

FEASIBILITY ASSESSMENT OF AN
INNOVATION DISTRICT IN

BUFFALO

2ND EDITION



GRADUATE PLANNING PRACTICUM
SPRING 2019



The Graduate Practicum

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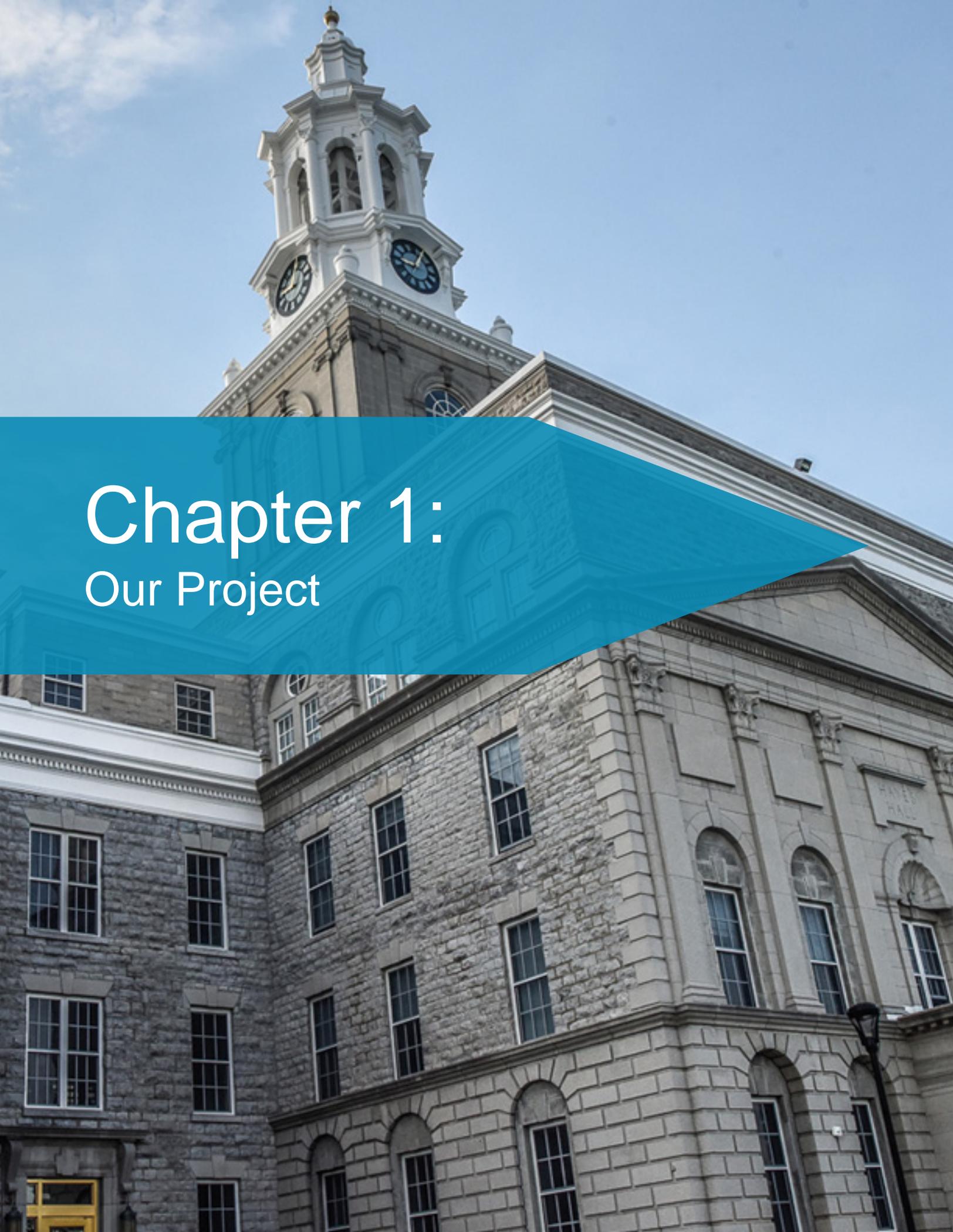
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Cover Image: Buffalo at Sunset - Douglas Levere

Acknowledgments

Alan Rosenhoch (Invest Buffalo Niagara),
Matt Hubacher (Invest Buffalo Niagara),
Laura Quebral (UB Regional Institute),
Christina Orsi (UB Economic Development),
Vincent Lipuma (Department of Urban and Regional Planning),
David Stebbins (Buffalo Urban Development Corporation),
Alex Gress (43North),
Robert Richardson (Blue Cardinal Capital),
Rose Orcutt (UB Architecture & Planning Librarian),
Brandon Mehaffy (City of Buffalo),
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Sean Luther (InnovatePGH),
Max Upton (Cleveland HealthTech Corridor),
Spencer Levy (CBRE),
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Page	
6	<i>Chapter 1: Our Project</i> <i>Background to the report</i>
10	<i>Chapter 2: Innovation Districts in North America</i> <i>Our definition and characteristics of Innovation Districts</i>
24	<i>Chapter 3: Innovation Districts Compared Across Cities</i> <i>Comparative data between 8 peer cities</i>
38	<i>Chapter 4: Finding Innovative Activity in the Buffalo Metro Area</i> <i>Defining innovation in Buffalo</i>
54	<i>Chapter 5: Choosing a Promising Location</i> <i>Overview and application of rubric</i>
66	<i>Chapter 6: Buffalo Innovation Candidates and How They Rank</i> <i>Ranking the most suitable neighborhoods for consideration</i>
88	<i>Chapter 7: Special Considerations</i> <i>Housing, Governance, Financing, and Infrastructure</i>
103	<i>Chapter 8: Conclusions</i> <i>Initial Steps for Buffalo's Innovation District</i>
112	<i>Appendix</i> <i>Notes and references about the methods, assumptions, and data sources</i>
116	<i>List of Figures</i>
118	<i>List of Tables</i>
120	<i>List of Maps</i>
122	<i>List of Images</i>



Chapter 1:

Our Project

In the pursuit of an effective economic development strategies, a group of leaders in Western New York identified the *innovation district* (ID) as an important potential approach for our region. This term describes urban neighborhoods where high-tech businesses and institutions flourish within a collaborative, mixed-use, built environment that is conducive to living, working and playing.

The concept was made famous by Julie Wagner and Bruce Katz as part of a series of Brookings Institute publications. In a 2014 report, Brookings Institute defined IDs as “geographic areas where leading-edge anchor institutions and companies cluster and connect with startups, business incubators and accelerators. They are also physically compact, transit-accessible, and technically-wired and offer mixed-use housing, office, and retail.”¹ We have seen the rise of IDs in over 34 cities in North America, ranging from large cities like Toronto to small ones like Chattanooga.

This report has been prepared by graduate students in urban and regional planning or real estate development at the School of Architecture and Planning at the University at Buffalo in Spring 2019. The twelve participants of this project are pictured on the inside cover page. Our project was carried out as a “practicum,” which is a form of experiential learning in which students work on a professional project with public clients to create recommendations that could be implemented for the public interest. Our planning project was led by Dr. Ernest Sternberg, Professor in the Department of Urban and Regional Planning.

The goal of this document is to investigate the plausibility of the emergence of an ID in the City of Buffalo or adjacent municipalities, such as the Town of Amherst. We first sought to investigate appropriate locations for an ID. With insight from local leaders, we selected 10 potential locations to investigate as possible places where a successful ID may arise. Additionally, initial locations were chosen based on their proximity to innovative activity and connections to regional assets and anchor institutions such as the University at Buffalo.

Why do we need these innovation districts?

The concept of the Innovation District is one of several ways to improve the local economy. Among types of economic development approaches, the ID is especially desirable because it can lead a city towards future industries and diversification of economies. The IDs do not attract just any companies. Companies in high-tech are especially desirable to change the economy, bring in future industries and potentially diversify the economy of Buffalo. It can also create vital, desirable neighborhoods often with a 24/7 lifestyle.

Since IDs are urban in nature, they can help counter suburbanization while creating attractive areas that draw young people into the city. The predominant benefit of IDs is to college-educated young adults. There are also potential secondary jobs arising for the local community, benefiting those without this advanced education. There also may be a way to plan for an ID without dispossession and gentrification, with the inclusion of sufficient investment in affordable housing. There is also a potential for a reversal of the “brain drain” that many smaller cities face. The innovation district to a city is not a solution for poverty. But it does provide jobs and resources by which cities can solve other urban problems.

What This Report Does

There are many different IDs in North America. This report shows the keys to building a successful innovation district. Our main lessons are not for highly successful innovative areas like Cambridge, Massachusetts, nor for places that now have very little innovative activity. Rather, our lessons are for cities that have a moderate amount of innovative business activity and need a boost to achieve a successful innovation district.

Chapter 2 introduces the general characteristics of innovation districts in North America. These draw from published resources as well as case studies. The case studies conducted by the members of the research team include innovation districts in Cleveland, Pittsburgh, and Toronto. Chapter 3 looks at examples from 8 cities in North America, comparing various metrics to those of Buffalo.

Chapter 4 identifies where innovation occurs in Buffalo-Niagara. Chapter 5 introduces the rubric that will be used to identify strong

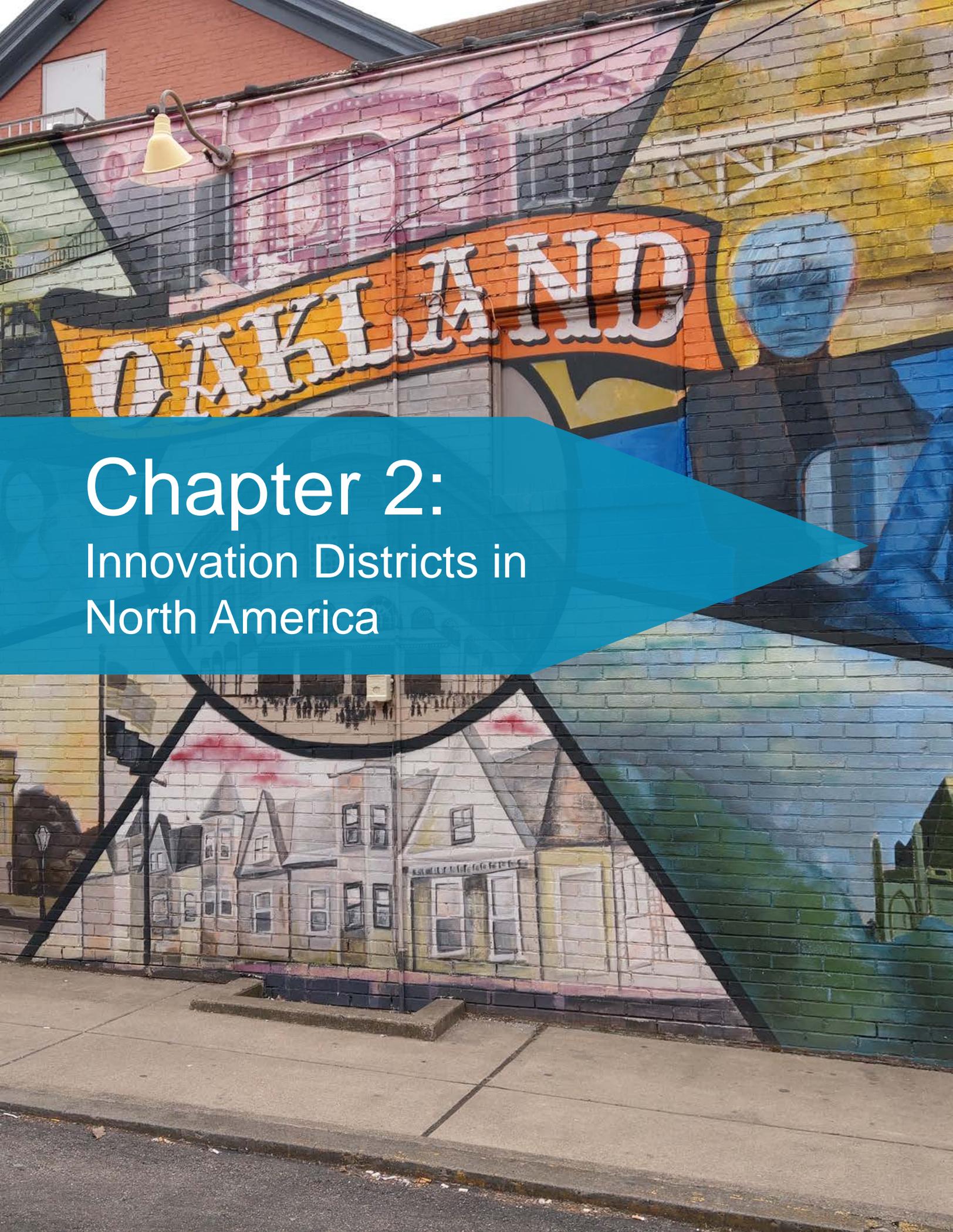
candidates for the possible location of an innovation district. Chapter 6 describes the four location candidates, and evaluates the grading and scores based on the rubric identified in the previous chapter. Chapter 7 includes special considerations that may be faced by creating an ID including affordable housing and equity, financing, infrastructure and co-working spaces that effectively serve as innovation catalysts.

Finally, Chapter 8 provides ideas for implementation from the research team, with concluding remarks that are pertinent to the establishment of an ID in Western New York.

1. Bruce Katz and Julie Wagner, "The Rise of Innovation Districts," *Brookings Institute*, 2014.

Major Brookings Institute Studies of IDs

- Katz, and Wagner. "The Rise of Innovation Districts: A New Geography of Innovation," May 2014
- Katz, Vey, and Wagner. "One year after: Observations on the rise of innovation districts," June 2015
- Wagner, Andes, Davies, Storrington, and Vey. "12 Principles guiding innovation districts," September 2017
- Wagner. "Innovation districts and their dilemmas with place," February 2019



Chapter 2:

Innovation Districts in North America

Innovation Districts Defined

Innovation districts (IDs) are an approach to strengthen local urban economies, alongside many other ways improving local economies and the technology sector. While these are options, innovation districts provide for an urban neighborhood approach. The Brookings Institute began arousing public interest in these developments with a series of publications beginning in 2013. They consider an innovation district as a “mash-up of entrepreneurs and educational institutions, start-ups and schools, mixed-use development and medical innovations, bike-sharing and bankable investments—all connected by transit, powered by clean energy, wired for digital technology, and fueled by caffeine.”¹

We feel Brookings provides a good general description, but we do also think that a more precise definition of an innovation district is as follows: a concentration of innovative tech businesses and/or institutions in a dense mixed-use urban area.

A selection of factors of these neighborhoods help bring about the ID. These include: housing, retail, the “funky” local businesses and cultural institutions, good walkability and transit connectivity, internet connectivity with the latest speeds. In addition, at the very beginning of development, development space is needed and the cost of space per square foot must be low enough to promote development.

IDs are found in over 34 cities in North America. It appears that up to 100 more will be emerging in the near future. There may be misconceptions created with districts that define themselves as IDs, but do not conform to the definition created by Brookings or by us. They may be IDs in name only. These may make it difficult to investigate how cities should approach the creation of an innovation district.

Before looking at case studies, it is necessary to define the four types that innovation districts take. Closely following Brookings Institute studies, we believe that there are four types of innovation districts that are as follows:

Emerging Mixed Use- (housing, retail, funky environment, low rent space, small start-up businesses, reinforce each other to create a vital environment)

Anchor Plus (major institutions such as hospitals or universities help launch the innovative neighborhood),

Re-Imagined Old Industrial (start-up innovative firms and other local uses emerge from old industrial and warehouse areas); and the

Urbanized Science Park (a single-use business park that is purposefully transformed into a vital, mixed-use area).

While these four varieties of IDs are simplifications. Actual IDs may show combination of these characters. This is what we found when we investigated several through visits and research.

Innovation districts vary in make-up and character from city to city. For this report an ID is differentiated into a *core district*, a *wider district*, and the *innovation ecosystem*. The core district is comprised of 50-100 acres of a dense and concentrated mixed use area. The wider district encompasses the larger area surrounding the core, and is about 1-2 square miles. The wider district encompasses broader area, into which it is hoped the ID will expand. The innovation ecosystem is an older term that came before IDs were developed as a concept. This innovation ecosystem encompasses the metropolitan area as a whole. It includes multiple smaller nodes of innovation throughout the metro area.

We have identified Buffalo as an Emerging Mixed Use innovation district. The reason we moved forward with this type of ID is because Buffalo already incorporates innovative firms and mixed use in general, and a concentrated core is now the next priority. There are additional traits that characterize this district which include nearby activity centers, institutional and business anchors, transit and recreation infrastructure, affordable housing, amenities, public space, developable land/buildings, and a “funky” environment. It is vital to have the innovation district next to a successful activity center because it contributes to the influx of people and ideas.

The innovative core covers about 50-100 acres of space, allowing for a dense-mixed use area to form within the area. The wider district then adds more acreage of space and incorporates more housing and neighborhood amenities that may not be found directly within the inner core.

Examples of Innovation Districts

After identifying a list of IDs in North America, we selected three locations of innovation districts in peer cities for further case-study research. We decided to visit each of them and engage in observation as well as local knowledge from professionals within the three designated case study districts: MidTown in Cleveland, InnovatePGH in Pittsburgh, and MaRS in Toronto. Each of the districts are at a different stage of the development process. Lessons learned from the established IDs were helpful in the creation of the criteria utilized in the grading rubric, discussed further in Chapter 5.

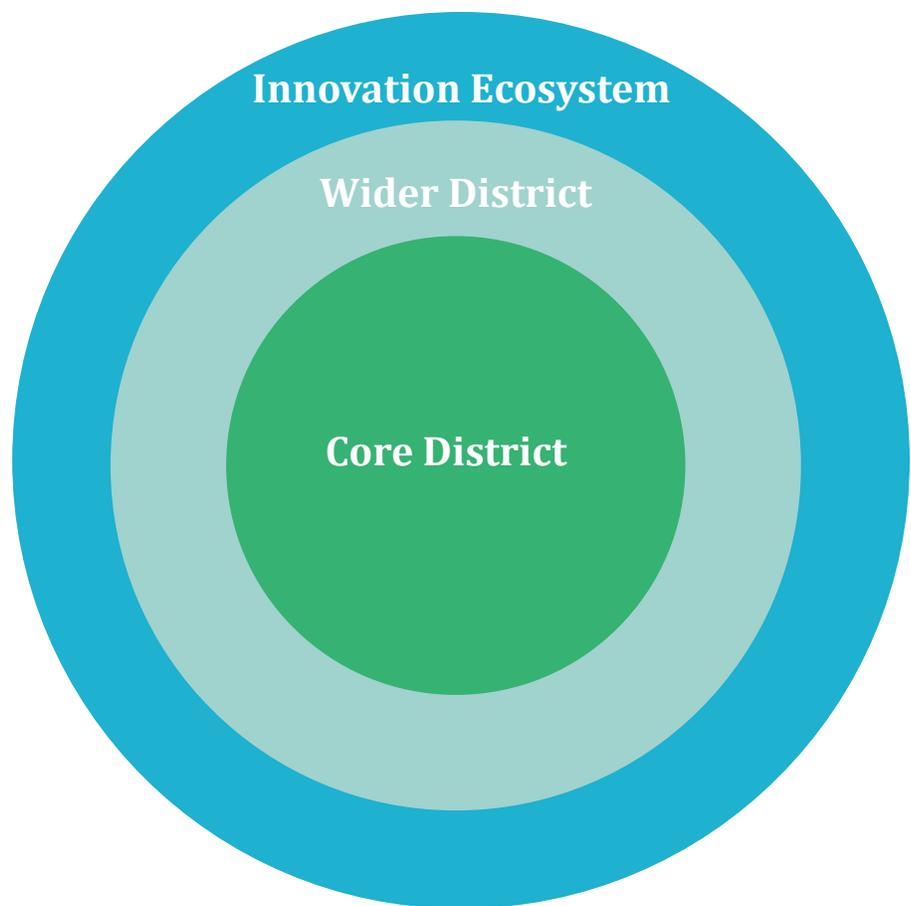


Figure 2.1 Graphic of Core District, Wider District, and Innovation Ecosystem

MidTown Cleveland

MidTown Cleveland was created within the historic Euclid Avenue corridor, encompassing distinct neighborhoods within the city's East Side. These neighborhoods include: The downtown district, PlayHouse Square theatre district, MidTown Cleveland (the ID), and University Circle (with Case Western Reserve University and numerous cultural institutions). MidTown Cleveland is a newly transitioning neighborhood in the corridor, and will complete the whole corridor network to downtown Cleveland. David Browning of the real estate firm CBRE - Cleveland guided us through the core and wider districts of MidTown, giving us valuable information on the status of this ID. Browning referred to MidTown Innovation as the "tail" of the greater dog, explaining that the existence of the ID is initially dependent on the strengths of the other institutions and districts within the corridor.



Figure 2.2 Link 59 building is home to several cyber security businesses

MidTown has many valuable startups, innovative businesses and anchors located within it. Some of these assets include: Cleveland's Children's Museum, TechHive (an incubator), the American Red Cross, MCP Security Operations Center, East Mount Zion Baptist Church, Historic Mansion sites, Applied Industrial Technologies, The Jane Edna Hunter Social Services Center, University Hospitals- Rainbow Center for Women and Children, UH BikeShare, Dubick Fixtures & Supplies, Pierre's Ice Cream, and a large TechPark which includes Cleveland HeartLab, UH Rainbow Care Connections, University Hospitals Eye Institute, EverSight Ohio, and Chamberlain School of Nursing.

MidTown also has many influential key stakeholders. These include: the Geis Company, Hemingway Development, Cuyahoga County, the State of Ohio, numerous incubators, Dealer Tire, the Agora Theater, the Cleveland Clinic, University Hospitals Network, Cleveland State University, Cuyahoga County Community College, Case Western Reserve University, the Greater Cleveland Regional Transportation Authority (RTA), the American Red Cross, and the Children’s Museum of Cleveland.



Figure 2.3 The adoption of rentable bikes has allowed alternative transportation options to exist in the neighborhood, encouraging people to walk or bike to work.

The MidTown ID is currently in the first stage of development. The core of the ID is relatively single use. High tech companies occupy buildings that are largely commercial or adapted former-industrial reuse. The residential vacancy rates in MidTown may be too high to promote the live-work-play aspect of innovation districts at this time. However, there are many mixed-housing types within the wider-district, existing in tightly-packed nodes. The nearby activity centers are what make this district well-known. Upon completion, the MidTown ID will complete the city’s plan to connect University Circle to the downtown of Cleveland, Ohio.

The current success of the MidTown corridor is in large part due to the presence of the bus rapid transit (BRT). RTA’s “HealthLine” connects Public Square downtown to University Circle, with Cleveland State, MidTown, University Hospitals, Case Western Reserve University and the Cleveland Clinic along the way. This exclusive-lane bus route operates much like a

light-rail it has largely been considered a success and an economic driver that brought housing to MidTown and Euclid Avenue.

Although MidTown is a useful example for Buffalo, it has a few flaws within the definition of the “Emerging Mixed-Use” ID. While vacancy rates need to be considered to decide if there will be enough space for new businesses to come in, there cannot be too much vacancy so as to inhibit safety concerns as well as discourage new investment. There also must be enough housing to promote the 24/7 life in the core. When we visited MidTown, there was little to no activity within the ID on the weekend and no activity during the nighttime. This district is missing the “funky” coffee shops, restaurants and bars that are necessary to attract nightlife.

One positive comparison between MidTown and a possible ID in WNY is the BRT. Although Buffalo currently does not have a BRT, we have the light-rail that extends along from Buffalo’s downtown to the University at Buffalo’s South Campus. Buffalo has the opportunity to take advantage of our transit system as a way to bring people to a 24/7 Emerging Mixed-Use district. Overall, MidTown would be seen more as a mixture of an Anchor Plus and Urban Science Park Innovation District.

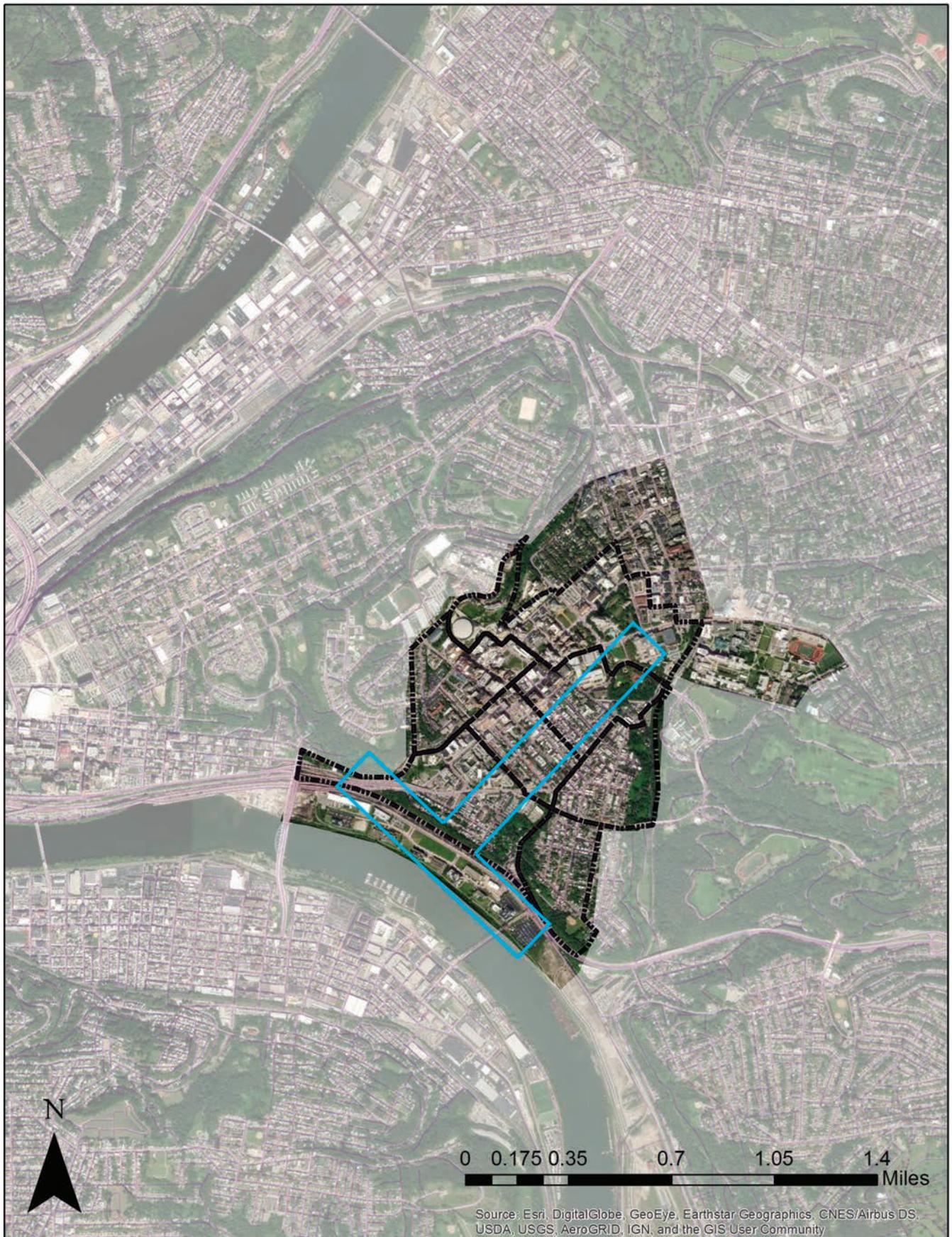
InnovatePGH - Pittsburgh

InnovatePGH in Pittsburgh is the second ID we visited. Sean Luther, the Director of the ID, met with us and shared his strategies. Pittsburgh chose to utilize a place-making strategy by creating lifestyle amenities in the area that attracted high-tech companies. This approach derives directly from the Brookings’ 2017 paper. This wider-district is found in Pittsburgh’s Oakland neighborhood, composed of three residential nodes and two large research-universities. Luther said it is extremely important for this ID to acknowledge the historic context of the neighborhood in Pittsburgh. Their core is running out of space due to a lack of vacancy. As a solution, they are currently looking to expand to surrounding neighborhoods within the wider-core that are still within convenient walking or bus distance.

Luther emphasized the importance of residential spaces to support the live-work-play environment in InnovatePGH. He stated that it is important to consider questions like, “How do we move [around]?”



Figure 2.4 Cleveland’s Bus Rapid Transit is at the core of the MidTown neighborhood, connecting University Circle in the east to Downtown in the west



Map 2.2 InnovatePGH - Pittsburgh



Figure 2.5 Oakland area of Pittsburgh and the Innovation District have installed place-making features to enhance the vibrancy and “funkiness” of the neighborhood



Figure 2.6 The neighborhood featured a mix of uses in buildings and along the block, with student housing above commercial stores and restaurants.

and “Where do we want to live?” in order to create a thriving ID. InnovatePGH’s core district has plenty of mixed-housing types. These include market-rate rentals, student-housing, affordable housing, and single-family homes. InnovatePGH is pushing for a new zoning code that would allow them to continue to build vertically, instead of horizontally. This will allow for more dense apartments and rentals, and save land space for new businesses to enter. One potential challenge that accompanies the new development is a lack of parking; InnovatePGH does not want new businesses to bring new cars to the area. The Port Authority of Allegheny County is in the process of creating a BRT that extends through this district in order to ensure the zero-sum gain of cars into the area with additional units. This will then encourage people to use transit or walk instead of bringing their car into the neighborhood.

This district has a lot of cultural and art amenities, but it is lacking the presence of innovative businesses. Many of the innovation centers currently in the core district are derived from one anchor institution—University of Pittsburgh Medical Center (UPMC) campus. Therefore, InnovatePGH is an Anchor Plus Innovation District. Although the private sector is heavily involved in creating the district, the most influence comes from UPMC itself. InnovatePGH’s goal is to connect all nine nodes of Pittsburgh’s innovation into one concrete area. This would remove Pittsburgh from the innovation ecosystem model, and instead create an inner core and wider district. Strengthening the network through these connections has the potential to be a

great marketing tool for Pittsburgh to bring in larger companies. Pittsburgh is already a place where innovative firms want to locate. Now they just need the space for the companies to occupy.

Overall, Sean Luther told us that institutional presence and proximity to assets are the most important for innovative cores. If assets are moved into the ID, people can meet for lunch and “not get in their car.” This district is connected to important aspects of Pittsburgh as a whole, and therefore is benefiting from the neighboring activity centers. There are many funky cafes, bars, restaurants, and shops within the core. It is very walkable, dense, and therefore shows the qualities of true mixed use.

MaRS - Toronto

MaRS in Toronto is the third area that we studied. Although we were unable to speak with a representative of this district, we walked the district conducting observational research. MaRS is classified as an Urbanized Science Park. It is small in width, but it makes up for that in height. MaRS consists of two large buildings that encompass most of their innovative work. However, the areas outside of MaRS are not emerging mixed-use. The images (Image 2.1 and Image 2.2) show what makes up this ID. With the help of nearby medical institutions, this area is full of innovative life, but only within the walls of the buildings. This type of innovation district leaves the local communities out of the innovation. For instance, MaRS does

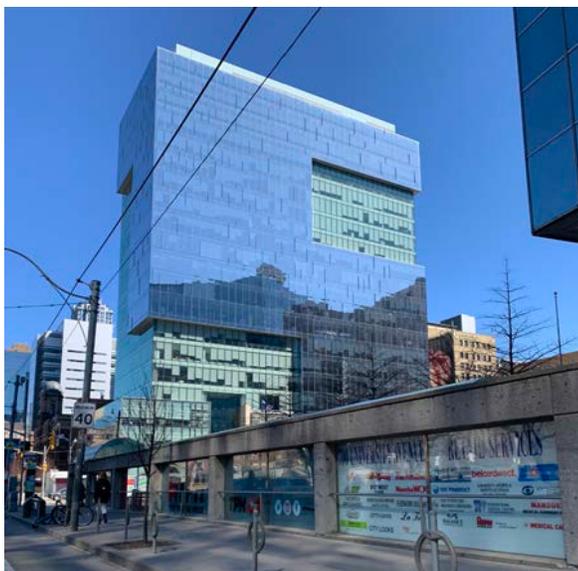


Figure 2.7 MaRS is a collection of large, tall buildings in the urban fabric of Toronto.



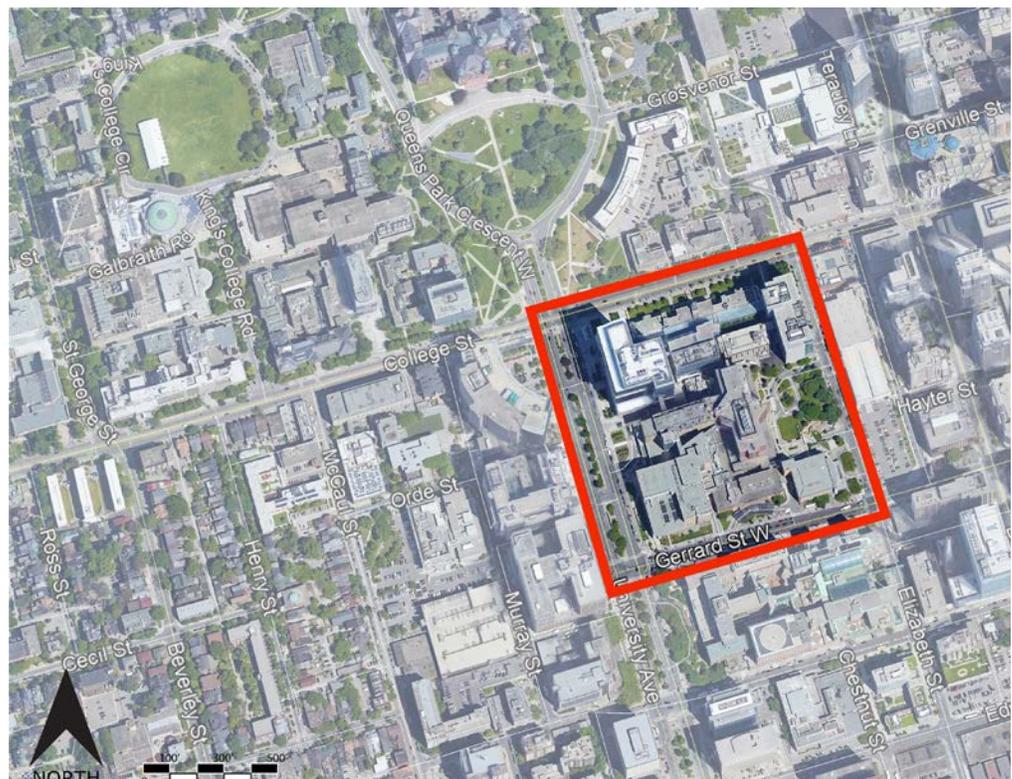
Figure 2.8 MaRS began in one building, and has since moved out to include others, enclosed under a glass atrium.

not supply extensive secondary jobs to the larger community.

It was hard to tell if there was much housing within the district, although MaRS location within the City of Toronto gives it a leg up in this respect. Anchors involved in the ID are University of Toronto, Ryerson University and Public Health Ontario. MaRS is close to different activity centers as well. For transit, the ID is located in proximity to several Toronto Transit Commission subway stops. However, for those who may live outside of transit-accessible neighborhoods, the ID may be difficult to access. There was insufficient parking nearby, and the district was surrounded on all sides by four-lane boulevards. These boulevards created a siloed effect in this ID, making it more complicated to reach or understand its purpose from an outsider's perspective. Finding the district also was relatively difficult, with a lack of place-making or interaction with the street

Some Lessons

Innovation Districts can vary a lot in their characteristics. From the

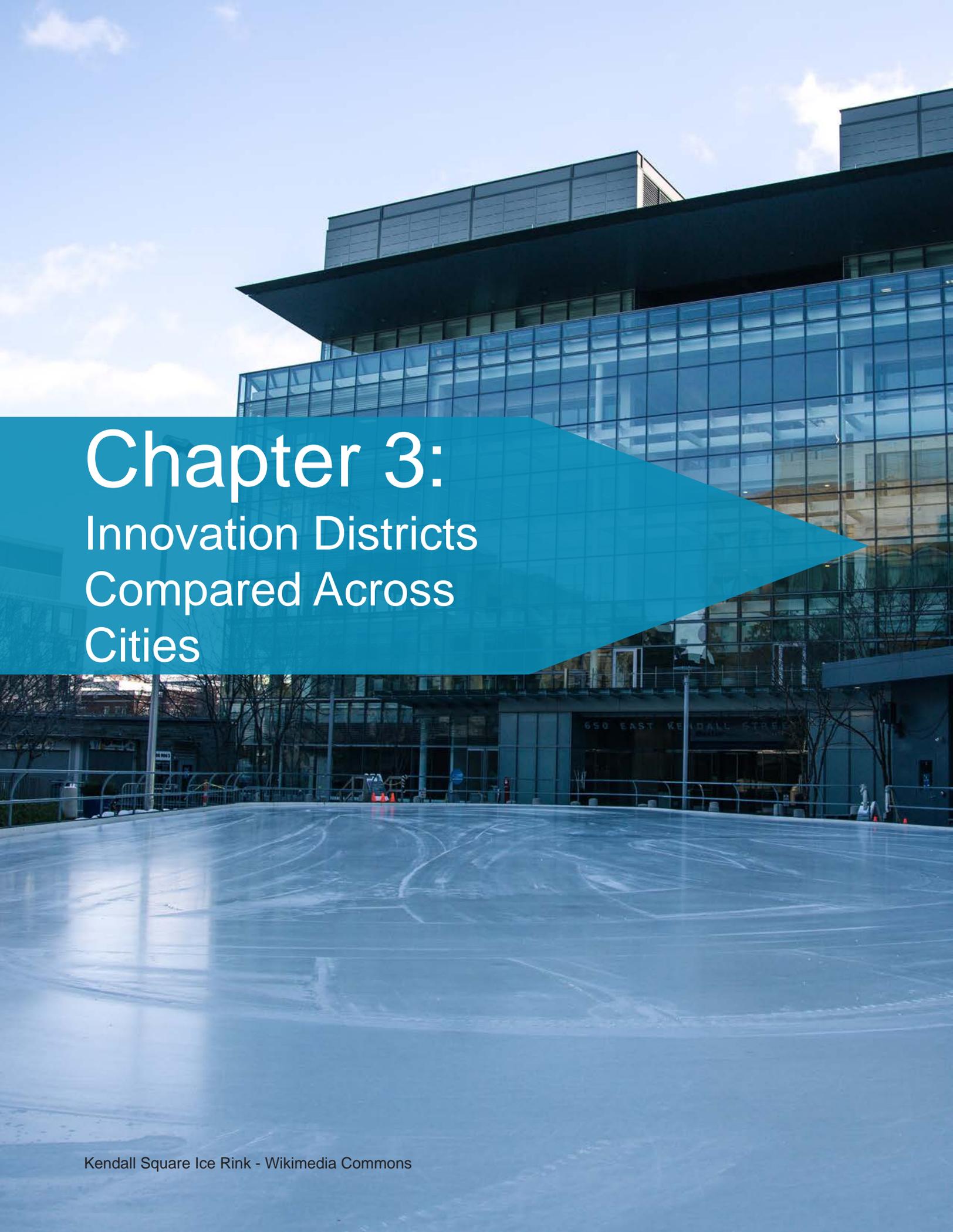


Map 2.3 MARS Toronto , showing a highly concentrated innovation area.

list of four types of ID's stated above, each individual ID can exhibit features from multiple types depending on the type of city and how it has been planned. From the case studies provided, none of them had every possible characteristic that can help facilitate the creation of the ID, but each one had certain characteristics that pushed the ID's forward. We see that the vacancy rates were important in all three examples, but each to different extents. When there is too much vacancy like in Cleveland, it is hard to create a dense-mixed use environment without spending a lot of money and time on creating it. When there is too little vacancy like Pittsburgh, it is hard to find the space for new innovative businesses to come in. When the ID is siloed into an urbanized science park, it makes it hard for innovation, restaurants, cafes, and housing to come in and create a mixed-use dense place. MaRS is very concentrated and dense with innovative companies; the other two are far larger but have limited core dynamic areas within the inner core. We estimate that the larger ID's that aren't clearly defined may not be as successful as ID's that are more precise and dense in size. From these examples, the core ID, we believe, should be 50-100 acres and the wider area should be much larger (up to 2 square miles). These sizes were also based on advice we received from real estate developers and municipal leaders.

Overall from these studies, it is clear that there are certain aspects of IDs that create an Emerging-Mixed Use area. These are: innovative firms, mixed use amenities, housing, nearby activity centers, institutional anchors, vacancy, infrastructure (transit/recreation), and funky cafes and restaurants that attract youth. After engaging in extensive case-study research, it is clear that Buffalo has the potential to move forward as a potential emerging-mixed use innovation district with both a core and a wider-district involved.

1. Bruce Katz and Julie Wagner, "The Rise of Innovation Districts," In *Brookings, Brookings Institute, 2014*.



Chapter 3:

Innovation Districts Compared Across Cities

In order to understand if Buffalo is a good city for an innovation district (ID), it is necessary to study other cities with IDs. This chapter focuses solely on the comparison of the wider districts of various established IDs with that of the wider ID that we designated for Buffalo. By comparing data within across varied cities with the Buffalo, the case can be made that Buffalo is suitable for the establishment of an ID. The first challenge was the collection of data for existing IDs. The U.S. Census Bureau does not have data for the precise ID boundaries because all boundaries were set independently and do not align with Census tracts. In our comparison, we use the smallest possible level of data to compare the cities: The block group for the American Community Survey (ACS) and the ZIP Code for the County Business Pattern data. After researching ID case studies, we developed wider ID districts that correlated similarly across cities in terms of size, innovation and activity. After we developed the wider districts, we layered the Census block groups from Social Explorer over the maps. By comparing the two map layers, we were able to figure out which block groups and Zip Codes were represented in the ID.

How we Compare Cities:

We first selected cities with developed IDs to compare with the potential Buffalo ID. Table 3.1 indicates which cities we used and the area within those cities that constituted the wider ID. While there are several other potential cities with IDs, we chose the selected cities because their IDs were well defined and their characteristics were more or less similar to Buffalo, NY.

Block groups were used for the 2017 5-year American Community Survey (ACS) and the Lincoln Land Institute's The Place Database. The block-groups are based on population and are the smallest geographical units for which data is gathered by the U.S. Census Bureau. The 2016 County Business Patterns data uses ZIP Codes which are larger geographic areas than our designated IDs. Walkscore.com uses pre-determined neighborhoods which also are limited to specific locations that do not align with our IDs. Therefore, there are limitations to the data collected for each of the case study IDs. Table 3.2 gives a full outline of the data sources and their uses in the comparative analysis.

Metropolitan Statistical Area	Census Tract: Block Groups Used	ZIP Codes Used
Buffalo, NY	25.02; 1 31; 4 165; 1	14202 14203
Albuquerque, NM	15; 1 20; 2 21; 1	87102
Chattanooga, TN	16; 1 20; 1 31; 1 124; 1, 2, 3	37402 37403
Cleveland, OH	1083.01; 2 1087.01; 1, 3	44103
Oklahoma City, OK	1026; 1 2017; 1 1030; 1, 2	73104
Pittsburgh, PA	402; 2 405; 1, 2 406; 1 409; 1, 2 9822; 1	15213
Phoenix, AZ	1131; 1, 2 1141; 1 1142; 1	85003 85004
St. Louis, MO	1124; 3 1186; 1 1191.01; 2	63108

Table 3.1: Cities Innovation Districts Block Groups and Zip Code Locations

Data Source	Uses
2017 5-year American Community Survey (US Census)	<ul style="list-style-type: none"> ● Demographics ● Commuting patterns ● Economic and housing traits <ul style="list-style-type: none"> ○ Median Rent ○ % Housing by units
2016 County Business Patterns (US Census)	<ul style="list-style-type: none"> ● Number of innovative North American Industrial Classification System (NAICS) <ul style="list-style-type: none"> ○ 541 (Professional, scientific, and technical services) ○ 51 (Information services)
Lincoln Land Institute <i>The Place Database</i>	<ul style="list-style-type: none"> ● Vacancy rates
Walkscore.com	<ul style="list-style-type: none"> ● Walkability and transit access
Google Maps	<ul style="list-style-type: none"> ● Institutions in the area under study

Table 3.2 Data Sources List

Criteria for Successful ID's:

Acreage of the Wider IDs

ID acreage is significant because IDs need to be dense enough to support the mixture of activities and businesses that exist within them. As previously mentioned, the data collected represents the approximate sizes of the wider IDs by block groups based on those block groups that overlap with the ID boundaries. Figure 3.1 shows that the proposed size of Buffalo's ID is on par with many of the other case study IDs.

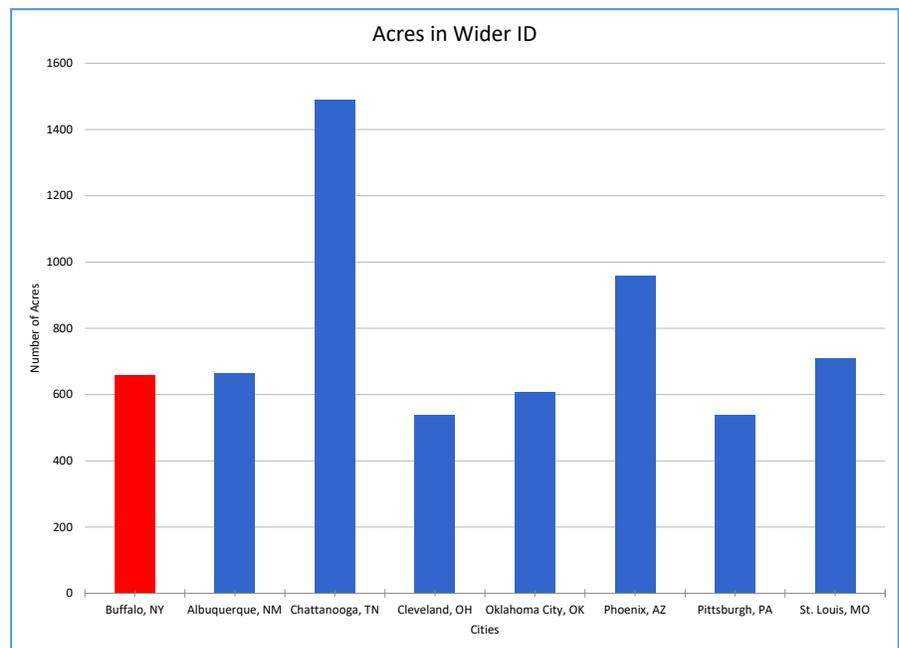


Figure 3.1 Acreage of the Wider IDs compared

NAICS in the ID

The innovative firms in the areas of the IDs are significant because they give a pulse for future innovation. This was calculated from the 2016 County Business Patterns database for ZIP codes. Figures 3.2 and 3.3 show the North American Industrial Classification Systems (NAICS) codes of innovation-intensive industries in each district. We identified the NAICS codes of current innovative firms in Buffalo through local knowledge and research. The two most common NAICS codes are NAICS-2 code 51 (Information) and NAICS-3

code 541 (Professional, scientific and technical services). These two codes represent seven out of the nine most innovative firms in Buffalo. This is indicative that information and professional, scientific, and technical services are significant innovative sectors

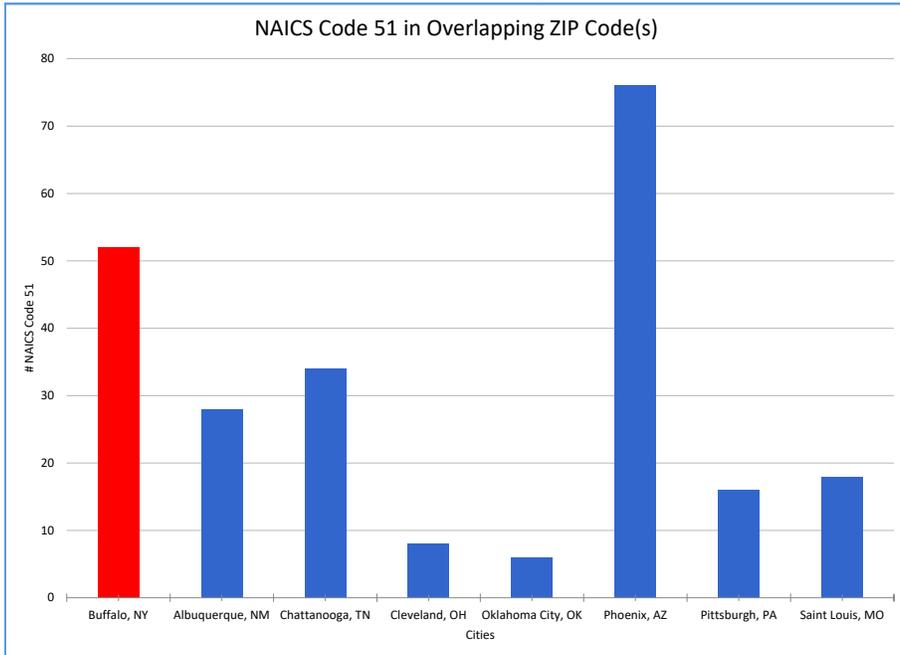


Figure 3.2: NAICS Code 51 in Zip codes that overlap Wider IDs; vertical axis shows # of businesses with NAICS Code 51 classification

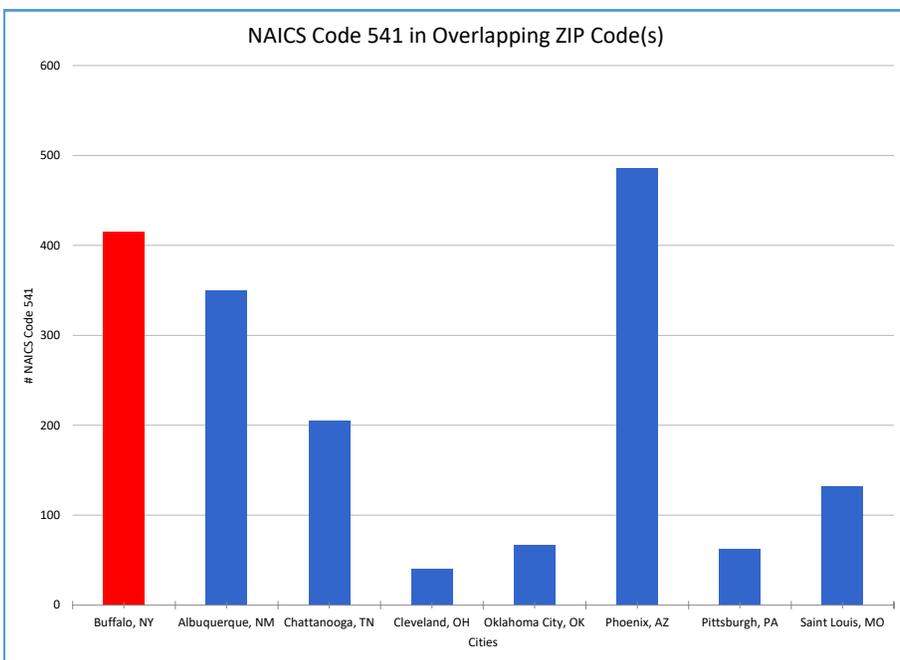


Figure 3.3: NAICS Code 541 in Zip codes that overlap Wider IDs; vertical axis shows # of businesses with NAICS Code 541 classification

and therefore, should arguably be present in IDs throughout the US.

As can be seen in Figures 3.2 and 3.3, Buffalo has many innovative companies and start-ups when compared to the case study IDs. While this data is limited to information and professional, scientific and technical services, it appears that Buffalo has a competitive edge compared to other cities when examining these two sectors. Phoenix is the only case study city that compares favorably to Buffalo in these two NAICS codes.

Housing

Housing is part of the live aspect of the live, work, and play characteristics that are important for an ID. If people are not living as well as working within the ID, the supporting businesses and amenities will not take root. For this variable, a percent ratio was found between the number of housing units that are present in the Wider ID (American Community Survey, 2017) and the number of commercial establishments in the area (County Business Patterns, 2016). Figure 3.4 shows the distribution of the percentage of all units (commercial establishments and residential units) in each ID. Buffalo has a lower percentage of units in its block groups than the comparative IDs. This indicates that if

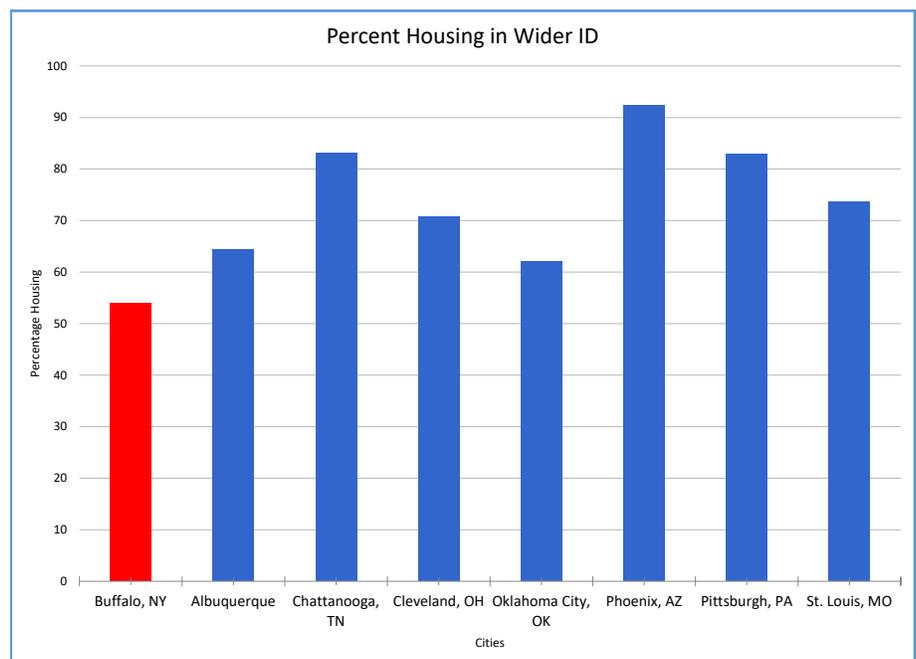


Figure 3.4: the Percent of Housing in the Wider ID

Buffalo is interested in establishing an ID, it would benefit from additional housing for residents working and living within the ID. Additionally, affordable housing should be considered to ensure development without displacement of preexisting communities.

Median Rent

Median residential rent is important to assess if Buffalo rents are affordable enough to support employees that live in the ID. Figure 3.5

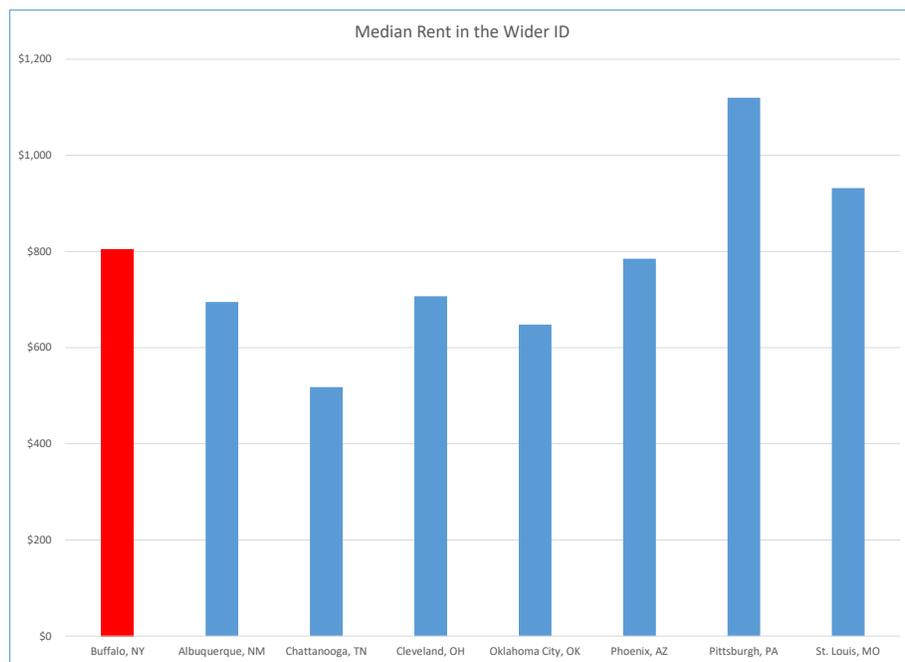


Figure 3.5: The Median Rent in the Wider IDs of the 8 Cities

shows that the median rent in Buffalo’s proposed ID is comparable with the rents in other IDs. Rents can be reduced and made more competitive by adding housing stock to the downtown area.

Vacancy

There needs to be enough vacant space to keep rents competitive, but also enough activity to make the ID lively. We examined if there is enough vacancy in the district to allow for new business to establish themselves within the district. The data illustrates that Buffalo’s commercial vacancy space is on par with the other eight case study cities. As can be seen in Figure 3.6, Buffalo is on par with other cities in housing vacancy rates. This means that the

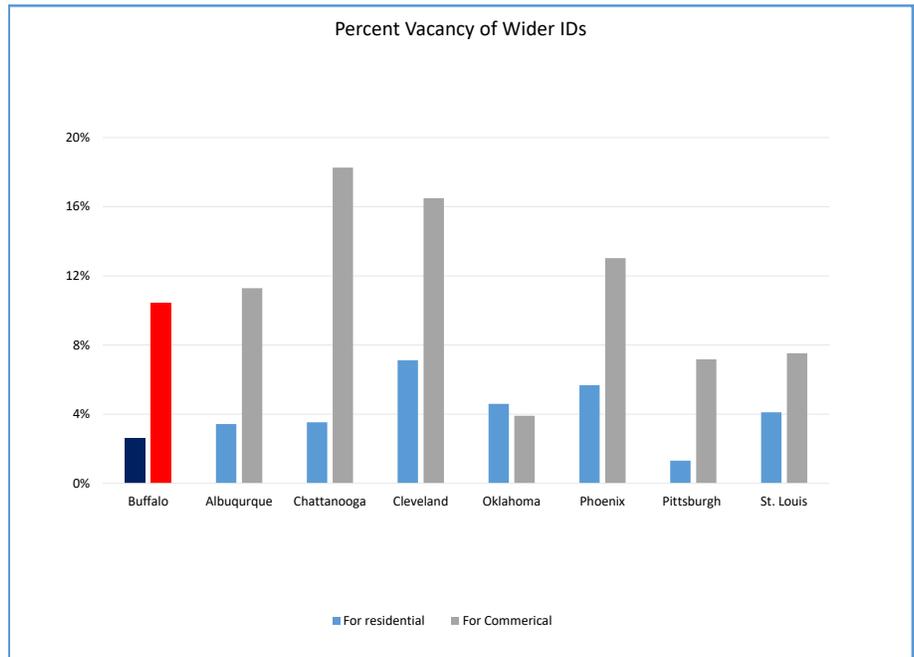


Figure 3.6: Vacancy of the Wider IDs

proposed space for an ID in Buffalo is acceptable for future growth.

Age

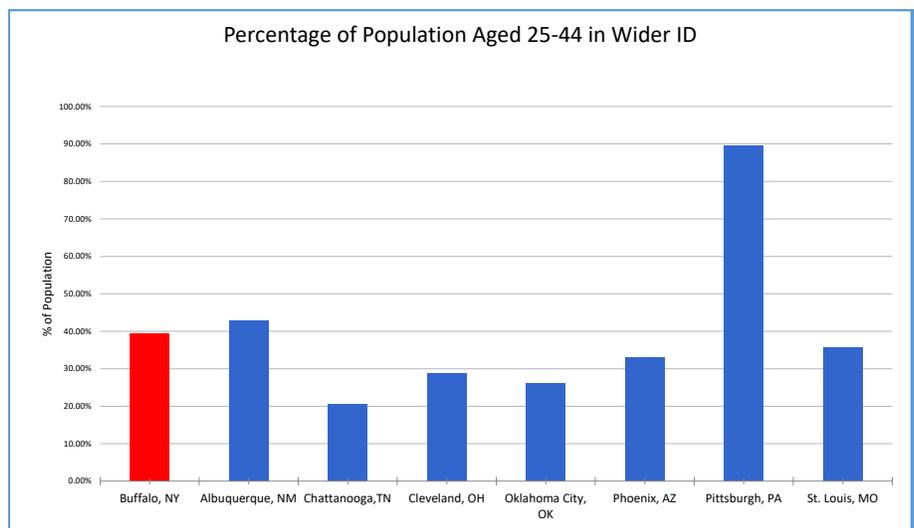


Figure 3.7: Percent of 25-44 years old in The Wider IDs

An important characteristic of an ID is the composition of the population’s age groups. IDs tend to have Millennial Generation (ages from approximately 22-37) residing within their boundaries. As such, this is the primary workforce age for innovative companies. For this analysis, we used the age cohorts from 25 years-of-age to 44 years-of-age. As can be seen in Figure 3.7, Buffalo has a slightly above average percentage of people ages 25 to 44 in the proposed ID.

Median Income

Median income is a significant predictor of how attractive an area is for people to live and work. In the US, median income for 2017 was \$57,652 in inflation for adjusted dollars. Figure 3.8 shows the median incomes for people living in the wider

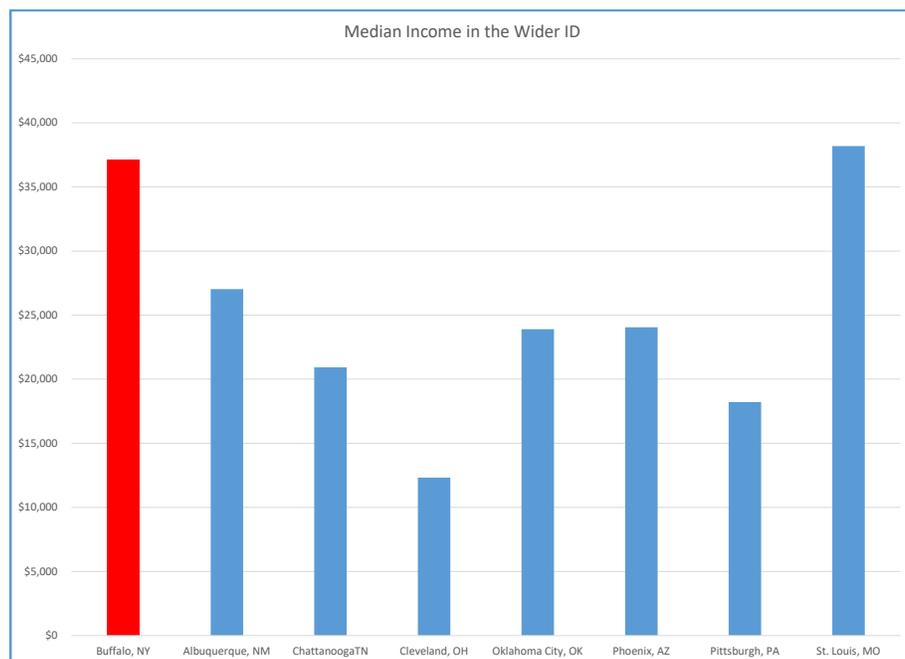


Figure 3.8: Median income in the Wider IDs

IDs. Buffalo and the other case study cities are all below the US median income. While lower than average incomes can be viewed negatively in terms of a city’s wellbeing, lower median incomes also speak to a need within these cities that IDs can fill.

Educational Attainment

IDs need an educated workforce in order to have people that are skilled at innovating. They not only need the academic expertise of highly educated people, but also vocational technical skills that can add value to innovative firms. Figure 3.9 shows the educational attainments of people living in the case study IDs. Buffalo is below average in terms of people who hold a bachelor’s degree or better,

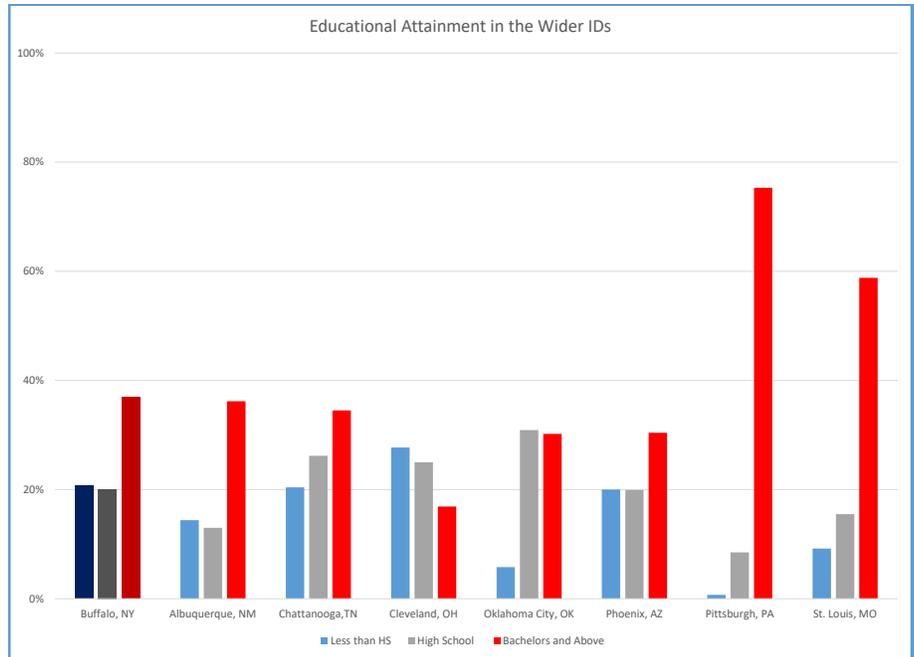


Figure 3.9: Educational Attainment in the Wider IDs

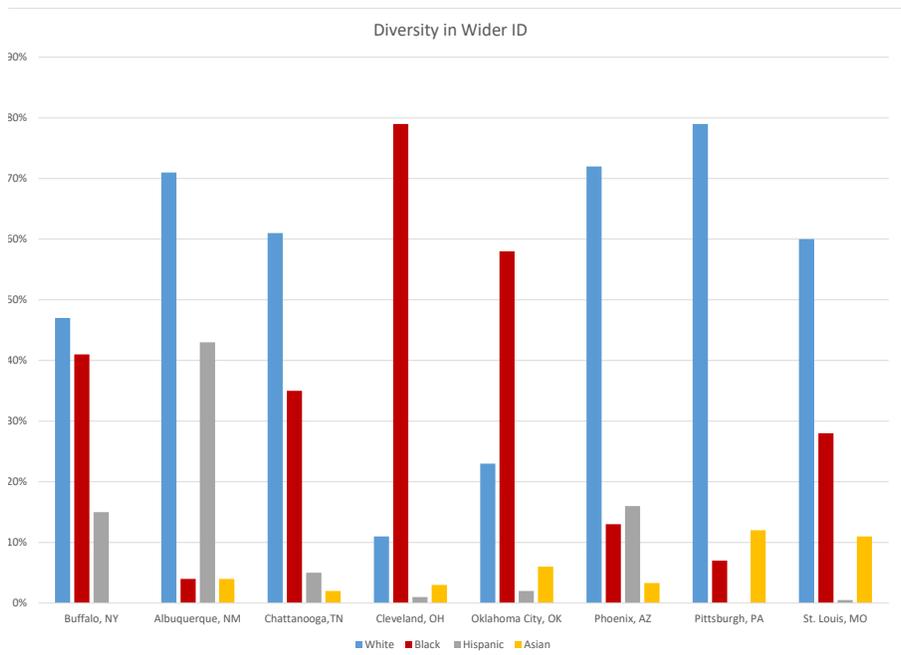


Figure 3.10: Diversity in Wider IDs

despite the fact that there are numerous higher educational institutions nearby. A possible explanation could be that many graduates leave Buffalo after graduation. Therefore, the City may consider experimenting with different ways to attract people to live in the proposed ID in order to spur development and innovation in the area.

Diversity

While diversity is key component for any thriving community, it is especially important to the success of an ID. The diversity of the ID brings together a wide range of cultures, ideas and points of view that help to foster innovation and create a well-rounded population. Figure 3.10 shows how the populations in the IDs are broken down by race. Buffalo’s proposed innovation district is more diverse than other case study IDs because it has a greater mix of black, white and Asian residents. Other IDs are more homogeneous. This means Buffalo has a demographic asset in the area that other case study cities do not have. Furthermore, Buffalo would do well to preserve this mixture of people if it moves ahead with creating an ID.

Anchor Institutions

Case study IDs that we investigated have partnerships with anchor institutions such as universities, businesses and/or hospitals. These partnerships help to ensure the success of an ID by providing infrastructure, wealth, and support for the surrounding communities,

Buffalo NY	Phoenix AZ	St. Louis MO	Albuquerque NM	Cleveland OH	Oklahoma City OK	Pittsburgh PA	Chattanooga TN
*Medical Campus	*Banner University	*St. Louis University	*University of New Mexico	*Cleveland Clinic	*University of Oklahoma	*Carnegie Mellon	*University of Tennessee
*Buffalo City Hall	*Arizona State University	*University of St. Louis,	*Air Force Research Lab	*Case Western	*Oklahoma Health Center	*University of Pittsburgh	
*M&T Bank	*University of Arizona	*Washington University in St. Louis	*Navajo Nation	*Cleveland State University			
*Bank of America	College of Medicine						

Table 3. 3: Anchor Institutions in the 8 Cities

and reliable innovative jobs. Table 3.3 shows the anchor institutions and businesses in the case study IDs. Although most of the proposed Buffalo core ID locations do not have a major anchor institution within their boundaries, the IDs still have the opportunity to partner with and utilize the resources of all of Buffalo’s higher education

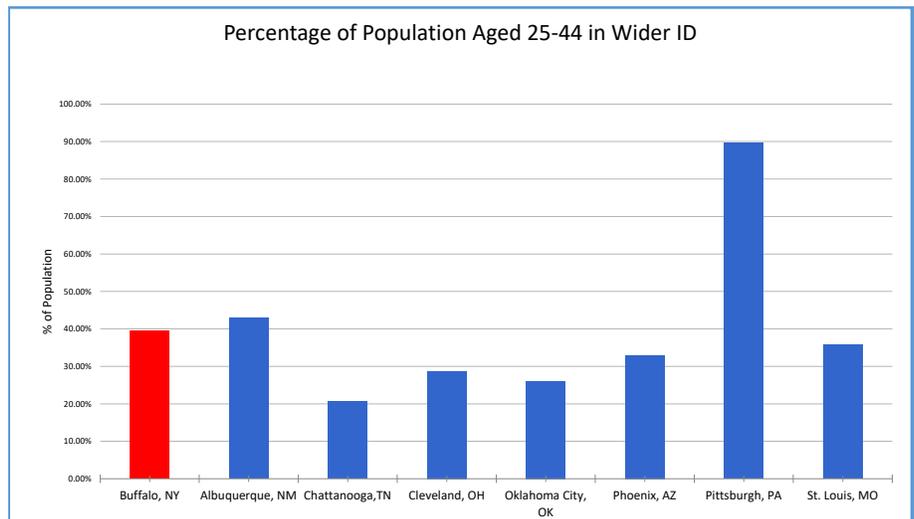


Figure 3.11: Percent of People with Commute time less than 20 Minutes in the Wider IDs

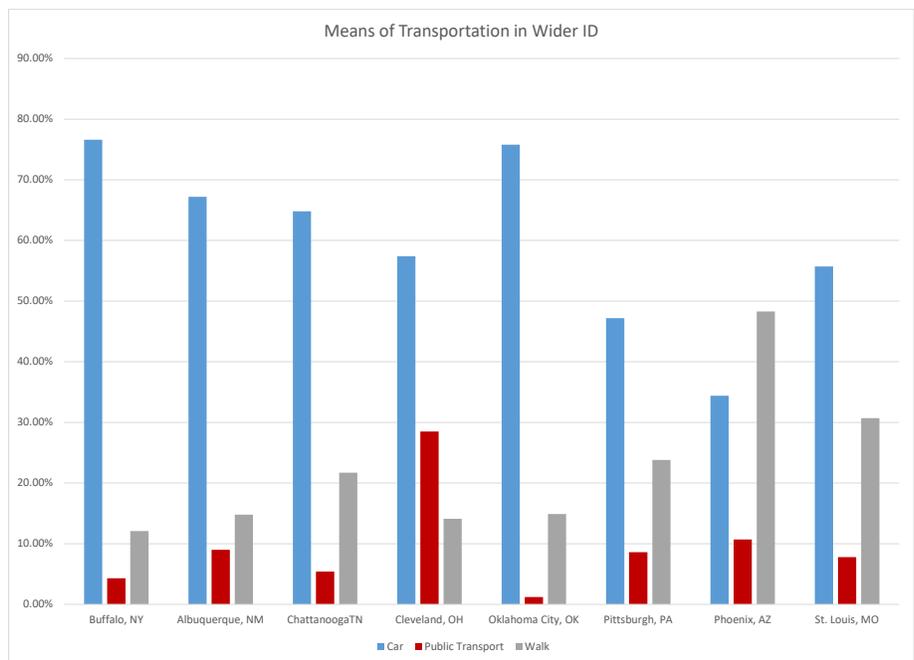


Figure 3.12: Mode of transportation to the Wider IDs

institutions as well as the many extensive medical institutions.

Commuting and Transportation to Work in IDs

Reliable and accessible transportation within the ID sheds light on whether the IDs are walkable as well as whether residents can travel to and from the ID. By studying the average commute time (Fig 3.11), we can see that 60% of Buffalo residents have a commute time equal to or less than 20 minutes. This is relatively comparative to other cities, and shows that a low commute time is highly dependent on the wider IDs.

As can be seen in Figure 3.12, Buffalo’s percentage of diverse modes of transportation is similar to the other case study IDs. Data collected from Walk Score illustrate that Buffalo has a Walk Score in the high 80s (Figure 3.13). Furthermore, data collected from Social Explorer indicate that the main mode of transportation in each district is by car (Figure 3.12). However, walking is shown to be the second form of transportation used. In order to create an ID that is safe and desirable for people to live, work and spend

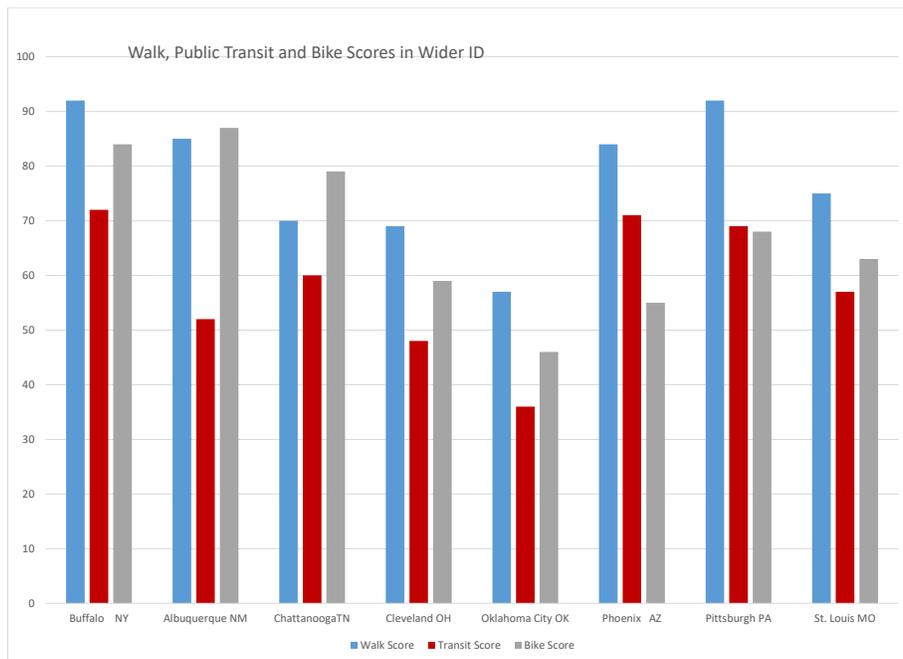


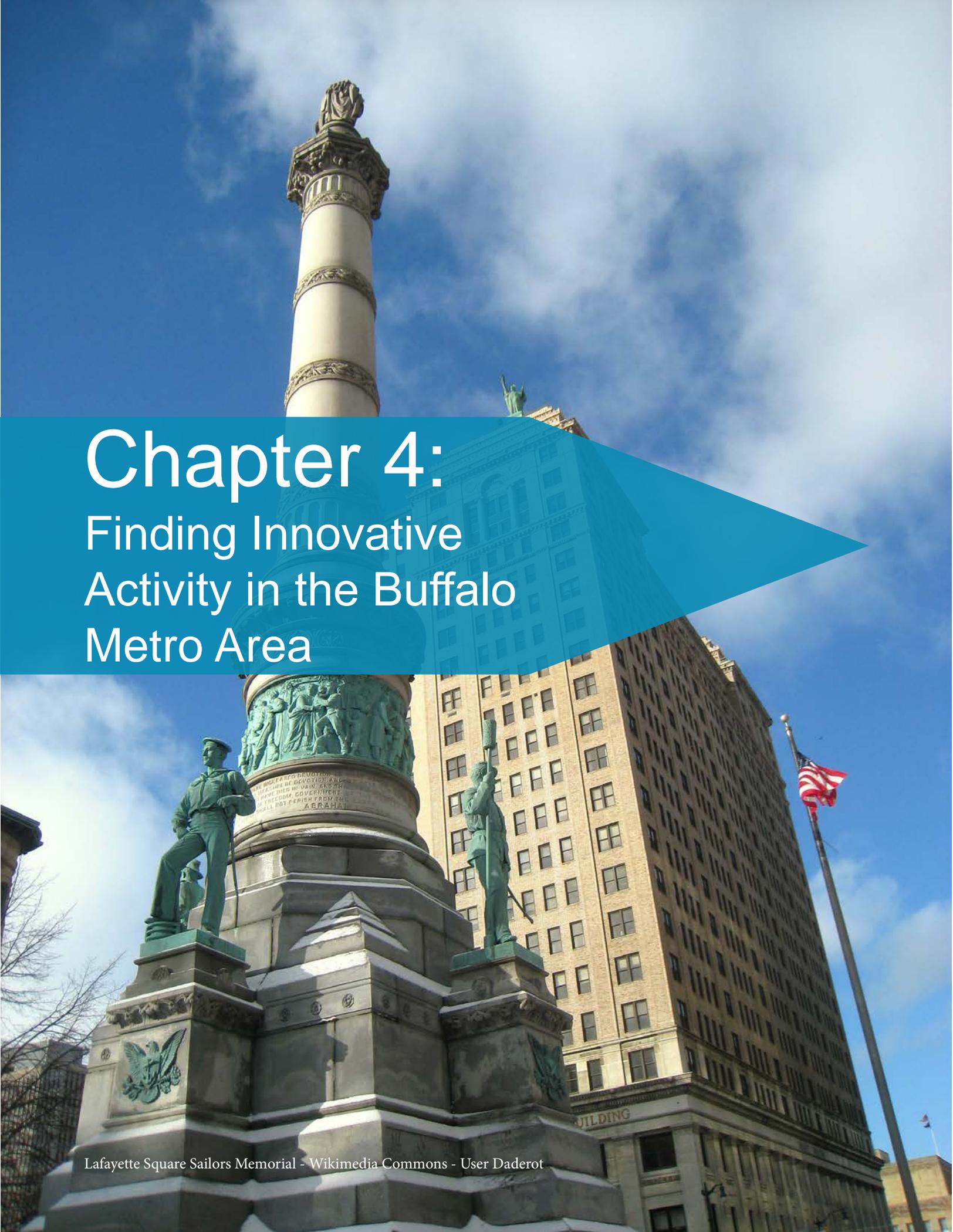
Figure 3.13: Walkscore of the Wider IDs

time, there needs to be a supportive system for pedestrians to travel conveniently, with or without a car. Although society today is

relatively car-centric, having supportive public transit infrastructure can incentivize people to use other forms of transportation. This will make the city less car-centric as well as make the ID more desirable for those who prefer alternative forms of transportation.

Findings

Overall, the comparative data concludes that Buffalo has the majority of the criteria necessary to host an ID. Buffalo is affordable, has plenty of innovative firms, and has more than adequate available real estate that can house the core ID businesses as well as support affordable and market rate rents. While the data shows that Buffalo is below the average in terms of an educated workforce, this may be explained by the fact that few people who graduate from Buffalo's universities choose to locate and live in the city. If an ID is going to be developed in Buffalo, it will need to attract more college graduates to live and establish businesses within the city limits. Furthermore, the case study IDs we researched for this comparison suggest that Buffalo is equal or close to other cities in suitability to host an ID. Next, we will be identifying candidates that could support an innovation district in the Emerging Mixed Use model.

A photograph of the Lafayette Square Sailors Memorial in Buffalo, New York. The memorial features a tall, white column topped with a statue of a sailor, set on a large, ornate stone base. The base is decorated with green patina statues of two sailors and a relief of a battle scene. In the background, a tall, multi-story brick building with many windows is visible, along with an American flag on a tall pole. The sky is blue with scattered white clouds.

Chapter 4:

Finding Innovative Activity in the Buffalo Metro Area

We identified potential innovation districts (ID) by asking local leaders for their recommendations on what specific areas might be appropriate for an ID. We received 10 location recommendations, made based on opinion and judgment from local experience. There were 10 recommended areas as depicted in Map 4.1 (on page 40).

(1) Waterfront/Inner Harbor and vicinity: This is a popular recreation and events space on the Buffalo River. The city owns significant of vacant land in this area offering a rare opportunity for infill projects.

(2) Lower Main Street: This area is home to the Buffalo Bisons stadium and the One Seneca Tower, a 38-story, 851,000 square-foot building that is nearly 97 percent vacant.

(3) Upper Main Street near UB South Campus: This stretch of Main Street runs from the underutilized Buffalo Metro LaSalle station to the University Plaza shopping center, with the option of extending the district into Amherst. LaSalle Station has an extensive parking surface that could be redeveloped.

(4) Middle Main Street around the Buffalo Niagara Medical Campus: This area is adjacent to Allentown and still has vacancy for development.

(5) Lower West Side near the Five Points area: This area is home to some trendy service and retail businesses, as well as some community organizations.

(6) Lafayette Square vicinity: This area is home to the historic Lafayette square and the largely vacant Main Place Mall which provides opportunity for redevelopment.

(7) Chandler Street: Local developer Rocco Termini's Signature Development is working on turning old industrial buildings in this area into business incubators.

(8) The Foundry on Northampton Street: This is a non-profit incubator for small businesses on the East Side of Buffalo that is committed to improving neighborhood prosperity through education and entrepreneurship.

(9) The Northland Corridor: Northland Workforce Training Center provides workforce training, especially for advanced manufacturing and energy sectors.

(10) The UB North Campus vicinity: This area is home to UB North Campus and businesses within its immediate vicinity.



Map 4.1 10 locations suggested by public officials as potential innovation districts.

First, we identified which area in Western New York would be appropriate for an ID by identifying and observing where innovative energy is already occurring. We did this by locating, data basing and mapping the innovative firms within the region.

In order to use the identified locations of innovative firms to our benefit, we needed more defined measurements of an ID. Therefore, we refined our definitions of a wider ID and a Core ID. The wider ID is a larger designated area that supports or reinforces the core area while also benefiting from the core area's success. The wider ID is one to two square miles. The core ID is located within the wider ID and encompasses approximately 50 to 100 acres.

An area that has the potential to host an ID needs to feature some innovative companies or institutions in the general area, even though sufficient concentration may not yet have been achieved. Therefore, our next step was to conduct the inventory of innovative firms and institutions. An overlap of the 10 initially recommended ID areas with a concentration of firms would indicate a promising location.

Our Inventory

We compiled a database of innovative firms and research centers located in Western New York utilizing the following sources:

- Companies located within incubators which “incubate”, or support, disruptive ideas with the hope of building out a business model and company
- Companies affiliated with the accelerators which “accelerate” growth of an existing company
- 2019 Book of Lists published by Buffalo Business First
- Individuals affiliated with economic development agencies
- University at Buffalo listing of research centers

Once we identified where innovative firms, institutions, and research activities are, next we categorized the firms by industry type, identified each firm's North American Industry Classification System (NAICS) code, and cataloged the location of each. Through this inventory process we were able to develop a comprehensive database of innovative firms and institutions in Western New York. All of them are listed in the Appendix.

Characteristics of Innovative firms in the Buffalo Metro Area

A total of 140 companies made it onto our inventory list. The list includes start-ups, more established firms, and large publicly traded corporations, all of which are heavily involved in research and development (R&D) activities. The total employment in this inventory is estimated to be 9,517 individuals. This employment number is an approximation since only employment size ranges can be obtained for some companies. The firms were classified into 82 NAICS codes. In addition, to provide a more comprehensible listing, we further categorized the companies into 37 sectors based on their nature of business.

Table 4.1 ranks companies by major sectors. The percentage of companies in each sector is illustrated in Figure 4.1(next page). The top four sectors for innovative firms in WNY are information technology and services, biotechnology, medical devices, and software publishing. The information technology and services sector makes up 28% of the innovative companies in our database.

Sectors	Number of Companies
Information Technology and Services	39
Biotechnology	16
Medical Devices	13
Software Publisher	13
Other Manufacturing	8
Telecommunications	8
Pharmaceutical	4
Energy	4
Scientific & Technical Consulting Service	3
Others	32
Total	140

Table 4.1 Innovative Companies by Sector, WNY 2019

Companies can also be classified by NAICS codes. Among the 82 NAICS Codes that have been identified, 3-digit code 541 (Professional, Scientific, and Technical Services) and 2-digit code 51 (Information and Cultural Industries) have the highest frequency.

We also examined employment numbers within innovative firms by

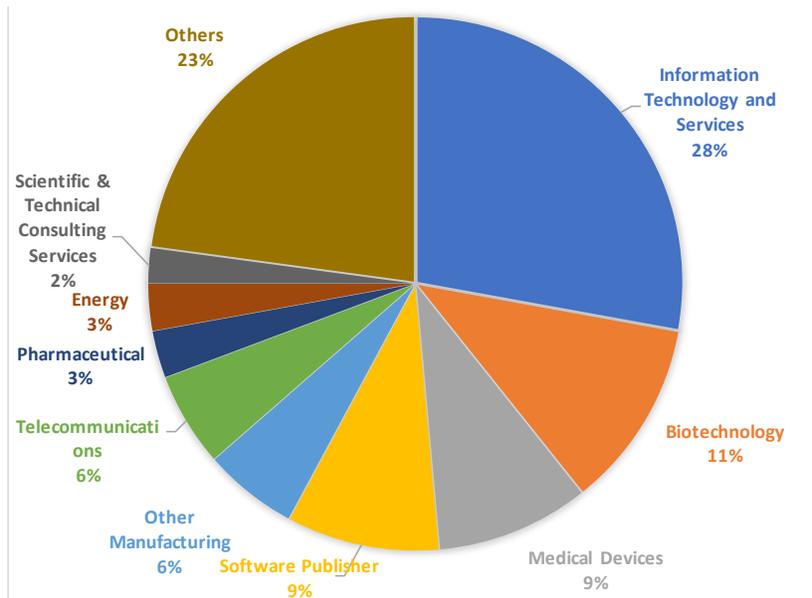


Figure 4.1 Distribution of Inventoried Companies by Major Sector, WNY 2019

sector. The information technology and services sector is also the largest employer and provides approximately 2,190 jobs (See Figure 4.2). As can be seen in Figure 4.2, the top 12 sectors with the most employees hire 93% of the total workforce among the inventoried firms.

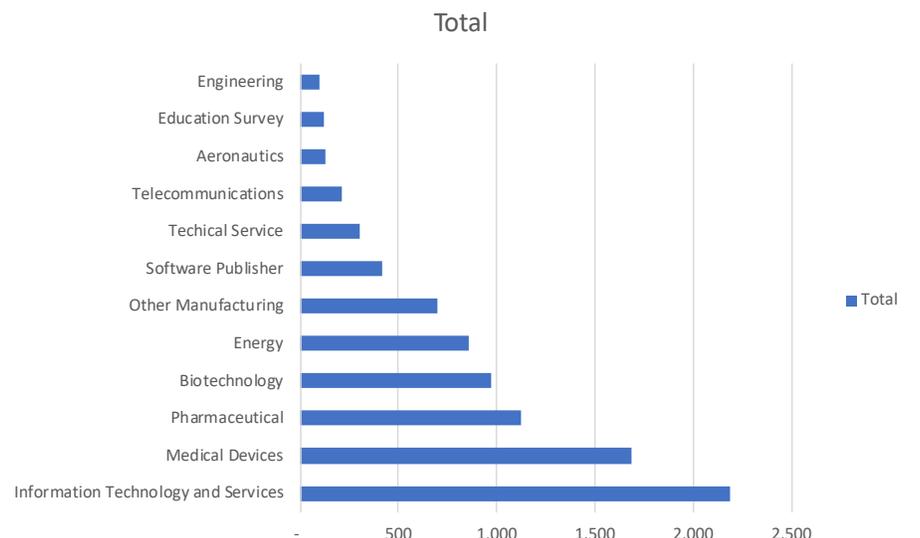


Figure 4.2 Innovative Firm Employees by Sector, WNY 2019

Sector	Company	Est. Employees
Pharmaceutical	Fresenius Kabi	950
Information Technology and Services	Ingram Micro	850
Energy	Tesla/Panasonic	800
Biotechnology	Thermo Fisher Scientific	723
Medical Devices	Integer	664
Medical Devices	Harmac Medical Products Inc.	385
Other Manufacturing	Caplugs	350
Medical Devices	Great Lakes Dental Technologies	300
Information Technology and Services	ACV Auctions	300
Information Technology and Services	Synacor Inc	250
Information Technology and Services	LocalEdge	235
Information Technology and Services	ValueCentric LLC	170
Medical Devices	Curbell Medical Products Inc.	157
Other Manufacturing	IMA Life North America Inc.	135
Pharmaceutical	Athenex	131
Education Survey	Campus Labs	120
Other Manufacturing	Tapecon Inc.	105
Engineering	Hebeler	100
Other Manufacturing	Staub Precision Machine Inc.	100
Software Publisher	Utilant, LLC	100

Table 4.2 Estimated Largest Employers among Innovative Firms in WNY, 2019

Table 4.2 shows the top 20 companies with the most employees. In addition to the well-established large corporations like Ingram Micro and Integer, there are also several start-up stars, including ACV Auctions, Campus Labs and Utilant, LLC.

UB’s 65 Science & Engineering Research Centers are also an important part of the local innovation scene. As of 2019, 27 of them are located within the university’s north campus, 13 within the university’s south campus and 24 within the university’s Buffalo Niagara Medical Campus. The sector categories of these research centers are exhibited in Table 4.3 (see page 45).

Next, the compiled inventory of innovative firms was formatted and geocoded and mapped for spatial analysis.

Row Labels	Count of Research Centers Alphabetically
Biomedical Sciences	22
Clinical and Translational Research	11
Instrument Facilities, Research Resources and Services	10
AI: Documents, Data & Sensor Technology	8
Environmental Sciences	6
Civil Engineering	2
Health Science	1
Transportation	1
Material Science and Engineering	1
Aeronautics	1
Behavioral Science	1
Electronic Engineering	1
Grand Total	65

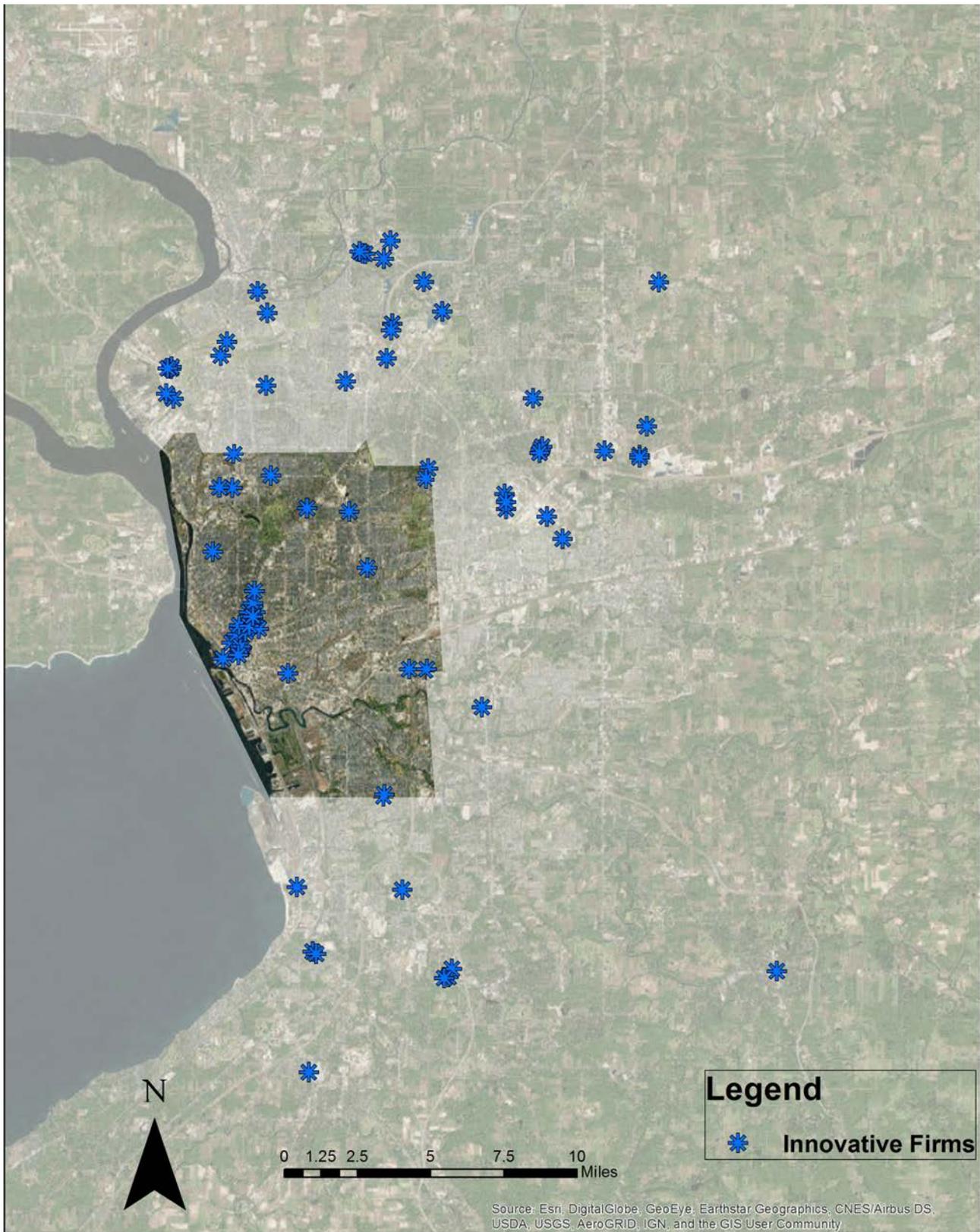
Table 4.3 UB Science & Engineering Research Centers by Category, 2019

Utilizing the geocoded maps, we identified clusters and trends.

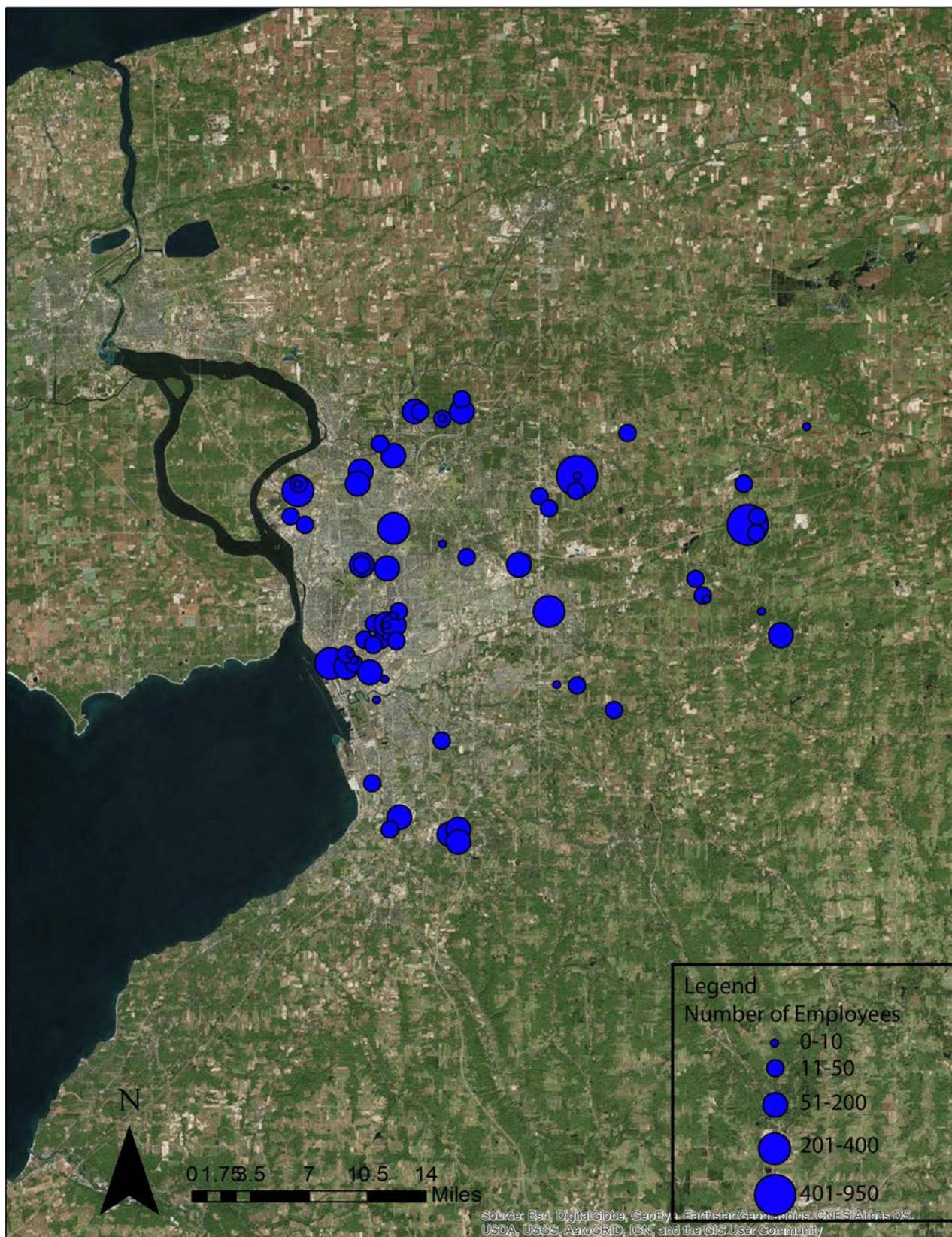
Map 4.2 (see page 46), shows only the locations of innovative firms, revealing concentrations along Main Street in the Central Business District (CBD) and around UB's North Campus. The most innovative firms in a single location is in the CBD along Ellicott Street. These are:

- 640 Ellicott Street where the Thomas R. Beecher Jr. Innovation Center houses 35 companies and
- 701 Ellicott Street where the New York State Center of Excellence in Bioinformatics and Life Sciences houses four companies.

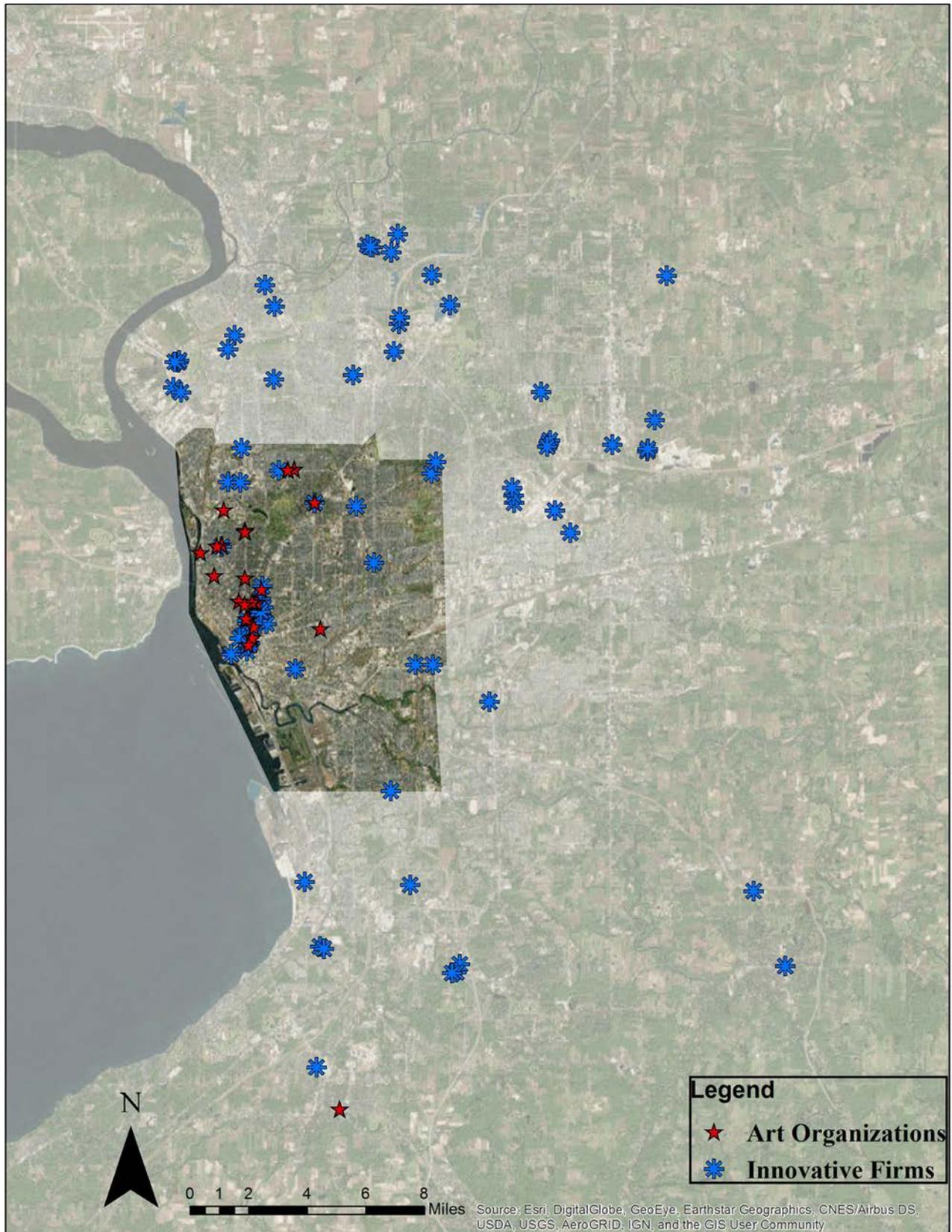
Map 4.3 (see page 47) represents the approximate number of employees working in innovative firms in a given area. This information is represented by graduated symbols, increasing in size with an increase in the approximate number of employees. As can be seen from figure 4.5, significant innovative employment clusters exist along Main Street in and around the CBD, around UB's north campus, and east of the city near the Buffalo-Niagara International Airport. Lastly, Figure 4.6 (see page 49) overlays the location of innovative firms with the location of art institutions and businesses. The results suggest the co-location of innovative



Map 4.2 The distribution of innovative firms in Buffalo and vicinity.



Map 4.3 represents the approximate number of employees working in innovative firms in a given area



Map 4.4 Distribution of innovative firms and art organizations in the City of Buffalo

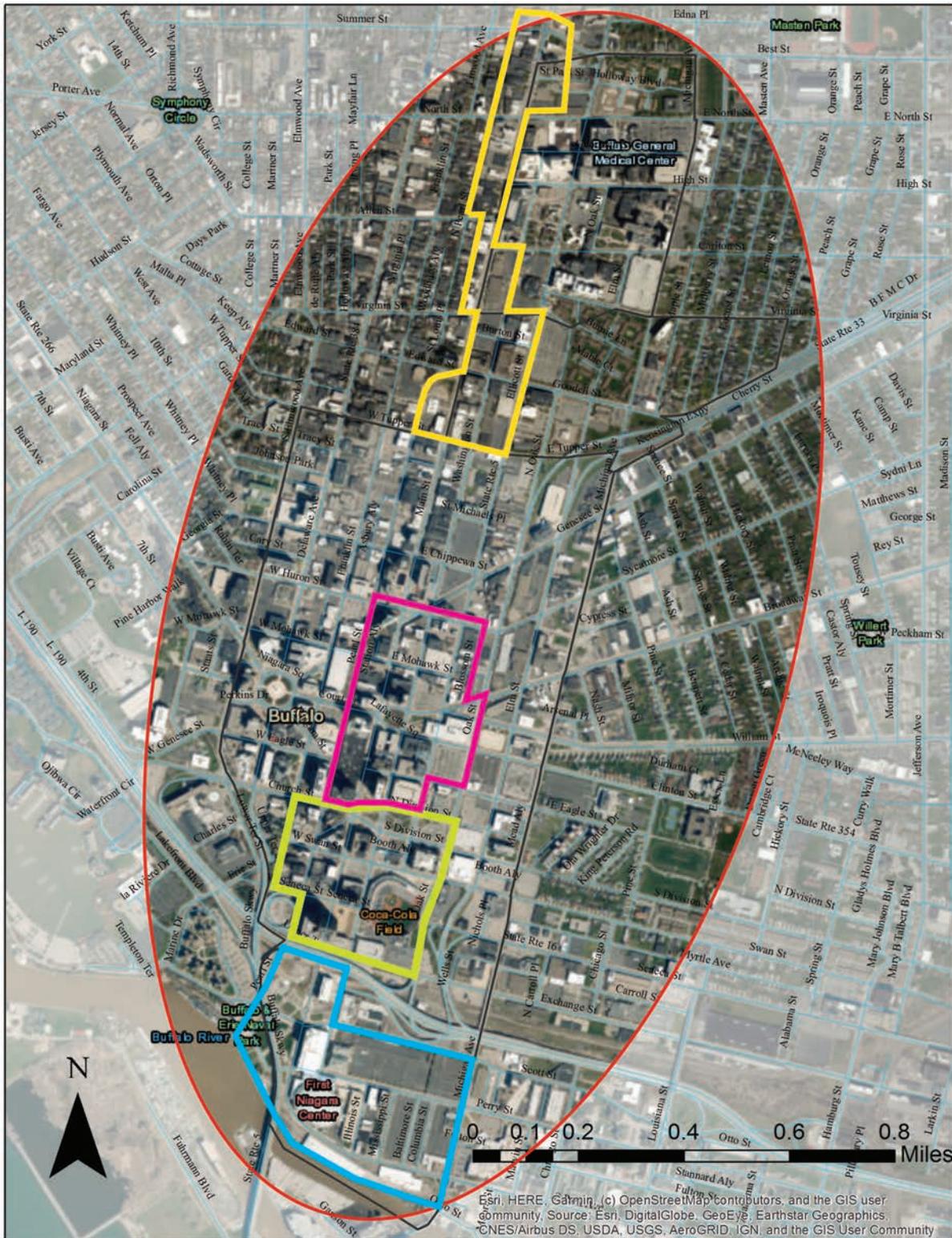
and arts activities—a good sign of not only technology creativity but artistic creativity for the feasibility of an innovation district.

Our analysis of the locations of innovative activities in WNY revealed that the broader area on which we should focus the innovation district in is the general downtown vicinity. This downtown area is roughly two square-miles. As seen in Map 4.1, out of the 10 sites initially recommended by local leaders, four are located in this downtown area which extends from the waterfront to middle Main Street. These four potential IDs are: the Waterfront, Lower Main, Lafayette Square vicinity, and Middle Main. In order to determine which 50 to 100 acre area makes the most sense for a core ID, we next looked at the urban features within the four areas that could make an ID successful. The selection of a smaller area within the broader area was done through a concentrated neighborhood analysis.

Selecting Appropriate Core ID Areas

The selected candidates are depicted in Map 4.5 (see page 50).

The Waterfront area is situated on the Buffalo River and is about 78 acres with Michigan Ave to the east, Commercial Street to the west, the Buffalo River to the south, Scott Street to the northeast, and the I-190 to the northwest. It includes Canalside and the Cobblestone District. Currently there is only one company in our identified innovation inventory located on the boundary of this area—Turbulent Energy. However, this site has excellent public transportation; the sport/ entertainment vibe that is attractive to young people; ample vacant land for infills; and the great adaptive reuse opportunity of the DL&W terminal. Explore & More Children’s Museum is under construction on the South Aud block. The future development plans by Sinatra Development include streetscaping to enhance the walkability and to connect Canalside with the Cobblestone District; developing four big mixed used blocks containing ground-floor retail, offices and residential apartments; and the redevelopment of the DL&W Terminal with a pedestrian bridge connecting KeyBank Center with Cobblestone District.



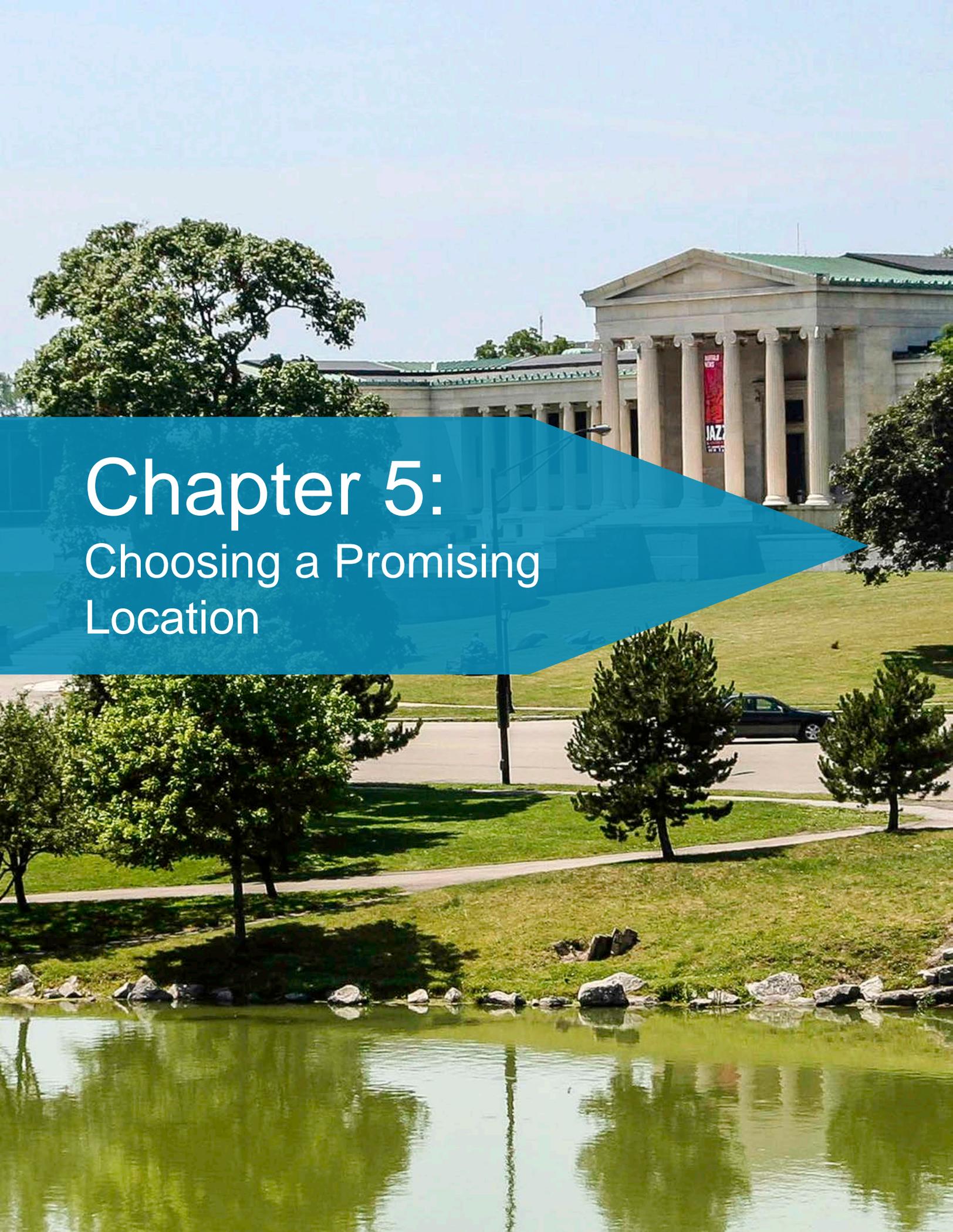
Map 4.5 Four areas selected as best bet for potential innovation districts in Buffalo. From South to North: Waterfront, Lower Main, Lafayette Square, and Middle Main.

The area of Lower Main Street is about 53 acres and is home to the iconic One Seneca Tower. The lower Main area is bounded to the north by Church and N Division to the southern end on Exchange Street. From East to West this area is bounded by Oak Street to Franklin Street. It is the centerpiece of the Erie Street Waterfront Connection Project, which will enhance the walkability and attract additional foot traffic to this site. As the second tallest building in Upstate New York, the redevelopment of One Seneca Tower will provide a rare opportunity for mixed use programs and creative space in the heart of downtown. Sahlen Field in the proposed district is an additional entertainment asset. Additionally, buildings with historic significance like the Guaranty Building add unique appeal to this area.

The area of Middle Main is a 54-acre zone that is the northernmost proposed ID in the city proper, with boundaries of Tupper Streets to the south, Summer-Best Streets to the north, eastern boundaries that run along Ellicott Street, Washington Street and Main Street, and western boundaries that run parallel with N. Pearl Street. This area is a hub of innovative activity as Thomas R. Beecher Jr. Innovation Center is located at 640 Ellicott Street. The Innovation Center is home to the most innovative companies found in this study as well as the most innovative firms in a single building in the city. Notable features of this area are its close proximity to the vibrant and hip neighborhood of Allentown to the west and the Buffalo Niagara Medical Campus to the east. Although there are not many amenities located within the boundaries of Middle Main, there are still many restaurants and places to visit in Allentown which is only a short walk away. The light rail rapid transit has two stations in the center of Middle Main, located at Summer-Best Streets and the Allen Street Medical Campus.

The Lafayette Square area encompasses roughly 50 acres, bounded by Pearl Street to the west, Oak Street to the east, East Huron Street to the north, and Church Street and North Division Street to the south. Five innovative firms identified in the local innovation inventory list are located in this district. Perkin Elmer, Station 28 LLC., and Emergence Tek are all located within this district at 403 Main Street. Centrilogic Inc. and One Bridge Benefits are located within the district at 350 Main Street and 410 Main Street, respectively. Other notable sites in this district include Lafayette Square, the Liberty Building, the Buffalo & Erie County Central Library, the Hotel

Lafayette, the Buffalo-Niagara Visitor Center, and the Main Place Mall. There are also a number of amenities in the area, including restaurants such as Raclettes, Deep South Taco and Tappo; activity spaces such as Hatchets and Hops and Mohawk Place; and cafés such as Public Espresso, located in the Lafayette Hotel. The area is accessible by light rail, via the Lafayette Station. The question now is which of these four locations is most suitable for an ID.



Chapter 5:

Choosing a Promising Location

When we started researching potential innovation district (ID) locations in WNY, it became clear that we needed a methodical way to both assess each location's viability and to compare them to each other. We decided to create a "rubric:" A scorecard that can compare neighborhoods for their suitability as an ID. In developing the the rubric, we started with our ID definition: A concentration of innovative tech firms and research institutions in a dense, urban mixed use area. First, we followed the definition to guide our selection of core IDs to compare. As explained in the previous chapter, the only significant area with a concentration of innovative tech firms was in the larger downtown area.

Recognizing that a concentration of firms in a dense, mixed use area did not align with the majority of the ten original potential IDs proposed by local leaders, we decided to focus on four potential districts within the City of Buffalo's downtown. This downtown area extends from Buffalo's Canalside to the Buffalo Niagara Medical Campus. Although Buffalo's downtown has undergone disinvestment and population loss, the decision to focus on the four core districts within Buffalo's downtown is supported by our overview of innovative tech firms within the region. As discussed in Chapter 4, our research indicates that the downtown has the largest concentration of existing innovative firms. With established innovative energy, it's clear that this location offers the most potential to be a catalyst to attract additional innovative firms and ultimately establish a successful ID.

A core ID's size needs to be relatively small in order to foster an ID's desirable high concentration of innovation and mixed use proponents. We decided to have each district be between 50 - 100 acres to allow for dense development and to create the condensed environment necessary for collaborative innovation. Now we have to decide which of the 50 - 100 acre core districts would be the most appropriate for the core ID. This is why we made a rubric to assess the viability of areas as potential IDs as well as to rank them against one another. We developed the rubric using case study research as well as ideas from local leaders, both private and public. With this key information, we outlined a variety of desired ID characteristics. These characteristics resulted in 10 distinct rubric categories and one bonus category: 1. Innovative firms, 2. Mixed-use, 3. Nearby activity centers, 4. Anchors (institutional and business), 5. Infrastructure, 6. Funky index, 7. Density, 8.

Housing as % of all uses (sq. ft.), 9. Property Value (occupied buildings, vacant buildings and vacant land), 10. Vacancy rate (land and buildings), and the bonus category, 11. Opportunity zone.

1. Innovative Firms

The concentration of innovative firms and startups is what drives IDs from the start. It is important to build off of the innovative activity that is already occurring within the city.

In Buffalo, the greatest single concentration of innovative activity is in the downtown area. Each potential core district was graded based on how many innovative businesses currently exist within it. Table 5.1 shows how many businesses each area would need to have to receive a certain letter grade.

Innovative Firms	
Grade	Description
A	20+
B	10-19
C	4-9
D	1-3
F	0

Table 5.1: Innovative Firms

2. Mixed-Use

For an ID to work, it is essential that the core district offer a mix of land uses to attract residents, employers, visitors, and others. The more mixed use within a district, the more likely different groups of people will be able to benefit from the location.

This category is an observational measurement. We walked each of the core districts and determined how mixed the use and buildings are in the areas. Table 5.2 shows the definitions provided on mixed use for each letter grade.

Mixed Use	
Grade	Description
A	Multiple blocks of mixed use, can include mixed-use buildings
B	Mixed use within one block strip/street
C	Scattered horizontal mixed-use across blocks; or isolated vertical
D	Mostly single use
F	Single-Use Land Zoning Codes

Table 5.2: Mixed Use

3. Nearby Activity Centers

An activity center is an area that attracts people for shopping, work, recreation, and/or socializing. It refers to an area that is dense with significant pedestrian traffic. Localities that are in close proximity to other activity centers ensure that the ID does not become a secluded from other activities. Nearby activity centers allow for greater activity within the core district as well. Within Buffalo specifically, an example of an activity center is the Theater District on Main Street, which serves as a nearby activity center to two of the potential districts the studio researched.

In order to give each core district a grade in this category, we walked each neighborhood. We assessed if the activity fit our general knowledge about activity centers in Buffalo. We then ranked the activity centers as shown in Table 5.3.

Nearby Activity Centers	
Grade	Description
A	Two or more activity centers ends of district has substantial activity
B	One end of district has substantial activity
C	Two or more ends of district has some developing activity
D	One end of district has some developing activity
F	No activity (island effect)

Table 5.3: Nearby Activity Centers

4. Anchors

The Anchor category is divided into two subsections: Institutional Anchors and Large Business Anchors. Anchor institutions are partners in local governance and include universities, hospitals, museums, and other cultural institutions. They play a key role in growth and development for the neighborhood that they are located within. In addition, they can be drivers in fostering innovative activity. For example, people who graduate anchor universities can become the employees of innovative firms or the employees of an institution become entrepreneurs. Having an anchor institution within ID will help to create an employment base and local economic activity. Table 5.4 outlines the number of anchor institutions an area needs to have to receive a given letter grade.

In areas like Buffalo with a history of business decline, business anchors are additional elements for maintaining or increasing

activity within an area. These large businesses promote economic activity and population growth within the core district. Table 5.4 and 5.5 describe the number of anchors within the core ID.

Institutional Anchors	
Grade	Description
A	Five+ anchor institutions
B	Three or Four anchor institutions
C	One or two anchor institution(s)
D	Anchor institution department
F	No anchor institutions

Table 5.4: Institutional Anchors

Large Business Anchors	
Grade	Description
A	Five+ business anchors
B	Three or Four business anchors
C	Two business anchors
D	One business anchor
F	No anchor institutions

Table 5.5: Large Business Anchors

5. Infrastructure (Transit and Recreation)

This category measures the quality of infrastructure within the inner core district. It is important for the area to have access to quality public transportation, sidewalks and streets as well as attractive infrastructure. The transit and recreation infrastructure should promote walkability in the area. Furthermore, recreational assets such as parks and bike paths can be valuable. Table 5.6 shows the grading metrics used to measure the quality of infrastructure that an area currently has.

Infrastructure (Transit & Recreation)	
Grade	Description
A	High access to train transportation, recreational amenities, attractive, walkable
B	High access to bus, some recreational amenities, walkable
C	Car dependent access but walkable in district
D	Car dependent; not walkable
F	No access

Table 5.6: Infrastructure (Transit & Recreation)

6. Funky Index

The Funky Index category measures how much “funk” is in an ID. In order to attract the workers to live in the district or spend time outside of their offices or apartments, there needs to be available activity for workers that is unique and creative.

The method that we used for grading this section of the rubric was observation. Students walked the neighborhoods to examine the existing unique businesses, including cafes, restaurants, bars, music venues, art, and historic character. The grading of this section is included in Table 5.7.

Funky Index	
Grade	Description
A	High presence of multiple types of funk
B	Moderate level of funk
C	Low level of funk
D	Potential for funk
F	No funk; no potential

Table 5.7: Funky Index

7. Density

This calculation more specifically looks at the **building density in comparison to district acreage**. Data used for the property value assessments were obtained from two City of Buffalo data sources: 1. City of Buffalo Open Data, and 2. City of Buffalo Online Assessment Roll System (OARS). The total acreage within the district was calculated using parcel acreage data from the City’s Open Data source site and building square footage from the OARS site. The higher the square footage of the property per area (such as acre), the higher the density.

This category is important because in order for an ID to thrive it needs a dense mixed use environment. We prioritized the district with the most density by giving it an A, while scoring the district with the least density a D. As there are only four potential districts that this rubric examines, it should be noted that the F rubric grade is a placeholder for this category.

Density (Per Acre)	
Grade	Description
A	Most Dense
B	↓
C	↓
D	↓
F	Least Dense

Table 5.8: Density (Per Acre)

8. Housing as % of all Uses (Sq. Ft.)

This category measures the percentage of the core districts’ areas that are considered to be residential. There needs to be enough housing for those working in the ID to live. Providing enough housing to support the workers is one way to prevent the ID from becoming a commuter-based area and also contribute to the mixed-use aspect of an ID.

For each core district, we took the data from the City GIS database and found the total sum of building square footage in the core district. We then collected the residential information from AxioMetrics database and found the sum of residential square footage within the core area. Lastly, we calculated this to find the percentage of total building square footage in the core district that is considered to be residential.

There are a few limiting factors to this data. First, there may be some residential units missing, as some were not included in the AxioMetrics database. Further, the total square footage was not listed for some residential buildings, therefore these buildings could not be included. Another limitation is that some of these buildings are mixed use, therefore resulting in imperfect square-footage measurements of residential use within the buildings. Next, including the total number of residential units would also be beneficial because square footage of a single unit varies greatly; however, the data for total units was incomplete. Lastly, this data only measures the residential land use inside the core districts. Certain districts have substantial housing directly outside the core boundaries, thus if a core district is found to not have significant housing, looking at housing in the wider districts could be beneficial.

Housing As % Of All Uses (Sq. Ft.)	
Grade	Description
A	51 - 60%
B	41-50%
C	31-40%
D	21- 30%
F	0 - 20%

Table 5.9: Housing As % Of All Uses (Sq. Ft.)

9. Property Value

Property value has been divided into three subcategories: Occupied Building Value, Vacant Building Value and Vacant Land Value. The cheaper the property value, the more viable

a district is for a potential ID (assuming the district has other valuable characteristics conducive to an ID). Therefore, the district with the cheapest values received an A, while the district with the most expensive values received a D. As there are only four potential districts that this rubric examines, it should be noted, that the F rubric grade is a placeholder for this category.

Data used for the property value assessments were obtained from two City of Buffalo data sources: 1. City of Buffalo Open Data, and 2. City of Buffalo Online Assessment Roll System (OARS). Property “types” and “descriptions” outlined by the Open Data source supported our designations of occupied buildings, vacant buildings and vacant land. Additional local knowledge obtained through extensive conversations with developers and real estate agents assisted with the three category designations. Property costs were obtained directly from the City’s OARS site, using assessment values from the 2019 Final Assessment Roll. Proper calculations were carried out to ensure data was representative of full market value. Finally, the property costs for the three designations—occupied building value, vacant building value and vacant land value—were averaged.

One limitation of the data is reliability of information. Designations outlined on the City’s Open Data site were not conclusive, most likely due to incomplete availability of data. A local real estate agent informed the studio team that there are no data sources that have up-to-date vacancy, especially when considering partially vacant buildings. Taking into consideration this limitation, the studio obtained additional vacancy information through local knowledge. Of course, there is human error to consider with this approach as well.

A second limitation of the data is the assumption of land and building uniformity. What is not considered is varied building and land conditions. For instance, vacant land in one district may be a polluted brownfield resulting in a low property value, while vacant land in a second district might be build-ready resulting in a high property value. This level of detail did not fit into the scope of the project, but should be considered as a possible shortcoming of the data.

A third limitation of this data is the comparison across differing numbers of occupied buildings/vacant buildings/vacant lots. While this may partially skew the data, it is our hope that the vacancy rate rubric

category will capture this information and fix the potential discrepancy.

Finally, it should also be noted that certain properties were excluded from the calculations for uniformity purposes. Among these were city owned parks, Sahlen Field (located in the Lower Main district), and KeyBank Center (located in the Waterfront district). Finally, there were some properties that returned no data on the OARS site, specifically one property in the Lower Main district and two properties in Middle Main district.

Occupied Building Value		Vacant Building Value		Vacant Land Value	
Grade	Description	Grade	Description	Grade	Description
A	Cheapest	A	Cheapest	A	Cheapest
B	↓	B	↓	B	↓
C	↓	C	↓	C	↓
D	↓	D	↓	D	↓
F	Most Expensive	F	Most Expensive	F	Most Expensive

Table 5.10: Occupied Building Value

Table 5.11: Vacant Building Value

Table 5.12: Vacant Land Value

10. Vacancy Rate

The vacancy rate category has been divided into two subcategories: Land Vacancy and Building Vacancy. While a new ID requires a moderate amount of vacancy, too much vacancy makes a district both unattractive and financially inviable. As such, the vacancy rate category was developed to reflect an arc trajectory, where each lesser grade from A which has an ideal vacancy of 13 - 16% can have either too little vacancy or too much vacancy.

Similar to the property value rubric category, the vacancy rate data—land vacancy and building vacancy—was obtained from the City of Buffalo Open Data source. Additional local knowledge obtained through extensive conversations with developers and real estate agents assisted with the designation of parcels as vacant land and vacant buildings. For uniformity purposes, building and land calculations were performed using square footage.

The vacancy rate rubric category is graded as percent vacancy to that of the full district land/buildings. As such, the square footage of vacant land was compared to the square footage of all the land

in the district, and the square footage of vacant buildings were compared to the square footage of all the buildings in the district.

Similar limitations existed as with the property value rubric category. First and foremost, there is the issue of reliable data. Due to a partial vacancy within buildings as well as the nature of shifting vacancy, the building vacancy data obtained for each

Land Vacancy		Building Vacancy	
Grade	Description	Grade	Description
A	13 - 16%	A	10 - 12%
B	9 - 12% or 17 - 20%	B	13 - 15% or 7 - 9%
C	5 - 8% or 24 - 27%	C	16 - 18% or 4 - 6%
D	1 - 4% or 29 - 32%	D	19 - 21% or 1 - 3%
F	0 - 0.9% or 33%+	F	0 - 0.9% or 22%+

Table 5.13: Land Vacancy

Table 5.14: Building Vacancy

district are likely slightly different than actual vacancy data.

Extra: Opportunity Zones

The Opportunity Zone Program is a federal community development initiative. It “encourages private investment in low-income urban and rural communities” through a number of tax incentives (Empire State Development). As such, districts within an opportunity zone have the added benefit of additional funding streams.

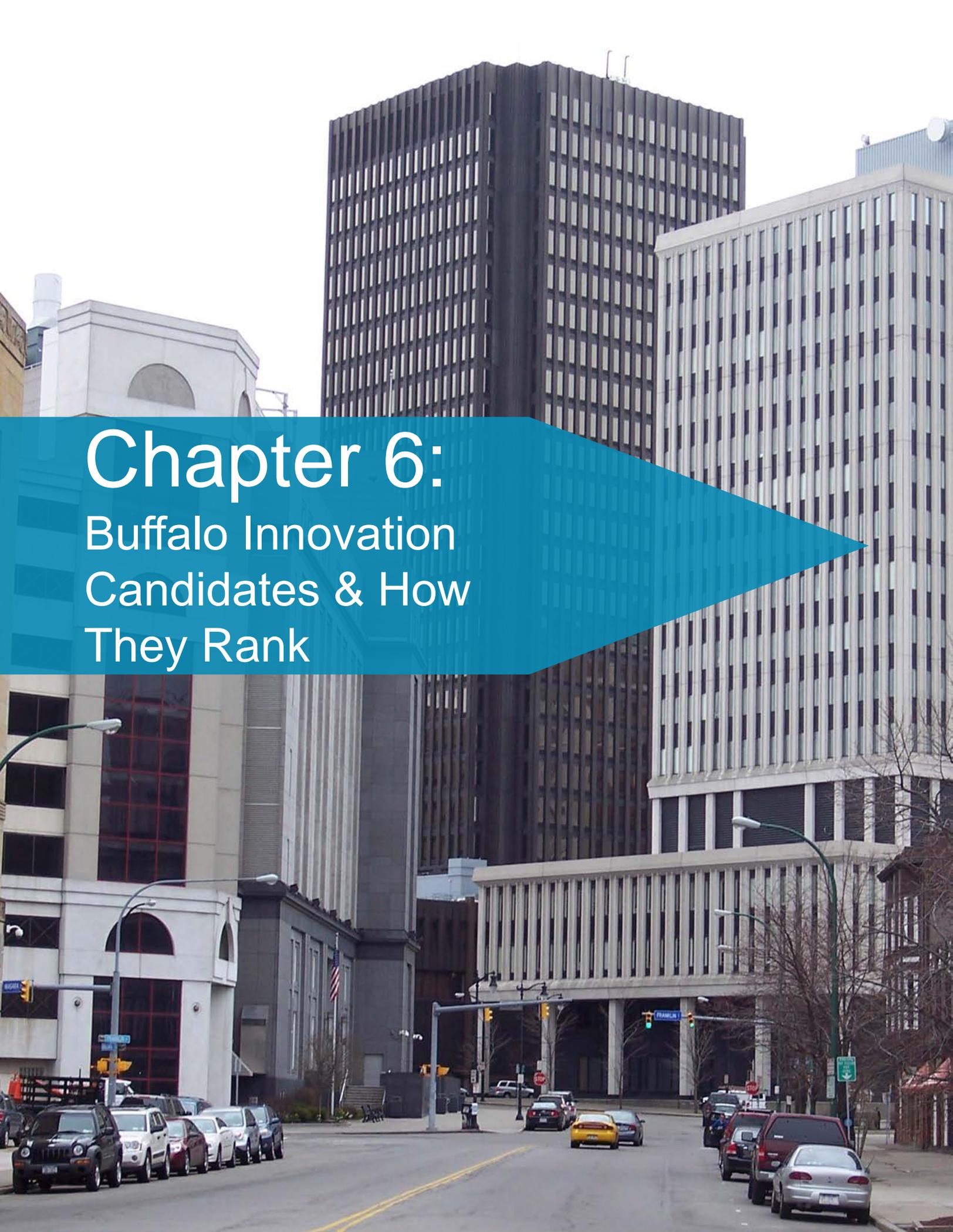
Data used for the opportunity zone bonus category was obtained from the City of Buffalo’s Opportunity Zone webpage. Districts that are fully within a designated opportunity zone are given a plus, while districts that are only partially or not at all within an opportunity zone are given a minus.

Opportunity Zone	
Grade	Description
Plus	Full district in OZ
Minus	N/A

Table 5.15: Opportunity Zone

Conclusion

The rubric categories serve to provide a comprehensive overview of the elements that are crucial to assess where an ID should be located. Furthermore, the rubric allowed us to develop a quantitative approach to comprehensively examine each of the four potential core ID's characteristics and assess their potential to support the establishment of a future ID. While we understand that this rubric cannot possibly encapsulate all of the complex factors that are critical to establishing an ID, it does provide an overview by which stakeholders and residents can deliberate about whether Buffalo should create an ID. Now that we have offered an approach to the rubric, Chapter 6 will explore its use as a tool to compare and contrast the four potential core ID locations within the City of Buffalo.

A photograph of a city street in Buffalo, New York, featuring several tall skyscrapers. The most prominent building is a dark, rectangular tower with a grid of windows. To its right is a taller, white building with vertical slats. The street is lined with cars and has traffic lights. A blue banner with white text is overlaid on the left side of the image.

Chapter 6:

Buffalo Innovation Candidates & How They Rank

After considering ten preliminary areas initially suggested to us by economic development officials as potential innovation districts (IDs) for Buffalo or neighboring Amherst, we focused our list on four candidate areas: Middle Main, Lafayette Square, Lower Main, and Waterfront. We did so because (as explained in Chapter 4), the region's largest concentration of innovative firms is in the Buffalo area that extends from the waterfront, through downtown, all the way to Buffalo-Niagara Medical Campus (BNMC). Within this area, roughly the broad downtown, we then identified four candidate core areas which range from the desired 50-75 acres, the size concentrated enough for the rise of a critical mass of activities.

These four areas extend along Buffalo's NFTA train line from Buffalo's waterfront to just north of the Buffalo Niagara Medical Campus. Fully supported by the train line, the areas have quality public transportation options. The candidate areas all have some advantages with respect to the 10 rubric criteria explained in the previous chapter, but to different extents.

We find from the rubric outlined in Chapter 5 that each potential core area has a variety of strengths and weaknesses with respect to its suitability for becoming a successful core ID. Our rubric criteria and grading system concludes one district has clear characteristics that would make the preferred area for an innovation core. This chapter first introduces where the four core districts are and shows the boundaries we set for the analyses. Next, the four core areas are assessed through the lens of the rubric, with the scores explained. Lastly, the four core areas are shown side by side with the scoring displayed.

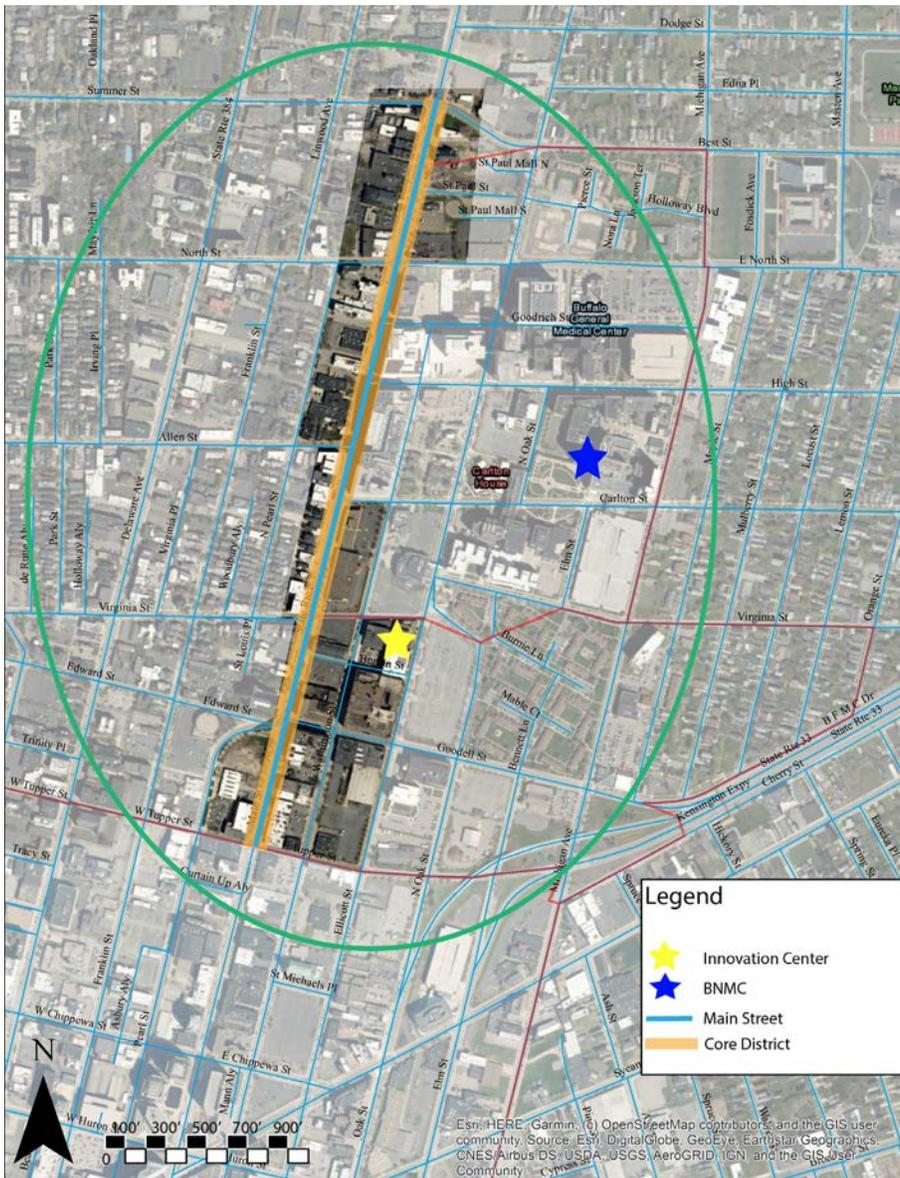
The Four Candidate Areas:

Middle Main

The first potential ID is termed Middle Main. In Figure 6.1 the outline of the core district is shown in purple. The core district is 54 acres total, aligning with the ideal core size of an ID.

The district is narrow, set between the Buffalo Niagara Medical Campus (BNMC) and Allentown district. As both the Allentown historic neighborhood and the areas surrounding the BNMC have pushed back against expansion of the BNMC, we decided to keep the potential close to Main Street, east of Allentown and west of BNMC.

From north to south, the district extends along Main Street from Summer Street down to West Tupper Street on the south end. From west to east, the core district is between Pearl Street and Washington Street. This core district resembles a corridor, extending approximately 0.8 miles from north to south.

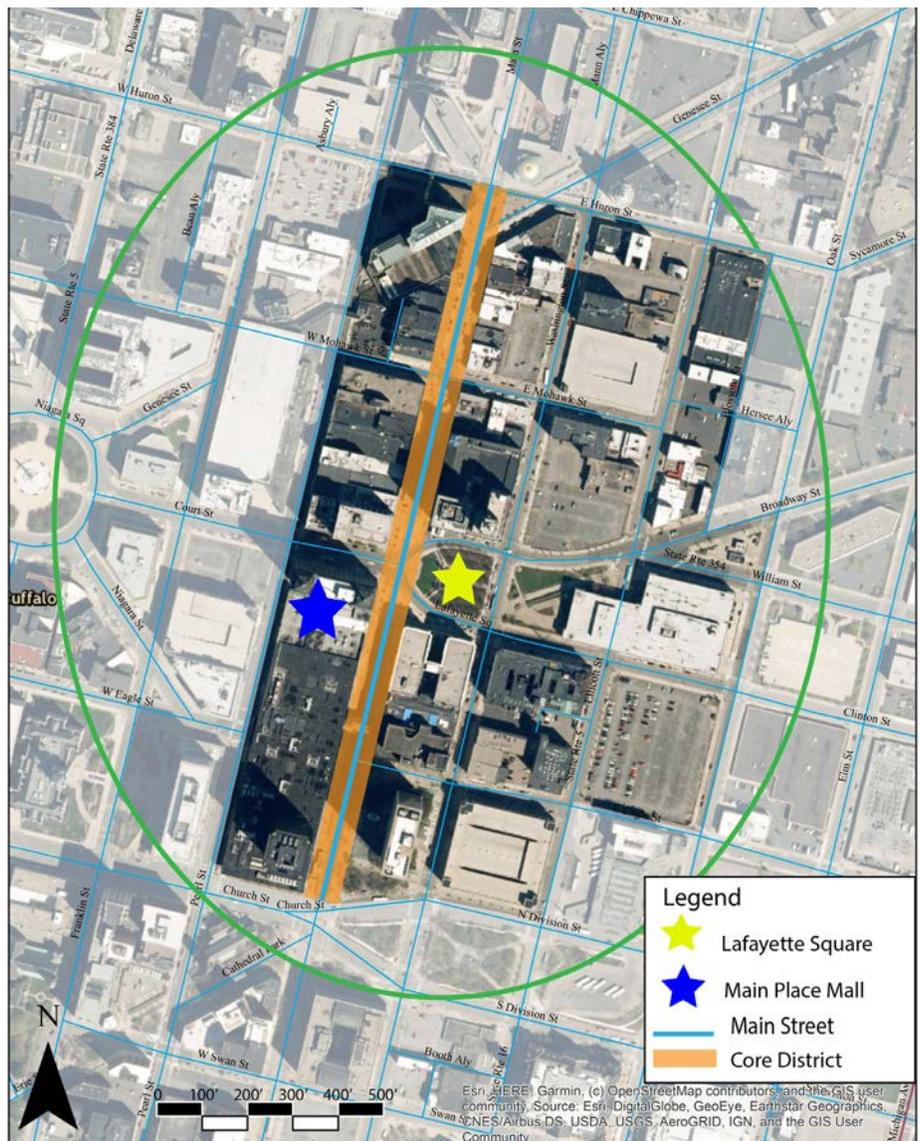


Map 6.1 Middle Main Proposed area for an ID with boundaries of Summer St to the north and West Tupper to the south, notable places include the Thomas R. Beecher Jr. Innovation Center, and the Buffalo Niagara Medical Campus

Lafayette Square

The second potential ID is termed Lafayette Square. This district is the area in and around Lafayette Square, which can be seen in Figure 6.2 outlined in red. It extends from north to south along Main Street beginning at East Huron Street, moving south to North Division Street. From west to east, the district is roughly between Pearl Street and Oak Street. This core district is about 50 acres.

The inner core district was chosen to coincide with Buffalo's central business district. The district is located between the Theatre District and Buffalo's government buildings. Additionally, the downtown area has the Main Place Mall within its boundaries, presenting a major opportunity for a potential ID.

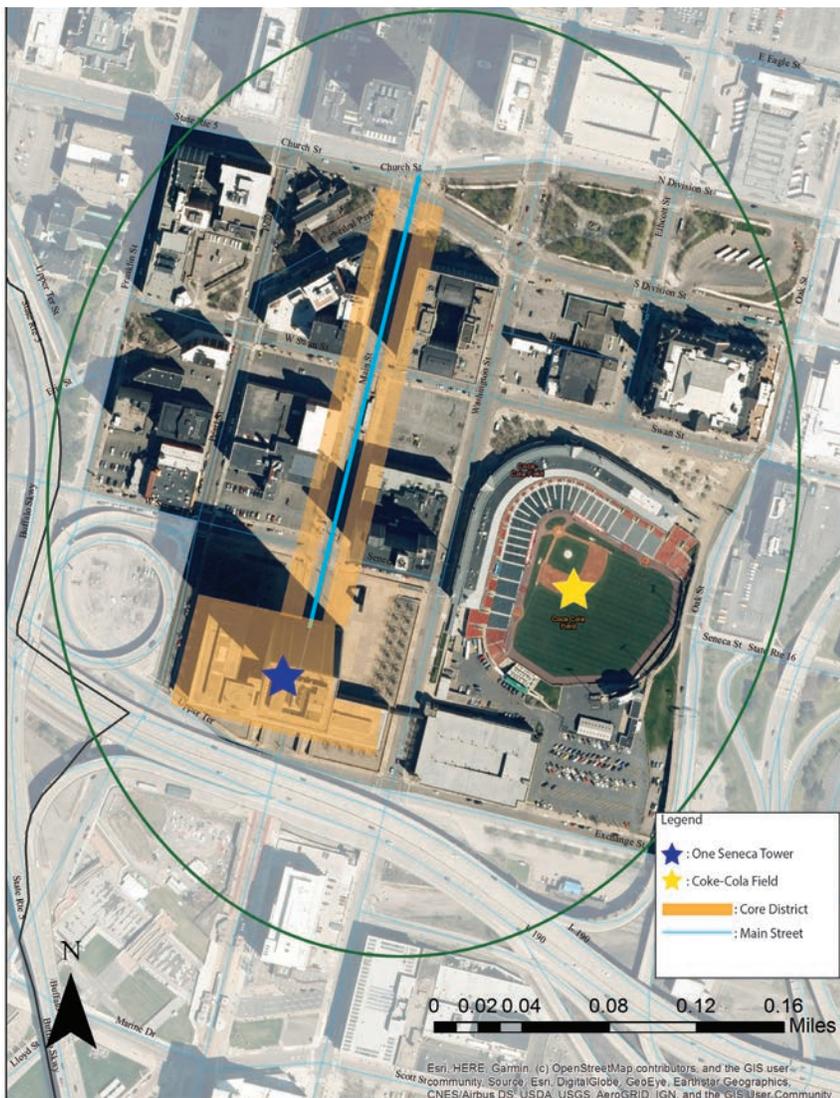


Map 6.2 Proposed area for an ID within the central business district, with boundaries of East Huron to the north, Church/ North Division St to the south, Pearl St to the west, and Oak St to the east.

Lower Main

The third potential ID is termed Lower Main. This district is the area around One Seneca Tower. As shown in Figure 6.3, the district is outlined in green. From north to south, the district is between Church Street/North Division Street moving south all the way to Exchange Street. From west to east, the district is roughly between Franklin Street and Oak Street. The total acreage of this core district is about 53 acres total.

The inner core district was chosen due to its proximity to Waterfront and government buildings, its urban density, and availability of vacancies.. Additionally, it has the One Seneca Tower located within its boundaries, presenting great potential for a higher concentration of offices and housing and a vibrant mixed-use aspect.

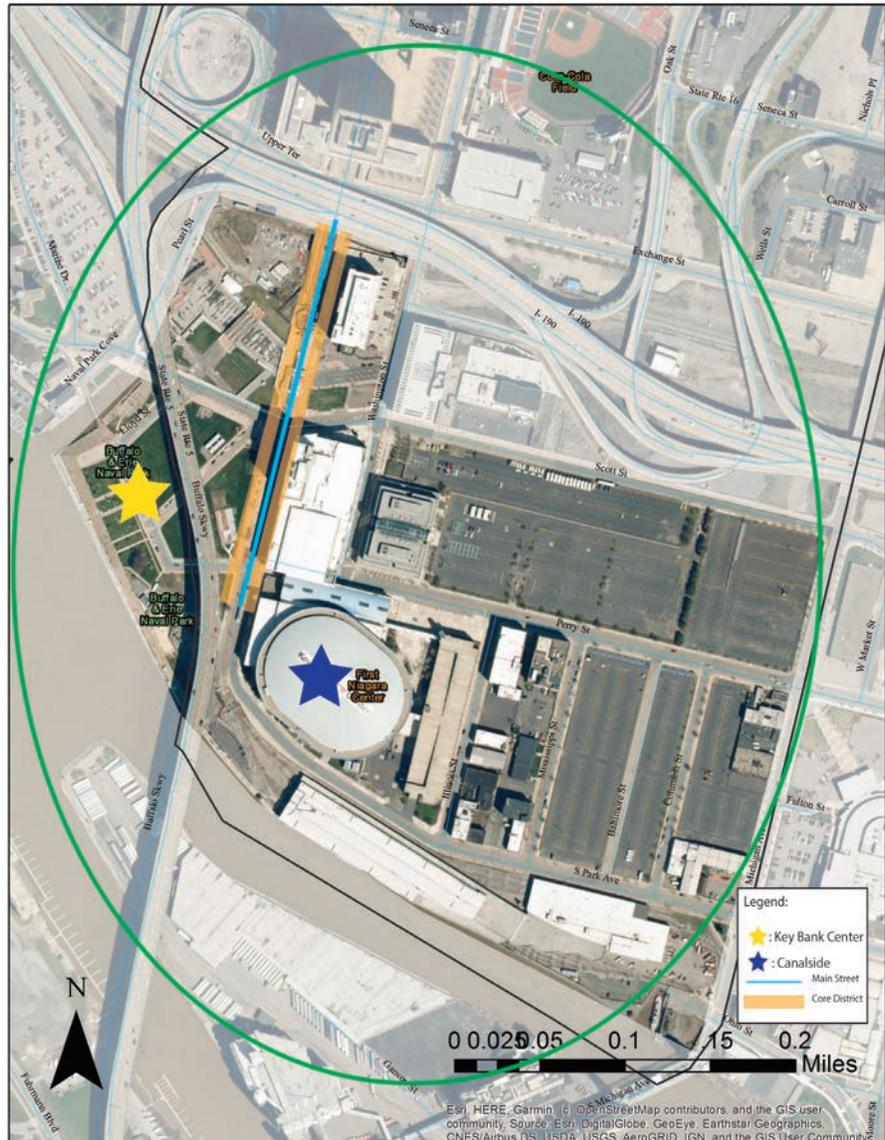


Map 6.3 Proposed area for an ID with boundaries of Church St to the north, Exchange St to the south, Franklin St to the west, and Oak St to the east. Notable places within these boundaries are One Seneca Tower, and the baseball stadium Sahlen Field.

Waterfront

The fourth potential ID is termed Waterfront. The area is shown in Figure 6.4, drawn in a blue outline. From north to south the district stretches from Exchange Street to South Park Avenue. From west to east, the district is between the waterfront (or Waterfront) to Michigan Avenue. The total acreage of this area is 78 acres, making it the largest core district of the four.

This area has great potential as an up and coming lively, vibrant mixed use area, as well as large amounts of space for development. The area has publicly owned lands that could potentially leverage ID property investment. Further, this area already attracts many people because the KeyBank arena and activities at Waterfront.



Map 6.4 Proposed area for an ID along the Buffalo waterfront. Notable places include the Key Bank Center, and the revitalized waterfront district Canalside.

Middle Main

The Middle Main district contains nine innovative firms already within the area measured. The firms that are found here include Buffalo Manufacturing Works, CleanSlateUV, PCI, ZeptoMetrix Corp, Buffalo BioLabs, Decision Pace Inc, Athenex, Medical Conservation Devices, and 3am Innovations. This earns Middle Main a C rating on the Rubric. However, it should be noted that just outside the inner core, there are a number of other innovative firms that can be found.

This ID consists mostly of horizontal mixed use buildings that are scattered along Main Street. Some of the buildings consist of commercial businesses on the lower floor, with some apartment units above. Additionally, as this district is more of a corridor, it naturally leads to a horizontal mixed-use character.

Middle Main received the top score for nearby activity centers because the core is directly next to the Theater District on the south end, the Buffalo-Niagara Medical Campus to the east, and Allentown to the west. Being surrounded by activity that is already occurring will help bring in more people to the ID and is an attractive element for investors or developers.

The Buffalo Niagara Medical Campus falls along the core district's boundary earning the area a C grade for Institutional Anchor. However, the area is lacking large business anchors. Currently there are no large businesses that are considered a staple for the community.

The infrastructure in Middle Main is easily accessible and the area is very walkable. Its location along Main Street allows for easy access to the metro train which includes a newly redesigned NFTA-Metro rail stop at the Buffalo Niagara Medical Campus. Along the rail corridor, this is one of the most popular stops and is used largely by students at the Buffalo Niagara Medical Campus.

On the funkiness index, the core district that extends along Main Street has a few local bars and cafes, including businesses such as Anchor Bar, the Preservation Pub, Coco's, and Homegrown Kitchen. However, there are chain fast food restaurants such as Wendy's that prevent this area from getting a higher grade. The area does have potential to keep adding to its inventory of cafes and bars, given that the reputable Allentown is located nearby.

Middle Main is the third most dense of the four districts, with a density of 57,484.4. This results in it receiving a C for density. From the data collection, we found 24 residential complexes, resulting in about 31% of all building use designated residential. This results in Middle Main receiving a C for Housing on the rubric. As previously mentioned, the district may have more residential units that were not captured due to limitations with the data.

Table 6.1:District	Middle Main
Innovative Firms	C
Mixed Use	C
Nearby Activity Centers	A
Institutional Anchors	C
Large Business Anchors	F
Infrastructure	A
Funky	C
Housing	C
Density	C
Occupied Building Value	B
Vacant Building Value	D
Vacant Land Value	A
Vacant Land & Parking Lots	F
Vacant Buildings	B
Opportunity Zone	Minus

Table 6.1:District

The Middle Main district has 64 occupied buildings by which to compare average occupied building value. These values range from a church located at 29 Best St that is valued at \$0.78 per square foot, to a small lot at 19 North St that is valued at \$273.76 per square foot. Middle Main is relatively cheap in terms of average occupied building values—\$48.43, receiving a B on the rubric.

The property values in and surrounding the Middle Main district have skyrocketed as a result of the Buffalo Niagara Medical Campus, costing \$150.01 per square foot. These high property costs have resulted in Middle Main receiving a D for vacant building values, adding a layer of difficulty to Middle Main as a possible ID location.

Vacant land in the district is relatively cheap, placing Middle Main as the district with the cheapest vacant land property value. With an average cost of \$1.34 for vacant land within the district, Middle Main easily receives an A for this category. Although as will be mentioned in the vacancy rate category,

this vacant land value is only the average of three parcels.

MiddleMain received an F for land vacancy and a B for building vacancy. The district has only three vacant lots that are along a dead-end street off of the Main St corridor—St. Paul St. The district has 21 buildings that are vacant or partially vacant, resulting in a B for building vacancy.

Table 6.2: Occupied Building Value		
Grade	Description	Findings
A	Cheapest	
B	↓	\$48.43
C	↓	
D	↓	
F	Most Expensive	

Vacant Building Value		
Grade	Description	Findings
A	Cheapest	
B	↓	
C	↓	
D	↓	\$150.01
F	Most Expensive	

Vacant Land Value		
Grade	Description	Findings
A	Cheapest	\$1.34
B	↓	
C	↓	
D	↓	
F	Most Expensive	

Table 6.2:
Occupied Building Value
Vacant Building Value
Vacant Land Value

Table 6.3 Land Vacancy		
Grade	Description	Findings
A	13 - 16%	
B	9 - 12% or 17 - 20%	
C	5 - 8% or 24 - 27%	
D	1 - 4% or 29 - 32%	
F	0 - 0.9% or 33%+	0.20%

Building Vacancy		
Grade	Description	Findings
A	10 - 12%	
B	13 - 15% or 7 - 9%	13.60%
C	16 - 18% or 4 - 6%	
D	19 - 21% or 1 - 3%	
F	0 - 0.9% or 22%+	

Table 6.3
Land Vacancy
Building Vacancy

Lafayette Square

The Lafayette Square district currently has five innovative firms located within the inner core. The firms are Centri Logic Inc, Perkin Elmer, Station 28 LLC, One Bridge Benefit, and Emergence Tek Group. This falls within the 4-9 range on the innovative firms rubric category, which earns the area a letter grade of C.

Lafayette Square is made up of multiple blocks of mixed use buildings. There are many types of buildings in the area ranging from one story to multiple stories. There are a variety of uses in some buildings, including office space, apartments, and businesses.

Lafayette Square has two activity centers directly next to the core. To the north of Lafayette Square is the Theater District and to the west is Niagara Square, which includes most of the government buildings such as City Hall and the city courts. These two areas are strong activity centers both during the day as well during the evening when performances at Shea's Theatre takes place.

Currently there are no institutional anchors within the district's inner core. However, there are several large business anchors that can be found here. Key businesses within this district include M&T Bank, KeyBank of America, The Lafayette Hotel, and the local downtown library. Having the five business anchors earns it a top grade for this category on the rubric.

Once again, the district's downtown location along Main Street allows for this inner core to receive a high score for the infrastructure category. It is easily walkable and has easy access to public transportation.

Lafayette Square has a substantial amount of development when it comes to unique, small, funky, and local business. Some examples of the development include bars like Misuta Chows, Hatchets & Hops, Lucky Day Whiskey Bar, Angelica's Tea Room, and more. There are also unique cafes and restaurants such as Over Winter Cafe and Raclettes. Furthermore, many of the buildings in this area are considered historical. Lastly, there is public art on a few of the buildings throughout the core. However, what prevents this area from getting an A grade is the substantial amount of chain restaurants and underutilized space.

Lafayette Square is by far the densest district, with more than twice the density of both Middle Main and Waterfront. Lafayette Square has a density of 145,280.1. This results in it easily receiving an A for density.

From the data collection process, we found a total of 14 residential complexes, resulting in about 10.9% of all building uses designated residential. This district may have more, but the data has some limitations. Additionally, it should be noted that there are a substantial number of residential units directly outside of the district core.

Table 6.4: District	Lafayette Square
Innovative Firms	C
Mixed Use	A
Nearby Activity Centers	A
Institutional Anchors	F
Large Business Anchors	A
Infrastructure	A
Funky	B
Housing	F
Density	A
Occupied Building Value	D
Vacant Building Value	C
Vacant Land Value	C
Vacant Land & Parking Lots	B
Vacant Buildings	A
Opportunity Zone	Plus

Table 6.4: District Lafayette Square

The Lafayette Square district has 64 occupied buildings to compare average occupied building value. These values range from a department store located in the Brisbane Building that is valued at \$7.71 per square foot, to a small lot located at 51 Broadway that is valued at \$410.16. In the heart of Buffalo’s Central Business District, the occupied buildings are very expensive, resulting in Lafayette Square receiving a D.

The limited vacant buildings in the district are valued at an average of \$45.55, resulting in Lafayette Square receiving a D for vacant land value. Of particular interest is the Main Place Mall located at 350 Main St. The mall which is 741,124 square feet is valued at \$10.69 per square foot. While there are multiple complicating factors, the mall has the potential to be a catalyst for a Lafayette Square ID.

Vacant land in the district is rather expensive, placing Lafayette Square as the district with the second most expensive vacant property

value. With an average per square foot cost of \$19.25 for vacant land within the district, Lafayette Square receives a D for this category.

Table 6.5: Occupied Building Value			Vacant Building Value			Vacant Land Value		
Grade	Description	Findings	Grade	Description	Findings	Grade	Description	Findings
A	Cheapest		A	Cheapest		A	Cheapest	
B	↓		B	↓		B	↓	
C	↓		C	↓	\$45.55	C	↓	\$19.25
D	↓	\$56.86	D	↓		D	↓	
F	Most Expensive		F	Most Expensive		F	Most Expensive	

Table 6.5: Occupied Building Value

Lafayette Square received a B for land vacancy and an A for building vacancy. The district has 18 vacant lots, many of which are parking lots. The district has 7 buildings that are vacant or partially vacant. As mentioned previously, the districts Main Place Mall located at 350 Main Street is of particular interest to a potential ID.

Table 6.6: Land Vacancy			Building Vacancy		
Grade	Description	Findings	Grade	Description	Findings
A	13 - 16%		A	10 - 12%	12.20%
B	9 - 12% or 17 - 20%	17.60%	B	13 - 15% or 7 - 9%	
C	5 - 8% or 24 - 27%		C	16 - 18% or 4 - 6%	
D	1 - 4% or 29 - 32%		D	19 - 21% or 1 - 3%	
F	0 - 0.9% or 33%+		F	0 - 0.9% or 22%+	

Table 6.6:
Land Vacancy
Building Vacancy

Lower Main

The Lower Main ID has only one innovative firm within its inner core, qualifying it to receive a lower grade for this category. The only current innovative business that is found in the district is Campus Labs. Campus Labs “offers integrated software and cloud-based assessment tools for higher education,” including a survey component for students to evaluate their colleges’ services and resources. The company has self-reported that it now has over 150 employees and offers its services to over 1,400 college campuses. While campus labs is the only innovative firm that is directly within the Lower Main ID’s core boundary, it should be noted that the ID’s outer core has a significant number of firms.

The Lower Main ID is less mixed with building uses scattered throughout. While not all of the buildings are single-use, which would have resulted in the ID receiving a D for the mixed use category, it is also clear that it does have some single-use buildings. For instance, the Verizon Tower within the district is completely allocated to Verizon phone equipment. Additionally, One Seneca Tower, a mostly vacant 896,000 square foot tower in the district is a huge lost opportunity for mixed-use. The mixed-use that does exist is mostly along Cathedral Park and Pearl Street, but is scattered to the extent that the ID received a C: Scattered horizontal mixed-use across blocks; or isolated vertical (tower).

The Lower Main ID received has one nearby activity centers. To the south of the Lower Main core is Buffalo's resurging Canal side. The entity hosts a variety of activities throughout the year, including ice skating, concerts and yoga in the park. On a warm summer day the area is packed with people enjoying the park and visiting the nearby Buffalo and Erie County Naval & Military Park. This is further supported by KeyBank Center and the Buffalo Marriott Harbor center. Still under construction during the time this report was written, the Explore & More Children's Museum will attract more people to Buffalo's waterfront area. While Lower Main would definitely benefit from its close proximity to the waterfront, there are no additional activity centers directly next to the core that fall within the definition explained above. Therefore, the Lower Main ID received a D for the nearby activity centers category, meaning that at least one end of the district has substantial reputable activity

The next rubric category assesses the number of anchors within the district. The Lower Main ID is seriously lacking in this category, as it has no institutional anchors or large business anchors that can be found within the inner core. Because of this, the ID receive an F in this category.

As mentioned previously, all of the districts have excellent infrastructure resulting in them receiving an A in the infrastructure rubric category: High access to train transportation, recreational amenities, attractive, walkable. The Lower Main ID is split up its core by Main Street, which allows easy access to train transportation from all corners of the district. Additionally, after we explored the district, we observed that it is both attractive and walkable. One possible aspect to consider is the weather conditions. Due to the

design and location of the One Seneca Tower building on Main Street, there is often a lack of natural light as well as high wind.

The Lower Main ID received a C for the funkiness rubric category: Low level of funk. While the core area has a few funky aspects, including a cafe, Pearl Street Brewery, a local barbershop, and historical buildings, these are scattered and make up only a small portion of the district. Additionally, outside of the limited funky businesses, there are not many other businesses in the area that are considered unique.

The Lower Main ID did well in the density category. It is the second most dense of the four districts, with a density of 117,071.7. As this particular category ranks for four districts, the Lower Main ID received a B for density. Its density can be comparatively analyzed to the alternative IDs in Table 6.7.

The eighth rubric category is housing. Through our residential housing data collection process outlined in chapter five, we found a total of five residential complexes in the core ID: 298 Main Street apartments, The Glenny Apartments, The Marin apartments, AC Lofts, and Cathedral Commons. After calculating the square footage of these five apartment complexes and comparing it to the total building square footage in the ID, it was clear that Lower Main is lacking in housing. 10.7% of all building uses in the ID are designated residential, landing it an F for the housing as % of all uses rubric category. It should be noted that this is an approximation. The ID may have more, but again, the data has some limitations.

Table 6.7: District	Lower Main
Innovative Firms	D
Mixed Use	C
Nearby Activity Centers	B
Institutional Anchors	F
Large Business Anchors	F
Infrastructure	A
Funky	C
Housing	F
Density	B
Occupied Building Value	A
Vacant Building Value	B
Vacant Land Value	D
Vacant Land & Parking Lots	B
Vacant Buildings	F
Opportunity Zone	Plus

Table 6.7: District

The Lower Main ID received varied grades for the property value rubric category. The Lower Main district has 20 occupied buildings that were included in the average occupied building value. These values range from a row building at 251 Main St that is valued at \$9.09 per square foot, to the Verizon building located at 46 Church St which is valued at \$83.98 per square foot.

The Lower Main district only has two buildings that are vacant or partially vacant, most notably the One Seneca Tower which is 80 percent vacant. The second vacant building is located at 132 Pearl St. Together, they result in an average vacancy value of \$29.09 per square foot, resulting in Lower Main receiving a B for vacant building value.

The Lower Main district has 12 vacant lots, many of which are parking lots. They range in price from \$2.48 to \$31.90, with an average of \$23.50. This is the most expensive vacant land of the four districts, resulting in Lower Main receiving a D for vacant land value.

Table 6.8: Occupied Building Value			Vacant Building Value			Vacant Land Value		
Grade	Description	Findings	Grade	Description	Findings	Grade	Description	Findings
A	Cheapest	\$35.68	A	Cheapest		A	Cheapest	
B	↓		B	↓	\$29.09	B	↓	
C	↓		C	↓		C	↓	
D	↓		D	↓		D	↓	\$23.50
F	Most Expensive		F	Most Expensive		F	Most Expensive	

Table 6.8:
 Occupied Building Value
 Vacant Building Value
 Vacant Land Value

Lower Main received a B for land vacancy and an F for building vacancy. The district has 13 vacant lots, many of which are parking lots. With 11.7% of the land within the district vacant, Lower Main has an adequate amount of vacancy to support new innovative firms while also maintaining a competitive edge. In large part due to One Seneca Tower, the district has 23.1% building vacancy. While some vacancy is desired for an ID, more than 22% vacancy puts Lower Main at a risk of being too underdeveloped.

Table 6.9: Land Vacancy			Building Vacancy		
Grade	Description	Findings	Grade	Description	Findings
A	13 - 16%		A	10 - 12%	
B	9 - 12% or 17 - 20%	11.70%	B	13 - 15% or 7 - 9%	
C	5 - 8% or 24 - 27%		C	16 - 18% or 4 - 6%	
D	1 - 4% or 29 - 32%		D	19 - 21% or 1 - 3%	
F	0 - 0.9% or 33%+		F	0 - 0.9% or 22%+	23.1%

Table 6.9:

Land Vacancy

Building Vacancy

Waterfront

There are currently two innovative firms found within the Waterfront's inner core. They are Synacor Inc and Turbulent Energy. This qualifies the area to receive a D grade for this category. Although, it should be mentioned that the Buffalo News building, directly on the Waterfront ID boundary, currently has 60,000 square feet of available space. This space used to be home to Z80 Labs, an internet startup incubator, now located in The Innovation Center at 640 Ellicott Street. This is significant for the Waterfront ID as much of the vacancy in the Buffalo News building has already been outfitted to meet the needs of an innovative technology company.

The Waterfront is mostly single use, which earns it a D grade for the mixed use category. The district mostly made up of businesses or offices. Although there are a few apartments in the district, they are not part of a mixed use type development. The KeyBank arena itself is mixed use, which includes the arena itself, a parking garage, two restaurants, a gym, and a few small shops. Other than this, the district can be characterized as mostly single use. This area has potential to benefit greatly from the implementation of mixed use development, as it already attracts many visitors to what is already developed there, including Canalside.

To the north of the Waterfront core, there is Pearl Street Brewery which attracts people for different events such as banquets, weddings, and other tourist activities. Along the water, directly outside of the Waterfront core, there is a newly developed activity center called River Works. River Works is a restaurant, bar, banquet center, and area for a variety of different recreational activities. Both of these activity centers attract people from the Buffalo area and beyond, making

the ID core and outer core popular among tourists. The Waterfront does not have an institutional anchor, giving it an F for that category. However, it does have two business anchors, giving the Waterfront a C. The large business anchors are KeyBank Arena and Canalside.

Waterfront is an attractive and walkable area near the water. The entire area is very pedestrian friendly, in part due to the many events that go on at the arena and Canalside. Further, it has easy access to the train that runs up Buffalo’s Main Street. This area takes the accessibility a step further, as in the summer it is accessible by boat with docking stations all along the perimeter.

Within the core of the Waterfront district, there are limited bars, restaurants, and other unique features that give this area a “low level of funk” grade. For example, inside the core there are a few breweries and local restaurants. Further, there is a comedy club and the waterfront area that provides a space for concerts, and other unique community activities such as yoga and different festivals. Yet, the area is a low level of funk because the businesses themselves are not exceptionally unique, and some are sports oriented such as the hockey arena which is directly in the center of the core. However, this area is exceptional in the sense that in both the summer and the winter, the area is still extremely lively and active because of the variety of activities within the core itself. Thus, the nearby activity centers and the development within the core complement each other making it one of the busier areas in Buffalo.

Table 6.10: District	Waterfront
Innovative Firms	D
Mixed Use	D
Nearby Activity Centers	C
Institutional Anchors	F
Large Business Anchors	C
Infrastructure	A
Funky	C
Housing	D
Density	D
Occupied Building Value	C
Vacant Building Value	A
Vacant Land Value	B
Vacant Land & Parking Lots	F
Vacant Buildings	C
Opportunity Zone	Plus

*Table 6.10:
District*

Waterfront is by far the least dense of the four districts, with a density of 38,783.8. This building density is in large part due to land vacancy and parking lots. This results in it receiving a D for density. However, on the plus side, this area has a large amount of space to develop and potentially make the area denser.

From the data collection process, we found one residential complex resulting in approximately 27% of all buildings in the district characterized as residential. Although there is only one, the building has over 600 units and a large amount of square footage, making it one of the larger buildings in the core. This district may have more residential buildings, but as previously mentioned, the data has some limitations. Additionally, it should be noted that there are a substantial number of residential units directly outside of the district core

Property Value

The Waterfront district has 17 occupied buildings that were included in the average occupied building value. These values range from a row building at 251 Main St that is valued at \$5.05 per square foot, to the Erie Canal Harbor Center located at 125 Main St which is valued at \$195.82 per square foot.

The Waterfront district has three buildings that are vacant or partially vacant—110 South Park Ave, 45 Illinois St, and 125 Washington St. Together, they result in an average building vacancy value of \$14.03 per square foot, the cheapest of the four districts, resulting in Waterfront receiving an A on the rubric.

The Waterfront district has 16 vacant parcels, many of which are parking lots. They range in price from \$0.77 to the Waterfront outdoor ice rink at 130 Main St at \$77.24, with an average of \$13.53. This is the second cheapest of the four districts, resulting in Waterfront receiving a B for vacant land value.

Table 6.11: Occupied Building Value			Vacant Building Value			Vacant Land Value		
Grade	Description	Findings	Grade	Description	Findings	Grade	Description	Findings
A	Cheapest		A	Cheapest	\$14.03	A	Cheapest	
B	↓		B	↓		B	↓	\$13.53
C	↓	\$55.86	C	↓		C	↓	
D	↓		D	↓		D	↓	
F	Most Expensive		F	Most Expensive		F	Most Expensive	

Table 6.11:
Occupied Building Value
Vacant Building Value
Vacant Land Value

Vacancy Rate

The Waterfront district received an F for land vacancy and a C for building vacancy. The district has 16 vacant parcels, resulting in a land vacancy rate of more than 33%. As a result, the district has too much land vacancy, and presents a potential concern in terms of initial investment needed. With only three vacant buildings in the district, Waterfront has 5.2% building vacancy.

Table 6.12: Land Vacancy			Building Vacancy		
Grade	Description	Findings	Grade	Description	Findings
A	13 - 16%		A	10 - 12%	
B	9 - 12% or 17 - 20%		B	13 - 15% or 7 - 9%	
C	5 - 8% or 24 - 27%		C	16 - 18% or 4 - 6%	5.20%
D	1 - 4% or 29 - 32%		D	19 - 21% or 1 - 3%	
F	0 - 0.9% or 33%+	34.90%	F	0 - 0.9% or 22%+	

Table 6.12: Land Vacancy
Building Vacancy

Conclusion

There are two final measures for the four potential districts: the district innovation score and the cost of district innovativeness per square foot. The district innovation score is the total scoring given the

10 categories outline throughout Chapters 5 and 6, allocating weights to the categories to obtain a final score for each of the four districts. The cost of district innovativeness per square foot is a scoring system by price (occupied buildings and unoccupied buildings) utilizing the first eight district innovation categories: innovative firms, mixed use, nearby activity centers, anchors, infrastructure, funky index, housing, and density. These in-depth comparative assessments of the four core districts' suitability for an ID give us a few key takeaways.

For the district innovation score, we assigned grading weights to each of the 10 categories. These weights can be seen in Table 6.13. Each category was evenly assigned a weight of 0.1 resulting in the best possible score of a 100. The anchor category and property value category were divided by their subcategories. It should be noted that the weights can be shifted based on which innovation district category is more valued or important to a given stakeholder or community leader.

Given the even weight distribution, the area that ranked the most suitable for an innovation district is Lafayette Square, with a grade of 86/100. The next three ranks can be seen in Table 6.13, showing that Lower Main comes in second at 68/100, then Middle Main, 59/100 and Waterfront, 54/100 coming in last. Lafayette Square stood out in a number of criteria resulting in its receiving the highest score.

The first is the mixed-use criteria, in which Lafayette Square has an A grade while the others have a C or below. Further, Lafayette Square has a considerable amount of business anchors in the area compared to the other three, again placing it on top. Lastly, Lafayette Square was noticeably exceptional in terms of density when compared to the other three districts. With all of this in mind, again, this rubric does not fully grasp every factor that makes up a complex innovation district. Although Lafayette Square came out as the most suitable, it does still have limitations that need to be considered within the next steps of research or development.

Table 6.13: Criteria	Weight	Lafayette Square	Middle Main	Waterfront	Lower Main
Innovative Firms	0.1	C	C	D	D
Mixed Use	0.1	A	C	D	C
Nearby Activity Centers	0.1	A	A	C	B
Institutional Anchors	0.05	F	C	F	F
Large Business Anchors	0.05	A	F	C	F
Infrastructure	0.1	A	A	A	A
Funky Index	0.1	B	C	C	C
Housing Density	0.1	F	C	D	F
Occupied Building Value	0.033	D	B	C	A
Vacant Building Value	0.033	C	D	A	B
Vacant Land Value	0.033	C	A	B	D
Vacant Land & Parking Lots	0.05	B	F	F	B
Vacant Buildings	0.05	A	B	C	F
Opportunity Zone		Plus	Minus	Plus	Plus
Innovation District Index		86	59	54	68

A = 100; B = 80; C = 60; D = 40; F = 20 (Maximum score = 100)

Table 6.13: Criteria

Table 6.14 outlines the second comparative measurement for the four potential districts: the cost of district innovativeness per square foot. Utilizing the first eight rubric categories, the best possible score that a district could receive is an 80. As can be seen in the table, the Lower Main district received the highest score for the district innovativeness per square foot for occupied buildings, followed by Middle Main, then Lafayette Square, and finally the Waterfront. The Waterfront district received the highest score for the district innovativeness per square foot for unoccupied buildings, followed by Lower Main, then Lafayette Square, and finally Middle Main.

The likely reason that Lower Main and the Waterfront received the best scores in this assessment is because of their relatively low property values. For instance, the Waterfront’s cost of unoccupied building space is \$14 per square foot. Despite receiving a relatively low score for innovation in the first eight rubric categories, its inexpensive unoccupied building value gives the district a clear advantage for

potential investors and developers. One possible limitation to this data is the number of occupied buildings and unoccupied buildings within each district. These numbers vary greatly across the board. For instance, the Waterfront district only has three vacant buildings, and therefore the limited buildings could skew the data.

Table 6.14:	Lafayette Square	Middle Main	Waterfront	Lower Main
Innovation Score (first 8 categories)	62	54	32	46
Cost of Occupied Building Space Per Sqft	\$56	\$48	\$56	\$36
Cost of Unoccupied Building Space Per Sqft	\$45	\$150	\$14	\$29
District Innovativeness Per Sq. Ft. (Cost of Occupied Building)	1.11	1.13	0.57	1.28
District Innovativeness Per Sq. Ft. (Cost of Unoccupied Building)	1.38	0.36	2.29	1.59

Table 6.14 comparative measurement for the four potential districts

The district innovation score and the cost of district innovativeness per square foot assessments offer a clear analysis of the four districts using key factors necessary to a successful innovation district. While this serves as a starting assessment, it can be adapted and reassessed in multiple ways to meet the needs of multiple community leaders and stakeholders. For instance, varied weights can be assigned to the rubric categories. It is our hope that these tools be used in this way, adapting to ensure that they best meet the needs of the greater community.

A photograph of a park with a blue overlay containing text. The background shows a grassy area, a paved walkway, and a city skyline under a clear blue sky. A person is sitting on a bench in the foreground, and several people are walking in the distance. The blue overlay is a large, semi-transparent shape that points to the right, containing the text 'Chapter 7: Special Considerations' in white.

Chapter 7:

Special Considerations

The main contribution of this paper was to figure out where a specific innovation district (ID) should be located in Buffalo. This contribution led to the selection of four possible core areas, seen in the previous chapter, with Lafayette Square coming out on top. The next question to ask is, How do we move forward and make it successful? We can accomplish this by looking at, and finding solutions for, three major considerations -- affordable housing, co-working spaces, and governance style. Working on all three will ensure that Buffalo has a successful ID. Research from Chapter 3 shows us that the City of Buffalo falls behind in the availability of both affordable and market rate housing within the ID cores. Buffalo also only has one area of available co-working space, and is in need of finding another potential area to allow innovative ideas to spread amongst workers. Buffalo has never had an ID before, and therefore understanding which governance structure to implement is going important in maintaining the ID. Each of the three selections below will get into more details on the stated topics.

Affordable Housing

Much of the literature on innovation districts argues the need to make districts accessible to low-income urban residents. Critics also argue that these kinds of efforts have not materialized in many IDs, which can then become a thin veil for gentrification. Inclusivity must be a forthright goal and intention of the ID, not just an afterthought. We recommend a direct focus on equitable development in Buffalo's ID to ensure that the district does not see the inequitable fate of those districts that have come before it. There are a number of federal, state, and local incentives available to realize the production of affordable housing in the ID including: LIHTC, payment-in-lieu-of-taxes (PILOT) agreements, Community Development Block Grant (CDBG) and Housing Opportunities Made Equal (HOME) dollars. The main type of affordable housing we would like to see develop in Buffalo's ID is a mixed-income based housing. This will include a diversity of available rent levels, with both market rate and affordable housing that is accessible for both abled and disabled individuals.

There are presently 333 designated low-income housing properties throughout Buffalo. However, there is a lack of

affordable housing within the chosen core ID districts. The only core ID that has any affordable housing is Middle Main. Trinity Tower Senior Apartments, located at 33 Linwood Avenue, is an affordable senior housing community. A one bedroom apartment is \$734, and a two bedroom apartment is \$864. Located just outside of the core of Middle Main is the Braco Apartments. This is another affordable housing property that is income based. Rents for these units range from \$0-\$1,284 in designated income bands.

While the core IDs are lacking a number of affordable housing units, there are some properties located in the wider core. Of those that are located in the wider core, the Middle Main inner district has the most properties located nearby. These properties include Cornerstone Manor, Ellicott Place Apartments, Artspace Buffalo Lofts, St. John Tower Apartments, McCarley Gardens, and St. John Townhomes Phase II.

Lafayette Square has two properties nearby that fall within the wider core. These are Pine Harbor Apartments and Shoreline Apartments. Lower Main has one affordable property nearby, which is the Ellicott Town Center. As for the Waterfront district, the Marine Drive Apartments are the only affordable units that are located nearby within the wider core. The majority of these affordable properties within the wider core are income based.

There are a number of financial incentives available to offset the cost of the development of affordable housing. New York State Homes and Community Renewal (NYSHCR) will be the primary source of incentive funding for affordable housing development options.

NYSHCR offers the following incentives for developers and private investors that are available to develop affordable and mixed-income housing within the selected core and wider ID:

- 1) **Low-Income Housing Tax Credits (LIHTC)**¹- This program is the largest source of new affordable housing in the United States. The program provides tax incentives that are written into the Internal Revenue Code, to encourage developers to create affordable housing. Corporate investors then invest in the development, acquisition, and rehabilitation of affordable rental housing. The LIHTC then is an indirect federal subsidy that finances low-income housing. This allows investors to claim tax credits on their federal income tax returns. The tax credit,

claimed annually over a 10-year period, is calculated as a percentage of costs incurred in developing the affordable housing property. Some investors may garner additional tax benefits by making LIHTC investments.

2) **Payment in Lieu of Taxes (PILOT)** - This program is an investment incentive negotiated between a taxing authority (typically a municipality) and a developer. PILOT replaces a traditional property tax assessment with a limited and/or deferred payment

3) **Community Development Block Grants (CDBG)²** - This flexible program provides communities with resources to address a wide range of unique community development needs. The CDBG program works to ensure decent affordable housing, to provide services to the most vulnerable in our communities, and to create jobs through the expansion and retention of businesses. CDBG is an important tool for helping local governments tackle serious challenges facing their communities.

4) **The New York State Affordable Housing Corporation (AHC)** - This program creates homeownership opportunities for low-to-moderate-income families by providing grants to governmental, not-for-profit and charitable organizations to help subsidize the cost of newly constructed houses and the renovation of existing housing. AHC promotes homeownership among families that have few affordable homeownership alternatives in the private market

After conducting a review of city-owned vacant property, we determined that the city currently owns a 1.34-acre lot located at 100 North Division Street. This lot would be perfect for the development of housing units that fit our mixed-income suggestions. This parcel is an eight-minute walk from the Main Place Mall and is right nearby the proposed 201 Ellicott³ development, which will consist of a Braymiller grocery store and 200-unit affordable housing complex. As the parcel is located in the immediate vicinity of a substantial upcoming affordable housing development, we recommend that the site be developed as mixed-income housing. Such a development would increase both the affordable and market rate housing in the area immediately surrounding the ID, allowing for enough housing options.

The planning and development of Buffalo's ID must be equitable and inclusionary. Affordable housing cannot be an afterthought, but an intentional element of the district. There are numerous

incentives available to offset the cost of development and there are many models to choose from that incorporate a range of income levels. With 200 units of affordable housing being developed at 201 Ellicott Street, we suggest that a new housing development be mixed income to provide diversity. The city-owned lot we identified at 100 North Division Street would be a strong contender for such a development, as it will be within walking distance of the core district and multiple modes of public transport.

Co-Working Space

The average lifespan of companies on the S&P 500 in 1965 was 33 years. It's expected to drop to 14 years by 2026.¹ Businesses, especially innovative, typically only have short-term revenue projections. They need flexibility for work space environments instead of getting into a standard long-term commercial lease. To accommodate this need for flexibility, co-working space emerged in the past ten years. "It is a self-directed, collaborative, flexible and voluntary work style that is based on mutual trust and the sharing of common core values between its participants."² People who use co-working spaces see their work as meaningful, have more job control, and feel part of a community.³ Co-working space can tap into an existing vibrant community or act as a catalyst in the development of the surrounding area.

Below are some examples on how co-working spaces play a significant role in some existing innovation districts around North America:

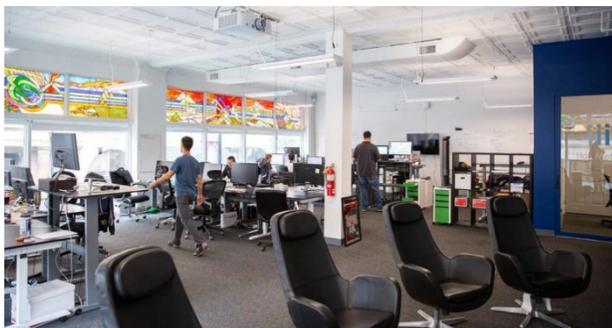


Image 7.1 A&B -122 Meyran Ave is a 5,290 sq.ft. technology space available in the Pittsburgh Innovation District in 2019. It has open floor plan for maximum collaboration, and enclosed conference room.

Picture Source: <https://avenu-pgh.org/workspaces/122-meyran-ave/>



Image 7.2. A&B -Workhause Market located at 290 King Street East, Kitchener, Canada is a 10k sq.ft. space with rustic brick accents, high ceilings, and rays of natural light.

Picture Source: <https://www.coworker.com/canada/kitchener/workhaus-market>

Avenu, a collection of work spaces in the Pittsburgh Innovation District, supports equitable business development in the neighborhoods of Oakland and Uptowns. Avenu formed from the 2017 merger of two of Pittsburgh's pioneering co-working accelerators, StartUptown and Revv Oakland. It currently operates the histrionic Paramount Film Exchange Building in Uptown and maintains a strategic marketing arrangement with the Oakland Real Estate Company's portfolio in Oakland. In addition, Avenu is an active partner in implementing the Uptown/West Oakland EcoInnovation District Plan.⁴

In Waterloo, Ontario, Kitchener's Innovation District has three co-working spaces within the district and one just outside of the district --- Workhause Market, Treehause Collaborative Workspace, Workplace One Kitchener, and Freedom Café.⁵

Cortex Innovation Community at St. Louis is home to six co-working spaces as of 2018. T-Rex is St. Louis's most prominent startup hub featuring more than 110 startups and 160,000 sq. ft and free pour-over coffee.⁶ Cambridge Innovation Center (CIC) has launched three locations in this community. And there are smaller co-working spaces including Industrious, TechArtista, Lab1500 and Nebula.⁷

If Buffalo were to create an innovation district, co-working space would be an essential part of it. The existing co-working spaces in Buffalo are listed below:

Dig Buffalo at 43 North.

Buffalo Game Space in the Tri-Main Building. It offers co-working space as a benefit to its Silver and Gold memberships.

Inception Buffalo at 1016 Niagara Falls Blvd.



Image 7.3 A,B&C -Rex located at 911 Washington Ave, St. Louis is a non-profit technology startup incubator & world-class venue providing the early-stage entrepreneur with low cost & flexible enterprise space, while serving the region with quality programming and inspiring community collaboration.

Picture Source: <http://www.downtowntrex.org>

The Loft by the airport.

The Annex on West Ferry St near Grant St. It offers office and kitchen space specifically for growing food-based businesses.

The Guild @ 980 at 980 Northampton St. It rents space to solo and small businesses, particularly those with a trade, craft, or creative angle.⁸

Dig Buffalo currently is the only co-working space in the core IDs we have proposed. There's 6,000 square feet of workspace located on the first floor of the Innovation Centre. Dig offers various membership options to suit different work needs. Member benefits include: unlimited 24/7 access, high speed internet, free coffee and tea, office supplies and equipment, full kitchen access plus fun stuff like Kinect. More co-working space should be planned for a future innovation district.⁹

Here are some possible locations for such a creative space in the core districts we proposed.



Image 7.4 - Dig Buffalo located at 640 Ellicott St, Buffalo
 Picture Source: <https://www.coworker.com/United-States/new-york/buffalo/dig-buffalo>

Trico Plant No.1 in Middle Main

This historic windshield wiper factory building located at 791 Washington St is an example of a style of architecture sometimes referred to as the daylight factory, a style for which Buffalo is well known. The Krog Group purchased this building in 2017 from the Buffalo Brownfield Restoration Corporation who owned it for over 10 years. The redevelopment plan divides the usable area into a hotel, apartments and commercial space.¹⁰ The details on the commercial space is unknown but we think the typical manufacturing open plate with large daylight windows makes it an ideal candidate for some flexible co-working space.

Main Place Mall in Lafayette Square

The Main Place Mall is an enclosed mall with 250,000 sq.ft. of Gross Leasable Area (GLA), sitting between the Liberty Building and the Main Place Tower.¹¹ A covered walkway allows easy access to the Main Place Mall from either the Liberty Building, the Main Place

Image 7.5 - Trico Plant
 Picture Source: https://en.wikipedia.org/wiki/Trico_Plant_No._1#/media/File:Trico_Plant_No._1_Dec_09.JPG



Tower, or the Erie County Building. Despite its prime location, it has been mostly vacant and neglected for years. With more and more shutdowns of malls across the country, they have been converted into other uses including apartments, condominiums, entertainment venues, and co-working spaces. The highest concentration of co-working spaces in retail nationally is in malls. A research done by global property company Jones Lang LaSalle predicted that co-working space in retail in general would grow at an annual rate of 25 percent through 2023. For instance, WeWork has co-working spaces at Fulton Center in Manhattan. Cowork at the Mall, a New York-based start-up, plans to open co-working space at Chicago's

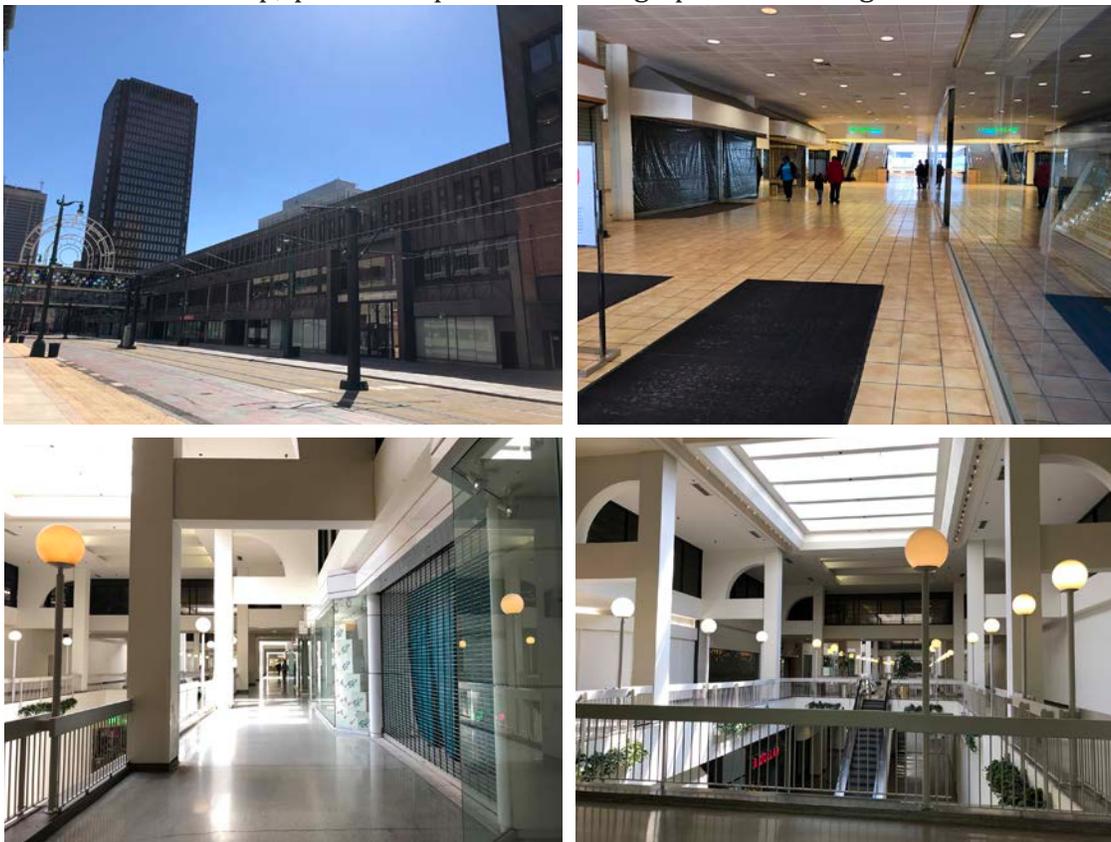


Image 7.6 A, B, C & D Main Place Mall exterior and interior
 Pictures created by author



Image 7.7 E Bespoke Co-working at Westfield San Francisco Centre
 Picture Source: <https://bespokesf.co/coworking-overview>

Water Tower Mall and two locations in the Los Angeles area.¹² Co-working space could be one of the key elements for any future development of Main Place Mall.

Seneca One Tower in Lower Main

The current owner has a mixed-use redevelopment plan for this 38-story tower including apartment, retail and office space.¹³ It is going to be challenging to fill the entire 1.3 million sq. ft. of the tower considering a net absorption for office space of 357,210 sq. ft. in Q4 2018 for Buffalo market.¹⁴ Part of the bright and open space on the northern side of the first floor in the tower could potentially be co-working space, which could tap into the planned retail space on ground floor.

DL&W Terminal in Waterfront

Set on a prominent riverfront site, D.L. & W. Terminal was a regionally significant structure within the context of transportation and has retained its integrity of design. The 8.1-acre site owned by the Niagara Frontier Transportation Authority (NFTA) is bounded on the north by South Park Avenue, west by the Skyway, south by the Buffalo River and east by Michigan Avenue. Part of the 80,000 sq. foot space on the second floor could potentially be developed as co-working space overlooking the Buffalo River.¹⁵ The planned new subway station here will also make it attractive to millennials who prefer alternative transportation than driving.¹⁶

Considering that Lafayette Square area has the highest score in our rubric in previous chapter, we think Main Place Mall has the greatest potential to be the catalytic property that would affect all downtown. Main Place Mall and Main Place Tower are both part of 350 Main St. As of April, 2019, Main Place Tower has an approximate vacancy rate of 30% with average rent of \$18/SF/Yr (Full-Service Gross) according to Loopnet.¹⁷ This is on the lower end of the leasing rate range for Class B buildings in City CBD area, especially considering the existence of carrier hotel within the tower. (A carrier hotel is a secure physical site or building where data communications media converge and are interconnected.¹⁸) Buffalo Niagara International Internet Exchange (BNIIX) was launched by IIX Networx Inc. within the carrier hotel at 350 Main St in 2011. "With the continuing growth of Internet traffic, BNIIX

will allow its members to route IP traffic efficiently between each other via a centralized switching fabric. The infrastructure of these Internet Exchange Points (IXPs) will also allow members to reduce transit costs, and improve reliability and lower-latency of internet traffic.”¹⁹ This data hosting feature could be a crucial amenity for companies which highly rely on speedy internet service.



*Image 7.8 Seneca One Tower when it was till HSBC tower
Picture Source: https://de.wikipedia.org/wiki/One_Seneca_Tower#/media/File:One_HSBC_Buffalo.jpg*



*Image 7.9 Caption: DL&W Terminal
Picture Source:<http://www.forgottenbuffalo.com/forgotten-buffalolost/thedlwterminal.html>*

Governance

In order to develop a basis and understanding for governance in our chosen ID, we explored a few options of organizational frameworks for stakeholders to consider. Some key concepts we found in the literature include being inclusive of ID participants (including entrepreneurs and institutions that support innovation and innovative activities), as well as the communities who are affected by the ID's presence. Governance should therefore include the different interests in the process of planning and programming for the ID. This would then create an ecosystem of innovation in the district that is flexible and responsive to constituents' needs and conditions, while also being effective at getting tasks done in a timely fashion.

There are several different organizational options that comply with New York State law. Therefore, we have divided the oversight options into two general categories that can move along a spectrum. On one side of this spectrum is a loosely connected "founding committee" style of organization (as was done in Pittsburgh's ID). This model is not incorporated as a government body, and instead is seen as a neutral organization. This type of oversight gives ideas and considerations that will best suit an innovation district to private developers. They do not own or develop land and physical capital (such as housing and infrastructure), but instead coordinate the providers of these goods and services in the area.

At the other end of the spectrum is a public benefits corporation that has its own staff, revenue streams, and legal powers. New York State has four types of public authorities. The most appropriate type for an ID in Buffalo would be a Class C public authority, which is geared for local government applications.¹ However, it should be noted that there are no "ID" related public benefit corporations in New York State. This would result in Buffalo having the first and only one in New York State for such a purpose. These authorities have the power to: take on debt, buy and sell property, raise revenue through rents or charges for services, permit financing that is independent of voter or municipal authority, and receive federal and/or other applicable grants. However, they are limited by the US Constitution and New York State's Constitution, as well as any other restrictions placed on them by their founding legislation.

In between these two sides of the spectrum are many different organizational options that can either be done by the City of Buffalo or the State of New York depending on what is being done. This may include:

- 1) A City agency leading the effort entirely
- 2) A City agency taking on a coordinating effort with other stakeholders in a way defined by local and State legislation.
- 3) An independent 501(c) incorporated entity being created by the City government and the relevant stakeholders to coordinate, manage, and oversee the operations of the ID. A 501(c) organization appears to be the most common form of management organization for an ID, appearing in St. Louis's and Cleveland's ID.

All options of the spectrum listed above have positive sides to them, there will be a few common issues to consider based on the cursory research into ID management options. Although the list is incomplete, it is still helpful in framing the conversation around how to develop the management structures and processes for the potential ID in Buffalo. Four major questions should be asked when forming the preferred governance style: How do we finance the activities of the ID and its possible parent organizations? Who is included in the initial and ongoing discussion of the ID? What powers the managing organization might have (if there is a managing organization)? And lastly, how will the organization work with the stakeholders involved?

We feel that this report is not the appropriate place to comment on which option would be preferable for Buffalo. Instead, we suggest that stakeholders convene a symposium of the different stakeholder groups who would be associated with or affected by the ID. Stakeholders can then further discuss how ID management should be structured as a group. From there, the community itself can decide on the organizational framework and management for the ID that it believes is most effective at managing the ID. These steps will lead to acting accordingly with the conditions that present themselves in the physical and socio-political spaces of the ID. Some stakeholders we feel are significant for this process include, but are not limited to:

- Property owners in the ID
- Community organizations who represent housing and worker interests
- State authorities and organizations
- City organizations and officials
- The University at Buffalo Medical School and School of Engineering

This is just a limited list of players we feel are significant for getting an ID started in Buffalo. As such, even if they are not included in the direct management of the organization, they may be included in the process of designing the ID's legal and organizational framework. By leaving the question of organizational design and management to the community, we hope to enable a concerted effort to produce a quality organizational design for the ID's management and stewardship.

Sources for each subsection of Chapter 7

Affordable Housing

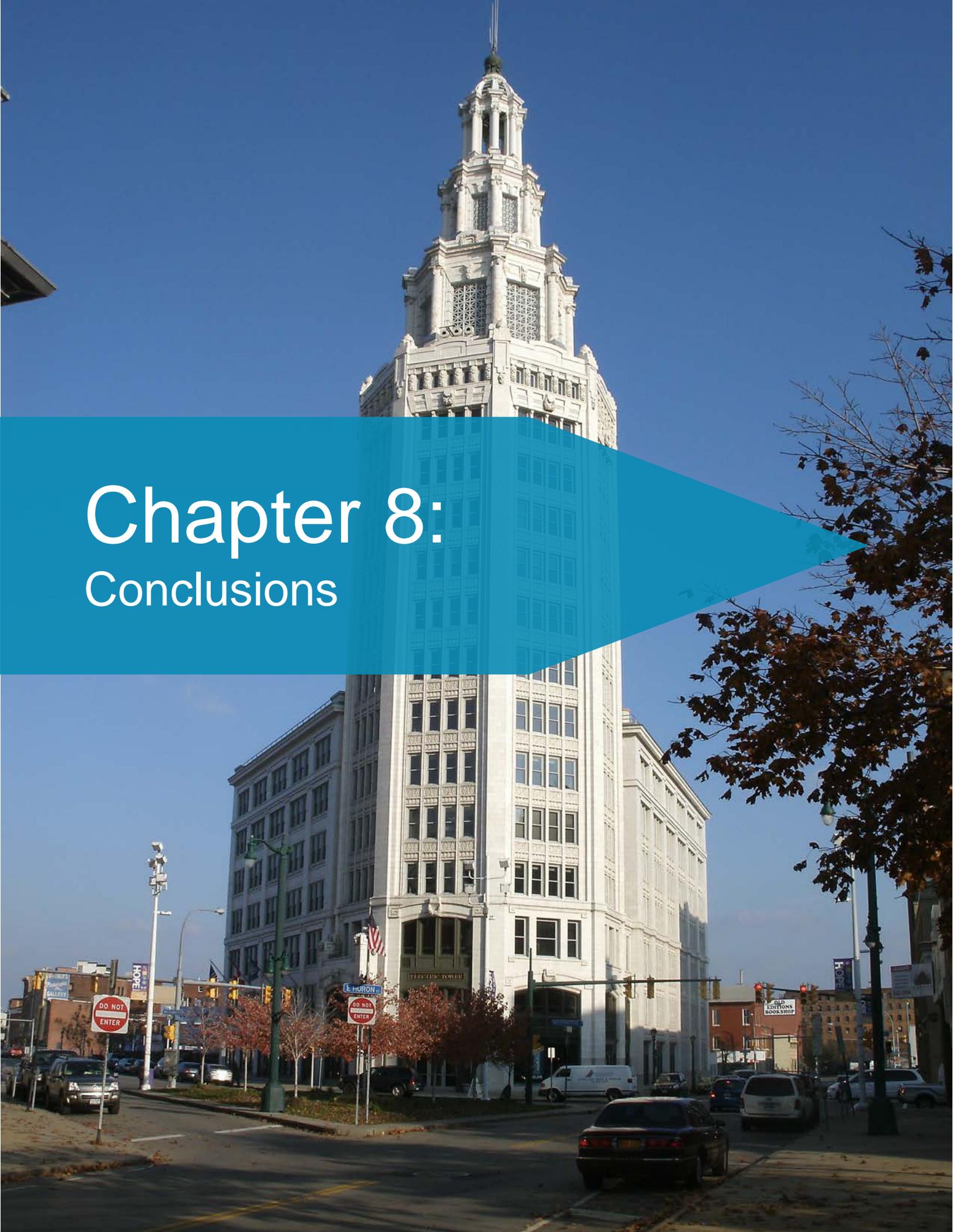
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Chapter 8: Conclusions

Launching an Innovation District in Buffalo

After comparing IDs across the country, from Albuquerque, NM, to Chattanooga, TN, it is clear that Buffalo has many characteristics that can support the establishment of an ID. Buffalo has similar demographics, density, incomes, and technology firms to those in other cities that have designated IDs. Although the potential “wider area” for an ID in Buffalo’s greater downtown is lacking in available housing and has a lower educational attainment than other ID’s studied, Buffalo all-in-all compared well to bigger and established ID’s such as Pittsburgh, PA. Though Buffalo now has an extent of development activity greater than it has seen in decades, there is currently adequate availability of real estate in buildings and lots, and low enough costs, to support an increase in mixed-income housing and the prospective influx of new firms.

Where is the best location for an ID in Buffalo?

The ten rubric criteria outlined in Chapter 5 led us to a few conclusions on where the best location for an ID in Buffalo should be. We set our ten criteria by first looking at our ID definition: A concentration of innovative tech firms and research institutions in a dense, urban mixed-use area. This, therefore, took us to Buffalo’s larger downtown area, which has the largest concentration of innovative tech firms in the Western New York region studied. From this information, we defined four core ID areas along this stretch of innovative tech firm concentration from Buffalo’s Canalside to the Buffalo Niagara Medical Campus (Waterfront, Lower Main, Lafayette Square, and Middle Main).

In order to decide which of the four core districts is the most appropriate ID, we used ten rubric criteria to assess the viability of each. The rubric was developed using the available literature, case study research, and information from local leaders familiar with the area. With this information, we outlined characteristics that would be desirable to have in an ID.

From this process, we found that Lafayette Square is the best location to host an ID. Lafayette Square received the highest score from our district innovation score, which graded the districts by giving equal

weight to each category outlined in the rubric, with a location being able to receive a maximum score of 100 points. Lafayette Square received the highest grade because it stands out in a number of categories. The first mixed-use, in which it got a score of an A, while the remaining three only have a C or below. Next Lafayette Square also has a considerable amount of business anchors in comparison to the other three. Lastly, Lafayette Square has the highest amount of density.

The second measure used to choose the most viable location is the cost of district innovativeness per square foot. This measure includes only the first eight criteria in the rubric: innovative firms, mixed-use, nearby activity centers, anchors, infrastructure, funky index, housing, and density. The total of these eight was then divided by the cost of occupied and unoccupied building space per square foot. The results find that the Lower Main location receives the best score in this grading system, showing that this area gives the most district innovativeness at the lowest cost per square foot.

These two measures provide a clear conclusion of which of the four core districts are most viable for an ID. Lafayette Square is found to be the best location to host an ID core. This is found from the rubric scoring system, but there are also a few reasons that reiterate the viability that is not explicitly measured in the rubric. One reason is the fact that Main Place Mall is located directly in this core, which is a large piece of property that provides a good amount of vacant space for a relatively cheap price. A puzzling local situation, however, is the willingness of property owners to participate in creating the ID. The second reason is that an IPX has been located in this building, offering every useful resource for some tech firms.

The next conclusion that we can draw from the two measures is that the ID core does not have to directly be restricted to Lafayette Square. The second measure used in the rubric found that Lower Main is also a very viable location because of the relatively low cost for the amount of district innovativeness it provides. Seeing that Lower Main and Lafayette Square are directly next to each other, Buffalo's designated ID core can be flexible adjusted between our two initially proposed district locations. The advantage of including parts (or all) of Lower Main can be seen through the low cost of the land and buildings in the area.

Lower Main also has One Seneca Tower located in the core, which is a valuable piece of property now and into the future. Next, On the other hand, there may be some disadvantages of including the Lower Main core. The first disadvantage may be that the current vacancy in One Seneca Tower poses many uncertainties (and opportunities) for the future ID. Further, , there is little to no housing in the area. What is more, the One Seneca Building overshadows lower Main Street and sometimes causes a wind-tunnel effect, making it uncomfortable during some parts of the year. Still, parts of Lower Main and Lafayette can add up to a promising combination for Buffalo's future ID.

Overall, the boundaries we drew around the core districts in this research were specifically for analytical purposes. These boundaries are flexible and can be drawn differently in a way that finds the best balance of the advantages and disadvantages between Lower Main and Lafayette Square. Now the time comes for Buffalo's and Western New York's leaders and informed citizens to weigh in on the creation of an ID. Where should they start?

Establishment of a Founding Committee

A founding committee of stakeholders should be organized to kick-start an ID process. Stakeholders can be influential persons (developers, elected officials, financial institution leaders etc.) within a community as well as community residents and business owners. In fact, it is suggested that both are part of the founding committee.. Ideally, a cross-section of stakeholders should nominate individuals to join, ensuring both accountability and diversity.

Stakeholder Meeting/Symposium

An important early step is mutual learning and discussion with potential stakeholders and participants, toward better understanding of what an ID entails. It could be strictly a meeting of local stakeholders, or could include invited experts, turning the event into more of an educational symposium. UB's School of Architecture and Planning could possibly help in such an event.

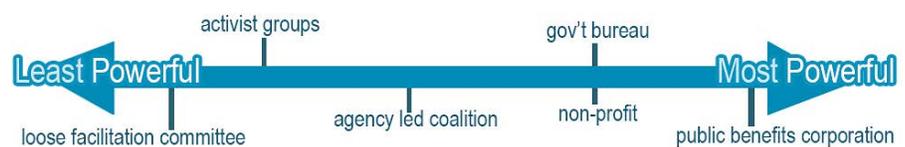


Figure 8.1 - Governance Structures considered

Choosing a Governance Structure

Once the Founding Committee is established, it should regularly convene toward the goal of selecting a governance structure of the ID. As can be seen in Figure 8.1, there is a range of governance options that should be considered. This range is broken down by the “least powerful,” defined by a loosely structured committee to the “most powerful,” defined by a public benefits corporation. However, there may also be disadvantages to governance structures that have excess authority and depend less on other parties’ involvement. There are five broad government structures depicted in Figure. 8.1, although there are multiple nuances and factors that are critical for each of these broad categories. The many factors that go into selection of a governance structure can only be properly weighed by stakeholders themselves. The Founding Committee should consider the pros and cons of the governance structures outlined in chapter seven, ultimately choosing a structure that best fits Buffalo’s ID.

Community Engagement

Community involvement should be a core component of the process. There are a number of approaches to involving the community in the establishment of an ID. Two key questions should be considered: 1) To what extent should the community be involved? and 2) At what stage in the process should the community be involved? As previously mentioned, one way to involve community early on is through recruiting residents and business owner that are rooted within the wider ID to join the founding committee. However, there is still the dilemma of community accountability as well as community buy-in, which are both important aspects to the overall success of an ID. The Founding Committee should consider if a large city-wide community forum should occur before an ID location is chosen or if an ID location should be chosen first, followed by a series of community workshops rooted within that specific neighborhood. While both approaches have pros and cons, the latter runs the risk of being confronted by possible opposition later in the process. The Founding Committee should consider the options and move forward with a community involvement plan that makes the most sense in Buffalo’s circumstances.

Innovators’ Meeting

Once the governance structure of the ID is selected, there should be an initial meeting that brings together innovative groups in the city, including businesses, incubators, accelerators, and research institutions. This does not need to be an ongoing process, but rather a survey to gauge the pulse of interest from the innovative entities that may become a part of the ID, and to judge direction and process for further steps.

Initial Four Steps for our ID:

1) Funding

As the governance entity is organized, it should look into funding mechanisms for the ID. In addition to private investment from entities seeking profit from the success of the ID, additional funds will be needed. For instance, vacant lots/properties may need to be acquired by the ID itself. To ensure funding, possible routes to consider are public/private grants, RFP's to identify potential developers, and grassroots fundraising strategies via donor and stakeholder cultivation.

2) Surveying of Funky Businesses

The new ID governing organization should then survey the funky businesses in Buffalo and surrounding areas. Funky businesses are one of the components that need to be included in an ID for it to become fully successful. However, the governing team needs to be strategic in what types of businesses and arts organizations it is trying to recruit or attract to the core. Examples include arts studios, unique coffee shops, restaurants featuring celebrated chefs, and various businesses focusing on alternative consumption preferences.

3) Affordable Housing Initiatives

The governing team should engage in an intensive focus on equitable development in Buffalo's ID. This will ensure that the district does not see the inequitable fate or gentrification of those districts that have come before it. Mixed-income housing would be the most welcome in Buffalo's ID. With a diverse range of available rent levels, including both affordable and market rate housing, we will ensure that Buffalo's ID is equitable, and to provide housing as well as jobs. In order to encourage affordable housing in the ID, there are a number of federal,

state, and local incentives available to developers and investor.

4) Co-working Initiatives

Co-working spaces are major assets to an ID because they bring together multiple sectors and varied businesses. These include: entrepreneurs, community leaders, students, and tech enterprises. Having everyone together will foster meaningful connections and drive more innovation. Promoting co-working spaces will ensure that innovative activity thrives in our ID. Buildings such as Main Place Mall provide significant opportunity to expand tech business activity in Buffalo.

Concluding Thoughts

If these concluding recommendations are considered and carried out, Buffalo will be in a favorable position from which to pursue an “Emerging Mixed Use ID. To recap, Emerging Mixed Use cultivates high-tech and innovative companies in a dense, mixed-use neighborhood, enhancing the neighborhood’s overall innovative quality and urban quality of life. With good planning and preparation, Buffalo’s innovation district will add new dynamism to Buffalo’s re-emergence as a center of enterprise in the Northeast United States.

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Appendix

Appendix 1.

List of Found Innovation Districts in North America:

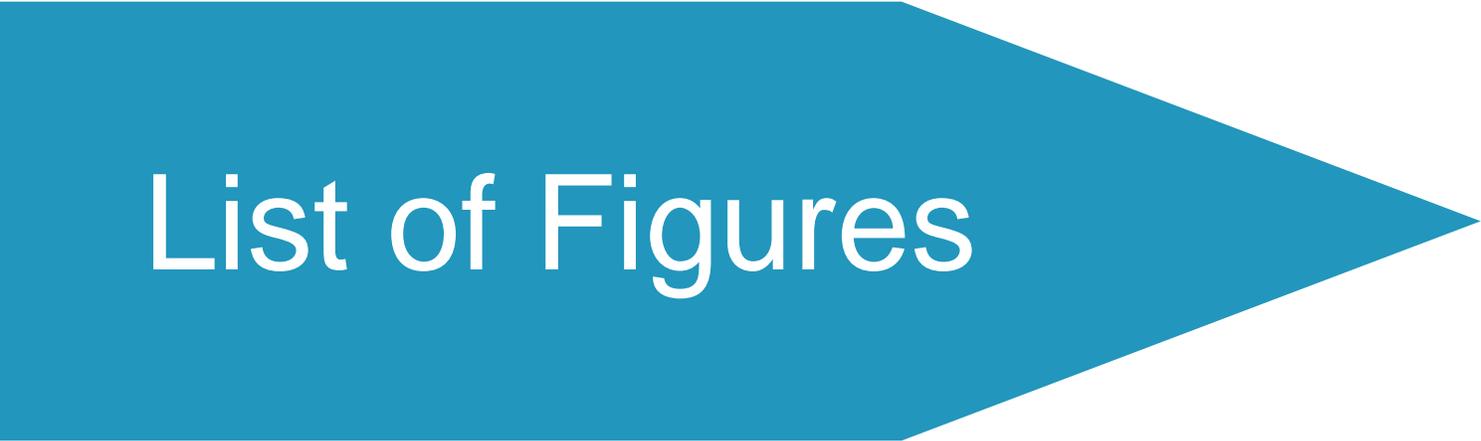
- Albuquerque, NM (Innovate ABQ)
- Atlanta, GA (Tech Square)
- Austin, TX (Capital City Innovation)
- Boston, MA (Boston Waterfront Innovation District)
- Brooklyn, NY (Brooklyn Triangle)
- Cambridge, MA (Kendall Square)
- Chattanooga, TN (Chattanooga's Innovation District)
- Chicago, IL (Fulton Market Innovation District)
- Cleveland, OH (MidTown Cleveland)
- Dallas, TX (Dallas Innovation District)
- Denver, CO (Catalyst HTI)
- Detroit, MI (Techtown Detroit)
- Erie, PA (Erie Innovation District)
- Fremont, CA (Fremont Innovation District at Warm Springs)
- Indianapolis, IN (16 Tech)
- Kitchener-Waterloo, ON (KWIC)
- Miami, FL (Miami Innovation District)
- Minneapolis-St. Paul, MN (Towerside Innovation District)
- Oklahoma City, OK (OKC Innovation District)
- Philadelphia (west), PA (University City District)
- Phoenix, AZ (PHX Core)
- Pittsburgh, PA (Uptown/Oakland InnovatePGH)
- Portland, OR (Portland Innovation Quadrant)
- Providence, RI (Providence Innovation & Design District)
- Rochester, NY (Rochester Downtown Innovation Zone)
- San Diego, CA (I.D.E.A. District)
- San Jose, CA (North San Jose Innovation District [iHub])
- Seattle, WA (South Lake Union)
- St. Louis, MS (Cortex Innovation Community)
- St. Petersburg, FL (St. Petersburg Innovation District)
- Toronto, ON (MaRS - Discovery District)

Appendix 2

Innovative Firms in Western New York

CloudSmartz Inc.	Medical Conservation Devices	Synacom Networks Inc.
CloudIT Niagara	Decision Pace Inc.	Empire Genomics LLC
Connare Tech Inc	Heads Up Display Inc.	Computer SOS Inc.
Xavier Alexandra Group LLC dba Grayco Medical Products	ASI forming	BXI Consultants
Upstate DNA Testing of Buffalo	LenderLogix	Globalquest Solutions Inc.
Noggintechs	Legworks	Accessium Group Inc.
Applied Healthcare Research Management Inc.	3AM Innovations	I-Evolve Inc.
Southtown Audio Video	Programmable Equipment Company	Ronco Communications
Talking Pictures, LLC	PerkinElmer	PCA Technology Group
WNY Networks Inc.	Energy Intelligence	Systems Technology Group
Silikon Technologies	MVP Network Consulting LLC	360 PSG Inc.
Martin Medical Equipment Service Co.	QBC Systems Inc.	Hover Networks Inc.
Photolitec LLC	Buffalo BioLabs LLC	EmergenceTek Group Inc.
Meridian IT Inc.	Station 28 LLC	22nd Century Group Inc
Frontrunner Network Systems	EscapeWire Solutions	SomaDetect
My Brand Evolved, LLC	Network Services	CentriLogic Inc
Pitch + Pivot	Main Street Computing	OneBridge Benefits
E3 Audiomedtric Technology	Go Bike Buffalo	VoIP Supply
MITYO	Kickfurther	OncoTartis
Cytcybernetics	US Itek	Buffalo Solar Solutions
PopBiotech	Annese & Associates Inc.	Montante Solar
Efferent Labs, Inc.	ACP Technologies Inc.	Cornell in Buffalo (ILR)
	Hi-Tech Computer Systems Inc.	ColoCrossing
	Magnusmode	Usherwood Office Technology
	Garland Technology	Med-Var
	Peeva	Buffalo Manufacturing Works

Buffalo Automation	Utilant, LLC	Bounceimaging
Coachmeplus	Tapecon Inc.	Wedidit
OnCore Golf	Campus Labs	Tara
Burner Wellness	Athenex	Squire Technologies
ClearView Social	IMA Life North America Inc.	Higherme
Frontrunner Network Systems	Curbell Medical Products Inc.	Kangarootime
Cognigen Corp.	ValueCentric LLC	CUBRC
Network Task Group	LocalEdge	Femi
Applied Sciences Group Inc.	Synacor Inc	Thimble
ONY Biotech	Great Lakes Dental Technologies	Turbulent Energy
Comtel	ACV Auctions	Global Dynamic Group, LLC
Windstream	Caplugs	Solid716
Windstream	Harmac Medical Products Inc.	PostProcess Technologies
SR Instruments Inc.	Integer	CleanFiber
ZeptoMetrix Corp.	Thermo Fisher Scientific	Hioperator
Synergy IT Solutions Inc.	Tesla/Panasonic	
K-TECHnologies Inc.	Ingram Micro	
PCI	Fresenius Kabi	
Hadley Exhibits	Sparkcharge	
Safetec of America Inc.	CleanslateUV	
Stampede Presentation Products Inc.	Qidnilabs	
	Ocolinx	
Advance2000 Inc.	PathoVax	
Polymer Conversions Inc.	Formarum	
Hebeler	Suncayr	
Staub Precision Machine Inc.	Immersed	



List of Figures

Page

- 13 *Figure 2.1 Graphic of Core District, Wider District, and Innovation Ecosystem*
- 14 *Figure 2.2 Link 59 building is home to several cyber security businesses*
- 16 *Figure 2.3 The adoption of rentable bikes has allowed alternative transportation options to exist in the neighborhood, encouraging people to walk or bike to work.*
- 17 *Figure 2.4 Cleveland's Bus Rapid Transit is at the core of the MidTown neighborhood, connecting University Circle in the east to Downtown in the west*
- 19 *Figure 2.5 Oakland and the Innovation District have installed place-making features to enhance the vibrancy and "funkiness" of the neighborhood*
- 19 *Figure 2.6 The neighborhood featured a mix of uses in buildings and along the block, with student housing above commercial stores and restaurants.*
- 20 *Figure 2.7 MaRS is a collection of large, tall buildings in the urban fabric of Toronto.*
- 20 *Figure 2.8 MaRS began in one building, and has since moved out to include others, enclosed under a glass atrium.*
- 27 *Figure 3.1 Acreage of the Wider ID compared*
- 28 *Figure 3.2: NAICS Code 51 in Zip codes that overlap Wider IDS*
- 28 *Figure 3.3: NAICS Code 541 in Zip codes that overlap Wider ID*
- 29 *Figure 3.4: the Percent of Housing in the Wider ID*
- 30 *Figure 3.5: The Median Rent in the Wider ID of the 8 Cities*
- 31 *Figure 3.6: Vacancy of the Wider IDS*
- 31 *Figure 3.7: Percent of 25-44 years old in The Wider IDs*
- 32 *Figure 3.8: Median income in The Wider ID*
- 33 *Figure 3.9: Educational Attainment in the Wider ID*
- 33 *Figure 3.10: Diversity in Wider ID*
- 35 *Figure 3.11: Percent of People with Commute time less than 20 Minutes in the Wider IDs*
- 35 *Figure 3.12: Mode of transportation to the Wider IDs*
- 36 *Figure 3.13: Walkscore of the Wider IDs*
- 43 *Figure 4.1 Distribution of Inventoried Companies by Major Sector, WNY 2019*
- 43 *Figure 4.2 Innovative Firm Employees by Sector, WNY 2019*
- 107 *Figure 9.1 - Governance Structures considered*



List of Tables

Page

26	<i>Table 3.1: Cities Innovation Districts Block Groups and Zip Code Locations</i>
26	<i>Table 3.2 Data Sources List</i>
34	<i>Table 3.3: Anchor Institutions in the 8 Cities</i>
42	<i>Table 4.1 Innovative Companies by Sector, WNY 2019</i>
44	<i>Table 4.2 Estimated Largest Employers among Innovative Firms in WNY, 2019</i>
45	<i>Table 4.3 UB Science & Engineering Research Centers by Category, 2019</i>
56	<i>Table 5.1: Innovative Firms</i>
56	<i>Table 5.2: Mixed Use</i>
57	<i>Table 5.3: Nearby Activity Centers</i>
58	<i>Table 5.4: Institutional Anchors</i>
58	<i>Table 5.5: Large Business Anchors</i>
58	<i>Table 5.6: Infrastructure (Transit & Recreation)</i>
59	<i>Table 5.7: Funky Index</i>
59	<i>Table 5.8: Density (Per Acre)</i>
60	<i>Table 5.9: Housing As % Of All Uses (Sq. Ft.)</i>
62	<i>Table 5.10: Occupied Building Value</i>
63	<i>Table 5.11: Vacant Building Value</i>
63	<i>Table 5.12: Vacant Land Value</i>
63	<i>Table 5.13: Land Vacancy</i>
73	<i>Table 5.14: Building Vacancy</i>
74	<i>Table 5.15: Opportunity Zone</i>
74	<i>Table 6.1: District</i>
76	<i>Table 6.3: Land Vacancy, Building Vacancy</i>
77	<i>Table 6.4: District Lafayette Square</i>
77	<i>Table 6.5: Occupied Building Value</i>
79	<i>Table 6.6: Land Vacancy, Building Vacancy</i>
80	<i>Table 6.7: District</i>
81	<i>Table 6.8: Occupied Building Value, Vacant Building Value, Vacant Land Value</i>
82	<i>Table 6.9: Land Vacancy, Building Vacancy</i>
84	<i>Table 6.10: District</i>
84	<i>Table 6.11: Occupied Building Value, Vacant Building Value, Vacant Land Value</i>
86	<i>Table 6.12: Land Vacancy, Building Vacancy</i>
87	<i>Table 6.13: Criteria Table 6.14 comparative measurement for the four potential districts</i>

A teal-colored arrow pointing to the right, containing the text "List of Maps".

List of Maps

Page

- 15 *Map 2.1 Midtown Cleveland, designated ID also represents a wider innovation district, with an area of about x sq miles.*
- 18 *Map 2.2 InnovatePGH - Pittsburgh, The distribution of innovative firms in Buffalo and vicinity.*
- 21 *Map 2.3 MARS Toronto , showing a highly concentrated innovation area.*
- 40 *Map 4.1 10 locations suggested by public officials as potential innovation districts.*
- 46 *Map 4.2 The distribution of innovative firms in Buffalo and vicinity.*
- 47 *Map 4.3 represents the approximate number of employees working in innovative firms in a given area*
- 48 *Map 4.4 Distribution of innovative firms and art organizations in the City of Buffalo*
- 50 *Map 4.5 Four areas selected as best bet for potential innovation districts in Buffalo.*
- 68 *Map 6.1 Middle Main Proposed area for an ID with boundaries of Summer St to the north and West Tupper to the south, notable places include the Thomas R. Beecher Jr. Innovation Center, and the Buffalo Niagara Medical Campus*
- 69 *Map 6.2 Proposed area for an ID within the central business district, with boundaries of East Huron to the north, Church/North Division St to the south, Pearl St to the west, and Oak St to the east.*
- 70 *Map 6.3 Proposed area for an ID with boundaries of Church St to the north, Exchange St to the south, Franklin St to the west, and Oak St to the east. Notable places within these boundaries are One Seneca Tower, and the baseball stadium Sahlen Field.*
- 71 *Map 6.4 Proposed area for an ID along the Buffalo waterfront. Notable places include the Key Bank Center, and the revitalized waterfront district Canalside.*



List of Images

Page

- 92 *Image 7.1 A&B -122 Meyran Ave is a 5,290 sq.ft. technology space available in the Pittsburgh Innovation District in 2019. It has open floor plan for maximum collaboration, and enclosed conference room.*
- 93 *Image 7.2. A&B -Workhause Market located at 290 King Street East, Kitchener, Canada is a 10k sq.ft. space with rustic brick accents, high ceilings, and rays of natural light.*
- 94 *Image 7.3 A,B&C -Rex located at 911 Washington Ave, St. Louis is a non-profit technology startup incubator & world-class venue providing the early-stage entrepreneur with low cost & flexible enterprise space, while serving the region with quality programming and inspiring community collaboration.*
- 95 *Image 7.4 - Dig Buffalo located at 640 Ellicott St, Buffalo*
- 96 *Image 7.5 - Trico Plant*
- 96 *Image 7.6 A, B, C & D Main Place Mall exterior and interior*
- 96 *Image 7.7 E Bespoke Co-working at Westfield San Francisco Centre*
- 97 *Image 7.8 Seneca One Tower when it was till HSBC tower*
- 97 *Image 7.9 Caption: DL&W Terminal*