The Next 50 Years:
Trends that will drive Economic Development in Minnesota

EDAM Winter Conference
January 19, 2017
Session Outline

Three Macro Trends for Minnesota
  o Demographic Shift
  o Climate Change
  o Emerging Technology

Four Implications:
What Do Shifts Mean for Economic Development?
  o Urban Form
  o Housing
  o Public Infrastructure
  o Data
Demographic Shift
Leading Indicator: School Enrollment

Minnesota School Districts Becoming More Diverse

- 2015-16 School Year
- 2005-06 School Year
Foreign Born Minnesotans
Breaking: We Are Aging.
Households Are Shrinking.

Metro Household Growth by Household Size, 2010-2040

Source: Metropolitan Council Regional Forecast (July 2015). The latest forecasts are available at metrocouncil.org/forecasts
Climate Change, Vulnerability and Economic & Social Costs

Martha Faust, Minnesota Brownfields
Climate Trend #1

Rising Average Temperatures

Winters Are Warming Across the U.S.
Trends in Average Winter Temperatures, 1970-2012

Average winter temperatures have been rising in every state since 1970. This map shows how fast each state has been warming each decade over the past 43 years.

Source: Climate Central
Climate Trend #1

Rising Average Temperatures

Trends in average winter minimum temperatures Two Harbors, MN

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<thead>
<tr>
<th>Period of Record</th>
<th>Ave Min Temp in Deg_F</th>
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<tbody>
<tr>
<td>1951 - 1980</td>
<td>Jan 2.3</td>
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<td>1961 - 1990</td>
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<td>1971 - 2000</td>
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<td>1981 - 2010</td>
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<td>Mar 19.2</td>
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<td>1971 - 2000</td>
<td>Mar 20.3</td>
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<tr>
<td>1981 - 2010</td>
<td>Mar 21.2</td>
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</tbody>
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Source: Mark Seelye, University of Minnesota
Climate Change

Rising Average Temperatures

Minneapolis .76° F warmer per decade
Duluth .72° F warmer per decade
Fargo .72° F warmer per decade

Source: Climate Central and The Weather Channel
Climate Change

Rising Average Temperatures

Source: Minnesota Dept of Natural Resources
Climate Change

Rising Average Temperatures

Source: Mark Seelye, University of Minnesota
Climate Change

Rising Average Temperatures

Source: NASA
Climate Change

Increased Precipitation & Droughts

Observed Change in Very Heavy Precipitation, 1958-2012

Source: U.S. Global Climate Change Research Program
Climate Change

Increased Precipitation & Droughts

Duluth Solstice Flood, June 19-20, 2012

Source: City of Duluth, NBC News
Climate Change

Increased Precipitation & Droughts

Source: USDA, FEMA
Impacts on Agriculture, Biodiversity & Public Health
Impacts on
Agriculture, Biodiversity & Public Health

Climate Cast

Minnesota’s mosquito season a month longer due to climate change

Paul Huttner  July 27, 2016, 5:38 PM

It’s been mockingly called Minnesota’s state bird.

Minnesotans know mosquitoes are a fact of life in summer. Thanks to climate change, mosquito season in Minnesota is now more than a month longer since 1980, according to a new study by Climate Central.

Source: Minnesota Public Radio
Impacts on Agriculture, Biodiversity & Public Health

Source: Minnesota Department of Health
Atlantic & Gulf Coast states are expected to bear highest costs due to increased hurricane damage and real estate losses.

*Energy sector costs* (increased need for cooling) likely highest in Southeast & Southwest states.

*Increased water costs* expected to be highest in Western states.

*Source: Natural Resources Defense Council*
Impacts on Local Budgets and Communities

In Minnesota, costs will focus on:

**Infrastructure**
- electrical utility network
- transportation network
- fresh water supply
- public health

**Natural resources & Agriculture**
- soil
- water
- air

Source: Minnesota Climatology Working Group
Technology
In just one year..... (2007)

- First iPhone is released
- Facebook becomes open + global
- Number of internet users surpasses 1 Billion
- Twitter is launched
- Hadoop launched (foundation of ‘Big Data’) – led the way for Google.
- GitHub launched (world’s biggest open-source software hub)
- Google launches Android operating system
- Google buys YouTube
- First e-book reader (“Kindle”) is launched
- AirBnb is launched
- First cognitive computer (“Watson”) is created
- Cost of sequencing a human genome drops precipitously
- Solar development, “Fracking” process disrupt energy markets
- “Cloud” computing is launched
- Intel goes off silicon to build microchips
Technology

2067?
What Does it All Mean for Economic Development?

Major Themes

Urban Form
Housing
Public Infrastructure
Data
What Does it All Mean for Economic Development?

Urban Form

20th Century
Major cities - Metro areas
Greater MN towns, rural areas

1980 & 2002
Environmental protection laws passed, redevelopment begins

21st Century
Redevelopment picks up

Energy Park, St. Paul
Opportunity to repurpose outdated, underutilized, or blighted land uses.

Can yield multiple efficiencies
What Does it All Mean for Economic Development?

**Urban Form**

Greater utilization from **land and infrastructure**

**Workers** are located near jobs and amenities
What Does it All Mean for Economic Development?

New uses for Main Street and older commercial areas

Urban Form
What Does it All Mean for Economic Development?

Urban Form

New uses for older industrial areas
What Does it All Mean for Economic Development?

Opportunity to diversify housing stock

Housing
What Does it All Mean for Economic Development?

Housing

'Micro' Apartments Could be Coming to St. Paul

2 BR - 900 SQ. FT.
SINGLE - 350 SQ. FT.
What Does it All Mean for Economic Development?

New Opportunities for renewable energy production

Public Infrastructure
What Does it All Mean for Economic Development?

New Opportunities for economies of scale with *multifunctional infrastructure*
What Does it All Mean for Economic Development?

Opportunities to Leverage Dynamic Data
Minnesota Brownfields: Who we are & What we do

Minnesota Brownfields is a 501c3 non-profit organization.

Founded in 2006, our mission is to promote, through education, research, and partnerships, the efficient cleanup and reuse of contaminated land as a means of generating economic growth, strengthening communities and enabling sustainable land use and development.

• Workshops
• Training
• On-call assistance
• Research
• ReScape redevelopment event
About Donjek and Visible City

Donjek is a redevelopment economics, finance and strategy firm providing public finance, innovative analytics, and strategic advice to public and private clients.

Visible City creates deep, dynamic and customized understanding of sophisticated urban systems for cities and other partners.
Questions?

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