclimates. Therefore, understanding the relationship between urban two-dimensional and three-dimensional forms and the thermal environment is crucial for developing effective urban heat island mitigation strategies. However, few studies have considered the significant impact of differences in urban functional areas on research outcomes, while urban location factors are often overlooked. In this study, we innovatively constructed an interpretable analytical framework combining geographically weighted regression (GWR) with causal machine learning. This framework explores the differential impact of urban form on the thermal environment across different urban functional areas by identifying these areas, addresses the influence of location differences through GWR, and reveals the intervention effects of urban form on the thermal environment using causal machine learning. The results show that: (1) The mechanisms by which urban form influences the thermal environment vary significantly across different urban functional areas. In commercial areas, factors such as MBH, FAR, and RESI have a strong positive impact on the thermal environment, while factors like BO and BH have a more significant impact in residential areas. (2) The influence of urban form on the thermal environment exhibits significant spatial variability. This is of critical importance for formulating differentiated urban heat island mitigation planning and policies. (3) The heterogeneity of causal effects reveals the sensitive thresholds and nonlinear response patterns of urban form regulation. By generating a library of urban form optimization schemes based on potential outcome models, we quantify the cooling potential of urban form adjustments in different functional areas to mitigate future urban heat island effects and promote healthy urban development. The findings provide new insights into the complex mechanisms by which urban form affects the thermal environment in urban functional areas and offer quantitative guidance for the planning of urban form updates in high-density areas to alleviate future urban heat island effects and foster sustainable urban development.

Citations:

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Key Words: Urban morphology, Urban heat island, Urban functional zone, Geographic weighting, Causal machine learning

Listen to the Land: Multicultural, Multimodal AI for Scientific & Indigenous Knowledge Sharing

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Track 13: Technology, Society and Analytical Methods

Research-in-Motion Presentation Submission, Research currently in process

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This multi-year project investigates how Artificial Intelligence (AI) can support inclusive, culturally grounded communication and planning at the intersection of climate adaptation, health equity, and land governance. It centers on the development of context-aware language databases and small language models that translate across scientific, traditional ecological knowledge (TEK), and local knowledge systems in the transboundary Cali-Baja bioregion. Encompassing Southern California, Northern Baja California, and the lands of Indigenous Nations, Cali-Baja is shaped by overlapping histories of Indigenous stewardship, colonialism, and migration, as well as the highest biodiversity in the continental U.S. Its plural ecologies and governance structures make it an ideal testbed for developing multilingual, multimodal AI planning tools for knowledge sharing and communication that respect and reflect the diversity of epistemologies, spatial practices, and socio-ecological systems that inform local decision-making.

The project responds to two key challenges. First, AI systems—particularly those trained on large, generalized text corpora—struggle to interpret the linguistic complexity and epistemological richness of Indigenous and place-based knowledge systems. This includes polysynthetic language structures, semantically dense terminology, and storytelling as a primary mode of governance and planning. Second, conventional climate and health planning tools often privilege urban-centric, technocratic frameworks, marginalizing rural and Indigenous communities that are most affected by ecological change yet least equipped with inclusive communication technologies.

Methods: To address these challenges, the project adopts a phased, participatory methodology. It begins by co-developing a multimodal corpus (i.e. text and other formats of data used to train AI systems) through workshops, incorporating oral histories, climate plans, scientific articles, and visual materials such as maps and hand drawings. Language data will be annotated with spatial, ecological, and cultural metadata reflective of the Cali-Baja bioregion. From this, we will train small language models using a hybrid architecture and curated, domain-specific outputs. These models aim to generate accurate, respectful, and context-sensitive translations between technical and community-based planning concepts, expressed in multiple languages and modalities (e.g., images, maps, and narrative forms).

Expected Results: The project's end deliverables include a bioregion-specific knowledge corpus, a suite of lightweight translation models, a knowledge sharing platform, and policy recommendations for integrating culturally grounded AI into local governance systems. Crucially, the project is governed by a community-led data stewardship protocol that upholds Indigenous data sovereignty and cultural specificity. Model outputs will be evaluated through iterative workshops with community partners, ensuring that AI tools remain responsive to the lived priorities of those navigating climate and health challenges on the ground.

Significance: This project advances existing AI methodology by integrating multimodal techniques to capture the linguistic and epistemological structures of Indigenous and local knowledge systems. It contributes to a new paradigm of storytelling-centered knowledge creation and decision making that bridges the humanities and climate science and lays the groundwork for a durable, interdisciplinary alliance that can be replicated in other bioregions

globally. Most importantly, it restores the rightful place of local narratives, languages, and wisdom traditions in shaping our collective future.

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Key Words: multimodal AI, NLP, indigenous knowledge, climate and health

Seniors' Use of Autonomous Vehicles and Implications for Access to Social Networks and Wellbeing

Abstract ID: 1842.0.0.317.2025

Track 13: Technology, Society and Analytical Methods

Research-in-Motion Presentation Submission, Research currently in process

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Aging is a global trend, with many countries experiencing a rise in both the number and proportion of older adults. This demographic shift presents significant challenges, including major life transitions such as retirement, the loss of loved ones, and living alone. In addition, health-related mobility limitations put seniors (aged 65+) at risk of social isolation, restricting their ability to maintain social networks beyond their immediate surroundings, which can negatively affect their wellbeing.

Autonomous Vehicles (AVs) are an emerging technology with the potential to reshape seniors' mobility by enhancing access to social networks. Scholars suggest that AVs can support healthy aging by promoting mobility, fostering social interactions, and enabling aging in place (Booth et al., 2022; Curl et al., 2018; Sohrabi et al., 2020; Zandieh & Acheampong, 2021). AVs could be especially beneficial for seniors who are still relatively active but face driving challenges due to physical or cognitive decline. By maintaining mobility independence, seniors may continue engaging in social activities and sustaining social connections—key contributors to overall wellbeing. However, challenges such as difficulties adapting to AVs, trust issues, and safety concerns remain significant (Booth et al., 2022).

While most existing research on AVs and seniors focuses on anticipated outcomes, this study explores seniors' actual experiences with AVs. Specifically, it examines both the opportunities and challenges AVs present, with a focus on access to social networks, a critical factor for seniors' wellbeing. The research questions are: What are the characteristics of social networks among seniors, and how do the quantity and quality of these networks vary by income level and car ownership status? How do seniors access their social networks? How does the introduction of AVs impact seniors' access to social networks and their wellbeing? Does the experience of using AVs lead to sustained changes in access to social networks and wellbeing among seniors? If so, how and to what extent? If not, why not?

To address these questions, the study focuses on the Phoenix region, a leading hub for AV technology. The study employs semi-structured interviews and travel diaries across three phases. Phase I establishes a baseline understanding of seniors' social networks and the role of transportation in accessing them. In Phase II, participants receive vouchers to use AVs and reflect on their experiences, assessing the impact on their social networks and wellbeing. Phase III focuses on assessing any long-term changes in social network access and wellbeing following AV exposure. A mixed-methods approach will be used for analysis. Travel diaries will be quantitatively assessed to evaluate shifts in travel behavior, the nature and frequency of social interactions, and AVs' impact on social network access. Thematic coding of interview transcripts will identify key patterns related to AV adoption, mobility independence, and wellbeing implications.

This study provides critical insights into how emerging transportation technologies influence seniors' access to social networks and wellbeing. By examining real-world experiences, it highlights both the benefits and challenges of AV adoption for seniors. The findings will inform discussions on integrating AVs into systems that support healthy aging and contribute to policy and urban planning initiatives focused on improving mobility solutions for seniors.

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Key Words: Autonomous Vehicles, Aging, Social networks, Wellbeing

Smart City Infrastructure and Clean Energy Adoption and Access Equity: Evidence from New York City

Abstract ID: 1842.0.0.191.2025

Track 13: Technology, Society and Analytical Methods

Research-in-Motion Presentation Submission, Research currently in process

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As part of its sustainability agenda, New York City (NYC) has launched a range of initiatives advancing digital infrastructure, decarbonization, and energy efficiency in recent years. The city was ranked the number one smart city in North America in 2023 (Sat & Maynard, 2023). Annual solar energy production from NYSERDA-supported projects rose from 71,956 MWh in 2015 to 506,180 MWh in 2023, a sevenfold increase (NYSERDA, 2024). During the same period, American Community Survey 5-year estimates indicate that the number of housing units using clean energy (solar or electricity) for primary heating grew by 60%, from 324,475 (10.4% of total housing) to 517,077 units (15.6%). While these city-wide metrics reflect notable progress, less is known about how smart city infrastructure relates to clean energy adoption rate (CEAR) and clean energy access equity (CEAE) at the local level. This study uses 2023 data to conduct a census tract-level analysis addressing two research questions:

1. How is the concentration of smart city infrastructure related to CEAR and CEAE levels?
2. Do tracts with elevated levels of smart city infrastructure and solar capacity demonstrate higher CEAR and CEAE levels?

CEAR was defined as the proportion of housing units using clean heating fuel, CEAE as an adjusted measure of CEAR that accounts for socioeconomic disadvantage, and “Solar Capacity” as annual solar energy production (kWh) per housing unit of each tract. A Smart City Index Score (SCIS) was developed by aggregating eight indicators: fixed broadband Internet and computing device access, densities of telecommunications poles, Wi Fi kiosks, 5G towers, EV chargers, distributed energy storage capacity, and the ENERGY STAR score of benchmarked residential buildings. Spearman’s rank correlation was used to assess pairwise relationships among key variables. Census tracts were grouped according to their levels of solar capacity and SCIS to evaluate variations in CEAR and CEAE across different infrastructure contexts. Kruskal–Wallis tests with Dunn’s post-hoc comparisons were then used to identify statistically significant differences among these groups.

Results show a moderate positive correlation between SCIS and both CEAR and CEAE, indicating that tracts with more smart city infrastructure tend to have greater clean energy adoption and equitable access. Kruskal–Wallis results confirmed significant differences in clean energy outcomes across the groups. Post-hoc comparisons further indicated that tracts characterized by relatively high levels of both smart city infrastructure and solar capacity consistently outperformed other groups. While these findings do not establish a direct causal relationship and further investigation is warranted, they suggest that increasing installed solar PVs alone may be insufficient to enhance local clean energy use or equitable access. This underscores the critical role of enabling technologies and smart infrastructure in advancing more just and effective energy transitions (Byrne & Taminiau, 2018; Esfandi et al., 2024).

Based on the integrated assessment of smart and solar infrastructure characteristics, we identified distinct tract groups and mapped their spatial distribution across the city, offering planners and policymakers in NYC a foundation for more targeted interventions. Depending on the conditions of each tract or cluster of similar tracts, strategies may include: (1) expanding solar deployment in areas with untapped potential; (2) initiating building retrofits focused on electrification and smart technologies; (3) enhancing the distribution of smart city

infrastructure; and (4) developing virtual power plants and local microgrids to enable on-site consumption or storage of locally generated solar energy (Hoang et al., 2021; Esfandi et al, 2024). This planning approach can support NYC in advancing energy justice, lowering household and utility costs, strengthening grid reliability, and narrowing the digital divide.

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Key Words: Smart City, Technology, Energy Justice, Energy Transition, Solar Energy

Track 14 – Transportation and Infrastructure Planning

Track 14 Pre-Organized Session Summaries and Abstracts for the Sessions

Contested Claims, Divergent Discourses: Case Studies of Transportation Planning

Abstract ID: 1840.0.0.933.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Session Summary

Session Includes: 1844.0.0.390.2025, 1844.0.0.391.2025, 1844.0.0.503.2025, 1844.0.0.556.2025, 1844.0.0.925.2025

Kate Lowe [University of Illinois Chicago] katelowe@uic.edu, organizer

Papers in this session utilize case study research to explore evolving and contested claims about equity and justice in transportation planning. Despite frequently invoked technical objectivity in the field of transportation, these case studies illuminate the highly politicized and normative nature of transportation debates and policy processes across contexts. Case studies provide an opportunity to examine transportation processes and claims in context by providing thick description and critical evaluations of the causal processes that shape transport systems. Authors examine a variety of transportation planning interventions, from highway repurposing and covid-era streets programs to international bridges and rail trails, united by theoretical frameworks that emphasize justice and equity. Cases will provide transferable insights into concepts of equity, racial justice, and the provision of collective goods within transportation planning infrastructure, funding, and programming.

Learning Objectives:

- Attendees at this session will gain critical insights into the politicized and normative nature of transportation debates.

Corridors of Cooperation and Conflict: Contesting Transport Justice in Buffalo, NY.

Abstract ID: 1844.0.0.390.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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Transportation infrastructure's influence on urban development and neighborhood change make it a key component in both enabling and hindering a "right to the city" for all. Recent federal initiatives such as the Reconnecting Communities program and the Justice 40 initiative support projects that address racial inequality and other transportation-related injustices. Implementation of these policy initiatives are contested locally, by state actors and emergent community organizations, whose normative claims to justice are mediated by existing organizational networks and rationalities (Flyvbjerg 1998; Kimble 2024). This paper analyzes two planning efforts in Buffalo, NY to redesign and repurpose highway infrastructure along the RT198/RT33 corridor, an interconnected highway serving demographically different neighborhoods. Utilizing participant observation, structured interviews with policymakers, document analysis and workshops with neighborhood residents, we document a variety of perspectives and claims to justice across each project. We then conduct a comparative analysis of the community planning processes to identify how procedural, recognition, restorative and epistemic justice (Sheller 2018, Martens 2016) are contested and constructed by different stakeholders over time. Our analysis identifies learning and organizational capacity as key mediating factors that shape differential outcomes of each planning process. In addition, we identify processes of selective learning whereby stakeholders strategically emphasize lessons drawn from previous planning interventions to uphold and challenge existing rationalities of power. In the discussion, we explore how planning interventions aimed at enhancing justice and equity interact with organizational and discursive factors to shape contemporary transportation planning processes.

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Key Words: Transportation Planning, Reparative Planning, Community Development, Environmental Justice, Highway Removal

Blank Checks and Bailouts? A Discourse Analysis of Chicagoland's Public Transit Funding Crisis

Abstract ID: 1844.0.0.391.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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Transit agencies across the United States faced ridership collapses during covid shutdowns, and ridership has generally not fully rebounded. Federal covid relief funding offset some of the resulting farebox losses for many agencies. For systems that heavily rely on farebox revenue—typically those serving large metropolitan areas—the exhaustion of covid funds is leaving considerable budget gaps and precipitating funding crises. However, these funding crises are not the first time public transit has faced shortfalls, and public transit has been underfunded for many decades (Bloom, 2024).

In metropolitan Chicago, the exhaustion of federal covid support in early 2026 will leave a \$771 million operations shortfall for the three agencies serving the region; this gap is termed the fiscal cliff. Addressing the impending fiscal cliff has become entangled with dissatisfaction with the three agencies serving the region and ideas of restructuring them, including agency consolidation as a means of improving service and finding (projected) spending efficiencies.

This case study will analyze framings in the entangled conversations of funding and reform, such as one prominent legislator's stance against a "blank check". The discourse analysis will draw on document review—capturing framings from agencies, lawmakers, advocates and business actors. The genesis of the analysis was through participant observation, which will also serve as a source for the analysis. The paper will contextualize framings within broader discourse on government consolidations (Savitch et al., 2010), critiques of the state, narratives around inefficiency in the public sector and the provision of collective goods (Todd-Breland, 2018; Freemark & Rennert, 2023).

Citations:

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Key Words: Public transit, Funding, Case study, Discourse analysis

Two Wards and Two Paths in the Pursuit of Transportation Equity: Slow Streets and Washington D.C.

Abstract ID: 1844.0.0.503.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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COVID-19 shook the foundation of mobility, and in their haste to keep people moving during the public health crisis, some cities' slow street implementations heightened long-simmering resentments within Black communities, accompanied by fears that these street-level changes begin with the streets and end with the people (Anguelovski et al., 2021). Those fears manifested in Washington D.C.'s Black-majority Southeast neighborhoods, where, for the first time in the District, Ward 8 withdrew from the citywide Slow Streets program while neighboring Ward 7 remained. This is a qualitative case study of power, fear, and engagement through the actions of two Black councilors in a Black city overseeing Black communities during Washington D.C.'s Slow Streets program (2020 - 2021). Through this program, I pose two overarching yet connected questions: Why did Ward 7 stay, and why did Ward 8 leave?

To address these questions, I employed a mixed-methods approach that combined in-depth interviews and document reviews from 2019 to 2022. I conducted four semi-structured, confidential interviews and exchanged correspondence with three local transportation advocates and former staff from the District Department of Transportation in Washington, D.C. The Slow Streets program in D.C. operated for just one year, from May 2020 to May 2021. Due to its brief duration and rapid dismantling, I utilized document reviews to reconstruct the narrative of Slow Streets, identify fundamental problems in neighborhood transportation policy, and analyze the political factors that contributed to the differing approaches in Ward 7 and Ward 8. Data collection followed a semi-structured interview protocol, and all interviews were conducted via videoconferencing. Additional communication occurred through emails, with advocates requesting anonymity. Interviews were open to staff of transportation advocacy organizations, the District Department of Transportation (DDOT), and citizen advisory councils in Washington, D.C.

The results reveal a series of external power struggles between DDOT, the Council, the Mayor, and District residents on the issue of equitable transportation strategies and engagement. The councilor's divergent paths match their politics: Ward 7 Councilor and former Mayor Vincent C. Gray has supported most transportation treatments in D.C. and his ward. Ward 8 Councilor Trayon White has mainly opposed transportation treatments, specifically bike lanes, due to fears of gentrification. Those fears led to his removal of Ward 8 from the program. The DDOT also struggled internally with overtaxed DDOT staff caught between unsupportive Leadership and distrustful residents stemming from historic ostracism and now the novel coronavirus.

This study contributes to the literature on the politics of equity, particularly regarding underserved communities. Demographically similar communities may interpret transportation equity in various ways due to the influence of local-level politics and residents' identities (Brand, 2015). Thus, this study also offers insight into opposing viewpoints that cities must navigate in the pursuit of transportation equity. Finally, this research examines politicized transportation modes, specifically bicycles, and their impact on local politics. There are prevailing perceptions of how bicycle infrastructure and related transportation treatments impact gentrifying Black communities and communities of color (Lubitow et al., 2016) but less about how these perceptions shape political decision-making (Gibson, 2015). This latter topic remains an area that is still under-explored.

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Key Words: Black Americans, Transportation equity, Transportation policy, COVID-19

Impossible Sidewalks: How History, Policy, and Politics Block Walkability

Abstract ID: 1844.0.0.556.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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Popular urban planning agendas treat walkability as the heart of urban living. For instance, walkable neighborhoods are understood as a foundational component of smart growth (Smart Growth America, 2025). Over 1,700 U.S. jurisdictions have embraced “Complete Streets” policies to provide space on roads for pedestrians and cyclists (Smart Growth America & National Complete Streets Coalition, 2025). Dozens of U.S. cities have signed onto Vision Zero, a movement that seeks to end all traffic fatalities. These frameworks offer planners in small and mid-sized cities practicable means of promoting sustainability, safety, equity, and economic development. For example, The Vision Zero network holds up the efforts of Bellevue WA, and Alexandria VA, as proof that mid-sized cities can achieve a ‘big impact’ with a Vision Zero approach (Fox, 2020).

Providing safe infrastructure for pedestrians remains a persistent challenge, particularly around building and maintaining sidewalks. Many cities place responsibility for sidewalk maintenance on property owners, leading to less maintenance in communities with higher poverty rates (Rajaei et al., 2021). Municipalities that manage repairs report specific barriers that make the process relatively more difficult than road repair, including damage from tree roots and lack of knowledge among contractors (Jane Gibson & Marshall, 2022). Sidewalk repair is often complaint-driven, which can exacerbate inequalities in service provision. While researchers have explored barriers to sidewalk maintenance, no studies have documented the barriers to provisioning sidewalks on existing, occupied streets.

We report on the efforts of a community-led partnership to advocate for sidewalk installation in two historically redlined communities in Durham, North Carolina. Our data include twelve interviews with community organizers and planning staff, field notes from over 20 community meetings, recordings of city council meetings, and a database of local news articles.

We find that legacies of segregation, redlining, and past transportation planning injustices stymie present efforts to find space on the street for Durham’s pedestrians. Planners report that roads in these historically redlined areas are more difficult to install sidewalks on as they require more flood mitigation. Adhering to AASHTO guidelines would require aggressive right-of-way acquisitions, but community members who lost childhood homes to highways do not trust agencies to compensate them fairly. Aggressively anti-urban and anti-pedestrian state legislation limits funding sources while forcing advocates into a reactive posture of pushing for change whenever state-owned roads happen to come up for periodic repainting. Victories come more easily around new, peripheral development as residents can pressure the city to require developers to install sidewalks, but these wins provide no improvements to longtime residents’ own streets.

Community members advance progress on sidewalk justice with a variety of tactics. They build coalitions across different neighborhoods, cultivate relationships with key city staff, leverage both formal and informal mechanisms of public feedback, and “just show up randomly to keep them on their toes.” Their efforts teach us that capitalism won’t pay for sidewalks without a fight, but mobility justice cannot exist without a safe space for pedestrians to move.

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Key Words: Mobility justice, Sidewalks, active transportation, redlining, urban inequality

Connecting Nations, Dividing Communities: Impacts of US-Canadian Cross-Border Bridge Projects

Abstract ID: 1844.0.0.925.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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In 2018, the foundations were poured for the Gordie Howe Bridge project. The international bridge is the second to cross the Detroit River, linking the cities of Detroit, Michigan and Windsor, Ontario at a cost of \$5.7B. Currently, the Detroit-Windsor trade connection is served almost entirely by the four-lane Ambassador Bridge, completed in 1929, which is listed as the busiest North American crossing by trade volume. Approximately 25% of the trade between the US and Canada crosses in Detroit, and was estimated to impact 150,000 jobs and \$13B in economic output. The project was almost entirely funded by the Canadian Government, and represents the culmination of nearly 25 years of efforts to further expand trade linkages between the United States and Canada that began in the early 2000s. The process of beginning construction was delayed nearly a decade by a host of legal battles mounted by private citizen and billionaire Matthew “Matty” Moroun. The Moroun family owns a controlling interest in the Ambassador Bridge, which he acquired in 1979, making a personal profit from toll revenue collected from the nearly 28M yearly vehicle crossings, as well as duty-free fuel revenue, and facilities rentals for shipping companies that are maintained on both the Canadian and US sides of the border.

The history of the Gordie Howe Bridge Development from 2000 - 2025 represents a series of unique challenges for planning infrastructural connections for trade, traffic, and transit, and is emblematic of political values that pervade ostensibly “neutral” projects. The legal battles, mounted by the Moroun family and companies in which they control an ownership stakes, represent a legal saga that stretched nearly a decade to include rampant property speculation, lawsuits over eminent domain, a failed constitutional referendum, a vetoed state law, “good-faith” blight redevelopment, false eviction notices, and a personal appeal to a new President - all of which were fruitless. The Gordie Howe International Bridge is set to open in 2025.

Despite the billionaire legal opposition, community groups in the Detroit neighborhood known as Southwest also opposed the bridge, and are bracing for the customs plaza to open alongside a dense residential area, populated by minority residents, and low-income communities. The EIS found a disproportionately high and adverse effect, and the US Government agreed to fund \$30M USD to provide community development, support, and mitigation, including constructing a wall near the customs plaza to mitigate noise from the estimated ~10,000 semi-trucks that are projected to navigate the crossing daily upon its completion. This research uses qualitative methods, including case study analysis, historical textual analysis, and secondary research to explore the history of the Detroit River International Crossing. In total, the new international bridge across the Detroit River represents a multi-billion dollar bi-national infrastructure investment with repercussions in US and Canadian economies. The Gordie Howe Bridge, upon opening later fall 2025, is a fascinating case study to explore contested politics of public infrastructure, including fraught legal battles, billionaire influence in geopolitical affairs, and resident organizing for environmental justice in the face of globalized trade, traffic, transit, and of course, tariffs.

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Key Words: Public Infrastructure, Environmental Justice, Transportation Planning, Community Development, Case Study Research

Introducing the Tools of the Road Lobby

Abstract ID: 1840.0.0.846.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Session Summary

Session Includes: 1844.0.0.280.2025, 1844.0.0.366.2025, 1844.0.0.801.2025, 1844.0.0.664.2025

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While there is increasing interest in transportation as a political problem (e.g. Kent and Harris 2024; Marsden and Reardon 2017; Mattioli et al. 2020), there has been limited examination of the traditional elements of political influence, such as lobbying, discourses and campaign donations. Actors such as trade associations, industry groups, and professional lobbyists spend substantial amounts to shift legislative priorities (Brulle and Downie 2022), often mobilizing diverse groups and strategies to achieve political goals (Dahan 2009). The papers in this session examine the actors, strategies, and discourses used to advocate for road expansion and the implications for understanding the political context for transportation investments.

Learning Objectives:

- Participants will learn about the political context and strategies used in advocating for transportation investments.

Building Consensus for the Road Lobby with the ASCE Infrastructure Report Card

Abstract ID: 1844.0.0.280.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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Americans across the political spectrum largely agree that our infrastructure is crumbling. In an age of partisan rancor, how did this consensus materialize? While there are many potential factors at play, we focus here on one specific tool: the Infrastructure Report Card, a product of the American Society of Civil Engineers (ASCE) that assesses the nation's infrastructure every four years and offers solutions for improving the nation's near-failing grades. Some observers may minimize the report cards' influence, noting that "Asking civil engineers whether America needs to invest in infrastructure is like asking a barber whether you need a haircut." (White, 2012) Yet a complete dismissal is too hasty.

We argue that the Infrastructure Report Card merits careful inspection as a tool of the road lobby, one used strategically by the ASCE to raise awareness about infrastructure conditions and build a consensus for increased funding. The report cards' core message enjoys considerable air-time in the media and serves as a frequent talking point in the halls of power.

We conduct a content analysis of eight editions of the report card from 1998 to 2025 to answer two research questions: 1) How does the ASCE describe the problems and solutions for U.S. infrastructure? 2) What rhetorical tools does the Report Card use to build consensus around infrastructure issues? We focus on two categories of infrastructure: roads and bridges.

Collectively, the report cards make three foundational claims: our infrastructure is crumbling, the cause of our woes is inadequate funding, and the solution is greater investment. Throughout, the ASCE builds credibility for their claims by describing the central role of engineers and the robustness of their methods (despite providing few details or documentation). The ASCE builds consensus through vivid imagery (i.e., "deteriorating", "crumbling", "failing", and "crisis" and by describing all infrastructure spending as "investments" and "needs." Finally, the ASCE presents their results at a level of aggregation that precludes prioritization, analysis of tradeoffs, or reviews of rates of return. ,

While the ASCE presents their claims as commonsensical and beyond reproach, outside critics have taken issue with each one. To make sense of competing claims, we supplement the content analysis of the report cards with a summary of key critiques from the academic and gray literature. A contribution of our work is to synthesize these oft-siloed critiques in a single location.

Throughout, we contextualize the report card historically, starting with an important precursor--the Fragile Foundations report, which was congressionally commissioned in 1988--and ending with the release of the eighth edition of the Report Card in March 2025. During this period, the policymaking context shifted considerably: costs per lane mile soared, infrastructure funding as a share of Gross Domestic Product declined steadily, high-profile bridge collapses periodically captured the attention of the fickle American public, and the Highway Trust Fund went

from running a surplus to the brink of insolvency. We trace the rise in the influence of the report card (i.e., how often it is mentioned in the media and in policy discussions) and track polling numbers illustrating growing awareness and concern about infrastructure.

Finally, because the existing Report Cards are a poor foundation for meaningful public debate, we close by speculating briefly about what a more useful infrastructure report card might look like. Future iterations should embrace greater methodological transparency, present disaggregated findings, engage more deeply with economic considerations, and pay more attention to effective tools for managing demand.

Citations:

- Murphy, James C. 2020. "The Australian Road Lobby: Bitumen Mafia or Bogeyman?" *Urban Policy and Research* 38 (1): 51–62. <https://doi.org/10.1080/08111146.2020.1730788>.
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Key Words: Road Lobby, Political Economy, Politics, Highway

Driving Under the Influence: Examining Political Strategies and Discourses from the U.S. Road Lobby

Abstract ID: 1844.0.0.366.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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There has been little scholarly attention paid to the interest groups advocating for increased investments in roads. These groups are broad and diverse, with industry associations that represent all aspects of road design (engineers and consultants), construction (materials and labour) and end users (automotive, trucking, and logistics). Despite the significant role that industry associations have in influencing policy in other areas (Brulle and Downie 2022; Kowal 2018), systematic analysis in the transportation field has been limited (Dudley and Richardson 2001; Hamer 1987). This research aims to explore the strategies and discourses that trade associations use in advocating for increased investment in road infrastructure. Our research aims to answer three questions: What is the “road lobby” and who participates in it? What specific issues and policies do they target? What strategies and discourses do they employ to influence policies and investments?

We answer these questions using critical discourse analysis to understand what strategies and the types of discourse and rhetoric that are used. Focusing on U.S. national organizations, we analyzed trade associations that (1) had explicit mention of road and infrastructure investment in their advocacy documents; (2) lobbied federal road-related agencies (i.e. Department of Transportation, Federal Highway Administration, Environmental Protection Agency); and, (3) spent money on federal lobbying (OpenSecrets, n.d.). The eight associations that met the criteria represent a variety of road-related interests. We collected and analyzed publicly-available documents produced by these organizations, including letters to elected officials, policy briefs, and legislative toolkits, and targeted at different audiences.

We find that organizations have a wide variety of materials aimed at influencing political decision-makers, including policy briefs, position papers, and model legislation, as well as efforts to mobilize members through lobbying tours or “fly-ins” to meet with legislators. We describe and analyze the different strategies that these organizations use, such as public media campaigns, advocacy funds, and direct engagement with politicians. Lastly, we delve into the positions, values, and priorities of the organizations involved in road investment lobbying. We examine how these organizations frame their priorities, the language they use to advocate for them, and the values they seek to promote within the political discourse surrounding transportation policy. By examining the rhetoric used by road lobby organizations and the ways they position themselves within broader political debates, this research will identify the key values that drive their lobbying efforts and the underlying strategic goals they pursue.

Citations:

- Brulle, Robert, and Christian Downie. 2022. “Following the Money: Trade Associations, Political Activity and Climate Change.” *Climatic Change* 175 (3): 11. <https://doi.org/10.1007/s10584-022-03466-0>.

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Key Words: lobbyists, politics, trade associations, road lobby, discourse analysis

Who Drives Highway Expansion? A Roadmap of the Highway Coalition

Abstract ID: 1844.0.0.801.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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Why do highways continue to get built and expanded despite their myriad negative impacts? Substantial empirical literatures describe the impacts of highway capacity on air quality, environmental justice, displacement, community severance, greenhouse gas emissions, and induced vehicle travel that erases any congestion improvements. Despite the relatively meager benefits compared to costs, governments continue to abundantly plan and program new road and highway capacity (Taylor et al. 2023, Lee 2023).

An oft-cited reason for highway expansion is the political one. Politicians may advocate for large infrastructure projects for electoral reasons and to showcase their political acumen, and there is a powerful “highway lobby” of industry interest groups that exerts influence on these lawmakers for transportation funding and desired policy outcomes (e.g., Finer 1958, Dunn 1995, Murphy 2020). But why does this building and construction lobby advocate so successfully for highways and not for, say, capital investments in dams and schools?

This research empirically measured the members and policy beliefs of the coalition that advocates for highway expansion. Via in-depth interviews with 49 policy actors—state and local elected official, local transportation planners, state Department of Transportation (DOT) officials, regional transportation agency staff, consulting engineers, academics, lobbyists, and advocates—I explored the transportation policy arenas that surround three large case study highway expansions in California. Specifically, I investigated who holds power and influence, their policy beliefs, and the resources and strategies they use to propel or advocate for highway expansion.

Interviews showed that the network of policy actors in the highway expansion coalition is much more complex than just interest groups lobbying politicians. This paper provides detailed case studies about how these nuances play out across the multileveled and polycentric system of transportation governance. It confirms previous scholarship that politicians and interest groups – e.g., construction and building industries, real estate interests, labor organizations – do indeed play an influential role, and, crucially, expands on prior work to show how members of the highway coalition are embedded in institutions and agencies at all levels of government and in all stages of the transportation planning process. These included local and regional planners, travel modelers, finance and programming staffs, consultants, and DOT staff. That is, politicians and interest groups have a powerful coalition ally in the DOT and other transportation agencies, who advocate for highway expansion from within the transportation institution.

Citations:

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Key Words: highway expansion, advocacy coalitions, institutions, policy process

Road Expansion on the Ballot: Money, Influence, and Interest Groups

Abstract ID: 1844.0.0.664.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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Ballot box planning and financing play an increasingly large role in transportation policy. A primary use of ballot measures in the transportation arena is to levy taxes to generate revenues for transportation projects at the state and local levels in the form of local option sales taxes. Transportation scholars have analyzed several aspects of ballot initiatives: their role in transportation finance, expenditure lists, successes, and failures. This research focuses on the large sums of campaign donations that these ballot initiatives garner. For example, campaign contributions totaled over 52 million dollars for a 2018 California ballot proposition, with over 90 percent of campaign donations opposing the proposition (Lee, 2023).

We analyze campaign donations for local and state ballot initiatives to expand the road and highway system. We argue that these campaign donations are one way the “road lobby” exerts influence in the transportation planning and political process to expand automobile infrastructure. Campaign donations are a tangible way for researchers to study how interest groups influence public policy, but they are far from the only avenue of influence (Brulle and Downie, 2022).

We investigate campaign donations in eight case studies of transportation ballot measures across the US. We limit our case selection to ballot initiatives in elections from 2015 through 2024, where a majority of their revenues go to roads and highways and where campaign donation data is available. The eight case studies include five state and three county ballot initiatives, which would have raised between 80 million and 50 billion dollars and received between 50,000 and 52 million dollars in campaign donations. We use campaign finance data from state secretaries of state, campaign disclosures, and Open Secrets to analyze the broad spending patterns focusing on total spending, who is using their money to influence policy, and what they spend their money on.

Our research shows that a substantial share of contributions to support generating more transportation dollars—for sales tax measures and against the repeal attempt, in the case of California’s gas tax legislation—come from firms and organizations that have material interests in building heavy infrastructure projects, as well as from nearby businesses and real estate interests. These include construction companies, construction materials companies (e.g., sand and gravel companies, aggregate and concrete producers), building trades organizations, labor organizations, engineering consultancies, and chambers of commerce, and these findings build on evidence from scholars such as Lee (2023) and Linovski (2018).

Citations:

- Brulle, Robert, and Christian Downie. 2022. “Following the Money: Trade Associations, Political Activity and Climate Change.” *Climatic Change* 175 (3): 11. <https://doi.org/10.1007/s10584-022-03466-0>.

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Key Words: transportation finance, lobbying, ballot measures, governance

Shifting to the Safe System Approach: Principles, Interventions, and Paths Forward

Abstract ID: 1840.0.0.727.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Session Summary

Session Includes: 1844.0.0.141.2025, 1844.0.0.154.2025, 1844.0.0.478.2025,

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Traffic crashes in the U.S. alone claim nearly 40,000 lives, with a total cost of over \$470 billion each year. The Safe System approach represents a holistic vision to bring traffic deaths and severe injuries to zero through prioritizing system-level changes like the built environment and transportation infrastructure. This pre-organized session brings together scholars and researchers to dialogue about the Safe System approach in the U.S.: theories and methods, implementation challenges, and opportunities. We will discuss safety countermeasures addressing the built environment features and roadway infrastructure design. We will examine traffic safety outcomes of the Vision Zero initiatives, while also addressing challenges and pitfalls in policy implementation across diverse contexts. The session will provide insights into theoretical advances and policy implications of the Safe System approach, as well as exploring the future directions for research, policy, and collaboration.

Learning Objectives:

- Describe the Safe System approach and its distinguishing principles
- Identify countermeasures to reduce deaths and severe injuries on the roadways, citing research-based applications
- Apply the Safe System approach to future research and policy agenda, encouraging the field toward safer systems

The Effects of Curb Extensions on Traffic Collisions and Injuries

Abstract ID: 1844.0.0.141.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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Curb extensions, also known as bump-outs or bulb-outs, are widely implemented as a traffic-calming measure aimed at improving pedestrian safety and managing vehicular traffic. By extending the sidewalk into the roadway, curb extensions reduce pedestrian crossing distances, enhance visibility, and encourage slower vehicle speeds by reducing vehicle turning radii. Policymakers have credited a combination of physical curb extensions and lower cost plastic delineators to block off space for pedestrians with helping Hoboken, NJ, a dense city of 50,000, with cutting its traffic fatality rate to zero. Despite widespread adoption, there is limited direct study into the effects of curb extensions on crashes or traffic injuries. The Federal Highway Administration has identified research into the effects of curb extensions on crashes as a high priority area for empirical research. In this paper, we examine the effects of curb extensions on traffic safety through their implementation as part of a stormwater management program in the City of Philadelphia.

As part of its stormwater management program, the Philadelphia Water Department has been planning, designing, and constructing a portfolio of green stormwater infrastructure systems over the past dozen years. These systems capture, filter, and store stormwater run-off utilizing sub-surface trenches, and vegetated features, from raingardens to street trees, mimicking natural processes where possible. As part of this program, the water department built 156 curb extensions with vegetated areas that protrude into the street at mid-block and intersection locations between 2013 and 2022. The water department plans to build another 342 curb extensions over the next 5 years.

By comparing the effects of these curb extensions over time relative to similar roadways where curb extensions have not yet been installed, this study offers a causally valid approach to identifying the effects of curb extensions on traffic safety. Although pre-existing crash data featured in the selection of treated locations, the focus on stormwater management and long list of treated and untreated intersections provide unique, quasi-experimental conditions under which to examine the effects of curb extensions. Although curb extensions are widely accepted roadway design interventions in the fields of traffic calming and traffic safety, little is known about their effects on crashes or how these effects may vary by roadway conditions, location, or other features.

After matching curb extensions to intersections and removing midblock interventions, we create a dataset of 84 treated intersections and 313 control intersections. We matched these spatially to annually aggregated crash data from 2012 to 2023. We also matched these to data on the width of roadway, roadway class, and expected acres of drainage associated with stormwater management. All three were used to help determine the suitability of bump-out construction. Preliminary analysis suggests that curb extensions reduced the incidence of serious crashes by around 50% on arterials. The effects on local roads were likely smaller and were not statistically different from zero with 95% confidence.

Citations:

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Key Words: curb extensions, traffic safety, bump-outs, bulb-outs, daylighting

Examining a Lost Decade for Traffic Safety in Large US Cities: Lessons for a Safer System

Abstract ID: 1844.0.0.154.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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Despite setting goals to improve traffic safety for pedestrians, bicyclists, and motorists, large US cities experienced a surge in traffic fatalities since the Great Recession, making the US an outlier among higher-income countries. Comparing 2008-2012 with 2018-2022, the traffic fatality rate per 100,000 population increased by more than 33% across the 100 most populous US cities (from 6.97 to 9.28) versus less than 5% in all other parts of the country (from 12.03 to 12.59). This lost decade for traffic safety cost lives. If the change in traffic fatality rates across the 100 largest cities would have simply matched other parts of the country, 6,438 fewer people would have died during 2018-2022.

While many studies have examined traffic safety trends at national and state levels, relatively few focused on cities. City-level analyses have been conducted in New York, where traffic safety improvements have been attributed to Vision Zero (VZ) actions, such as redesigned streets, reduced speed limits, and automated speed enforcement (Karaye et al. 2023; Dragan & Glied 2024). Ferenchak (2023) analyzed fatalities between 2007-2019 in 18 US cities that adopted VZ policies and found better outcomes in cities with higher population densities; higher shares of walking, bicycling, and transit commuting; and automated enforcement programs. Stimpson et al. (2014) examined 29 years of fatality data in the 100 largest US cities during 1982-2010 and showed that lower traffic fatality rates were associated with more public transit miles traveled per person. Ferenchak and Marshall (2024) compared seven smaller cities with high-bicycling commute mode shares and seven with lower-bicycling mode shares during 2010-2019, finding lower traffic fatality rates in cities with more bicycling, more compact urban form, and higher incomes. However, none of these studies have examined traffic fatality outcomes in the largest 100 cities over the last decade to see which communities might provide a template for safer systems nationwide.

To help fill this gap, we investigated traffic fatality trends in the 100 most populous US cities by comparing two five-year periods: 2008-2012 and 2018-2022. We asked the following research questions: How did traffic fatality patterns change within large cities? What characteristics, including VZ commitments, were associated with traffic fatality increases and decreases?

We used data from the Fatality Analysis Reporting System, American Community Survey, and vehicle travel monitoring sources to explore traffic fatality counts and rates within these 100 large cities. Descriptive statistics showed that traffic fatalities increased the most between 6:00-11:59 pm, on arterial and collector roadways, on state and US highways, in low-income neighborhoods, and for pedestrians and bicyclists, highlighting growing disparities in fatality outcomes. Multilevel models showed that fatality rates were positively related to total automobile commuters but negatively related to population density and city median income. The 17 cities that adopted VZ between 2012-2016 experienced a smaller increase in fatality rates than the other 83 cities, but the difference between VZ and non-VZ cities fell just short of statistical significance when controlling for other socioeconomic and land use variables. Lower-income cities tended to have higher fatality rates, underscoring the importance of state and national policies to target safety initiatives in areas with fewer local resources.

The paper will also provide insights from interviews with planners in cities that had relatively better traffic safety outcomes. We investigate factors in these cities that may have been beneficial, such as traffic safety advocacy groups, safety plans, multimodal street redesign projects, and safety-oriented land use and public transit planning. Lessons from this paper can support safer systems and reduce traffic fatalities in US cities.

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Key Words: Safe system, Large cities, Traffic fatalities, Trends, Vision Zero

Investigating Factors Associated with Various Types of Behavioral Violations

Abstract ID: 1844.0.0.478.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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A paradigm shift to the Safe System approach opens up new avenues for research and policy to bring traffic deaths to zero. Street networks and areas with the highest concentrations of fatalities and severe injuries, namely, the High Injury Networks (HINs), remain a key strategy for implementing safety countermeasures and allocating resources (Custodio et al., 2021; U.S. DOT, 2025). Despite the wide adoption, using the HINs approach does not capture variations in causes of fatalities and severe injuries, resulting in high uncertainty in the outcomes of policy interventions (Khan et al., 2024; Wang and Barajas, 2025). This study addresses these issues by asking and answering the following research questions: (1) What are the factors associated with various types of behavioral violations resulting in traffic fatalities and severe injuries? (2) What are the characteristics of behavioral violations that disproportionately affect people using active transportation (vs. automobiles)? (3) Where do these behavioral violations occur?

To answer the questions, I analyzed nearly one million traffic crashes occurred in California from 2015 to 2019, drawing on the Statewide Integrated Traffic Records System (SWITRS) database. I used indicators of whether a behavioral violation acts as the predominant factor of deaths and severe injuries to estimate the likelihood of different behavioral violation types, and the factors associated. SWITRS data provided nine types of behavioral violations that are computed from the California laws, automobile right-of-way, driving or bicycling under the influence (DCUI), unsafe speed, improper turning, wrong side of the road, unsafe lane change, traffic signals and signs, pedestrian right-of-way, and pedestrian violations. I measured the crash, person, mode, road, and place characteristics using four data sources, the Statewide Integrated Traffic Records System, the OpenStreetMap, the American Community Survey, and the National Household Travel Survey. I used multinomial logistic regression and logistic regression modeling.

The results reveal that the most common behavioral violations in fatal and severe crashes are DCUI (18%), unsafe speed (18%), improper turning (17%), and pedestrian-related reasons (15%) (including pedestrian right-of-way and violations). After controlling for other factors, fatalities and severe injuries are a lot more likely to be due to traveling on the wrong side of the road (212%), and automobile right-of-way, unsafe speed, and improper turning (100%), relative to pedestrian-related reasons. Similarly, fatalities and severe injuries are 42% more likely to be due to DCUI and 8% - 11% more likely to be due to unsafe lane change and traffic signals or signs (vs. pedestrian-related reasons), respectively.

Sociodemographic characteristics are associated with behavioral violation types. In a fatal and severe crash, compared with their white peers, Hispanic travelers are 24% more likely to be killed or severe injured due to violations of traffic signals or signs; at the same time, Black and Hispanic travelers are 50% and 15% less likely to be killed or severely injured due to DCUI (vs. pedestrian-related reasons), respectively. While walking, pedestrians are 2.3 times more likely to be killed or severely injured due to drivers violating the pedestrian right-of-way, compared to pedestrians violating traffic regulations. Pedestrians aged 65+ are at least 3.5 times as likely as adults aged 18-24 to be killed or severe injured when they have the right-of-way (vs. violating traffic regulations). Pedestrian fatalities and severe injuries in nonrural areas with a population size of 10k-25k are 70% more likely to be due to drivers violating the pedestrian right-of-way than other areas. Findings highlight the likelihood of various types of

behavioral violations, the persons affected, and the factors associated, which merit attention and targeted policy interventions under the Safe System approach.

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Key Words: Safe System, Zero Traffic Deaths, Behavioral Violations, Active Transportation

The Theoretical Mismatch of High Injury Networks: Critiques and Recommendations

Abstract ID: 1844.0.0.651.2025

Track 14: Transportation and Infrastructure Planning

Pre-Organized Paper Presentation

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High-injury networks (HINs) are commonly developed as part of Safe Systems programs (e.g., Vision Zero) in the United States. HINs apply safety hot-spotting; once developed, they are a collection of corridors that contain the network's highest concentrations of severe- and fatal-injury crashes [Kronenberg et al., 2015]. The methodologies for developing HINs vary, and there is no widely accepted practice for creating them. The intended purposes of HINs, though, are consistent: they are purported to help agencies funnel resources to most effectively reduce roadway injuries and fatalities.

HINs are now central to roadway safety planning in the U.S. For example, the U.S. Department of Transportation's "Safe Streets and Roads for All" FY24 grant program requested that applicants identify whether a proposed project is on the city's HIN, highlighting the importance that HINs currently hold in our safety planning approaches [USDOT, 2024]. Their widespread adoption makes sense, as the logic of HINs is appealing. But this work proposes that there is a theoretical mismatch between a hot-spotting approach and the reality of latent risk that pervades the transportation system.

Several issues are cited. First, it seems likely that crash concentrations are a result of numerous confounding variables, including of traffic volumes [Elvik, 1997]. Most HINs are developed using crash rates that are not normalized by traffic volumes or other confounding variables, and crash concentrations may be the result of residual confounding risk rather than high risk. HINs inherently assume that the severe concentration is because roadways in the HIN differ from other roadways in the system. Thus focusing countermeasures on the HIN will reduce most serious injuries and deaths. While it is true that many corridors in HINs have design characteristics that are highly correlated with roadway crashes and VRU injuries and fatalities (e.g., long crossing distances), these characteristics are often present in many other roads in the network that do not have the same concentration of crashes [Elvik, 1997]. Therefore, high risk is still present in the system.

Second, the beliefs that injury risk manifests in the system that are inherent to HINs are not supported by theoretically or causally. Epidemiological approaches to risk [Dumbaugh and Li, 2010, Ederer et al., 2023] state that more effective than hot-spotting is addressing risk factors, which are underlying conditions that increase the probability of an injury occurring. Instead of identifying concentrations of symptoms (i.e., crashes), it is more effective to identify latent pathogens (i.e., causal risk agents) of injuries and then systematically address them throughout the network.

And finally, because HINs are not causally-informed, their prescriptions may not be resilient to the rapidly changing transportation system. These single-corridor investments identified through hot-spotting may not be as important long-term; as the system changes with new forms of mobility, long-term travel patterns (e.g., exposure) will change. If HINs are mostly an artifact of exposure and other latent risks, HINs will simply shift to different places over time without reducing the population-level burden of deaths and serious injuries.

Given these many problems with the practice hot-spotting in generally and HINs specifically, "fixing" some corridors will not address overall system risk and thus may reduce overall injury, which is the goal of Safe System/Vision Zero planning. To highlight these assumptions and theoretical mismatches, we further expound upon the assumptions

about risk inherent to HINs. We also explore those assumptions with HIN and crash data in the U.S. We propose an alternative approach to Safe Systems implementation, one that identifies causal elements of the system that increase risk, and then addresses them network-wide.

Citations:

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Key Words: Safe Systems, transportation planning, high injury networks

Track 14 Roundtables

Celebrating the Legacy of Donald Shoup (1938-2025), and Next Directions in Parking Research

Abstract ID: 1843.0.0.1187.2025

Track 14: Transportation and Infrastructure Planning

Roundtable Submission, Panel Interviews

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Overview

This roundtable commemorates the urban planning scholarship of Professor Donald Shoup. Panelists will elucidate the many contributions made by Shoup to research and practice about urban parking policy. The panelists and audience members will discuss new directions in research about parking and outline research needs related to parking, access, and creating finer cities. This session will (1) celebrate Shoup's decades-long contributions to research, practice, and education and demonstrates how parking reform can support affordable housing development, lessen air pollution, and reduce automobile dependency, and (2) forge a new set of research directions about parking policy.

Donald Shoup

Donald Shoup, distinguished Professor Emeritus of Urban Planning, whose decades of teaching and scholarship at UCLA greatly influenced the field of land-use planning as well as generations of scholars, students and urban planners, passed away following a short illness on February 6, 2025, in Los Angeles. He was 86.

Shoup, a titan in the field of urban planning and specifically parking reform, is renowned for his pathbreaking research into how cities manage, or mismanage, parking spaces. This work, which demonstrated that seemingly mundane provisions in zoning codes had rendered many places overly dependent on driving, brought him academic accolades and made him an unlikely hero for a generation of urbanists determined to repair American cities.

Over the course of his career, Shoup won numerous awards. He was a fellow of the American Institute of Certified Planners, a select group of professional planners nominated by their peers in recognition of their "significant and transformational improvements to the field of planning and the communities they served." In 2017, he received the Distinguished Educator Award from the Associated Collegiate Schools of Planning. The award, presented biennially, is the highest honor bestowed by the organization in appreciation of significant contributions that have made a difference to planning scholarship, education and practice.

Parking Research

Shoup has spent his career encouraging everyone to rethink relationships between parking and the built environment, traffic congestion, energy consumption, and local economic development. Shoup's recommendations

for reforming parking policy center on three recommended actions. First, remove off-street parking requirements. Second, use market prices to manage on-street parking. Third, spend the parking meter revenue to fund added public services on metered blocks. These parking reforms can align individual incentives with collective objectives and produce enormous benefits at low or no cost. All these benefits will result from subsidizing people, not parking. Shifting the cost of parking to the parkers will make cities more expensive for cars and more livable for people.

A new generation of researchers—many were Shoup’s research collaborators or former students—have taken up the mantle and expanded on Shoup’s research in new context and settings. Some of these researchers will appear as panelists.

The Roundtable

This roundtable will be of interest to scholars, planning practitioners, and citizen advocates who are passionate about reducing automobile dependency and creating more sustainable and vital cities. Audience members will: (1) learn from the panelists about the impacts of Shoup’s research on parking policy; (2) share memories about Shoup; (3) reflect on the current state of research about parking policy; (4) collaborate with the panelists in identifying pathways for future research on parking policy. The latter will take into account various considerations, including equity and inclusion, affordable housing, development pressures, governance, and climate change.

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Key Words: parking, zoning, access, urban development, equity

Equitable and Co-Designed Solutions for Transit Workforce Shortages

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Track 14: Transportation and Infrastructure Planning

Roundtable Submission, Topical Discussions

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Public transportation systems across multiple cities and regions in the United States are struggling with chronic worker shortages and high employee turnover rates. While the specific positions with the greatest shortages can differ from one agency and region to another and shift with time, most public transit agencies face ongoing and intensifying workforce challenges that need focused attention. These shortages impact the ability to operate the transit system safely and reliably. Beyond that, they prevent cities and regions from meeting climate action targets by limiting the expansion of transit services.

This existing challenge allows planning scholars to exchange ideas supporting replicable workforce solutions and share those insights with the regions and institutions they support and engage. This roundtable responds to this opportunity by bringing together researchers from two planning sub-fields: transportation and economic development planning. We aim to open a conversational and interpretive space for knowledge sharing, deepening our collective understanding of current and emerging workforce needs while leveraging panelist knowledge about co-designed strategies that center worker and community voice. The panel will identify actionable solutions to be tested and adapted within multiple cities and communities. We hope this conversation will spur interdisciplinary collaboration to support more inclusive workforce practice.

The panel will open with an overview of current transit workforce challenges, both nationally and within our respective regions, focusing on positions that are currently hardest to fill. As part of that discussion, we will consider who typically holds these “high-churn” positions and which communities and segments of the population are currently underrepresented and why. Panelists will also reflect on related workforce shortages. For example, many cities and counties struggle with an acute shortage of school bus drivers—in certain regions of the country, driver shortages affect other aspects of infrastructure development and maintenance, such as snow removal, waste management, and the movement of critical building materials, most notably ready-mix concrete. Broadening the focus to include these and other related worker shortages will help to motivate multi-industry, multi-scaler responses.

The second half of the panel will focus more centrally on actionable solutions, drawing from both current and emerging workforce initiatives within and beyond the transit sector. Rather than treating workforce development as a short-term hiring challenge, the discussion will emphasize long-term career pathways that support worker mobility, particularly in historically overburdened communities. Panelists will explore models from adjacent industries—such as construction, green infrastructure, and manufacturing—to examine how structured apprenticeships, upskilling initiatives, and co-designed training programs can create sustainable transit careers, not just jobs. The conversation will also highlight strategies for worker retention by investing in reskilling opportunities, enabling frontline workers—such as operators, mechanics, and maintenance staff—to adapt to automation, electrification, and other technological shifts without displacement. By grounding solutions in community-driven

workforce development, the panel will propose a forward-looking approach that ensures transit agencies do not just react to workforce shortages but actively build equitable, future-ready career pipelines.

Panelists from the economic development sub-field include: Jamaal Green (University of Pennsylvania) and Nichola Lowe (University of Minnesota); from transportation planning: Mehri Mohebbi (University of Florida) and Jacob Wasserman (UCLA). The panel will be moderated by University of Minnesota doctoral student and transportation scholar, Sylvie Guezeon.

Citations:

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Key Words: transit workforce, workforce development, community co-design, public transportation, public works

Navigating the Complex Dynamics of Accessibility, Safety, and Mobility for Vulnerable Road Users

Abstract ID: 1843.0.0.79.2025

Track 14: Transportation and Infrastructure Planning

Roundtable Submission, Panel Interviews

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For decades, planners have been searching for the magic recipe for enhancing transportation accessibility, safety, and mobility for vulnerable road users- groups of individuals at increased risk of experiencing the inefficiency, inequity, and undesirable outcomes of the transportation system. These users often include, but are not limited to, pedestrians, cyclists, children, seniors, women, and racial minorities. Adequately addressing the needs of vulnerable road users, however, presents significant challenges for two reasons. First, the unique transportation needs of certain vulnerable road user groups have not been widely acknowledged by planners and decision-makers. Second, strategies to improve one aspect of transportation planning can conflict with or even undermine another. For example, while 28 U.S. states require teens to practice with a certified instructor before getting a junior driver's license- a policy aimed at ensuring safe driving practices- this requirement can inadvertently exclude teens who cannot afford such training, thus denying them the mobility and access to educational and economic opportunities that come with a driver's license.

This roundtable will focus on the multifaceted challenges facing specific vulnerable road users and explore planning interventions tailored to their particular transportation needs. Panelists will delve into the experiences of novice drivers, cyclists, pedestrians, queer transit users, minorities, low-income residents, among others, all while navigating the complex dynamics of accessibility, safety, and mobility.

Citations:

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Key Words: Access, Mobility, Safety, Transportation planning, Vulnerable road users

Urban Transport as a Social Construct: Reimagining Transportation's Role in Urban Studies

Abstract ID: 1843.0.0.537.2025

Track 14: Transportation and Infrastructure Planning

Roundtable Submission, Topical Discussions

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Since the 1990s, Urban Studies has published a growing body of empirical research highlighting the social dimensions of urban transport, supporting the paradigm shift from viewing transport primarily as physical and spatial entities to emphasizing the complex social dynamics that underpin the functional aspects of transport systems (Attoh 2017; Bickerstaff and Walker, 2005; Wood, 2022; Blumenberg and Smart, 2014). Building on existing studies on this topic and the Urban Studies call for papers (Fan, Wood, and Blumenberg, 2024), this roundtable brings together authors and editors affiliated with the Urban Studies journal to critically reflect on this intellectual evolution and spark new conversations about how social, cultural, and political forces shape—and are shaped by—urban transport systems.

Participants in this session will explore the long arc of theoretical developments that conceptualize urban transport as a social construct, and the growing urgency of these perspectives in light of several contemporary urban trends—including persistent social disenfranchisement and exclusion, post-COVID transformations, the rise of digital transport economies, the escalating impacts of climate change and the Anthropocene, and the resurgence of authoritarian regimes alongside the deepening of neoliberalism. Moreover, drawing on a diverse array of empirical cases—from open-air markets reshaping mobility in post-COVID Paris, to the interplay of transport and rezoning in Denver, to informal adaptations of Bogotá's gondola system—the discussion will examine how transport systems are embedded with social meaning, political power, and historical legacies. Transport infrastructures and policies often reflect the values and ideologies of those in power, reinforcing social inequities and spatial injustice.

This roundtable seeks to critically examine the current landscape of transportation studies and foster a more nuanced perspective that transcends conventional technical or economic analyses. It aims to situate the understanding of urban transport within the broader socio-political context that defines urban life. Through a shared inquiry into transport's role as a complex socio-political force that structures inequalities, reinforces or challenges power dynamics, and shapes the lived realities of urban life, the event will cultivate a socially grounded and justice-oriented perspective on urban transport. The goal is to pave the way for research that not only analyzes but also seeks to transform the social dimensions of urban transport.

Citations:

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Key Words: Urban Transport, Social Dimensions, Mobility Justice, Critical Theory, Social Constructivism

Track 14 Individual Paper Presentations

A Global Evaluation of Flood Impacts on Road Networks Informs Resilience Investments

Abstract ID: 1844.0.0.165.2025

Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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This study provides the first global evaluation of direct and indirect flood hazard impacts on urban road transportation networks. We construct topological road networks for 2,564 human settlements, representing over 14 million kilometers of urban roads. We assess their exposure to pluvial and fluvial flood risks under ten scenarios, corresponding to different flood intensities (1:5 to 1:1000 year return periods). Under each scenario, we analyze direct infrastructure exposure and assess the indirect effects of flood-induced mobility disruptions: route failures, travel delays, and travel distance increases. Our results document a positive relationship between flood return period and flood impact (both direct and indirect). Compared with direct flood hazard exposure, the indirect effects of floods on mobility is more prominent and heterogeneous. The average share of the road network that is flooded by at least 0.3 meters is 3.64% (or 24.84%) under the 5-year (or 1000-year) return period—yet 11.58% (or 65.67%) of simulated trips fail in the same scenario. The results enable comparisons of exposure and vulnerability of road networks to flood hazards across countries, allowing the identification and prioritization of urban transport resilience measures. Our study builds a comparative understanding of the vulnerability of road networks to flood hazards under ten distinct return periods by identifying the spatial heterogeneity in mobility loss due to travel speed reduction and road closure. We call attention to particular world regions where targeted initiatives for flood mitigation and adaptation measures in the transportation sector are most critical while also recognizing areas where large-scale interconnected road network failures might occur. We explore explanatory variables that can capture the variation observed in the indirect impact of floods on mobility and point to three governing features: exposure, network connectivity, and travel pattern. We evaluate their relative importance in different geographic regions and make policy-relevant recommendations for increasing network resilience. This effort facilitates the development of region-specific hazard mitigation objectives and investment plans, effectively reducing the indirect repercussions of floods.

Citations:

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Key Words: Flooding, Transportation network, Climate resilience

A Theoretical Framework for Induced Travel

Abstract ID: 1844.0.0.355.2025

Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Induced travel remains a controversial issue despite a large empirical literature developed over the last 25 years demonstrating that increases in lane-mile capacity leads to increases in vehicle-miles of travel (VMT). The controversy, while typically not explicitly stated, is over how cities should grow. That is, those who argue that new road capacity will increase VMT (or not be effective at reducing congestion), are typically concerned about the negative impacts of new road capacity and advocate for different ways to address mobility and accessibility concerns (e.g. public transit and active modes of travel). Those who diminish the impact of induced travel argue that new capacity is needed to meet current and/or future demands for vehicle mobility.

Much of the recent controversy is generated by the availability of easy-to-use “induced travel calculators”, originally developed in California. Some have argued that these calculators over estimate induced travel effects and this is partly due to assuming elasticity measures of VMT with respect to lane-miles based on old data (generally before 2005). There is evidence that VMT per capita peaked about this time, with a shock due to the great recession, improved communication technologies, and more recently the Covid pandemic leading to increased working at home. Other factors, such as more home-delivery, may also play a role. The other concern is that the calculators do not consider localized contexts, such as existing levels of congestion or its non-existence, background exogenous levels of growth and economic development, and transit availability. I base these observations from discussions occurring in the Minnesota Technical Advisory committee on which I sit and as a member of an NCHRP project team working on developing guidance on how state DOTs can estimate and address induced travel.

What is lacking in these discussions is a clear theoretical framework for how these factors may lead to different levels of response to new capacity. There is a desire to define “typologies”, that is, under what circumstances is induced travel a concern? I will present a brief overview of recent literature, including an attempt to define different typologies. How can consideration of different conditions inform the theory of induced travel, also known as “the fundamental theorem of road congestion”? Within this focus is the tension between those who oppose highway construction and those that see it as their duty to provide as much as possible.

Citations:

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Key Words: Induced travel, Travel behavior, Transportation planning, Decision makers, Transport controversies

A Travel Time-Based Evaluation of Public Transport Competitiveness in Chinese Megacities

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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In rapidly urbanizing megacities, the “public transport priority” policy is regarded as a key strategy to alleviate congestion and improve urban mobility efficiency. However, while widely emphasized in policy discourse, its actual effectiveness remains to be verified. To explore this issue, the study introduces the Travel Time Ratio (TTR) between private cars and public transport as a core metric to assess whether transit is truly prioritized in everyday commuting.

Time-based accessibility has become a critical indicator for evaluating public transport (PT) competitiveness. Unlike spatial proximity, travel time captures the full commuting cost—walking, waiting, transferring, and in-vehicle time—reflecting both system efficiency and user perception. Although many metro station areas are nominally served by transit, limited surface-level connectivity often leads to functional inaccessibility. Recent studies emphasize the importance of evaluating accessibility not only in terms of efficiency but also equity, as high travel times disproportionately affect low-income and peripheral populations.

This study evaluates PT competitiveness across eight Chinese megacities—Shanghai, Beijing, Shenzhen, Guangzhou, Chengdu, Chongqing, Tianjin, and Wuhan—focusing on TOD areas defined as 1-kilometer buffers around metro stations. Travel time data for both cars and PT are collected via API queries during peak and off-peak hours, incorporating walking, waiting, congestion, and mode-specific travel segments. A Generalized Journey Time (GJT) framework is applied to assign differentiated weights to each travel component, capturing perceived time costs more accurately.

Results show that core urban areas and metro corridors exhibit strong PT competitiveness, with TTR values close to 1.5. However, suburban and peri-urban areas show significantly weaker performance, with TTRs exceeding 2.5. Inter-city comparison reveals clear differences in transit efficiency, shaped by metro network coverage, land use integration, and urban structure.

The study provides evidence-based insights for TOD policy by identifying spatial patterns of weak PT competitiveness and proposing targeted strategies for service optimization and land-use coordination. The GJT-based framework offers a replicable and transferable approach for benchmarking PT performance across cities. Ultimately, this research supports the development of inclusive and sustainable mobility systems in rapidly urbanizing regions.

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Key Words: Travel Time Ratio, Competitiveness, Generalized Journey Time, Accessibility, Megacities

Adapting Multimodal Travel Behavior to Extreme Heat: A Tale of Two Cities

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Extreme weather events are becoming more commonplace and yet increasingly more unpredictable. Heatwaves, in particular, are found to occur more frequently, last longer, and be more intense. Extreme heat, grimly referred to as the ‘silent killer,’ has severe consequences not just for people’s mobility but also health and quality of life. From a mobility perspective, people who do not have access to a car face the brunt of extreme heat as they move about urban areas walking, biking, and using transit. Many people adapt their activity-travel patterns in various ways on extremely hot days. For example, they can choose not to make a trip at all (by working from home or deferring a trip). They may choose to use their car, if available, since it offers air conditioning. They may choose to shorten their trips to reduce heat exposure or perhaps make longer detours to use routes that offer more shade and are cooler. However, for many, adapting their travel patterns is not an option. They may not have access to a car or find public transportation too expensive, thereby needing to walk or bike regardless of how hot it is. They may not also have the luxury of working from home or being able to adjust where and when they go.

The examples listed above are but a handful of the myriad ways in which people adapt to, or are unable to adapt to, extreme heat. The different adaptation mechanisms and constraints impeding adaptation start to paint a complex picture of how travel behavior and activity-travel patterns are affected by extreme heat. The literature on this topic is fairly nascent, with only a handful of studies examining this relationship but with limited scopes. Extreme heat has been found to significantly affect both time use and activity-mobility patterns (Batur et al., 2024). Some studies have focused on the effects of extreme heat on specific transportation modes, such as walking (Basu et al., 2024), bikesharing (Li et al., 2024), public transportation (Miao et al., 2019), and ridehailing (Gebresselassie et al., 2025). However, we do not yet have a comprehensive understanding of how activity-travel patterns are affected across all modes. Additionally, we have limited evidence of how individual-level shifts in behavior may differ from population-wide shifts.

Through this study, we seek to address these two gaps in the academic literature. First, we use a multi-day mobility diary dataset from Boston, US that contains daily activity-travel data for multiple residents of the Boston metropolitan region who were recruited to participate in the mobility tracking study. The ‘usable’ sample of repeat observations for the same person across a set of extreme heat days (as treatment) and not-so-hot regular days (as control) contains around 200 unique individuals. Second, we use a ‘big’ dataset from Milan, Italy that contains daily activity-travel data for millions of people (represented through devices) sourced through location-based services. We adopt a similar strategy to track changes in activity-travel patterns between extreme heat days (treatment) and not-so-hot regular days (control), but at the population-level this time.

Preliminary results confirm several of the hypotheses stated earlier about adaptation mechanisms. We also observe some heterogeneity across our sample in Boston, for which we have socioeconomic data; the Milan sample is unfortunately anonymized. We aim to continue exploring these differences across the two types of datasets and contexts through behavioral models, which will inform a choice-based vs. necessity-based heat adaptation framework that can be used for integrated climate resilience and sustainable transportation planning.

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Key Words: Extreme heat, Travel behavior, Transportation equity, Climate resilience, Sustainable transport

Analyzing Commuting Inequalities in the Spatial Mismatch Hypothesis Using Machine Learning

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The Spatial Mismatch Hypothesis (SMH) emerged from Kain's (1968) observation of the negative impact of residential segregation and the decentralization of suburban employment on the job opportunities of African Americans in inner-city areas. It has been extended to address the mismatch between the residential locations of minorities in central cities and the suburbanization of employment. (Holzer 1991, Ihlanfeldt & Sjoquist 1998).

Commuting distances often reveal the nuanced patterns of inequality. Blumenberg and King (2019) found that lower-income workers experienced disproportionately longer commute distances than high-income groups, with such effects being more pronounced for low-income workers compared to high-income groups. Commuting distance is especially relevant when transportation mode disparities are considered. Kawabata and Shen (2007) demonstrated significant differences between car and public transit users in commute distances and times, revealing systemic inequities.

Housing affordability and public transportation availability are critical variables together impacting spatial mismatch. Rising housing costs in job-rich urban areas have pushed low-income households to job-poor locations, exacerbating transportation-related inequalities (Levine, 1998; Benner & Karner, 2016). As cities face growing housing demand, opposition to affordable housing developments in urban cores has increased, pushing low-income families to areas farther from employment centers (Whittemore & BenDor, 2019). This displacement often results in longer commutes and higher transportation costs for affected communities (Raphael & Stoll, 2010; Blumenberg & Wander, 2023). Addressing spatial mismatch, therefore, requires integrating housing affordability and transit availability into planning frameworks

Numerous modeling approaches have been used to explore spatial mismatch, ranging from linear regression to spatial econometric models. Linear regression models such as Ordinary Least Squares (OLS) were common for examining commute patterns and their relationship with job accessibility (Kawabata & Shen, 2007; Blumenberg & Wander, 2023). Since the relationships between the built environment, socio-demographics, and travel behavior are often non-linear (Abdollahpour et al., 2024), relying on traditional statistical models that assume linearity may lead to biased estimations and inferences. Machine learning models, with their capability to capture non-linear relationships and predict outcomes with reduced error, are gaining increasing attention in causal statistics (Balzer & Westling, 2023; Fuhr et al., 2024).

To shed some light on how commuting distance as a measure of spatial mismatch interact with various socio-demographic factors across three income-level jobs, we propose to apply a two-stage Extreme Gradient Boosting (2SLSXGBoost) model to each income group and compare the impact of built environment, urban form, and socio-economic, and transportation variables across each income group in the state of Texas. Our research questions include: 1) How do various socioeconomic and built environment factors differently impact the commute distances of high-, medium-, and low-income workers? 2) How does a two-stage Extreme Gradient Boosting (2SLSXGBoost))

model perform in predicting commute distances and spatial mismatch compared to its traditional counterpart? 3) What are the implications of these findings from applying AI-driven approaches to address spatial and socioeconomic disparities in urban planning?

The answers to these questions will provide insights into understanding the driving forces of spatial mismatch for different groups, especially the low-income minority group, and facilitate the reduction of community inequity through policy recommendations for affordable housing, job locations, and transportation options.

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Key Words: Spatial Mismatch, Commuting, Inequalities, Machine Learning, Artificial Intelligence

Analyzing Driver Earnings, Utilization, and Market Regulation in Toronto's Ride-Hailing Industry

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Ride-hailing platforms (also known as Transportation Network Companies or TNCs) have expanded rapidly over the past decade, raising concerns about driver earnings, labor conditions, and urban congestion. As a result, many jurisdictions are exploring regulatory interventions, including license caps, minimum earning standards, utilization rate targets, congestion pricing, and environmental incentives. However, it is not clear how these policies may impact driver welfare. In this study, we examine the effects of possible license caps and subsequent change in utilization rate (defined as the portion of each driver hour that includes a fare-paying passenger in the vehicle) on drivers' earnings in Toronto.

Our data include 84 million TNC trips between January 2023 and April 2024, accounting for 75,208 TNC drivers licensed in Toronto. We calculate drivers' net earnings by applying the TNC platform's rate card formulas and deducting vehicle expenses, including both fixed and variable cost items unique to each vehicle's specific make, model, year, and ride-hailing mileage. Next, we develop a two-stage fixed effect model to analyze how various factors, including the utilization rate, affect driving earnings per in-app hour, where the in-app hour consists of all logged-in time on the platform, including deadheading. Given that the utilization rate may be correlated with unobserved driver-specific characteristics such as drivers' skills, experience, and familiarity, we employ an instrumental variable approach. We use the number of daily active drivers as an instrument for utilization rate based on the assumption that the number of daily active drivers in Toronto only affects drivers' earnings through the utilization rate.

The data reveals that between 2023 and 2024, the utilization rate of TNC drivers in Toronto fell from 61.4% to 54.4%, and the median hourly net earnings decreased from \$7.94 to \$5.97. Our model identifies a significant negative association between driver supply and utilization rate after controlling for other variables, including the demand and weather (temperature, rain, and snow): specifically, a 10% increase in the number of daily active drivers in Toronto is associated with a reduction of utilization rate by 7.5%. We also find a significant variability in drivers' earnings. The model shows that a 10% increase in the utilization rate raises the hourly earnings by 38%, suggesting a strong practical significance of the utilization rate on drivers' earnings.

Other important factors affecting earnings include the number of trips, trip location, time, vehicle types, and service types. Net hourly earnings increase with the number of daily trips, as fixed vehicle costs are spread over more working hours. However, downtown trips yield lower earnings compared to non-downtown trips, suggesting the negative effect of downtown congestion on driver earnings. Additionally, drivers who offer premium services, operate an electric vehicle, drive during night shifts, and use both apps earn more compared to their counterparts.

Our findings have important implications for gig workers' welfare and transportation equity, particularly given that 95% of TNC drivers in Toronto earn below Ontario's minimum wage. The results strongly suggest that unregulated growth in driver supply is significantly reducing utilization rates and adversely affecting drivers' hourly earnings. To mitigate income inequality among drivers, metropolitan areas, especially those with large ride-hailing markets, should actively consider strategies to manage driver supply. Policy mechanisms such as temporary pauses on new

licenses or dynamic caps in congested areas could help counter the oversupply. Moreover, any supply-side regulations must be bundled with minimum pay standards equivalent to the minimum wage, pushing TNC platforms to internalize costs associated with deadheading and ensuring a fairer overall wage structure for drivers.

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Key Words: Ride-hailing, gig economy, market regulation

Analyzing Urban Walkability and Pedestrian Safety Using Location-Based Service Data

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The increasing popularity of active transportation modes, such as walking and biking, supports key planning goals around public health, environmental sustainability, and active living. However, this shift also raises critical safety concerns: pedestrians continue to experience disproportionately high rates of injuries and fatalities in traffic-related incidents. Addressing these issues requires a more precise understanding of travel behavior and exposure, which has historically been limited by the lack of detailed and reliable data on pedestrian volumes.

This study introduces a novel approach that leverages Location-Based Services (LBS) data—sourced from StreetLight Data Inc.—to estimate pedestrian, bicyclist and vehicle volumes at finer scales (street segment level) and examine spatiotemporal patterns of activity and crash risk. Through the application of random forest models and integration of multiscale spatial datasets, the research offers a data-driven framework to support more precise safety analysis and urban planning.

Key findings include: First, by integrating LBS data and GeoAI tools into planning practice, this approach offers a scalable, data-driven method for assessing pedestrian safety, identifying high-risk areas, and informing infrastructure investments. Second, traffic volume emerged as the most critical predictor of safety risk across pedestrian, bicyclist, and vehicular modes. Third, pedestrian safety varies significantly by spatial scale, with place-based infrastructure-level characteristics offering the most actionable insights. Fourth, the spatial-temporal analysis of 2019–2021 traffic volumes highlights changes in pedestrian and vehicle activity during COVID-19 and seasonal changes, particularly in downtown and recreational areas.

This research advances planning knowledge by bridging data innovation and pedestrian safety analysis. It demonstrates how emerging mobility data sources can fill critical gaps in exposure measurement, enabling more accurate and equitable safety assessments. It offers practical implications for planners seeking to develop safer and vibrant communities. The results offer valuable insights for urban planners, designers, engineers, and policymakers aiming to design safer and sustainable communities.

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Key Words: Urban walkability, Pedestrian safety, LBS data, Safe Healthy Community, Built environment

App-based Ride-hailing in the Global South and its Impact on Destinations: A Case Study of Bengaluru

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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App-based ride-hailing use has grown over the past few years in Bengaluru, India, and other Global South cities, enhancing people's mobility and catering to travel needs in urban areas. As the Information Technology (IT) sector grows in the city and population levels continue to rise, ride-hailing services have helped bridge the increasing travel demand when public transportation has not kept up (Mukherjee et al., 2017). However, these services also contribute to traffic congestion, which has significant environmental, economic, and health consequences. Many studies have taken a mobility-centric focus to understand the environmental outcomes of ride-hailing services and proposed policy suggestions that make ride-hailing use environmentally friendly (Hasselwander & Bigotte, 2023). I contend that to make ride-hailing use more sustainable; we need to take an accessibility-centric approach and understand not only the influence on mobility outcomes but also destinations. People generally seek to maximize their accessibility benefit- the utility gained from participating in activities at various locations, such as home or work, while minimizing the costs of the transportation services required to reach these destinations (van Wee, 2011). I investigate the impact of ride-hailing services on residential locations and social/recreational destinations in Bengaluru, as ride-hailing is predominantly used for commute and recreational travel in the city.

Using a mixed-methods approach, I conducted semi-structured interviews with key transportation stakeholders in Bengaluru and performed thematic analysis to understand the identity of app-based ride-hailing users and the diversity in ride-hailing modes in Bengaluru. My analysis revealed that apart from being young, high-income adults, many ride-hailing users are also migrant IT workers and women who use ride-hailing due to not owning a personal vehicle, unfamiliarity with the transportation system, and safety concerns. Through thematic analysis, I also generated causal mechanisms about possible ride-hailing influences on residential and social/recreational destinations. While most interviews felt that ride-hailing services only influence social/recreational destinations by eliminating parking issues, some reflected an indirect effect of ride-hailing services on residential locations. In rapidly expanding Bengaluru, housing costs are higher near office spaces, especially IT parks. Ride-hailing services enable people to live in areas with more affordable housing in peripheral parts of the city or other areas that may have developed due to economic growth and growing population levels but do not have reliable public transportation. Following this, I conducted an intercept travel survey and ran Structural Equation Modeling with the data to test the causal mechanisms. The model results confirmed that people living in locations they found affordable or farther from their workplace would likely change their residential location if ride-hailing services become unavailable. However, if people live in affordable areas farther from their workplace, they are unlikely to change residential locations, indicating people's long-term residential location decisions. The statistical models also confirmed that ride-hailing services influence people's social/recreational destinations by reducing the stress of driving and parking, enabling access to locations they perceive safe, especially for women and lower-income groups. These findings reinforce the interdependent transportation-land use relationship and how it influences travel patterns. In the short term, urban planners and policymakers must work towards strengthening the public transportation system by integrating ride-hailing services as a last-mile mode for sustainable travel. Long term, they also need to plan for more affordable housing around IT parks and other office spaces in Bengaluru to reduce travel distance and increase equity in accessibility.

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Key Words: Ride-hailing Services, Residential Location, Recreational Destination, Global South, ICT

Application of Correction Factors to Improve the Accuracy of Automated Non-motorized Counter Data

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Accurate data of bicycling and walking is important to make the proper resource allocation and plan for a safe environment for bicycling and walking which may help increase physical activity for individuals and the population. Leveraging permanent automated counters to collect active travel data has gained popularity as it is helpful to collect data over a longer period to inform decision making. Counting pedestrians and cyclists is more complex than counting motorized vehicles because non-motorized traffic includes- occlusion events, bypassing the counter events. Automated bicycle and pedestrian counters are sensitive to weather conditions (e.g. precipitation, snowfall). As a result, count data obtained from the automated bicycle and pedestrian counters require further adjustment and validation to reduce errors. One common approach to addressing the overcounting or undercounting issues of automated bicycle and pedestrian counters is to develop site specific correction factors. However, previous studies do not explore the improvements of the automated count data after applying the correction factor for a larger network of counters. The goal of this study is to identify the benefits of applying correction factors for accuracy improvements to the automated count data. This study describes the results of applying correction factors to improve data accuracy of 40 automated bicycle counters and 27 automated pedestrian counters in the Washington D.C. region with a large counter network (n= 150).

We collected video recordings for at least 30 hours during daytime from each automated counter using a recording device. Once we collected the video recordings, we watched the videos and extracted the hourly manual counts for each automated counter which serves as the ground truth data. Implementing a subsampling approach, we developed the correction factor with 15 random hourly time bins (training set) using an Ordinary Least Square (OLS) model. Once we developed the correction factor, we applied it to the automated count data excluding the hourly bins used for the development of the correction factor (test set). We iterated the process 1000 times and calculated the error before and after applying the correction factor in each iteration for the test set. For the error calculation, we used the absolute percentage error of aggregated 15-hour count before and after applying the correction factor.

The developed correction factor for pedestrian counters ranged from 0.47 to 1.26 while it was 0.33 to 1.56 for bicycle counters. The range of the magnitude of corrections illustrates the need to develop factors to reduce error of the automated count data. About 28% of the bicycle counters and 37% of the pedestrian counters had an error of less than 5% prior to applying the correction factor. For these counters, the error difference was minimal as the correction factor was close to 1 indicating automated count data had better accuracy. We found that the average difference of error before and after applying the correction factor for automated bicycle count data was about 12% where the maximum difference was about 151%. For the automated pedestrian count data, the average error difference was about 8% with a maximum error difference of about 48%.

Findings of this study suggest the importance of correction factors. For planners and engineers, corrected data can help identify locations for infrastructure enhancements for pedestrians and/or cyclists, such as trail/infrastructure widening or improved pedestrian and bicycle friendly intersections and roadway crossings that meet engineering

minimum active travel thresholds. Furthermore, this study provides guidance on when to apply the correction factor for the accuracy enhancement of the automated count data based on the error obtained from counter validation.

Citations:

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Key Words: Micromobility Planning, Data Accuracy, Non-motorized Count Data

Applying Big Data to Analyze Internal Trip Capture in Station Area Neighborhoods

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The concept of the 15-minute city has reinvigorated the discussion surrounding the benefits of local accessibility or proximity-based planning for residents as well as for promoting more sustainable urban forms. Cities across the globe have adopted a wide range of plans and planning practices centered on the 15-minute planning concept. At the same time, the concept of local accessibility is an older concept with a more extended research history, and many academics have discussed the complementary functions of regional and local accessibility for enhancing livability and access to opportunity.

The purpose of this study is to examine whether neighborhoods surrounding transit stations in metropolitan areas with high-quality metropolitan transit systems provide sufficient levels of local accessibility and to investigate what features of the built and social environment support adequate levels of local accessibility. For this paper, evidence of high-quality local accessibility is indicated by the travel behavior variable of internal trip capture. The analysis of internal trip capture has a significant historical use as a travel behavior outcome variable. Much of the previous work on internal trip capture has focused on the characteristics of mixed-use developments. Still, the same methodology has recently been adopted at larger scales and applied to the 15-minute city concept.

For this study, we examine 1-mile neighborhoods around 96 transit stations in Portland and 96 transit stations in metropolitan Washington, DC. The outcome variable of interest is the percentage of internal trip capture, defined as the percentage of trips with both trip origins and trip ends located within these 1-mile neighborhoods. The independent variables include a wide range of built and social environment variables, including various measures of street network connectivity, the concentration of jobs and population, jobs disaggregated by job type, a variety of mixed-use variables, median income, and transit and auto regional job accessibility. Portland and Washington DC provide an interesting contrast as both are considered relatively high-quality metropolitan transit systems in the US context.

The study incorporates two key innovations over previous work on internal trip capture. Firstly, rather than relying on travel behavior surveys with relatively low levels of trip counts, this study relies on the big data vendor StreetLight to calculate the internal trip capture variable. The use of a big data source means that the internal trip capture variable is based on thousands of observations instead of dozens, ensuring a much higher quality statistical analysis. Secondly, we also employ machine learning models to understand the thresholds and non-linear effects of independent variables. We identify the critical minimum and maximum values over which internal trip capture is sensitive for each independent variable.

Preliminary results suggest that total employment in the station area neighborhood is the most important variable in determining internal trip capture, as the total number of jobs is a strong proxy of the availability of local destination accessibility. Street network variables also appear to be predictive of ITC, though less so. Mixed-use variables show little marginal value once total employment counts are controlled for, contrary to previous research. Finally, regional transit accessibility to jobs positively correlates with internal trip capture, which is a novel and unexpected result.

In terms of planning practice, our results will help local land-use planners understand what types of land-use planning can facilitate local accessibility around transit station areas. By adding thresholds provided by machine learning models, planners can obtain guidance for land-use planning targets for key local design features such as employment density or street network connectivity.

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Key Words: TOD, Internal Trip Capture, 15-Minute Cities, Travel Behavior, Machine Learning

Assessing Infrastructure Resilience and Emergency Access After the Francis Scott Key Bridge Collapse

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The sudden collapse of the Francis Scott Key (FSK) Bridge in Baltimore has brought into focus the resilience of urban infrastructure and the equitable delivery of emergency services during major disruptions. This study addresses the research question: To what extent did pre-existing transportation systems and emergency services support community resilience in the aftermath of the FSK Bridge collapse, and how can future planning improve equitable access to critical services during crises?

Focusing on the pre-event and disruption phases, the study evaluates essential services—such as emergency medical services (EMS), fire, and healthcare access—alongside transportation logistics, including transit connectivity, passenger rail access, alternate fueling stations, and emergency evacuation routes. These metrics are assessed within neighborhoods upstream of the bridge, comprising approximately 56,292 residents, 14% of whom live below the poverty line and 4% of whom are unemployed, as per 2018–2022 ACS data.

Employing a multidisciplinary methodology, the research integrates spatial analysis, demographic profiling, policy evaluation, and community-engaged data collection. A ZIP code–level “resilience type” database will be developed using ACS and National Household Travel Survey (NHTS) data to analyze travel behavior and infrastructure accessibility. To assess preparedness and capacity, we incorporate the National Risk Index (NRI) and Homeland Infrastructure Foundation-Level Data (HIFLD), allowing for a geographically grounded understanding of vulnerabilities.

Emergency response data from the Maryland Department of Transportation (MDOT) and the Baltimore City Office of Emergency Management will be analyzed to evaluate service delivery trends following the collapse—particularly response times and resource deployment. These data will be compared against pre-event baselines to identify breakdowns, delays, or successful interventions.

Complementing the quantitative analysis, a qualitative review of city, regional, and state resilience plans—including Baltimore’s Long-Range Transportation Plan—will be conducted to uncover planning gaps and assumptions that may have hindered disaster response. In addition, targeted community surveys will be conducted across impacted ZIP codes to document residents’ experiences regarding access to emergency services, transportation challenges, and recovery support, with a focus on equity across income, racial, and age groups.

Survey responses will be analyzed using spatial autocorrelation in ArcGIS Pro to identify patterns between demographics, infrastructure presence, service performance, and satisfaction levels. This spatialized approach allows for a nuanced understanding of which communities were disproportionately impacted and why.

Preliminary findings suggest areas with limited multimodal connectivity and fewer emergency service nodes tend to experience longer response times, primarily affecting low-income and transit-dependent populations. These outcomes indicate a pressing need for adaptive, short-term response planning and long-term resilience investment, especially in underserved areas.

This study contributes to planning scholarship by positioning transportation resilience within the broader context of social equity and spatial justice. For practitioners, the research offers actionable recommendations for enhancing infrastructure redundancy, expediting emergency response protocols, and integrating community-informed data into planning. For educators, it provides a robust case study for teaching integrated approaches to urban resilience and equity.

Ultimately, this research seeks to advance equitable resilience planning by bridging empirical analysis with lived experience. The findings aim to guide cities toward inclusive, anticipatory strategies that support all communities—especially the most vulnerable—during crises.

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Key Words: Emergency Response, Resilience, Disaster Preparedness, Transportation Disruption

Assessing Vehicle Miles Traveled (VMT) Tools for Climate Planning in California

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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One central challenge of climate planning in California is the lack of consistent methods for measuring vehicle miles traveled (VMT) impacts of transportation projects. Using qualitative and quantitative data, this research: (1) evaluates existing VMT calculators and other methods to assess climate impacts of transportation projects in alignment with state climate goals, and (2) analyzes transportation professionals' perspectives on VMT as a metric and the effectiveness of VMT tools. Findings indicate that the consistency, contextual relevance, complexity, data accuracy, and user-friendliness of VMT tools vary significantly based on design and methodology. Each tool has distinct advantages and limitations, making it suitable for specific uses but not necessarily for others. The recommendations include: 1) Improve access to accurate, validated data for VMT modeling; 2) Develop context-sensitive tools that capture local conditions and changes over time; 3) Foster collaboration between jurisdictions to share best practices, data, and tools; and 4) Promote an integrated approach to VMT analysis by combining multiple tools and datasets to enhance decision-making.

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Key Words: Vehicle Miles Traveled, Climate Planning, VMT Analysis, Transportation Emissions, Sustainable Mobility

Automobile LOS Clings to Life Despite California's Increased Focus on VMT

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Automobile level of service (LOS) has been the most commonly used metric of transportation system performance in the United States since it was introduced in the 1965 Highway Capacity Manual. However, as transportation and land use planning agencies focus more on reducing car dependence and greenhouse gas emissions, they are increasingly reconsidering how they use LOS. California kickstarted the most sweeping changes to date when it enacted Senate Bill (SB) 743 in 2013, which eliminated LOS and replaced it with vehicle miles traveled (VMT) as the primary transportation impact metric for land development projects under the California Environmental Quality Act (CEQA). Actual implementation of the LOS-to-VMT shift was left up to lead agencies, primarily local governments, with a requirement to start using VMT-based metrics by July 1, 2020.

Previous research suggests that VMT could be a more appropriate and effective metric than LOS for achieving sustainability goals, such as reduced greenhouse gas emissions, improved public health and safety, and streamlined infill development. However, the LOS-to-VMT shift was also expected to create numerous challenges for transportation analysts, given the often limited resources of local governments, the ingrained nature of LOS in transportation impact analyses, and the perceived lack of established practice with respect to VMT impact analysis, and the uncertain synergies or conflicts between LOS and VMT standards and mitigation measures. With those concerns in mind, we surveyed planners from 94 responding cities and counties about implementing SB 743 and, in particular, whether and how they are continuing to use LOS outside of CEQA in project-level analyses and/or higher-level plans and policies.

We found that most jurisdictions continue to use their pre-SB 743 LOS metrics and standards – they just apply them outside of CEQA, e.g., in general plans, project-level development standards, and traffic operations decisionmaking. At the project level, only 15% of localities have reduced LOS requirements, and associated costs to developers. We also found that, on average, combined costs to developers for both VMT and LOS analysis and mitigation do not appear to have changed since SB 743 went into effect. Most jurisdictions reported the combined costs to be about the same (18% of respondents) or slightly higher (40% of respondents) than pre-SB 743 costs. About 26% of localities consider the combined costs to be much higher, while 16% consider the costs to be much lower. Unsurprisingly, the combined costs tend to be lower in denser and more urban locations.

While LOS remains prominent in both local government plans and project-level analysis requirements, VMT has concurrently been infiltrating into plans and policies beyond CEQA. Some localities have started to integrate VMT-reducing strategies into policies, plans, and programs operating at a jurisdiction-wide scale, such as through goals and standards incorporated into general plans and associated programs such as impact fees imposed on developers for transportation purposes. However, that has not resulted in many corresponding changes to plan-level LOS standards. As a result, approximately two-thirds of respondents indicated that their jurisdiction's plan-level VMT and LOS standards conflicted.

Collectively, the survey findings confirm that implications of SB 743 vary by community type. For many, the expected pattern is occurring, in which the type and location of development projects requiring mitigation has shifted to lower-density localities, and within localities, to lower-density, less transit-proximate parts of town. VMT

mitigation requirements in the most urban areas can be minimal, sharply contrasting with the situation in rural cities and towns, where few projects may escape mitigation requirements.

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Key Words: Vehicle miles traveled, Level of service, Development, Streamlining

Beyond the State: Rethinking Transportation Justice in the Anti-DEI Era

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Understanding how transportation policy and investments can be made more fair is the province of transportation justice research and practice. Historically, efforts to advance transportation justice have appealed to state institutions. Transportation infrastructure investments are costly, and policy or design changes typically require legal or regulatory shifts, making state involvement essential.

In prior work, we identified a spectrum of approaches that can be used to advance transportation justice goals, ranging from state-centric (e.g., agency-sponsored analyses) to society-centric efforts (e.g., community organizing) (Karner et al. 2020). While approaches at these extremes rely on the state to ultimately deliver infrastructure and services, the difference lies in the source of the impetus and its direction—is it the agency itself, an external law or regulation, or the communities most affected by policy decisions?

The environmental justice literature has long wrestled with the contradictions inherent in the state's role in justice struggles (Pulido, Kohl, and Cotton 2016; Harrison 2023; Pellow 2017). While state interventions have occasionally led to major victories—preventing disproportionate burdens and mandating equity assessments—these gains have been fragile, dependent on shifting political winds. In the U.S., transportation justice has traditionally relied on legal frameworks rooted in civil rights and environmental justice law. With Supreme Court precedent limiting direct civil rights claims, executive agencies have become the primary arbiters of environmental and transportation justice, making them vulnerable to partisan control. In some cases, the state has been passive or even an opponent to overburdened communities in their struggles for transportation justice. Recent frameworks have identified strategies that range from within, against, and beyond the state (Angel and Loftus 2019).

The second Trump administration appears poised to permanently reshape the landscape. Civil rights offices are being shut down, regulatory enforcement is being dismantled, and legal interpretations are shifting to treat any consideration of race or ethnicity as discriminatory on its face. Unlike previous cycles of political change, where one could anticipate some redress under a different administration, the active dismantling of state capacity may make future reversals nearly impossible. If these changes become codified into law, they will fundamentally undermine the ability to use legal strategies to challenge transportation injustices. Even the partial victories achieved by the transportation justice movement are now at risk.

Given this reality, this paper argues that transportation justice must shift its primary focus from legal frameworks and state-based advocacy to grassroots organizing and other non-state strategies (sometimes called “beyond the state.”). Drawing on critical environmental justice studies and international research on democratic backsliding, we contend that the future of transportation justice depends more than ever on building power outside the state in addition to (or instead of) appealing to it. Using both academic literature and a handful of case studies drawn from practice, the paper describes how organizing efforts—historically a crucial but sometimes secondary component of transportation justice—must become central, examining emerging strategies for advancing justice in the face of state hostility.

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Key Words: transportation equity, mobility justice, state retrenchment, community organizing, transportation justice

Boon or Bane? Regional Transportation Planning in the Vehicle Electrification Era

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The US is ambitiously accelerating electric vehicle (EV) adoption to reduce greenhouse gas emissions and promote economic development. Two recently approved federal bills, the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA), have created unprecedented opportunities for cities and regions to consider how to integrate EVs in transportation planning. Still, scholars and practitioners often criticize EVs' unanticipated impacts on equity (Yu et al., 2023), vehicle dependence (Liang et al., 2023), and revenue loss (Lewis and Clark, 2021). How do Metropolitan Planning Organizations (MPOs) plan for EVs? There is an extensive literature on EVs, but no publication has explored regional responses. This study uses a mixed-methods design including topic modeling and content analysis to examine 50 MPOs' understanding of vehicle electrification and policy tools. The results show that MPOs recognize the environmental benefits of EVs and the funding and infrastructure challenges. However, only 16 MPOs set clear EV-related goals. MPOs' EV planning strategies are well aligned with the IIJA, with a focus on charging infrastructure development, public transit electrification, and capacity building, such as regional collaboration and staff training. The IIJA and IRA provided generous support to expand charging infrastructure in the US, but policymakers should be aware of the potential impacts of such expansion on car dependence and social equity. They should seriously consider properly taxing EV drivers through EV-related registration fees and distance-based charges in lieu of gasoline taxes. The electrification of urban transportation systems should also include heavy-duty vehicles, such as trucks and buses, and the integration of EV technology into shared mobility systems to maximize the environmental benefits of EVs.

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Key Words: MPO, Transportation Technology, Electric Vehicle, Public Transportation, Car Dependence

Challenges for Reconnecting Communities as Federal Transportation Funding Priorities Shift

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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In recent years, federal and state governments have adopted policies, developed programs, and allocated funds to redress the past and contemporary harms caused to disadvantaged populations and communities by the construction of highway and transportation infrastructure. In the 20 years after the passage of the Federal Highway Act of 1957, over 475,000 households were displaced during the construction of the interstate highway system in the United States, with disproportionate dislocations occurring in low-income areas and communities of color. The legacy of these impacts has been amplified by exclusionary housing and urban renewal policies that have further undermined the accumulation of generational wealth and related economic and educational advancement.

In January 2021, the Biden administration launched the Justice40 initiative to ensure that at least 40% or more of the benefits of climate and clean infrastructure investments were directed to “disadvantaged communities” defined by low-income status, high household costs, and exposure to environmental, health, and climate burdens. This criteria was used to allocate over \$4 billion in funding from the Infrastructure Investment and Jobs Act (2021) and the Inflation Reduction Act (2022) towards the federal Reconnecting Communities Program (RCP) administered by the U.S. Department of Transportation (USDOT) between 2022 and 2024. RCP funded capital construction and planning grants across the nation including projects to remove and replace highways with community-supportive infrastructure, construct safe highway crossings that support pedestrians and cyclists, and build freeway cap parks. Around 88% of grants and 95% of funding were allocated to disadvantaged communities. However, in January 2025, the Trump administration froze funding for RCP projects and adopted new criteria for allocating transportation funding based on marriage and birth rates and compliance with federal immigration policy. Early evidence suggests the new USDOT 2025 criteria will shift transportation funding priorities towards areas that are more white and have greater transportation resources and away from lower-resourced communities of color that experience greater travel burdens and barriers.

We evaluate the implications of this shift in federal funding criteria for transportation investments for RCP-selected projects by examining their geographic locations relative to Justice40 and 2025 DOT criteria. We use parity analysis to assess whether 204 funded RCP projects and 813 projects not selected for funding were distributed equitably in each region. The analysis focused on projects located in urban areas with a population over 100,000 and compared average parity indices for projects based on whether funding was awarded, the grant type (capital construction vs. planning), urban area size, and infrastructure type (freeway removal, safe crossing, vs. cap parks). Results based on Justice40 criteria indicate that RC projects were, on average, located in areas with a higher composition of people of color and persons in poverty compared to their region. Results based on USDOT’s new 2025 criteria indicate that RC projects were located in areas with a lower marriage rate but that projects were on average located in areas at parity with their region relative to birth rates.

These findings (and additional results regarding differences by project characteristics and historic population dynamics near project sites) suggest that (if funding is unfrozen) RC projects awarded based on Justice40 criteria could help address some of the past and ongoing harms for lower-resourced communities of color that experience

greater travel burdens and barriers due to highway construction and operations. However, we find that usage of the new USDOT 2025 criteria to allocate infrastructure funding would substantially alter the distribution of improvements and undermine the goals of reconnecting communities programs.

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Key Words: Transportation equity, Transportation policy, Reconnecting communities

Changes in Neighborhood Perceptions after New BRT Line among Different User Groups

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Background - Public transit not only facilitates mobility but also influences how people perceive interact with their neighborhood environments. These perceptions, in turn, affect their daily activities and transportation choices [2, 3]. Although evidence suggests that transit-oriented environments promote active travel and benefit public health [1], few studies have investigated how neighborhood perceptions vary among various transit user groups and affect transit use after the opening of new bus rapid transit (BRT) lines. Understanding these differences can contribute to developing strategies that promote transit use and enhance public health outcomes.

Methods - This study used the data collected between 2017 and 2020 from an NIH-funded project in El Paso, TX, USA, that included surveys and 7-day travel logs. The surveys assessed participants' perceptions of neighborhood walkability, safety, and infrastructure, as well as barriers to transit use. The travel logs documented a total sample of 1699 trips from 190 participants, which included the number of trips, travel modes, and trip purposes, providing. The baseline period captured neighborhood perceptions and travel behaviors before the opening of the new BRT lines, and the follow-up data were collected after the opening. Users were classified as non-transit users, occasional transit users, frequent transit users, captive transit users, or choice transit users. Bivariate analyses examined group-level differences in perceptions, barriers, and travel patterns. Multivariable models, zero-inflated negative binomial regression models, were applied to isolate the effects of user type, neighborhood perception, and time phase on transit use and walking behavior, after controlling demographic variables such as car ownership, age, BMI, education level, and mobility difficulties.

Results - The findings highlight differences in travel behavior and neighborhood perceptions across user groups and phases. The statistical models showed significantly higher perceptions of transit quality, comfort, safety, and pedestrian infrastructure, particularly among frequent and captive transit users. However, after the BRT opening, we found an unexpected decline in actual bus use and active transportation usage across most user groups, accompanied by increased reliance on private vehicles. Car ownership emerged as a major barrier to transit use ($\beta = -1.984$, $p < 0.001$). Additionally, positive perceptions of traffic safety ($\beta = 0.643$, $p < 0.001$) were associated with increased bus use. Older age groups showed a trend toward reduced bus usage ($\beta = -1.400$ for ages 20-29, $p = 0.051$), indicating age-related barriers in transit adoption.

Discussion - The results underscore the importance of considering user type and intervention timing when assessing the impact of new transit infrastructure. Positive perceptions of transit improvements alone may not be sufficient for achieving sustained ridership increases. The findings emphasize the need for integrated urban planning strategies that simultaneously address transit infrastructure, traffic management, car dependency, and pedestrian environments. Such comprehensive approaches are essential to translate improved perceptions into lasting behavioral changes and equitable urban mobility outcomes.

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Key Words: Travel Behavior, User perceptions, Bus Rapid Transit, Built Environment, Walkability

Clean Cars for Some: Scalar Politics, Spatial Networks in California's ACC II Regulation

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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California's Advanced Clean Cars II (ACC II) regulation mandates that 100% of new vehicle sales be zero-emission by 2035, positioning the state as a national climate policy leader. Framed as an environmental and racial equity milestone, ACC II was developed amid calls to address long-standing transportation injustice. Yet despite equity commitments like Executive Order N-16-22, the final rule lacked binding measures to ensure access or benefits for historically marginalized communities. This raises a central puzzle: Why, despite legislative mandates and strong environmental justice (EJ) advocacy, did the California Air Resources Board (CARB) fail to embed enforceable equity mechanisms?

This question is especially pressing given California's unique authority under the federal Clean Air Act. A waiver allows it to set stricter emissions standards, which other states may adopt under Section 177. As of 2024, seventeen states have opted into ACC II, giving CARB's decisions national impact. Yet equity provisions remained narrowly state-focused, limiting grassroots actors' ability to shape how equity would—or would not—be implemented across jurisdictions. The result is a nationally diffused policy with locally bounded justice.

To unpack this dynamic, I draw from a growing body of scholarship that reorients the study of social movements and governance around space, scale, and networks. As Nicholls (2016) argues, movement scholarship has long been shaped by “methodological nationalism” (Beck, 2000), which assumes nationally bounded movements and treats local struggles as derivative. This framing underestimates the political salience of geography—not only where movements act, but how spatial position mediates access to institutions and shapes coalitional strategy. The “spatial turn” in movement research emphasizes that place is not a passive backdrop but an active force in structuring opportunity and exclusion (Nicholls, 2008). Diani and McAdam (2004) extend this by showing how network structure matters: strong local ties foster trust and internal capacity, while weak ties—especially across institutional or geographic divides—are critical for scaling demands and securing influence (Diani, 1997).

I argue that scalar positioning and network architecture jointly shape which actors influence governance. In ACC II, EJ advocates had procedural access—serving on advisory boards and attending hearings—but were peripheral to multistate regulatory networks. In contrast, automakers, utilities, and fossil fuel interests activated longstanding infrastructures across extraction, production, and deployment sites, shaping technical elements like credit trading while avoiding redistribution.

This study draws on three methods: a policy and power analysis of ACC II; an organizational mapping of EJ groups, including demographics, reach, funding, and coalition roles; and qualitative data from focus groups and interviews with CARB officials, advocates, and industry actors. These approaches trace how equity claims were negotiated, reframed, or sidelined within networked governance.

I advance the hypothesis that scalar asymmetry in governance structures advantages countermovement actors over grassroots coalitions. To theorize this, I introduce the Contested Equity Governance Arena—a space where procedural inclusion coexists with structural exclusion, and where fragmented authority disperses responsibility without redistributing power. As ACC II spreads nationally, this framework helps assess when climate policy facilitates equity—and when it replicates exclusion.

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Key Words: transportation, networks, multi-level, equity, governance

Closing the Gap: Transportation Accessibility for Adults with Disabilities

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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This research addresses the critical issue of transportation accessibility for individuals with disabilities in both urban and rural settings, with a focus on Los Angeles County and Tulare County in California. Approximately 25.5 million Americans with disabilities face significant barriers to travel outside their homes, impacting essential aspects of life such as healthcare, employment, housing, and social interactions. Despite the prevalence of disabilities, there is little research on the challenges faced by these individuals, particularly in considering the difference in accessibility in urban and rural settings.

The purpose of this research is to understand the constraints on travel of those with disabilities and its consequences. People with disabilities – those who have hearing, visual, cognitive, or physical limitations – make fewer trips and travel fewer miles than the general population (Brumbaugh, 2018). We will address the following questions: 1) what is the accessibility gap for populations with disabilities relative to the general population, 2) how do individuals navigate the transportation system, and what needs and challenges do they face, and 3) what are the impacts on social exclusion and well-being?

The proposed research will have two parts. The first part will generate accessibility measures to compare the accessibility of those with disabilities with those who do not have mobility constraints. The second part will conduct small group interviews to explore and understand the lived experiences and transportation challenges of those with disabilities, including impacts on social exclusion and well-being. The research will be conducted in two California counties, Los Angeles and Tulare, in order to include a broad range of populations, local geographies, and support services.

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Key Words: disability, accessibility, qualitative

Commuting Time Distributions Before and After COVID-19: Assessing Long-Term Changes

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The COVID-19 pandemic precipitated considerable disruptions to daily travel patterns, leading many people to adopt telecommuting arrangements, shift typical commuting times, or reduce weekly travel. Yet it remains unclear whether these changes are fleeting or signal a long-term reconfiguration of commuting habits. This study addresses two core research questions: (1) How have commuting time distributions and schedules evolved, and how much time do workers spend commuting—and when? (2) Are these changes temporary, or do they appear to be likely to continue?

Prior to 2020, standard transportation planning practices frequently assumed two relatively stable peak-time periods to guide transit services, manage roadway capacity, and design congestion mitigation. However, if current behaviors diverge substantially from earlier patterns—such as a broader range of travel times or more flexibility in whether, when, and how people commute—these assumptions may need to be revisited. This underscores the importance of strategic planning, resource allocation, and policy design in the field of transportation. Confirming whether such developments represent short-lived adaptations or more durable shifts is therefore vital for the future of our field.

Recent research consistently highlights telework growth, altered departure times, and lower in-person activity since COVID-19. Many studies, however, rely on narrower or regional datasets that are not easily generalized, focus only on early-pandemic observations, or emphasize select aspects like telework without systematically assessing trip durations and peak periods. Some discussions present findings on the major shifts in commuting but offer limited exploration of deeper factors shaping those trends. By examining data at a broader scale and over multiple years, this project clarifies whether these observed changes are temporary or not in terms of transition.

This study utilizes two national datasets. The National Household Travel Survey (NHTS) from 2017 (pre-pandemic) and 2022 (post-pandemic) offers a comparative view of commute duration, departure times, and mode choice. The American Time Use Survey (ATUS) from 2017 through 2023 supplies annual data of out-of-home activity. Both sources are aligned to ensure that each individual's 24-hour day is verified for total travel time alongside in-home activities. The analysis begins with studying commute durations, the proportion of longer-distance travel, and departure-time distributions across survey and demographic groups. Differences in average and median commute lengths help reveal whether telework or altered work schedules have significantly reduced or reshaped conventional rush hours. Regression and multivariate methods then control for factors like age, income, employment type, and urban/suburban location to distinguish between short-term and sustained behavioral changes. Finally, the ATUS data are examined longitudinally to confirm whether noteworthy changes in commute times or scheduling persist, stabilize, or gradually return to previous norms over multiple years.

By studying baseline commuting patterns from before and after the coronavirus outbreak, agencies or policymakers can better adapt networks in response to future disruptions or unexpected changes in travel demand. Broadening service coverage throughout the day can safeguard against sudden peaks and ensure continuity for all users, even when work patterns change rapidly. Capturing how schedules evolve over time also enhances the ability to scale or pivot service levels, apply robust demand-management strategies, and strategically allocate resources. By using

these insights, planners can flexibly respond to future public health events or economic shocks while maintaining a resilient and effective transportation system.

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Key Words: Commuting behavior, Travel patterns, Time-use analysis, COVID-19

Consideration for Freight in Complete Street, Vision Zero, and Curb Management Policies

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The widespread adoption of Complete Streets (CS), Vision Zero (VZ), and curb management (CM) policies over the past decade has promoted the expectation that streets are becoming safer for all users. Shifting from an auto-centric perspective, they emphasize the vulnerabilities of pedestrians, cyclists, and transit users. As demand for curb and street space has intensified, especially following the COVID-19 pandemic, there remains a critical gap in consideration of urban freight, delivery services, and emergency vehicles among these policies.

Research has demonstrated that urban freight uses may conflict with other street users—especially vulnerable road users (VRU)—thus it is assumed that CS, VZ, and CM policies seek to manage these conflicts and safety risks in some way. It remains unclear however, the extent to which these policies are directly addressing the potential conflicts between freight and delivery uses and VRU. To better understand the policy development of CS, VZ, and CM policies, we conducted an evaluation of the policies content where we critically questioned:

To what extent are local level CS, VZ, and CM policies across the US and Canada addressing demands for: urban freight, delivery, and emergency vehicle uses within the street right-of-way, and how do these provisions differ across the three policy types?

To address these questions, we conducted an analysis of transportation policies produced over the past ten years. Specifically, we developed a sample of Complete Streets, Vision Zero, and Curb Management policies based on lists maintained by the National Complete Streets Coalition and the Vision Zero Network, as well as systemic searches of professional literature and municipal websites. We developed inclusion criteria based on policy completeness, city size, recency, and several other factors which yielded a final collection of over 100 policies from across 35 municipalities for analysis. To analyze these documents, we produced a coding scheme that captured information about the documents including their goals, details on the uses and contexts they did/did not address, the users they accommodate, and key interactions between these categories. The results of this process yield both important quantitative information about the sample and qualitative insights about how policies accommodate uses (or not).

We find that while policy documents across each policy type have become more comprehensive over time, provisions for freight and emergency vehicles are typically either absent or underdeveloped. Curb management policies are the most likely of the three types to explicitly address freight and delivery accommodations, while Vision Zero policies are least likely. In many cases, Complete Streets policies prioritize non-motorized users, often without clear guidelines on integrating commercial vehicle operations. Where accommodations for freight and emergency vehicles are sometimes mentioned, they tend to be superficial, lacking prescriptive measures for curb space allocation, loading zone management, and operational conflicts with vulnerable road users.

The research highlights the growing safety and operational challenges posed by inadequate urban freight planning, and underscores the need for a more holistic approach to policy development that balances the needs of all users—including freight operators and emergency responders—within the broader goals of urban safety and sustainability. We recommend that municipal policies incorporate provisions for freight and emergency vehicles, establish clear curb management strategies, and integrate these considerations into broader street safety

initiatives. By recognizing freight and emergency services as essential components of the urban transportation ecosystem, cities can create more inclusive and functional streetscapes that enhance safety, efficiency, and mobility for all users.

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Key Words: urban freight, Complete Streets, Vision Zero, curb management, vulnerable road users

Crisis, Response, Resilience: What Planning for 'COVID Streets' Teaches Us About Future-Ready Cities

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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In response to the COVID-19 pandemic, transportation professionals worked to meet heightened demand for pedestrian, cycling, and outdoor commerce space by reallocating portions of public roads for non-driving uses (Abdullah et al., 2020; De Vos, 2020). The rapid implementation of these “COVID Streets” challenged conventional notions that transportation infrastructure changes are costly, time-consuming, and often politically unpalatable. An international scan of COVID Streets research, which sought to understand the motivations and implementation approaches cities used to adapt street space during the pandemic, called for further investigation into what enabled these rapid responses and how these experiences are shaping post-pandemic transportation planning practices (Oluyede, Combs, and Pardo, 2024).

This paper responds to that call by examining the experiences of transportation planners and engineers who were actively involved in planning, implementing, and evaluating COVID Streets responses in 36 US cities and towns. Data were collected through online questionnaires and in-depth semi-structured interviews between 2021 and early 2024. These data were collected as part of the Shifting Streets project, which sought to document the myriad changes to the transportation planning landscape around the world during the pandemic (Combs and Pardo, 2021).

Through narrative content analysis of interview transcripts and questionnaire responses, we draw new insights about lessons transportation professionals learned through their experiences with COVID Streets and ways in which municipal transportation practices and policies have evolved based on these experiences. We also identify keys to success—defined by respondents in terms of response speed, longevity, public sentiment, and quantitative data—of COVID Streets programs across US municipalities.

Our analysis has identified several common elements of successful COVID Streets programs, including (1) strong interdepartmental coordination, (2) pre-identification of public assets that can be deployed or adapted in emergencies, and (3) programs for in situ public engagement and data collection. Many respondents noted these elements could be established before future disruptive events as part of comprehensive resilience strategies.

An emphasis on the rational nexus between the pandemic’s impacts and the types of street space changes implemented emerged as a fourth element in some cities. Preliminary analysis suggests a correlation between this rational nexus, characterized by a focus on transparency and responsiveness in planning, and programs’ public acceptability and longevity—in contrast to more opportunistic approaches driving many less successful COVID Streets efforts early in the pandemic.

Regarding practice changes, transportation professionals described a near-universal increase in confidence in and appetite for using pilot programs with robust in situ public engagement to inform transportation planning. Many respondents also described a sense that attitudes have shifted among both professionals and elected officials: that changes to public road space to support non-driving uses have broad public appeal and need not be expensive or time-consuming undertakings.

The experiences documented in this paper will provide a valuable framework for building more resilient, future-ready cities. While many, if not most, of the original COVID Streets in the US have been dismantled, the true

impacts of the COVID Streets era lie not in specific interventions but in new practices, new perspectives on street space, and new understanding about the relationships between transportation planning and resilience.

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Key Words: COVID-19, Street space, Crisis, Resilience, Practice change

Denver Metro's Rail System at 30: What Explains Low Ridership, and Can It Be Improved?

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The Denver Regional Transit District (RTD) rail transit system is among the newer systems in the U.S., with 84 stations, 10 lines, and 115 miles of track. The first line opened in 1994, making some lines 30 years old. In a region of 3.09 million people covering a 2,345-square-mile service area, what type of ridership should we expect? Is a four percent regional commute share by transit acceptable? To what extent is the low commute share explained by local zoning, track alignment of least resistance, so-called "Western," culture, and ample auto infrastructure? The system's incremental construction in an existing urbanized area, its alignment decisions, the presence of enforced TOD policies, and other political and social contexts offer an opportunity to study the multiple factors that influence station construction and ridership. As other regions consider expanding or introducing fixed rail transit lines amidst metropolitan politics and the shifting nature of work, the Denver region's case offers multiple lessons.

Drawing from prior research on the region's system (Nelson & Hibbert, 2021; Bhattacharjee & Goetz; Katz, 2013), and the evaluation of the Bay Area Rapid Transit system at a similar age (Cervero & Landis, 1997), our paper asks three questions: (1) How has the Denver region's light rail system performed over the last 30 years and how does ridership vary by station and jurisdiction? (2) How does the region's rail commute-share compare to systems of similar age, such as those in Minneapolis, Salt Lake City, and Los Angeles? (3) Considering the local politics and opposition that influenced the system design, how might Colorado's recently passed laws for densities near transit and more funding for affordable housing and transit affect ridership?

We employ a mixed-methods approach, informed by qualitative analysis of local documents, literature, and interviews, combined with quantitative analyses of the system and land use, to assess the challenges facing the system's performance amidst operational challenges, i.e., safety, frequency, and reliability. At the block group level, we analyze the half-mile station areas in terms of households, density, and jobs, and document the zoning influences. For each jurisdiction, we score their plans for actions and goals aimed at fostering affordable and attainable transit-supportive housing and walkability. We use GIS to construct walksheds for each transit area, given less than ideal station locations. We then delve into the politics and vote-making surrounding the allocation of rail access to municipalities and neighborhoods, as well as the process by which line locations were finalized and funded.

Our findings highlight several design, political, and financial factors that contribute to low ridership. First, resistance to land use changes that would have supported both major destinations and dense origins at more stations, as well as the Federal Transit Administration's requirements for large park-and-rides, significantly affect ridership. Additionally, macro-scale decisions about line locations and track alignment also impact ridership. These outcomes reflect the politics of getting rail built; Denver's light rail was embraced as a middle-class amenity of a "world-class city" made possible with broad-based regional coalition building. Effectively building this coalition of majority-suburban municipal leaders across the eight counties required a focus on more affluent commuter municipalities that rely less on transit rather than transit-dependent neighborhoods that are also low-income and minoritized. Furthermore, reliance upon a sales tax and the farebox to pay off bond debt makes the system reliant on high fares. While the region is celebrated for building its system, our analysis reveals the unfortunate outcomes of

neighborhood appeasement over proven transit and land-use design principles that result in robust ridership and equitable access.

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Key Words: public transit, transport and land use, transit ridership, land use reforms, transit-oriented

Disaster Resilience for Public Transit: Learning from 50 Largest Transit Agencies

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Introduction. Extreme weather events pose serious challenges for public transit services, such as transit operation and service disruption, infrastructure damage, deterioration of service quality, and public safety threats. For example, subways are affected by waterlogging due to extreme precipitation. Transit users are more vulnerable to extreme heat than people driving, as they spend significant time outdoors. Transit agencies seeking to increase transit ridership as an efficient transportation measure must adapt to disasters. Few studies to date have focused on the proactive initiatives undertaken to adapt public transit to these disasters.

Research goal. We examined how public transit agencies include disaster resilience strategies in their strategic plans, long-term transportation plans, transit plans, sustainability plans, and other similar plans.

Methods. As part of a project funded by the U.S. Department of Transportation, we conducted the first national-level study exploring transit agencies' proactive efforts toward disaster-resilient transit facilities. We focused on the 50 largest transit agencies in 2021 based on ridership ("annual Unlinked Passenger trips") from the National Transit Database (NTD) by Federal Transit Administration (FTA). Understanding that disaster-resilient public transit includes efforts by several planning sectors, we collected strategic plans, transit plans, long-range transportation plans, sustainability plans, and similar plans for those transit agencies. In total, we identified 93 plans. Then we used combinations of keywords to identify relevant paragraphs about disaster resilience for public transit facilities within those plans. Subsequently, we conducted content analysis for relevant paragraphs to identify different disasters affecting public transit and disaster resilience strategies adopted by the transit agencies.

Results. We found that transit agencies facing frequent disaster events are actively working towards providing disaster-resilient public transit facilities, whereas agencies with lower disaster risks include less resilience content in their plans. Risks mentioned included floods, sea level rise, heavy rainfall, coastal floods, tropical storms, and extreme heat. Some agencies are working towards providing reliable and flexible transit services during extreme weather conditions.

Transit agencies adopt various short-term and long-term strategies for disaster resilience based on the type of public transit facilities and disaster experience. For rail services, transit agencies build sea walls, elevate critical facilities (e.g., electrical substations), relocate or harden critical infrastructure, install power transformers and sensitive power equipment, and implement other strategies.

Transit agencies are also working to provide comfortable bus stops, stations, and subway services for riders. To deal with the extreme heat, transit agencies provide proper air conditioning and ventilation in subway stations, and shade infrastructure (e.g., tree planting) at bus stops. For stormwater management, transit agencies are prioritizing green infrastructure (e.g., rain gardens with native plants and swales) and permeable pavements at stations.

To implement these strategies, transit agencies focus on pre-seasonal and preventive maintenance, vulnerability assessment of infrastructure, increasing system redundancy, collaboration and coordination with other agencies

and institutions, and other initiatives. Transit agencies are also adopting disaster forecasting tools (e.g., on-demand flood simulations) and early warning systems, emergency protocols, and management plans.

Implications. This study can help planners and policymakers understand the major disasters that transit agencies face, their associated impacts, and the strategies used to address these issues. Planners working in public transit can learn about funding opportunities and barriers to implementing disaster resilient public transit.

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Key Words: Public transit, disaster resilience, infrastructure, transit agencies, adaptation

Dynamic Charging for Electric Trucks: Insights from a Real-World Overhead Line Field Trial

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The replacement of conventional diesel trucks with alternative drive technologies has the potential to contribute to climate-friendly road freight transport (Gnann et al., 2025). A range of technologies are currently being tested, including battery-electric trucks with stationary or dynamic charging, vehicles with hydrogen combustion engines, and trucks with hydrogen fuel cells. However, there is often a lack of practical experience with the alternative drive technologies and there are different levels of maturity in terms of both vehicle technology and the refueling and charging infrastructure (Peters et al., 2021; Pfoser et al., 2018). Therefore, one of these alternative drive technologies, the dynamic charging of electric trucks using overhead lines (eHighway system), was tested in a field test (Boltze, 2020). Between 2019 and 2024 transport companies operated various types of overhead line trucks (O-trucks) on a public test track for overhead lines. The real-world operation was scientifically monitored with the research focusing on two main questions: How mature and resilient is dynamic charging with overhead catenary lines? Can dynamic charging with overhead catenary lines be the solution for road freight transport?

To evaluate the potential and technological maturity of the eHighway system, comprehensive data was collected and evaluated as part of the accompanying scientific research during the six-year real-world operation. The operational data collected from the overhead line system and the O-trucks provided a basis for evaluating technical maturity and feasibility. The O-truck data was also used to determine energy consumption, energy demand and the reduction of greenhouse gas emissions. The potential for integration into the fleet of transport companies was determined based on O-truck data and supplemented by several surveys of management and drivers. In addition, traffic and accident data provided information on possible changes in traffic flow and impact on road safety due to the eHighway system. Furthermore, two surveys were conducted to determine the social perception of the eHighway system.

Our analysis shows that the overhead line system works safely and reliably and has been integrated into existing traffic management processes. In real-world operation, the system's availability was continuously increased, and measures to maintain a high level of availability were derived. It was determined that neither traffic flow nor road safety were negatively impacted by the overhead line infrastructure or the operation of the O-trucks. The O-trucks have been found to meet the technical requirements of the transport companies and can be integrated into existing transport processes without causing additional downtime. Drivers have also provided favorable feedback, perceiving the O-truck as enjoyable and expressing satisfaction with the O-truck. Even though the usage of the pantograph requires increased attention of the driver at the beginning, it decreases with growing driving experience. From an ecological point of view, the tested O-trucks enable a reduction in well-to-wheel greenhouse gas emissions compared to conventional diesel trucks between 30 and 53% – depending on the electricity mix and usage profile. Notably, acceptance by the public and politicians was identified as a particular challenge. However, their involvement is essential for a successful expansion.

The results of the accompanying research on the real-world operation of the eHighway system demonstrate its technological maturity. Concurrently, this study offers pivotal insights that must be considered in the future implementation of the eHighway system. The findings provide a solid foundation for politicians, transport companies, and vehicle as well as overhead line infrastructure manufacturers to pave the way for the further expansion and broad introduction of the technology.

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Key Words: dynamic charging, battery-electric trucks, field test, road freight transport

Dynamics of Neighborhood Change and Gentrification: The Impact of Multiuse Trail Openings and Use

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Problem: Advocates of multiuse trails highlight their benefits, such as improving access to recreation and active transportation in underserved urban neighborhoods, contributing to broader goals of environmental justice and sustainable development. However, critics argue that these trails might trigger unwanted changes like gentrification and displacement in surrounding neighborhoods, and become “disruptive green landscapes” (Triguero-Mas et al., 2022) or “green locally unwanted land use” (Anguelovski, 2016; Anguelovski et al., 2022). Scholars often describe this phenomenon as “green (space) paradox” (Wolch et al., 2014). Previous studies have found heterogeneous conclusions regarding the incidence of gentrification or broader neighborhood changes, triggered or accelerated by these multiuse trails across different cities and metropolitan areas (e.g., Anguelovski et al., 2022; Qi & Lindsey, 2024). Despite the growing body of literature, few studies have explored the dynamics of trail-induced neighborhood change, particularly gentrification, across different time periods, and investigated the role of trail use in these processes.

Research strategy and findings: Using the Ohio-Kentucky-Indiana (OKI) region as the case study, we tested the dynamic impacts of multiuse trail openings and use on neighborhood change, with a particular focus on gentrification. Our analysis includes two parts. First, we apply a Difference-in-Differences (DiD) design with variations in treatment timing to evaluate the dynamic impacts of multiuse trail openings on their surrounding neighborhoods in terms of housing and residential characteristics. Second, we further investigate whether trail use affects the probability of neighborhood change, particularly gentrification, in neighborhoods adjacent to these multiuse trails.

Our findings show that both gentrifiable and non-gentrifiable neighborhoods experienced more neighborhood changes associated with multiuse trail openings after 2010, particularly during the 2015-2020 period, compared to the previous three decades (1980-2010). Before 2010, gentrifiable neighborhoods experienced more changes due to trail openings compared to non-gentrifiable neighborhoods; whereas the impacts became similar between the two groups during the 2010-2020 period. Additionally, the impact of trail use on gentrification followed an “inverse U-shape” pattern in gentrifiable neighborhoods; whereas trail use showed little effect on neighborhood change in non-gentrifiable neighborhoods.

Takeaway for practice: This study highlights the complex interactions between multiuse trails and neighborhood change, and emphasizes the need for urban planners and policymakers to ensure community engagement during trail planning and targeted strategies to mitigate gentrification risks. Additionally, planners should not only prioritize the development of multiuse trails but also consider strategies to manage trail use levels, ensuring that trails serve all residents without initiating or accelerating gentrification. Policies that promote affordable housing preservation, community engagement, and equitable access to trails are critical to mitigating potential displacement, ensuring that the benefits of green infrastructure are equitably accessible and that urban development remains inclusive, sustainable, and responsive to the needs of diverse communities.

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Key Words: Multiuse trails, Trail use, Gentrification, Neighborhood change

Effects of Vehicle Restriction Policies on New Energy Vehicle Sales and their Broader Implications

Abstract ID: 1844.0.0.131.2025

Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Driving and purchasing vehicle restriction policies have been widely adopted to address urban transport challenges by curbing the excessive usage of private cars. In recent years, some governments have introduced unbalanced restriction policies that favor new energy vehicles (NEVs) over conventional internal combustion engine vehicles (ICEVs) to promote the electrification of vehicles. These vehicle restriction policies reshape the vehicle market and bring unknown impacts on urban transportation systems, potentially undermining the effectiveness of the restrictions themselves. While existing research has predominantly focused on the impact of restriction policies on traditional ICEV ownership and usage and environmental outcomes (e.g. traffic congestion and air quality), few studies assess the effects of such unbalanced restriction policies on NEV adoption and their broader implications for urban transport systems.

In this study, we investigate the combined effects of two distinct but interrelated policies in Shanghai: (1) a plate-auction based purchasing restriction policy that applies exclusively to ICEVs, and (2) a driving restriction policy that limits the entry of non-local license vehicles into certain urban areas during peak hours. Using monthly vehicle sales data for NEVs and ICEVs, we apply a sharp regression discontinuity design to empirically evaluate the changes in NEV sales and their market share in response to the driving restriction policy.

The results show that the driving restriction policy significantly boosts NEV sales, with an increase of 112.1%-150.7%, while the proportion of NEVs in total vehicle sales rises by 12.5%-17%. This surge is primarily attributable to the unbalanced regulatory burden imposed by the two vehicle restriction policies: ICEVs face substantially higher license acquisition costs through the auction system, whereas NEVs qualify for free green license plates. Concurrently, the driving restrictions, which affected approximately 1.7 million non-local license vehicles (representing one-third of Shanghai's total vehicle fleet in 2019), generated substantial demand for license plate replacements. Given the higher operating costs associated with ICEVs, NEVs emerged as the dominant choice for both new vehicle purchases and license replacement scenarios.

Furthermore, employing monthly second-hand housing transaction sales as an instrumental variable, we explore the broader implications of the NEV sales surge on traffic congestion and air quality. The results indicate that the policy-driven increase in NEV sales is associated with elevated concentrations of PM_{2.5}, PM₁₀, and CO by 11.5%, 13%, and 19.6%, respectively, and has also led to a 10.9% increase in urban traffic congestion. These findings suggest that although the unbalanced restriction policies have played a positive role in promoting NEV adoption, it may have adverse effect on traffic congestion and air quality. On the one hand, the low driving cost of NEVs may encourage individuals who previously relied on public transport or non-motorized options to switch to private vehicles, thereby worsening congestion. On the other hand, the elevated PM_{2.5} and PM₁₀ levels could stem from upstream NEV manufacturing processes, while the disproportionate CO increase may reflect heightened coal-fired electricity generation to meet growing NEV charging demands.

This study provides a new perspective on the impact of unbalanced vehicle restriction policies on NEV adoption and urban transport systems. The research findings offer useful policy implications for optimizing urban traffic management and environmental governance.

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Key Words: Vehicle restriction, New energy vehicles, Travel demand management, Air quality, Traffic congestion

Evolving Patterns of Large Vehicle Ownership in the U.S. Over the Past 30 Years

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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In recent years, rising concerns have emerged about the growing size of vehicles in the United States., a trend commonly known as "car bloat." This phenomenon refers to the increasing dominance of larger, heavier vehicles, particularly Sport Utility Vehicles (SUVs), which are now the most popular vehicle type in the U.S. auto market. The rise of large, heavy vehicles amplifies many of the externalities associated with automobile use. Such vehicles contribute to more severe injuries and fatalities among pedestrians and cyclists, exhibit lower fuel efficiency, occupy greater space within our urban environments, and demand more resources. Despite the rapid expansion of the SUV market and its far-reaching consequences, there remains a limited understanding of how large vehicle consumers have evolved in the wake of their popularity.

Research on ownership characteristics has been relatively scarce since the early 2000s. The majority of the existing literature, covering the late 1990s to early 2000s, indicates that households owning SUVs were predominantly affluent, young adults, and families with children. However, the demographic profile of large vehicles has likely evolved significantly with the expansion of the large vehicle market. Moreover, the literature on large vehicle consumers remains fragmented, with the use of disparate datasets from different subregions and time periods, varying vehicle classification methods, and diverse modeling approaches. These inconsistencies limit the ability to make meaningful comparisons across studies, and therefore, across time.

Understanding the characteristics and evolution of large vehicle owners is crucial for making informed urban planning decisions aiming to reduce vehicle-related externalities. This research seeks to provide a comprehensive analysis of how consumer demographics related to vehicle body type, size, and weight have shifted during the past three decades. By employing consistent data types, methodologies, and vehicle classifications, this study aims to provide a clear and comprehensive picture of how household vehicle holdings have shifted during the three decades of rapid auto market changes. The following three research questions are addressed:

1. How have household vehicle holdings evolved in the past three decades in terms of weight, size, and body type?
2. Has the SUV consumer demographic disseminated throughout demographic populations within the past three decades? In what way? How does this vary geographically?
3. How are SUVs utilized in comparison to other vehicle types, and how has this changed overtime?

The National Household Travel Survey (NHTS) datasets from 1990, 1995, 2001, 2009, 2017, and 2022 are used to answer the research questions. For urban planners, vehicle size and weight are critical factors in assessing their impact on communities, influencing safety, infrastructure demands, and environmental effects. To better capture SUV variation, this research introduces SUV subclassifications based on size and weight (i.e. compact SUVs, large SUVs, etc.), with use of the Canadian Vehicle Specification dimension data. Descriptive statistics are used to examine changes in household demographics associated with vehicle ownership across NHTS datasets, providing insights into how vehicle ownership by body type, size, and weight has evolved over time. These statistics are compared across survey years and geographic factors such as region and population density, along with vehicle trip characteristics like commuting patterns and household mileage. Simple logistic regression models are also used to

understand evolution of SUV ownership trends, with demographic, geographic, and time variables as independent factors, with the benefit of controls. Lastly, more robust models are used to examine differences in demographic trends across SUV subclassifications.

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Key Words: Vehicle Choice, SUV Ownership, Consumer Preferences, Travel Behavior

Fare-Free Transit for Seniors: A Quasi-Experimental Study of Montreal's 65+ Program

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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In 2023, Montréal implemented the Free 65+, a fare-free policy for its seniors residents (65 years old or above). The policy addresses seniors' transportation needs, i.e., mobility and accessibility declines derived from aging, the interconnectedness between transportation accessibility and social inclusion (and the risk of exclusion), and issues of affordability [4]. Fare-Free Public Transit (FFPT) programs, as the Free 65+, refer to the total elimination of public transit tickets for all individuals or the distribution of zero-fare tickets for some specific groups [1]. By providing unconditional access to collective transport regardless of one's ability to pay, FFPT are tied to egalitarian concerns - thus making them an appropriate vessel to the evaluation of theories of justice and the social exclusion approach to transportation [2], [5]. However, the literature on FFPT has not clearly defined the causal links between free transit passes and social exclusion, let alone empirically investigated the policy's effect on activity participation.

Thus, we asked: is Montréal's Free 65+ achieving its main objectives after one year of its implementation? More specifically, has the free transit pass significantly impacted seniors' travel behaviour, changed their perception on activity participation (thus reducing the risk of social exclusion), and/or affected their relationship to the fundamental cost of using public transit (fares)? Furthermore, are these impacts distributed equally throughout seniors or is any particular social group (e.g., immigrants, different cohorts among seniors, visible minorities, etc.) disproportionately affected by the policy?

We use a quasi-experimental research design. We collected data before and after the intervention through a survey conducted by the Mobilizing Justice Partnership. Besides socio-demographic and geographical information, we asked individuals about our main outcome variables related to the policy's objectives - their travel behaviour (frequency, destination, and mode used), their subjective perceptions on transit fares' affordability, and their satisfaction with activity participation. We use propensity-score matching (PSM) to define treatment (seniors in possession of the pass after the intervention) and control groups (counterfactuals who represent what would have happened to treatments had they not acquired the pass). Moreover, we use appropriate metrics, before and after the intervention, to evaluate its equity considering recent discussions of distributive justice in transportation [3].

Our expected contributions to the field of transportation planning are the following. First, by evaluating a concrete FFPT policy in light of its reported objectives, we expect to provide substantial evidence about its short-term effects, which can be used in future policy improvements. Thus, we anticipate the analysis to be a source of discussion between the stakeholders involved in its implementation (transit agency, policymakers, and users) which could ultimately steer Montréal towards a more just transit system. Second, by mapping the causal links between a free-pass transit policy and the three outcomes cited – travel behaviour, transit affordability, and activity participation – we expect to help future research to avoid common perils of causal inference estimation (e.g., omitted variable bias, confounder bias, etc.). In a context where association studies form the basis of empirical evidence on FFPT, we expect the research based on causality to deliver meaningful insights otherwise neglected or

hidden on common methodologies. Finally, by examining the equity impacts of the program, we discuss how egalitarian-driven policies might generate unexpected results through a distributive justice lens.

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Key Words: Fare-Free Public Transit, Quasi-experimental design, Activity participation, Seniors and mobility, Transit affordability

Governing Electrified Micromobility Expansion: Lessons from Four Decades of Adoption in China

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Electrified micromobility has matured into a sustainable alternative to automobiles for short-distance trips, serving as a key solution for decarbonizing car-centric development (Abduljabbar et al., 2021). Despite its potential benefits, the rising penetration of electrified micromobility presents significant governance challenges for cities seeking large-scale implementation, such as safety risks, sidewalk obstructions, and visual disorder (Leszczynski et al., 2024; Fearnley, 2020). In response, proactive policy measures are essential for anticipatory governance of electrified micromobility expansion. Although many studies have explored this issue from operational, managerial, and user perspectives, fewer have examined the evolving policy measures related to the built environment (BE) to accommodate electrified micromobility expansion (Zhang et al., 2023). Even fewer studies have linked specific BE-related governance challenges and solutions to distinct phases of electrified micromobility expansion from a spatiotemporal perspective.

To fill this gap and provide timely guidance for global cities navigating the uncertainties of electrified micromobility expansion, China's 40 years of governance and policymaking experiences offer valuable lessons on regulating this disruptive technology to maximize its benefits while minimizing negative impacts (Zuev, 2020). Since their debut in 1985, the number of electric bicycles in use has surpassed 350 million, according to 2024 data from the Chinese government. While many cities are only now beginning to navigate these challenges, major Chinese cities have long grappled with the externalities of large-scale micromobility implementation through consistently modifying BE regulations and corresponding infrastructure. To analyze 40 years of Chinese governance efforts in managing electrified micromobility expansion, this study employs a mixed qualitative approach at both national and municipal levels, focusing on three key BE elements: micromobility nodes, links, and networks. Laws and regulations at both national and local level are mapped to corresponding challenges across different phases of electrified micromobility expansion. Meanwhile, the spatiotemporal changes of micromobility-related BE elements in the three cities with the largest electrified micromobility fleets, Shanghai, Tianjin, and Chengdu, are analyzed through onsite observations, interviews, and archival research.

The findings reveal that the evolution of national regulations reflects a progressively more sophisticated approach to governing electrified micromobility and its related BE elements. For example, policy has shifted from treating all electrified micromobility uniformly to classifying vehicles by speed and specifications, with tailored BE regulations for each category. The examination of local policies reveals more nuanced insights into the disparities among cities in addressing electrified micromobility expansion. For instance, while some cities promote micromobility hubs for their role in enhancing aesthetics and accessibility in public spaces, others mandate them to ensure charging facilities are sited away from buildings to reduce the risk of deadly fire hazards. Building on these findings, an adaptable policy checklist is developed to help cities proactively prepare the built environment, navigate uncertainties, and mitigate potential negative impacts associated with electrified micromobility expansion.

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Key Words: electrified micromobility, built environment, infrastructure planning, policymaking

Healthcare Accessibility for Medicare and Medicaid Populations in the Dallas-Fort Worth Area

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Reliable transportation plays a critical role in ensuring healthcare access for vulnerable populations, referring to Medicare and Medicaid beneficiaries who often face socioeconomic barriers and may have functional limitations (Flynn et al., 2021; Wolfe et al., 2020). Public transit facilitates this access, particularly for individuals without private vehicles (Jin et al., 2022). Assessing healthcare accessibility via public transit helps identify spatial inequities contributing to delayed care and poor health outcomes (Jin et al., 2022; Wolfe et al., 2020). Spatial inequities can be defined as avoidable or remediable differences in the geographic distribution of opportunities to access healthcare services among different groups (Jin et al., 2022).

Studies globally highlight transportation's crucial role in healthcare accessibility, revealing disparities for vulnerable groups. For example, low-income individuals in Shanghai, those with disabilities and poor mental health in Toronto, and older adults in Ghana experience significant transportation barriers (Jin et al., 2022; Lyeo et al., 2023; Oduro Appiah et al., 2020). However, research is limited on how transit impacts healthcare access for publicly insured populations within U.S. metropolitan areas (Jin et al., 2022; Lyeo et al., 2023). This study seeks to understand how public transit influences healthcare access for Medicare and Medicaid beneficiaries in the DFW region by addressing two key questions: (1) How does geographic location shape the experience of transportation barriers to healthcare? and (2) How are socioeconomic factors, such as insurance type, income level, and age, associated with the prevalence and type of transportation-related barriers?

This study will employ network-based spatial accessibility analysis within a Geographic Information System (GIS) framework to evaluate healthcare access via public transit for Medicare and Medicaid beneficiaries in the Dallas–Fort Worth (DFW) metropolitan area. Building on methods proposed by Luo & Wang (2003) and Liu et al. (2022), the analysis emphasizes travel time impedance rather than simple distance, capturing the real-world complexity of public transportation. Using digital transit data, including routes, schedules, and stop locations, the study will apply a time-dependent shortest path algorithm (e.g., Dijkstra's) to estimate minimum travel times between residential locations and healthcare facilities (Jin et al., 2022). Accessibility calculations will integrate factors such as walking distances to transit stops, waiting times, transfer penalties, and, in some cases, real-time delays, enhancing accuracy beyond schedule-based models (Liu et al., 2022). Accessibility will be measured using the Two-Step Floating Catchment Area (2SFCA) method, which jointly considers healthcare provider capacity and demand within travel-time catchments of 30, 45, and 60 minutes (Jin et al., 2022; Chen et al., 2023). This method will incorporate public transit travel times and healthcare provider capacity, making it ideal for identifying spatial access disparities among transit-dependent populations. The unit of analysis will be the census tract, using data sources that include GTFS transit feeds from DART, healthcare provider data from CMS, and demographic and socioeconomic variables from the American Community Survey (ACS).

Based on the literature, it is expected that lower-income populations are more likely to rely on public transit and experience delays or missed appointments (Jin et al., 2022; Oduro Appiah et al., 2020). The role of age is expected to be complex, reinforcing findings from Lyeo et al. (2023), older adults, especially those over 85, may encounter mobility limitations, although some may benefit from car access or specialized transit services. This study aims to

reinforce and localize these patterns by highlighting disparities in transit-based healthcare access among Medicare and Medicaid beneficiaries in DFW.

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Key Words: Healthcare Accessibility, Medicare and Medicaid, Spatial Inequity, Public Transit

Housing and Transportation Costs and Residential Relocation: A Study of California Movers

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Movers, Housing and transportation comprise households' two largest expenses. Housing cost burden remains a major challenge for California. Over half of the state's households pay more than 30% of their income on housing costs, with higher burdens among households in poverty and people of color-disparities likely widened by the Covid-19 pandemic (PolicyLink 2022; Nobari, Anderson, and Whaley 2022). Meanwhile, some locations with the lowest transportation costs because of available transit and multimodal infrastructure also face the strongest displacement pressures due to high housing costs and a deficiency of affordable housing (Chapple, Thomas, and Zuk 2021). This study asks (1) whether housing and transportation costs are associated with residential relocation, and (2) whether moves are to areas that generate higher vehicle miles traveled (VMT). The study examines these questions for the state of California.

This study relies on two key data sources. The first is the University of California Consumer Credit Panel (UC-CCP). The UC-CCP dataset is a longitudinal panel consisting of a nationally representative 2% sample of US adult consumers and 100% of Californians with credit histories, plus people who shared an address or an account with individuals in the sample. We use the UC-CCP to construct a database of movers with a limited set of demographic characteristics provided in the sample. The second is tract-level information about housing and transportation costs and VMT generation. Housing and transportation costs are calculated using a state-specific version of the H+T model developed by the Center for Neighborhood Technology (CNT). VMT estimates are calculated using the inputs to the VMT model, which are drawn from vehicle odometer reading estimates from another state calibrated to a sample of California odometer readings.

We have constructed a database of movers and have begun to calculate descriptive statistics on these movers, though the results are not yet ready as of the time of writing this abstract. We will report a descriptive summary that compares VMT estimates in sending neighborhoods to receiving neighborhoods for movers, stratifying by equity-priority communities. We will also report results from a statistical model that estimates the likelihood of moving as a function of housing and transportation costs, controlling for other personal characteristics.

Results will be relevant to planners seeking to understand how housing and transportation costs contribute to potentially unwanted moves or to excess greenhouse gas emissions as a result of residential concentration in high car-use areas.

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Key Words: transportation costs, housing costs, residential relocation

How Caregiving Shapes Daily Travel Choices: Analyzing Determinants of Children-Accompanied Tours

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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This study examines how caregiving responsibilities, particularly traveling with children, shape caregivers' daily travel choices. While existing research broadly explores caregiving's impact on travel behavior, this study focuses specifically on how caregiving influences whether caregivers travel with children.

Prior research on mobility of care highlights the significant impact of caregiving roles on travel behavior (de Madariaga, 2016; de Madariaga & Zucchini, 2019). Caregivers navigate constraints related to travel time, distance, frequency, and mode of transport, often dictated by children's schedules and needs (Chica-Olmo & Lizárraga, 2022; He & Giuliano, 2015; McDonald & Aalborg, 2009). However, less is known about how factors such as household composition, caregivers' personal traits, and urban environment influence caregiving-related travel decisions.

This study categorizes travel into three tour types: All Children-Accompanied Tours, Partly Children-Accompanied Tours, and Children-Free Tours. A "tour" consists of multiple trips forming a closed loop, returning to the original starting point. An All Children-Accompanied Tour includes children on every trip, a Partly Children-Accompanied Tour includes some trips with children, and a Children-Free Tour involves no child accompaniment.

The study aims to analyze how household and trip characteristics affect the likelihood of choosing each tour type. Using a discrete choice model, it estimates the probability of each tour type based on various influencing factors. The analysis leverages 2017 National Household Travel Survey data from the United States and Denmark, enabling a cross-cultural comparison of how caregiving dynamics, shaped by cultural and urban contexts, influence travel decisions. This comparison considers differences in urban design, transportation infrastructure, and caregiving norms.

The model incorporates key variables reflecting household and trip characteristics. Household factors include the number and age of children, single-parent status, and multi-generational living arrangements. Trip characteristics such as travel time, trip purpose, and transportation mode capture the constraints and flexibility caregivers experience in their travel choices.

The findings highlight two key trends. First, women caregivers from lower-income households are more likely than men to accompany children on their trips, reflecting the gendered nature of caregiving responsibilities. Limited access to alternative caregiving support and workplace flexibility may further reinforce this trend, particularly in resource-constrained households. Second, child-accompanied tours (both partly and entirely) in both US and Denmark rely more on private vehicles for longer trips, while shorter trips in Denmark favor active modes such as walking and cycling. This suggests that time efficiency, safety, and convenience influence longer-distance travel, whereas walkable urban environments facilitate active travel for shorter trips.

While caregiving-related travel patterns may seem intuitive, this study provides empirical evidence to quantify these trends, uncover underlying mechanisms, and explore context-specific differences that inform policy and planning. By analyzing travel survey data from the U.S. and Denmark, it examines how cultural and infrastructural factors shape mobility. Beyond confirming broad trends, the study investigates who is most affected and under what conditions—such as whether lower-income caregivers choose active travel out of necessity or preference and

how walkability influences private vehicle use. These insights contribute to a deeper understanding of how household composition, trip characteristics, and urban infrastructure interact to shape caregiving-related mobility.

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Key Words: Caregiving Travel, Gendered Travel Behavior, Mobility of Care, Comparative Analysis, Choice Modelling

How Do Mobility Patterns Affect Extreme Heat Exposure While Walking and Biking?

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Exposure to extreme heat significantly affects quality of life and poses health risks, with effects varying across different neighborhoods. Climate inequities are often structural, disproportionately affecting vulnerable groups who experience harsher environmental conditions and have lower access to mitigation resources. Researchers have found a relationship between socioeconomic attributes of neighborhoods and urban heat island effects, whereby non-White and lower-income communities are subject to elevated heat levels. While green spaces can help mitigate urban heat, their distribution is also often inequitable, with higher-income neighborhoods with a larger proportion of White residents having access to more green space compared to lower-income neighborhoods.

While prior research has examined the disproportionate spatial distribution of urban heat at the scale of neighborhoods, there remains a gap in our understanding of how heat stress affects vulnerable groups while walking and biking. Since urban heat risk can change by time-of-day and is related to mobility patterns, a more careful exploration of how heat risk is affected by human mobility above and beyond residential location is needed. Where we live and who we are matter, but where we go and how we travel also matter just as much, if not more.

This study aims to provide a nuanced understanding of urban heat inequity by analyzing both ambient temperature disparities and potential heat exposure during travel by walking or biking. We focus on the Atlanta and Boston metropolitan regions to quantify heat exposure at a very high (1-meter) spatial resolution, emphasizing two key dimensions - socioeconomic inequity and environmental inequity, through the mediating effect of activity-travel patterns. We compute a thermal comfort measure called the Universal Thermal Climate Index (UTCI), which represents the perceived “feels-like” temperature, across neighborhoods to evaluate urban heat risk. We also use additional environmental indicators related to urban greenery—such as the Normalized Difference Vegetation Index (NDVI) and Enhanced Vegetation Index (EVI)—that are derived from Planet Imagery datasets. First, we confirm the findings from prior research by examining the relationships between socioeconomic indicators and urban heat and urban greenery at the neighborhood (Census block group) level. We then extend the literature by examining urban heat risk at the network-link level to explore variations in exposure while walking or biking. We use population-level mobility data provided by Replica for summer and fall, which include socioeconomic attributes as well. Finally, we integrate both components to compute total heat and greenery exposure experienced by people during their daily walking and biking trips, along with disparities in heat and greenery exposure across socioeconomic groups. This approach moves beyond using the residential location as a point of reference, offering a more comprehensive understanding of how individuals experience heat risk while moving through urban environments.

Our findings contribute to ongoing discussions on urban climate resilience and sustainable mobility by identifying and quantifying critical disparities in heat exposure across neighborhoods and sociodemographic groups. While sustainable mobility advocates push for mode shifts to non-car options, these efforts may be stymied by extreme heat effects or accentuate heat exposure without supportive mitigation efforts. This study provides evidence to support the integration of heat resilience into transportation planning through targeted interventions such as expanding green infrastructure and adding shaded transit shelters, among others. Overall, our work aims to

support the development of more resilient and equitable cities where threats to sustainable transitions such as extreme heat do not disproportionately affect vulnerable populations.

Citations:

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Key Words: Extreme Heat, Heat Exposure, Active Transportation, Climate Resilience, Resilient Transportation

Impacts of Free Fare Policy on Public Transit Ridership

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Fare-free public transit has been explored as a policy intervention to increase ridership, promote social equity, and reduce car dependency. However, quantified, empirical evidence on its effects remains limited, particularly in the United States. This study examines the impact of a temporary fare-free policy implemented by the Central Ohio Transit Authority (COTA) in Columbus, Ohio, from March 2020 to January 2021, which provides a unique opportunity to analyze transit demand and ridership changes in a controlled setting. Using high-resolution trip planning app usage data from the Transit App and automatic passenger counts data from the public transit system, we conduct spatiotemporal analyses and Differences-in-Differences regression to identify shifts in ridership patterns and assess the policy's implications for social equity. The findings contribute to understanding whether fare-free policies stimulate latent demand, particularly among low-income populations, and offer insights into their potential role in shaping more accessible and sustainable urban transit systems.

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Key Words: Public Transit, Free Fare Policy, Mobility Equity, Trip Planning App, Automatic Passenger Count

Influence of Travel Mode and Heat Sensitivity on Streetscape Preferences Related to Thermal Comfort

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Rising temperatures negatively impact outdoor travel experiences, which are crucial to mobility and health outcomes. In transportation planning efforts aimed at improving outdoor thermal comfort, studies have commonly emphasized the need to mitigate heat stress during non-motorized travel to increase walkability (Basu et al., 2024; Xi et al., 2023). Traditional approaches have relied on simulations or travel records to identify where and who is more likely to be exposed to extreme heat during outdoor travel (Karner et al., 2015).

Although we now understand which built environment features help mitigate heat stress on streets, we lack a clear understanding of how preferences for these features vary based on individuals' travel behaviors and attitudes toward traveling under heat. People have different thermal comfort levels for traveling based on their physical or sociodemographic contexts. To address this gap, we developed a survey on heat exposure during travel, which we designed into two sections to examine whether individuals' main mode of travel is associated with their street environment preferences, considering their attitudes toward travel under extreme heat conditions.

Section 1 asked about participants' attitudes toward traveling in high temperatures and their views on the role of cities in addressing extreme heat. It also asked how they travel across different modes throughout the week and their sociodemographic characteristics. Section 2 assessed visual streetscape preferences under heat. Participants were shown several image pairs that represented a variety of streetscapes. For each image pair, respondents selected the one they would prefer to walk in during high temperatures.

A significant benefit of using our survey is the ability to understand attitudes toward heat, which are an underlying factor that impacts people's travel outcomes. We offer a novel framework by connecting this attitudinal and travel information to the understanding of thermal environment needs (Jia et al., 2022). Through the analysis, we test these hypotheses: 1) individuals have different attitudes toward traveling under heat, 2) heat stress experiences vary by individuals' main travel mode, and 3) preferences for heat-mitigating streetscapes (such as trees) depend on factors such as heat sensitivity and primary mode of travel.

For statistical analysis, we categorized 150 respondents based on their attitudes toward heat and recorded travel patterns. In the process, we applied factor analysis and PCA to summarize these variables. Additionally, we modeled the 1,200 pairwise image choices using a conditional logit model to understand the factors affecting their street preferences. Our results indicate that preferences for street environments, such as greenery, are closely related to travel behavior. The preference for green streetscapes is stronger for those who mainly walk than for those who drive. Additionally, differences exist between individuals who are more likely to be affected by heat and those who are not. For instance, female travelers and zero-vehicle households are more likely to reduce or avoid travel during the heat.

The findings from this survey contribute to both the literature and planning practice by guiding where and what types of interventions to implement for mitigating heat, based on individuals' varying travel patterns. Since travel outcomes are closely related to the built environments around them, this study provides guidelines on how and

where to enhance environments for thermal comfort based on travel behavior in the region. Our findings offer valuable insights for creating street environments that support sustainable mobility and inform mitigation strategies in transportation planning for the future of healthy cities.

Citations:

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Key Words: Outdoor heat exposure, Thermal comfort, Heat mitigation, Travel survey, Street environments

Infrastructure Disruptions and Recovery: Focus on Rural Households after 2018 Hurricane Michael

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The uneven distribution impact of natural disasters across different communities in the United States has been well documented in academic research. However, there remains a noticeable gap in the literature regarding recovery outcomes, particularly in rural areas that often face unique challenges (Jerolleman, 2020; Marshall, 2024). Our study aims to address this gap by providing a comprehensive, longitudinal analysis of self-reported household recovery outcomes in rural communities in the Florida Panhandle following the catastrophic 2018 Category 5 Hurricane Michael, which caused widespread destruction across the region.

We analyzed data from 909 survey responses, collected approximately five months after Hurricane Michael made landfall. These responses were gathered from the fifteen counties designated by FEMA as eligible for both individual and public assistance. A follow-up survey was disseminated 17 months after the landfall. It was completed by 156 respondents who were matched across both phone surveys. To analyze the factors influencing recovery outcomes, we employed a random-intercept logistic regression model.

The survey results revealed a complex picture of recovery, with a significant portion of respondents reporting varying degrees of progress. Five months after the storm, 40% of participants indicated that they had fully recovered from the disaster, while 22% reported that they mostly recovered. Another 24% of respondents said they had somewhat recovered, and 10% indicated that they had not recovered at all. This data underscores the varied experiences of recovery, with some households reporting a swift return to normalcy, while others faced prolonged challenges. The follow-up survey revealed that 64% of those recontacted had recovered, while 34% reported that they had not. Overall, 32% of respondents experienced electrical outages lasting more than seven days, while 28% reported losing cell phone and Internet service for the same duration. When asked what facilitated their return to normal daily routines, the vast majority in both baseline and follow-up surveys cited power restoration as the key factor, followed by the restoration of cell phone and Internet services. The timelines for restoring electrical power, especially in rural areas where utility companies have limited capacity and resources, are crucial for both household and community recovery (Mitsova et al. 2018).

The results from the statistical modeling identified several key factors that significantly impacted recovery. The severity of the damage to homes and infrastructure had a strong negative association with recovery, as did extended power outages, income loss, and difficulties in accessing basic necessities such as food, fuel, and essential services. These challenges created additional barriers for households trying to rebuild their lives. In contrast, having homeowners' insurance was found to have a highly significant positive association with recovery, suggesting that financial resources played a critical role in facilitating faster and more successful recovery efforts. The survey results also highlighted the role of disaster assistance in the recovery process. Compared to those who received disaster assistance, individuals whose applications were denied or were still pending at the time of the survey had significantly lower odds of recovering. This finding underscores the importance of timely assistance in promoting equitable recovery, particularly for vulnerable populations in rural areas.

Overall, the findings provide valuable insight into the long-term trajectory of recovery and highlighted the significant hurdles that many rural communities continue to face even well after the immediate aftermath of a disaster. These results emphasize the need for tailored interventions that address the specific needs of affected populations and ensure that all communities, regardless of their location, have an equal opportunity to recover and rebuild.

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Key Words: Recovery, Hurricane Michael, Infrastructure failure, rural communities, random-intercept model

Integrating Survey Data into Large-scale Choice Models for Mobility Hub Impact Assessment

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Rapid urbanization and growing travel demand have intensified challenges such as traffic congestion, increased carbon emissions, and exacerbated services disparities, significantly impacting urban sustainability and livability. Mobility hubs emerge as critical interventions in this context, offering nodes of connectivity that seamlessly combine public transit, active mobility, and shared services to encourage transit ridership, reduce car usage, and facilitate convenient transfers.

Identifying optimal locations for mobility hubs becomes an essential and strategic task for policymakers and relevant authorities. Previous studies on hub location selection either employ Multi-Criteria Decision Making (MCDM) methods or formulate optimization models. However, these studies highly depend on the assumed demand, expert judgment, or proxy indicators. An empirical assessment of how mobility hubs impact travelers' mode choices is lacking. Inadequate consideration of hub-specific parameters, heterogeneities in user preferences, and intercity travel patterns constrain the scalability of existing models and limit their practical contributions.

Estimating behavioral models that account for both large-scale travel patterns and user preferences of mobility hubs is challenging. On the one hand, citywide or regional travel data typically do not include multimodal trips involving the use of mobility hubs since most hubs are still in the conceptual stage, and few have been implemented. The lack of real-world usage data makes it difficult to obtain user feedback and accurately capture user preferences regarding mobility hubs. On the other hand, although hub usage data can be collected through on-site investigations, these data are often limited in both spatial and temporal scope. Mobility hubs involve diverse mode combinations as well as numerous potential trips, which cannot be fully represented by surveys with small sample sizes.

This study proposes a novel data fusion approach to integrate mobility hub usage data into a mode choice model estimated with large-scale information and communication technology (ICT) data. The mode choice model quantifies mode shares for a wide range of trip origins to destinations (OD) pairs, segmented by age, income level, and employment status. The hub usage data provide direct insights into how travelers use mobility hubs, enabling the calibration of hub-related parameters not included in the initially estimated model. The data fusion approach involves two key steps. First, we identify trips potentially impacted by mobility hubs and generate a revised choice set that includes multimodal trip options. Second, we calibrate hub-specific parameters within the pre-estimated choice model using survey and ground-truth data. With this hub-usage-enhanced modeling framework, it becomes possible to quantify the behavioral impacts of mobility hubs, which are crucial to hub deployment strategies but rarely measured. Such impacts include changes in transit ridership, vehicle miles traveled (VMT), carbon emission, and consumer surplus in the post-pilot scenario.

We apply this method to a case study in Capital District, NY, using data from a survey conducted by the Capital District Transportation Authority (CDTA) and a mode choice model estimated using Replica Inc.'s synthetic data. The two implemented hubs—located near UAlbany Downtown Campus and in Downtown Cohoes—are projected to generate 8.83 and 6.17 multimodal trips per day, reduce annual VMT by 20.37 and 13.16 thousand miles, and increase daily CS by \$4,000 and \$1,742, respectively. An evaluation of potential hub candidates in the Albany-

Schenectady-Troy metropolitan area demonstrates that hubs located along intercity corridors and at urban peripheries, supporting park-and-ride (P+R) patterns, yield the most significant behavioral impacts.

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Key Words: mobility hub, multimodal trip, impact assessment, facility location, Capital District, NY

Investigating Heat Exposure for Paratransit Users in the Denver Metropolitan Region

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Weather patterns are shifting globally with varying effects at the local level. Heatwaves, for instance, are getting longer, more frequent, and more intense. The literature examining the intersection of travel behavior and extreme weather, while relatively nascent, has been growing in recent years. Researchers have investigated how heat exposure is associated with travel behaviors broadly (Li, et al. 2023), with a specific focus on active travel modes (Colaninno, et al. 2024) and public transit (Ahmed, et al. 2024). The policy implications of heat exposure on activity-travel patterns extend to public health and infrastructure planning and design. Several local jurisdictions in the United States are beginning to recognize this emergent need to proactively plan for changing local weather patterns.

Local government entities in the Denver Metropolitan Region along with the Regional Transportation District (RTD), which provides para/transit services in the region, are a unique case study for expanding this literature for people with disabilities. RTD provides a paratransit service, Access-a-Ride, across the Denver Metropolitan Region (Akceek, et al. 2023). Relying on a dataset from RTD that includes timestamped paratransit trip start and end locations, we are exploring the overall geography of demand on extreme heat days during 2019 and 2020. We are comparing trips undertaken by people using paratransit during extremely hot days (i.e., treatment days) with control days—within the same 10-day period—when temperatures remained within normal ranges. We plan on overlaying a heat exposure model built, calibrated, and verified for extreme heat days in the Denver metropolitan region at a 30-meter spatial resolution (Ibsen, et al. 2022). In this paper, we aim to identify locations where paratransit users are relatively more exposed to extreme heat, in addition to highlighting where demand shifts at a micro-geographic scale. We anticipate our analysis will shed light on the extent and location of systematic changes in paratransit demand during extreme heat days. Our findings can inform policy strategies to expand weather-resilient travel options for people with disabilities who rely on paratransit services.

Citations:

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Key Words: Heat Exposure, People with Disabilities, Paratransit, Land Use, Travel Behavior

Life Without Cars: Why Some Americans Are Choosing Car-Free Neighborhoods

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Emerging literature suggests a sizable unmet demand for car-free living in America, i.e., for living in places where it is possible to not own a car. Corcoran et al. (2024) estimated that 18% of the U.S. urban and suburban population currently living in car-owning households are interested in car-free living. While existing studies on car-free and carlite neighborhoods have largely focused on Europe, Asia, or Australia (e.g., Baehler & Rérat, 2020; Basu & Ferreira, 2020; Pajmans & Pojani, 2021; Selzer & Lanzendorf, 2022), our paper addresses three key research questions in the U.S. context: 1) Who is interested in car-free neighborhoods? 2) What motivates this interest? 3) How do these individuals anticipate overcoming mobility challenges in a car-dependent environment?

We collected data in 2022 and 2024 from a group of people (N=503) who showed a strong interest in the car-free neighborhood concept by paying a \$100 deposit to reserve a unit at Culdesac Tempe before construction began. Often described as the first car-free neighborhood in the U.S., Culdesac Tempe is located near rail transit in Phoenix, AZ, one of the most car-dependent regions in the world. This private development has received significant attention in the popular media for its groundbreaking parking policy: there are no options for residents to park privately owned vehicles on-site or nearby. Instead of residential parking, the Culdesac model offers many on-site amenities and abundant open space. As of spring 2025, approximately 300 residents live at Culdesac Tempe (renters only). The population is expected to reach about 1,000 upon completion of 700 units.

We invited all Culdesac depositors to participate in a survey and other research activities. Our response rate was 17% of complete survey responses (n=87). Some respondents also participated in a focus group discussion (n=16), a follow-up interview coupled with a seven-day travel diary activity (n=6), and an additional interview after moving to Culdesac (n=2). We used a mix of descriptive statistics and thematic analysis to identify patterns in our data.

The survey results highlight some distinctive transportation preferences among Culdesac depositors. They favor sustainable transportation modes, especially walking, the electric bicycle, rail transit, and the regular bicycle (in decreasing order of preference). When choosing a place to live, they highly value a walkable neighborhood and proximity to shops and services. Nevertheless, most of them have access to a car and live in neighborhoods that are not particularly walkable. They drive often, but not always. In terms of sociodemographic characteristics, Culdesac depositors are a rather diverse group in terms of income, gender, and race. However, young professionals aged 20-30 are overrepresented in the sample, as well as people having the option to work from home, likely influenced by the timing of data collection during the later phases of the Covid-19 pandemic.

The interviews and focus groups revealed five profiles of people interested in car-free living: 1) The Retiree Seeking Connection, 2) The Avid Bicyclist Seeking Community; 3) The Lifelong Car-Free Individual; 4) The Pioneer Forging a New Path; and 5) The Anti-Car Advocate. Despite their differences, participants shared common experiences, such as having traveled to walkable and bikeable cities around the world, and experiencing feelings of loneliness and isolation. They identified two factors critical for their satisfaction with living in a car-free neighborhood: the

emergence of a strong sense of community, and the availability of reliable alternative mobility options, especially rail transit and cars on demand.

We conclude with recommendations for planners and developers to embrace car-free living as a multidimensional concept rather than a housing type. The provision of car-free living options must prioritize a community-oriented design and an alternative mobility package.

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Key Words: car-free living, sustainable transport, walkable neighborhoods, parking policy, Culdesac

Linking Accessibility and Transport Poverty using Two Canadian National Datasets

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Disparities in the level of accessibility to destinations across socio-demographic and racial/ethnic groups are well documented (Shen, 1998), as are the links between low levels of auto-ownership and (transit) accessibility on the one hand and transport poverty on the other (Lucas et al., 2016). Specifically, lack of (affordable) transportation options has been linked to social exclusion manifesting in lower ability to find and maintain a job, missing medical appointments, low levels of activity participation, and lower well-being. However, a core question remains whether and to what extent does accessibility alleviate transport poverty. Understanding the relationship between accessibility and transport poverty is crucial for providing planning agencies with the evidence needed for future transport and land use decisions that can help improve equity and sustainability outcomes.

In this study we examine the relationships between transport accessibility and transport poverty in Canada using two unique datasets. A novel national survey of over 27,000 residents in all Canadian metropolitan and rural areas is used to develop transport poverty indicators based on stated levels of activity participation, perceived accessibility, transport costs, and foregone trips. The survey data were collected between July 2023 and November 2024 through an online form using a professional survey firm. The data collected also includes extensive socio-demographic information about the household situation of the sampled population. The sample size collected seeks to capture individual and household level data from different income levels (i.e., low and middle-high income households), urban, suburban, and rural and equity-seeking groups in vulnerable populations from across Canada.

Accessibility measures are developed to determine, for predefined population groups, how far above or below a sufficient level of accessibility by a specific transport mode that population group is (Karner, et al., 2024; artens, et al., 2022). We use Statistics Canada's Spatial Access Measures (SAM) to calculate gravity-based accessibility to seven destination types (K–12 schools, employment, health care, sport and recreation, culture and arts, post-secondary institutions, and grocery store) via walking, biking, and public transit at the dissemination blocks (DBs; equivalent to the census block group in the US) across Canada's 41 Census Metropolitan Areas (CMAs). Based on the SAM accessibility scores, we calculate the levels of accessibility below which a population group is deemed 'accessibility poor' (also known as the Foster-Greer-Thorbecke (FGT2) measure (Karner, et al., 2024) or the Accessibility Sufficiency Index (Martens, et al., 2022)). We defined low access DAs as those in the bottom 25% of SAM accessibility scores and rescaled the scores, for each metropolitan area separately, to derive the 25% threshold. The rescaled scores range from 0-1, with 0 indicating that the population is above the threshold and 1 indicating that the population is below the threshold.

Bivariate and multivariate analyses are employed to uncover the links between being below the accessibility threshold and experiencing different transport problems across different urban settings and transport systems. Specifically, being below the accessibility threshold is associated with, among other things, making fewer trips than one would like, spending more time and longer distances travelling, reaching less destinations than one needs, and spending more money on transport than one would like. These outcomes highlight the importance of evaluating transportation and social outcomes in the context of the transportation options that people have available to them and the level of accessibility to destinations they provide. Understanding these relationships is key for making

informed decisions about the future of our cities while accounting for the full impacts that transportation has on our lives.

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Key Words: Transport poverty, Accessibility, Sufficiency, Social exclusion, National survey

Longitudinal Analysis of Transit's Land Use Multiplier in Three U.S. Regions

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Longitudinal Analysis of TransiCities in the United States and around the world have made expensive investments into fixed guideway transit (e.g. light rail, metro, bus rapid transit) with the goal of reducing vehicle miles traveled (VMT) and in turn the negative externalities associated with VMT such as increased traffic congestion. Investments in transit infrastructure can also lead to land use changes through the creation of transit-oriented development (TOD) which are dense, compact, mixed-use built environments that are pedestrian friendly and encourage the use of public transportation (Cervero, et al., 2004). These land use changes spurred by rapid transit can lead to greater location efficiency which can encourage people to take trips by walking and biking or lead to shorter automobile trips. This can lead to decreases in VMT beyond what is expected from the direct substitution of automobile trips to transit trips, which are known as “indirect” impacts. This effect is known in the literature as the “transit multiplier” and is often defined as the number of total VMT reduction per passenger mile on transit. This study examines the magnitude of the transit multiplier and changes in travel behavior using household travel surveys conducted before and after the construction of light rail in three U.S. cities: Seattle, Salt Lake City, and Sacramento. This makes this study one of the first to evaluate the transit multiplier using longitudinal data and a quasi-experimental study design in multiple regions, which are preferred due to their greater ability to discern causal impacts.

Previous studies have been conducted which evaluate the transit multiplier effect across a variety of transit modes and urban contexts. Holtzclaw (2000) analyzed 28 communities across California and found that the magnitude of the transit multiplier varied between 1.4 to 9 depending on the community analyzed with the transit multiplier effect being most pronounced in denser urban environments such as San Francisco. Ewing and Hamidi (2014) conducted a longitudinal study which examined the effects of Portland’s Westside MAX light rail extension and found the value of the transit multiplier to be 3.04. Sabouri et al. (2024) utilized household travel survey data at the trip level in 31 diverse U.S. metropolitan regions and found that the value of the transit multiplier to vary between 6.1 to 9.54 depending on the region, and that the majority of the variation in this study was attributable to indirect land use impacts of transit rather than the direct substitution of automobile trips to transit trips.

Based on the studies highlighted above, we expect to find similar results in the three regions analyzed in this study. Suggestions for maximizing the potential multiplier effects of rapid transit on VMT reduction, and therefore the economic impacts that come from the more efficient movement of people and freight are presented. These include additional investments into pedestrian and cycling infrastructure around transit stations, coordinating land-use changes simultaneously with the construction of new rapid transit lines, and redeveloping underutilized parking structures at transit stations into mixed-use and walkable developments.

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Key Words: Transit Oriented Dev., Light Rail, Transit, Before-and-After, Land Use Multiplier

Memphis' Inaccessible Transit Vision: Planning, Austerity and Inequity in a Neoliberal Utopia

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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This paper explores the divergence between planning and implementation for the transit system in Memphis, Tennessee as an example of austerity in planning and its consequences for regional accessibility as well as social and racial equity. We also examine those planning and implementation processes through the lens of the local political economy which helps define them: Neoliberalism triumphant. Memphis represents an extreme case of neoliberal urbanism applied to transit planning, with the Transit Vision component of the Memphis 3.0 comprehensive plan developed primarily by a civic booster nonprofit and private consultant. We trace the planning process which led to Transit Vision and its partial implementation without the major funding and frequency increases it calls for, placing it in the historical context of local, national, and international urban governance trends. To quantify the realized impacts of that partially-implemented vision, we also conduct system-wide, place- and person-based cumulative opportunity job accessibility analyses of the Memphis Area Transit Authority system when Transit Vision was produced, at the height of efforts to partially implement it and at the present time, along with a counter-factual scenario representing full implementation of the plan. We find a process fitting theoretical understandings of neoliberal urbanism in terms of depoliticization, elite technocratization, and extraction of value from the public commons. The result is a transit system providing poor accessibility to employment under real-world conditions and showing significant accessibility disparities by race and class in all realized networks. The full implementation scenario shows improvements in all measures, providing a proof of concept for the network recommended by Transit Vision but has no organized, popular constituency to compel its implementation—or even to aggressively resist service cuts. We close by recommending future system redesigns include equity-focused accessibility analysis, be led by public agencies with deep participation of riders and potential constituencies of support, be funded as called for in planning and that transit planners critically examine relationships with the private and nonprofit sectors in constituting planning processes.

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Key Words: Transit, Accessibility, Participation, Austerity, Equity

Mobility & Racial-Spatial Isolation in Suburbs: A Qualitative Exploration

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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In recent decades, the traditional racial-spatial divide in U.S. regions has blurred, with an unprecedented growth of low-income residents of color in suburbs. Increased racial diversity in suburbs, however, have been accompanied by increased racial segregation therein. Of course, suburban landscapes differ from urban ones, particularly in terms of the vast dispersion of land uses and activities—which shape people’s ability (or inability) to move through space and reach destinations. Amidst complex and changing regional terrains, it is important to consider whether the expansion of low-income people of color to increasingly segregated and dispersed suburbs has introduced additional or different dimensions of racialized disparities in mobility and access.

Toward this end, my larger research project uses a mixed methods approach to explore the relationship between mobility and racial-spatial isolation in suburbs. My regression analysis shows that as mobility (measured by car access) decreases, Latinx and Black isolation increases—a relationship that is even stronger in suburbs compared to urban areas. Building on my quantitative findings, this paper uses a qualitative methodology to understand how the relationship between mobility and racial-spatial isolation operates in suburbs—specifically, how it affects people’s mobility experiences and economic and social outcomes.

To explore this question, I conducted in-depth interviews, including cognitive mapping exercises, with a random sample of 30 people of color living in economically-distressed suburbs in Southern California’s Inland Empire. Using a thematic analysis, I find that, even in the suburbs, car ownership is out of reach for many—20% of interviewees have no car access—and so they often rely on public transportation, specifically buses. Such reliance, however, hinders their mobility as suburban buses run infrequently and have limited geographic coverage. Unlike their urban counterparts, who often report overcrowded and uncomfortable conditions, participants had no complaints about the actual bus ride; indeed, buses provide an air-conditioned and clean environment in which riders can charge their phones. What makes public transportation so unpleasant in the suburbs is the waiting, resulting in extremely long travel times. Because of this, many resort to walking, but this greatly limits place access.

And so, interviewees largely view car access as the primary means of removing restrictions on mobility. As a result, among those with car access, there is pervasive stress about losing it. Many fear car accidents, not necessarily because of harm to their body, but because of harm to their vehicle. Additionally, the cost of gas and maintenance means participants must choose between travel and meeting other basic needs, like housing and food, leading many to forgo trips altogether. Additionally, the threat of auto-related police violence, particularly when driving through whiter and wealthier suburbs, causes anxiety and stifles travel. Due to these mobility constraints—transportation access, transportation costs, and safety concerns—participants’ activity spaces are relatively small, leading some to feel cut off from job opportunities in nearby suburbs.

This paper is relevant to both planning scholars and practitioners. In terms of scholarship, by focusing on suburbs, my project expands the spatial scope of the transportation planning field, which traditionally focuses on the urban—particularly when considering racialized transportation disparities. In terms of practice, this research identifies emergent transportation conditions with which planning agencies must contend—and raises the importance of spatial isolation when considering how to remove barriers to mobility and access. Indeed,

interventions to improve mobility and access will be quite different in dispersed suburban environments than in dense urban ones.

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Key Words: Mobility, Racial-spatial isolation, Suburbs, Car access, Job access

Mobility Wallet Effects on Individual Life Outcomes: A Longitudinal Study in South Los Angeles

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Transportation is a common barrier to accessing opportunities, particularly for low-income families. Scholars have examined strategies to reduce transportation barriers through approaches like improved transit or car access and ownership programs. However, fewer interventions directly target issues of transportation affordability. In 2023, Los Angeles joined a small but growing number of cities aiming to address this gap by piloting a Mobility Wallet program. This novel approach has the potential to not only affect travel behavior and mobility outcomes, but also assist with helping low-income people meet basic needs outside of transportation.

This paper draws from English and Spanish-language interviews with thirty-one Mobility Wallet program participants conducted before, during, and after the one-year program. The interviewees are diverse in age, gender, car access, household composition, and employment status. All interviewees identify as people of color. During and after the program, interviews captured data on how the wallet affected the interviewees' travel behavior (modes, destinations, and frequency of travel) and how changes in travel behavior affected their quality of life. Quality of life indicators included material hardship, stress and well-being, social connections, and feelings of independence and autonomy. This longitudinal, qualitative approach allowed the research team to explore, in detail, the effect of the mobility wallet on people's lives.

Our results demonstrate that flexible transportation subsidies are promising solutions for meeting the diverse transportation needs of low-income travelers and improving their quality of life. The wallet's most prominent and lasting effect was its role in decreasing material hardship and providing financial support. Because interviewees covered large portions of their transportation costs with wallet funds, they were then able to reduce financial stress. They described purchasing material items like clothing or school supplies for their children, catching up on bills, or contributing towards growing their savings.

We also found quality-of-life benefits stemming from increased social interactions. Interviewees described how having a mobility wallet increased their social connections and strengthened their relationships. They used their wallets to participate in more social activities, take kids or families on outings, visit family members, and connect with others for celebrations. The wallet increased the demand for social activities and provided the necessary financial resources for travel. These increased social connections were a source of joy for interviewees.

Finally, interviewees discussed increased independence and autonomy. They were able to support their own transportation needs and decrease their reliance on friends and family for transportation. In some cases, interviewees described being able to support the transportation needs of others in their lives by covering their transit or ridehailing costs. This personal independence and caregiving provided interviewees with a source of pride.

This research highlights the promise of flexible interventions in transportation affordability on improving low-income people's lives, but their shortcomings when conducted as short-term approaches.

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Key Words: Universal basic mobility, Transport affordability, Basic needs, Transportation insecurity, Mobility wallet

Modeling Road Segment Safety: Injury Crash in NCTCOG Using Multilevel Negative Binomial Regression

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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In the United States, car crashes cause over 100 deaths daily (CDC, 2024), with 5.2 million injuries in 2022. The economic cost is \$340 billion annually, or \$1,035 per person (Blincoe et al., 2023; NHTSA, 2019), representing 0.7% to 3.6% of state per capita income. In Texas, crashes caused a \$28.9 billion loss, or \$998 per person (NHTSA, 2019). Social impacts include lost productivity, medical expenses, and reduced quality of life (Blincoe et al., 2023).

Most traffic crash studies focus on built environment- such as road networks, land use, and population density (Abdel-Aty et al., 2013; Obelheiro et al., 2020; Pirdavani et al., 2014). Other studies focus primarily on driver behavior such as drunk driving, speeding, and inattention (Alghnam et al., 2018; Al-Wathinani et al., 2021; Farooq et al., 2019; Rahman et al., 2020). However, research often overlooks the combined influence of these factors, alongside demographics and environmental conditions (weather, light, surface). A key question is whether crashes are driven by a single factor-or do they result from the complex interaction of multiple factors? Moreover, there is a gap in linking safety policies with crash data. Texas reports over 3,500 traffic fatalities annually (NHTSA, 2021), highlighting the need for better policy alignment. While cities like Austin, Houston, and San Antonio have Vision Zero initiatives, the NCTCOG region lacks a coordinated safety strategy (Mobility 2045). We specifically ask:

- (1) What is the relationship between different contributing factors and injury crashes at the road segment level?
- (2) How do interactions between independent variables (e.g road type and weather conditions) influence injury crash rates?
- (3) What specific human factors (violations, speeding, intoxication and so forth) should be addressed in safety policies to reduce injury crash on different road segments?
- (4) What interventions can reduce injury crashes based on road, environmental, demographic, and human factors?

We examine the relationship between injury crash counts—fatalities and all injury types—and four independent variables: (i) driver behavior (speeding, lane changes, unsafe turns, distractions, violations, intoxication); (ii) built environment (road functions, speed limits, intersections, lanes, road types); (iii) demographics (age, gender, ethnicity); and (iv) environmental factors (weather, surface, light conditions). It analyzes TXDOT data from 2016–2024 for the NCTCOG region, a key area for shaping road safety policies due to its diverse road environments, and significant traffic volumes.

We hypothesize that injury crashes in the NCTCOG region result from road characteristics, environmental conditions, demographics, and human behavior. Factors like inattention, intoxication, speeding, and violations impact crash severity differently across road segments. Effective planning strategies, (Vision Zero, improved road design, and awareness campaigns), are crucial for preventing crashes to enhance road safety.

We used Multilevel Negative Binomial regression to analyze the impact of variables on injury crashes while accounting for variations across road segments and time. This method is effective in crash research, addressing

overdispersion and hierarchical data structures across segments and time (Basu & Saha, 2017; Dong et al., 2014; Kwayu et al., 2020; Park et al., 2022).

Initial findings reveal injury crash variations across road segments, highlighting how each of the independent variables affect crash outcomes verifying their effects and extent. The study identifies notable interaction effects, (for example: road type and violations) on crashes. Findings align with prior research (Ahmadi et al., 2020; Behnood & Mannering, 2017; Dingus et al., 2016; Precht et al., 2017; Huang et al., 2018; Oviedo-Trespalacios, 2018; Maasalo et al., 2019;). The results will provide evidence for our research questions and discuss policy implication and future research.

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Key Words: crashes, negative binomial, road-safety, road-segment, Vision Zero

Moving from an Ethos of Cars to an Ethics of Care: Urban Planners as Urban Peacebuilders

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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For the past century, urban planning decisions have cemented the car's dominance in our lives, whether through land use planning that has made automotive access necessary to carry out even the most mundane activities or transportation planning that has prioritized fast and efficient vehicular travel above all other modes. Beyond reshaping our built environment, the private automobile has fundamentally altered our relationships - with each other and with the natural world. Indeed, in a society where the car has become synonymous with freedom, we fail to recognize what we sacrifice in our endless pursuit of individual liberty - not only the safe movement of others but also our collective ability to fulfill an even more basic human need: to connect.

This paper tackles a set of complementary research questions: first, while we can intuit the indelible impacts of cars on our social relationships, how can we begin to detail the depth and breadth of those impacts...and what role do urban planners play in perpetuating them? Second, what would it look like for urban planners to think of themselves as urban peacebuilders...and what could we gain in the process?

To answer the first question, this paper applies Johan Galtung's (1969, 1990) triangle of violence to our transportation system using literature from a wide range of disciplines to reveal the ways in which cars have contributed to three forms of violence: direct (interpersonal behavior that causes harm), structural (processes and institutions that enable those harms or introduce new ones), and cultural (narratives and symbols that normalize the harms). In this way, it demonstrates how vehicular violence can offer a compelling framework for understanding how cars are at the center of a complex web of harms and how urban planning contributes to broader cycles of conflict.

To answer the second question, this paper adapts the philosophical approach of the ethics of care to our transportation system to illuminate how centering relationships, reciprocity, and responsibility presents a path out of car supremacy (Engster, 2009; Held, 2005). Moreover, it offers insights from community mobility initiatives that are already challenging our modal hierarchy to reimagine streets for care. In particular, this paper argues that the ethics of care presents a theoretical framework distinct from and more expansive than existing approaches. Pursuing Vision Zero, engineering a carbon-free network, and ensuring mobility justice are all admirable - and necessary - goals; however, if these become our sole guiding principles, we risk achieving them in a way that entrenches car supremacy rather than dismantling it. In fact, we can envision a world where these laudable aims have been achieved because everyone has their own emissions-free, crash-free vehicle, yet we would still be locked in a paradigm that commits the cardinal sin of cars: removing their passengers from the public realm and in turn severing our social fabric.

Amidst technical jargon and bureaucratic processes, at its core urban planning is a profession that navigates profound moral questions about who can exist where. The reinforcing dynamics of the triangle of vehicular violence makes overcoming the ethical quandaries present in our transportation system seem daunting, and our existing discourse about what the future could be only takes us so far. Ultimately, this paper posits that urban planners are not only players in a complex conflict system, but also that they can be agents of change. Indeed, given the epidemic of social isolation and its connection to parallel trends such as increasing levels of intolerance

and political polarization, this paper argues that urban planners must see themselves as urban peacebuilders and suggests a moral compass to guide the way.

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Key Words: ethics of care, vehicular violence, car supremacy, urban peacebuilding, conflict system

Navigating Complexity: Collaborative Planning and Stakeholder Engagement in Advancing BRT

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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One of the biggest paradoxes in urban mobility planning is that top-down, expensive transit megaprojects often take decades to complete and fail to serve the residents who need them most. This tension reflects a broader debate in planning theory between antagonism and agonism, where the former refers to hostile and irreconcilable conflicts between groups while the latter represents a productive form of conflict recognizing each opponent as legitimate adversaries. Democracy seeks to transform antagonism into agonism, fostering structured debate rather than outright conflict. However, traditional top-down planning processes, rooted in rigid, law-based frameworks, often struggle to support agonistic approaches, limiting inclusive participation and meaningful dialogue. In transportation planning, this manifests in rigid, rational-comprehensive frameworks that exclude local voices, limiting opportunities for meaningful community engagement.

Collaborative rationality has shown its effectiveness in fostering local strategic plans. Rooted in communicative theory by Habermas, it emphasizes dialogue, consensus-building, and stakeholder participation in decision-making processes. However, most of the city or regional-level transportation plans still follow the top-down, rational-comprehensive plan-making process. Many of them ignore local voices and reinforce inequality. This study aims to provide new evidence to this mobility paradox: Can a transportation plan be formulated and implemented using a bottom-up framework guided by collaborative rationality?

The study focuses on an on-going effort of promoting BRT in Worcester to understand how a transit planning process is ground in collaborative rationality. The city of Worcester, Massachusetts, is experiencing steady population growth, placing increasing demands on its public transit system. Currently, the Worcester Regional Transit Authority (WRTA) operates a bus network serving the city and surrounding areas; however, the service is limited in frequency and coverage, challenging its ability to meet the needs of a growing urban population. Implementing a Bus Rapid Transit (BRT) system presents an opportunity to enhance mobility, reduce traffic congestion, and provide a reliable and efficient transit option to better serve residents. But there is no political will among city leaders to initiate such service, so a coalition of non-profit organizations has initiated a planning process from the bottom-up. While this group might be expected to be in antagonistic position towards city leaders, the planning thus far has taken a more agonistic quality. Something we are unpacking and understanding in this research.

This research will adopt a qualitative methodology centered around semi-structured interviews with key local stakeholders involved in the BRT initiative. These stakeholders include representatives from WRTA, neighborhood associations, local universities, local businesses, and community advocacy groups. Interviews will be conducted exploring sources of both antagonism and agonism and perceived barriers to consensus-building. Additionally, public meeting records and planning documents will be reviewed to supplement interview data and provide a comprehensive understanding of the stakeholder engagement process.

The study aims to find out the dynamic roles and the level of involvement by different stakeholders, for a BRT project in a mid-scaled Northeast city in the US. Anticipated results include identifying best practices for fostering inclusive stakeholder engagement, understanding the challenges faced in reaching consensus, and offering insights

into the role of collaboration in advancing sustainable urban transportation projects. The findings aim to inform future urban planning efforts in Worcester and other mid-sized cities pursuing similar transit initiatives, ultimately contributing to more effective and equitable transportation solutions.

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Key Words: Bus Rapid Transit, collaborative planning

New Transit, Bike Infrastructure, and Green Space: Effects on Gentrification and Displacement

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Introduction. Research has examined the impact of public investments on gentrification and displacement in underserved U.S. communities. Studies have shown how new rail transit and bus rapid transit (BRT), new bike infrastructure, and new parks have contributed to gentrification and displacement. Much of this research has focused on one type of investment at a time, has used aggregate tract-level data, and has only examined whether gentrification follows public investment. To address these gaps, we seek to disentangle the impacts of different public investments on neighborhood change.

Research questions. Do new transit, bike infrastructure, and green space have a multiplying effect on gentrification and displacement? Specifically, when new transit is built in underserved communities, do concurrent investments in bike infrastructure or green space increase the risks of gentrification and displacement? And does gentrification precede public investments in new transit, bike infrastructure, and green space?

Methods. We focused on four metropolitan areas in the Western U.S. (Denver, Utah's Wasatch Front, Portland, and Seattle) that have seen significant investment in new rail/BRT, bike infrastructure, and parks. We built a longitudinal dataset with household-level data from Data Axle between 2006 and 2023 in the four regions. Data for public investments was collected from transit agencies (rail and BRT), metropolitan planning organizations and cities (bike infrastructure), and the Trust for Public Land (parks). We classified households in gentrification-eligible block groups as treatment if within a half-mile of new public investment (e.g., new rail transit) and as control if otherwise, considering multiple combinations of proximity to several types of public investments (e.g., proximity to new rail transit and park vs. proximity to park only). We then built mixed-effect models to track residential mobility in and out of areas near new transit but without new park investment and bike infrastructure investments, and compare such residential mobility with new transit areas that do have new parks and/or new bike infrastructure. To do so, models included interaction terms between the various treatments (e.g., transit treatment and park treatment). Thanks to this household-level dataset, we tracked the low-income renter households who moved out of various treatment areas, which enabled us to model potential displacement processes. These models controlled for household characteristics, neighborhood demographics, housing characteristics, and other features affecting gentrification and displacement.

Results. Preliminary regression results for Utah's Wasatch Front suggest that displacement is more likely to occur in the years preceding the opening of new transit stations than after they open. In other words, low-income renter households are more likely to move away from areas that are about to receive new transit than from similar control areas that will not receive transit investments. These results suggest that the announcement of new transit investment might affect displacement, as the real estate market might respond to such an announcement. The concomitant presence of bike infrastructure or new parks in areas with new transit investment does not seem to

create added displacement risk. Analyses of gentrification and of the three other regions will be completed before the ACSP conference.

Implications. Evidence from this study can help define gentrification and displacement risk factors associated with new public investments in sustainable infrastructure. These risk factors can inform the planning of equitable transit-oriented developments by providing planners with information about the potential impacts of other public investments alongside transit. Because displacement might occur before transit stations open, cities and nonprofits should implement affordable housing policies and investments well in advance of transit investments.

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Key Words: Public investment, Gentrification, Transit, Parks, Bike infrastructure

No School Bus, No Problem? How Students Get to School Without Bus Service

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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School commute times coincide with peak hours for child-involved crashes, highlighting the high safety stakes of school trips (Wheeler-Martin et al., 2020). Among available transportation modes, school buses are the second most widely used and the safest in the United States. (NHTSA, 2025; FHWA, 2019). However, Georgia state policy stipulates that students residing within 1.5 miles of school are ineligible for state-funded school bus service (Speroni, 2023; Georgia Code § 20-2-188). This exclusion of a safe, reliable transportation option raises equity concerns, particularly for children in non-walkable neighborhoods, those near the upper limit of this distance, or households with limited vehicle access. By constraining mobility options, such policies may force children to use less safe modes, reinforcing car dependency and exacerbating transportation and health disparities. To examine policy gaps in states where school bus service is mandated beyond certain distances including Georgia and to identify the need for more inclusive transportation policies, this study asks: What transportation modes do children living close to their schools choose when school bus access is unavailable, and how are these choices shaped by the built environment and household attributes as well as parental and individual characteristics? We pay particular attention to eye-level streetscape features, including sky visibility, and incorporate the Social Vulnerability Index, developed by CDC (2018), as an equity measure. Our findings show correlations between built environment factors and travel choices among students living close to their schools. We present how these outcomes vary across different neighborhoods and socioeconomic groups, with a focus on the impact of lacking bus service. Our results inform built environment and policy improvements that promote safe, equitable school travel options, while critically examining Georgia's school bus policy.

This study analyzed school transportation mode choice among K–12 students in Georgia using the 2017 National Household Travel Survey Add-on dataset. We first identified school trips where the origin was within 1.5 miles of the school and confirmed that the corresponding school district did not provide bus service, yielding a sample of trips made by walking, biking, or automobile. Built environment features were measured at both the neighborhood and street levels, including streetscape elements extracted via computer vision from street view imagery. These factors were combined with individual, household, and parental attributes in a discrete choice analysis. Automobile use served as the reference category; while walking and biking are grouped together as the non-auto alternative.

The results suggest that children from households with fewer vehicles and those who walk frequently are more likely to choose non-auto modes. Built environment features also influence mode choice: greater POI accessibility and higher building-to-street ratios are associated with increased likelihood of using non-auto modes, while higher intersection density, employment density, and greater sky visibility are linked to reduced use. While some findings align with prior walkability research, the negative impacts of intersection density may suggest safety issues for children. Parental factors (e.g., commute mode, perceptions of neighborhood safety) also play a key role. The relationship between the SVI and non-auto travel suggests that children in more vulnerable communities tend to rely more on walking or biking. The lack of bus service may pose greater challenges for these children, exacerbating transportation inequities. These findings highlight the need to improve walkable environments to support safe and equitable school travel for children. They also call into question the policy of not providing bus service to students within 1.5 miles of school, particularly in areas where walking and biking are unsafe.

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Key Words: School transportation, Children, Mode choice, Travel behavior, Social vulnerability

Parental Stress and the School Drop-Off/Pick-Up Line

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The emotional effects of commuting to work are clear: the commute adds stress and reduces happiness, and nearly all other types of trips are associated with higher levels of life satisfaction. But one other type of trip functions more like a commute trip, in that it fits a set schedule and recurs nearly daily: the school trip for children. Scholars have paid less attention to any similar effects from the school commute; specifically, research has yet to uncover the stress burden that chauffeuring and/or escorting children to and from school places on parents/guardians. While scholars have investigated the myriad reasons parents drive their children to school, the literature has not yet explored how that responsibility may affect parents/guardians. Would providing school transportation (such as a school bus or ridehail trip) reduce parental stress?

This study examines the potential relationship between stress and school transportation through a pilot randomized control trial of school-provided transportation service at the UCLA Lab School, a private elementary school owned and operated by UCLA and intentionally engaged in research partnership with university researchers. Like many private schools nationally (and many public schools in California), the UCLA Lab School does not provide school-sponsored transportation to its students and families. This study proceeds in three phases: a survey, a pilot program, and a follow-up survey.

First, in February 2025 Lab School leaders distributed a survey to the school's 299 families that asked about families' regular scheduled travel behaviors for work and school for all members of their household, including other children not attending the Lab School. The survey asked about which adults in the household bore the responsibility of school chauffeuring, about the stress that the responding parent feels about transportation generally, about how easy to difficult they find transporting their child to the Lab School, and whether their family would be interested in school-sponsored transportation if it were provided. I linked these data to school administrative data to include analysis about the students' residential location, family income, and race/ethnicity. I also used the 2017 National Household Travel Survey California Add-On to contextualize the Lab School's students and transportation patterns with those of private school students in California generally. Approximately 95 percent of students at the Lab School are driven to school, slightly above the 90 percent of all private school students in California.

Second, the school's research partnership team and I identified 101 families who responded to the transportation survey and who indicated interest in receiving school-sponsored transportation. Of these, a portion will be selected for a pilot program that will provide shared ridehail trips via HopSkipDrive, a ridehailing company that specializes in this type of service. The pilot will run for the final six weeks of the 2024-2025 school year.

Third, upon completion of this pilot, families in both the treatment group (those who received HopSkipDrive rides) and the control group (those who did not) will receive a second survey that asks about changes in family travel behavior and their stress levels related to transportation, and for feedback about the pilot program. I will use findings from this second survey to assess how the pilot program may or may not have affected parents' stress levels, compared with the control group and controlling for family income, race/ethnicity, and the size of the family's activity space.

Findings from this study can be used by both planners and educators to understand the role that providing transportation or not can have on families, particularly the parents of students. While transportation is a sizable budget item for school districts, reducing stress and freeing up time for parents can be an indirect benefit of these programs.

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Key Words: School Transportation, Commuting, Stress, Activity Spaces, Randomized Control Trial

Public Transport Trends and Policies in Great Britain, Germany, the USA, Canada, and Australia

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Track 14: Transportation and Infrastructure Planning

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This paper compares changes in urban public transport (PT) demand and supply before, during, and after COVID-19 in five countries: Great Britain and Germany in Europe, the USA and Canada in North America, and Australia. We also examine a range of PT system and government policies that were implemented during and since the COVID-19 pandemic to improve safety, adjust service levels, and encourage PT ridership.

PT ridership fell sharply in all five countries during 2020 and 2021, when COVID-19 rates were highest. As a percentage of 2019 levels, the lowest annual ridership for each country was 31% for Great Britain, 42% for Canada, 46% for the USA, 48% for Australia, and 64% in Germany--but with considerable month-by-month variation due to various waves of COVID. The latest full year of available data (2023) indicates that Germany (91%) and Great Britain (86%) recovered the highest percentages of 2019 ridership levels compared to 80% in Canada, 76% in Australia, and 72% in the USA. Bus ridership declined less than rail ridership, and bus ridership recovered more fully. That is especially the case in the USA, Canada, and Australia. Our analysis of PT in five large cities finds that recovery rates were generally higher on weekends than on weekdays, both for bus and rail.

The most important government policy for PT has been a massive increase in funding, especially from central governments, to offset the large operating budget deficits resulting from lost passenger revenue. That funding enabled PT systems to maintain or reduce fares while avoiding large reductions in supply. Dependable government subsidies will be necessary in the coming years to make PT financially sustainable and to enable long-term planning for infrastructure modernization and improved service. PT's wide range of economic, social, and environmental benefits are often cited as justification for PT subsidies.

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Key Words: public transport, COVID, Recovery, ridership, international comparison

Redefining Transit Deserts: A Data-Driven Framework for Identifying Transit Inequities

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Public transit plays a crucial role in providing transit-dependent individuals with access to employment opportunities and essential services. However, transit access is unevenly distributed across urban areas, resulting in service gaps and transportation insecurity, particularly for low-income households and people of color (Barajas and Brown 2021). Identifying these gaps and addressing transportation poverty has led to the increasing use of the “transit desert” concept. However, most transit desert studies compare transit supply and demand using normalized scales such as z-scores (Jiao, Conrad, and Azimian 2021; Currie 2010), which often leads to false identification of transit deserts. Further, relying on relative measures, these studies do not establish normative thresholds of transit service necessary to ensure basic mobility for transit-dependent populations. While several recent studies have attempted to define accessibility insufficiency—specifically the thresholds of accessibility poverty—the complicated accessibility framework, which combines both transportation and land use, provides little practical guidance for transit planners (Klumpenhower and Karner 2025; Martens and Cohen-Zada 2022).

This study addresses this research gap by developing and testing an alternative method for identifying transit deserts, using the Chicago metropolitan region as a case study. Our proposed approach is grounded in the travel behavior of transit riders, is easily replicable with publicly available data, and offers practical policy guidance for transit planners by focusing transit service. The primary data sources include the 2019 My Daily Travel Survey by the Chicago Metropolitan Agency for Planning (CMAP), the American Community Survey (ACS), and General Transit Feed Specification (GTFS) data from regional transit agencies. Drawing on the United States Department of Agriculture’s (USDA’s) established methodology for identifying food deserts—low-income census tracts where a significant number or share of residents have limited access to a grocery store—we define transit-dependent block groups (BGs) where a significant number or proportion of residents lack access to adequate transit service as transit deserts. This approach involves the following analysis steps.

First, we define transit-dependent individuals and identify transit-dependent BGs where more than a threshold proportion of residents are transit dependent. This process includes three steps: i) Define transit-dependent groups through a typology of transit riders using latent profile analysis (LPA), with travel behavior and vehicle access variables as input. ii) Conduct a multinomial logit (MNL) analysis to examine how demographic and socioeconomic variables influence the probability of being transit dependent. iii) Use the estimated MNL coefficients and BG-level ACS data to predict the probability of transit dependency across subpopulations with different characteristics, estimating the number of transit-dependent residents in all BGs in the Chicago region.

Second, we identify transit-dependent BGs where a significant proportion or number of residents live beyond the reach of adequate transit service. This involves: i) Defining minimum threshold transit service levels required to meet the basic mobility needs of transit-dependent populations. These thresholds will be determined based on a review of relevant literature and an empirical analysis of transit use behavior in the region. ii) Estimating the number of residents living outside the defined adequate transit service area—a

Half-mile from rail transit and a quarter-mile from bus stops offering adequate service. We will test a range of threshold proportions and absolute numbers of residents to identify the most relevant criteria.

Finally, we will compare the results obtained from our proposed method with those derived from existing approaches for identifying transit deserts and transit poverty.

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Key Words: transit deserts, inadequate transit, Chicago, transit inequity, transportation poverty

Relative Accessibility as the Potential for Car Independence

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Transportation accessibility metrics, operationalized as a travel-time-weighted sum of destinations that can be reached by a given mode, have become increasingly common tools to evaluate how well the combination of land-use patterns and transportation infrastructure facilitates activity and interaction within an urban area (Levin 2020; Siddiq and Taylor 2021). A debate has emerged on the topic of whether accessibility is itself a goal (Walker 2018) or if it is mostly useful as a proxy or determinant of travel behavior (Karner 2022), and this tension may reflect the difficulty of predicting travel choices based on accessibility metrics that describe the usefulness of a single mode. The current edition of the Transit Capacity and Quality of Service Manual (Transportation Research Board 2013) incorporates the concept of evaluating the ratio of transit travel times to travel times by car as a transit system performance metric. Similarly, evaluating the ratio of car-based accessibility to the accessibility available to those without a car may be a useful measure of the freedom travelers have to meet their daily needs without relying on a private vehicle.

I propose the ratio of average car-free accessibility to average accessibility by car as a measure of the potential for car independence (PCI). I have calculated this metric for each of 917 core-based statistical areas (CBSAs) (including both metropolitan and micropolitan areas) in the United States and for each of the 81,144 census tracts contained within those areas. I validate this as a measure of car independence by calculating its Pearson's correlation with each of five travel-behavior variables from the 2019-2023 5-year sample of the American Community Survey: The share of workers that commute to work by each of four modes (car, transit, walking, and cycling) and the share of households that does not own a vehicle. Finally, I estimate a set of regression models to evaluate the degree to which several built environment characteristics predict the PCI indicator at both the regional (CBSA) level and the neighborhood (census tract) level.

I find that, at a 95-percent confidence level, the region-level PCI indicator has a significant correlation in the expected direction with the percentage of workers who walk to work, the percentage of workers who bike to work, and with the percentage of households without vehicle access. A higher PCI index is associated with a greater share of workers who walk or bike to work and a greater share of households without vehicle access. The region-level PCI indicator has a correlation in the opposite to the expected direction for the percentage of households who drive to work (90 percent confidence) or commute to work by public transit (95 percent confidence). The tract-level PCI indicator has a significant (99-percent confidence) correlation with all five travel behavior outcomes in the expected direction.

A linear regression model predicting the tract-level PCI indicator based on the total area of the region, the population density of the region, and the population density of the tract predicts about nine percent of the variation in the tract-level PCI indicator. The results of that regression suggest that higher PCI indicators are associated with regions that have a smaller total land area, a lower population density at the regional level, and a higher population density at the tract level. In other words, a tract with the greatest potential for car-independence would be a relatively high-density neighborhood within a small, low-density micropolitan area. Interestingly, these are areas that generally do not have extensive public transit systems. The potential for greater car independence in those types of places is largely driven by shorter proximities than by greater mobility by non-car modes.

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Key Words: Accessibility, Urban form, Car dependence, Commute mode shares, Vehicle availability

Rethinking Transport for Equitable Park Access: A Multi-Modal Planning Perspective

Abstract ID: 1844.0.0.436.2025

Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Central Theme and Research Questions: Access to large parks offers critical health and social benefits, yet many residents face challenges due to limited mobility and car-centric transportation system. In urban areas dominated by car-centric infrastructure, individuals who could benefit most from nature—such as lower-income groups — often face the greatest barriers to reaching parks (Rigolon, 2016; Park et al., 2021). While existing studies explore park access through walking or driving, less is known about access variations across multiple transport modes, including shared mobility options (Fang et al., 2025; Huang et al., 2024). This study investigates the spatial and socioeconomic patterns of multi-modal access to parks (M2P) in Metro Vancouver, BC, Canada. Specifically, it asks: (1) What are the spatial inequalities and socioeconomic inequities in multi-modal access to large parks across Metro Vancouver? (2) Which neighbourhoods face the greatest access challenges, and what targeted interventions could improve M2P accessibility?

Approach and Methodology: For the first question, we calculated M2P measures for 3,590 neighborhoods (census dissemination areas) and 58 large parks (>30 hectares) using spatial network modeling of five trip chain scenarios (driving, transit, biking, bikeshare, and carshare). Accessibility was measured using three methods—minimum distance, cumulative opportunities, and gravity models. We assessed spatial equality with Lorenz curves and Gini coefficients, and income-based equity using the Concentration Index (Karner et al., 2024).

To answer the second question, we first identified target neighbourhoods by overlaying composite M2P accessibility scores with socio-demographic indicators as proxies for low mobility. Based on consultations with municipal transportation planners to develop feasible intervention scenarios, we simulated M2P measures and evaluated different scenarios' impacts on access and equity.

Key Findings: Our results show that driving offers the most evenly distributed park access, while shared mobility modes are least equitable and tend to favor higher-income neighbourhoods. Among the three models, the gravity model, which considers multiple parks and their quality, revealed greater disparities in M2P access. We identified key underserved areas with low mobility but low multi-modal accessibility: Surrey, White Rock, Richmond, City of Langley, and Maple Ridge. These areas are less urbanized, heavily car-dependent, and put less priority on transit and shared mobility infrastructure development. Consultations with municipal planners yielded several feasible interventions, including expanding protected bike lanes, rerouting transit lines to park entrances, and expanding carshare home zones and bikeshare stations. Simulation results demonstrate that these targeted strategies can improve M2P access and narrow equity gaps.

Relevance and Implications: These results highlight the need for transportation planning that prioritizes equity, reduces car dependency, and expands affordable alternatives for underserved communities. This study advances park accessibility research by integrating multi-modal methods and shared mobility into equity analysis. It offers practical insights for planners to identify underserved areas and implement targeted interventions. By aligning with local planning priorities, the research supports more inclusive access to green spaces and promotes equitable infrastructure development.

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Key Words: Park Accessibility, Transportation Equity, Multi-Modal Transport, Mobility Justice, Shared Mobility

Rethinking Travel Time: When Minutes Become a Matter of Well-being

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Urban planners have long perpetuated systemic transportation inequities by prioritizing the travel experiences of higher-income individuals and their communities through metrics that undervalue the time and needs of their low-income counterparts. Current planning practices rely on the value of travel time savings, a narrow economic metric that assigns a monetary value to reduced travel time based on individuals' willingness to pay (Small 2012), sometimes approximated as a proportion of the median wage rate (White 2016). This approach, rooted in exchange value, reduces time savings to commodified resources and obscures broader societal impacts. By prioritizing monetary valuations, planners inadvertently engage in "commodity fetishism" and design transportation systems that disadvantage low-income individuals who are unable to "purchase" travel time savings (Martens and Di Ciommo 2017).

This research challenges the exchange value of travel time savings paradigm by proposing a shift to use value—the actual utility of travel time savings in improving daily life. Drawing on the capabilities framework (Robeyns 2005) —, which evaluates how resources enable individuals to pursue activities essential to their well-being, this research investigates how travel time constraints deprive low-income communities of time for well-being activities. The analysis specifically contrasts high- and low-income groups due to their starkly divergent access to time-saving resources: high-income individuals benefit from subsidized infrastructure (e.g., express lanes, private car usage) and can substitute lost time with paid services, whereas low-income populations face systemic underinvestment in public transit, compounding time poverty (Giurge, Whillans, and West 2020). This disparity compounds time poverty, making travel time constraints uniquely detrimental to low-income well-being.

I focus on the United States, a country characterized by a two-tiered transportation system and decades of detailed time-use data collection through the American Time Use Survey (ATUS). Using this time-use survey, I employ a two-stage comparison to analyze how travel time savings increase time spent on well-being activities. First, within-income-group comparisons identify how travel time savings (limitations) increase (reduce) time spent on well-being activities, revealing the "use value" of time in specific socioeconomic contexts. Second, a between-income-group comparison quantifies disparities in how travel time impacts well-being across income brackets.

Centering on lived experiences rather than monetary abstractions exposes systemic biases associated with the exchange value of travel time. The findings indicate that high-income individuals benefiting from travel time savings are increasing their time spent on well-being activities at rates higher than their low-income counterparts. These findings advocate for reorienting planning practices toward equity-oriented metrics that prioritize time as a resource for enhancing capabilities, not merely a cost to be optimized. This research contributes methodologically—by operationalizing the capabilities framework in transportation equity analysis—and practically, offering policymakers tools to design transit systems that redress the long perpetuation of systemic transportation inequities.

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Key Words: Transportation equity, Value of travel time, Income disparities, Capabilities approach, Time poverty

Right Turn on Red: Energy-Saving Measure or Unsafe Maneuver?

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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There is a growing interest in prohibiting right turn on red (RTOR) policies in the name of pedestrian and bicycle safety but there is not enough research on the subject to help agencies make informed decisions. When Congress passed the Energy Policy and Conservation Act of 1975, they included a provision requiring states to permit right turns on red lights as an energy-saving measure to receive federal assistance for mandated conservation programs. Since 1980, all states have permitted right turns on red as a general rule. More research is needed to help guide state policies that can support jurisdictions in making more informed and context-sensitive decisions. This research examines the infrastructure design and built environment-related factors associated with RTOR collisions - particularly those involving pedestrians and bicyclists. We also looked at emissions issues for RTOR maneuvers. Our findings reveal that RTOR movements are generally unsafe for pedestrians, bicyclists, and drivers, while only marginally useful in lowering emissions and only under certain contexts. Those marginal benefits may further decline with increased electric vehicle (EV) adoption. Despite RTOR crashes being a small portion of collisions and fatalities at signalized intersections, they tend to be more severe for vulnerable road users (e.g., bicyclists and pedestrians). Additionally, given the rise of SUVs/pickups in the U.S. personal automobile fleet - which tend to cause more severe collisions - RTOR prohibition is a proactive safety strategy consistent with the internationally recognized and USDOT-adopted Safe Systems approach. We recommend that state policy should make it easier for California communities to prohibit RTOR movements. We also recognize that banning or permitting RTOR movements should acknowledge the specific contexts of the communities (their place types), which could unduly burden cities that want to allow or prohibit RTOR at a vast number of their intersections in terms of signage. Informed decisions about RTOR policies can improve road safety for all.

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Key Words: transportation, Pedestrian, Bicyclist, safety

Roundabouts are for Rich People: Who Gets Traffic Control Devices and Why It Matters

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Questions: Almost every intersection around the world has some form of traffic control device—from the simplest two-way stop up to complex traffic signal systems. This arose remarkably quickly after advent of the automobile. In 1914, the first traffic lights and stops signs were installed, and by the late 1920's, modern, automated traffic lights were widespread (McShane, 1999). The development of roundabouts took longer; modern roundabouts didn't arrive in the US until 1990 (Waddell, 1997).

In this article, we investigate how disparities in the provision of traffic signals, roundabouts, and stop signs vary across neighborhood sociodemographics, using a dataset of all North Carolina intersections.

Methods: We estimate multinomial logit models predicting provision of traffic control devices at each intersection. The “outcomes” model evaluates the relationship between poverty or race and traffic control devices. The “intrinsic” model adds controls for traffic volumes and population density. The final “mechanisms” model adds controls for state ownership and when the area around the intersection was developed. We estimate separate models for racial composition and poverty level.

Findings: Intersections are more likely to be signalized (vs. stop-controlled) in impoverished areas (all models) or in areas with large populations of Black (all models), Asian (outcomes and mechanisms models), Hispanic, or multiracial communities (outcomes model).

For roundabouts, we find a different story. Across all models, intersections in impoverished areas are significantly less likely to have roundabouts, while results by race are varied. We also identified a mechanism that contributes to these disparities: lower-income neighborhoods tend to be older, and roundabouts in the US are rare in neighborhoods built before 2000.

Roundabouts have safety benefits relative to both signalized and stop-controlled intersections (Maji & Ghosh, 2025). Thus, differential provision of roundabouts is an equity concern, particularly as roads in lower-income neighborhoods are more dangerous to begin with (Dumbaugh et al., 2022).

Our findings suggest that municipalities and DOTs should focus more on safety investments such as roundabouts, and less on traffic flow investments such as signals, in lower income neighborhoods. Traffic signals have a “warrant” process to guide engineers when a signal is appropriate, which may explain increased prevalence in communities with less political capital to oppose engineering guidance. Furthermore, traffic signals are primarily a traffic flow device, not a safety device, and the needs of motorists have been prioritized in disadvantaged neighborhoods since the dawn of motordom (McShane, 1999).

Roundabouts have no such “warrant” process, which may lead to them being underutilized, as separate engineering studies are required to justify each roundabout (Federal Highway Administration, 2000). Developing

clear guidance for roundabout installation, with a focus on safety above traffic flow, may help ameliorate the disparities. Equitable provision of roundabouts will also require retrofitting existing neighborhoods.

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Key Words: traffic control, traffic signals, roundabouts, traffic safety, equity

Rural Health Provider Insights on Transportation Barriers to Substance Use Disorder Care

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Across the United States, an estimated 48.5 million Americans live with a substance use disorder (SUD). Despite this high prevalence, nearly four in five individuals do not receive treatment, often due to multiple overlapping barriers—including stigma, inadequate provider training, a shortage of addiction specialists, and lack of transportation to treatment facilities (Madras et al., 2020). Transportation barriers are particularly acute and include limited or no access to public transit, suspension or lack of a driver’s license, long travel distances, and high transportation costs (Harwerth et al., 2023). These challenges are especially severe in rural areas, where public transportation is minimal and often reliant on non-emergency medical transportation (NEMT) services (Kiang et al., 2021).

In Nebraska, 88 of the state’s 93 counties are federally designated Mental Health Professional Shortage Areas. The long distances between communities and treatment facilities significantly hinder access to care, particularly for individuals with limited mobility or resources. Research consistently shows that the farther a treatment facility is located, the less likely a person is to pursue or maintain care. While telehealth services have expanded since the COVID-19 pandemic, these modalities do not fully eliminate transportation challenges—especially for rural residents lacking digital literacy or stable internet access (Vinella-Brusher et al., 2022).

This study investigates how transportation barriers affect access to SUD treatment in rural Nebraska by centering the perspectives of providers and care coordinators. Through in-depth, semi-structured interviews with clinicians, care coordinators, and community health workers, we explore three key themes: how transportation barriers shape access to SUD care; how providers are adapting to evolving modalities such as telehealth; and how they are envisioning or implementing solutions to overcome transportation-related obstacles. Participants are being recruited from “care deserts” identified through prior geospatial analysis, where geographic isolation and lack of transit options most acutely impact access.

Findings will offer new insights into how providers perceive and respond to transportation barriers in their practice. Providers report that transportation is one of the most consistent determinants of whether a patient can initiate or continue treatment. While telehealth is an important tool for expanding reach, its effectiveness is tempered by infrastructure gaps and the need for in-person services for many treatment types. In response, providers are leveraging creative solutions, such as flexible scheduling, coordination with local transportation providers, and the use of mobile clinics and peer-based support systems to fill access gaps.

This research makes a unique contribution by capturing how transportation barriers to SUD treatment are understood and navigated from the provider perspective—an area that remains underexamined in rural health and transportation planning literature (Nelson-Forcade et al., 2025). The findings will inform actionable strategies for reducing access inequities and improving transportation safety and service delivery for rural communities facing the dual challenges of substance use and geographic isolation.

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Key Words: healthcare access, substance use disorders, transportation barriers, qualitative research, rural planning

Scaling Crosswalk Analysis for 100 U.S. Cities via AI-based Segmentation of Satellite Imagery

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Accurately measuring public-right-of-way dimensions is essential to evaluating how street design affects both travel behavior and safety. However, gathering city-scale information with precision is difficult given the number of and complexity within urban intersections. To address this challenge in the context of pedestrian crossings – a crucial component of a city’s walkability – we introduce a highly scalable and accurate analysis pipeline for automatically measuring crosswalk distance applied to America’s 100 largest cities (covering millions of crossings). First, OpenStreetMap intersection coordinates were used to target satellite-imagery tile retrieval. Then Meta’s Segment Anything Model was trained on high-entropy intersection images to differentiate drivable from non-drivable surfaces (i.e. roads vs. sidewalks). A small number of post-processing steps were then developed to optimize intersection measurement accuracy, including to ensure that refuge islands are segmented as non-drivable space, and to prune extraneous segments that overlap with known drivable road space. Next, all available crosswalk edges from OpenStreetMap were extracted, and we augmented this query by generating edges from centerline points (boosting the number of intersections for which crossing distance can be measured). Finally, those crosswalk edges are overlaid on the segmented intersection images and a grow-cut algorithm is applied, which connects each edge to its adjacent sidewalk and measures crosswalk distance with high accuracy. Overall, this analysis pipeline measures crosswalks with a median absolute error of 4 feet, 9 inches (89% accuracy), when compared to manually-verified crosswalk datasets, and can compute crossing distances for entire American cities in roughly one hour. This level of precision allows for visualizing the variance in crossing distance at multiple geographic scales (neighborhoods, entire cities, and nationally), which empowers planners to prioritize streetscape investments to enhance the pedestrian experience.

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Key Words: GIS, Pedestrians, AI, Transportation, Satellite Imagery

School Escorting Effects on Parental Commuting Routes and Household Travel Carbon Emissions

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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School escorting has become an integral component of urban household travel, particularly reshaping commuting patterns in dual-earner families. Parents must modify work commute routes to accommodate escorting tasks, potentially increasing detour distances and travel time while altering transport modes - collectively influencing household travel carbon emissions. However, existing evidence predominantly examines individual-level effects while overlooking intra-household interactions. We argue that such interactions manifest in three dimensions: joint decisions on residential, workplace, and school locations; allocation of escorting tasks and transportation modes; and behavioral interdependencies between parents' travel patterns. Using survey data from 442 dual-earner couples with schoolchildren in Nanjing, China (collected May 2024), we employed multinomial logit models to examine how parents optimize escorting routes and schedules, allocate transportation resources, and subsequently affect household travel carbon emissions, accounting for their interdependencies. The results demonstrate that school escorting significantly alters household travel patterns and parental commuting routes. Notably, gendered disparities emerge: when route adjustments are minimal, mothers predominantly assume escorting responsibilities and retain priority in transport mode selection. As detours increase, higher vehicle ownership correlates with reduced maternal driving for school trips (from 68% to 42%) and increased paternal involvement (from 32% to 58%), elevating household emissions by 12-18%. Furthermore, we identify interactive effects in task allocation between parents, which indirectly influence family travel carbon footprints through behavioral spillovers. These findings suggest that policy interventions aimed at optimizing school escorting routes, reducing commuting time, and reducing emissions in urban China must integrate intra-household dynamics and cultural norms in task and resource allocation.

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Key Words: school escorting, work commuting, route deviation, household interaction, MNL model

Shared Mobility as a Safety Solution: Evidence from Post-Secondary Students in the GTHA

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Urban transportation systems are undergoing a transformative shift, with shared mobility being explored as a potential strategy to enhance safety and accessibility. Safety concerns significantly influence modal choices, particularly among vulnerable groups within the post-secondary student population, such as women, non-binary and LGBTQ+ individuals, and students with specific mobility needs. Building on existing literature on gender gaps in urban mobility and the role of shared mobility, this study investigates the impact of shared mobility modes, such as ride-hailing, bikesharing and microtransit, on the safety perceptions and travel behaviors of post-secondary students in the Greater Toronto and Hamilton Area (GTHA).

Research Question: How do shared mobility options influence the safety perceptions and travel behaviors of post-secondary students in the GTHA, with a focus on vulnerable subgroups such as women, non-binary and LGBTQ+ individuals, and those with mobility needs?

Approach and Methodology: This study employs a mixed-methods approach, integrating quantitative data from a structured survey (n=257) distributed among post-secondary students across several GTHA universities and qualitative insights from in-depth interviews. The survey assesses factors influencing mode choice, including safety, accessibility, and frequency of shared mobility use, while interviews provide a deeper understanding of safety concerns and experiences.

Meaningful and New Findings: Results indicate gender disparities in safety perceptions, with non-male students, such as women, non-binary, and LGBTQ+ individuals, reporting higher safety concerns. Approximately 82% of respondents now prefer shared mobility over public transit, citing safety as a primary reason, with qualitative data highlighting its role in alleviating safety-related anxiety for these vulnerable groups during first-mile/last-mile transit segments. Most non-male respondents cited safety as a key factor in choosing their travel mode, specifically shared mobility, either as their primary mode or as a first mile/last-mile connection, with regression analysis confirming statistically significant differences.

Relevance and Implications: These findings highlight the critical need to develop multimodal transportation systems integrating shared mobility to effectively address safety and equity concerns, especially for vulnerable student populations. Urban planners and policymakers should prioritize shared mobility as a central component of inclusive transportation strategies, ensuring safer, more accessible, and equitable transit options for diverse student populations.

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Key Words: Shared Mobility, Safety, Equity, Gender, Multimodal Integration

Shifting Attitudes Toward Reduced Car Dependence: A Multidimensional Scaling Experiment in Singapore

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Views of transportation planners diverge from the public, especially in the US. This divergence centers on the role of cars, with planners seeing less car dependence as essential to a sustainable future, while the public reflexively bristles at policies that might inhibit driving (e.g., congestion pricing). A main obstacle to such policies is public acceptability. Design of public messaging is a crucial component in garnering acceptability, which could benefit from precise understanding of what messages would be most effective.

We conducted a randomized control trial (RCT) experiment in Singapore, which has long enforced policies that restrict car ownership and increase the cost of driving. In this experiment we a) measure attitudes toward predominating transportation policies in Singapore, and b) assess the impact of messaging associating these policies with the desirable effect of reduced traffic congestion. To address these goals, we introduce Galileo theory and method—a specialized multidimensional scaling methodology used in sociology and communication studies—to the field of planning.

Our method differs from traditional tools by 1) Measuring attitudes as paired comparisons between relevant concepts, capturing relationships between all concepts in the measured set, as opposed to a simple binary (e.g., favorable / unfavorable), 2) Using ratio scales to capture these relationships with precision, and 3) Construction of a high-dimensional cognitive space wherein we can track the “movement” of concepts in response to messaging, representing changes in attitudes. The key advantages of this method are a) ability to capture attitudes and relationships with higher precision, and b) the ability to mathematically determine effective messaging to shift attitudes based on these measurements.

We developed a questionnaire that measured attitudes toward traffic reduction policies, transportation modes, and relevant attributes. Questionnaires were distributed to a diverse group of undergraduate students, which, though not representative, serves as proof-of-concept for the methodology. We captured demographic and travel behavior information, ensuring uniformity between the control (n=66) and treatment (n=78) groups. Because we had no existing measurements from which to generate an ideal message, our treatment message was designed simply to associate the key traffic policies with their goal of reducing congestion.

We hypothesized that in Singapore, where automobile-reduction policies are the norm, participants would not have strong perceptions of these policies, and they would be possible to shift. We expected the same would not be true of the effects of these policies, e.g., perceptions of travel modes, attributes, etc. The results of our experiment corroborate these expectations: Perceptions of key travel modes were nearly identical between control and treatment. The policy concepts and traffic congestion, however, converged toward one another, which also had the effect of participants viewing them as more convenient, practical, and necessary. This interpretation (and effectiveness of the message) is corroborated by the distances the concepts moved in cognitive space, with the policy and congestion concepts moving vastly more than the mode or attribute concepts.

These findings should be of interest to scholars interested in advancing sustainable transport policy. We were able to measure transportation-related attitudes precisely and reliably, facilitating accurate prediction of messaging effects through spatial projection. Results suggest habituation to reduced-car policies may lead not only to acceptance, but indifference. We suggest that durable changes in attitudes require continuous messaging over time, that messaging strategies should be tested before deployment to maximize effectiveness and avoid unintended effects, and that detailed understanding of the dynamics of policy support requires precise measurement of attitudes.

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Key Words: attitudes, transportation policy, public opinion, experiment, multidimensional scaling

Shifting Spaces: Land Use and Zoning Adaptations in the Autonomous and Shared Mobility Era

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Zoning is not only a technical mechanism for organizing land—it is a powerful tool for shaping spatial equity, environmental resilience, and mobility access. As autonomous vehicles (AVs) and shared mobility systems begin to alter travel patterns, there is a need to reconsider how our built environment is shaped, reshaped, and governed in metropolitan areas. While the impacts of AVs remain uncertain, scholars have begun to analyze likely shifts. Soteropoulos et al. (2019) highlight that travel behavior and land use outcomes are highly sensitive to assumptions about vehicle ownership models, value of time, and the role of public transit. Pimenta et al. (2023) found that shared AVs may reduce parking needs and support higher densities, while private AVs may encourage sprawl and dispersed development. Montoya (2024) calls attention to the zoning systems themselves, which remain largely unprepared for a transformation in urban land uses and demands, and advocates for proactive, equity-centered adaptation. Together, these early studies of the inevitable emergence of AVs show that AVs and shared mobility could reconfigure urban form—but will only achieve planning goals if institutions act with foresight.

In this research, we explored how AVs and shared mobility are likely to affect land use and zoning requirements in large U.S. cities and regions, and what implications this has for local governments and Metropolitan Planning Organizations (MPOs). Following a structured review of existing literature and modeling, we completed stakeholder interviews designed to engage planners, transportation officials, developers, and public agency staff, and to understand how jurisdictions are approaching (or avoiding) questions of land use change related to AVs. With these insights, we then developed a GIS-based spatial analysis of parcel-level land uses in Los Angeles. In selecting Los Angeles as our case study, we sought to engage a city with vast and varied built environment typologies—from a transit-rich downtown to automobile-dependent neighborhoods—offered a meaningful landscape for examining potential AV-induced adaptations and transformations.

We spatially analyze parcel-level data to identify auto-serving land uses that may be made obsolete, as well as parcels with potential for repurposing or infrastructure retrofits. We overlaid these with current zoning designations to model future scenarios across different parts of the Los Angeles region. Attention was paid to typological diversity—how the built environment (including the spatiality of structures and the road network) varied across dense cores, arterial corridors, and single-family residential fabrics. We modeled under two distinct modules: one reflecting current travel behaviors, and another representing an increased transit use environment. Within these modules, we adjusted assumptions about vehicle ownership structures (fleet/shared vehicles vs. privately owned vehicles) and the geographies of AV deployment (region-wide vs. city center-focused). In each scenario, we modeled potential land use changes (increases, reductions, or stable) related to parking demand, e-commerce activity, brick-and-mortar retail activity, fuel station transformations, and density of the built environment.

In the final paper, we will present the spatial outputs of this work, including maps of land use change potential and zoning mismatch across Los Angeles County. We will also describe findings from our stakeholder interviews, including planning frictions and governance dynamics related to emerging transportation technologies. While this research does not predict the full shape of an AV-driven urban future, it offers a grounded framework for understanding what is at stake—and what tools planners may need—in adapting land uses and zoning to meet

evolving needs. We contribute both conceptual scaffolding and applied techniques to help cities navigate this uncertain, but consequential, terrain.

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Key Words: Autonomous Vehicles, Shared Mobility, Transportation, Land Use, Zoning

Slower Roads, Cleaner Skies? Causal Effects of Speed Limit Reduction on Urban Air Quality

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Background: Vehicle speed limit reduction policies have been widely studied for their impact on traffic safety, but their potential effects on air quality remain less understood. In 2021, South Korea implemented the "Safe Speed 5030" policy to lower speed limits to 50 km/h on urban roads and 30 km/h in residential zones. After implementations, even though several studies have confirmed improvements in safety outcomes, such as reducing crash frequency and severity (Woo et al., 2023; Son et al., 2019), yet little has been paid to the effects on air quality that may have been affected by increased traffic volumes induced by speed reductions. Traffic conditions, shaped by speed limitations, can substantially impact pollutant emissions, including particulate matter (PM_{2.5} and PM₁₀) (Baldasano et al., 2010; Bel & Rosell, 2013; Casanova & Fonseca, 2012; Dijkema et al., 2008; Rossi et al., 2020).

Objective: This study aims to assess the causal effects of the 5030 speed limit reduction policy on air quality, explicitly targeting particulate matter (PM₁₀), carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and carbon dioxide (CO₂). By employing a quasi-experimental study design, this research addresses gaps in existing studies by investigating the causal impacts of speed limit reduction on air quality across different urban contexts, controlling for confounding variables.

Data & Methods: The study utilizes a quasi-experimental research design combining propensity score matching (PSM) and spatial difference-in-differences (SDID) regression. First, PSM was used to minimize confounding effects of the built environment and socioeconomic status by matching comparable groups of treatment and control traffic analysis zones (TAZs). "Safe Speed 5030" was implemented in 2021. The baseline data collected in 2020 – one year before 5030 – was used for PSM analysis. Following PSM, spatial difference-in-differences regressions, including spatial lag DID and spatial error DID, are applied to estimate the treatment effects of speed limit reductions on air quality.

Results: The PSM result indicates that after matching, the mean differences between the treatment and control groups were substantially reduced, indicating that matching was effective in balancing covariates. The matched sample shows that none of the covariates exhibit statistically significant differences, suggesting that the matching process effectively minimized potential confounding effects. The results of three different models (linear regression DID, spatial error DID, and spatial lag DID) were applied to five air pollutants: CO₂, CO, NO_x, VOCs, and PM₁₀. The "Time * Treatment" interaction is positive and highly statistically significant across all pollutants. This confirms that the speed limit reduction policy increased volume and thereby increased emissions, worsening the air quality. The effect sizes vary by pollutant, but the general pattern became worse (increases in air pollution levels) after the intervention in the treatment group.

Implications: The results of this study highlight a critical gap in the effectiveness of the Safety 5030 policy regarding achieving comprehensive sustainability goals. Although the policy successfully contributes to the United Nations' Sustainable Development Goals (SDGs) by significantly reducing crashes and enhancing road safety, it fails to achieve another key aspect of sustainability—improving air quality. Policymakers should recognize that solely focusing on speed limit reductions may not be sufficient to mitigate urban air pollution. Therefore, comprehensive strategies are required to achieve sustainable urban environments.

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Key Words: Speed limit reduction, traffic volume, air quality, propensity score matching, spatial DID

Social Normalization of Fare Evasion in Public Transit

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Fare evasion is a serious issue in public transportation, costing transit agencies millions of dollars in revenue that could be redirected into infrastructure and service improvements. Although public transportation is vital in providing affordable and sustainable mobility, chronic fare evasion undermines these goals by eroding public trust, straining resources, and diminishing ride quality. Though fare evasion has been significantly studied, traditional regulatory approaches have emphasized external enforcement, deterrence, and pricing mechanisms. However, compliance with fare payment relies largely on the social norm that passengers will pay their fares voluntarily. Where this norm collapses, fare evasion is not so much a question of resisting policy as it is a question of overcoming a physical barrier.

This study investigates when and under what circumstances fare evasion becomes socially normalized and analyzes the underlying factors that contribute to its normalization. Moreover, it will investigate whether social norms related to fare evasion vary across sociodemographic characteristics, such as income, occupation, race, gender, student status, and past experiences with the MBTA. Finally, this study will evaluate how social norms of fare payment evolve and transform with time, using the launch of a new commuter rail line on March 24, 2025, as a natural point of observation.

To address these questions, the research will use semi-structured interviews and surveys with transit riders, enforcement officials, and staff in the Massachusetts Bay Transportation Authority (MBTA), the primary public transportation service in the greater Boston area. The study on the commuter rail will include multiple waves of interviews at various time points at the opening of the new commuter rail line and various time points following to examine whether and how social norms evolve across time.

Preliminary expectations are that fare evasion becomes a social norm when there is widespread perceived unfairness in the fare system, distrust of the transit agency, low levels of enforcement, and a lack of social pressure to abide by fare rules. Among younger riders, fare evasion may also be influenced by peer pressure, with some viewing it as a rebellious act or even a fun challenge. These norms spread as individuals observe and internalize the behavior of others, especially in environments where nonpayment is common and goes unpunished. Understanding whether fare evasion has been normalized, and how, can inform MBTA policy initiatives to stem the practice is important. The findings of this research will contribute to current knowledge on the social and psychological factors of fare evasion, enabling transit agencies to develop more effective and equitable enforcement policies. The findings will also provide valuable insight into the ways social norms of fare payment establish themselves in new transit environments, guiding policy for future expansions and ridership changes.

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Key Words: Fare Evasion, Social Norms, Public Transit, policy compliance, MBTA

Spatial Patterns of Electric Vehicle Miles Traveled (EVMT) as a Proportion of Total Mobility

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Electric vehicles (EVs) are widely promoted as a low-emission transportation option. Although EV adoption rates have been extensively studied, adoption alone does not reflect how much total travel becomes electrified. In urban transportation systems with multiple travel modes, EV represents just one option among many. Accurately forecasting energy demand by personal EVs and, thus, emission reductions, requires metrics that reflect real-world usage patterns beyond merely the adoption rate (Jia & Chen, 2022). Some studies assumed that EVs directly replace conventional vehicles with identical usage patterns when predicting energy demand (Ellingsen et al., 2016; Xing et al., 2021), disregarding the distinct EV travel behaviors influenced by range considerations and charging availability (Zhang et al., 2025). While other studies acknowledged behavioral differences, they primarily examined the different patterns of EV usage among vehicle models (Zhao et al., 2023). Importantly, understanding spatial patterns of EV usage as a proportion of total miles traveled remains unexplored.

To address this gap, we propose a new metric—the percentage of electric vehicle miles traveled (EVMT)—which quantifies the percentage of total travel miles that are electrified within a given area. This metric allows for understanding how personal EVs integrate into broader travel patterns. Our study addresses two questions: how does the EVMT proportion vary spatially, and how does its spatial heterogeneity correlate with socio-spatial characteristics? We estimated EVMT proportion at the census tract level across the Seattle metropolitan area, using the public and representative household travel survey data of 2023 provided by Puget Sound Regional Council. Our approach had two key steps: first, we employed a Bayesian hierarchical Fay-Herriot model for small area estimation (SAE); second, we applied linear regression and geographically weighted regression (GWR) to quantify the relationships with key factors. Specifically, to overcome the inherent challenges of sparse and small sample sizes in survey data, our SAE model incorporated 10 auxiliary variables, including household socioeconomic, public charging infrastructure, and built environment factors. While leveraging spatial smoothing for precision, we calibrated estimates to preserve evidence of near-zero EV usage in certain tracts based on their EV registration records.

Our results reveal substantial spatial heterogeneity in EVMT proportion across census tracts (range: 0-0.97, median: 0.064, mean: 0.13). Thus, while some neighborhoods already have remarkably high electrification, most areas have modest EV usage. Regression analysis demonstrates EVMT is positively associated with homeownership rates and public Level 2 chargers, but negatively with public fast chargers. This could be explained by misalignments between current fast charger locations and residential EV charging needs. Surprisingly, EV ownership does not significantly correlate with actual EV usage. This further confirms that adoption alone fails to reflect actual usage. In addition, our GWR model reveals spatial variations in these relationships. For instance, multi-worker households (2+) are negatively associated with EVMT, with this effect being twice as strong in rural areas compared to core urban neighborhoods. This indicates potential barriers to EV usage in households with complex travel needs in rural areas.

Our findings challenge prior assumptions that higher EV adoption equates to higher EV usage, and that EVs are a direct replacement of conventional vehicles. Planners should implement context-specific charging infrastructure strategies and targeted interventions to optimize the climate and social outcomes. In summary, understanding the

spatial patterns of EVMT proportion provides a more realistic metric to forecast the dynamic urban mobility energy demand and emission reductions from electrification.

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Key Words: Transportation, Travel behavior, Electric vehicle, Spatial data science

Spatiotemporal Trends in EV Ownership and Their Relationship to Sociodemographics and Infrastructure

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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As electric vehicle (EV) adoption grows, it is increasingly leveraged as a proxy for gauging readiness for connected and automated vehicle (CAV) deployment. However, relying on EV ownership alone as a measure of readiness may overlook critical equity considerations. This study investigates the spatiotemporal patterns of EV ownership in Chicago and Greater Peoria, Illinois, from 2018 to 2023, to evaluate the extent to which EV adoption reflects equitable transportation readiness. Using longitudinal EV registration data mapped to census tracts, alongside sociodemographic and infrastructural indicators, the analysis employs KNN clustering and ordered logit regression to explore the influence of demographic, socioeconomic, and infrastructural variables on EV growth.

Findings show a pronounced correlation between higher EV ownership and higher median income, educational attainment, and the proportion of foreign-born residents, with disparities more evident in larger urban contexts such as Chicago. In both cities, tracts in the lowest EV adoption clusters exhibit greater transportation disadvantage, higher Area Deprivation Index (ADI) scores, and lower public infrastructure availability. Notably, a significant positive correlation is found between EV ownership and the foreign-born population, suggesting that immigrant communities, often overlooked in adoption models, may play a key role in early technology uptake—potentially due to cultural, social, or behavioral factors (Holland et al., 2019; Tian et al., 2020).

Contrary to expectations, greater density of EV charging stations is negatively associated with high-growth adoption tracts in Chicago, raising questions about the effectiveness of current infrastructure deployment strategies. This echoes findings by Hsu and Fingerman (2021), who showed that charging access disparities persist even when controlling for population density. The association between EV ownership and housing type also challenges traditional assumptions. While prior research suggests single-family homes facilitate EV adoption due to private charging availability, this study, in alignment with Sinton et al. (2024), finds that areas with higher proportions of multi-unit dwellings are more likely to be high-growth EV tracts, possibly due to proximity to shared infrastructure and shorter commute times.

These patterns reveal the limitations of using EV ownership as a singular readiness metric for CAV deployment. Spatial autocorrelation analyses confirm strong clustering of EV adoption by socioeconomic and demographic characteristics, reinforcing that infrastructure and policy interventions must be targeted and context-aware. As Caulfield et al. (2022) argue, failing to account for structural inequities in mobility technology rollouts risks perpetuating disparities in access and outcomes.

This study underscores the need for a multi-dimensional framework that incorporates equity-focused indicators such as ADI, transportation disadvantage, housing form, and education level. Policymakers must move beyond simplistic adoption metrics and consider the broader structural and spatial factors that influence readiness for CAVs. Strategic deployment of infrastructure, targeted engagement with immigrant communities, and equity-first planning approaches are necessary to ensure inclusive and just mobility futures.

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Key Words: EV Adoption, Transportation Equity, Spatiotemporal Analysis, CAV Readiness

Strategies, Opportunities, and Challenges of Integrating Transit and Shared Micromobility

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Many cities are keen to integrate public transit and shared micromobility (e.g., bikeshare and shared e-scooters) to expand mobility options, overcome first/last mile barriers to public transit, and shift more people out of cars. While previous research and pilot evaluations have documented individual case studies or elements of integration (e.g., integrated trip planning and fare payment, governance structures, vehicle co-location), best practices for successful and long-term sustainable integration remain unclear. To fill this gap, this research asks and answers three questions. First, how do different cities and shared micromobility operators approach and frame the transit-shared micromobility integration? Second, what integration strategies have been implemented to date? And third, what are the opportunities or challenges of each strategy, and which are critical to sustained success? This research synthesizes existing literature alongside interviews with over 25 professionals representing cities, public transport agencies, and shared micromobility operators from across North America and Europe. Together, findings present a typology of transit-shared micromobility integration and key lessons for how cities should prioritize resources and efforts to integrate shared micromobility and public transit to achieve broad city goals. Findings reveal that how shared micromobility is framed—particularly if it is viewed and regulated as part of the broader public transportation system—underpins many of the regulatory and policy approaches governing integration. While technological integrations such as trip planning and mobility as a service have received keen attention in both research and practice, practical barriers including data and privacy, and back-end technology integration present barriers to adoption and scale. Interviewed professionals highlight infrastructure, governance, and subsidy as core elements needed to foster and sustain a public transport system that includes shared micromobility.

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Key Words: shared micromobility, transit, integration, bikeshare, e-scooter

Street-level and Building Features' Nonlinear Impacts on Mode Share around Transit Stations

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Few studies at the national level have examined the impact of fine-scale built environment features on travel behavior (Angel et al., 2024; Choi and Ewing 2021; Liu et al., 2023, Xu et al., 2023; Wang et al., 2023), particularly in the U.S. using a nonlinear approach. This study investigates the influence of street-level built environment features, street network characteristics, and building attributes on commuting mode share around public transit stations across the country. Specifically, it addresses the following questions: (i) To what extent do micro-scale, street level features contribute to commute mode share compared to meso-scale, neighborhood level variables such as population and employment density? (ii) Are there effective ranges for these features in influencing commuting mode share? (iii) Do interactions exist between street-level features—such as greenery, street patterns, and enclosure—and neighborhood-level variables like land use mix, population and employment density?

To explore these questions, we leveraged Google Street View (GSV) imagery to extract street-level built environment features, including greenery, enclosure, sidewalks, and roadways. Additionally, we incorporated street network characteristics such as intersection density, link-node ratio, average geodesic distance, and block size, as well as building-related attributes (e.g., number and average area of buildings) from the Microsoft Building Footprint dataset. A series of XGBoost models and Shapley Additive Explanations (SHAP) plots were used to detect threshold effects and assess the relative importance of various predictors in influencing commuting mode share across more than 2,890 rail and BRT stations nationwide.

The results indicate that street-level built environment and building features collectively contribute approximately 25 percent to the predictive power of commuting mode shares around public transit stations. Furthermore, their effects are nonlinear, with distinct effective ranges. For instance, enclosure positively influences active commuting modes when within the range of 0.2 to 1.2, beyond which the effect diminishes. Additionally, interaction effects are observed between street-level features (e.g., greenness, intersection density), building features (e.g., number and area of buildings), and neighborhood level, census-tract variables (e.g., population density) in shaping commuting mode shares.

These findings underscore the importance of considering micro-scale urban design elements in transportation planning to promote sustainable mobility and reduce automobile dependence. By integrating these insights into transit-oriented development and land-use planning strategies, cities can design more walkable, and transit-supportive environments.

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Key Words: micro-scale urban design, urban form, active transportation, machine learning, synergistic impacts

Street-Level Transit Accessibility: Integrating Bus Stop Quality and Transit User Locations

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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A Complete Street is a road designed to safely accommodate everyone—drivers, cyclists, transit users, and pedestrians of all ages and abilities—by integrating inclusive planning and design. To initiate complete street policies, it is necessary to evaluate the current street conditions and how well they meet completeness, including transit accessibility. However, current approaches often assess transit accessibility at the transit stop or area level, overlooking transit accessibility at different locations along the streets. In addition, current methods often fail to capture certain aspects of public transit users' needs, such as the comfort and availability of informational amenities at the bus stop infrastructure. In response, our research proposes a new framework for evaluating transit accessibility at the street level, emphasizing the localized conditions that transit users encounter on the streets and at bus stops.

Our methodology includes two steps. First, each bus stop is evaluated by two variables: bus operational service and bus stop quality. We employed the Atlanta region's General Transit Feed Specification (GTFS) data with an algorithm that computed various bus operational service status variables from this data. For bus stop quality, an object detection algorithm trained on street view imagery assessed the status of the bus stop's detailed amenities, such as shelters and schedule boards. These metrics are then combined into a service index.

Second, we integrate this service index into a comprehensive street-level transit accessibility estimation using an interpolated point-based approach. Our method applies network buffers around walkable areas of transit stops and calculates transit accessibility for each interpolated point along the street. The average score of these points becomes the representative transit accessibility index for that street segment, ensuring that transit accessibility at specific locations where transit users stand is captured.

Applying this street-level index in the Atlanta region, we analyzed its statistical significance to overall street scores along with other components such as sidewalk widths and the existence of bicycle lanes. The result demonstrates that our measure of transit accessibility, which incorporates localized conditions affecting transit users, significantly impacts street completeness compared to conventional approaches.

These findings suggest two implications for complete street initiative planning: First, it is essential to reflect detailed transit accessibility on streets, and the quality of transit stops is essential. Second, the appropriate observation scale is critical for developing complete street designs. Our approach provides a more comprehensive understanding of how transit accessibility contributes to creating complete streets by integrating a fine-grained assessment that emphasizes bus stop conditions and the specific locations where transit users are positioned.

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Key Words: Transit Accessibility, Street Level, Complete Street, Object Detection, Buses

Super Commuting and the COVID-19 Pandemic: Insights from California

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Super commuting—typically defined as one-way journeys to work of 90+ minutes—has long captured the attention of the general public, planners, elected officials, and researchers. High housing costs in large urban areas may be one important factor motivating outward moves to outer suburban and exurban communities with lower housing costs, which may result in very long commutes. This pattern may be exacerbated by discrimination in both the housing and the labor markets, which can restrict opportunities and increase super commutes among lower-income and non-white workers (Allen et al., 2022; Islam & Saphores, 2022).

Prior to the COVID-19 pandemic, the average one-way commute duration in the U.S. had increased to a new high: 27.6 minutes (Burd et al., 2021). Evidence suggests that the pandemic accelerated outward residential moves due to increased working from home, which both increased demand for more residential space for work, and decreased the frequency of commuting, making very long commutes more tolerable. For example, Ramani et al. (2024) find that three-fifths of households that left big city centers during this crisis moved to the suburbs of the same city. As a result, on average workers now live further from their workplaces than they did prior to the pandemic (Akan et al., 2024).

In this paper, we examine the impact of the pandemic on super commuting. We draw on data from the 2019 and 2023 one-year American Community Survey Public Use Microdata Samples (PUMS) for California, the most populous U.S. state. We predict the likelihood of commuting among workers — in other words, not working from home — and the likelihood of super commuting 90 minutes or more one-way.

Relative to non-super commuters, super commuters are more likely to ride public transit to work, have less formal education, avoid peak hours for arriving at their worksites, be male, and married; they are less likely to live in dense urban areas. Contrary to our hypothesis, however, controlling for other characteristics, the models show that super commuting is less common among workers in 2023 compared to 2019. This finding may be due to an increased share of workers who would otherwise have super-commutes working from home post-pandemic. Indeed, the data show that in 2023 workers were less likely to commute to their workplaces compared to the pre-pandemic period. However, these findings must be interpreted with caution, as the U.S. Census Bureau identifies remote workers as workers who work at home a majority of work days, therefore excluding what could be many super commutes among hybrid workers who go into the office, say, two days per week.

Super commutes can take a toll on the lives of workers and their families, as long periods spent commuting is time away from sleeping, parenting, socializing, and exercising. Very long public transit trips may entail multiple transfers, long periods of standing, and waiting outside in inclement weather. Super commutes in automobiles contribute to traffic congestion, air pollution, and climate change.

Despite the popular attention paid to super commuting, our analysis finds that extreme commuters are a small—and potentially declining—percentage of the workforce, suggesting that researchers ought to focus more broadly on increasing commute durations, and less on the “super” aspects of the journey to work. Further, the continued shift in the percentage of households living in outlying areas likely means longer trips for all forms of travel, and not

just commuting, which warrants more investigation as well. Finally, our analysis highlights the importance of improving travel data to better understand the evolving relationship between workplace flexibility and the commute.

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Key Words: Super commuting, Travel time, COVID-19, Remote work

Testing the Principles of the '15-Minute City' in Socialist-Era Housing Estates in Kraków,

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Recent enthusiasm for planning local pedestrian access to nearby services and neighborhood assets are reflected in the '15-minute city' strategy that envisions dense urban places that take advantage of connectivity, proximity, mixed-use development, and human-scale design. The '15-minute city' approach is aimed at improving the quality of life in neighborhoods by de-centering the automobile while nurturing mixed-use neighborhoods, facilitating walkability, and supporting urban sustainability.

Urban scholars have noted that the principles of the '15-minute city' concept are closely aligned with neighborhood planning innovations developed throughout the late 19th and 20th centuries, including Ebenezer Howard's Garden City and Clarence Perry's neighborhood unit for planned developments (Hall 2014). Scholars have not yet, however, fully recognized the consistency of the '15-minute city' with modernist urbanism as reflected in the plans for post-World War II housing estates in Central and Eastern Europe (during state socialism in the decades following World War II).

We select Kraków, Poland, which is home to 24 housing estates dating from the era of state socialism. For this study, we include all housing developments constructed in Kraków between 1949 and 1989 and which reflect various eras of town planning concepts during state socialism. We use publicly-available spatial data to assess how socialist-era housing estates meet today's aims for the '15-minute city'. We take inspiration from the urban code—in effect during state socialism in Poland from the 1970s until 1989—which encouraged proximity of services from planned residential districts.

The objective of this research is to explore the extent to which the built form of large housing estates satisfy the aims of the '15-minute city'. We measure walkability using the QGIS plug-in in ArcGIS as a means of assessing buffered pedestrian access to parks and greenspace and retail, commercial, and community services. By overlaying our spatial analysis of population density with measure of access for pedestrians, bicyclists, and public transport users we produce a composite assessment of the principles of the '15-minute city'. This method allows us to develop a comprehensive understand of the interplay between density, proximity, access, and mobility within the large housing estates of Kraków and assess how residential districts and their surrounding environments dating from various eras of development align with the principles of the 15 minute city.

The results of this analysis will help clarify the degree to which socialist-era principles are aligned with contemporary concern for access and mobility reflected in the '15-minute city'. This will help isolate potential aspects of large housing estates that need attention in future redevelopment schemes and help city planners promote (to residents and potential residents) the ecological and sustainability-related aspects of living in large housing estates. Our results will be useful to people engaged in the renovation of apartment buildings and the built environment and public spaces within these residential districts.

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Key Words: access, transportation, walkability, 15 minute city

The Association Between Active Transportation Plans and Built Environment Transformation

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Plans, as a primary outcome of planning, play a critical role in shaping the built environment and human behavior. Over the past few decades, active transportation plans, or pedestrian and bicycle plans have become a common type of plans by counties, cities, and other jurisdictions in the U.S., which aim to promote sustainable means of transportation. Previous studies have described spatial and temporal patterns of pedestrian and bicycle plans (Aytur et al., 2013), behavioral effects in terms of walking and cycling activities (Duncan, 2023), as well as their impact on traffic safety (Kerr et al., 2013). A wider range of literatures study the relationship between built environment, travel behavior and safety. Nevertheless, few studies have yet investigated the causal pathway of plan implementation (Burby, 2003; Lyles et al., 2016). In this study, I examine the association between plans and the built environment changes that occur, plausibly through plan implementation. I aim to answer one general research question: do active transportation plans affect the built environment over time? Specifically, 1) Is the presence of active transportation plans associated with lead to an increase in safety countermeasures (marked crosswalks) in priority areas (rail stations)? Does the mention of specific treatment (e.g., marked crosswalk) in the plan make a difference in the outcome of plan implementation? 2) How is the time since adoption of the initial plan associated with changes in implementation? I hypothesize that the pedestrian environment enhancements are likely to happen with concrete and specific recommendations in the plans; and that the longer since the initial proposal, the more likely pedestrian environment improves.

The study uses a mixed method approach to investigate the trends and implementation pathways of pedestrian infrastructure enhancements around BART and Caltrain stations in the San Francisco Bay Area. It utilizes several novel datasets generated by AI from unstructured data (e.g., Google Street View, planning documents) with statistical modeling, to systematically examine the built environment changes and their association with plans at a high spatial-temporal resolution. Findings from this study suggest the potential role of plans in making effective changes in marked crosswalks at station area intersections, as well as the interactive effects contributed by a variety of station area characteristics. The upgrading and addition of high-visibility crosswalks exhibit an overall improvement of pedestrian environment. While previous studies shows no significant relationship between plan implementation and the increase of walking (Duncan, 2023), this study does show that the presence of plan can have some intermediary effect on the positive change to the built environment in terms of pedestrian safety enhancement that can lead to more pleasant pedestrian experience. However, the statistical models present weak or no statistically significant associations between most indicators of plan implementation (i.e., presence of the plan, updates, and age of initial plan) and pedestrian infrastructure improvements. The results imply little relevance of the question whether a local jurisdiction should put down specific recommendations to pedestrian or active transportation master plans. Indeed, pedestrian environment enhancements could take place through other street enhancement programs such as Safe Route to Schools, Vision Zero, and Complete Streets. Many other unobserved factors could also influence the effectiveness of plan implementation, for example, targeted funding support for active transportation infrastructure, advocacies and community support. This finding, to some extent, corroborates with those studies on other types of plans suggesting little causal impacts of plans the codify policies that are likely to happen regardless of the plans.

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Key Words: active transportation, master plan, plan implementation, marked crosswalks, urban design

The Expenditure Burdens of Super-Commuting: An Analysis of California

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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In recent years, the phenomenon of very long commutes, or “super-commutes,” has drawn the attention of the general public, planners, elected officials, and researchers. In the US, researchers have defined super-commuting as one-way commutes that exceed 50 miles in distance or 90 minutes in duration. Recent news coverage of workers who wake before dawn and spend hours on freeways or public transit to travel from their more affordable homes in Stockton (or Riverside) to their workplaces in San Francisco (or Los Angeles) has helped make super-commuting a hot topic. Policy makers are concerned about both the phenomenon broadly and whether super-commuting burdens fall disproportionately on particular, less advantaged segments of the workforce. Super-commuting likely exacts significant physical and psychological tolls on workers and their families, in terms of less sleep, exercise, socializing, parenting, and more, as well as economic burden – the search for more affordable housing in the urban periphery may be traded off with much higher transportation expenditures, which may increase overall expenditure burdens.

In this paper, we examine the housing and transportation (H+T) expenditures and expenditure burdens of super-commuter households (i.e. households with at least one super-commuter) in California. Our analysis seeks to answer three questions: 1) how H+T expenditures and expenditure burdens vary for super-commuter households across income levels, 2) whether super-commuter households have higher H+T expenditures and expenditure burdens than otherwise similar households, and if they do, 3) how commute mode choice, remote working, and residential locations mediate the association between supercommuting and H+T expenditures and expenditure burdens.

We first use the California add-on to the 2017 National Household Travel Survey and the Public Use Microdata Sample of the 2019 5-year American Community Survey data to calculate households’ H+T expenditures and expenditure burdens. We descriptively analyse these data to examine the distributions of H+T expenditures and expenditure burdens of super-commuter households across income levels. We then test the associations between super-commuting and H+T expenditures and expenditure burdens using regression analysis, controlling for socioeconomic and built environment factors. We also use interaction terms between super-commuting and commute mode, remote working, and residential location to examine how these factors mediate the relationship between super-commuting and H+T expenditures and expenditure burdens.

We find that H+T expenditures increase, but expenditure burdens decline as income increases for super-commuter households. Controlling for socioeconomic and built environment factors, super-commuter households have higher H+T expenditures and expenditure burdens than non-super-commuter households across all income levels. Further, commute mode choice and residential location, but not remote working, mediate the association between super-commuting and H+T expenditures, while all three factors mediate the association between super-commuting and H+T expenditure burdens.

Our results suggest that households’ welfare gains from affordable housing in peripheral urban areas are eroded, and may be negated, by the increased expenditures and expenditure burdens from super-commuting. These

expenditure burdens endured by super-commuting households, while consequential, do not even consider the time and stress burdens imposed by very long commutes. Policies to address these burdens are broadly two-fold: (1) increase housing supply and affordability in more central, job-rich parts of metropolitan areas to decrease the motivation to move far out in search of affordable housing and begin super-commuting, and (2) consider encouraging remote work options, at least part-time, to reduce the frequency (if not the length) of super-commuting.

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Key Words: super-commuting, H+T expenditures, H+T expenditure burdens, equity, Journey-to-work

The Use of a Natural Experiment to Identify Comprehensive Impacts of Free Fare Transit Policy

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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This study investigates the effects of the transit free fare policy in Iowa City Metropolitan Statistical Area, IA, by capitalizing on the natural experiment setting that the historical differences in fare policies between the three transit agencies that serve the region offer. Numerous US transit agencies use some form of reduced or free fare policy to increase ridership, save operational costs, or advance community development goals, with many temporary free fare programs introduced during the COVID-19 pandemic due to the federal financial support through the Coronavirus Aid, Relief, and Economic Security (CARES) Act, the Coronavirus Response and Relief Supplemental Appropriations (CRRSA) Act, and the American Rescue Plan (ARP) Act (Kirschen and Pettine, 2022). Nevertheless, the empirical evidence of the impacts of established systems is scarce, while analysis of temporary programs implemented during the pandemic is confounded by the reduced amount of travel due to work from home policies, stay-at-home orders, and concerns for personal health at that time (Qi et al., 2023). Many existing free fare programs in the US apply to only some services, like three bus routes in Boston, MA (Office of Boston City Councilor Michelle Wu, 2021), or are limited to certain population group, like youth under the age of 18 in many communities the State of Washington (Public Transportation Division, 2024) complicating the ability to reliably estimate the effects. In this regard, Iowa City offers a unique opportunity to gain insights into the effects of the free fare policy by having three different transit providers serving the same region, where one, the University of Iowa's CAMBUS, has been historically free, another, Iowa City's Transit, started the free fare program in August 2023, and the third, Coralville Transit, kept the cost of \$1 per ride. While Iowa City is not the only US college town that offers free-fare transit service (e.g. Corvallis, OR, Chapel Hill, NC, among the others) the three-agency setting allows to establish the causal effect through the evaluation of changes in the same region. The underlying hypothesis is that Iowa City Transit routes received the 'treatment' (fares were reduced to 0), while nothing changed for CAMBUS and Coralville transit. Looking at the 2022-2024 ridership trends, the study confirms that even though some ridership growth can be attributed to the increase in the level of service (Pearson correlation $r(36)=0.58$, $p=0.0002$), it can likely be associated with the free fare policy as well, as ridership growth on Iowa City transit outpaced the expansion of service, and ridership change for the other two providers. The effects can be traced beyond fixed transit routes since paratransit services originating in Iowa City are also included in the free fare policy, and they saw an increase in demand greater than in the neighboring Coralville since August 2023. We also identified the route-level and time-specific factors, like demographic characteristics of the service area, quality of the built environment, and the weather that influenced transit ridership in the region between 2022 and 2024 using a multilevel regression modeling framework. Lastly, no significant changes to riders' perceptions of trip quality, safety, and crowdedness were detected when 2022-2024 responses from a survey collected from a sample of random users of smartphone transit trip planning application Transit was analyzed. Many US transit agencies are interested in the implementation of fare free programs (Saphores et al., 2020), and this study responds to that demand by providing empirical evidence on the impacts of such policy for operators, riders, and the community.

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Key Words: public transit, zero fare, free fare, customer satisfaction, transit safety

Toward Sufficient Access: Measuring Accessibility Poverty Through Perceived Accessibility

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Access to essential destinations is a key determinant of well-being, yet current transportation planning and equity assessments continue to prioritize objective measures such as travel time or distance (Pot et al., 2021). These measures, while useful, often fail to capture the lived realities and subjective experiences of marginalized populations, including low-income, older, disabled, immigrant, and carless individuals. Recent literature has emphasized the need to center perceived accessibility as a means of identifying what constitutes sufficient access in specific contexts (Lättman et al., 2024; Pot et al., 2024). However, the link between perceived access, travel behavior, activity participation, travel satisfaction, and well-being remain underexplored, particularly in the U.S. context.

To address this gap, we have developed a national survey instrument that will be distributed to a planned sample of 400–500 participants using Qualtrics. The instrument targets transport-disadvantaged populations and explores perceived access to jobs, healthcare, groceries, social, and recreational destinations. Survey items include Likert-scale measures of perceived access, travel barriers, transport insecurity, attitude as well as travel adaptations and unmet activity needs. Drawing from the Capability Approach and theories of transport-related social exclusion this framework integrates both subjective and objective indicators. Data analysis will involve confirmatory factor analysis (CFA) to develop latent constructs of perceived accessibility, followed by structural equation modeling (SEM) to examine the links between perceived access, activity participation, travel satisfaction, and subjective well-being.

Although data collection has not yet commenced, the study anticipates identifying a set of meaningful associations between perceived accessibility and travel behavior outcomes. We expect findings to demonstrate that individuals who report low perceived access also experience reduced activity participation and lower life satisfaction—despite similar objective accessibility levels—thereby reinforcing the argument for context-specific, person-based thresholds for what counts as “sufficient access.”

This research has both theoretical and policy implications. It advances scholarly debates by proposing a refined, perception-based framework for evaluating accessibility poverty and transportation adequacy. In practical terms, it offers a new lens for identifying where and for whom transportation investments may be falling short.

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Key Words: Perceived Accessibility, Sufficient Access, Accessibility Poverty, Transport Equity

Transit Agencies, Cities, and the Impact of Extreme Weather on Transportation Systems

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Climate-change induced extreme weather is catching cities and their public transit unprepared as the recent flooding in Toronto and super storms in New York City have demonstrated. Along with these storms, current research (e.g., Miao, et al., 2018) has shown transit system's vulnerability to extreme weather events. Thus, the need to have more adaptability and mitigation measures to combat extreme weather is imperative. Existing studies have found that perceived vulnerability, political ideology, and institutional capacity encourage transit agencies to plan for extreme weather change (Miao, et al., 2018) yet agencies largely focus on adaptation rather than mitigation (Giordono, et al., 2021). In either case, research suggests that policies are generally presented after extreme weather events. Our research thus asks: How are transit agencies and cities prepared to respond to the impact of extreme weather on transportation systems? We conducted a content analysis where we selected 100 North American cities and investigated whether their transit agencies or municipal governments have severe-weather related policies currently in-place and the extent of these policies as they relate to public transit. Preliminary findings in our qualitative research show that only roughly half of the transit agencies (and their host cities) have published plans addressing climate-change induced extreme weather. However, these plans vary greatly, with a focus on four dominant themes: 1) adaptation or resiliency – short-term or immediate responses to extreme weather (Dzyuban et al., 2022); 2) mitigation of climate change through proactive strategies; 3) adaptation, resiliency, and mitigation strategies combined in the document (Dzyuban et al., 2018); and 4) risk assessment (Jaroszweski et al., 2010) plans to develop plans in the future. We also found that transit agencies of larger cities tend to have plans that combine short-term and long-term strategies. As climate-change induced severe weather continues to impact cities and their public transportation systems, having such policies will be important for cities and transportation agencies. This research is relevant for cities, transportation agencies, planners, policymakers, and researchers.

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Key Words: Extreme weather, Public transportation, Climate change, Mitigation, Adaptation

Transportation Barriers and Residential Transitions to Assisted Living Among Older Adults

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Understanding the factors that influence the residential choices of older adults is critical as the United States is witnessing a significant demographic shift. By 2035, 21 percent of the US population will be 65 years and older. While most older adults strongly prefer age-in-place within their familiar community setting, they may increasingly encounter transportation barriers that limit their ability to engage in essential activities such as grocery shopping, receiving healthcare, and maintaining social connections. Additionally, age-related risks such as falls and accidents can further reduce their willingness to travel. In this context, moving to assisted living facilities can offer older adults a way to maintain independent mobility—through age-friendly design and on-site transportation services—while also reducing the need to travel for everyday necessities.

From this end, the study investigated whether experiencing transportation barriers influence older adults' decision to relocate to more transportation-supportive assisted living environments (e.g., residential care homes, lifespan communities, nursing homes, etc.), rather than continuing to age in place. Given the growing challenge of meeting the residential needs of older adults, a better understanding of how transportation—alongside other drivers of residential transition such as health status, financial resources, or housing quality—influences these decisions will provide valuable insights for policymakers and community planners.

This study draws on data from the National Health and Aging Trends Study (NHATS), a nationally representative longitudinal survey of Medicare beneficiaries aged 65 and older in the United States. NHATS's panel design enables the analysis of within-person changes over time while accounting for individual fixed effects. To assess the causal impact of transportation barriers on residential transitions, the study employed propensity score matching—a statistical technique that reduces selection bias by balancing observed covariates across treatment and control groups. Two subsamples were constructed: one consisting of older adults who transitioned into assisted living facilities, and another of those who continued aging in place. Using regression-based propensity scores, individuals in the two groups were matched on key social, demographic, and economic characteristics. The average treatment effect on the treated (ATT) was then estimated to determine whether past experiences of transportation barriers that limited participation in out-of-home activities significantly increased the likelihood of transitioning to an assisted living environment.

The findings show that prior experiences of transportation barriers significantly influence older adult's decision to move into assisted living environments. Additionally, variables such as gender, household structure (e.g., widowhood), and personal mobility limitations (e.g., reliance on a wheelchair) also play a role in moderating this relationship. Notably, older adults who experienced transportation barriers were more likely to relocate to facilities that offer more onsite services, such as shuttle services, accessible walking areas, or recreational amenities.

These findings offer practical implications for both public and private stakeholders. By evaluating community age-friendliness through a transportation lens, stakeholders can better anticipate future demand for assisted living. Moreover, the results can inform the development of targeted transportation interventions that not only support aging in place but also help address broader housing and care challenges in an aging society.

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Key Words: aging society, residential mobility, older adult, transportation barrier, accessibility

Travel Needs of South Asian Older Adult Women in Mid Size Canadian Cities

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The 2021 Canadian census reports that 2.5 million South Asian immigrants, from Bangladesh, India, Pakistan, Sri Lanka, and Nepal, make up 7.1% of Canada's total population. Of this group, women represent 48.5%, and the population continues to grow (Statistics Canada, 2021). This growth warrants developing clear understanding of South Asian immigrant population's settlement needs and its policy implications, particularly transportation challenges they face in reaching locations of their desired activities. The travel behavior of South Asian immigrants is influenced by traditional norms and gendered roles that often assign driving responsibilities to men, thereby limiting women's mobility (Shafi et al., 2023). Older women aged 65 and above face significant mobility barriers due to poor health, low income, and limited technological skills (Ozbilen et al., 2022). Therefore, this study investigates the local transportation needs of South Asian older adult women in Canada and the challenges they face in meeting those needs.

The research focuses on mid-sized cities, which are experiencing the most rapid growth of older adult population (Hartt & Biglieri, 2018). Kingston, Ontario, with a total population of 132,485 in 2021, is indeed midsized and has a considerable proportion of older adult women, making upto 12.0% of its total population, alongside a large significant South Asian population (Statistics Canada, 2021).

The paper uses primary qualitative data gathered from semi-structured interviews, where participants shared insights into their daily activity patterns, transportation needs, difficulties in organizing trips, unmet transportation needs, and the underlying factors contributing to these challenges. The interview data was thematically coded and analyzed using NVivo software. Initial findings from the interviews suggest that older adult women who immigrated to Canada in recent years experience greater transportation challenges. These difficulties are primarily due to their unfamiliarity with local transportation systems and more significant language barriers, in contrast to those who arrived earlier and have since adapted to the car-dependent culture.

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Key Words: Older Adults, Immigrants, Unmet Travel Needs, Canadian cities

Understanding Disparities in Activity Participation in Post-Pandemic California

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The COVID-19 pandemic significantly disrupted daily routines by altering commuting patterns, social interactions, access to public spaces, and physical mobility outside the home. Vulnerable populations, such as older adults, individuals with disabilities, and those from low-income households, faced disproportionate constraints on their mobility and activity participation, particularly during the early stages of the pandemic (Batur et al., 2023; Hasson et al., 2022). These challenges were further exacerbated by disparities in access to digital infrastructure, as reliable internet connectivity became essential for maintaining many aspects of daily life. Given that certain groups encountered substantial barriers to engaging in both essential and non-essential activities due to geographic and digital limitations, it is critical to reassess post-pandemic activity participation patterns using the most recent data. To that end, the current study addresses this gap by investigating how individuals engage in daily activities using data from the 2023 wave of the California Mobility Panel, a comprehensive survey capturing travel behavior, mobility preferences, and transportation barriers, across diverse California households (for more detailed information about the survey, please see Ozbilen et al., 2024). We examine how socio-demographic factors, mobility limitations, psychological attitudes, online activity participation, and neighborhood characteristics affect engagement in discretionary activities (e.g., attending concerts, meeting friends, or exercising outside) and utilitarian activities (e.g., running errands, attending regular non-work meetings such as church or social club gatherings) in the post-pandemic context.

We employ Latent Class Cluster Analysis (LCCA), a method widely applied in prior travel behavior studies (Liu et al., 2021; Rafiq & McNally, 2021), to identify four distinct activity participation groups: Moderately Active, Low-key Engaged, Physically Active, and Socially Engaged. The Moderately Active group represents individuals with average levels of engagement in both discretionary and utilitarian activities, reflecting a balanced activity pattern. The Low-key Engaged group, which includes a large share of older adults, is characterized by high levels of mobility limitations, financial hardship, and negative attitudes toward both driving and active travel, and has the lowest levels of activity participation. In contrast, the Physically Active group also includes many older adults but is defined by positive attitudes toward active lifestyles and frequent participation in physical activities, despite less engagement in social events. Both the Low-key Engaged and Physically Active groups predominantly reside in suburban areas, though the latter tend to live in neighborhoods with higher walkability scores, which may reflect broader differences in built environment and infrastructure quality. The Socially Engaged group, who are typically younger, higher-income, and urban residents, exhibited the highest frequency of social activities. Online activity participation also varied across clusters, with those who were more socially and physically active also reporting higher levels of online engagement, suggesting that digital participation may complement out-of-home activities rather than replace them.

This study contributes to planning scholarship by integrating travel behavior, mobility challenges, and activity participation frameworks to examine persistent post-pandemic disparities in California. Our analysis shows that individuals with mobility limitations and financial hardship are less engaged in out-of-home activities, highlighting how both physical and economic barriers contribute to reduced participation in daily life. These constraints are more pronounced for those in low-density, car-dependent neighborhoods with limited pedestrian infrastructure. Additionally, attitudinal factors, such as being pro-environment or pro-active, are associated with greater activity participation. The findings offer an important post-pandemic baseline for understanding persistent disparities in activity participation and identifying priorities for inclusive transportation and land use strategies. For planning practice, this calls for coordinated interventions: improving walkability in suburban neighborhoods, enhancing affordable travel options to reduce financial barriers, and supporting access to both digital and physical forms of participation in daily life.

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Key Words: Activity participation, Post-pandemic mobility, Transportation access, Built environment, Latent class analysis

Understanding Driverless Taxi Adoption and its Impacts on Travel Behavior

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The advent of driverless taxi services, such as Waymo, is beginning to mark a transformative shift in urban transportation. These services promise cleaner air, reduced traffic congestion, enhanced safety, connection to public transit and progress toward climate goals by delivering fully autonomous electric vehicle trips (<https://waymo.com/sustainability/>). Despite the benefits, integrating driverless taxi services into existing urban environments also poses considerable challenges. These include adapting urban infrastructure, establishing regulatory frameworks to address liability, safety standards, and data privacy, and promoting sustainable urban design (Wann, 2024; Orieno et al., 2024). Considering both the potential benefits and these integration challenges provides strong motivation to more deeply investigate the behaviors and intentions of driverless taxi users and non-users.

While some individuals have embraced these services, others remain hesitant due to safety concerns, unfamiliarity, or the novelty of the technology. Studies have shown that prior exposure to partial automation features, such as adaptive cruise control or automated parking, is positively associated with trust and favorable attitudes toward fully automated systems. However, negative experiences, such as drops in automated steering support, can lead to decreased trust and lower perceptions of system performance (Haus et al., 2023). Given that most recent-vintage vehicles now include some level of advanced driver assistance systems (ADAS), it is useful to capture attitudes toward fully automated vehicles in the context of these partial automation experiences.

Accordingly, this research seeks to address these significant questions by investigating the adoption and non-adoption of driverless taxis, with a particular focus on workers in Phoenix, San Francisco, and Los Angeles. Employing an extensive survey of approximately 1,700 workers, the study targets both users and non-users, gathering considerable data on actual and hypothetical behaviors, socio-economic and demographic profiles, job characteristics, travel patterns, and attitudes toward driverless taxis. The analysis will apply descriptive and inferential statistics to identify adoption profiles, behavior patterns, and regional variations.

This study's wide-ranging analysis of explanatory and outcome variables, alongside cross-regional comparisons, offers valuable insights into the factors shaping driverless taxi adoption. The results will help urban planners, policymakers, and transit authorities make better-informed decisions about the continuous growth and extension of driverless taxi services, ensuring such innovations' sustainability, accessibility, and efficiency within urban transportation systems. Furthermore, insights into adoption barriers will guide targeted infrastructure and service improvements, fostering equitable, efficient, and resilient urban mobility.

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Key Words: Driverless taxi, Robotaxi, Travel behavior, Sustainable transport, Automation

Unequal Access: Analyzing Transit Deserts and Mobility Challenges in Oklahoma City

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Urban public transportation systems are crucial for ensuring equitable access to employment, education, and healthcare. However, many fast-growing cities, face gaps in transit infrastructure that disproportionately affect low-income communities, older adults, youth, and people without reliable access to automobiles (Jiao & Dillivan, 2013; Lubitow et al., 2017). These inequities often manifest as “transit deserts,” where demand for public transportation exceeds supply, impeding personal mobility for transit-dependent groups (Jiao, 2017). Compounding the issue is the Oklahoma city’s historically car-centric development, which has led to service gaps and inefficiencies within its public transit network. The consequences are particularly significant in a sprawling urban environment like Oklahoma City, whose limited transit coverage exacerbates socioeconomic and racial disparities (Census Bureau, 2022; OKDOT, 2023). Building on the city’s existing transportation challenges, this study’s overarching aim is to quantify and address transit deserts in Oklahoma City. Specifically, its primary objective is to evaluate the degree to which public transportation supply aligns with the needs of residents at the block group level. To guide this evaluation, we aim to address two primary research questions: 1) Which neighborhoods in Oklahoma City exhibit the largest discrepancies between transit demand and supply? And 2) How effectively does current transit infrastructure respond to the needs of transit-dependent populations, particularly in socioeconomically disadvantaged areas?

This study employed geospatial techniques. First, publicly available datasets such as the U.S. Census for demographic and socioeconomic indicators, General Transit Feed Specification (GTFS) files for transit routes and stops, and OpenStreetMap for street network data were collected and merged. Transit demand was quantified by calculating the number of transit-dependent individuals, defined as those lacking access to private vehicles, younger than 18, older than 65, or living below the poverty line. Transit supply was assessed using multiple metrics, including the density of transit stops, routes, intersection density, sidewalk coverage, bike lanes, road speed limits, and weekday service frequency. Each metric was standardized (z-score) and aggregated to produce a composite supply index, which was then subtracted from the composite demand index to reveal transit gaps across 725 block groups in Oklahoma City.

The findings indicate that approximately 13.24% of Oklahoma City’s total population, about 91,989 residents are transit-dependent. While downtown areas exhibit relatively robust transit coverage, over 70% of block groups experience higher demand than available transit services, creating pronounced “transit deserts” outside the urban core. These gaps overwhelmingly coincide with lower-income, racially diverse neighborhoods, underscoring persistent transit inequities.

Policy recommendations emerging from this study emphasize equity-driven interventions. Specifically, expanding transit routes to underserved regions, reevaluating suburban land use to incorporate transit-focused planning, and revisiting funding mechanisms that currently favor higher-income or more centrally located neighborhoods could substantially improve access. Community engagement is also essential: consulting residents can guide decisions on practical needs like wheelchair-accessible stops and extended service hours.

Overall, the spatial mismatch between transit supply and demand in Oklahoma City underlines the urgency of more inclusive mobility strategies. By pinpointing areas with the most severe service gaps, this research offers a roadmap for policymakers to direct investments, reduce socioeconomic divides, and strengthen urban sustainability. Such measures not only support vulnerable populations but also contribute to broader goals of economic vitality and community well-being.

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Key Words: Transit-dependent People, Transit Deserts, Transit Gap, Transit Infrastructure, Spatial Analysis

Unlocking the Future of Curbs with Autonomous Vehicles? Exploring Incentives for Smarter Use.

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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As cities grow, the curb has emerged as one of the most contested and underutilized urban assets. Traditionally dedicated to long-term vehicle parking, curb space is now in high demand from many sources. This study explores how policy reform, technology integration, and incentive-based strategies can be employed to reimagine and reallocate curb space in ways that promote efficiency, equity, and sustainability. Drawing on over 20 expert interviews and in-depth analysis of curb management policies from leading global cities—including San Francisco, Seattle, Lisbon, Amsterdam, and Barcelona—the study identifies key themes shaping the transition toward more dynamic and high-value curb use.

Findings indicate that cities making the greatest progress in curb optimization deploy demand-responsive pricing, digital permitting systems, and real-time data collection to better match curb use with actual demand. However, implementation challenges persist due to political resistance, fragmented interagency governance, limited enforcement capabilities, and an overemphasis on private vehicle storage. A central contribution of the study is the reexamination of demand-based parking pricing models, building on the foundational economic theories that have historically guided curb policy.

While these models advocate for efficient parking turnover through market-based pricing, the study finds that such frameworks often conflict with contemporary curb needs—particularly the high frequency and short-duration demands of passenger pick-ups and drop-offs (PUDO), freight deliveries, and micromobility activity. These tensions call for a hybrid curb strategy, incorporating time-based curb reallocation, short-term access pricing, and digital reservation tools that prioritize turnover and multimodal accessibility over static parking. Quantitative modeling in the study illustrates the potential for cities to generate greater revenue and improve service quality by transitioning away from fixed parking fees to dynamic curb access charges. Cities like Washington, D.C. and Lyon have piloted innovative programs—such as geofenced loading zones and weight-based curb pricing—that have demonstrate the feasibility of aligning economic incentives with sustainable curb use.

The role of data standardization is also addressed in detail. Tools like the Curb Data Specification (CDS) and General Transit Feed Specification (GTFS) offer cities a foundation for integrating enforcement, pricing, and curbside coordination across multiple transportation modes. However, the study cautions against relying solely on data as a proxy for action. Experts interviewed repeatedly emphasized that while real-time, high-granularity curb data is essential, cities often become mired in perpetual data collection without implementing the policy changes that data is meant to inform. Instead, the study advocates for a balanced approach—leveraging data to support decision-making.

In sum, recommendations from the study fall under three core domains: policy, technology, and behavioral change. Policy reforms include shifting curb space from vehicle storage toward high-turnover uses that promote economic activity, safety, and shared mobility. Technological solutions include AI-enabled enforcement, digital permitting, and dynamic pricing platforms. Behavioral change strategies involve public education campaigns and re-framing the curb as a public asset for access and movement rather than static parking. Ultimately, the study concludes that the curb represents one of the most valuable and under-managed resources in the urban mobility ecosystem. And

unlocking its full potential will require cities to embrace a multimodal framework that reflects modern transportation needs.

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Key Words: autonomous vehicles, transportation, shared mobility, curb management, curb data specification

Unpacking the Micro-Politics of Everyday Neurodivergent Mobility Practices for Inclusive Transport

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Ensuring equitable and inclusive built environments is one of the central pressures for modern urban planning. Across planning disciplines, historically unjust practices are being interrogated and reimagined to acknowledge and address systemic racism, sexism, genderism, and ableism. Yet, how planners can do so is an inherently reflective process, as we continue to learn and unlearn what is both helpful and harmful to historically marginalized groups. For example, some historic accommodation measures for people with disabilities would minimize or negate their dis/abilities, which led to enduring ableism even in well-intentioned efforts. However, more recent advancements in disability planning instead center dis/abled needs and voices in how we plan, electing to value difference rather than minimizing it (Stafford et al., 2022).

Despite these ongoing advancements in the societal understanding of disability, there has remained a gap in how urban planning has wrestled with ableism, especially in transportation planning practices. Too often, transportation planning will elect a 'one size fits all' approach to disability planning, which fails to engage with the nuanced and embodied experiences of getting around with dis/ability (Levine & Karner, 2023).

To respond to this gap, this session discusses the sensorial and affective experiences of neurodivergent adults navigating and negotiating everyday mobility practices. As a form of cognitive difference, neurodivergence is known as an 'invisible disability'; one which is not immediately seen by those who do not live it. Invisible dis/abilities challenge the often-expected binary of ability which expects bodies and minds to either be 'abled' or 'disabled'. Neurodivergence (and other invisible dis/abilities) accentuate the constantly fluid and relational spectrum of dis/ability and uncover the 'hiddenness' of navigating space when differently abled, but not visibly disabled (Toronyi, 2019).

Fundamentally, this work sits at the intersection of critical dis/abilities and the politics of mobility, utilizing a framework of mobility representation and practice (De Certeau, 1984; Cresswell, 2010) to understand 1) what are the embodied and affective experiences of neurodivergent mobility practices and 2) how do such practices (re)form experiences of the self, of landscape, and the act of getting around.

This study was conducted through a grounded-theory analysis of 30 qualitative and semi-structured interviews with neurodivergent adults (those who identify as either Autistic or with Attention Deficit and Hyperactivity Disorder (ADHD), or both) who actively travel in their everyday lives and live in Ontario, Canada. Our findings revealed a diverse set of commuting and travel behaviours and preferences, but despite this heterogeneity across mode preferences for everyday mobility practices, the in-depth sensorial and affective analysis revealed parallels within the micro-politics of decision-making that were intrinsically tied to navigating and negotiating space whilst neurodivergent. Specifically, we found that people who are neurodivergent seek out commuting and everyday travel practices that allow them to construct a sense of predictability, agency, and interest. Such insights allow us to form recommendations about how to more meaningfully accommodate pluralistic perspectives of dis/ability in inclusive transportation strategies. We conclude with a call for transportation planning efforts to acknowledge the relational and affective experiences of dis/ability and move away from blanketing interventions which fail to

acknowledge the diversity and plurality of the differently and dis/abled populations, including those who think, feel, and process information differently.

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Key Words: Politics of mobility, Neurodivergence, Critical disabilities, Everyday mobility

Urban Mobility and Time Poverty in the Lives of Bronx Home Care Workers

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Every day, home health aides in the Bronx navigate unreliable and fragmented public transportation to reach their clients across New York City. These workers, predominantly low-income women of color and immigrants, play a vital role in sustaining the well-being of Medicaid recipients in the Bronx, enabling them to stay in their community, travel to medical appointments, and maintain independence. Despite the critical role they play, home health aides endure significant transportation inequities that compound their precarious working conditions, characterized by unpredictable work schedules, unreliable transit, and the physical and emotional strain of lengthy commutes.

This project is conducted in collaboration with two organizations at the forefront of advocating for home care workers' labor rights, Cooperative Home Care Associates (CHCA) and 1199SEIU. The research draws on two complementary qualitative methods. First, I conducted ethnographic fieldwork with 30 home health aides living and working in the Bronx, focusing on their experiences navigating transit and managing care responsibilities. Second, I carried out 15 go-along interviews with a subset of these aides, accompanying them during their commutes to capture real-time observations of how transportation access shapes their daily schedules, mobility patterns, and time management strategies.

My findings show that public transit fails to accommodate the home health aides' nonstandard commutes and travel to spatially dispersed residential locations. Health aides often navigate long wait times, multi-modal transfers, and "trip-chaining" routines that incorporate caregiving duties at work and at home—further extending their workday and heightening their temporal precarity. Many aides report building their lives around transit inefficiencies, such as leaving hours earlier or accepting fewer shifts to avoid impossible commutes.

By foregrounding the lived experiences of mobile home care workers, my research contributes to a growing literature on mobility justice, gendered commutes, and the spatial politics of care work. I argue that planning discourses must extend beyond metrics of accessibility or ridership to consider how transportation systems support or undermine the conditions of care as an essential service in the city. This study calls for planning approaches that center care infrastructure and integrate the needs of feminized, racialized and classed labor force into urban mobility systems.

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Key Words: Mobility of Care, Public Transit, Shift Work, Nonstandard Commute, Transportation Justice

Urbanization, Electric Vehicles, and the Environmental Kuznets Curve

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The Environmental Kuznets Curve posits an inverted U-shaped relationship between economic development and environmental degradation, where emissions rise in the early stages of growth but decline as economies mature. Urbanization has often been viewed as a juxtaposition to this trajectory, as densely populated cities tend to experience sustained emissions growth. This study, however, challenges that view by investigating how electric vehicle adoption, charging infrastructure expansion, and economic growth in U.S. cities contribute to the Environmental Kuznets Curve. Using zip code-level data across the U.S. spanning two decades, spatial logistic regression analyses reveal that while the early introduction of charging infrastructure—concentrated in urban areas—initially correlates with higher emissions, the widespread adoption of electric vehicles leads to a substantial reduction in on-road carbon emissions over time. These findings challenge prior assumptions that urbanization hinders the Environmental Kuznets Curve, suggesting instead that well-planned electric mobility solutions may accelerate the transition to the environmental improvement phase of the curve. Based on these results, the study offers a framework for how cities can leverage electric vehicle adoption to drive both environmental improvement and economic growth. These insights contribute to the broader discourse on how cities can reshape their environmental trajectories and transition toward more sustainable development pathways.

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Key Words: EnvironmentalKuznetsCurve, Electric Vehicles, Charging Infrastructure, Urbanization

User Perspectives on Fare-Free Transit: Rider Experience and Factors Influencing Continued Use

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Fare-free transit policies have garnered significant attention in the United States, with many major transit service providers considering their adoption. The elimination of fares is viewed as a way to eliminate barriers towards use and increase patronage. However, some argue that service improvements—such as increased frequency, expanded service areas, and enhanced reliability—may have a greater impact on attracting and retaining riders. This raises important questions about the most effective approach transit providers should take to achieve sustained ridership growth. Should agencies prioritize fare elimination, or would investments in service quality yield greater long-term benefits?

This study explores the experiences of bus riders in the Kansas City metropolitan area following the implementation of a fare-free transit policy. By examining the perspectives of transit users, this research seeks to answer two key questions: (1) What has the experience of riders been since the implementation of fare-free transit? and (2) What factors are most influential in contributing towards continued use of transit for transit users? How experiences vary based on socio-demographic characteristics is explored. Through the administration of surveys with bus users, the study investigates both the benefits and challenges of fare-free transit, including accessibility, service reliability, safety, and rider satisfaction. While the removal of fares has reduced financial barriers towards use, findings suggest that other factors play a crucial role in determining whether passengers continue to use transit. Understanding these influences is essential for transit agencies aiming to sustain and grow ridership.

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Key Words: Fare-Free Transit, Transit Use, Transit Access, Transit Barriers, Fare Policy

Walking the First and Last Miles Under Shelter: Evidence from Singapore's Sheltered Walkway Program

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Central Theme: This study investigates whether small-scale enhancements to public transportation infrastructure can influence people's travel behaviors. While urban governments have extensively evaluated the impacts of large-scale investments—such as new metro lines, expressways, cycling and pedestrian paths, and provisions of shared bikes or e-scooters—less attention has been paid to minimal yet potentially impactful interventions at the peripheries of transit journeys. Singapore has substantially invested in the public transit infrastructure. A notable initiative to improve first- and last-mile connectivity in Singapore is the sheltered walkway system, providing overhead shelters along pedestrian walkways connecting public transit hubs (such as bus interchanges and train stations) to many surrounding residences and facilities for public use. The primary objectives of setting up the system are to enhance walking convenience and encourage more walking trips to transit hubs rather than relying on other transport modes to finish such short trips. In this context, the main research question in this study is whether sheltered walkway connections increase the share of walking in urban residents' first- and last-mile trips to and from transit hubs.

Methodology: We employ a Difference-in-differences (DID) model for a stepwise analysis. First, using bus stop-level traffic data (tap-in and tap-out counts from farecards) from September 2022 and 2023, we examine whether the introduction of sheltered walkways affects transit usage at bus stops located several stops away from major transit hubs. Second, using the 2012 and 2016 waves of the Singapore Household Travel Survey (HTS), we explore changes in local travel behavior—specifically, whether residents walk more and use other transport modes less after gaining access to the sheltered walkway network.

Findings: Preliminary analysis of bus stop-level data suggests that sheltered walkways reduce short-distance bus trips, with an average decrease of 2.7% in tap-ins and 3.4% in tap-outs in bus stops within five stops from public transit hub stations. This effect is most pronounced at bus stops two to three stops from nearby hub stations—within typical walking distance (0.8 to 1.7 km)—and fades beyond this range. HTS data further indicate that the availability of sheltered walkways leads to increased walking, both as the primary mode of travel (increases by 4.4%) and as the first-mile mode (increases by 3.7%), particularly during off-peak and evening peak hours. More substantial effects are observed among individuals living within 1.6 km of a transit hub.

Implications for planning practice: These findings contribute to the literature by providing empirical evidence on the effectiveness of small-scale transit infrastructure improvements in shaping travel behavior and enhancing public transit efficiency. Practically, the results offer valuable insights for future expansions of Singapore's sheltered walkway network and suggest that similar initiatives could be beneficial in other high-density urban contexts worldwide—supporting active mobility, improving public transit performance, and fostering healthier cities.

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Key Words: Travel modes substitution, Active mobility, Public transit, Difference-in-Differences

What Do Workers Do on Remote-Only Workdays with Time Saved from Not Commuting?

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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This study examines a crucial yet underexplored factor influencing post-pandemic teleworking: the differences in activities and travel patterns between remote-only and in-person workdays for the same individuals. By analyzing how workers allocate their time and trips across these two work settings, we can uncover underlying motivations for sustained telework. These insights can inform planning and policy efforts to promote sustainable transportation.

Key questions include:

1. How much time do hybrid workers save on remote-only workdays by not commuting?
2. Do hybrid workers make more non-work-related trips on remote-only workdays than on in-person workdays to handle personal responsibilities or due to cabin fever? If so, who are they in terms of personal, household, attitudinal, and built-environment attributes?
3. Do hybrid workers make fewer non-work-related trips on remote-only workdays by chaining such trips with their work-related trips on in-person workdays? If so, who are they in terms of personal, household, attitudinal, and built-environment attributes?
4. How do these strategies influence travel behavior, particularly the use of private vehicles and alternative travel options? To what extent do various factors (e.g., built-environment attributes at home and workplace) explain these travel outcomes?

This study leverages the latest wave of the California Mobility Panel, a series of transportation surveys conducted in a consistent structure since 2018. This panel has been instrumental in tracking and analyzing evolving travel behavior trends, focusing on California residents. The most recent survey wave (N=6,469) was administered from August 2023 to January 2024 and collected comprehensive data on various factors influencing travel behavior. Key variables in this study include differences in time use for the same individuals between a typical remote-only workday and an in-person workday. The survey first estimates the maximum amount of time saved from not commuting (including two-way travel and personal grooming time) and then asks respondents whether they engage more or less in a set of out-of-home activities and associated trips on a remote-only workday, inspired by the American Time Use Survey. To examine heterogeneity in remote-work-facilitated differences in activity and travel patterns, we employ latent-class cluster analysis (LCCA) on a sample of hybrid workers (N=854) who typically commuted to work and worked remotely at least once a week for both.

Preliminary results identify four latent classes, each exhibiting unique behaviors on remote-only days compared to in-person workdays. Older adults are more likely to fall into the About the same category (30.8%), while lower-income individuals are overrepresented in the Less on most activities category (12.3%), likely indicating that they consolidate activities on commute days to reduce travel costs. Those living with children are more likely to be in the More on most activities category (30.6%), suggesting they use remote days to balance work and personal responsibilities. Interestingly, individuals who prefer cycling, lead physically active lifestyles, and favor urban

environments are likely to fall into the More on three activities category (26.4%), indicating a lifestyle-driven choice to engage in more out-of-home activities on remote days.

In sum, this study identifies distinct ways in which teleworking influences activities and non-commuting trips, shedding light on the ways workers utilize time saved on remote-only workdays. These findings provide in-depth insights into the motivations for teleworking and its implications for local and regional travel patterns.

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Key Words: Telework, Hybrid work, Time use, Activity travel patterns, Latent class analysis

What Drives Online Food Delivery? Evidence from Mobile App Engagement Data

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The rapid growth of online food delivery platforms is reshaping how people access prepared meals in U.S. cities, with wide-ranging implications for food access, land use, and transportation systems. As delivery demand increasingly influences urban traffic patterns, curb space competition, and last-mile logistics, understanding the behavioral and spatial drivers of this shift has become critical for transportation planning and policy. Yet, despite the expanding role of delivery services in everyday life, we know relatively little about who uses these platforms and under what conditions—particularly with respect to neighborhood context and equity. This study addresses that gap by identifying demographic and spatial disparities in online food delivery app usage.

To measure engagement with online food delivery, I construct a behavioral proxy using mobile app activity data from Global Wireless Solutions, which captures interactions from over 40,000 individuals across the United States. Although direct, disaggregated measures of food delivery demand are unavailable, this dataset offers an indirect but meaningful approximation through daily app access patterns. I track individual-level usage of leading delivery platforms—Uber Eats, DoorDash, Grubhub, and Postmates—by counting the number of distinct days on which each user accessed one or more of these apps. This approach captures variation in delivery-related behavior and reflects repeated interactions throughout the ordering and delivery process.

The explanatory framework incorporates a broad set of individual, temporal, environmental, and spatial variables. Individual-level controls include demographic attributes (e.g., age, gender) and indicators of general daily activity. Temporal controls account for day-of-week variation, while environmental conditions are captured via a weather-based indicator of unbenign travel conditions. To reflect physical food access, I include measures of accessibility to restaurants by walking 15 minutes. At the neighborhood level, I account for population density, income, and racial composition to assess how socioeconomic context influences delivery behavior. Finally, I control for relative location by measuring the distance to the nearest subcenter.

The analysis proceeds in two stages. First, I conduct a descriptive analysis to examine patterns in delivery app usage across individuals, geographic regions, time (days and months), and platforms. This includes identifying dominant app providers across space. Second, I estimate regression models using a high-resolution panel dataset in which each observation represents a user-day in 2023. These models assess how online food delivery engagement varies with demographic, spatial, and environmental factors.

The results show that younger and more mobile individuals are significantly more likely to engage with delivery apps, particularly on weekdays and during inclement weather. App usage is highest in dense, high-income neighborhoods, while lower-income and majority-minority neighborhoods exhibit lower levels of engagement—even after accounting for physical restaurant accessibility. Distance from employment subcenters is positively associated with usage, pointing to more delivery demands in peripheral locations. As certain populations reduce their physical travel and increasingly rely on online access to food, equitable access to digital infrastructure becomes a critical dimension of food accessibility. Recognizing who depends on these services—and under what conditions—can help planners address emerging disparities in the evolving urban food landscape.

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Key Words: Online food delivery, Mobile app data, Food accessibility, Individual behavior

What is a “Successful” System for Funding Transportation? Lessons from Ontario, Canada

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Few transportation professionals are excited about the prospects of spending their careers producing plans for infrastructure which will never be built. Understanding the conditions under which plans can become reality is therefore of central interest to transportation planners. Understanding transportation funding policy is critical not only to transform “good” projects into reality, but also as a gatekeeping process to limit “bad” projects. Moreover, historic transportation funding sources are becoming less reliable, considering dramatic geopolitical policy uncertainty and increasingly fuel-efficient vehicles and changing technologies (Hajiamiri and Wachs, 2010). Understanding both current systemic funding forces’ influences on transportation investments and structural changes is critical towards transportation planners to shape how programs become realities.

By focusing on a case study of Ontario, Canada, which is in the process of a generational investment in transit infrastructure (Mok et al., 2025), this study illustrates opportunities for addressing these challenges. Ontario’s policy shift was spurred by the increased provincial role in transit capital funding and supportive policies, but its success depends on future provincial governments continuing to prioritize transportation investments. With a slowly increasing Canadian federal role, there are also new funding opportunities. Looking forwards, municipalities lack transportation funding options and instead rely on the funding priorities of the provincial political process (Kitchen, Slack, and Hachard, 2019).

This case study uses a policy assessment lens which builds upon Patton et al. (2016) and explores the dimensions of efficiency, equity, efficacy/feasibility, and environmental sustainability. The novel empirical contributions of the case study relate to answering two questions: 1) what is a “success” in the space of designing transportation funding policy? and 2) what action may be taken towards better “success” in Ontario’s system of transportation funding?

This study adopts a qualitative research approach involving experts in transportation policy and funding in Ontario. First, as part of a broader research initiative (since fall 2023), key planners and policymakers embark upon a process of co-education, through which presentations are delivered by different group members related to organization-specific transportation funding considerations. Organizations include federal, provincial, municipal, and non-profit organizations representing transportation and urban fiscal policy interests. Second, expert interviews are conducted (between January and March 2025) with 23 individuals representing these organizations as well as others, including select private sector consultants. Interview questions focus on areas related to experts’ roles and knowledge of transportation funding, policy formulation and assessment, technical and political feasibility, and key guidance for policy success. Findings are distilled and circulated to interviewees through a co-learning process. Third, a series of three focus groups (in April 2025) are conducted, where lessons from the interviews are shared with participants. A menu of policy options is identified before the focus group engagement is used to prioritize elements of past and potential future success in how Ontario funds transportation infrastructure. Findings are presented based on broad thematic analysis and based on coding using both inductive and deductive approaches. Ontario, Canada represents a unique policy context in that it is currently undergoing a

generational shift in public transit investment and broader sustainability-oriented policy priorities. Nevertheless, findings from this empirical case study provide guidance for other policy contexts on how to design transportation funding in a way which better serves broader planning and policy goals.

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Key Words: transportation funding, transportation economics, Ontario, Canada

When Do Workers Hit the Road? Exploring Post-Pandemic Travel Timing in the U.S.

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Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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The COVID-19 pandemic profoundly altered the landscape of work, leading to the widespread adoption of remote and hybrid work arrangements. The significant shift to remote and hybrid work may offer potential benefits such as reduced peak-period travel, lower levels of traffic congestion, and greater flexibility in the timing of travel. Indeed, pre-pandemic research shows a tendency to avoid peak periods among workers with flexible work arrangements (Lachapelle et al., 2018; Stiles & Smart, 2021). However, the share of people with flexible work arrangements was quite small before the pandemic (5.7%). This figure tripled by 2021, and remained significantly higher (15.2%) in 2022 than pre-pandemic levels (Burrows & Burd, 2024).

With such a substantial increase in remote and hybrid workers, there is evidence that peak-hour congestion has changed in many places (Speroni et al., 2024). Given that congestion is a non-linear phenomenon, the effect of even modest changes in commuting can have outsized effects on traffic delays. However, reduced delays can have their own rebound effect, whereby the new lower time cost of peak travel can attract more travelers onto newly decongested roads (Downs, 2005). This effect may be particularly true for workers in jobs with flexible work arrangements, who are less spatially and temporally bound by their work than traditional commuters. On the one hand, workers with flexible work arrangements can choose to avoid peak hours, either by shifting their daily commutes out of peak periods or/and by scheduling non-work-related trips during off-peak times (Lachapelle et al., 2018). On the other hand, they may choose to schedule their non-work-related trips during peak periods because of their flexible work schedules and reduced (real or perceived) peak period congestion.

Which one of these scenarios holds sway over the other? Do workers with flexible work arrangements have similar trip-making patterns as traditional commuters during different times of the day in the post-pandemic era, or do they travel less during peak periods than traditional commuters as the pre-pandemic research suggests? To answer these questions, I examine the timing of travel of U.S. workers using data from the 2022 National Household Travel Survey. I analyze the share of trips made during the morning peak (6 AM – 9 AM), midday (9 AM – 4 PM), the afternoon peak (4 PM – 8 PM), and evening and overnight (8 PM – 6 AM) by workers in various work arrangements descriptively. I also estimate four Poisson models for each time period to predict the count of trips taken during the respective time periods with the total number of trips taken during the travel day as the offset.

I find that controlling for other factors associated with the timing of travel, remote and hybrid workers make a smaller share of their trips during peak periods compared to traditional commuters and a larger share of their trips during the middle of the day in the post-pandemic era. On average, traditional commuters make the highest number of trips during the afternoon peak period, whereas hybrid workers and fully remote workers make their highest number of trips during the middle of the day.

With the surge of remote and hybrid workers coming out of the pandemic, planning and policy efforts must focus on adjusting road management policies (such as the timing of peak periods, and curb-adjacent travel lanes) and public transit schedules to reflect new patterns in the timing of travel demand.

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Key Words: Commute, Telework, Remote work, Hybrid work, COVID-19 pandemic

When the Wheels Stop Turning: Impacts of School Bus Service Unreliability on Children and Families

Abstract ID: 1844.0.0.919.2025

Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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In January, 2024, the Durham (North Carolina) Public School system (DPS) experienced significant disruptions in school bus services for a period of two weeks due to a pay dispute among school bus mechanics. These disruptions resulted in children arriving multiple hours late for school, waiting multiple hours after school for a ride home, and in many cases, missing school altogether. A small but growing body of literature suggests that reliable school bus services enhance educational outcomes in the US, particularly in non-rural areas (Hopson et al., 2022), and significantly reduce chronic absenteeism among students, with the greatest effects among students from economically disadvantaged backgrounds (Edwards, 2023).

This paper presents the findings from a survey of 525 DPS families, seeking to examine the impact of household resources and infrastructure availability on families' ability to adapt to the unexpected changes and uncertainty around school transportation and attendance. The survey, which was adapted from the National Center for Safe Routes to Schools parent survey, also documented immediate impacts on children's school attendance, activity participation, and access to school-based and on parents' work schedules and financial stability. The survey also included sociodemographic questions, allowing us to identify differential impacts of the bus service disruptions by race and income. The survey was introduced at the end of January, 2024—just as the bus service disruptions were resolving—allowing us to capture data on the disruptions' impacts on families while the events were still fresh in their minds.

We analyze quantitative survey data using R, while qualitative open-ended responses are thematically coded using a grounded theory approach. Our preliminary findings suggest that non-white students and students from low-income households were significantly more likely to miss instructional time and meals due to the disruptions. Over two-thirds of students who rode the bus regularly before the disruption decreased their reliance on the bus; with the majority of students switching to a family vehicle as their primary mode to school; open-ended questions indicate this switch increased financial burdens on families and decreased safety in school drop-off zones. Additional analyses will explore the extent to which built environments and infrastructure availability in respondents' neighborhoods and students' school zones affects student impacts and family coping strategies.

This paper addresses critical gaps in understanding the intersection of school transportation disruptions and educational inequities in a mid-size city (Bierbaum et al., 2021). Even before the pandemic, school districts across the country have struggled to provide reliable bus service (Martinez et al, 2023). Yet, to date, there is very little research on the impacts of the loss of reliable bus service on families and children. The exceptional case of Durham, where the pay dispute took place within an overall context of diminishing school transportation services—a crisis within a crisis—provides a unique opportunity to understand the immediate impacts and long-term coping strategies families face when they no longer have certainty over whether and how their children will get to school. For planners, these findings highlight the critical role that safe, uninterrupted walking and bicycling infrastructure can play in ameliorating the impacts of school transportation disruptions.

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Key Words: School transportation, Equity, Mobility justice, Built environments

Why They Ride (or Don't): Unpacking Student Perceptions of Public Transit Use

Abstract ID: 1844.0.0.204.2025

Track 14: Transportation and Infrastructure Planning

Individual Paper Presentation Submission

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Public transportation offers affordability, sustainability, and accessibility—qualities particularly important to university students who often lack private vehicles and rely on transit systems to meet their mobility needs. While traditional models of transit ridership emphasize measurable factors like time, cost, and distance, a growing body of research suggests that subjective perceptions, such as perceived safety, comfort, environmental consciousness, and convenience, play a pivotal role in determining whether individuals use public transit (Bagdatli & Ipek, 2022; Meixell & Norbis, 2008). University students are a critical demographic in this conversation: not only are they frequent users of public transportation, but their preferences and habits could shape long-term transit behaviors. However, recent shifts, such as increased car ownership and post-pandemic health concerns, have diminished transit reliance among students. Negative safety perceptions—especially among women and marginalized groups—are often cited as deterrents (Ceccato et al., 2021), while environmental values may motivate interest in transit use but not consistently translate into action (Whitley et al., 2018). This study investigates these dynamics through two guiding research questions: (1) What are the key perception-based factors that influence university students' decisions to use or avoid public transit? (2) How do these perceptions correlate with actual ridership behavior?

The study employs a mixed-methods case study framework focused on the University of Oklahoma's Campus. Through a two-stage research design, first, a campus-wide survey gathers data on student perceptions of public transit, including both users and non-users, to ensure a comprehensive view of barriers and motivators. The key variables in our survey include perceptions of safety, service quality, affordability, reliability, and environmental benefits. The qualitative phase involves content analysis using NVivo software to identify and code emerging themes. In the second phase, quantitative techniques—Structural Equation Modeling (SEM)—will be used to assess how these perception-based factors relate to actual transit ridership, using survey results and ridership data obtained from local transit providers.

The study anticipates identifying specific psychological and experiential factors—beyond logistics—that affect transit mode choice. Prior research shows that even when transit is affordable and accessible, negative perceptions regarding personal safety, service reliability, and nighttime travel often prevent students from using it (Shaaban & Kim, 2016). Moreover, students' self-identified environmental values, while strong in survey responses, frequently fail to result in increased transit use—revealing an attitude-behavior gap (Whitley et al., 2018). By quantifying these relationships, this study will produce empirically grounded insights on university students' transit behavior and ridership. The findings will help transit planners and university administrators develop more targeted, perception-sensitive interventions to increase ridership among student populations.

This research contributes to urban and transportation planning by integrating social and psychological dimensions into conventional transportation analysis. It enhances understanding of how identity, emotion, and perception shape public service usage, reinforcing the importance of user-centered planning. The findings will provide transit agencies and campus planners with data-driven recommendations to align service design with the values and concerns of student users. From a scholarly perspective, the study introduces a replicable framework for

perception-based transit analysis in campus settings. It also advances educational practices in planning by demonstrating the importance of mixed-methods research in capturing complex behavioral dynamics.

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Key Words: Public Transit Perception, Students Travel Behavior, Transit Ridership, Transportation Equity, User-informed Planning

Track 14 Research in Motion (RiM)

A Tree is a Tree is a Tree: State Policy Interpretations of Federal Roadside Vegetation Guidance

Abstract ID: 1842.0.0.415.2025

Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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In this study, we will document and analyze the content of roadside vegetation management policies at state departments of transportation (DOTs). We will compare results to tree crash trends over time, using a dataset of tree crash fatalities by state between 1985-2022, assembled from the NHTSA Fatality Analysis Reporting System. Findings are expected to reveal insights into transportation policy variation across states, bolster current research into the power of state DOTs, and illustrate the complexity of an issue like roadside tree management, which encapsulates a tension between technoscientific epistemologies and those of the planning and environmental professions.

Dialogue about balancing the needs of traffic safety with roadside forests is accelerating between engineering and urban design, planning, and landscape architecture practitioners. In fact, last year, the NCHRP issued an RFP to investigate the relationship between roadside trees and traffic safety across contexts, maintenance regimes, tree species and morphology, and crash characteristics. Existing state DOT guidelines for roadside trees run the gamut from outdated to nuanced to aggressively anti-tree. For instance, Ohio's Roadside Safety Landscape Guidelines states, "Trees are proven killers when placed by the roadside." By contrast, Wisconsin's Facilities Development Manual offers several considerations for using vegetation to improve roadside safety: "Multi-stemmed shrubby plants may be used as supplemental impact attenuators in conjunction with other systems," and "Plants can often be used to delineate changes in the horizontal alignment of highways. They are typically used on the outside of curves where the combination of vertical and horizontal alignments combine and may confuse the driver as to where the road goes." (Planting and Aesthetic Design Section 20, pp. 7-8).

Practice today, as suggested by the Ohio manual language, is governed by the clear zone guideline, keeping a roadside free of fixed objects such as trees. Like many engineering guidelines, the clear zone began as a flexible concept that could be adapted to sites and leave decisions up to "engineering judgment" (Turner, 1987, p. 89). In particular, "Trees must be regarded as fixed objects, but they also deserve consideration beyond that given to other objects." (Turner, 1987, p. 89). In the 21st century, however, this nuanced approach to roadside trees has been lost in both practice and research. Wolf and Bratton (2006) note that the accepted rule is for any tree of four inch diameter or greater to be 30 or more feet from the road edge. "Alternative findings are rarely considered." (Wolf and Bratton, 2006, p. 171).

While some NCHRP documents have reviewed state-by-state DOT practices, the resulting surveys often capture individual staff responses and rarely span a full 50-state dataset. State manuals shape practice, though we recognize that practice deviates from written guidance to varying degrees by jurisdiction (White, 2023). We first gather DOT roadside vegetation guidance by state. Electronic guidance documents are typically online. In the absence of online documentation, we rely on professional contacts and direct outreach to planning or landscape architecture units within each DOT. Second, we devise a list of codes to structure deductive coding, in which the

codes are predetermined. Third, we perform content analysis using an open source code-and-retrieve software such as Taguette, and synthesize findings according to theme. Finally, we group the states into thematic categories and compare results to tree crash fatality trends over time. Depending on the results, we will structure a follow-on study linking tree crash fatality trends over time to state policies over time. Findings are expected to expand and deepen conversations at the professional boundary between engineering and the allied design professions.

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Key Words: Transportation Policy, Tree protection, Decision Making, Governance, Content Analysis

Access without Automobiles for Urban Arterials

Abstract ID: 1842.0.0.909.2025

Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Urban arterial roads in the US are a challenge for planners. These roads are historically designed for high volumes of traffic, and over decades rules of these roads have been codified into law in ways that guarantee ease of auto travel while harming all other ways of getting around. The conundrum is that these roads are both valuable as conduits of vehicular travel while being damaging to local communities. The reason these roads are damaging is that, because of their design, they become barriers. Barriers to active travel modes because vehicular traffic is too dangerous, barriers to better transit service as the roads are clogged with drivers, barriers to walking because of their width and auto-centric design, and barriers to permeable districts because they make it nearly impossible to travel without a car. Urban arterials are increasingly considered for redesign and rebuilding to alleviate these problems.

This research examines a selection of arterial road redesigns in US cities. In all selected cases, conventional auto-centric arterial design was replaced by multi-modal street design. The questions explored here include 1) how accessibility by non-auto modes changed, 2) what was the change in the total amount of space devoted to automobile traffic and non-auto modes, and 3) to what degree automobile traffic was deprioritized. The data used for these analyses includes site measurements, traffic counts, engineering standards, and planning documents.

We do not expect that these studies of road redesigns will result in clean and generalizable findings. However, we expect that we will be able to assess the relative value of access by non-automobile modes through the deprioritization of automobile traffic. The amount of space devoted to each mode will be measured, changes in lane width, changes to the windshield view of drivers, changes to speed limits, and other changes to the pedestrian environment will be studied. In some cases, we expect to find that non-auto modes remain subordinate to automobile traffic, inhibiting accessibility gains. Examples of automobile traffic priority after a redesign includes things such as higher or unchanged speed limits, a lack of natural elements that provide shade and pleasant walking experiences, pedestrian crossings that are not safe for people aged eight to eighty, and wide road lanes designed for freeway speeds.

The contributions of this research are to local efforts to rebuild streets to support multi-modal transport goals, boost local economic vibrancy, and help develop new performance metrics for planning and engineering. Arterial redesign with accessibility by non-auto modes in mind promotes multiple planning goals, yet getting beyond the motornormative mindset remains a major challenge.

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Key Words: Accessibility, Urban arterial, Walkability, No-motorized travel

Barriers to Adopting Machine Learning in Metropolitan Planning Organizations' Travel Demand Modeling

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Metropolitan Planning Organizations (MPOs) play a critical role in regional transportation planning by forecasting travel demand to inform infrastructure investment and policy decisions. Traditionally, travel demand models (TDMs) have relied on trip-based or activity-based frameworks (Okrah et al., 2016), yet recent advancements in machine learning (ML) have demonstrated significant potential for improving predictive accuracy in capturing complex travel behaviors (Cheng et al., 2019; Liu et al., 2024). Despite these advantages, ML-based models have not seen widespread adoption among MPOs. This study seeks to answer two key research questions: (1) What are the primary barriers preventing MPOs from adopting ML in travel demand modeling? (2) How can ML facilitate the incorporation of non-motorized modes into regional models?

To address these questions, we built the foundation of this study on our previous research (Kalantari et al., 2025), which demonstrated the superior predictive accuracy of ML models in mode choice prediction compared to traditional modeling approaches such as nested logit and multinomial logit models. While our prior study employed a quantitative approach to validate the effectiveness of ML, this study shifts towards a qualitative inquiry to gain deeper insights into the barriers and opportunities surrounding ML adoption. Specifically, we employ a mixed-methods approach, integrating expert input and a nationwide survey targeting travel demand modelers both in MPOs and the private sector. The survey, designed based on expert feedback, gathers insights on awareness, perceived benefits, and barriers related to ML adoption, including technical expertise, financial constraints, data availability, organizational resistance, and policy considerations. Additionally, it explores the extent to which MPOs model non-motorized modes and whether ML is perceived as a viable tool to enhance active transportation forecasting. This approach allows us to move beyond purely statistical validation and develop a more nuanced understanding of the institutional, technical, and policy-related challenges that influence ML adoption in practice. By triangulating findings from both quantitative and qualitative perspectives, we aim to establish a more comprehensive evidence base to inform strategies for bridging the gap between academic advancements in ML and their real-world implementation in transportation planning.

Preliminary findings suggest that while ML is recognized for its potential in improving model accuracy, major obstacles hinder its adoption, including a lack of technical expertise within MPOs, concerns over model transparency and interpretability, and the financial investment required for capacity building. Many MPOs also face challenges in collecting and integrating active mode data, limiting their ability to model walking and biking effectively. However, respondents indicate that access to training programs, successful case studies, and collaboration with academic institutions could facilitate ML adoption.

This study contributes to planning scholarship and practice by providing empirical insights into the barriers and opportunities for ML adoption in MPOs, filling a critical knowledge gap in transportation planning research. The findings have direct implications for policymakers, practitioners, and researchers seeking to improve travel demand modeling and promote the integration of non-motorized modes in regional planning. By identifying key challenges and potential solutions, this work informs strategies for bridging the gap between ML advancements and real-world transportation planning applications.

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Key Words: Machine Learning, Travel Demand Modeling, Travel Behavior, Non-Motorized Modes, MPOs

Beyond Feasibility: Telework, Commuting, and Equity in Post-Pandemic Maryland

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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The COVID-19 pandemic led to a rapid expansion of telework, reshaping commuting patterns and highlighting inequities in access to telework and control over work schedules. As the boom in early 2020s telecommuting subsides, we can now better determine who benefited from remote work over the medium to long term. Drawing on labor market segmentation theory, this study connects research on commuting, telework equity, and segmented labor markets in the context of pandemic recovery. While Dingel and Neiman (2020) estimated that 37% of U.S. jobs were telework-feasible, mainly higher-wage roles, less is known about how that potential has translated into actual commuting outcomes, given varying levels of scheduling autonomy, workplace flexibility, and geographic constraints.

This study asks: To what extent do jobs deemed remote-feasible actually result in reduced commuting, reflect reported work arrangements, and align with workers' preferences or perceptions of telework potential? Using data from three waves of the annual Maryland Commuter Survey (2022–2024), we explore how telework plays out across different occupational and demographic groups. The survey provides rich information on travel behavior, employment characteristics, demographics, ZIP-code–level residential and workplace locations, and self-reported telecommuting activity, preferences, and perceived feasibility. Maryland's diverse economy, proximity to Washington, D.C., and substantial cross-border commuting flows make it a valuable case for studying evolving telework practices. Recognizing that definitions of remote work vary across studies (Buckman et al., 2025), we compare respondents' actual telecommuting frequency in the prior work week with their reported remote work arrangements. This approach reveals how telework operates in practice, beyond static classifications or nominal labels.

To approximate longitudinal trends and capture variation within groups, we use a synthetic cohort approach to construct repeated cross-sectional profiles of occupational and demographic subgroups. Our analysis focuses on four key areas: changes in commuting behavior over time, disparities across worker cohorts, alignment between workers' preferences and actual flexibility, and the distinct challenges faced by those with multiple or mobile worksites (MMW). Importantly, 17% of respondents reported working fully in person but across multiple locations rather than at a single, fixed site. Because the survey explicitly distinguishes MMW employees from traditional on-site workers, we are able to identify them as a substantial segment of Maryland's workforce. These workers exhibit unique commuting patterns that are often overlooked in broader discussions of telework, highlighting the need to account for spatial and organizational complexity in evaluating remote work trends.

Preliminary findings show that while many jobs remain theoretically compatible with telework, actual adoption has declined and is stabilizing near pre-pandemic levels. The share of hybrid or remote workers in Maryland dropped from 64% in 2022 to 34% in 2023, and further to 27% in 2024, approaching the pre-pandemic baseline of 33%. At the same time, more than half of fully in-person workers report wanting some form of remote work and believe their roles could accommodate it. Yet remote and hybrid arrangements remain disproportionately concentrated in office-based occupations, which account for 39% of the workforce. As a result, many workers in telework-feasible roles continue commuting daily, especially those with limited control over their schedules.

Post-pandemic telework trends may reinforce existing inequities in workplace flexibility, with broader implications for commuting, job access, and mobility. By examining how hybrid and remote work unfold across workforce segments, our analysis supports more equitable, integrated transportation, land use, and labor policies.

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Key Words: Telecommuting, Labor Market Segmentation, Telework Equity, Synthetic Cohort Approach, Multiple Worksite Workers

Beyond the Average: Improving Summaries of Accessibility for Transportation Performance Measurement

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Researchers and policymakers agree that measures of access to opportunity are more robust indicators of transportation system performance than measures of mobility (e.g., miles traveled) and infrastructure (e.g., facility miles) that have long dominated performance reporting at state departments of transportation (DOTs) (Gibson et al., 2021, Karner et al., 2022; Litman, 2024). Accessibility measures can be used to examine transportation equity, such as whether residents across socioeconomic strata have comparable access to jobs. They can also reveal how small changes, such as closing network gaps, may substantially increase the destinations users can feasibly reach. Because accessibility is a characteristic of a particular place, or even a particular user, it is spatially precise by default, often calculated for representative points within census blocks, grid cells, or other small units of analysis. This allows areas with anomalously low or high access to be easily identified. It also poses challenges, however, for inserting accessibility into performance frameworks that require statewide summaries. One approach has been to average accessibility across a state or region, sometimes weighting by population (Owen et al., 2024). While straightforward, this reveals little about how accessibility is distributed geographically or socially. Averages are also insensitive to localized improvements that may pose substantial benefits to particular locations or groups. The difficulty of effectively summarizing accessibility at a statewide level has likely impeded its adoption in DOT performance reporting systems.

This project, in partnership with the Maryland Department of Transportation (MDOT), investigates approaches for summarizing accessibility to contribute to the agency's Attainment Reporting (AR) system (MDOT, 2024). The AR currently includes eight measures that report on infrastructure quantity rather than opportunities afforded by that infrastructure, or measure access to infrastructure rather than opportunities at destinations. The current measure of statewide miles of low-stress bikeways, for example, could be exchanged for a measure of access by bicycle to key destinations, reflecting how short bikeways that connect to destinations may offer greater benefit than long ones with fewer connections. Another existing measure, population within a half mile of a transit station, could be updated to reflect the access transit provides to key destinations. Simply averaging bicycle or transit accessibility across the entire state, however, would poorly represent the value of these systems in the areas they serve.

Our work uses data developed by the Accessibility Observatory, through a pool-funded study of which MDOT is a part, that measures cumulative opportunities to key destination types—jobs, shopping, education, etc—from each census block throughout Maryland (Accessibility Observatory, 2025). These data form map surfaces showing how access by different transportation modes—auto, transit, bike, and walk—varies across the state and from year to year. Our project investigates how these data can be distilled into statewide summaries that fit into MDOT's AR framework to track progress over time. One approach might be to set a minimum standard for access and summarize the proportion of areas meeting this standard. Alternatively, inequality in access could be measured through a Gini coefficient or a ratio between access levels at the top and bottom of the distribution. Equitability could be examined by comparing distributions of access across socioeconomic groups. Operationalizing these summaries raises questions about how standards can be reasonably defined and whether they ought to be differentiated between urban, suburban, and rural contexts or considered universal. Our study addresses both the mechanical and ethical dimensions of developing such measures.

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Key Words: Accessibility, Multimodality, Performance measurement, Equity

Coordinated Decision-Making and EV Adoption Within Complex Public Fleets

Abstract ID: 1842.0.0.406.2025

Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Research into commercial adoption of electric vehicles (EVs) is longstanding, and EV studies looking at government owned fleets has grown considerably since 2015. But this latter line of research often concentrates on transit fleets, or considers government fleets alongside commercial fleets or non-fleet vehicles. On the whole, there is a lack of academic literature focused on non-transit, public fleets despite the relative ubiquity of such fleets across regions and levels of government. For the current project, I address this research gap by examining the decision-making processes of public fleet EV adoption through a mixed-methods case-study of the California Department of Transportation (Caltrans).

Previous research into fleet decision-making has identified numerous complexities limiting adoption of EVs. Some of these complexities are organizational. Public fleets typically rely on a highly formalized but decentralized style of decision-making with a multitude of actors shaping EV purchasing decisions (Nesbit and Sperling, 2001). This decision-making style is slow, and can result in uncoordinated actions. For example, the actors empowered to make EV purchasing decisions, are often not the same people making charger installation decisions despite evidence that charger installation enables EV adoption (Khan and Maoh, 2021).

Other complexities restricting fleet EV adoption are infrastructural. Public fleet facilities are typically decades old, and they were not designed with EV charging in mind. The same is true for electricity generation, and distribution systems. Given increasing demand for electricity at a societal level, large-scale charger installation at fleet depots may not be possible without upgrades to the electrical grid (Yu et al., 2016). Fleet operators express worry regarding grid reliability and capacity, especially as they begin to adopt medium- and heavy-duty EVs which consume much more electricity per mile than light-duty vehicles (Sugihara et al., 2023; Powell et al., 2024).

For these reasons, fleet operators have begun coordinating with energy providers, but such efforts broaden EV decision-making complexity. Utility companies sit outside fleet bureaucracies, and while fleet-owning governments can motivate infrastructural upgrades near fleet facilities, utility companies hold the lion's share of influence regarding grid improvements.

With these issues in mind, I ask: Which strategies are public fleet operators following to coordinate internally towards vehicle electrification, and externally with local utility companies towards infrastructural upgrades? And which coordination strategies and facility characteristics lead to faster fleet decarbonization?

To inform these questions, I have partnered with Caltrans to perform an in-depth investigation of their decision-making practices, facilities, and operational patterns using semi-structured interviews, site observations, and statistical analyses of decision-making records, facility characteristics, and telematics data. Caltrans is a great case-study for this topic. It owns a large, and complex fleet with a mix of vehicle types operating over a wide range of environmental contexts, and across the territories of multiple energy providers. It exhibits a highly formalized but decentralized style of decision-making common to most public fleets, and it is bound by California law to decarbonize their road vehicles by 2035. As such, it has replaced or scheduled replacement of nearly 900 motor vehicles with EVs, including a few medium-duty trucks, but exactly which vehicles are identified for EV replacement varies across facilities, vehicle characteristics, and coordination strategies. Through this study, I will ascertain how such variations affect EV purchasing decisions while evaluating coordination strategies that accelerate EV adoption.

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Key Words: Electric Vehicles (EVs), Fleet Decarbonization, Decision-Making, Grid Modernization

Effect of shared micromobility on public transit ridership: Complementary or substitutionary?

Abstract ID: 1842.0.0.930.2025

Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Innovative practices, concepts, and ideas for pedagogy

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Shared micromobility collectively refers to any small, human- or electric-powered travel mode used by multiple users as a shared resource. The most frequently used forms of shared micromobility are regular/electric bikes and electric scooters. This emerging transportation option has become popular worldwide, and as a result, its ridership has dramatically risen in recent years. In the United States, the number of trips via bike share (both regular and electric) and scooter share reached 35 million in 2017 and had quadrupled by 2019. During the pandemic, the ridership plummeted, but it quickly returned to pre-pandemic levels around 2022. As these new mobility options have been widely used, their impact on travel has become significant, particularly for urban residents.

Regarding the impact on public transportation, shared micromobility is expected to increase transit ridership by dealing with the first-/last-mile problems by complementing the local or regional transit system (Böcker et al., 2020; Zhang & Zhang, 2018). However, empirical findings are rather mixed. Some studies suggest that shared micromobility is more likely to substitute local public transit services (Campbell & Brakewood, 2017; Luo et al., 2021). In contrast, other studies demonstrate that it has both competing and complementary effects on public transit ridership (Yan et al., 2021). These inconsistent findings in practice may result from variations in regional characteristics and the service provided, but a large number of existing studies focused on a single city, mostly large metros such as New York City, Chicago, and Washington, D.C., or on a single type of shared micromobility (e.g., bike share or scooter share).

Hence, the current study attempts to examine the role of shared micromobility in public transit ridership in 146 urbanized areas (populations between 200,000 and 1.5 million) across the United States with a focus on three types of shared micromobility service (i.e., regular bikes, e-bikes, and e-scooters). To this end, we adopt the difference-in-differences (DID) approach and quantify the changes in transit ridership per capita in urbanized areas before and after the adoption of shared micromobility while controlling other likely drivers of public transit ridership change. Thus, we shed light on the impact of the options of shared micromobility service on public transit ridership at the regional level and suggest relevant planning strategies or policies to integrate shared micromobility and public transit service in the region. By doing this, we make a valuable contribution to the literature regarding the impact of shared micromobility on public transit trips.

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Key Words: Shared micromobility, public transit, ridership, difference in differences, U.S. metros

Effects of Built Environment Factors on Injury Severity of Motor Vehicle Accidents

Abstract ID: 1842.0.0.1014.2025

Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Traffic safety is an essential component of healthy communities and neighborhoods. Many studies have investigated the potential influences of built environment factors on traffic accidents. Dumbaugh and his colleagues examined the impacts of locational factors, including the built environment and land use, on traffic safety (Dumbaugh & Rae, 2009; Ewing & Dumbaugh, 2009; Merlin et al., 2020; Saha et al., 2020). Ewing and Dumbaugh (2009) also presented a conceptual framework in which built environment factors (development patterns and roadway designs) affect the outcome variables (crash frequency and crash severity) through the mediating factors (traffic volumes, traffic conflicts, and traffic speeds). The higher the traffic volume, the more frequency of vehicle accidents. Traffic speed affects the time a driver takes to react to unexpected events or objects, resulting in a stronger force of impact in a crash, increasing the frequency and injury severity. Despite the large volume of studies on traffic accidents, scant studies have examined the effects that built environment factors may have on the severity of injuries, partly because of quality data on injuries.

This study examines the under-studies effects of built environment factors on injury severity in traffic accidents, taking advantage of the injury-diagnosed data at hospitals. The primary data in our study are the admission data between 2016 and 2021 obtained from the R Adams Cowley Shock Trauma Center at the University of Maryland Medical Center in Baltimore. The admission data provide details about the patient and injuries, including the Injury Severity Score (ISS) obtained from the global consensus-derived Abbreviated Injury Scale based on medical diagnostics by trained physicians. These records were linked at the person level with the vehicle crash data in Maryland to obtain the accident locations and whether the admitted person was a vehicle driver, passenger, or pedestrian/cyclist in the accident. The study also incorporates two data sets that contain built environment factors: the Environmental Protection Agency's (EPA) 2021 Smart Location Database (SLD) and Maryland Generalized (Land Use) Zoning (GLUZ) data. The SLD includes a variety of location attribute variables related to 3Ds (density, diversity, and design), accessibility, and transit service at the census block group level. We use a spatial join to link accident records to the SLD and MD GLUZ data and, so far, apply the Categorical and Regression Trees (CART) model with five levels, a non-parametric machine learning technique for logistic regression.

Within 6,732 individual patients, 23%, 26%, 24%, 14%, and 12% had injuries at the minor, moderate, serious, severe, and critical/fatal level, respectively. We found in the preliminary analysis that increasing housing or commercial density, which are defined as dwelling units per acre (du/ac) and jobs per acre (jobs/ac), respectively, greatly impacts injury severity as the most critical variable. The most common density level of single-family zoning in Maryland is around 6.5 du/ac. We also found that accidents in the areas of about 10 du/ac or above are unlikely to result in the ISS serious or above for patients. Similarly, it is unlikely that accidents in the areas with job densities of about 8 jobs/ac or crashes higher results in the ISS serious or above. In short, denser areas are less likely to produce worse injury outcomes, although the densities required to improve motorist crash injury severities are about half those for VRU: 5 du/ac and 4 jobs/ac. These results hold across age and sex of patients.

This study is the first step in understanding the effects of built environment factors on injury severity so that decisions on land use, zoning, and other built environments can be guided to improve roadway safety rather than unintentionally compromising it.

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Key Words: traffic safety, built environment, vehicle accidents, injury severity, CART model

Examining the Spatial Relationship between Shared Mobility and Public Transit in the U.S. μ SAs

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Critique related to a hot topic in planning research

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The interplay between public transit and emerging mobility paradigms as app-based shared mobility services (ride-hailing, bike-sharing) hold significant implications for sustainable and integrated mobility, especially outside traditional metropolitan cores (Shen et al., 2021). Shared mobility sometimes complements and sometimes compete with public transit (Luo et al., 2023). Understanding how shared mobility interacts with transit within Micropolitan Statistical Areas (μ SAs) – regions characterized by smaller urban cores surrounded by rural areas, while controlling socio-economic and built environment factors is essential to integrate these services and optimize their role in commuting (Zuniga-Garcia et al., 2022).

Existing literature has explored socio-economic determinants of public transit ridership within metropolitan areas (Taylor & Fink, 2013; Alam, et. al, 2015), but micropolitan areas characterized by low transit access and high car dependency remain relatively underexamined. Further, traditional regression approaches assume these relationships are constant across geographical locations. Consequently, there remains limited knowledge of how shared mobility influences public transit ridership in μ SAs. With focus on 538 μ SAs, this study addresses these gaps by assessing spatial heterogeneity in shared mobility's influence on transit ridership, identifying transit-supportive/deficient areas, and highlight integration opportunities.

This study posits that determinants of public transit ridership in μ SAs vary spatially and distinct spatial clusters exist where shared mobility services either complement transit ridership or substitute for it. Key research questions are:

1. What are the relative influences of shared mobility options on public transit ridership across μ SAs, controlling for socio-economic and built environment characteristics?
2. How do these influences exhibit spatial variation, and what types of spatial clusters emerge indicating transit-supportive or transit-deficient areas?
3. How do bike sharing station locations and ride-hailing service areas align with these clusters, and what implications can this offer for integrating shared mobility with public transit to enhance commuting accessibility?

The analysis uses data from ACS 2023, U.S. EPA Smart Location and USDOT BTS. To capture integration potential between public transit and shared mobility, Ordinary Least Squares (OLS) regression is employed with public transit ridership as DV. Two key IVs are considered: (1) density of bike-sharing stations, and (2) availability of ride-hailing services within μ SAs, with positive coefficients indicating complementary dynamics and negative coefficients suggesting substitution effects. Guided by previous research, the model incorporates socio-economic (age, race, gender, education, income, housing tenure status, household size, car ownership) and built environment (jobs per housing unit, population density, employment density, road network density, intersection density, transit service density) attributes as control variables. Geographically Weighted Regression (GWR) is employed for local-level assessment of how availability of shared mobility services influences public transit ridership across μ SAs. Spatial clustering is applied to GWR outputs to locate typologies of transit-supportive/deficient areas. These clusters are

interpreted to identify potential shared mobility “hotspots” i.e., areas where transit-supportive conditions exist but usage is low (opportunity), or areas where shared mobility may be drawing away from transit use (competition).

Findings suggest spatially heterogeneous relationships between shared mobility availability and transit ridership across μ SAs. Distinct spatial clusters indicate areas where shared mobility complements transit, highlighting the importance of localized planning approaches and identifying areas where shared mobility could enhance transit access or address service gaps.

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Key Words: commuting, public transit, shared mobility, spatial analysis, sustainable mobility

Exploring Public Opinion About E-Scooters, Issues with Their Use, and Potential Policy Interventions

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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The emergence of e-scooters over the last several years has yielded varying responses from members of the public. On one hand, e-scooters have been sufficiently popular to sustain shared scooter systems in hundreds of cities worldwide. However, e-scooters have not been without their complaints, with media articles expressing concern about various aspects of scooter use and some examples of politicians running on anti-scooter platforms. While concerns about e-scooters certainly exist, such negative opinions may or may not be held by the public at large. For example, in San Diego, California, authorities received around 10,000 e-scooter complaints in 2018/19. However, 74 percent of these complaints came from just the same 10 people.

To explore broad public opinion about e-scooters, we performed a demographically representative survey of 2,500 US adults. Respondents were asked their general feelings about the presence of e-scooter travel in their communities, potential problems associated with their use, and support or opposition to several potential policy interventions.

Overall, most respondents viewed the existence of e-scooters as a net positive for their communities. 84 percent said scooters were very/somewhat good for their communities versus 16 percent who said they were very/somewhat bad. This is actually somewhat higher support for e-scooters than a survey conducted by transportation analytics firm Populus in the early days of shared scooter systems back in 2018.

Two commonly cited concerns with e-scooters are safety and parking management. In terms of safety, less than half of respondents (39 percent) said e-scooters were a danger to pedestrians, while 18 percent felt they were a danger to their riders. Regarding parking, 28 percent felt that parked e-scooters frequently blocked pedestrians, while 14 percent thought parked e-scooters on sidewalks are ugly.

When asked about potential policies addressing scooter-related issues, most respondents (87 percent) supported a minimum age for e-scooter ridership, with a plurality (31 percent) selecting a preferred minimum age of 16 years old. Majorities also supported requiring use of lights at night (67 percent) and apply DUI rules to scooter riders (62 percent).

Respondents were less supportive of some other potential restrictions. Only 28 percent supported a ban on scooter riding on sidewalks, although a majority were in favor of some restrictions on sidewalk riding. Additionally, only 26 percent of respondents supported a ban on scooter riding at night. Such bans have been enacted in some cities, including Atlanta, Georgia, and Bloomington, Indiana.

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Key Words: e-scooters, electric scooters, micromobility

Integrating calculated and achieved access: uncovering unmet travel needs in Detroit

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Limited disaggregate data has traditionally limited systematic analysis of travel needs to place-based and/or normative generalizations (i.e., calculated accessibility measures) (Karner, Pereira, and Farber 2024,). However, individuals' particular mobility resources, preferences, and circumstances also matter. Aggregate and individual conditions jointly influence achieved access, here defined as the degree to which someone can realize opportunities for social participation vis-à-vis the transport-land use system (Vecchio and Martens, 2021). What nuances emerge from integrating aggregate measures with insights gained from directly asking people about their travel experiences?

This work uses personal survey data from an address-based probability sample collected under the Detroit Metro Area Communities Study (DMACS) in 2023. We use latent class cluster analysis to identify distinct classes of achieved access based on individuals' responses to questions about transportation and housing affordability, security, and satisfaction. We examine how achieved access varies within and across levels of neighborhood and regional accessibility, mobility patterns, and sociodemographic characteristics. For example, preliminary analysis indicates that among center city residents, frequent bus riders, younger- and middle-aged adults, single parents, and those without cars were more likely to have unmet travel needs. Despite having highest residential transit access to jobs in the city, these individuals experienced cost burdens, suppressed travel and activity participation, and strained social relationships from lack of reliable transportation (Murphy et al., 2022). This focuses attention on travel needs that calculated accessibility measures, even once combined with aggregate neighborhood sociodemographic characteristics, may overlook.

This work uses original survey data to introduce evidence towards conceptual debates on measuring accessibility and its relations to travel behavior and well-being (Negm et al., 2025; Vecchio and Martens, 2021). In doing so, it illustrates how combined calculated and achieved access measures can shed light on the distribution, nature, and consequences of unmet travel needs in a city or region.

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Key Words: transport accessibility, suppressed travel, transportation insecurity

Mapping Risk from the Perspective of Cyclists

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Cycling has become an increasingly popular mode of transportation in recent years due to its environmental benefits, affordability, and contributions to public health. However, despite its advantages, safety concerns remain a major barrier to widespread adoption. Bicyclists are among the most vulnerable road users, with a high risk of severe injuries or fatalities when involved in traffic crashes. Traditionally, research on bicyclist safety has focused on measurable risk factors such as traffic volume, vehicle speeds, road design, and cyclist behavior (Monsere et al., 2015; Tao et al., 2021). While these factors are valuable for crash risk estimation, they often overlook near-miss incidents—close encounters that do not result in crashes but indicate unsafe interactions between cyclists and vehicles. Data on near-miss incidents—such as vehicle overtakes, passing distances, and prevailing traffic speeds—provide critical insights from the cyclists' perspective (Lindsey et al., 2021; Powell et al., 2024). Compared to traditional risk factors like traffic volume and speed, near-miss data may offer a more direct reflection of the risks cyclists face. Unfortunately, such datasets are scarce, leading to their underutilization in existing research.

To address this gap, our study introduces a novel approach by leveraging a near-miss dataset collected by the company Velo.ai in Pittsburgh. Velo.ai utilizes sensor-equipped devices installed on both personal and shared bicycles to autonomously detect and record detailed data on near-miss events with advanced computer vision algorithms. These include metrics such as passing distances, proximity to vehicles, and traffic conditions at the time of the incident. The dataset comprises over 62 hours of cycling trips covering more than 476 miles in Pittsburgh's Strip District, offering a rich and granular view of cyclist experiences in urban settings. In addition, datasets of weather data, vehicle travel speed, police traffic stop report, network of bicycle facilities, built environment attributes, socio-demographic patterns, Waze traffic events will be applied.

Using these inputs, we will develop and compare multiple predictive models to estimate bicycle crash risk at the street segment level across Pittsburgh. Each model will be evaluated based on its prediction accuracy and computational complexity. The model with the best performance will be selected for generating a comprehensive risk map, which will visually depict areas of high and low crash risk throughout the city. Furthermore, we will compare the predicted crash risk map with historical crash data to assess how well the model captures actual safety outcomes. This comparison aims to highlight the added value of near-miss data in identifying hidden patterns of cyclist risk that traditional data sources might overlook.

Ultimately, this research aims to deepen our understanding of urban cycling safety by focusing on the cyclist's perspective. By incorporating near-miss data into crash risk prediction, our study seeks to inform more responsive infrastructure planning, targeted safety interventions, and policy decisions that prioritize cyclist well-being in the evolving urban mobility landscape.

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Key Words: cyclist safety, near-miss incidents, risk mapping, predictive modeling, urban mobility

Refining LTS for Inclusion and Accuracy: A Cross-Disciplinary, International Delphi Approach

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Level of Traffic Stress (LTS) methodologies are key tools for evaluating the comfort and safety of bicycling environments. While widely adopted in the U.S., current LTS frameworks were developed primarily through theoretical models with limited expert input and often fail to capture the needs of low-stress-tolerant users—such as children, older adults, and many women. As artificial intelligence increasingly incorporates LTS data to optimize bike networks the lack of a validated, inclusive methodology threatens the effectiveness and equity of future investments.

This study advances a revised LTS methodology using a modified Delphi consensus-building process, engaging a 25-member international panel of experts from the fields of urban planning, civil engineering, psychology, and human-centered design, with an emphasis on selecting those with expertise or research relevant to low stress cycling. The panel reflects a wide range of academic and professional backgrounds, spanning the U.S., Canada, the Netherlands, the U.K., Norway, Sweden, and Australia. To better reflect the demographics of low-stress-tolerant cyclists, intentional efforts were made to ensure a panel composition with more women than men. With interdisciplinary diversity and geographic breadth, the group offers a rich foundation for evaluating LTS frameworks through both technical and social lenses.

The study focuses on refining three core components of the LTS framework: rubrics for LTS 1 and 2 (including user group definitions, behavioral descriptors and estimated proportions of the population each level is intended to serve), the set of environmental and facility factors to be considered, and the classification of stress thresholds. The three-round Delphi process consists of open-ended prompts and structured questionnaires. This consensus-building technique facilitates refinement of responses based on insights shared by other panelists. The project also evaluates alignment between U.S., Canadian, and Dutch standards, offering critical insights for both domestic and global application.

We hypothesize that (1) U.S. LTS systems differ significantly from evaluative standards in Canada and the Netherlands (2) variables used to define lower-stress tolerances are more complex than those required to define higher-stress tolerances, and (3) the speed threshold for LTS 1 classification should be set at or below 20 mph except in cases where a physically protected bike lane is present, aligning with emerging behavioral and safety research. These hypotheses directly address current methodological gaps in the literature and practice.

By integrating cross-disciplinary and international perspectives, the resulting methodology supports more inclusive, behaviorally informed, and globally applicable LTS tool. This refined and validated methodology also serves as a critical building block for the development of advanced AI supported network planning tools. Our presentation will share the consensus-building process and highlight early findings from this expert-driven framework redesign.

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Key Words: Cycling, LTS, Consensus, Infrastructure

Revisiting Transit-Induced Displacement Hypothesis with Consumer Data: Insights from Minneapolis

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Over the past two decades, more than 200 new mass transit infrastructure projects have been introduced worldwide, with over one-third inaugurated in the U.S. within the past seven years. Many of these projects have been funded through a new wave of federal programs aimed at promoting equity. While transportation planners, funding agencies, and policymakers champion public transit investments, concerns persist among local communities, housing advocates, and urban scholars about the potential displacement of lower-income households—the very populations these projects aim to serve. This concern is encapsulated in the transit-induced displacement hypothesis (Chapple & Loukaitou-Sideris, 2019). This paper examines three key questions: (1) How do large public transit investments affect residential sorting? (2) How do household relocation patterns vary by socioeconomic status? (3) Do these patterns suggest displacement of lower-income groups from transit-rich neighborhoods?

Urban economic theory provides a framework for understanding how transportation investments might influence displacement. Transit investments generate accessibility benefits, primarily through travel time savings. Properties near transit stations gain a competitive advantage in accessibility. Given the finite supply of well-located properties, households may be willing to pay a premium for proximity to transit. These accessibility benefits become capitalized into property values, potentially pricing out lower-income households. Despite this theoretical foundation, empirical evidence remains elusive. Research suggests that transit's effects on neighborhood change are marginal or difficult to quantify (Delmelle, 2021). Understanding whether transit induced displacement is challenging due to significant data limitations, particularly the lack of disaggregated panel datasets that capture regional residential sorting patterns and provide a representative picture of in- and out-migration (Bardaka, 2023). Rodnyansky et al. (2022) used tax records to study whether LRT investments in Los Angeles County contribute to the displacement of lower-income residents. Consistent with much of the literature, their findings reveal a complex picture with no clear evidence supporting the hypothesis.

This research contributes to the ongoing debate by testing the transit-induced displacement hypothesis using a large-scale longitudinal consumer dataset from Data Axle, along with transit project data from the Transit Explorer Database (Freeman & Vance, 2024) and the American Community Survey. The analysis focuses on the relocation patterns of about 670,000 households in the Minneapolis-St. Paul metro area between 2009 and 2019, which saw the introduction of two major transit lines: the Green Line LRT (2014) and the Red Line BRT (2013). While the Green Line primarily serves lower-income census tracts, the Red Line covers a wider range of areas. Early findings show that nearly 25% of households relocated within the metro area, with around 3,700 households living in or near the project station areas at some point. The data reveals notable in- and out-migration patterns around the transit stations. I anticipate the controlled discrete choice models will reveal some evidence supporting the transit-induced displacement hypothesis, that will be included in my presentation.

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Key Words: Public Transportation, Gentrification, Urban Displacement

Shrinking Cities, Shrinking Transit, and Disaccumulation: A Case Study of a Small Midwestern City

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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This study connects the concept of disaccumulation with transit service reductions in the small-sized, Midwestern city of Decatur, Illinois. That is, I use the concept of disaccumulation as a framework for understanding how reductions in transit service impact transit dependent areas and why this reduction occurs. As noted, disaccumulation is an inherent part of capitalist structures where capitalist systems need to get rid of or sell all goods produced in order to make a profit (Gilmore, 2007; Wolff, 1984). It also helps maintain accumulation processes as well as stave off crises within capitalist systems (Gilmore, 2007). In this regard, disaccumulation is essentially the act of “getting rid of” components to allow for accumulation or stability. I thus argue that “getting rid of” or removing transit routes in the face of crises (i.e., shrinking cities and accompanying diminishing ridership) is an example of disaccumulation and is an inherent part of changes within the capitalist structures of American cities.

I focus on Decatur, Illinois as a case study site. Decatur is unique in its intensity of population decline. Decatur’s population declined by roughly 9% between 2010 and 2023 – from approximately 76,000 persons to 69,000 persons and is often listed as one of the U.S.’s fastest shrinking cities and one crippled from deindustrialization (Biles, 2021; Smith, 2020). This decline has been steady since its peak in 1980 of just of 94,000 people. Yet, it is also reflective of similar shrinking (and especially rust-belt) cities – whether small-, medium-, or large-sized. That is, population decline in core cities driven by deindustrialization, but an increase in the suburban cities of these core spaces.

More importantly, the city of Decatur recently proposed to reduce its bus service from 16 to 10 fixed routes in the coming years (Moore, 2014). This is due to a renewed focus on the city center, declining bus ridership, and a push to increase micro-transit. However, I question where and who these reductions will most affect and whether this “disaccumulation” in transit service also coincides with a “disaccumulation” of different areas of the city – namely those spaces with more transit dependent riders. Thus, I use ACS 2023, 5-year estimates data at the block group level to conduct spatial analyses along with descriptive statistics to address where and who are impacted by the proposed disaccumulation of transit service. Preliminary results reveal that transit dependent neighborhoods (namely, those with lower-income levels and higher poverty rates) are more likely to receive route removals when focusing solely on the city of Decatur. However, when expanded to the county level, transit dependent block groups are not more or less likely to receive route removals. Yet, suburban block groups examined have higher rates of car ownership.

Focusing on small-sized city such as Decatur is important largely due to the overwhelming focus in transit equity research on mid- and larger-sized cities with multi-modal systems. While transportation systems in larger cities indeed move larger populations, changes in transit service for small cities may have far more detrimental impacts. Indeed, removing a single bus route within a larger city with a multi-modal mass transit system may cause transit frustration where a rider may have to change modes or have a longer commute. Removing a single route in a smaller city may mean that a transit dependent rider does not travel at all. This study, therefore, presents a framework for understanding transit service reductions in shrinking, small-sized U.S. cities.

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Key Words: Transit Equity, Shrinking Cities, Transit Reductions, Disaccumulation

Towards a Better Framework for Assessing Perceived Accessibility

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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While accessibility measures have been increasingly adopted in transportation and land use planning at both local and regional scales, there is still an ongoing debate on the use of calculated or perceived accessibility measures and how they would inform policy makers by revealing the determinants of accessibility. This paper focuses on the perceived accessibility measures, particularly how the design of perceived accessibility measures influences the relationship between travel behavior and perceived accessibility at a regional scale. To investigate this question, we first examined the existing instruments for evaluating the perception of accessibility such as the Perceived Accessibility Scale (PAC) as well as other individual survey designs. We analyzed how each index defined and operationalized perceived accessibility and categorized these indexes to create a synthesized survey instrument that investigated the determinants of perceived accessibility and the relationship between perceived accessibility and travel behavior. The demographic information and the neighborhood characteristics near participant's residence will also be collected for further analysis. The survey instrument is distributed through Amazon Mechanical Turk to maximize the geographical coverage and reach participants with a variety of demographic background. This data from this survey will be analyzed using Generalized Linear Mixed Model as individual characteristics are expected to influence the perceived accessibility based on the evidence from previous literature. The result will contribute to the field by creating a better index for assessing perceived accessibility and shed light on how this framework can help transportation planners make informed decisions.

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Key Words: Perceived Accessibility, Transportation Planning

U.S. Road Diets Turn 10: What Do We Know about their Distribution and Impacts?

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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In 2014, the Federal Highway Administration (FHWA) released its first official guidance on the design and implementation of “road diets,” a street redesign strategy that involves reducing the number and/or width of vehicle travel lanes to improve multimodal safety. While this concept was not new, the FHWA guidance led to growing recognition and use of this approach in U.S. transportation planning practice.

Evidence on the impacts of road diets on travel speeds and crash rates is limited primarily to before-and-after studies of individual projects. While this evidence suggests a variety of safety benefits, there has not been a widespread, systematic analysis of road diet impacts across projects and cities. Additionally, limited work has considered the distribution of road diets: which types of neighborhoods have received these interventions, and thus, to whom have the benefits accrued? This question is important from an equity perspective, given other evidence that marginalized groups have disproportionately high pedestrian and bicycle crash rates and low access to multimodal infrastructure.

The safety impacts of road diets could take time to appear in the data, since crashes are relatively sparse over time and across space. Thus, the approximately ten-year anniversary of the FHWA guidance represents ideal timing to analyze the impacts of road diets on a broad scale. A critical barrier to this type of analysis, however, is a lack of data: there is no centralized inventory of road diet projects, and it can be difficult to collect consistent and complete data on projects even within an individual city.

In work currently underway, we address this gap using Chicago as a test case for assembling road diet data and addressing two research questions:

1. Where have road diets been implemented?
2. What impacts have they had on multimodal safety?

We apply a social equity lens to both questions, considering (1) whether road diets have been built disproportionately in privileged neighborhoods and (2) whether their safety impacts have varied across sociodemographic contexts.

We are currently preparing an inventory of road diet projects implemented in Chicago from 2010 onward. This process involves triangulating between Capital Improvement Programs, longitudinal Google Street View, and other local sources (e.g., planning documents, news articles, conversations with planners). The result will be a comprehensive database of road diets and their key attributes, including approval/implementation dates, location, length, configuration, and funding. We will then join this database with longitudinal data on traffic crashes and area-level sociodemographic characteristics from the American Community Survey.

Although this work is in progress, it stems directly from a related analysis on disparities in the street-scale attributes of “walkable” environments in Chicago. Specifically, we used a pedestrian audit tool and Google Street View imagery to examine the characteristics of streets in matched pairs of block groups, which had similar overall built environment characteristics (e.g., population and employment density, distance from downtown, objectively

measured walkability) but different income levels. One key finding was that, among 14 matched pairs of streets with the same functional classification, road diets had been implemented on six of the high-income streets (43%) but none of the low-income streets.

This finding motivated our current “Research in Motion,” suggesting potential disparities in the distribution of road diets and illustrating the broader importance of collecting systematic data on road diets in U.S. cities. Through this Chicago-based test case, we will develop a data-collection protocol that can be applied to other cities for a broad geographic analysis of road diet impacts, as well as a better understanding of how this critical safety intervention can support reductions in crash disparities.

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Key Words: Safety, Multimodal, Equity, Road diets, Crashes

Understanding the Spatial Distribution of Parent-Taught Driver Education Participation in Iowa

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Teen driving is a longstanding cultural norm in the United States, offering mobility and independence to young individuals. However, access to traditional driver education programs, especially in rural areas, has declined, which is limiting opportunities for many teens (Pezoldt et al., 2007). To address this, the State of Iowa has implemented the Parent-Taught Driver Education (PTDE) program as a lower-cost, more convenient alternative to school-based training. While the program aims to enhance teen driver safety and has grown rapidly, from 400 participants in 2021 to 15,000 in 2025 (Iowa DOT), but little is known about who participates and where they live. Prior research indicates that attitudes toward PTDE vary by geography, minority status, and income level (Hartos & Huff, 2008) and how limited geographic access to driver education opportunities can disproportionately affect low-income and minority communities (Ryerson et al., 2022).

Given that rural areas often have limited access to traditional driver education, we hypothesize that PTDE may serve as a critical alternative for families in rural regions. The research question guiding this study is: What is the spatial distribution of participants in Iowa's PTDE program (2021-2024)? What are the socio-economic characteristics of the areas where they live in? Spatial disparities in PTDE adoption remain largely unexamined, especially in states like Iowa where rural geography comprises majority of the landscape. While prior research has explored safety outcomes of PTDE in other states, its accessibility remains understudied. This study addresses that gap by analyzing spatial disparities in PTDE participation in Iowa. Guided by the advocacy planning theory, it examines how social and geographic factors influence uneven patterns of engagement.

This study examines the spatial distribution of PTDE participation in Iowa to assess whether enrollment patterns show spatial dependency or spatial randomness. Using data from the Iowa DOT-funded project "Safety Impacts of Parent-Taught Driver Education" (Grant No. SPR-4003), we apply geospatial analysis with ArcGIS Pro and GeoDA at the census tract level. Global spatial analysis and Local Indicators of Spatial Association (LISA) will identify spatial patterns in participation. We also conduct regression analysis to explore how socio-demographic and geographic factors relate to PTDE enrollment, using the percentage of participants as the dependent variable. Variables include address data, income, age distribution, racial composition (ACS Data), and accessibility. The study also compares trends across urban and rural areas, factoring in proximity to commercial driver education, road networks, and local socioeconomic conditions. Results will guide policies to improve PTDE access and promote effective driver education for Iowa's teen population.

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Key Words: Driver Education, Teen Driver Safety, Spatial Disparities, Socio-economic Factors, Geospatial Analysis

Whose street is it anyway? Uncovering the role of car-centric biases in bikelash controversies

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Track 14: Transportation and Infrastructure Planning

Research-in-Motion Presentation Submission, Research currently in process

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Bikelash, or community opposition to bicycle infrastructure, frequently disrupts the already slow and bureaucratic process of building safe and connected bicycle infrastructure along city streets. From existing bikelash literature, we know that bikelash is especially likely to occur when proposed bicycle infrastructure is perceived to negatively impact automobility (e.g., slowing car traffic and/or removing car parking/travel lanes) (Wilson and Mitra 2020), and that the arguments made against bicycle infrastructure often project objectivity, using technical language to promote car-centric planning (Egan and Caulfield 2024). Existing case studies of bikelash reveal symptoms of bikelash (e.g., strong political opposition against bike lane projects; removal of bicycle infrastructure after it is built) as well as strategies some planning practitioners have used to ‘treat’ the symptoms (e.g., identifying political champions for bike projects; funding bicycle infrastructure through external sources) (Wilson and Mitra 2020). However, building bicycle infrastructure by these means does not keep pace with broader, time-sensitive planning goals such as reducing traffic deaths, mitigating climate change, and reducing car dependency. Achieving these goals hinges upon planners’ ability to overcome—and even prevent—bikelash by targeting its root cause(s).

One potential driver of bikelash is what some researchers have dubbed ‘motonormativity’, a bias that favors cars and their drivers due to the massive sociocultural impact of automobility (Walker, Tapp, and Davis 2022). Arguments against bicycle infrastructure very often coalesce into a debate about who and what is entitled to public street space, making bikelash appear to be at least as much about cars as it is about bikes (Egan and Caulfield 2024; Wilson and Mitra 2020). Studies of other types of bicycle controversies reveal deep tensions between drivers and cyclists, which are disproportionately harmful to cyclists (Delbosc et al. 2019; Ralph et al. 2019). Mounting evidence suggests that these tensions play out politically through opposition to building public bicycle infrastructure.

Using Phoenix, Arizona as a case study, my dissertation research answers the overarching research question: How do people’s feelings about cars relate to bicycle controversies? I approach the topic through social media analysis, interviews, and grounded theory methods. To investigate the feelings and ideas underlying bikelash, I analyzed social media responses to crashes between cyclists and drivers. I collected and thematically coded a sample of approximately 2,000 individual Facebook comments on posts by local news outlets reporting crashes between cyclists and drivers in the Phoenix area. This analysis aims to reveal people’s feelings about bicyclists as street users and about bicycling infrastructure, as well as the implications of these feelings on bicyclists’ right to the street. These feelings are more clearly revealed in comments on posts about bicyclist-involved crashes than within bikelash discourse, where people have vested interests in the outcome and tend to use their words more judiciously.

To further investigate the mechanisms underlying bikelash, I conducted a series of in-depth interviews with bikelash participants, including local planners, engineers, elected officials, bicycling advocates, business owners, opponents of bicycle infrastructure, and members of the press and thematically analyzed the interview data. This analysis aims to identify the ways bikelash discourse centers around cars (and people’s feelings about cars) as well as how different groups’ views about who and what has a right to the street affect [mis]communication between opposing groups. Based on the results of both analyses, I use grounded theory methods to expand upon the construct of motonormativity and consider its depth, expressions, and implications for transportation planning.

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Key Words: Bikelash, Opposition, Motonormativity, Car culture, Qualitative

Track 15 – Urban Design

Track 15 Roundtables

Emerging Trends and Ongoing Challenges with Urban Design Pedagogy

Abstract ID: 1843.0.0.695.2025

Track 15: Urban Design

Roundtable Submission, Topical Discussions

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The dynamic nature of urban environments will continue to require forward-thinking approaches to urban design practice and education. Furthermore, urban planning students continue to be interested in learning how urban design methods can address these complex challenges. This topical discussion roundtable aims to explore the emerging trends, recent innovations, and ongoing challenges in urban design education especially within the context of an urban planning department.

Our panelists and participants will engage in discussions regarding the scope of an urban design curriculum within an urban planning department including but not limited to discussions about: the role of studio-based learning as a cornerstone of urban design education, how to foster critical thinking, creativity and real-world problem-solving skills through site based projects. Additionally, the conversation will explore the incorporation of artificial intelligence (AI) and other emerging technologies in urban design processes, assessing their impact on both pedagogical approaches and professional practice. With the rise of remote learning, the session will also address challenges and opportunities associated with virtual studio environments, hybrid learning models, and digital collaboration tools.

Objectives:

- To discuss key innovations transforming urban design education especially within urban planning departments.
- To identify major challenges and barriers to progress in integrating new methodologies and technologies into studio and urban design education.
- To explore interdisciplinary approaches and collaboration opportunities across architecture, planning, real-estate and related fields.
- To engage with the audience in a meaningful Q&A session to gather diverse perspectives on the future of urban design education.

Citations:

- Banerjee, T. (2016). The brave new urban design pedagogy: some observations. *Journal of Urban Design*, 21(5), 540–544. <https://doi.org/10.1080/13574809.2016.1220107>
- Loukaitou-Sideris, A., & Mukhija, V. (2016). Responding to informality through urban design studio pedagogy. *Journal of Urban Design*, 21(5), 577–595. <https://doi.org/10.1080/13574809.2015.1071650>
- Mehan, A., & Mostafavi, S. (2024). Emerging technologies in urban design pedagogy: augmented reality applications. *Architectural Intelligence*, 3(1). <https://doi.org/10.1007/s44223-024-00067-y>
- Palazzo, Danilo. "Pedagogical traditions." *Companion to urban design*. Routledge, 2011. 41-52.

Key Words: Studio-based learning, Urban Design Curriculum, AI and design teaching, Remote learning, design process

Signals of Inclusion

Abstract ID: 1843.0.0.41.2025

Track 15: Urban Design

Roundtable Submission, Facilitated Debates

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This session convenes a diverse group for a facilitated debate about whether (and how) neighborhood design in heterogeneous places can promote higher levels of inclusion and belonging for all. To get at this, the roundtable focuses on a seemingly modest concept: the signaling of inclusion.

The session opens with comments from roundtable participants, serving as the departure point for additional audience discussion that seeks to advance thinking around the following questions:

1. What constitutes a “signal of inclusion”?
2. What sensory and media mechanisms are deployed to convey welcome and/or exclusion?
3. Why and to what extent should urban designers address signals of inclusion?

Citations:

- Mehta, Vikas. 2014. “Evaluating Public Space.” *Journal of Urban Design* 19 (1): 53–88.
- powell, john a., Menendian, and Menendian, Stephen. 2024. *Belonging without Othering : How We Save Ourselves and the World*. Redwood City: Stanford University Press.
- Hatuka, Tali. 2024. “Neighbourhoods: Do They Still Matter? On Our Agency and (Possible) Future Paths (Editorial),” *Built Environment* 50, 1 (Spring), pp. 5-12(8).
- Lynch, Kevin. 1972. *What Time Is This Place?* Cambridge: MIT Press.

Key Words: Signals of Inclusion, Affordances, Public Space, Belonging, Urban Design

Track 15 Workshops

Avoid the Quicksand: Navigating VR/XR and Emerging Technologies in Urban Design Education

Abstract ID: 1841.0.0.994.2025

Track 15: Urban Design

Professional Development Workshop Submission

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Evidence-based design is becoming a fundamental research pillar in environmental studies, urban design, landscape architecture, and related disciplines, with Extended Reality (XR) and other cutting-edge technologies advancing these fields in recent years. This workshop will share our experiences organizing design courses over the past five years and engage participants in discussions about relevant issues. We will introduce how to design a seminar/studio syllabus incorporating evidence-based research theories, providing students with a platform to prepare content related to design themes and research, building their critical research and data analysis skills, and feeding research results back into the design process, and methods for promoting research findings and enhancing communication skills. The workshop will explore semester progress check mechanisms, iteration strategies, and class organizing practices. We will share multiple cases integrating emerging technology with design courses, including technology pipeline selection, preparation from the instructor's team, common challenges and solutions, and hardware-software integration experiences. We will discuss organizing an interdisciplinary teaching team that provides the necessary support, collaborates with primary design instructors, and manages student grouping. Building on the discussion with the audiences, we will summarize key success factors, limitations, and lessons from challenging cases, reflect on constructing such courses better, and envision the future development of XR technologies in educational applications. This workshop aims to share practical experience, helping audiences evaluate and effectively apply emerging technologies in their teaching practices, providing a future .

Workshop Objectives

1. Explore how evidence-based design methods and cutting-edge technologies like XR can effectively integrate to improve urban design teaching quality
2. Share experiences and strategies for building interdisciplinary teaching teams and addressing challenges in integrating technology with design education
3. Provide a practical framework to help educators incorporate XR technology into their course design
4. Showcase multiple successful and failed cases, analyzing key success factors and common pitfalls
5. Create a platform for participants to share their experiences using cutting-edge technologies in urban design education

Workshop Schedule

1. Introduction and Background (10 minutes): Potential of evidence-based design methods and VR technology in urban design education
2. Case Analysis (20 minutes): Presentation of multiple course implementation cases, analyzing successful experiences and lessons from failures
3. Practical Framework (10 minutes): Providing practical frameworks for course design, team building, and technology selection for participants to reflect on.
4. Interactive Discussion (40 minutes): Participants share their experiences, discuss common challenges and solutions
5. Quick Summary (10 minutes): Addressing critical questions from participants and summarizing key points

What will the audience learn from your workshop: Participants will learn practical strategies for integrating VR/XR and other technologies into design process, building interdisciplinary teams and creating evidence-based design frameworks. We will provide practitioners with actionable insights, helping them evaluate technologies and actions.

Reminders for attendees: Participants DO NOT need to bring a VR Headset, XR device, or other equipment. We encourage all types of audiences in different roles, from instructors, researchers, and students, to share with us your experience and build a meaningful dialogue.

Citations:

- Li, F., Mostajeran, F., Steinicke, F., & Browning, M. H. E. M. (2024). Extended Reality in Environmental Neuroscience Research. In S. Kühn (Ed.), *Environmental Neuroscience* (pp. 455–490). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-64699-7_17
- Li, F., Zhang, Z., Xu, L., & Yin, J. (2025). The effects of professional design training on urban public space perception: A virtual reality study with physiological and psychological measurements. *Cities*, 158, 105654. <https://doi.org/10.1016/j.cities.2024.105654>
- Sado Rabaudi. (2024, February 21). How Do I Set Up a Virtual Reality Lab? <https://www.worldviz.com/post/how-do-i-set-up-a-virtual-reality-lab-2024>

Key Words: Evidence-based design, Extended Reality, Interdisciplinary, Design education, Pedagogy

Track 15 Individual Paper Presentations

A Study on the Impact of Agent-Based Greenspace Access on Mental Health

Abstract ID: 1844.0.0.1055.2025

Track 15: Urban Design

Individual Paper Presentation Submission

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[Research Backgrounds, Objectives] There is a growing interest in exploring the relationship between mental health and the urban environments. In particular, the increasing concentration of population in cities, with two-thirds of the world's population expected to live in cities by 2050, is expected to increase the number of people with mental health problems. Also, the urban environment itself has been identified as a risk factor for mental health (Peen et al., 2010). Since greenspace has been reported to have a positive relationship with mental health, various efforts are being made to promote mental health at the urban level, such as spatial planning and park creation programs, mainly in developed countries such as the United States and the United Kingdom, where urban populations are densely concentrated (Hillsdon et al., 2006). While the importance of urban green space for positive mental health is discussed in terms of area, location, distance, number, and frequency, the accessibility of urban green space remains the key determinant.. The concept of accessibility can be described in terms of availability and proximity (Guagliardo, 2004), but existing studies have focused on the concept of availability, which refers to the amount of services that can be provided, and have failed to consider the changes that occur during the process of using green space (Park et al., 2022). Therefore, this study aims to identify the impact of greenspace accessibility on mental health by using agent-based modeling(ABM) to consider the attributes and behavioral rules of individual actors.

[Data and Method] This study builds an ABM to understand the impact of access to greenspace on mental health from an actor perspective in Roanoke, Virginia, USA. The main purpose of the model is to simulate the interaction of multiple actors to access a green space, and it represents a series of processes such as actors' movement, decision, and utilization. Through the built model, simulations were conducted by considering the pattern of movement of greenspace users to access greenspace, obstacles and determinants to access greenspace, and the number of greenspaces. The results of the simulation provided data on the probability of accessing greenspace and the time it takes according to the spatial distribution of users, which was later used to identify factors affecting mental health. The mental health data, was obtained from the US CDC's annual survey data by census tract.

[Expected Outcomes] To determine the average number of greenspaces visited and the time it takes to access and use a greenspace from an individual actor's residence, we will run the model 100 times, randomizing each actor's residence. After cumulatively reconstructing the results, we found that the actor who visited the most greenspaces needed to visit three greenspaces to access them, and the actor who took the longest time to access a greenspace spent about 78.19 minutes. The highest number of actors visited one greenspace, and the highest number of actors spent an average of 10 to 20 minutes in each greenspace. To explore the effect of actor-based greenspace access on mental health, we conducted a multiple regression analysis of the effect of greenspace access on mental health by census tract. Among the general characteristics of individuals, age and income level had statistically significant effects on mental health. Among the physical environment of the community, safety and comfort were found to have an impact. The younger the age and lower the household income level, the lower the effect of access

to greenspace on mental health, and the higher the safety and comfort of the physical environment, the stronger the positive effect of access to greenspace on mental health.

Citations:

- Guagliardo, M. F. (2004). Spatial accessibility of primary care: concepts, methods and challenges. *International journal of health geographics*, 3, 1-13.
- Hillsdon, M., Panter, J., Foster, C., & Jones, A. (2006). The relationship between access and quality of urban green space with population physical activity. *Public health*, 120(12), 1127-1132.
- Park, J., Kang, J. Y., Goldberg, D. W., & Hammond, T. A. (2022). Leveraging temporal changes of spatial accessibility measurements for better policy implications: A case study of electric vehicle (EV) charging stations in Seoul, South Korea. *International Journal of Geographical Information Science*, 36(6), 1185-1204.
- Peen, J., Schoevers, R. A., Beekman, A. T., & Dekker, J. (2010). The current status of urban-rural differences in psychiatric disorders. *Acta psychiatrica scandinavica*, 121(2), 84-93.

Key Words: Greenspace accessibility, Mental health, Agent-based modeling, Urban design

Collective Comfort as Civic Infrastructure: An Urban Code for Heat Resilience

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Track 15: Urban Design

Individual Paper Presentation Submission

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As extreme heat events intensify due to climate change, urban cooling strategies must evolve beyond emergency interventions toward systemic, long-term transformations—especially in U.S. southern cities. Unlike floods or hurricanes, heat remains an invisible threat despite being the deadliest climate-related hazard. This risk disproportionately affects historically disinvested communities, where spatial inequities in shade access, infrastructure investment, and energy affordability deepen thermal vulnerability.

This paper presents An Urban Code for Heat Resilience as a core outcome of the ongoing Collective Comfort research initiative, which reimagines the cooling center as a hybrid civic and educational hub. Rather than treating cooling as a temporary emergency response, Collective Comfort advances a vision of thermal equity through durable, multifunctional spatial interventions—what we call collective comfort: a public right to safety, agency, and well-being in a warming world. This framework positions cooling infrastructure as essential civic infrastructure—embedding it within the codes, land use strategies, and social infrastructure of the city.

The Urban Code builds from research and design collaborations with interdisciplinary teams and community-based organizations, particularly in Phoenix, Arizona, and Houston, Texas—two cities with extreme but distinct climatic conditions (arid vs. humid). In both contexts, we analyze spatial vulnerabilities in single-family residential areas, mobile home parks, and under-shaded public domains. The proposed Urban Code introduces policy tools and spatial typologies—such as shading corridors, thermal commons, and neighborhood-scale resilience hubs—that adapt to local morphology while re-centering thermal relief around equity and public life.

Crucially, these interventions are not only design gestures but part of a broader shift toward social infrastructure—flexible spaces that foster health, connection, and civic learning year-round. We explore three scalable typologies (adaptive reuse, plug-in, and ground-up) emerging from the Collective Comfort project, and how they inform an urban design logic of hybridity: combining passive cooling, microgrid-supported energy resilience, and place-based programming. This spatial logic reorients the urban environment around both climate preparedness and everyday livability.

Through case studies like the Wesley United Methodist Church and the Palo Verde Library in Phoenix, alongside emerging Houston-based efforts responding to compound climate and energy vulnerabilities, we demonstrate how this code can guide both grassroots innovation and institutional planning.

By linking zoning, urban form, and the right to collective comfort, this work contributes to planning and urban design by embedding climate adaptation directly into civic life. It offers a replicable framework for cities to confront the era of heat with dignity, care, and spatial justice.

Citations:

- Klinenberg, E. (2018). *Palaces for the People: How Social Infrastructure Can Help Fight Inequality, Polarization, and the Decline of Civic Life*. Crown Publishing.
- Heschong, L. (1979). *Thermal Delight in Architecture*. The MIT Press.

- Guardaro, M., Hondula, D. M., Ortiz, J., & Redman, C. L. (2020). Adaptive Capacity to Extreme Urban Heat: The Dynamics of Differing Narratives. *Global Environmental Change*, 63, 102093.
- Jay, O., Capon, A., Berry, P., Broderick, C., de Dear, R., Havenith, G., ... & Wilhelmi, O. (2023). Seeking refuge? The potential of urban climate shelters to address thermal inequities. *Landscape and Urban Planning*, 231, 104675.

Key Words: Heat Resilience, Social Infrastructure, Urban Adaptation, Thermal Comfort, Shade Equity

Demystifying Mystery in Urban Environment : Operationalizing Pedestrian Preference

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Track 15: Urban Design

Individual Paper Presentation Submission

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Understanding how urban environments influence pedestrians' preferences is crucial to understanding walking in urban design. This study aims to measure pedestrians' preferences with an index based on spatial data from urban environments.

Many urban design researchers attempt to understand the relationships between preferences and urban landscapes. First, Kaplan (1975) categorized landscape preference into two dimensions. One dimension is the tense of information, whether information is provided in the present or the future. The other dimension is the quantity of information, whether the amount of information is large or small. Using these two dimensions, landscape preferences are classified into coherence, identifiability, complexity, and mystery. Among the four factors of landscape preference, Kaplan & Kaplan (1989) found that "mystery" is a key predictor of landscape preferences. "Mystery" involves the future promised information and moderate information that draws pedestrians to enter and venture forth. To evaluate mystery, measurement methods using various physical properties and environmental cues have been proposed. First, Gimblett et al. (1985) discovered five factors that influence mystery: screening (i.e., anything that can be used to partially obstruct or obscure the view of the larger landscape), enclosure (i.e., the degree to which landscape elements surround the observer), physical accessibility (i.e., an apparent means of moving through or into the landscape), distance of view, and illumination. Additionally, Herzog (1988) and Nasar & Cubukcu (2011) found that curving pathways are considered a key factor for predicting mystery. Moreover, Jacobs (1993) explained that several great city patterns have curved streets, which make orientation difficult and provide mystery. Though mystery is important to pedestrians' preferences, these approaches did not operationalize mystery to be used in practical urban design. Also, these approaches lack precise measures to support these statements since the associated research was qualitative in nature. Therefore, this research will address the gap by creating a preference index using spatial data of urban environments, so that mystery can be evaluated in practical urban design.

Our research seeks to operationalize mystery in urban settings so that we're developing a pedestrian preference index. The pedestrian preference index is classified into two categories according to two dimensions of landscape preference. To examine the tense of information, we used street curvature (Nasar & Cubukcu, 2011; Herzog, 1988), the number of junctions (Scotland. Scottish Government, 2010), and the distance to the nearest landmark (Lynch, 1960). To examine the quantity of information, we used land use of nearby buildings (Tong & Bode, 2022), and vegetation density (Bjerke et al., 2006). After creating the index scores based on the defined index focusing on the central area of London, we compared them to three dependent variables representing pedestrians' preference. First, we used camera location data (pedestrian viewpoint) from 'Geograph' to examine viewpoint density, which represents areas that are preferred. Second, we used local integration R3 in Space Syntax because it is used to predict pedestrians' preferred route choices (Ericson et al., 2020). Lastly, we used Visibility Graph Analysis (VGA) to predict preferred gathering spaces (Jumpei Ueno et al., 2012). As a result, we expect that if the index score is higher, the viewpoint density, the R3 value, and VGA value will also be greater.

Our research provides insight into which urban settings impact pedestrians' preferences by comparing the pedestrian preference index and current preferred area for pedestrians. Furthermore, our results lay the

groundwork for providing perceptual urban design with spatial analysis and giving practical insights for urban planners to create more engaging and walkable cities.

Citations:

- Kaplan, R., & Kaplan, S. (1989). *The Experience of Nature : a Psychological Perspective*. Cambridge University Press.
- Gimblett, H. R., Itami, R. M., & Fitzgibbon, J. E. (1985). Mystery in an Information Processing Model of Landscape Preference. *Landscape Journal*, 4(2), 87–95. <https://doi.org/10.3368/lj.4.2.87>
- Herzog, T., & Smith, G. A. (1988). Danger, mystery, and environmental preference. *Environment and Behavior*, 20(3), 320-344.
- Nasar, J. L., & Cubukcu, E. (2011). Evaluative appraisals of environmental mystery and surprise. *Environment and Behavior*, 43(3), 387-414.
- Hillier, B., & Hanson, J. (1984). *The social logic of space*. Cambridge University Press.

Key Words: Mystery, Pedestrian Preference, Visual Integration, Walkability, Urban Design

Double Standards: Regulating Street Connectivity in Public & Private Communities in the U.S

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Track 15: Urban Design

Individual Paper Presentation Submission

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Urban street networks play a pivotal role in shaping mobility, land use patterns, and broader planning outcomes. Yet, their long-term evolution and the influence of regulatory frameworks remain underexplored. This study investigates how street connectivity has changed over time across the continental United States and examines the role of regulatory differences between public and private residential streets in shaping these patterns.

We develop a high-resolution spatiotemporal dataset by integrating OpenStreetMap (OSM) with the Historical Settlement Data Compilation (HISDAC), offering intersection connectivity measures at a 250-meter resolution spanning two centuries. Our methodology enhances spatial accuracy, filters network artifacts, and leverages Google Street View data to refine private street identification, increasing detection rates by one-third beyond standard OSM attributes. Our data encompasses over 10 million intersections and dead-ends, including more than 600,000 private street nodes. From this dataset, we further identified approximately 3,000 private communities larger than one square kilometer and identified nearby public street communities for comparative analysis. Connectivity is primarily measured using nodal degree—the number of streets meeting at an intersection—and complemented with additional network attributes such as circuitry, land use mix, and urban form indicators to account for confounding factors.

Our preliminary findings reveal a distinct historical trajectory of street connectivity. Connectivity peaked in pre-automobile urban forms, declined throughout much of the 20th century, and began rebounding in the 1990s. This resurgence reflects a shift in street design rules and principles, emphasizing accessibility and multimodal mobility. Private residential streets have consistently exhibited lower connectivity than public streets, highlighting the role of regulatory oversight in shaping urban networks. Notably, as overall connectivity has increased, the gap between public and private residential streets has narrowed. Regional analysis shows consistent trends across U.S. regions, with some variation in the pace and magnitude of change.

By linking our dataset with the Wharton Residential Land Use Regulation Index (WRLURI), we find that stricter land use regulations are associated with lower connectivity in public residential streets. In contrast, private gated communities, often designed with greater flexibility, show no significant regulatory impact. These findings provide critical insights into the effects of regulatory frameworks on street network evolution.

This study offers valuable contributions to ongoing debates on urban regulation, land use policy, and sustainable development. Understanding how connectivity evolves and how regulations shape street networks is essential for informing policies that promote accessibility, walkability, and efficient land use. With the recent trend toward deregulation and decentralized planning at municipal and state levels—such as the removal of minimum parking requirements—our findings offer timely, evidence-based insights for policymakers seeking to balance regulatory flexibility with sustainable urban design.

Citations:

- Barrington-Leigh, C., & Millard-Ball, A. (2025). A high-resolution global time series of street-network sprawl. *Environment and Planning B*, 0(0). <https://doi-org/10.1177/23998083241306829>

- Boeing, G. (2020). Off the Grid...and Back Again? The Recent Evolution of American Street Network Planning and Design. *Journal of the American Planning Association*, 87(1), 123–137. <https://doi.org/10.1080/01944363.2020.1819382>
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- Porter, J., Bryan, S., Lee, J., Corso, P., Davis, M., & Rathbun, S. (2019). Complete streets state laws & provisions: An analysis of legislative content and the state policy landscape, 1972–2018. *Journal of Transport and Land Use*, 12(1). <https://doi.org/10.5198/jtlu.2019.1512>
- von Schönfeld, K. C., & Bertolini, L. (2017). Urban streets: Epitomes of planning challenges and opportunities at the interface of public space and mobility. *Cities*, 68, 48–55. <https://doi.org/10.1016/j.cities.2017.04.012>

Key Words: Street Connectivity, Street Standards, Private Communities, Urban Form, Regulatory Impact

Fostering Social Resilience through Built Form: Evidence

Abstract ID: 1844.0.0.392.2025

Track 15: Urban Design

Individual Paper Presentation Submission

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The key to continuous existence of a city lies in its sustained capacity to repair, adapt, and regenerate itself. Scholarship on resilience within built environment disciplines has primarily centred on three scales: buildings, landscapes, and cities. Architects have explored energy-efficient and sustainable solutions through advancements in building technologies and systems. Landscape architects and environmental scientists have addressed site-specific and systemic challenges, such as water and air quality management. Meanwhile, city planners have focused on urban resilience to natural events and the social and economic aspects of sustainability. Together, these scales encompass much of what is required for a sustainable and resilient built environment.

However, resilience as a distinct focus in urban design is a relatively new area of study. In line with other disciplines, resilience in urban design is often framed as risk management or a subset of sustainability. The term "resilient cities" often skews heavily toward disaster recovery and biophilia, leaving a detailed understanding of urban form underexplored, particularly in the context of the social and economic dimensions of resilience.

Social and economic capacity to adapt and evolve is primarily manifest in social infrastructure, i.e. a network of places that play an important role for social cohesion and public life. Places like schools, libraries, 'third places', businesses, but also parks and plazas provide conditions and opportunities for formation and cultivation of social relations – from weak ties to strong and formative personal relationships. These social infrastructures have been often viewed as important for the sense of community, well-being and quality of life; but they also play a role in providing e.g. informal support networks, economic opportunities and access to recourses. The provision and vitality of social infrastructure are therefore related to response and adaptation mechanisms within communities and thus a component of their resilience.

This understanding of social infrastructure must therefore extend beyond the formal spaces of social encounter to include all places that provide affordances for social interactions; increasing resilience of cities therefore involves creation and cultivation of built environment that includes such affordances. The parochial realm in a predominantly residential neighbourhood – a territory where people share a sense of commonality and involvement – in this context forms an arena of intervention, with its combination of private, common and public spaces and interfaces between them.

This contribution introduces form-related characteristics of built environment that support social infrastructure in its resilience-building dimension. Four scales of urban design interventions are therefore considered, reflecting primary conditions of interest and influence for urban design practice: the public-private interface, the street, the neighbourhood and the wider district. Using Boston predominantly neighbourhoods as a case study, characteristics of built form that provide affordances contributing to social interaction and formation of social relations are identified at each scale, supported by empirical evidence that includes typo-morphological mapping data (parcellation, form of public-private interfaces, characteristics of street network and common and public spaces, location and form of non-residential uses) and observation (physical traces, activity and personalisation of spaces, use of formal social infrastructure).

Citations:

- Dovey, K., & Wood, S. (2014). Public/private urban interfaces: type, adaptation, assemblage. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 8(1), 1–16. <https://doi.org/10.1080/17549175.2014.891151>
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- Kickert, C., & Karssenber, H. (2022). *Street-Level Architecture*. Taylor & Francis.
- Klinenberg, E. (2018). *Palaces for the people : how social infrastructure can help fight inequality, polarization, and the decline of civic life*. Broadway Books.
- Lofland, L. H., & Lofland, L. (1998). *The Public Realm : Exploring the City’s Quintessential Social Territory*. Taylor and Francis.

Key Words: urban morphology, urban design, public-private interface, social resilience, adaptive urbanism

From Fixity to Flow: A Scoping Review of Place Attachment Research in South Korea

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Track 15: Urban Design

Individual Paper Presentation Submission

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Research on place attachment has steadily increased in South Korea since the 2000s, yet it remains narrowly concentrated on specific topics while lacking sufficient exploration of its essential dimension—everyday life. Place attachment is a phenomenological concept that deals with "everyday rootedness" through emotional bonds between people and places, emphasizing the importance of "everyday practice" in familiar places. This study aims to conduct a scoping review to examine these research trends and analyze how existing literature conceptualizes and approaches the everyday dimension of place attachment.

Our analysis examined the titles and keywords of all Korean Citation Index (KCI) registered papers in social sciences addressing place attachment (n=285). The results show that 66% of studies (n=187/285) focused on tourism and development (tourist sites=145, festivals/events=26, development projects=16), while 8% (n=22/285) examined commercial and consumer spaces (cafes/restaurants=13, department stores/discount stores/malls=6, others such as campsites=3). Through the People-Place-Process (PPP) framework of place attachment, these studies focused primarily on specific target groups (tourists/visitors, residents of development areas, residents of event-hosting areas, and consumers), non-everyday places (tourist destinations, large-scale facilities, development project areas, and consumer spaces) and goal-oriented processes (satisfaction factors including revisit intention, willingness to pay, and customer loyalty, development support, and pro-environmental behaviors).

Recent discussions of "everyday rootedness" through place attachment emphasize its fluidity. Following the mobility turn in social sciences since the 2000s, scholars increasingly recognize the need to move beyond sedentary assumptions and understand place attachment as a dynamic, fluid process that continuously evolves. To examine how existing literature conceptualizes and analyzes the everyday dimension of place attachment, this study focuses on 76 papers addressing this aspect. The study investigates their specific themes and subjects, employing the "Fixity-Flow Framework" (Di Masso et al., 2019) to identify key domains for analyzing fluidity. By moving beyond the sedentary dichotomy of "everyday vs. non-everyday places," this research highlights fluid place experiences in its comprehensive literature review.

Our analysis of the literature using the Fixity-Flow Framework reveals that place attachment is shaped by mobility patterns that vary across socio-economic groups. South Korea serves as a compelling case due to its rapid urbanization and increasing mobility, making it a unique context for exploring the interplay between fixity and flow. By examining South Korean studies, this research sheds light on how place attachment evolves in a highly mobile society and provides insights applicable to other rapidly urbanizing and globalizing contexts. This review contributes to the broader discourse on place attachment by demonstrating how mobility influences place experiences beyond Western-centric perspectives. It offers a foundation for comparative studies, fostering discussions on the universality and context-specificity of place attachment dynamics in an era of increasing mobility.

Citations:

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Key Words: Place Attachment, Fixity-Flow Framework, Mobility, Scoping Review, South Korea

From Plastic Blocks to Urban Blocks

Abstract ID: 1844.0.0.180.2025

Track 15: Urban Design

Individual Paper Presentation Submission

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Reflecting on the levels of citizen participation and engagement first outlined in Sherry Arnstein's 1968 article A ladder of citizen participation, it may be argued that Arnstein's ladder can and should be reexamined in the current digital and social media contexts. To stimulate creativity, dialogue, and visual understanding in the urban design and planning processes, it has become increasingly necessary to become disruptive in the dialogue and communication of urban futures. This need for disruption provides food for thought regarding both pedagogy and public participation methods in the post Covid-19 era. It is argued that the interactive qualities of new tools such as digital review boards yield many possibilities for the future of work and the future of learning in the design and planning disciplines. Digital review boards provide wider access and different forms of dialogue to both digital natives and interested citizens that otherwise would not be reached. The author designed and tested such an activity with a digital review board during social distancing measures. Following the lifting of those restrictions, and observing the negative effects of excessive screen time, the author revived a series of haptic lessons that could facilitate student learning and community outreach. Crafting urban land use and massing models with simple, everyday materials such as cleaning sponges and plastic building blocks stimulated visualization and discussion for infill development in several scenarios and with a variety of demographics. Student reflections and feedback, as well as observed behaviors served as evidence and metrics for these studies. Reflection on these new tools and processes considering Arnstein's ladder have become necessary to help communities continue to recover from the upheaval of the pandemic, repair broken cycles of community dialogue, react to changing forces in the economy, consider the challenges of climate change, and adapt to the demand for more diverse typologies in real estate and the urban form.

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Key Words: public participation, digital review boards, planning education, massing models

Generating Conceptual Open Space Design Via Text-To-Image Generative AI Model

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Track 15: Urban Design

Individual Paper Presentation Submission

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This study proposes a novel workflow for applying text-to-image generative AI in conceptual open space design. Traditional methods of conceptual design—such as hand sketching and manual rendering—are often time-consuming, resource-intensive, and limited by the individual designer’s experience. To address these challenges, we develop an AI-assisted design workflow that integrates Stable Diffusion with ControlNet and Low-Rank Adaptation (LoRA), enabling rapid generation of spatially coherent design images from simple text prompts and sketches. Three common types—natural parks, city plazas, and courtyard gardens—serve as case studies.

The proposed method involves training LoRA models on extremely small datasets (fewer than 10 images per design type), significantly reducing data collection and training time. With just 20 minutes of training on a personal computer, the fine-tuned models produce diverse, detailed, and structurally consistent open space designs. We compare outputs from fine-tuned and non-fine-tuned models using both quantitative metrics—PSNR, SSIM, and LPIPS—and qualitative evaluation criteria based on layout, function, and visual aesthetics. Our results show that the fine-tuned models consistently outperform baseline models across all evaluation dimensions, producing designs with improved clarity, spatial organization, scale control, and fidelity to input prompts.

This research makes two primary contributions. First, it introduces an efficient and replicable AI-assisted workflow that covers the entire conceptual open space design process—from sketching and dataset curation to model training and design evaluation—thereby enhancing early-stage design productivity. Second, it demonstrates that high-quality conceptual design is achievable with minimal resources and training data, which is particularly valuable for rapid ideation and iterative feedback cycles in professional or academic design settings.

By bridging computational design tools with urban design, this study contributes to the growing body of research on AI in the built environment. It also offers practical guidance on how designers—especially those without programming expertise—can integrate generative AI tools into their creative processes.

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Key Words: Text-to-image generation, Generative AI, Concept Design, Stable Diffusion

Green Growth and Sustainability Transitions: Evolution of Planning in an Arctic City, Luleå (Sweden)

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Track 15: Urban Design

Individual Paper Presentation Submission

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As the green transition becomes a priority across the European Union, Nordic countries are leading efforts to expand investment in green industries and promote climate neutrality. With increasing investments in green industrial production, cities face the challenge of planning for growth and reshaping urban landscapes. However, how cities adapt spatial planning and the built environment to meet these goals remains uncertain. This paper examines how the sustainability and green agendas influence urban development in Luleå, Northern Sweden — a city emerging as a key player in the green transition through efforts to establish a fossil-free steel industry and a regional green value chain. These developments introduce new planning challenges related to rapid growth, environmental pressures, and socio-economic impacts. A historical parallel can be drawn with the growth period in the 1960s and 70s, when large-scale housing and infrastructure investments were made in anticipation of the Stålverk 80 steel plant—later canceled—leaving parts of the city underutilized. Today's industrial expansion, framed by climate and sustainability imperatives, raises similar questions about planning for growth and its long-term consequences. Luleå's commitment to sustainability suggests that current planning may shape a city fundamentally different from the one resulting from the mid-20th century technocratic planning. The study uses spatial analysis, historical planning records, and contemporary documents to examine how residential development and design strategies have evolved across multiple neighborhoods. Using orthophotos and satellite imagery, we characterize the scale and direction of urban change since the mid-20th century. Five city areas are analyzed, representing various residential typologies and their close relation to neighborhoods from the previous growth period. Findings reveal a transformation in urban form, marked by human-scale design, flexible layouts, and greater integration of natural landscapes compared to the modernist planning of the earlier growth period. While contemporary planning promotes denser and more diverse residential patterns, it still reflects some of the enduring legacies of welfare-state planning. However, unlike earlier periods shaped by substantial public investment, today's sustainability planning operates within a market-oriented logic that may sideline social equity. The paper concludes by situating Luleå's trajectory within broader debates on the shift from welfare to sustainable city models, highlighting concerns about rising inequality as a challenge linked to green urban development.

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Key Words: green transition, urban design, Arctic cities, sustainability planning

How Does Urban Informality Durability? : A Case Study of Street Vendors in Yeongdo, Busan

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Track 15: Urban Design

Individual Paper Presentation Submission

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The concept of informality has evolved across various fields, including urban planning and design, stemming from discussions on informal sectors led by economists in the 1970s. Initially perceived as separate from formal structures and primarily linked to the Third World and urban poor, informality has since been reinterpreted through various critical perspectives. Rather than a purely illegal phenomenon, urban informality is now understood as an ongoing process present in all urban spaces, not just declining areas. It is also viewed through the lens of temporary and tactical urbanism, which activates urban spaces as part of urbanization.

This study examines urban informality in this context, raising the question: “How does the durability of urban informality manifest across different social and spatial contexts?” Building on Roy’s (2005) framework, it analyzes how informality persists over time. The case of Yeongdo street vendors illustrates the interplay between formality and informality, where social-spatial positioning and stakeholder interactions shape informal practices.

The research employs qualitative methods, including analysis of reports, media sources, and local government data, along with semi-structured interviews and field surveys involving merchants and government officials.

Findings reveal three key aspects. First, the government strategically legalizes or outlaws street vendors, blurring boundaries between formality and informality. Second, shifting social perceptions—amplified by social media—have expanded informality’s presence and durability, reframing it as a tool for local tourism rather than solely a regulatory concern. Nonetheless, the Yeongdo-gu Office continues to perceive it ambiguously, balancing its benefits and challenges. Third, public officials remain passive toward informal actors, recognizing their role in revitalizing urban spaces outside formal planning systems.

Ultimately, this study highlights how informal activities, operating beyond conventional planning structures, contribute to urban regeneration. Moving beyond a rigid formality-informality dichotomy, it emphasizes the dynamic interaction between informal practices and formal planning. As traditional planning systems struggle to accommodate society’s evolving needs, modern urban design must embrace greater flexibility, allowing for the organic development of informal activities within cities.

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Key Words: Urban Informality, Informal Sector, Planning System, Street Vendor, Poverty/exclusion

Integrating Stormwater Management and Active Transportation: Case Studies in Street Design

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Track 15: Urban Design

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Using a series of representative case studies, this research explores stormwater management and street design, specifically questioning how cities incorporate pedestrian and cyclist amenities when undertaking construction for sewer and stormwater management projects. Stormwater management is a well-articulated aspect of street design within landscape architecture practice and civil engineering. Similarly, the National Association of Transportation Officials (NACTO), the Complete Streets initiative, and the Vision Zero movement are leading transportation planning toward streets that safely accommodate pedestrians and cyclists (Congressional Research Service, 2024; Gregg & Hess, 2019; NACTO, 2025). However, the expectation that streets will incorporate both stormwater management and pedestrian/cyclist improvements is less clearly conceptualized.

Many cities across the United States have aging infrastructure that will need to be upgraded in the coming years (Zaleski, 2021). Sewer reconstruction and stormwater projects present significant opportunities to integrate new street designs alongside other major infrastructure investments. Linking sewer and stormwater projects with pedestrian and cyclist improvements can offer multiple benefits for climate change adaptation and mitigation, promoting safety and accessibility for non-motorized users (FHWA & US DOT, 2022; FHWA, 2022).

One such example is the recently completed Niagara Street Cycle Track in Buffalo, NY, which combined sewer upgrades, stormwater retention, and alternative transportation goals, resulting in a holistic redesign of the street. In building Niagara Street, Buffalo's Sewer Authority leveraged funding available for stormwater projects due to the city's status under the Environmental Protection Agency (EPA) Clean Water Act Consent Decree. With 91 cities under EPA Consent Decrees, we selected our case studies from this cohort, assuming they would be more likely to make investments aimed at reducing stormwater runoff (Bluefield Research, 2018; EPA, 2025).

We developed the case studies through reviews of municipal documents and semi-structured expert interviews with professionals from planning, transportation, and sewer authority agencies involved in these projects. Our initial research suggests that there are numerous challenges in realizing these potential benefits of combining above and below ground project goals, one of which is the barrier posed by municipal silos and ineffective intergovernmental coordination (Scott, 2020; Scott & Gong, 2021). Often, sewer and stormwater projects are managed by different departments or agencies, separate from transportation and public works projects that shape street design. As a result, we observed a disconnect between managing the street right-of-way at the surface and below the surface. Many sewer projects are only required to replace the street to its original condition, missing the opportunity to coordinate efforts and rethink the overall street right-of-way.

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Key Words: Urban Design, Stormwater Management, Consent Decree, Streetscape Management

Interdisciplinary Service-Learning: Urban & Landscape Design for Climate Adaptation

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Track 15: Urban Design

Individual Paper Presentation Submission

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Planning education is increasingly called to integrate interdisciplinary and experiential learning to prepare future professionals for the complex challenges of climate change and urban resilience. While planning and landscape architecture share overlapping concerns, such as place-making, sustainability, and community engagement, they often remain siloed in pedagogical practice. Drawing from recent calls in the literature for constructivist and collaborative studio models, this study explores how interdisciplinary service-learning studios can bridge these disciplinary divides to enhance student learning and address real-world challenges.

Research Questions-The research questions include: 1) How does an interdisciplinary, service-learning studio experience shape students' understanding of urban and landscape design principles? and 2) What are the pedagogical outcomes of such collaboration for climate adaptation planning?

Methods-In Fall 2024, an interdisciplinary collaboration was launched between the PLAN 6520 Urban Design Studio at the University of Georgia (UGA) and the LA 3001 Site Planning and Design Studio at Louisiana State University (LSU). A total of 25 students—11 graduate students from the Master of Urban Planning and Design program at UGA and 14 undergraduate students from the Bachelor of Landscape Architecture program at LSU—collaborated on the design of a mixed-use, climate-resilient development for a 367-acre site in Savannah, Georgia. Partnering with the Savannah Planning, Zoning, and Urban Design Department, students engaged in site visits, stakeholder meetings, and public presentations. Data for this study were collected through post-course surveys and written reflections. Survey questions assessed student perceptions of interdisciplinary collaboration, design outcomes, and the influence of service learning on their understanding of design principles.

Results-Findings show that students found the interdisciplinary format highly beneficial to their educational experience. The majority reported that their understanding of both urban and landscape design principles was “significantly” enhanced through interdisciplinary collaboration. Over 90% of respondents rated the quality of design outcomes as “good” or “excellent.” Additionally, almost all students expressed strong interest in participating in future service-learning projects, highlighting the project's success in engaging students and fostering enthusiasm for practical, collaborative learning opportunities. Students appreciated the opportunity to address real-world planning and design issues, including ecological sensitivity, housing needs, and community engagement in a historically and environmentally rich context like Savannah.

Conclusions-This case study demonstrates the value of interdisciplinary, service-learning studios in advancing planning pedagogy and sustainability education. The integration of landscape architecture and urban planning perspectives fostered richer, context-sensitive designs and deepened students' understanding of climate adaptation strategies. The project underscores the importance of cross-institutional and cross-disciplinary collaboration to foster critical thinking, peer learning, and professional preparedness in planning education. These findings support broader efforts to embed sustainability literacy and interdisciplinary methods into planning curricula and practice.

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Key Words: Interdisciplinary collab, Service-learning, Climate adaptation, Planning education, Studio pedagogy

Investigating Planning Process and Actual Usage of Privately Owned Indoor Public Spaces in Seoul

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Track 15: Urban Design

Individual Paper Presentation Submission

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Outdoor public space (e.g., public plazas and parks) creation in urban cores is limited due to the cost of land and management. As an alternative, indoor public spaces in Seoul, which serve as weatherproof social centers, are increasing. Interestingly, the private sector did not receive any incentives for creating these spaces. What is the developers' motivation?

The perspective on indoor public spaces has varied since the late 20th century. In the concept of 'adjacent attraction,' the decontextualized elements, such as museums, libraries, and landscapes in malls, are just parts of the marketplace to make commodities and shopping experiences desirable (Crawford, 1992). On the other hand, in the concept of 'collective spaces,' privately owned public spaces play a crucial role in urban life as not being strictly public nor private, but being both (De Solà-Morales, 1992, as cited in Poot, 2015). This supports the private sectors' assertion that their motive is to contribute to public well-being. However, contemporary examples in Seoul are hard to demonstrate in such a simple dichotomy.

Seoul citizens are increasingly using the new spaces as extensions of the urban landscape, benefiting from easy access to public transportation and well-maintained conditions. Amorepacific, a cosmetic company, opened its new headquarters building's atrium and underground concourses for the public since 2017. Citizens use this space as a covered pedestrian area to sit at tables and enjoy lunch breaks from tenant restaurants. Coex Mall, located at the center of Gangnam, has been providing Starfield Library since 2017. Users not only read but have coffee, enjoy literature events, and meet their acquaintances, serving the atrium-styled library as a landmark. The Hyundai Seoul, established in 2021 within the Yeouido business district, has implemented innovative spatial design including indoor landscapes to distinguish itself from conventional Korean department stores, even removing the term "department store" from its original name, "Hyundai Department Store" (An, 2024). The basement floor is populated with businesspeople during the workday lunch hours, while weekend visitors enjoy strolling around the trees under the air conditioner. These spaces are extending their services beyond their immediate customers. Why did these corporations undertake such experiments?

This research investigates the planning process and usage of indoor public spaces in Seoul. The study will examine the true motivations and expectations of various stakeholders in each process through a series of interviews, along with the designer's expectations. Actual usage will be analyzed through field studies utilizing eye observations, interviews, and Light Detection and Ranging (LIDAR). LIDAR has been frequently used to analyze human behavior over long periods in wide areas (Koide, Miura, & Menegatti, 2019). For this study, the technology will identify spatial morphology and facilities that promote public use.

The findings can improve the Seoul Metropolitan Government's building code, which lately included indoor public spaces to be eligible for floor area ratio incentives. As citizens of various cities with similar sizes behave similarly in urban centers (Whyte, 1988), the behavior findings can be expanded to other cities worldwide.

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Key Words: Indoor Public Space, Behavior, Malls, Public Space, Interview

Investigating the Influence of Previous Living Environments on Soundscape Preferences

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Track 15: Urban Design

Individual Paper Presentation Submission

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This study explores the relationship between students' previous living environments and their current soundscape preferences when studying in outdoor spaces. Existing research highlights the role of soundscapes in shaping experiences and well-being, particularly in educational environments (Indrani et al., 2023; Visentin et al., 2023). Natural sounds, such as birdsong and rustling leaves, are often associated with increased focus and reduced stress, promoting restorative environments conducive to learning (Visentin et al., 2023). However, preferences for specific soundscapes can vary significantly based on personal exposure and adaptation over time (Farina, 2014).

Socio-cultural background, auditory health, and previous environmental exposure are key factors influencing soundscape preferences (Kang et al., 2016). For instance, students from rural areas often gravitate toward natural soundscapes, while those raised in urban environments may find comfort in mechanical sounds like traffic noise, which they associate with familiarity and nostalgia. Moreover, research indicates that soundscapes not only impact emotional and psychological states but also affect cognitive processes such as attention, memory, and learning outcomes (Clark & Paunovic, 2018).

This study employs an interactive sound mixing module that allows participants to customize their ideal outdoor study soundscapes by selecting and adjusting the levels of natural, human, and mechanical sounds. Preferences are evaluated in relation to reading, writing and routine tasks. The module also incorporates survey questions to gather data on participants' socio-cultural backgrounds and previous soundscape exposure. The study uses statistical and spatial analysis to explore relationships among demographic factors, hearing health, neurodiversity, prior exposure, and soundscape preferences. The findings will provide insights into how individuals' past auditory experiences shape their soundscape preferences for learning activities.

This research builds on existing literature by examining how soundscapes influence productivity, well-being, and overall learning experiences in outdoor settings. It also explores the potential long-term effects of environmental exposure on the development of soundscape preferences, emphasizing how urban planning and design shape auditory preferences over time. By uncovering these gradual influences and the nuanced differences across individuals and contexts, the study contributes to ongoing debates about how to design urban spaces and outdoor study environments that not only accommodate diverse auditory needs but also foster inclusivity and well-being for individuals from varied backgrounds.

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Key Words: Soundscape, Noise, Learning

Mapping Where and What People See: Comparing Public and Expert based Scenic Urban Views in London

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Track 15: Urban Design

Individual Paper Presentation Submission

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There has been extensive debate over how to incorporate public perception into the selection and management of scenic urban views. This discourse has primarily revolved around two contrasting approaches: expert-based and user-based methods (Dunkel, 2016; Daniel, 2001). Expert-based approaches have dominated the designation and management of urban scenic views, whereas user-based approaches remain understudied and insufficiently integrated into planning practices (Dunkel, 2016; Wei et al., 2022; Batool et al., 2021).

The expert-based approach typically relies on professional evaluations to designate viewpoints for protection, often through formal urban view management policies (Zacharias, 1999). Notable examples include the London View Management Framework (LVMF) (London Plan, 2012), Vancouver's View Cone Assessment (Zacharias, 1999), and Seoul's Han River Management Plan (Park & Kim, 2011). However, such approaches have been criticized for excluding public input from the selection process (Zacharias, 1999; Dunkel, 2016; Daniel, 2001). Also, expert-designated viewpoints and viewing objects are rarely revised, often overlooking changes in locations and content.

In contrast, the user-based approach emphasizes the importance of incorporating public preferences to preserve aesthetic and cultural landscape values (Schirpke et al., 2013; Wei et al., 2022; Dunkel, 2016). Methods include GIS-based modeling using public surveys (Schirpke et al., 2013), deep learning with Google Street View imagery (Wei et al., 2022), and analysis of crowdsourced geotagged photographs (Dunkel, 2016). However, most studies focus either on the location or visual content of viewing objects and tend to treat viewpoints and viewing objects separately rather than through a comprehensive framework.

This study compares user-based and expert-designated scenic viewpoints and viewing objects, addressing three key questions from a user-centered perspective: where people go to experience scenic urban views, what they prefer to view, and how user-based viewpoints and viewing objects change over time. It further examines whether user-based viewpoints and viewing objects align spatially and visually with expert-designated counterparts.

To address these questions, this study used geotagged photographic data from Geograph, a platform where users upload images tagged with coordinates for camera locations (viewpoints) and photographed objects (viewing objects). Previous researchers have used photographs as proxies for public visual preferences and perceived scenic quality (Dunkel, 2016; Calcagni et al., 2022).

Focusing on central London, the data were collected via Geograph API and analyzed using GIS. We examined the spatial distribution of camera and object coordinates and applied Hot Spot Analysis to identify user-based scenic viewpoints and viewing objects. Viewing objects were defined as locations photographed most frequently, and viewpoints as clusters of highest camera density. We identified 44 user-based scenic viewpoints and 47 user-based viewing objects and compared their spatial alignment with the 44 viewpoints and 47 viewing objects designated by LVMF. To assess alignment, Nearest Neighbor Analysis (Whallon, 1974) evaluated point-to-point proximity within a 30-meter radius. Additionally, Bivariate Point Pattern Analysis (Illian et al., 2008) was applied to statistically examine overall spatial overlap and clustering between user-based and expert-designated locations.

This study demonstrates that user-based scenic viewpoints and viewing objects exhibit significant temporal changes, highlighting the evolving nature of public preferences. While some user-based locations spatially align with those designated by LVMF, others show considerable spatial divergence. These findings emphasize the importance of incorporating user perspectives into urban scenic view management to support the development of adaptive strategies that better reflect changing public preferences.

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Key Words: Userbased View Management, Temporal Change, Viewpoint, Viewing Object, Scenic Urban View

Natural Alliances: Greening, Growth, and the Private Production of the Public Realm

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Track 15: Urban Design

Individual Paper Presentation Submission

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Parks and green spaces, like other urban infrastructures, are illustrative sites in which political, economic, and cultural power struggles are made visible. In recent decades, as sustainability and greening goals gain ground in urban policy discourses and growth agendas, cities increasingly turn to partnerships with private and nonprofit actors to fund and govern urban green spaces (Loughran, 2022). As a result, philanthropic donors have become important partners in urban park production; in Canadian cities, in particular, there has been notable growth in the scale and profile of donor-led park projects in recent years. Philanthropic partnerships can offer much-needed capital funding and open avenues for participation in park planning and programming. But these partnerships also raise critical questions about how private power shapes urban public environments, and implications for equity in planning processes and in realized green spaces.

Considering justice in both planning processes and in material public spaces, this study investigates how private interests are embedded in the governance and design of the public realm through philanthropic giving, and probes implications for park justice. I examine the political economic drivers, planning processes, and justice-based implications of philanthropic engagement in the development and management of urban parks and green spaces. With a focus on recent projects in Toronto, Canada, I ask: what is the role of philanthropy in the development and governance of urban green space, and what are the implications for park justice?

My study centers on three cases in Toronto, Canada, each of which are illustrative examples of high-profile, philanthropy-led urban park projects, linked to infrastructure reuse efforts: The Bentway, The Meadoway, and The Art Trail. To analyze and compare the cases, I triangulate several qualitative methods, including policy and planning document analysis, semi-structured interviews with project stakeholders and advocates, site observations and urban design analysis of planned and realized parks, and critical discourse analysis of newspaper coverage of the three projects. My analysis draws from urban political ecology frameworks that integrate political-economic theories of urban environmental governance (Kaika et al. 2023) and social theories of the cultural construction of urban nature (Angelo, 2021), with a focus on urban design discourses and practices (Goh, 2021). Extending from processes to outcomes, I use frameworks of urban justice (Low and Iveson, 2016) to evaluate the implications of this form of green space governance on distributive, procedural, and recognitional dimensions of justice in parks.

My findings indicate that philanthropy-led park projects reshape both urban imaginaries and material urban landscapes. I find that global policy discourses on urban sustainability, urban service delivery, and urban design have been adapted to the Toronto context, serving to naturalize the value of both urban greening projects and of philanthropic participation and to neutralize community dissent. As power for park development is consolidated amongst select donors and elected officials, elite interests are enacted in the public realm. This produces a particular aesthetic representation of nature in the city that, while generating public benefit, exacerbates unevenness in green space access and compounds procedural and recognitional injustices in parks.

Theoretically, these findings illuminate how Toronto's unique sociopolitical conditions intersect with broader structural forces to shape local urban environmental governance, thereby advancing understanding of power relations in the production of urban green space. Practically, the findings may inform local policy and planning

efforts to open avenues for participation in park governance and self-determination in public space, with an eye to ongoing inequities in power and in park access.

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Key Words: public space, greening, governance, urban design, philanthropy

Perceived Spatial Stress in Virtual Urban Street: A Comparative Study between China and US

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Track 15: Urban Design

Individual Paper Presentation Submission

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With modern urbanization accelerates, the spatial stress of high-rise buildings and narrow streets in high-density urban environments could substantially impact urban residents' health and well-being. As a long-standing focus area in urban design, street section profiles and urban canyon effects have generated extensive discourse among researchers and practitioners. Recent empirical studies have shown that urban residents face significantly higher risks of developing stress-related mental disorders compared to rural populations, with the psychological stress from urban street environments being a non-negligible factor. Understanding these effects across different cultural contexts is essential for creating healthier, more psychologically supportive urban spaces that accommodate diverse populations and their varied perceptual responses.

This multisite pilot study employs virtual reality to facilitate vivid, 3-dimensional urban street environments with varying spatial densities to explore differences in perceived spatial pressure. The 20 different environmental conditions consist of values of street road weight (2 levels), side building height/aspect ratio of the section view (5 levels), and with/without sidewalk trees (2 levels). The participant was required to randomly experience one of the conditions for 1 minute. Then, they would finish an in-headset survey of the State-Trait Anxiety Scale-6 items version (STAI) and 7 items Semantic Differential Scale (SD) for that condition. Each participant experienced 10 conditions in total. We recorded the corresponding psychological indicator of heart rate and skin conductance level (EDA) via a biomarker wristband. We recruited participants in China (n=110) and the United States (n=60).

The results show that while physiological indicators (heart rate, EDA) did not differ significantly between and within cultural groups, mixed-linear analysis of STAI and SD items revealed some differences across multiple dimensions. There are notable perceptual differences between environmental conditions and cultural groups, particularly in openness, perceived spatial freedom, stress, comfort, and satisfaction. Additionally, we found various interaction effects between cultural background and street composition elements (aspect ratio, greenery, and street width), indicating that different populations may have different psychological responses to various street characteristics. Interestingly, the presence of plants significantly alleviated perceived stress and enhanced the sense of spatial freedom.

The findings could provide a cross-cultural perspective for urban design and public space planning, suggesting that cultural background factors need to be considered in urban design. The study also offers a replicable research paradigm sample, providing consistent research exposure and data collection methods across different cultures through experimental design.

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Key Words: Streetscape, Perceived Stress, Perceived, Cross-cultural research, Cross-cultural research

Redesigning Cities: Preparation for 21st Century Challenges Through the Ukrainian Studio

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Track 15: Urban Design

Individual Paper Presentation Submission

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This paper reimagines design studio pedagogy and practice in urban planning. It explores new opportunities for the planning studio that incorporates planning theory and practice, confronts inequity in existing community design, and applies sustainability principles to generational climate challenges. It builds the research and practice objectives of planning design studios in three distinct areas: first, a developed matrix of planning studio learning outcomes; second, the community engagement practice and research skills that studio projects should generate; and third, clarity on how planning studios differ from either urban design or architecture studios. Judith Grant Long (2012) makes the distinction between planning and architecture studios arguing that it is often about the concept and territories of design. This confusion has been a challenge in the pedagogy as planning has attempted to make studios a version of the design disciplines. This discussion examines learning objectives of planning studios, delivery systems, and pedagogical advances focusing on the “concepts and territories of design” in the planning. This discussion explores the continuing challenge of urban planning studios that includes the weighting of competing goals and learning objectives such as data and design visualization, problem definition, and research-driven suites of solutions, which can be in contest with design products. Using the Ukraine Green Recovery Lab and Studio as the case study, this paper illustrates a divergent and experimental approach to designing a studio that bridges disciplines and incorporates a multidisciplinary and solutions-based approach. In collaboration with the U.S. Department of State’s Office of Global Partnerships Diplomacy Lab initiative, the Department of Urban and Environmental Planning at the University of Virginia School of Architecture created a design-focused a multi-disciplinary approach to rebuilding the City of Izium. The strategy included the collaboration of undergraduate and graduate students from architecture, architectural history, landscape architecture, urban and environmental planning, and urban design to develop a phased design and action plan for rebuilding that is affordable, sustainable, equitable, and accessible providing a replicable template for planning studios. This paper includes a review of past and current literature on the planning studio and is supplemented by quantitative and qualitative data that includes learning outcomes, scale of work projects, skills and competencies needed, and final products expected. The proposed paper is intended as both a roadmap about what planning students need to know, how they know it, and the professional applications of studio pedagogy to learning outcomes for planners.

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Key Words: design, studio, outcomes, practice, engagement

Right-of-Way Adaptations and Resilience: Pandemic Streateries and Social Interactions in Seattle

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Track 15: Urban Design

Individual Paper Presentation Submission

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During the COVID-19 pandemic, cities around the world were faced with a sudden loss of access to indoor spaces for in-person public interaction. Distancing and mask mandates especially affected places where people consumed food and drink and gathered to socialize. Restaurants that could afford to do so expanded into the public right-of-way (ROW) by building temporary outdoor dining structures (“street eateries,” or “streateries”) on sidewalks and in curbside parking spaces. ROW re-design during the pandemic was in some cases completely ad hoc and unanticipated, while in other cases drew on previously envisioned experiments that were adapted for pandemic conditions. Such re-designs also varied in the degree to which city governments promoted them as part of larger-scale, longer-term planning visions, or took a more passive role as regulators of largely uncoordinated, temporary “tactical” interventions.

Adaptive interventions in public space are often relatively low cost and flexible, taking advantage of underutilized spaces and allowing for rapid deployment and removal when they are no longer needed (Brand and Nicholson, 2016). However, even temporary adaptations that are intended to perform a particular function often develop new functions and persist over time, creating new opportunities for social connection and activating previously unexploited potential for social and economic benefits that endure beyond the disaster itself (Anderson, 1978).

In Seattle, pandemic streatory construction was primarily initiated by businesses and regulated through the ad hoc Safe Start pandemic permitting program. The program was informed by and encouraged as consistent with a city-wide pilot program, pre-dating the pandemic, to increase the social capacity and vibrancy of the public realm while simultaneously allowing businesses to expand their operations without needing to expand permanent private spaces. The pandemic presented SDOT with an opportunity to experiment more rapidly and extensively with different types of uses in the ROW, including parklets, sidewalk cafes, and dining patios, as elements of a broader program to “steward vibrant public spaces” and “encourage social activity, help local businesses thrive, and create safer, more attractive streets” (Brody et al., 2024; Seattle Department of Transportation, 2023). As pandemic restrictions lifted and demand for outdoor dining spaces dropped, streateries and similar adaptive uses have persisted, with many streateries being developed into more permanent structures. This is happening in the context of debates in local communities about allowing streateries to continue versus returning street configurations to pre pandemic conditions – in most cases, to fixed designs that favor automobile over pedestrian traffic and movement in general over more stationary activities.

Our study presents an approach to assessing the value and impacts of streateries, and potentially other features of street spaces, in the context of Seattle’s broader policy aims to promote public space vibrancy, which is often equated with “staying” activities in the context of streets as settings for social life (Mehta & Bosson, 2021). Of particular interest, but also especially challenging to implement, is the possibility of accounting for spontaneous, opportunistic, chance encounters as aspects of public life. By modifying and supplementing Seattle’s Public Life Study protocol to observe and analyze streatory and sidewalk use, we find that besides supporting business continuity in a major disruption, streateries and parklets increased low-intensity social interactions, chance

encounters, and diversity of activities in the ROW – outcomes that correlate with increased social resilience. Findings also provide practical guidance for “tactical” placemaking, including the design of streateries and other ROW interventions.

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Key Words: COVID-19, streets, public life, urban vitality, adaptation

Street Design Adaptations for Autonomous Bus Transit: Rethinking Complete Streets in the U.S.

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Track 15: Urban Design

Individual Paper Presentation Submission

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Autonomous vehicle (AV) technology has introduced new possibilities for the future of public transit in the United States. According to the FTA (2024), over half of U.S. states have tested autonomous shuttles (AS)—driverless minibuses or vans—through pilot programs. However, a pressing challenge emerges: are current street designs, shaped by decades of car-centric development, ready for AV-based transit? While the “complete streets” concept has long aimed to create multimodal, inclusive road systems, little research has systematically assessed how these principles align with the operational needs of transit bus automation (Tengilimoglu et al., 2024; Manivasakan et al., 2021). Therefore, this study examines which existing street design elements need to be adapted to ensure the safe and efficient deployment of autonomous buses in car-dependent American communities.

Specifically, this study draws on a national expert survey targeting two groups: attendants from all AS pilot programs in the U.S. and AV engineers and researchers. These experts evaluated 25 street design elements, selected from guides and blueprints published by the National Association of City Transportation Officials (NACTO, 2020; 2014) on complete streets and autonomous urbanism, across five domains:

1. Vehicular way: 1) Dedicated AS lane, 2) multiple lanes, 3) widened lanes, 4) markings and signs quality, and 5) road surface quality.
2. Intersection and sidewalk: 1) Lane consistency, 2) intersection visibility, 3) speed calming facilities, 4) courtesy cutouts, and 5) dedicated sidewalks.
3. Cycling infrastructure: 1) Dedicated bikeways, 2) widened bikeways, 3) physical protection, 4) raised curbs, and 5) buffers.
4. Bus transit infrastructure: 1) Rapid transit lane, 2) in-lane bus stops, 3) pull-out bus stops, 4) bus bulb stops, and 5) bus shelters.
5. External features: 1) Street trees, 2) street plants, 3) lighting conditions, 4) weather impacts, and 5) internet coverage.

Each expert provided two recommendation ratings per element—one for improving operational safety (e.g., collision avoidance, navigation reliability) and one for improving operational efficiency (e.g., reduced traffic disruption, smoother operation)—using a 5-point Likert scale. To analyze the relationship between individual element scores and experts’ overall assessments of domain-level importance, an ordered logit model is applied. The model can help identify the most essential design elements to prioritize.

Currently, data have been collected from 14 active AS pilot sites representing diverse contexts, including urban, suburban, and institutional campus environments. Example sites include VIVA Shuttle (Palo Alto, CA), Move Nona (Orlando, FL), TIM (Port St. Lucie, FL), and Navy Yard AV (Philadelphia, PA). These real-world programs provide valuable context for understanding how road infrastructure and design strategies, such as implementing dedicated

AS lanes, managing vegetation for camera and LiDAR visibility, or reconfiguring intersections, influence AV transit performance.

Expected results include: (1) descriptive statistics identifying the most strongly recommended street design elements for AS operation; (2) ordered logit model findings that determine which elements significantly influence experts' perceptions of importance; (3) real-world illustrations of infrastructure gaps and redesign needs observed in AS pilot sites; and (4) revised, actionable recommendations for street design guidelines to better integrate autonomous bus transit into the complete streets framework. In short, this study offers timely insights to help urban planners and policymakers prepare American streets for the future of autonomous transit, ultimately mitigating car dependency through innovative mobility solutions.

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Key Words: Autonomous Bus Transit, Complete Streets, Road Infrastructure, Urban Design Adaptation, Ordered Logit Model

Street-Level Urban Vibrancy for the Elderly: Temporal and Spatial Insights

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Track 15: Urban Design

Individual Paper Presentation Submission

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Understanding urban vibrancy is crucial for promoting human activities and interactions in public spaces (Huang et al., 2020) yet creating vibrant environments for aging populations presents a significant challenge. Elderly individuals encounter distinct constraints, such as limited mobility, heightened sensitivity to urban heat and environmental conditions, and less opportunities for social engagement (Loukaitou-Sideris et al., 2014; Zhang, et al., 2017). While existing literature has extensively explored built environmental, morphological, and functional determinants of urban vibrancy, there remains a critical gap in understanding how these factors specifically influence elderly urban vibrancy at a fine-grained street level (Jang et al., 2024; Jiang et al., 2022). This study addresses this gap by investigating the impact of comprehensive spatial context variables on elderly individuals' street-level urban vibrancy compared with young adults. Specifically, the research examines how neighborhood and street-level built-environment characteristics, street morphology and function, and thermal comfort increase elderly urban vibrancy. Recognizing the temporal variations in elderly mobility and environmental sensitivity, the study also explores how these relationships differ across various times of the day.

We employed a Geographically Weighted Gradient Boosting Decision Tree approach to examine how spatial features influence elderly urban vibrancy in Seoul, South Korea. This method used foot traffic data as a proxy for urban vibrancy, utilizing mobile phone signal-based tracking data to estimate population movement across road segments in 2022. Among spatial features, the built environment characteristics encompassed neighborhood and street-level features, which include visual streetscape features extracted through computer vision analysis of street-view imagery. By incorporating geographically weighted kernels, our approach enabled to explore how relationships dynamically differ across Seoul's diverse urban landscape and throughout distinct periods of the day.

The results reveal that street segments characterized by higher levels of greenery, improved pedestrian infrastructure, and proximity to amenities such as parks and community center attract significantly more elderly individuals, particularly during morning and early afternoon periods. In contrast, urban heat exposure negatively impacts elderly vibrancy, with elderly foot traffic declining during midday hours. We also found that several explanatory variables have varying effects on elderly urban activity at different times of day. This research integrates temporal dynamics and comprehensive spatial features to provide insights that can inform and guide age-friendly urban design strategies.

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Key Words: Urban vibrancy, Elderly mobility, Thermal comfort, Built environment, Foot traffic

The Impact of Spatial Elements in Chinese Cultural Creative Districts on Creatives' identity

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Track 15: Urban Design

Individual Paper Presentation Submission

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Cultural and Creative Districts (CCDs) have become important spaces in contemporary cities for fostering innovation, creativity, and knowledge-based industries. These districts play a vital role in stimulating local economic growth, supporting talent development, and promoting cultural exchange (Florida, 2002; Bianchini & Montgomery, 2020). Their functions extend across various sectors, including culture, arts, innovation, and technology, with contributions to tourism, talent cultivation, and cultural export. In China, CCDs are often developed through the adaptive reuse of industrial heritage sites, typically located on the peripheries or in marginal corners of urban centers. However, when redevelopment and design processes are carried out inappropriately—neglecting the cultural authenticity of the architectural space and the actual experiences of users—these spaces risk losing their appeal (Zhao & Chan, 2021). This weakens spatial identity, drives away creative professionals, and undermines the sustainability of urban regeneration efforts. It also leads to inefficient land use and poses risks to talent retention, resulting in unsustainable urban growth.

Many scholars studying the development of creative industries and cultural districts have emphasized that place identity plays a central role in forming emotional and functional bonds between users and their environments (Sepe, 2018). In cultural spaces, such identity is not only derived from symbolic meaning and memory but is also significantly shaped by interior design elements—such as lighting, color, materiality, spatial layout, privacy, and cultural symbolism (Ponzini & Rossi, 2010). Based on this, the core research question of this study is: Which interior environmental design elements affect creative professionals' sense of place identity in the Greater Bay Area's CCDs?

This research was conducted through fieldwork in several cultural and creative districts across the Greater Bay Area, employing semi-structured interviews and photographic documentation as primary data collection methods. Through initial coding of the data, the study found that many CCDs in the region suffer from design voids and lack spatial features that support creative workers' sense of place identity. Some spaces fail to create a sense of belonging or attachment, thereby lacking the spatial "stickiness" necessary to retain creative talent. However, a number of case studies also demonstrated that well-designed environments can evoke comfort, belonging, and identity among users. During the interviews, specific spatial features were repeatedly mentioned by respondents as impactful. Based on respondents' varying professional backgrounds and value systems, the key interior design elements identified were grouped into three main categories: (1) spatial physical form, (2) sensory atmosphere, and (3) cultural expression. These factors were found to play essential roles in shaping spatial perception and fostering place attachment.

This study highlights the importance of user-centered spatial design in post-industrial cultural sites. Top-down planning often overlooks the real needs of creative communities, resulting in decontextualized and uninspiring environments that fail to attract or retain talent. Therefore, designers and planners should adopt adaptive and inclusive design strategies that prioritize emotional engagement and cultural identity. By transforming recognized environmental elements through thoughtful spatial design, CCDs can enhance their cultural distinctiveness and spatial cohesion from a sustainability perspective. As such, this study offers practical implications for urban planning in cities facing similar challenges and provides a micro-scale lens for understanding the complex

relationship between people and urban space. It contributes both empirical evidence and theoretical grounding for future spatial interventions in the context of creative urban regeneration.

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Key Words: Interior design element, creatives, CCD, sense of identity, spacial perception

Towards Age-Friendly Streetscapes: Using AI to Assess Outdoor Fall Risks Among Older Adults

Abstract ID: 1844.0.0.607.2025

Track 15: Urban Design

Individual Paper Presentation Submission

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Falls are a significant and growing health challenge, especially for aging populations worldwide. As the global population ages, with over 10% now classified as older adults (65+), the risk of falls has emerged as a pressing concern. Falls are the second leading cause of unintentional injury deaths globally, with over 600,000 fatalities reported annually according to the World Health Organization.

This study investigates the association between built environment features and outdoor fall risks among older adults using data from 6,302 emergency dispatch cases in Jeonbuk Province, South Korea. While extensive research has explored biological and behavioral factors contributing to falls, the role of environmental factors, especially in outdoor settings, remains understudied. This research addresses this gap by leveraging deep learning-based computer vision analysis of half a million street view images to identify micro-scale streetscape features associated with outdoor fall incidents.

The study employed a zero-inflated Poisson model to analyze fall incidents at a granular level using 100m x 100m grid cells across six cities in Jeonbuk Province. This region faces significant challenges with both an aging population and declining resident numbers, making it an ideal setting for examining environmental factors related to falls among older adults.

The findings reveal that older adults are more likely to experience falls in areas with high population density ($\beta = 0.223$, $p < 0.01$) and mixed-use land ($\beta = 0.257$, $p < 0.01$). These densely populated, mixed-use environments may pose increased risks due to higher foot traffic and more complex navigation requirements. However, the research also identifies protective environmental features. Specifically, certain streetscape features like curbs ($\beta = -0.134$, $p < 0.01$) and brick surfaces ($\beta = -0.024$, $p < 0.1$) can mitigate fall risks, while asphalt ($\beta = 0.045$, $p < 0.05$) and concrete surfaces ($\beta = 0.026$, $p < 0.1$) may exacerbate them.

Additionally, the presence of crosswalks was negatively associated with fall incidents, suggesting they provide safer spaces for pedestrian crossing. Conversely, steep slopes, pedestrian barriers (such as poles, junction boxes, and parked vehicles), transit stops, and areas with high pedestrian accident rates were positively associated with fall counts.

The research highlights an important paradox: while high-density, mixed-use developments are typically promoted for encouraging walkability and physical activity, they may simultaneously present increased fall risks for older adults. This finding underscores the need for a dual approach in urban design—promoting compact, walkable environments while simultaneously mitigating potential hazards through targeted streetscape interventions.

The study suggests that specific design interventions in micro-scale urban features, such as curb designs and surface materials, could help create safer environments for older adults. These targeted interventions could complement individual-based strategies, such as strength training and education, to comprehensively address fall risks among older adults.

This research provides valuable insights for urban planners, designers, and policymakers working to create safer, age-friendly streetscapes that accommodate the aging population. As populations continue to age globally, understanding and addressing environmental factors contributing to outdoor falls will become increasingly important for building sustainable, healthy, and inclusive communities.

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Key Words: outdoor falls, older adults, urban design, street view image, computer vision

Towards Open-air Markets for People: Integrating Shopping, Transport, and Urban Transformation

Abstract ID: 1844.0.0.134.2025

Track 15: Urban Design

Pre-Organized Paper Presentation

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Urban transport is fundamental to the shaping of shopping space. Various types of shopping spaces have emerged to accommodate different flows of people while turning encounters between people and goods/services into transactions (Rao et al., 2018): for example, markets and main streets cater to pedestrian movements, malls and big-box stores prioritise vehicular access, and online shopping websites/apps follow data flow. People's passion for walking, cycling, and living-locally was reignited during the Covid-19 pandemic, especially as they endured travel restrictions and physical distance requirements (Florida et al., 2023). Temporary open-air markets, where people walk/cycle to shop and socialise with a lower risk of catching respiratory diseases than indoor shopping premises, mushroomed in cities. Establishing or revitalising local shopping areas – e.g., open-air markets – has been considered a key strategy for promoting Covid/post-Covid sustainable urban transitions (Moreno et al., 2021; Rao, Kong, et al., 2024), however, the spatial-temporal forms of open-air markets and their relationships to urban transport have received little research attention (Rao, Zhao, et al., 2024). In what ways can the spatial forms of open-air markets contribute to urban public life? To what degree are the temporal provisions of such markets mediated by active transport?

We conducted a case study of Paris, a leading city advocating for and implementing the transition to a 15-minute city (Moreno et al., 2021). Paris is renowned for an advanced network of open-air markets, with 76 such markets widely distributed throughout the city. Paris publishes fine-grained geographically-referenced datasets of open-air markets – the only dataset of its kind accessible online according to our knowledge – and urban transport on the open data portal Paris Data. Through the 'mapping' of 500 m walking catchments of public/private interfaces from the centre of each open-air market and a 'morphological typology' of all markets, we explored the capacities of such markets for sustaining urban transformations at the scale of a 15-minute walkable neighbourhood. Using 'correlation and regression analysis', we measured how various metrics of urban forms concerning walking, cycling, and rapid transit mediate the number of opening days of open-air markets.

Our morphological study presents a robust capacity of open-air markets for creating local walkable urban public space. Nearly half of Paris's public space is serviced by local open-air markets, as the 15-minute walking catchments of open-air markets cover 48% of all public/private interfaces citywide. The street market, nucleated market, and synergies between them activate sidewalks, laneways, and plazas, while transforming car-based transport infrastructures – e.g., traffic islands, roundabouts, and parking grounds – to public spaces for people. Our statistical analysis reveals nuanced morphological features of active transport that can stimulate a more permanent open-air market: roughly equal car and pedestrian spaces, fewer designated bicycle routes, and more transit station entrances. Therefore, keeping a strong adaptive capacity of the space in-between buildings could be more important than pedestrianising the road or establishing separate bike lanes. Human-scale urban design for transit station areas is crucial, as the number of station entrances, rather than that of stations, matters more for the vitality of open-air markets.

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Key Words: Open-air Market, Transport, Morphology, Urbanity, Urban Transformation

Understanding Intergroup Contact Through Park Design: Observational Study of Four Houston Parks

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Track 15: Urban Design

Individual Paper Presentation Submission

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Recent trends highlight a concerning decline in social engagement among Americans, with reductions in time spent socializing and growing levels of isolation. The U.S. Surgeon General's 2023 advisory, *Our Epidemic of Loneliness and Isolation*, underscores the urgent need to enhance social infrastructure to rebuild community connection. Urban parks are widely recognized as important public spaces for facilitating social interaction and promoting inclusion (Oldenburg, 1999; Jacobs, 1961; Gehl, 1987), yet limited research examines how specific design features influence intergroup contact.

This study applies intergroup contact theory to urban parks, focusing on how design can support interaction across racial/ethnic and age groups. Built upon a prior study that analyzed mobile big data and social network patterns to assess visitor diversity and park popularity in Houston, TX, this study uses direct on-site observation to examine social behavior in four highly visited parks—two paired neighborhood parks and two community parks—selected for their variation in visitor diversity.

By documenting the spatial and temporal patterns of intergroup contact, this research identifies environmental features that support or inhibit diverse interactions. The findings contribute to a broader understanding of how landscape design can promote social inclusion, extending prior research on park use preferences by race and age (Payne, Mowen, & Orsega-Smith, 2002; Vaughan, Cohen, & Han, 2018), and landscape participation patterns (Elmendorf, Willits, & Sasidharan, 2005). It also considers how residential segregation (Bischoff & Reardon, 2014) continues to shape park use and exposure to diversity. By positioning parks as active agents in reducing social fragmentation and fostering contact among diverse populations, this study offers practical design strategies for urban planners, landscape architects, and community stakeholders committed to building inclusive and socially sustainable public spaces.

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Key Words: Urban Park Design, Intergroup Contact, Observational Study, Social Sustainability

Unpacking Walking Disparities: How Neighborhood Deprivation Shapes the Built Environment Effects

Abstract ID: 1844.0.0.1041.2025

Track 15: Urban Design

Individual Paper Presentation Submission

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Contemporary research in urban planning and public health consistently demonstrates the built environment's strong influence on walking behavior and associated health outcomes. Walkable neighborhoods—characterized by high residential density, mixed land use, connected street networks, and accessible destinations—are linked to increased physical activity and reduced chronic disease risk. However, recent scholarship has highlighted the importance of equity in walkability outcomes, as socioeconomically disadvantaged communities often face infrastructure gaps, safety concerns, and contextual barriers that can limit the benefits of walkable environments.

Although supportive built environments are generally associated with higher levels of physical activity, the extent to which this relationship holds in socioeconomically disadvantaged communities remains contested. While some studies report stronger effects for more advantaged groups, others find either no difference or even greater effects in disadvantaged areas. To gain a deeper understanding of this ongoing debate, this study incorporates a composite Neighborhood Deprivation Index that captures multiple dimensions of socioeconomic disadvantage. We analyze how neighborhood context moderates the relationship between built environment features and walking behavior, providing empirical evidence from Korean cities.

Drawing on data from 229 administrative districts (Si-Gun-Gu) and over 229,000 individuals from the 2021 Korea Community Health Survey, we assess daily walking time as a function of built environment and neighborhood-level deprivation. Built environment features are operationalized using a Principal Component Analysis–derived Walkability Index based on seven indicators aligned with the 5Ds framework (density, diversity, design, destination accessibility, and distance to transit). Neighborhood deprivation is measured through another PCA-based index using nine indicators, including education level, housing quality, aging population, and household structure. A multi-level zero-inflated negative binomial (ZINB) model is employed to account for excess zero-walking responses and the nested structure of individuals within districts.

Our findings reveal that the built environment has a positive and significant effect on average daily walking time. Individuals living in areas with higher population and job density, greater land use mix, better transit access, and pedestrian-oriented design features walk more on average. Importantly, this effect is significantly moderated by neighborhood deprivation: improvements in walkability are more strongly associated with increases in walking time in socioeconomically deprived areas. In contrast, the effect is weaker in less deprived districts. These results challenge the dominant view that walkability primarily benefits more advantaged populations and suggest that walkability improvements may be especially effective in addressing physical inactivity in disadvantaged communities. Additionally, the model highlights that individuals with limited physical capacity are substantially more likely to report no walking activity, emphasizing the need for targeted support beyond infrastructure improvements.

This study contributes to the literature by providing large-scale, empirical evidence on how built environment interventions interact with social disadvantage in shaping transportation-related walking behavior. Our findings underscore the importance of equity-driven planning: walkability improvements can serve not only as a public

health strategy but also as a tool to reduce spatial and health disparities. By integrating physical and social dimensions into urban design, policymakers can better allocate resources and create healthier, more inclusive communities.

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Key Words: Walkability, Physical Activity, Health Equity, NDI, 5D

Urban Design and UHI Effects of TOD Types in the Seoul Metropolitan Area

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Track 15: Urban Design

Individual Paper Presentation Submission

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Transit-Oriented Development (TOD) is widely regarded as a sustainable urban strategy that promotes compact, mixed-use development around public transportation (Calthorpe, 1993; Cervero & Kockelman, 1997). Its benefits related to mobility, land value, and urban form have been extensively explored (Ewing & Cervero, 2010). Meanwhile, Urban Heat Island (UHI) effects—driven by impervious surfaces, dense built environments, and limited vegetation—have emerged as a critical urban climate challenge, intensifying surface temperatures, energy use, and public health risks (Zhou et al., 2011).

Despite the prominence of both TOD and UHI in urban research and policy, few studies have addressed their intersection or potential trade-offs. The compactness and density that make TOD efficient may also amplify thermal stress in urban environments. While UHI has been widely studied through physical and spatial indicators, most analyses remain at macro or meso scales. Localized, design-focused research—particularly on TOD's thermal impacts—remains scarce. Moreover, remote sensing approaches that integrate land surface temperature (LST) with urban form and socio-environmental features are underutilized (Kim & Brown, 2021), and cross-typology or metropolitan-scale comparisons are especially rare.

This study addresses these gaps through three research questions:

- (1) To what extent does TOD, as a compact development model, contribute to or mitigate urban heat in metropolitan contexts?
- (2) Which TOD-related urban form and environmental variables influence LST, and how might they be optimized to reduce UHI effects?
- (3) How do different types of TOD—urban, suburban, and non-TOD—differ in their associated UHI impacts?

The study focuses on the Seoul Metropolitan Area, encompassing all major subway stations and their surrounding 800-meter buffer zones. The temporal scope spans the summer season of 2024 (June 1 to August 31), capturing the peak period of urban heat conditions (Zhou et al., 2016). Using Google Earth Engine (GEE), land surface temperature (LST) is derived from satellite imagery and processed for spatial analysis (Voogt & Oke, 2003).

Independent variables include satellite-based environmental indicators such as the Normalized Difference Vegetation Index (NDVI) and Impervious Surface Area (ISA); demographic and transit usage features, including residential population, employment population, and daily subway ridership; urban morphological characteristics such as Building Coverage Ratio (BCR), Floor Area Ratio (FAR), building height, and exterior materials; and land use diversity, measured using Shannon's entropy index (Buyantuyev & Wu, 2010; Xiao-Ling Chen et al., 2005). TOD classification is conducted using K-means clustering, based on transit usage and land use diversity variables. This results in three categories: urban TOD, suburban TOD, and non-TOD areas. A multiple linear regression model is then applied to assess the relationship between LST and the selected explanatory variables, both across and within each TOD category (Kamruzzaman et al., 2018).

Preliminary findings are expected to reveal distinct UHI patterns between TOD types. Urban TOD areas may exhibit higher LST due to increased impervious surfaces and development intensity, whereas suburban TODs may offer relative mitigation effects through more extensive vegetation and lower density. This analysis will shed light on the role of urban form, transit intensity, and land use diversity in shaping urban thermal conditions.

The results of this study offer actionable insights for urban planners and policymakers. By empirically evaluating how TOD design characteristics influence local heat dynamics, the research contributes to climate-responsive planning, particularly in rapidly urbanizing metropolitan regions. The findings also support the integration of environmental metrics into TOD guidelines and promote more resilient urban design practices.

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Key Words: TOD, Urban Heat Island, Remote Sensing, Urban Morphology, Seoul Metropolitan Area

Where Do Encampments Form? Predicting the Geography of Homelessness

Abstract ID: 1844.0.0.983.2025

Track 15: Urban Design

Individual Paper Presentation Submission

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Homelessness is a growing challenge in U.S. cities, with encampments increasingly impacting public spaces. While research has focused on structural factors like housing affordability and service accessibility, there is limited understanding of how the spatial implications of urban form, including street networks, transit infrastructure, public space design, and land-use patterns, shape encampment dynamics. This study integrates spatial econometrics and urban design to provide a predictive framework for planners and policymakers to identify areas at higher risk for encampment formation, enabling them to allocate resources proactively.

This study draws on three interrelated theoretical perspectives: spatial dependence, urban mobility, and territoriality, which collectively inform an emergent framework that examines the physical boundaries of urban space and accessibility. Spatial dependence theory (Anselin, 1995) suggests that spatial patterns emerge due to proximity effects and the influence of land-use decisions. Urban mobility theory (Sheller, 2018; Martens, 2017) examines how transit access and mobility constraints shape spatial opportunities. Meanwhile, territoriality and negotiation of space (Mitchell, 2003) explore how certain groups and spatial practices are contested and regulated within urban landscapes. Together, these theories shift planning from static models of urban space to dynamic ones that prioritize justice, accessibility, and the lived experiences of unhoused individuals. This study examines how urban boundaries, including street layouts, public space configurations, zoning laws, and transit accessibility affect encampment dynamics. Two core research questions guiding this study are: (1) What spatial factors and urban design characteristics affect the formation, distribution, and persistence of homeless encampments? (2) How do spatial dependencies and governance structures interact to influence encampment dynamics across different urban contexts?

The methodology combines spatial econometrics with urban design analysis. First, Moran's I and Lagrange Multiplier (LM) tests will assess spatial autocorrelation in encampment locations. Based on these results, Spatial Autoregressive (SAR) models will be used to quantify clustering effects while controlling for demographic, land-use, and transit infrastructure factors. If spatial heterogeneity is detected, Geographically Weighted Regression (GWR) will allow for local variations in spatial dependencies to be examined. This integrated approach will provide a spatially explicit model of how urban form and physical infrastructure shape encampment dynamics.

A comparative analysis across Denver, Austin, and Minneapolis will assess the consistency of spatial predictors across distinct policy and governance landscapes. These cities were selected for their similar demographic and socioeconomic characteristics but distinct, yet comparable, approaches to homelessness policy. Denver prioritizes permanent housing solutions, Austin focuses on rapid rehousing and increasing shelter capacity, and Minneapolis coordinates housing and social services through county-level partnerships. By examining how these policy environments interact with spatial dynamics, this study will provide insights into how various spatial and governance factors influence encampment dynamics. If similar spatial determinants emerge across all three cities, the study will strengthen the validity of this predictive framework as an adaptive planning tool.

This research advances planning scholarship by shifting the focus from efficiency-based models to those centered on accessibility. By utilizing a spatially explicit modeling approach, this study provides empirically grounded insights

into how urban form interacts with various structures to shape homelessness outcomes. These findings can help cities address homelessness and spatial inequalities more efficiently and effectively.

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Key Words: Homelessness, Urban Design, Urban Mobility, Public Space

Youth-Centred Place Knowing and Placemaking in Aotearoa New Zealand's Public Housing

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Track 15: Urban Design

Individual Paper Presentation Submission

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How can placemaking processes be reimagined to centre lived experiences and spatial aspirations of young people living in public housing? This research investigates how participatory, culturally grounded placemaking can be used to engage youth in shaping design outcomes and longer-term development strategies for public housing and other collective urban environments (Olin et al., 2022). The project addresses the underrepresentation of youth in planning and design processes that affect their everyday lives (Derr et al., 2018). It asks: What does placemaking look like when driven by the experiences and imaginations of youth? And how can their contributions inform both temporary interventions and permanent upgrades in public housing?

To answer these questions, we conducted a collaborative research project with young people aged 7–24 living in a Wellington housing site managed by Te Toi Mahana, a community housing provider. The study used site-based workshops, creative mapping, drawing, and facilitated discussion to surface youth experiences and place ideas. Methods were informed by kaupapa Māori research ethics and Pacific principles of talanoa (open conversation), with activities held in shared spaces at the housing site and supported by whānau (families), the housing provider and community events.

The project unfolded in three phases: (1) an initial phase of place knowing; (2) a co-design phase where participants imagined their future environment; and (3) a temporary installation that prototyped some of these ideas on-site and gave back to the community. Youth input was synthesized into recommendations for design and engagement processes, and for permanent upgrades to the site, as well as to inform future development across the provider's portfolio.

Findings reveal several recurring themes: the need for enhanced safety and security through lighting and clearer accessways; the desire for age-appropriate, flexible spaces that support autonomy and social connection; the importance of recreational infrastructure, including courts, play areas, and gathering spaces; and concerns around maintenance, rubbish, and environmental care. These themes resonate with international literature on placemaking in public housing, such as the importance of access to well-maintained and safe shared spaces, community activities, and everyday routines in building a sense of place and supporting wellbeing among tenants (Chisholm et al., 2023). They also go beyond highlighting youth priorities for their built environment to reveal a strong collective ethos: most design ideas were oriented toward community benefit rather than individual gain.

This research contributes to urban design and planning scholarship by offering a replicable model for youth-centred engagement in low-income housing contexts. It challenges tokenistic consultation practices and demonstrates how youth participation, when well-supported and culturally attuned, can shape both design outcomes and broader conversations. For practitioners, it offers strategies for engaging young people as design contributors, and for housing providers, it provides evidence of the value of site-specific co-design processes. The project also raises implications for urban design and planning education by demonstrating the critical role of ethics, cultural literacy, and process design in participatory work.

We conclude with a set of recommendations for housing providers, designers, and planning professionals on embedding youth-centred placemaking into future housing and urban development projects. These include not only design and engagement strategies but also structural shifts needed to resource, support, and scale such approaches within system constraints. These recommendations are especially relevant as housing providers in Aotearoa New Zealand face ongoing trade-offs between investing in wellbeing, maintaining infrastructure, and meeting housing demand (Witten et al., 2025).

Citations:

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Key Words: placemaking, co-design, youth, public housing, Aotearoa New Zealand

Track 15 Research in Motion (RiM)

Anyplace Architecture: Measuring Placelessness and Place Value in Podium & Wrap Apartments

Abstract ID: 1842.0.0.1097.2025

Track 15: Urban Design

Research-in-Motion Presentation Submission, Research currently in process

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The proliferation of two distinct, yet related, apartment types across the United States over the past decade has been praised for providing much needed housing, but also criticized as monotonous, placeless, and formulaic. “Podium” buildings, which stack apartments over a concrete base, and “wrap” buildings, which wrap units around a concrete core, can be found on urban infill to exurban greenfield sites in cities of all sizes across the U.S. Both are working to alleviate the housing crisis in high-growth cities like Nashville, Austin and Phoenix. Public conversations about these buildings, however, discount the important role podiums and wraps are playing in housing production and question the future of cities with a concentration of these building types. In these venues, podium and wrap apartments are “blandmarks,” which are everywhere, but look like they could be anywhere.

While the inherent density of the podium and wrap typologies ensures the delivery of 200 to 500 apartment units for each building produced, their architectural and urban design characteristics and resulting place quality, does vary significantly. The design of most podiums and wraps is the result of a contradictory process where the sameness intrinsic in their repetitive program, load bearing wall construction and fire exiting requirements is at odds with the differentiation often required by planning regulation, which can specify or restrict materials, colors, and styles, require changes of plane and adjustment of roof height after a certain length of façade, and subject buildings to design review boards. Well-designed and constructed examples that adjust building volumes to their surrounding contexts, use high-quality materials in well-composed facades, and express local identity with thoughtful urban design, definitely exist. But many are characterized by haphazard construction, boxy massing, over-long street walls, generic and repetitive facades, cheap materials and an absence of urban design, which are often described as boring, chaotic, or simply ugly.

Geographer Edward Relph has defined placelessness as “a weakening of the identity of place to the point where they not only look alike but feel alike and offer the same bland possibilities for experience” (Freestone & Liu 2016, 2). To what degree are the podium and wrap buildings developed across the U.S. “placeless” and, if these buildings are indeed not delivering place quality, are they at least helping cities achieve other urban policy goals around housing affordability, climate change adaptation and health and wellbeing? To answer these questions, the proposed research reviews the concepts of “non-place” and “placelessness” in the planning literature, as theorized by Relph, and uses it to develop a measure of relative placelessness (Arefi 1999, Freestone & Liu 2016, Relph 1976). This measure will be applied to examples of podium and wrap apartment buildings in the diverse geographical contexts of Nashville, TN; Austin, TX and Phoenix, AZ. Once a hierarchy of more to less placeless is established, these buildings’ “place value” will be evaluated, as theorized by architect and urban designer Matthew Carmona, examining whether and how these buildings address economic, environmental and social goals beyond their image and identity (Carmona 2019).

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Climate Gentrification
Climate hope
Climate justice
Climate migration
Climate Mitigation
Climate planning
Climate Pollution
Climate reductionism
Climate resilience
Climate risk
Climate-adaptive design
Climate-adaptive
planning
Climate-Induced Mobility
CNN

Co-benefits
Co-design
Co-evolution
Co-living
Co-production
Coalitions
Coarsened Exact-
Matching
Coastal
Coastal Adaptation
Coastal cities
Coastal disaster
Coastal Flooding
Coastal management
Coastal managment
Coastal retreat
Coastal settlements
Coastal Vulnerability
Cobot
Code
Code of ethics
Cognitive aging
Cognitive Decline
Cognitive function
Cognitive load
Cognitive performance
Collaboration
Collaborative
governance
Collaborative planning
Collaborative research
Collective
Collective Housing
Tenure
Collective memory
Collective property
Collective Resistance
Collective will
Colombia
Colonial planning
Coloniality

Commercial areas
 Commercial District
 Commercial Streets
 Communications
 strategies
 Community
 Community Action
 Program
 Community Activism
 Community Based
 Housing
 Community based
 research
 Community benefits
 Community building
 Community co-design
 Community
 connectedness
 Community detection
 Community
 Development
 Community engagement
 Community Gardens
 Community Health
 Community knowledge
 Community land trust
 Community Land Trusts
 Community organizing
 Community Partnership
 Community peer review
 Community power
 Community resilience
 Community severance
 Community Solar
 Community-based
 research
 Community-Based
 Support
 Community-engaged
 Community-led
 Community-led
 adaptation

Community Based
 Adaptation
 Commute
 Commute mode shares
 Commuting
 Commuting behavior
 Compact city
 Compact development
 Compactness
 Companies
 Comparative
 Comparative Analysis
 Compassion
 Competence Profile
 Competition
 Competitiveness
 Complete Street
 Complete Streets
 Complex adaptive
 system
 Complex network
 Complex Systems
 Compound exposure
 Compound Risks
 Comprehensive plan
 Comprehensive Planning
 Comprehensive Planning
 Systems
 Comprehensive plans
 Computational methods
 Computer Vision
 Concentration risk
 Concept Design
 Condominium
 certification
 Condominium market
 Conflict analysis
 Conflict system
 Conjunctural Analysis
 Consensus
 Consent Decree

Conservation
 Conservation easements
 Conservation Planning
 Consultants
 Consultants approach
 Consumer Preferences
 Content Analysis
 Contestation
 Contextual factors
 Contract for Deed
 Convergence Research
 Cooling Effect
 Cooperatives
 Cop City
 Coproduction
 Corporate adaptation
 Corporate Landlords
 Corporate Ownership
 Corporatization
 COVID
 COVID-19
 COVID-19 pandemic
 Covid19
 Crashes
 Creatives
 Crime Prevention
 Crisis
 Crisis Response
 Crisis urbanism
 Critical disabilities
 Critical Disaster Studies
 Critical Feminist Theory
 Critical heritage studies
 Critical Theory
 Cross-border
 Governance
 Cross-cultural practice
 Cross-cultural research
 Cross-Racial Solidarity
 Crowd dynamic activities

Crowdsourced Data
 Crowdsourced Imagery
 CSOs
 Cuba
 Culdesac
 Cultural heritage
 Cultural Infrastructure
 Cultural Landscape
 Cultural planning
 Cultural Regeneration
 Culture of Property
 Curb data specification
 Curb extensions
 Curb management
 Curricular Design
 Curriculum analysis
 Curriculum Design
 Custom GPT
 Customer satisfaction
 Cycles of accumulation
 Cycling
 Cyclist safety
 Daily activity pattern
 Daily mobility
 Daily practice
 Dashboard
 Data
 Data Accuracy
 Data Axle
 Data collection
 Data dashboards
 Data equity
 Data Ethics
 Data governance
 Data Saturation
 Data science
 Data-driven design
 Data-driven Governance
 Data-Driven Planning
 Database design

Daylighting
 Decarbonization
 Decarceration
 Decentralized Energy
 Decision makers
 Decision Making
 Decision Support
 Decision Support
 Systems
 Decision-Making
 Decolonial Planning
 Decolonial Praxis
 Decolonial thinking
 Decolonial Urbanism
 Decolonization
 Deep learning
 Deep Learning Algorithm
 Deindustrialization
 Delhi
 Demand
 Demand modeling
 Demand-Response
 Service
 Dementia
 Democracy
 Demographic change
 Demographic
 Decomposition
 Demographics
 Densification
 Density
 Density tools
 Descriptive analysis
 Design
 Design education
 Design interventions
 Design process
 Design standards
 Destination Choice
 Destinations
 Detroit

Developable land
 Developer interviews
 Development
 Development approval
 Development Patterns
 Development Policies
 Development Project
 Development Zones
 Developmentalist Cities
 Dhaka
 Dialectics of Periphery
 Dictionary analysis
 Difference in Differences
 Difference-in-difference
 Difference-in-
 Differences
 Differentiation
 Diffusion Models
 Digital capitalism
 Digital divide
 Digital equity
 Digital exclusion
 Digital Governance
 Digital literacy
 Digital mapping
 Digital Nomadism
 Digital review boards
 Digital solidarity
 Digital spaces
 Digital Tech Utilization
 Digital technologies
 Digital Tools
 Digital Twins
 Digital water governance
 Digitalization
 Disability
 Disaccumulation
 Disaster
 Disaster Governance
 Disaster impacts

Disaster Management
 Disaster Planning
 Disaster Preparedness
 Disaster recovery
 Disaster resilience
 Disaster response
 Disaster studies
 Disaster-planning
 Disasters
 Discourse
 Discourse analysis
 Discrete event
 simulation
 Discrimination
 Disparity
 Displaced Persons
 Displacement
 Displacement Pressure
 Displacement risk
 Dispossession
 Distribution
 Diverse groups
 Diverse Neighborhood
 Diversification
 Dogwhistle
 Doubling-up
 Drinking water
 Driver Education
 Driverless taxi
 Driving Mechanisms
 Drought resilience
 Duration of Heat
 Dynamic charging
 Dynamic Panel Data
 Model
 Dynamic pricing
 Dynamic scheduling
 Dynamic time-series
 E-scooter
 E-scooters

Early warning systems
 Ecological Connectivity
 Ecological Infrastructure
 Ecological Planning
 Ecological State
 Economic development
 Economic disasters
 Economic geography
 Economic Growth
 Economic justice
 Economic Revitalization
 Economic
 transformation
 Economic Vitality
 Economy
 Ecosystem
 Ecosystem Planning
 Ecosystem service flows
 Ecosystem services
 Ecuador
 Edu. for Sustainability
 Education
 Elderly
 Elderly Inactivity
 Elderly mobility
 Elections
 Electric scooters
 Electric vehicle
 Electric Vehicles
 Electric Vehicles (EVs)
 Electrified micromobility
 Elevation
 Emergency management
 Emergency medical
 service
 Emergency planning
 Emergency Response
 Emergency visits
 Emergent Urban Change
 Emerging

Emerging Technologies
 Emotions
 Employability
 Employment
 Employment and
 Industry
 Employment centers
 Employment subcenters
 End-user
 Energy
 Energy Inequality
 Energy insecurity
 Energy Justice
 Energy Planning
 Energy policy
 Energy Reliability
 Energy Transition
 Engaged research
 Engaged Scholarship
 Engagement
 Ensemble learning
 Enterprise Network
 Entrepreneurial
 Ecosystem
 Entrepreneurship
 ENVI-met
 Environmental
 Assessment
 Environmental benefits
 Environmental conflict
 Environmental Cultures
 Environmental education
 Environmental exposure
 Environmental
 governance
 Environmental Inequality
 Environmental injustice
 Environmental justice
 Environmental Planning
 Environmental politics
 Environmental resilience

Environmental
 Stewardship
 Environmental Kuznets
 Curve
 EPIC-N
 Epistemological Shifts
 Equal accessibility
 Equality
 Equitable Access
 Equitable Accessibility
 Equitable Econ. Dev
 Equitable Recovery
 Equity
 Equity investments
 Equity preservation
 Ethical AI
 Ethics
 Ethics of care
 Ethnic culture
 Ethnic economy
 Ethnic enclaves
 Ethnic grocery stores
 Ethno-nationalism
 Ethnography
 eTOD
 EV Adoption
 Evacuation
 Evaluation
 EVCS Optimal Allocation
 Event
 Event spaces
 Everyday mobility
 Everyday Urbanism
 Eviction
 Evictions
 Evidence-based design
 Evolutionary Economics
 Exchange
 Exclusion
 Exclusionary
 Development

Exclusionary politics
 Exclusionary Zoning
 Expectation confirmation
 Experience
 Experiential learning
 Experiment
 Explainable AI
 Explainable ML
 Exploitation
 Exposure
 Extended Reality
 Extractive epistemology
 Extreme Climate
 Extreme Heat
 Extreme heat adaptation
 Extreme Heat Events
 Extreme weather
 Extreme weather events
 Eye-tracking
 Eyeglass frame
 production
 Facilitation
 Facilitators
 Facility location
 Faculty
 Faculty composition
 Fair Housing Policy
 Faith-Based Organizing
 Fare Evasion
 Fare Policy
 Fare-Free Public Transit
 Fare-Free Transit
 Farmers market
 Farmland
 Farmland Protection
 Female
 Feminist Planning
 Field test
 Fieldwork
 Finance

Financial allocation
 Financialization
 Financing
 Fink's taxonomy
 Fintech
 Fire Incidents
 Fire Risk
 Firm Entries
 Firm location
 First-floor height
 First-generation students
 First/Last Mile
 Fiscal impacts
 Fiscal planning
 Fiscal studies
 Fixity-Flow Framework
 Flash flooding
 Fleet Decarbonization
 Flood
 Flood adaptation
 Flood mitigation
 Flood Resilience
 Flood Risk
 Flood Risk Management
 Flood Vulnerability
 Flooding
 Flower Farms
 Food Access
 Food accessibility
 Food data
 Food Delivery
 Food deserts
 Food Environment
 Food environments
 Food insecurity
 Food justice
 Food Outlet Density
 Food security
 Food sovereignty
 Food systems

Food systems planning
 Foodscape
 Foot traffic
 Forced displacement
 Foreclosure
 Foresight
 France
 Free fare
 Free Fare Policy
 Freedom city
 Fresh produce delivery
 Frontline communities
 Fully automated capital
 Functional centers
 Funding
 Funding alternatives
 Future imaginaries
 Future of work
 Future practitioners
 Futuristic
 GAM
 Gamification
 GAMM Modeling
 Gardens and agriculture
 Gated communities
 Gaze metrics
 GenAI
 Gender
 Gender Equality
 Gender parity
 Gendered Travel
 Behavior
 Generalized Journey
 Time
 Generational Cohesion
 Generative AI
 Genetic algorithm
 Gentrification
 Gentrification beliefs
 Geo-politics

GeoAI
 Geographic explainable
 AI
 Geographic weighting
 Geolocation Data
 GeoShapley
 Geospatial analysis
 Geospatial Data
 Ghana
 Gig and Platform
 Economy
 Gig economy
 GIS
 GIS Analysis
 GIS Mapping
 Global Cities
 Global security
 Global South
 Global South Network
 Google Places data
 Google Street View
 Governance
 Government legitimacy
 Governmentality
 GPS
 Gramscian studies
 Grant management
 Graph neural network
 Graph Neural Networks
 Graphic design
 Grassroots
 Grassroots Groups
 Grassroots movements
 Grassroots organizing
 Great Salt Lake
 Green equity
 Green gentrification
 Green Infrastructure
 Green justice
 Green Roofs

Green space
 Green space exposure
 Green transition
 Greenbelt
 Greening
 Greenspace
 Greenspace accessibility
 Grid Modernization
 Groups in planning
 theory
 Growth coalitions
 Growth Curve Modeling
 Growth Management
 GSI
 H+T expenditure burdens
 H+T expenditures
 Hangzhou
 Harassment
 Havana
 Hazard Mitigation
 Hazard mitigation plan
 Hazard vulnerability
 HCI
 HCV
 Health
 Health & Retirement
 Study
 Health Behavior
 Health effects
 Health Equity
 Health justice
 Health outcomes
 Health-related Mobility
 Healthcare
 Healthcare access
 Healthcare Accessibility
 Healthy food access
 Heat action plans
 Heat Adaptation
 Heat Exposure

Heat inequity
 Heat island intensity
 Heat Management
 Heat Mitigation
 Heat planning
 Heat Resilience
 Heat risk management
 Heat vulnerability
 Heat Vulnerability Index
 Heat warning systems
 Heat wave
 Heat-related illness
 Heat-related mortality
 Heatwave Warning
 Heatwaves
 Hedonic Model
 Heirs' property
 Heritage
 Heritage preservation
 HeritageCommunities
 Heterogeneity
 Hierarchical clustering
 High injury networks
 High Quality Transit Area
 High-density central
 High-skilled
 High-Speed Rail (HSR)
 High-Speed Rail
 Networks
 High-tech Industries
 Higher Education
 Highway
 Highway expansion
 Highway Removal
 Himalaya
 Hispanic
 Hispanic communities
 Hispanic Enclaves
 Hispanic
 Homeownership

Hispanic Migration
 Historic District
 Historic preservation
 Historic Urban Area
 Historic Urban Areas
 Historical districts
 Historical neighborhoods
 Historical planning
 History
 HMDA
 Home location
 estimation
 Home maintenance
 Home repair
 Homelessness
 Homeownership
 Homeownership
 Disparities
 Hospital
 Hourly thermal comfort
 Household decision-
 making
 Household Formation
 Household interaction
 Household recovery
 Household responsibility
 Housing
 Housing affordability
 Housing and health
 Housing assemblage
 Housing Challenges
 Housing Choice Voucher
 Housing Code-
 Enforcement
 Housing conditions
 Housing costs
 Housing Demand
 Housing development
 Housing Discrimination
 Housing Displacement
 Housing durability

Housing Equity
 Housing Financialization
 Housing First
 Housing Governance
 Housing Inequality
 Housing Informality
 Housing insecurity
 Housing instability
 Housing Justice
 Housing Market
 Dynamics
 Housing movements
 Housing navigation
 Housing Pathway
 Housing Policy
 Housing Policy
 Innovation
 Housing Precarity
 Housing Preservation
 Housing Price
 Housing Price Dynamics
 Housing Price Prediction
 Housing production
 Housing project
 Housing quality
 Housing reconstruction
 Housing Recovery
 Housing reform
 Housing rehabilitation
 Housing services
 Housing shortage
 Housing Supply
 Housing tenure
 Housing Theory
 Housing units
 Housing vouchers
 Houston
 HSR Station Area
 Human activities
 Human dynamics

Human energy budget
 Human interactions
 Human mobility
 Human Perception
 Human Rights Advocacy
 Human-AI Interaction
 Human-subject
 experiment
 Huntsville
 Hurricane
 Hurricane Evacuation
 Hurricane Helene
 Hurricane Michael
 Hurricane Sandy
 Hybrid
 Hybrid governance
 Hybrid work
 ICT
 Identity
 Identity & gov't service
 Identity politics
 Image
 Image Classification
 Image of the City
 Immigrant
 Immigrant well-being
 Immigrants
 Immigration
 Immigration
 enforcement
 Impact analysis
 Impact Assessment
 Impact of public policy
 implementation
 Improv theater
 Inadequate transit
 Incentives
 Inclusion
 Inclusionary Housing
 Inclusive Development

Inclusive Environment
 Inclusive Growth
 Inclusive pedagogy
 Inclusive Planning
 inclusive spaces
 Inclusive Transportation
 Income disparities
 Income diversity
 income inequality
 Income segregation
 Incorporation
 Index
 India
 Indigeneity
 Indigenous
 Indigenous communities
 Indigenous knowledge
 Indigenous land right
 Indigenous land rights
 Indigenous planning
 Indigenous water right
 Individual behavior
 Individual Perception
 Indonesia
 Indoor Public Space
 Induced travel
 Industrial
 Industrial development
 Industrial land use
 Industrial restructuring
 Industrial Sector
 Industrial Upgrading
 Industry
 Inequalities
 inequality
 Inequity
 Infill development
 Informal Armatures
 Informal housing
 Informal Sector

Informal settlements
 Informal urbanism
 Informality
 Information
 Infrastructure
 Infrastructure equity
 Infrastructure failure
 Infrastructure Plan
 Infrastructure planning
 Injury severity
 Innovation
 Innovation Collaboration
 Innovation district
 Innovation Geographies
 Innovative industries
 Input-output analysis
 Instagram
 Institutional capacity
 Institutional Change
 Institutional investors
 Institutional pluralism
 Institutional reform
 Institutions
 Insurance
 Insurance captive
 Insurgent planning
 Intangible
 Integrated climate action
 Integration
 Intense Suburbanization
 Inter-city relations
 Interaction
 Interagency
 Collaboration
 Intercity synergy
 Interdisciplinary
 Interdisciplinary collab
 Interagen. Integration
 Intergroup Contact
 Interior design element

Intermittent water supply
 Internal Trip Capture
 International
 International comparison
 International
 Development
 International Planning
 Interpretive planning
 Intersectionality
 Interview
 Intimate partner violence
 Invasive species
 InVEST model
 Investment
 IRS tax code
 Istanbul
 Jeonse
 Job access
 Job accessibility
 job centers
 Job to Housing Ratio
 Jobs-housing balance
 Journalism
 Journey-to-work
 Just city
 Just transitions
 Justice
 Justice principles
 Kampala, Uganda
 Kernel analysis
 Kevin Lynch
 Knowledge
 Knowledge co-
 production
 Knowledge graph
 Knowledge Integration
 Knowledge Spillover
 Knowledges
 Korea
 Korean-Chinese

Labor
 Labor Market
 Segmentation
 Labor markets
 Labor Productivity
 Land
 Land banking
 Land Brokerage
 Land Conservation
 Land development
 Land Justice
 Land Policy
 Land Preservation
 Land regularization
 Land relations
 Land Surface
 Temperature
 Land surface
 temperatures
 Land tenure
 Land use
 Land use configuration
 Land use forecasting
 Land Use Governance
 Land Use Multiplier
 Land Use Planning
 Land use policies
 Land use policy
 Land use policy,
 Land use reforms
 Land use regulation
 Land Use Value
 Land value
 Land Value Capture
 Land-losing Farmers
 Land-use
 Land-use policy
 Landlords
 Landscape fieldwork
 Landscape perceptions
 Language Access

Language Barriers
 Language models
 Language Revitalization
 Languagescape
 Large cities
 Large Language Model
 Large language models
 Large-language Model
 Large-scale
 Latent Class Analysis
 Latin America
 Latino/a
 Latinx/e housing
 Latinx/o/a
 LBS data
 LCZ
 Leadership
 Learning
 Learning Assessment
 Learning Outcomes
 Lee County, Florida
 LEED
 Left-behindness
 Legacy cities
 Legal Inaccessibility
 Legitimacy
 Level of service
 LGBTQ+
 Libraries
 Lidar
 Life-course transitions
 Life-cycle mobility
 Lifestyle Diseases
 Light Rail
 Light rail corridors
 LIHTC
 Linear mixed model
 (LMM)
 Literature Review
 Living heritage

LLaMA
LLM
Lobbying
Lobbyists
Local built environment
Local climate zone
Local Democracy
Local discourse
Local diversity
Local governance
Local knowledge
Local planning
Local plans
Local Solutions
Localized Insights
Location
Location-based
 Research
Logic of power
Logistics
Longitudinal analysis
Longitudinal Study
Los Angeles
Louisiana
Love
Low Income Households
Low-cost sensors
Low-income households
Low-income housing
Low-wage workers
LTS
Machine leaning
Machine Learning
Machine Learning (ML)
Malls
Managed retreat
Manila
Manufactured Home
 Parks
Manufactured housing

Manufacturing Industries
Mapping
Marked crosswalks
Market Failures
Market regulation
Market shocks
Massing models
Master plan
Maternal Health
Maternal identity
Maternal Isolation
MBK
MBTA
Measuring displacement
Media coverage
Medicaid
Medicare and Medicaid
Meditation
Mediterranean Countries
Megacities
Memorialization
Memory
Memphis
Mental Health
Methods
Metro
Metro Stations
Metropolitan Areas
Metropolitan planning
Metropolitan regions
Mexico City
MF-DCCA
Miami
Micro-scale urban design
Microclimate
Microclimate modeling
Microclimate simulation
Microdata
Micromobility
Micromobility Planning

Middle housing
Migrant Workers
Migration
Migration modeling
Migration preferences
MIH
Military urbanization
Minority rights
Misinformation
Mississippi River Basin
Mitigating flood damage
Mitigation
Mitigation Behavior
Mixed effects modeling
Mixed-Methods
Mixed-methods research
Mixed-use development
MNL model
Mobile
Mobile app data
Mobile home parks
Mobile Homes
Mobile LiDAR
Mobile phone data
Mobile positioning
Mobile signaling dataset
Mobility
Mobility data
Mobility Equity
Mobility hub
Mobility impaired elderly
Mobility impediments
Mobility justice
Mobility limitation
Mobility of Care
Mobility Pattern
Mobility Patterns
Mobility wallet
Mode choice
Mode choice analysis

Monitoring
 Monuments
 Morphology
 Mortgage Access
 Mortgage lending
 Motonormativity
 Motorization
 Movements
 MPO
 MPOs
 MRQAP
 MSA
 Multi-agent modeling
 Multi-Family Housing
 Multi-hazards
 Multi-level
 Multi-level modeling
 Multi-Modal Transport
 Multi-risk assessment
 Multi-Scale Analysis
 Multi-source data fusion
 Multi-Task Learning
 Multidimensional scaling
 Multifamily
 Multifamily Housing
 Multilevel Analysis
 Multimodal
 Multimodal AI
 Multimodal data
 Multimodal Integration
 Multimodal prediction
 Multimodal trip
 Multimodality
 Multiple Streams
 Multiple Worksite
 Workers
 Multisensory urbanism
 Multispecies
 entanglement
 Multiuse trails

Municipal finance
 Municipal fragmentation
 Municipal governance
 Municipal readiness
 Municipal responsibility
 Municipal undergreening
 Municipalities
 MWOBs
 Mystery
 Narratives
 National survey
 Native/Invasive Species
 Natural disasters
 Natural hazard
 Natural hazards
 Natural infrastructure
 Natural Language
 Process
 Nature based solutions
 Nature Play
 Nature-based solutions
 NDI
 NDVI
 Near-miss incidents
 Nebraska
 Negative binomial
 Neighborhood Analysis
 Neighborhood change
 Neighborhood
 Connectivity
 Neighborhood Design
 Neighborhood networks
 Neighborhood
 opportunity
 Neighborhood Planning
 Neighborhood
 Preservation
 Neighborhood
 stabilization
 Neighborhood urbanism
 Neighborhoods

Neighbourhood effect
 neoliberal development
 Neoliberal Urbanism
 Neoliberalism
 Nepal
 Nesting spatial model
 Network Analysis
 Network block modeling
 Network diversity
 Network Embeddedness
 Network of plans
 Networks
 Neurodivergence
 New employment
 New energy vehicles
 New England
 New Jersey
 New Town Developments
 New Town Planning
 New York City
 Next POI
 Recommendation
 NGO participation
 NIMBY
 NLP
 No-motorized travel
 Noise
 Non-linear effect
 Non-linear effects
 Non-market housing
 Non-motorized Count
 Data
 Non-Motorized Modes
 Non-Standard Planning
 Nonlinear relationship
 Nonprofit Intermediaries
 Nonstandard Commute
 O2O (online to offline)
 Object Detection
 Observational Study

Obstacles
 OCR
 Offshore wind
 Older adult
 Older Adults
 Older industrial region
 Online
 Online communication
 Online food delivery
 Online reviews
 Ontario, Canada
 Open space
 Open-air Market
 Open-endedness
 Open-source Data
 Opportunity structure
 Opposition
 Ordered Logit Model
 Oregon
 Organization survival
 Othering
 Outcomes
 Outdoor Activities
 Outdoor falls
 Outdoor heat exposure
 Overtourism
 Pacific Northwest
 Pandemic
 Panel Data
 Panel Matching
 Paratransit
 Pareto Efficiency
 Pareto optimality
 Park
 Park Accessibility
 Park equity
 Park perception
 Park System
 Park visitation
 Parking

Parking policy
 Parks
 Participation
 Participatory
 Participatory action
 Participatory Methods
 Participatory modeling
 Participatory Planning
 Patenting Activity
 Path Dependency
 Path development
 PBSA
 Pedagogy
 Pedestrian
 Pedestrian behavior
 Pedestrian Flow
 Pedestrian Preference
 Pedestrian safety
 Pedestrians
 People with disabilities
 People's Budget
 Perceived
 Perceived Accessibility
 Perceived Safety
 Perceived Stress
 Perception
 Performance evaluation
 Performance
 measurement
 Peri-urban
 Peri-Urban Communities
 Peri-Urban Land
 Peri-Urban
 Transformation
 Peri-urban Turbulence
 Peripheral Urbanization
 Permanent affordability
 PGIS
 Pharmacy Desert
 Philanthropic
 Foundations

Philanthropy
 Philippines
 Physical Activity
 Physiological indicators
 PIRS-TM
 Place & trust
 Place appropriation
 Place Attachement
 Place Attachment
 Place Value
 Place-based knowledge
 Place-making
 Placelessness
 Placemaking
 Plan Analysis
 Plan Content Analysis
 Plan Evaluation
 Plan Implementation
 Plan Integration
 Plan-Making Automation
 Planned communities
 Planned Unit
 Development
 Planner's Role
 Planner's triangle
 Planners
 Planning
 Planning and Design
 Planning capacity
 Planning communication
 Planning consultants
 Planning democracy
 Planning education
 Planning Evaluation
 Planning Frameworks
 Planning from below
 Planning history
 Planning history & theory
 Planning In Re-existence
 Planning law

Planning methods
Planning metrics
Planning paradigms
Planning Pedagogy
Planning policy
Planning practice
Planning Process
Planning Regulations
Planning Simulation
Planning Support System
Planning support
 systems
Planning System
Planning theory
Planning tools
Plans
Platform urbanism
Platforms
PM2.5
Pocket park
POI clustering
POI diversity
Point-of-Interest
Point-source pollution
Policing
Policing & public safety
Policy
Policy accountability
Policy Analysis
Policy brokers
Policy compliance
Policy Evaluation
Policy implementation
Policy process
Policy shocks
Policymaking
Political alienation
Political ecology
Political Economy
Political geography

Political theory
Political trust
Politics
Politics of mobility
Politics of planning
Pollutant Mobility
Polycentric development
Polycentricity
Polycentrism
Polycrisis
Popularity
Population change
Population decline
Population Migration
Populism
Port communities
Post-development
Post-disaster recovery
Post-foundational theory
Post-pandemic mobility
Post-place community
Post-Socialist cities
Post-socialist city
Postcolonial planning
Poverty Concentration
Poverty/exclusion
Power analysis
Power Dynamics
Power imbalances
Practice
Practice change
Practices
Precarious housing
Precarity
Predictive Modeling
Preference
Preferential Attachment
Preparedness
Preservation
Preterm birth

Private Communities
Private Equity
Private rental market
Procedural Justice
Process
Productive city
Professional
 development
Professional identity
Professionalism
Professionalization
Progressive renewal
Propensity score
 matching
Property
Property management
Property owners
Property rights
Property tax liens
Property taxes
Protest
Psychosocial Barrier
Public
Public acceptance
Public administration
Public awareness
Public committee
Public discourse
Public education
Public emotions
Public Engagement
Public Expenditures
Public finance
Public Financing
Public health
Public housing
Public Infrastructure
Public interest
Public investment
Public libraries

Public Library
 Public life
 Public opinion
 Public Parks
 Public participation
 Public Rental Housing
 Public Safety
 Public schools
 Public space
 Public Space
 Management
 Public sphere
 Public street spaces
 Public submissions
 Public Support
 Public transit
 Public transit equity
 Public Transit Perception
 Public Transit Planning
 Public transport
 Public Transportation
 Public wellbeing
 Public works
 Public-private interface
 Publications
 Publicness
 Puerto Rico
 Pulse migration
 Push and pull factors
 Quadratic regression
 Qualitative
 Qualitative coding
 Qualitative research
 Quality of Place
 Quantitative modeling
 Quasi-experimental
 design
 Race
 Race in planning
 Racial

Racial appreciation gap
 Racial Branding
 Racial capitalism
 Racial Discourse
 Racial equity
 Racial Integration
 Racial Justice
 Racial Segregation
 Racial wealth gap
 Racial-spatial isolation
 Racialized Organizations
 Racialized Workers
 Rail Transit
 Rainwater Harvesting
 Random Effects Model
 Random forest
 Random-intercept model
 Randomized Control Trial
 Rational planning
 Real estate
 Real Estate Development
 Real estate markets
 Rebound Phenomenon
 Receiving communities
 Reconnecting
 communities
 Recovery
 Recovery Planning
 Recovery Policy
 Recreational Destination
 Redit
 Redevelopment
 Redlining
 Reflective practice
 Reflexivity
 Refugees
 Regenerative Design
 Regional
 Regional Characteristics
 Regional development

Regional dynamics
 Regional Economic
 Growth
 Regional economic
 impact
 Regional equity
 Regional food systems
 Regional Governance
 Regional inequality
 Regional innovation
 Regional Integration
 Regional planning
 Regionalism
 Regions
 Regulation
 Regulatory Impact
 Reinforcement Learning
 Relational planning
 Relative height
 Relocation
 Remote learning
 Remote sensing
 Remote Work
 Renewable energy
 Renewable Energy Equity
 Renewable energy siting
 Rent control
 Rent Cost Burden
 Rent-seeking
 Rent-setting
 Rental housing
 Rental Market Reform
 Rental markets
 Rental Propoerty Owners
 Rental Regulation
 Rentals
 Renters
 Reparation
 Reparations
 Reparative

Reparative planning
 Reported incidents
 Representation
 Representative `
 Reproduction of space
 Research
 Research ethics
 Research methods
 Research-Policy Gap
 Resettlement
 Resettlement Design
 Residential Area
 Residential Decisions
 Residential density
 Residential Development
 Residential displacement
 Residential land capacity
 Residential Location
 Residential mobility
 Residential relocation
 Residential Segregation
 Resilience
 Resilience and Equity
 Resilience Building
 Resilience Index
 Resilience Planning
 Resilient Infrastructure
 Resilient Transportation
 Resource constraints
 Resource Development
 Responsible AI Deployment
 Restoration
 Retail
 Retail food environment
 Retail food outlet
 Retail Vacancy
 Retirement
 Revenue management

Revitalization
 Rhetoric
 Richmond
 Ride-hailing
 Ride-hailing Services
 Ridership
 Right to Housing
 Right to the city
 Rights of nature
 Rights to the City
 Risk
 Risk assessment
 Risk assessment framework
 Risk management
 Risk mapping
 Risk reduction
 Risk services
 Risk-based Pricing
 Risksapes
 River Governance
 River Landscape
 Rivers
 Road building
 Road diets
 Road freight transport
 Road Infrastructure
 Road Lobby
 Road-safety
 Road-segment
 Robotaxi
 Role of consultants
 Roundabouts
 Route choice
 Route deviation
 Route Optimization
 Rural
 Rural attractiveness
 Rural Communities
 Rural community

Rural development
 Rural governance
 Rural in-migration
 Rural planning
 Rural transformation
 Rural-to-urban migrants
 Rural-urban divide
 Ruralisation
 Safe Healthy Community
 Safe system
 Safe Systems
 Safety
 Sampling Randomization
 Sanctuary
 Santiago de Chile
 Satellite Imagery
 Scale
 Scale effects
 Scenario planning
 Scene Theory
 Scenic Urban View
 Scholarship
 School
 School closure
 School escorting
 School Finance
 School finance/funding
 School transportation
 Schools
 Scooter-Sharing System
 Scoping Review
 SDGs
 SDM
 Sea level rise
 Second homes
 Segregation
 Self-managed, mutual aid
 Self-organized Practices
 Sending communities

Senior
Seniors and mobility
Sense of Community
Sense of identity
Sense of Place
Sensing/Imagining
Sensor data
Sensor kit
Seoul Metropolitan Area
Sequence analysis
Service learning
Service sector
Service-learning
Settler colonialism
Shade
Shade Equity
Shadow education
Shanghai Metropolitan
Shared equity models
Shared micromobility
Shared Mobility
Shared Space
Shenzhen
Shift Work
Short Rental
Short-term rentals
Shrinking cities
Shrinking city
Sidewalks
Signals
Signals of Inclusion
Single-family
Single-family rentals
Single-family zoning
Sinophobia
Sleep Disorder
SLOs
Slum Upgrading
Small and medium cities
Small Area Estimation

Small Towns
Smaller Cities
Smart Cities
Smart City
Smart growth
SMMs
Social Capital
Social Cohesion
Social Constructivism
Social Dimensions
Social Ecosystems
Social Equity
Social exclusion
Social housing
Social Inequalities
Social Infrastructure
Social innovation cluster
Social integration
Social Interaction
Social Justice
Social Media
Social media analysis
Social media analytics
Social media data
Social Movements
Social network analysis
Social networks
Social Norms
Social resilience
Social Sustainability
Social Ties
Social vulnerability
Social Welfare
Social-ecological system
Socio-economic Factors
Socio-spatial context
Sociospatial inequality
Soft densification
Soil
Solar

Solar energy
Solidarity
Soundscape
South Korea
South LA
South Sudan
Southeast Asia
Southern California
Space Syntax
Spaces and Places
Spacial perception
Spatial analysis
Spatial Analytics
Spatial Behavior
Spatial data science
Spatial DID
Spatial disparities
Spatial Disparity
Spatial distribution
Spatial Econometrics
Spatial equity
Spatial exclusion
Spatial Governance
Spatial Heterogeneity
Spatial imaginaries
Spatial inequalities
Spatial Inequality
Spatial Inequity
Spatial Injustice
Spatial integration
Spatial interaction model
Spatial justice
Spatial Mismatch
Spatial Mobility
Spatial Modeling
Spatial Planning
Spatial politics
Spatial practice
Spatial segregation
Spatial Spillover Effect

Spatial structure
 Spatial vulnerability
 Spatio-temporal analysis
 Spatiotemporal Analysis
 Spatiotemporal behavior
 Spatiotemporal big data
 Spatiotemporal Patterns
 Special Assessment
 Special governments
 Specialization
 Speculation
 Speculative
 Speculative
 Development
 Speech
 Speed limit reduction
 Spillover effect
 Spot rezoning
 Stable Diffusion
 Stakeholder Engagement
 State
 State devolution
 State entrepreneurialism
 State Planning mandates
 State preemption
 State retrenchment
 State-groups relations
 State-Local dynamics
 State-Local Relations
 Stated preference switch
 Stipulated Agreement
 Stormwater Management
 Storytelling
 Strategic Framework
 Strategic Partnerships
 Strategic relations
 Streamlining
 Street Connectivity
 Street environments
 Street Level

Street networks
 Street space
 Street Standards
 Street vending
 Street Vendor
 Street vendors
 Street view image
 Street View Imagery
 Street Vitality
 Street-level bureaucrats
 Street-level organization
 Streets
 Streetscape
 Streetscape Design
 Streetscape
 Management
 Streetscape Quality
 Streetview
 Streetview imagery
 Stress
 Structural equation
 model
 Structural racism
 STS
 Student housing
 Student-led learning
 Students Travel Behavior
 Studio
 Studio pedagogy
 Studio-based learning
 Sub-county Analysis
 Sub-Saharan Africa
 Subcenters
 Subjective well-being
 Subsidies
 Subsidized housing
 Substance use disorders
 Substandard Housing
 Suburban Communities
 Suburbanization

Suburbs
 Sufficient Access
 Sufficientarian
 Super commuting
 Super-commuting
 Supply
 Supply-Demand
 Imbalance
 Supply-side approach
 Supportive Services
 Suppressed travel
 Surveillance
 Sustainability
 Sustainability
 Competency
 Sustainability planning
 Sustainable
 Development
 Sustainable Mobility
 Sustainable recovery
 Sustainable transport
 SUV Ownership
 Symbolic capital
 Synergistic effects
 Synergistic impacts
 Synthetic Cohort
 Approach
 System Change
 System dynamics
 System Planning
 Systematic Review
 Systemic change
 Systems change
 Target population
 Tax abatements
 Tax deductions
 Tax delinquency
 Tax equity
 Tax incentives
 Tax policy
 Taxi trajectory data

TDR
 Techno-politics
 Technocratic Planning
 Technocratic resistance
 Technological Change
 Technology
 Technology ethics
 Teen Driver Safety
 Telecommuting
 Telework
 Telework Equity
 Temporal Change
 Tenant organizing
 Tenant Rights
 Tenant union
 Tenant/landlord relations
 Tenants
 Tenants right
 Tenure-track hiring
 Territorial dispossession
 Territorial justice
 Territorial Planning
 Territorialization
 Territory
 Texas
 Text Analysis
 Text Mining
 Text-to-image generation
 Textual complexity
 The BostonWalks Study
 Theory
 Theory of change
 Theory Synthesis
 Therapeutic garden
 Therapeutic planning
 Thermal comfort
 Thermal Environment
 Thermal Mortality
 Thermal thresholds
 Third Place

Third places
 Third sector
 Time poverty
 Time series analysis
 Time use
 Time-Series Analysis
 Time-use analysis
 Tiny house villages
 Tipping Point
 TOD
 TOE
 Topic modeling
 Total Factor Productivity
 Tourism
 Tourism and Residence
 Toxic Pollutant
 Trade associations
 Traffic congestion
 Traffic control
 Traffic fatalities
 Traffic Modeling
 Traffic safety
 Traffic signals
 Traffic volume
 Trail use
 Trails
 Transdisciplinary
 Transfer Development
 Rights
 Transformation
 Transformative learning
 Transformative Pedagogy
 Transformative praxis
 Transit
 Transit access
 Transit Accessibility
 Transit affordability
 Transit agencies
 Transit Barriers
 Transit Corridor

Transit deserts
 Transit Equity
 Transit Gap
 Transit inequity
 Transit Infrastructure
 Transit Oriented Dev.
 Transit Performance
 Transit Reductions
 Transit ridership
 Transit safety
 Transit Use
 Transit workforce
 Transit-dependent
 People
 Transit-oriented
 Transitional
 Translation
 Transport
 Transport accessibility
 Transport affordability
 Transport and land use
 Transport controversies
 Transport
 Decarbonization
 Transport Equity
 Transport flows
 Transport poverty
 Transportation
 Transportation access
 Transportation barrier
 Transportation barriers
 Transportation costs
 Transportation
 Disruption
 Transportation
 economics
 Transportation Emissions
 Transportation equity
 Transportation finance
 Transportation funding
 Transportation inequity

Transportation insecurity
 Transportation Justice
 Transportation network
 Transportation Planning
 Transportation Policy
 Transportation poverty
 Transportation resilience
 Transportation
 Technology
 Trave time
 Travel
 Travel Behavior
 Travel Behaviour
 Travel demand
 management
 Travel Demand Modeling
 Travel Demand
 Prediction
 Travel modes
 substitution
 Travel patterns
 Travel survey
 Travel Time Ratio
 Tree canopy
 Tree mortality
 Tree planning
 Tree planting campaigns
 Tree protection
 Trends
 Trip frequency
 Trip Planning App
 Trip purpose inference
 TRIZ problem solving
 U.S. metros
 Uganda
 Uncertainty
 Uncertainty Modeling
 Underresourced farmers
 UndocuCrit Theory
 Undocumented
 immigrants

Unincorporated
 Unintended
 consequences
 United States
 Universal basic mobility
 Universal Design
 University Planning
 University-Community
 Unmet Travel Needs
 Upzoning
 Urban
 Urban accessibility
 Urban Adaptation
 Urban adaptation
 planning
 Urban agglomeration
 Urban AI
 Urban Analysis
 Urban Analytics
 Urban arterial
 Urban Biodiversity
 Urban Branding
 Urban built environment
 Urban Carbon Footprint
 Urban centers
 Urban Change
 Urban China
 Urban citizenship
 Urban climate
 adaptation
 Urban Climate Planning
 Urban climate policy
 Urban commons
 Urban Compactness
 Urban Crime
 Urban crosswalk
 Urban Decarbonization
 Urban Decline
 Urban densification
 Urban Design
 Urban Design Adaptation

Urban Design Curriculum
 Urban Design Workflow
 Urban Development
 Urban Displacement
 Urban Eco-tourism
 Urban Emission
 Inventory
 Urban Emissions
 Urban Expansion
 Urban expansion index
 Urban extent
 Urban finance
 Urban finances
 Urban Flood Resilience
 Urban flooding
 Urban forest
 Urban forest
 management
 Urban forestry
 Urban form
 Urban form and function
 Urban Form Comparison
 Urban freight
 Urban functional zone
 Urban functional zones
 Urban Gardens
 Urban GHG Emissions
 Urban governance
 Urban Green Commons
 Urban green equity
 Urban green space
 Urban Greenery
 Urban greenspace
 planning
 Urban Greenway
 Urban growth and
 decline
 Urban health
 Urban Heat Exposure
 Urban heat island
 Urban heat island effect

Urban Heat Islands
 Urban heat resilience
 Urban heat stress
 Urban Hierarchy
 Urban History
 Urban imageability
 Urban impact index
 Urban Imperviousness
 Urban Inequality
 Urban Informality
 Urban informatics
 Urban infrastructure
 Urban land
 Urban landscape metrics
 Urban manufacturing
 Urban mobility
 Urban moisture island
 Urban Morphology
 Urban Movements
 Urban Nature
 Urban Network Analysis
 Urban Park Design
 Urban Park Development
 Urban Park sentiment
 Urban Parks
 Urban peacebuilding
 Urban Perception
 Urban
 peripheries/suburbs
 Urban planning
 Urban Planning
 Education
 Urban planning pedagogy
 Urban planning,
 Urban Platforms
 Urban Political Ecology
 Urban political economy
 Urban readjustment
 Urban redevelopment
 Urban Regeneration

Urban remote sensing
 Urban renewal
 Urban renewal strategy
 Urban resilience
 Urban Resilience
 Planning
 Urban retail
 Urban Retrofitting
 Urban Revitalization
 Urban Revitlization
 Urban segregation
 Urban shrinkage
 Urban Spatial Analytics
 Urban spatial
 morphology
 Urban spatial rhythm
 Urban spatial structure
 Urban Sprawl
 Urban Studies
 Urban sustainability
 Urban technology
 Urban texture analysis
 Urban Theory
 Urban transformation
 Urban Transport
 Urban tree canopy
 Urban tree planting
 Urban Underground
 Space
 Urban utopias
 Urban Vacancies
 Urban vibrancy
 Urban village
 Urban Violence
 Urban Vitality
 Urban walkability
 Urban Water
 Urban Water Systems
 Urban wetland loss
 Urban-natural interaction
 Urban-rural gradient

Urban-rural inequity
 Urban-rural interaction
 Urban-rural interface
 Urbanity
 Urbanization
 Use
 User perceptions
 User-generated Content
 User-generated data
 User-informed Planning
 Userbased View
 Management
 Utilities
 Utilities companies
 Utility
 Utilization
 Vacancy
 Vacant land
 Vacant Lot Development
 Vacant Lots Restoration
 Value of travel time
 Variance
 Vehicle accidents
 Vehicle availability
 Vehicle Choice
 Vehicle Miles Traveled
 Vehicle restriction
 Vehicular violence
 Vertical spatial density
 Vietnam
 Viewing Object
 Viewpoint
 Vision Zero
 Visionary planning
 Visit
 Visitation Patterns
 Visitor
 Visual attention
 Visual Integration
 Visualization

Visualization Tools
VMT Analysis
Voluntary Local Review
Vulnerabilities
Vulnerability
Vulnerability Index
Vulnerability Mapping
Vulnerable Population
Vulnerable road users
Walkability
Walkable neighborhoods
Walking Accessibility
Walking behavior
Walking behaviors
Warehouse
Warehouses
Warehousing
WASH
Washington D.C.
Waste management
Water
Water affordability
Water conservation
Water governance
Water Infrastructure
Water quality
Water-related Hazards
Waterfront life circle
Waterfront Regeneration
Waterscape planning
Watershed Governance
Watershed management
Watershed plan
Weak market cities
Wealth gap
Well-being
Wellbeing
Wet-heat stress
Wetland Park
Wetlands

Whiteness
Whitening
Wildfire
Wildfire Mitigation
Wildfire Risk Reduction
Wildfires
Wind Path
Women
Women and queer
planners
Women Workers
Word embedding
Words
Work commuting
Work Flexibility
Work-Environment Ties
Worker households
Workforce
Workforce development
Yangtze River Delta
YIMBY
Young-aged homebuyers
Youth
Youth-Friendly
Youth-Friendly Cities
Youth-Friendly Policy
Zero fare
Zero Traffic Deaths
Zoning
Zoning ordinances
Zoning policy
Zoning reform
Zoning Variance
Zooming reform

