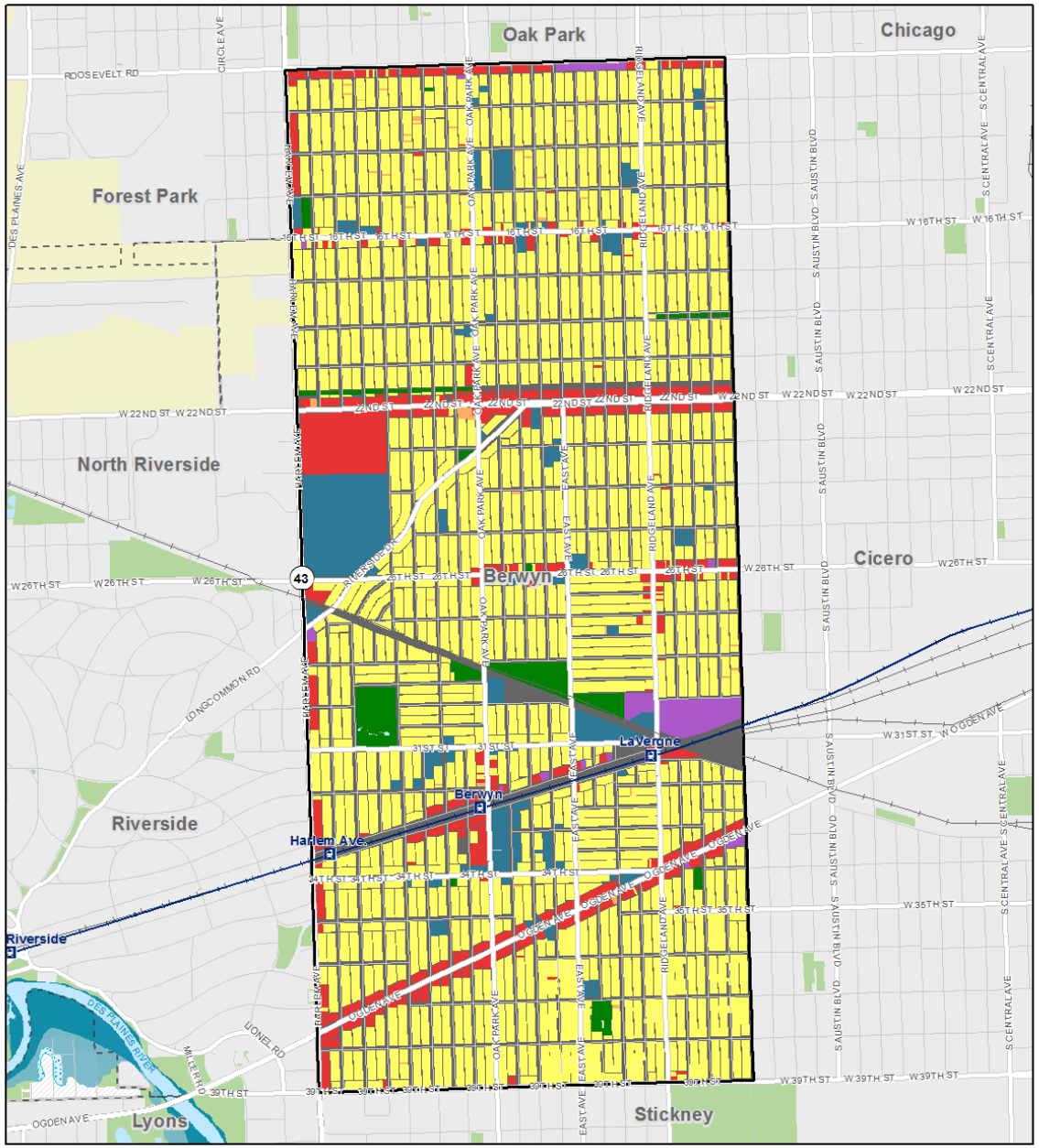
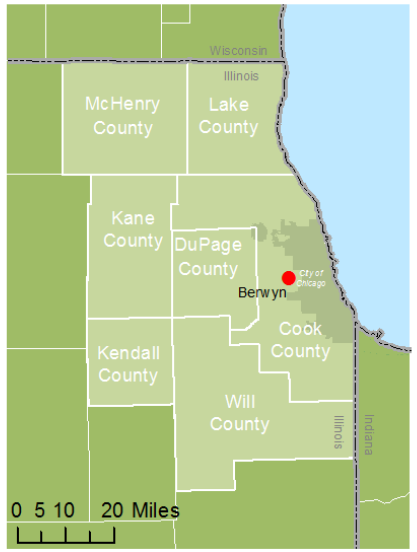
NOAA SARP | Integrating Climate Science into Local Planning

Environment and Natural Resources Committee
January 4, 2018

- **Project**: *Incorporating Local Climate Science to Help Communities Plan for Climate Extremes*
- **Partners**: American Planning Association (APA), Chicago Metropolitan Agency for Planning (CMAP) and University of Illinois
- **Goals**
  - Organize an advisory committee
  - Identify five pilot communities
  - Develop data analysis tools
  - Provide direct planning support
  - Prepare a wide variety of capacity-building climate resilience planning resources

Local Technical Assistance | Pilot Communities





Metra Stations
Rail Lines
City of Berwyn
County Boundary

Floodzones (FEMA, 2015)

Floodway
100-yr Floodplain
500-yr Floodplain

Land Use

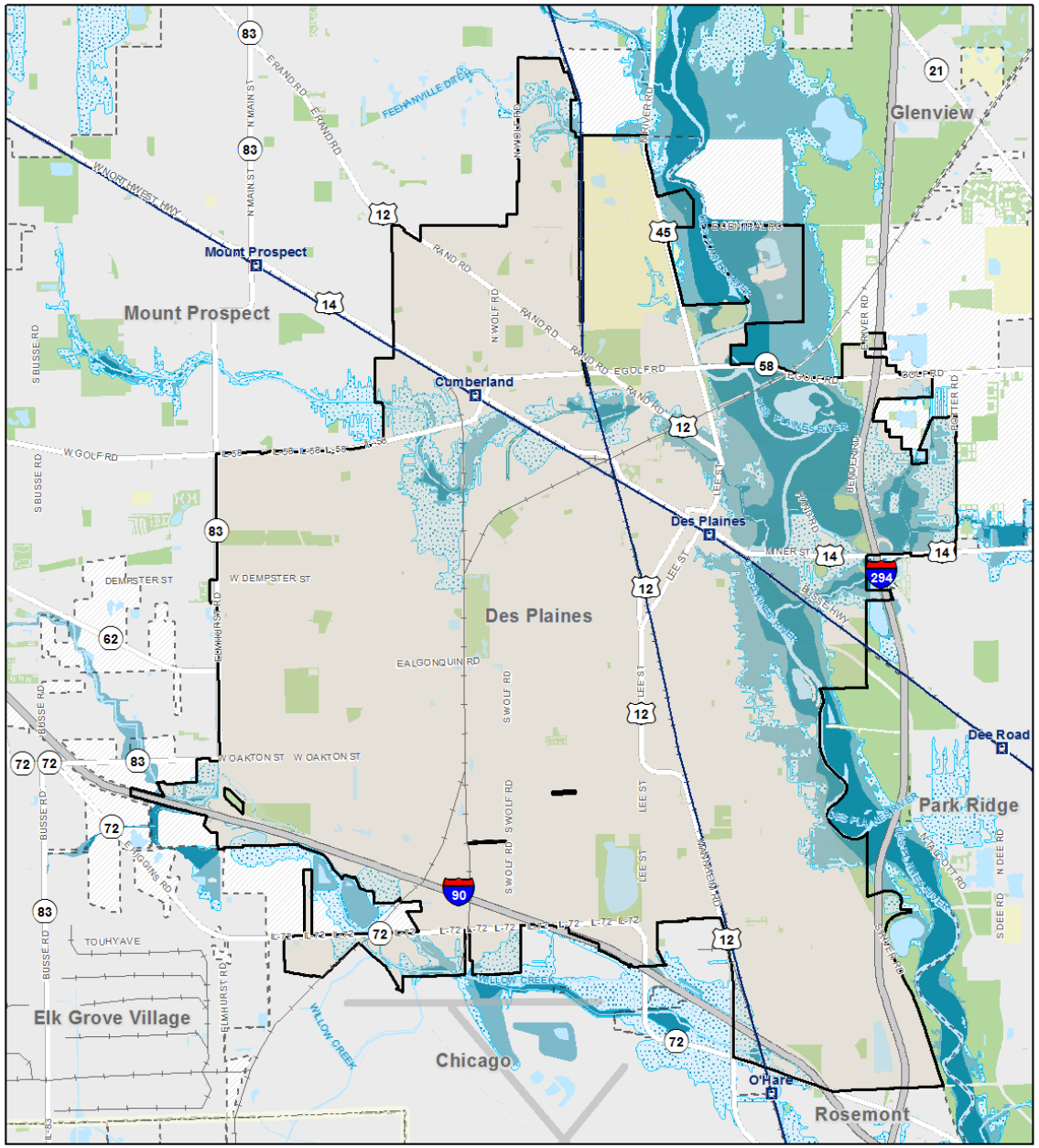
Residential
Commercial
Institutional
Industrial
Trans./Comm./Util.
Open Space
Vacant

0 0.25 0.5 1 Miles

Issue: Urban flooding

Goals: Use stormwater analysis and prior plans to recommend citywide policies and green infrastructure siting and concepts

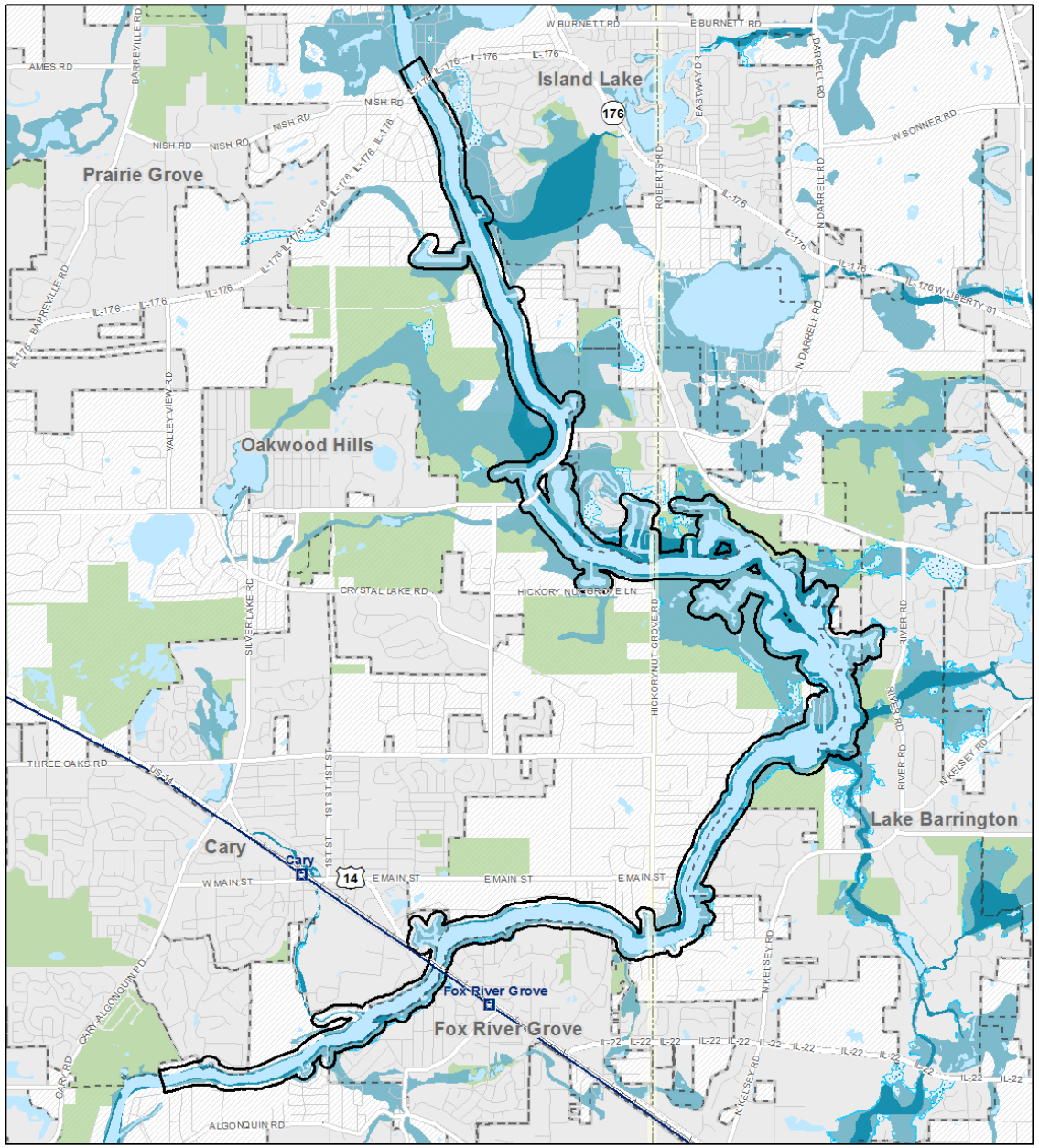
Berwyn | Stormwater Plan

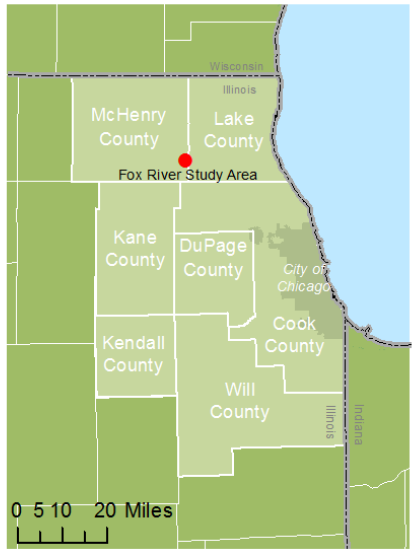


Issues: Riverine and urban flooding

Goals: Integrate stormwater analysis into land use, housing, open space, and transportation recommendations in comprehensive plan

Des Plaines | Comprehensive





Metra Stations
Rail Lines
Fox River Study Area
County Boundary
Waterbodies
Open Space
Municipalities
Unincorporated Areas

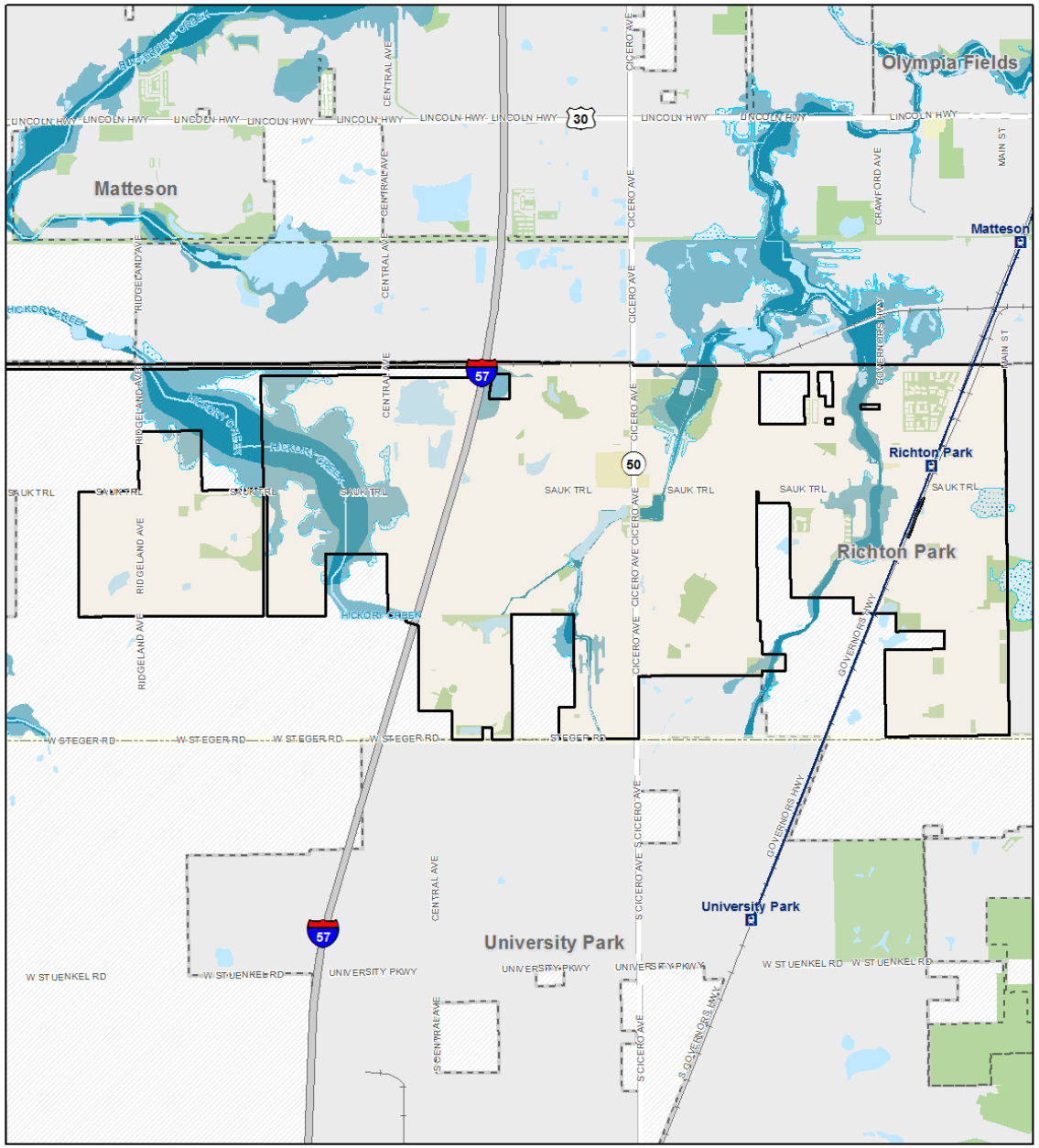
Floodzones, FEMA 2015
Floodway
100-yr Floodplain
500-yr Floodplain

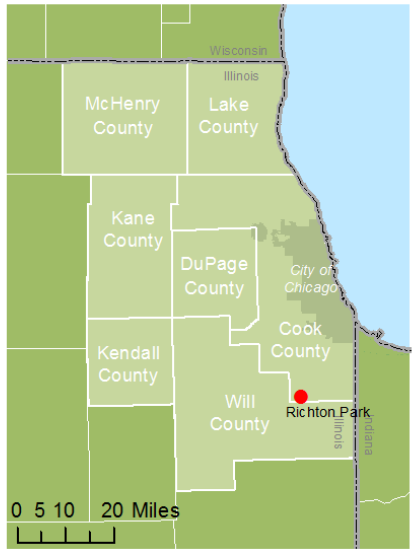
0 0.5 1 2 Miles

Issues: Impaired water quality, limited recreational access

Goals: Multijurisdictional plan focused on open space, natural resources, and multi-modal access

McHenry County | River Corridor





Metra Stations
Rail Lines
Village of Richton Park
County Boundary

Floodzones (FEMA, 2015)

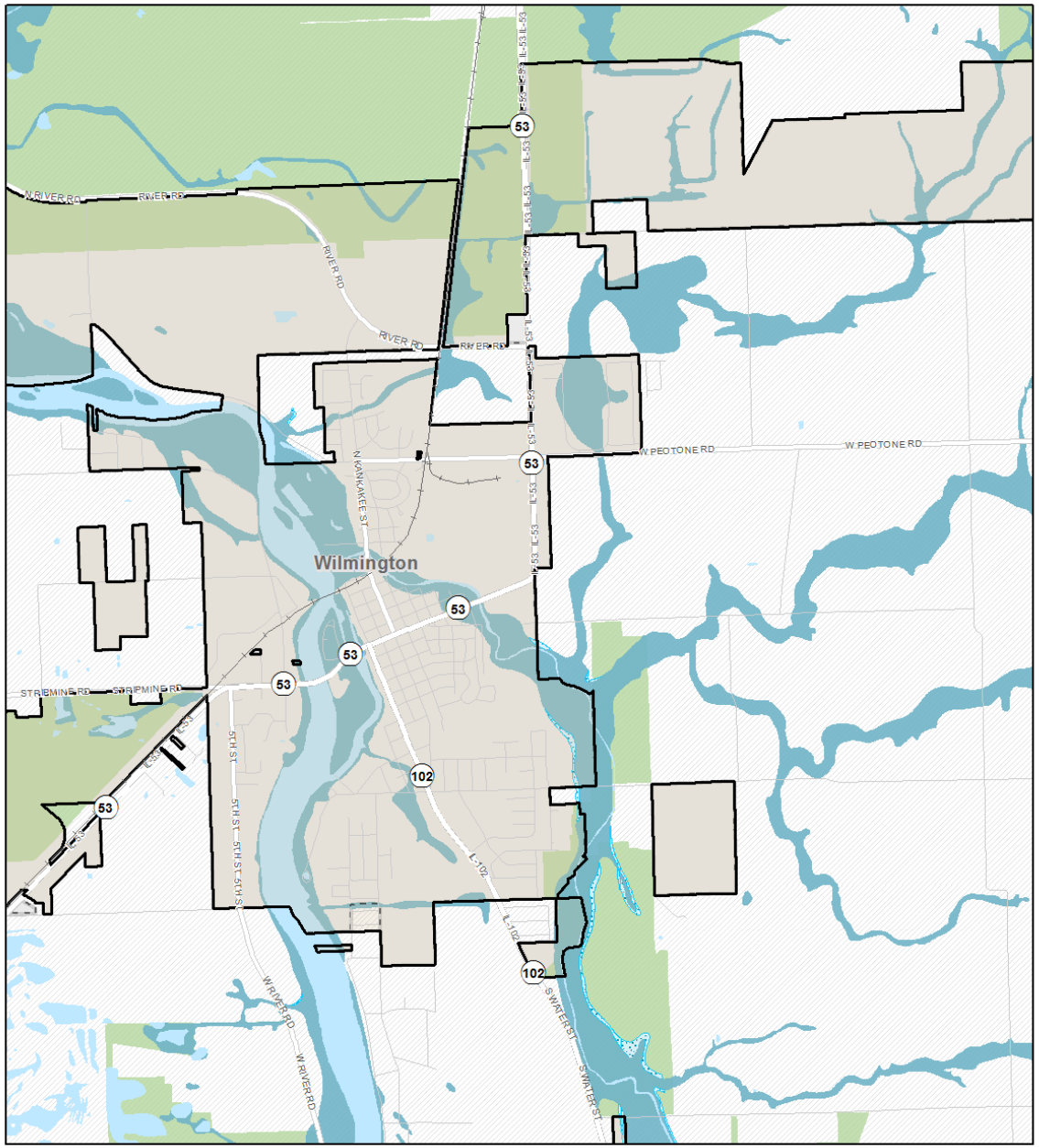
Floodway
100-yr Floodplain
500-yr Floodplain
Open Space
Cemetery

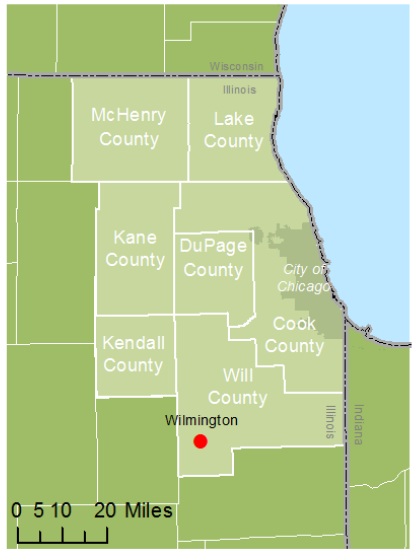
0 0.25 0.5 1 Miles

Richton Park | Capital Improvement

Issues: Riverine and urban flooding

Goals: Integrate recommendations of previous plans and stormwater analysis into capital improvement prioritization





Metra Stations
Rail Lines
City of Wilmington
County Boundary

Floodzones

100-yr Floodplain
500-yr Floodplain

0 0.375 0.75 1.5 Miles

Issues: Riverine flooding

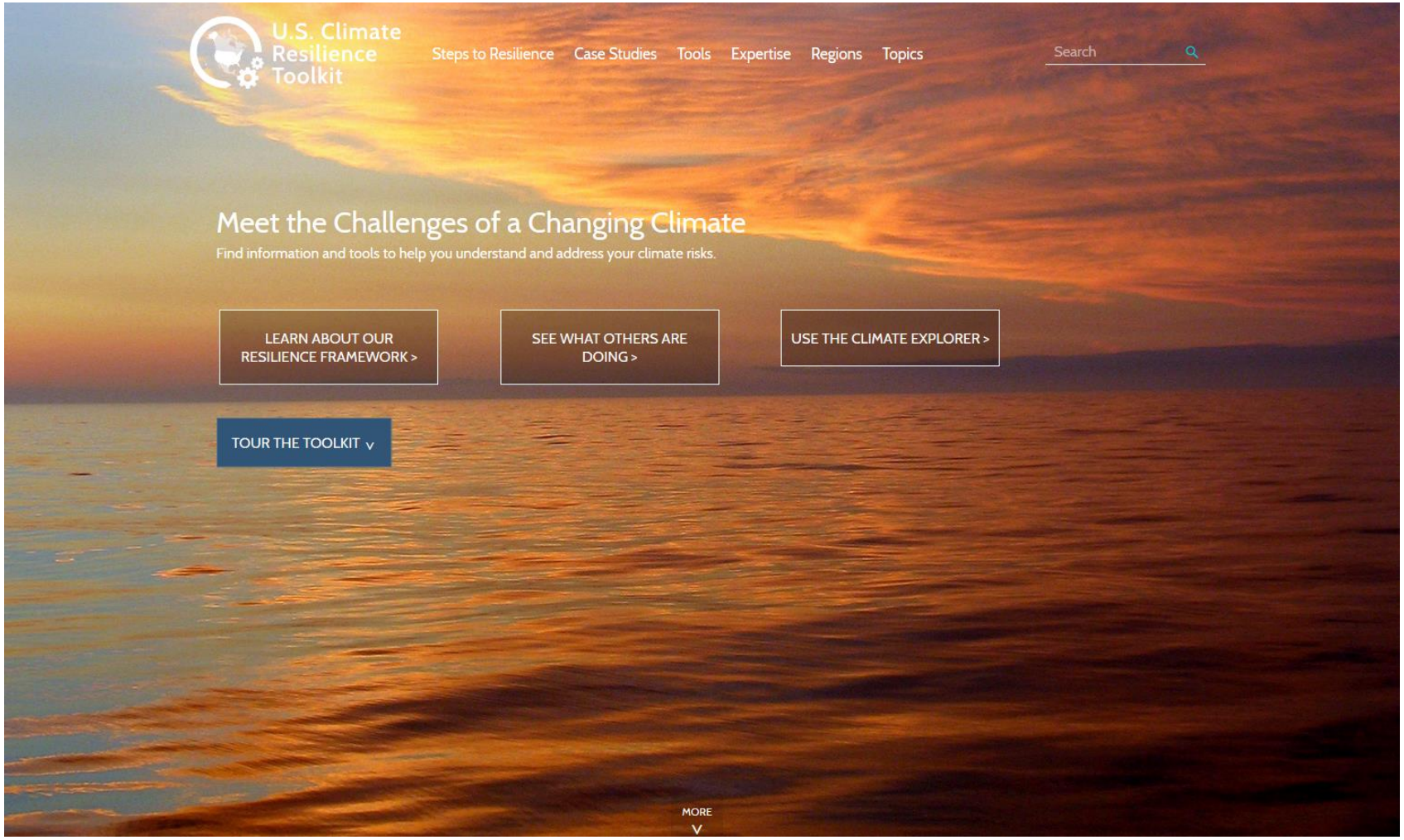
Goals: Integrate flood hazard planning into plan to enhance downtown streetscape and boost economic development

Wilmington | Downtown Plan

The ability for the region and its communities to prepare for and recover from acute shocks and chronic stresses and transform its infrastructure, natural systems, and social structures to be more responsive.

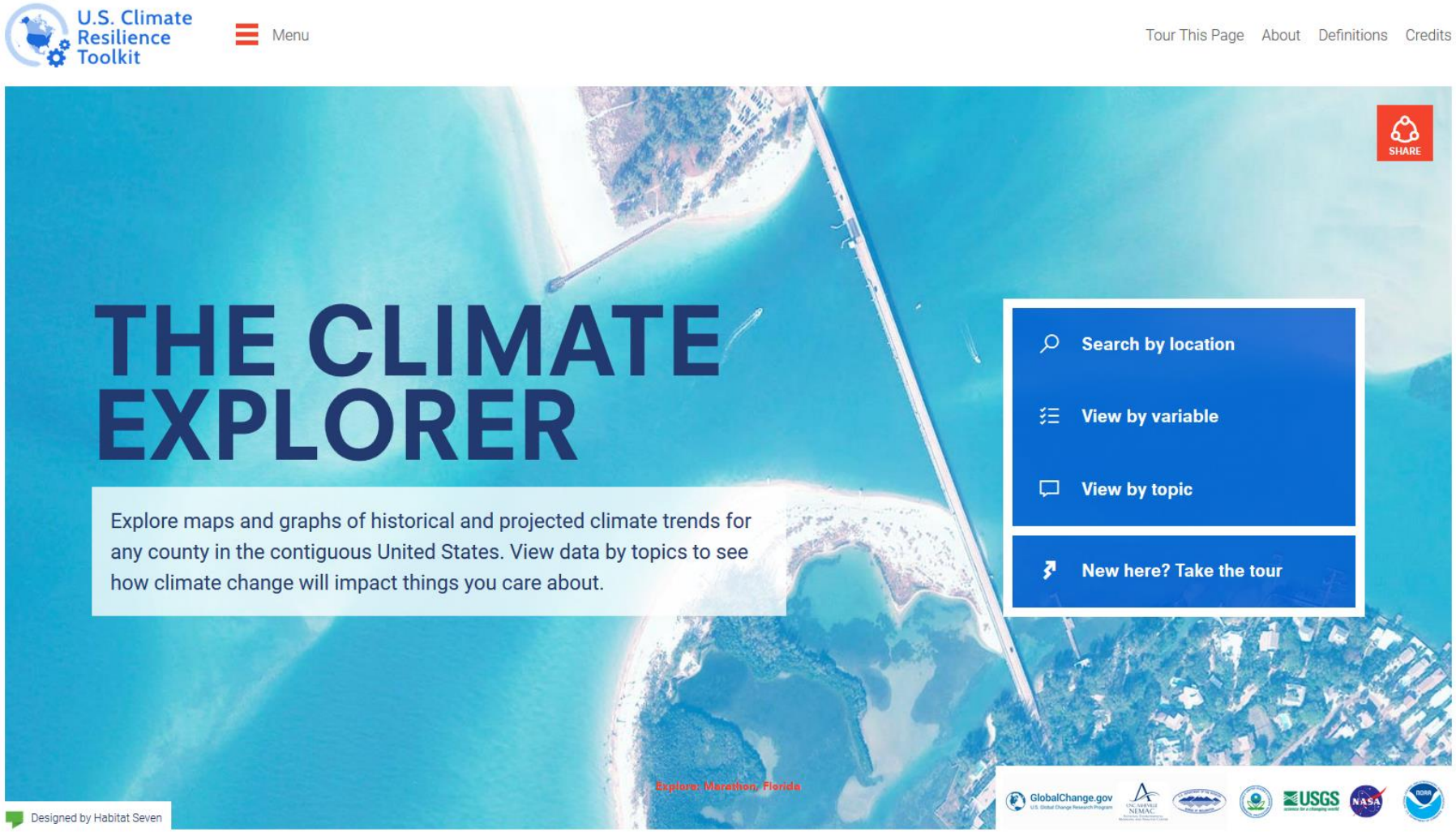
Climate data can help local plans

- Site critical facilities
- Plan for transportation impacts
- Assess vulnerable populations
- Prioritize capital investments



https://toolkit.climate.gov/

NOAA | U.S. Climate Resilience Toolkit



NOAA | Climate Explorer

Temperature

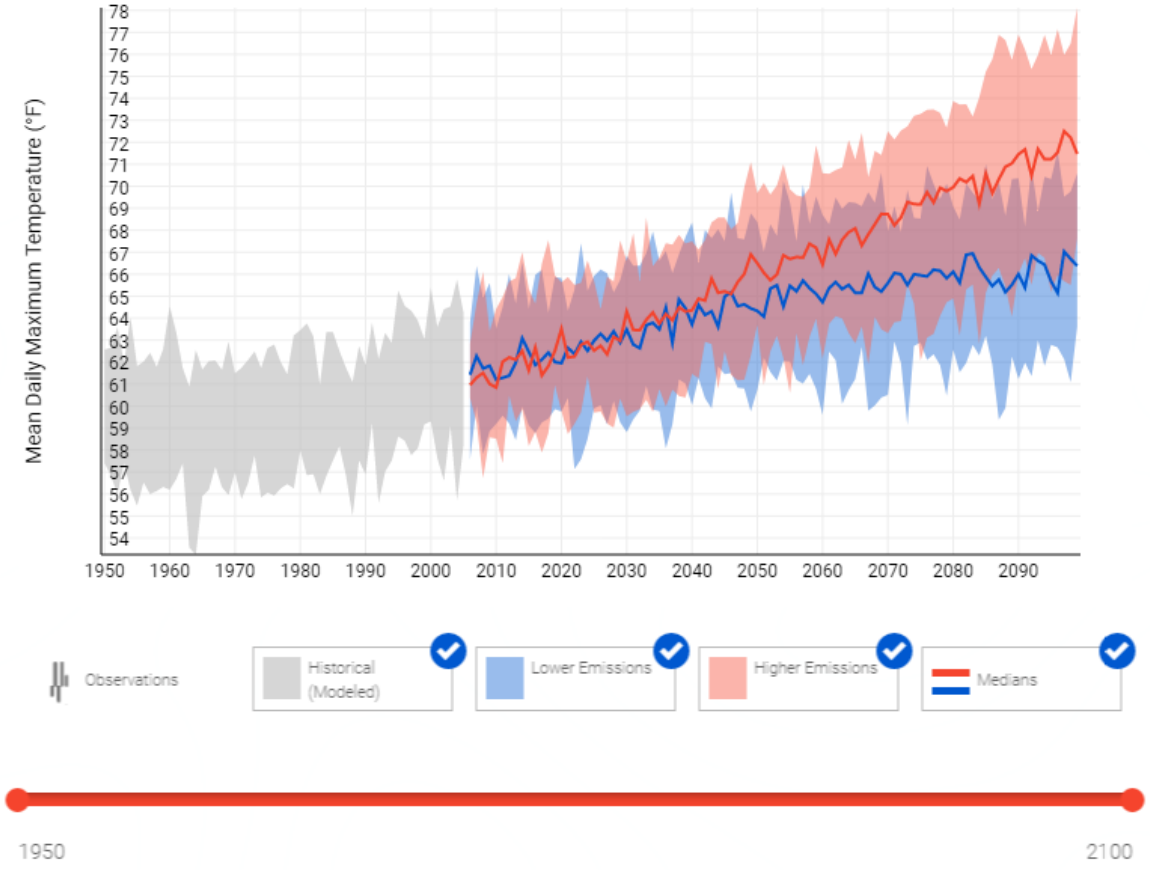
- Mean Daily Maximum Temperature
  - Annual
  - Monthly
  - Seasonal
- Mean Daily Minimum Temperature
- Days with Maximum Above 95°F
- Days with Minimum Below 32°F

Display: Actual

Chart: DuPage County

Mean Daily Maximum Temperature

How to read this | Image | Data



NOAA | Climate Explorer

Precipitation

Mean Daily Precipitation

- Annual
- Monthly
- Seasonal

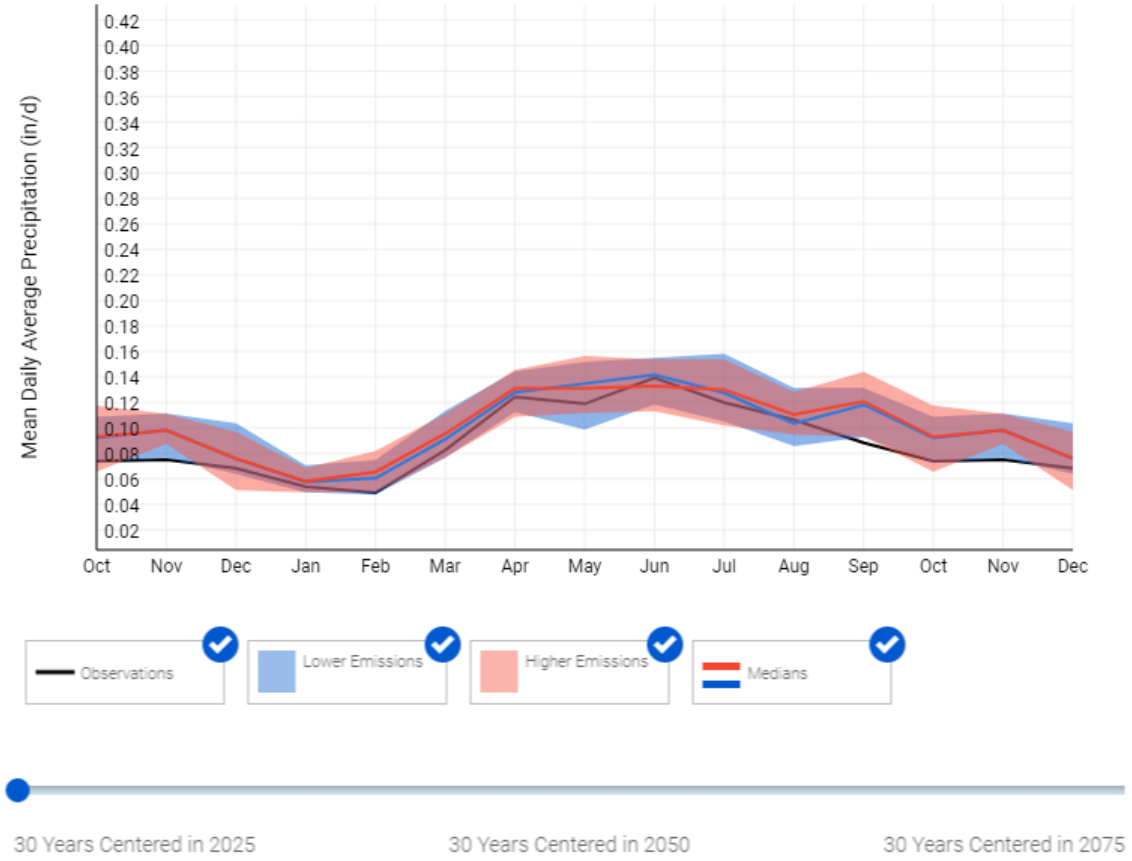
Days of Precipitation Above 1 Inch

Display: Actual

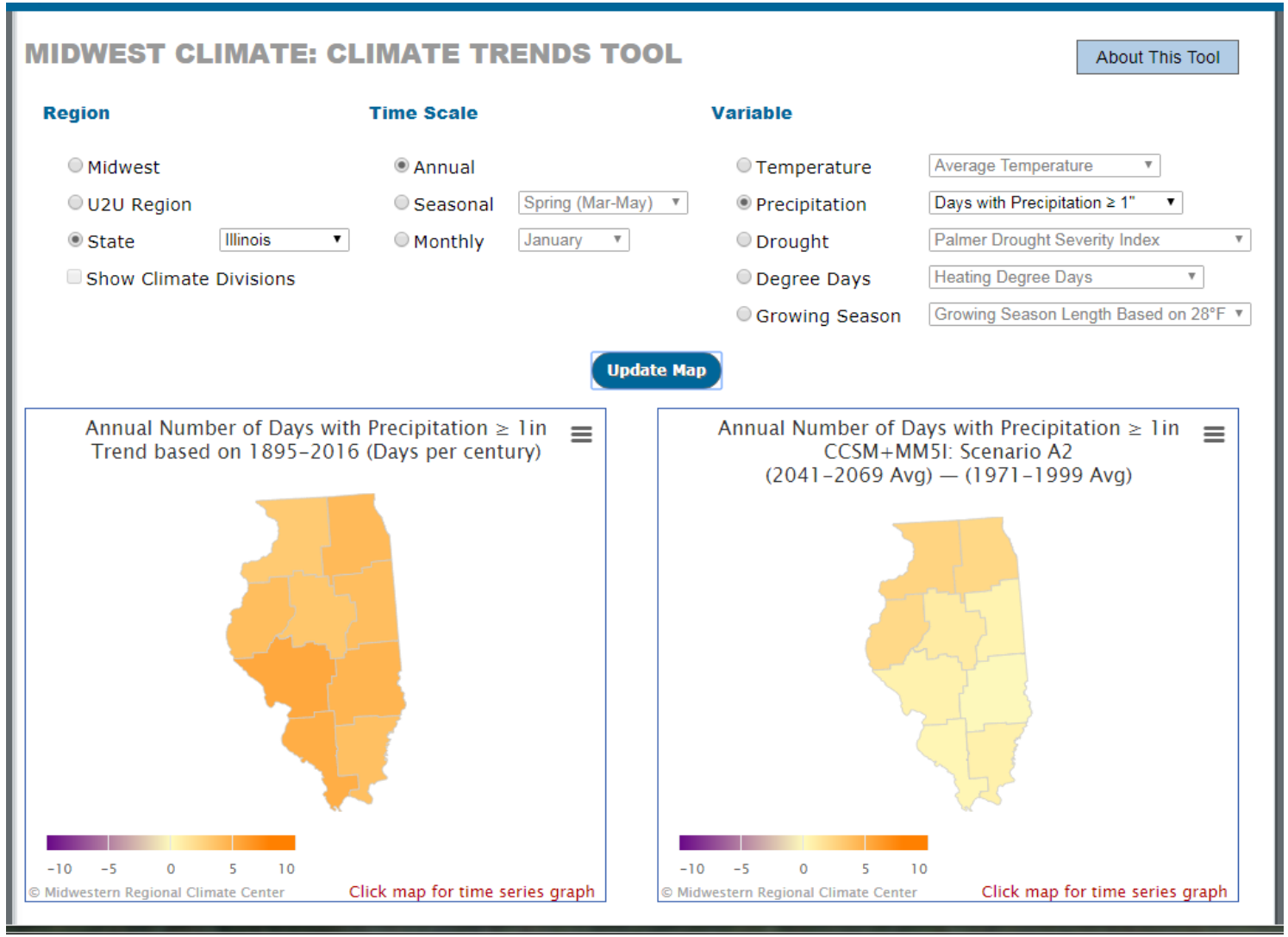
Chart: DuPage County

Mean Daily Precipitation

How to read this | Image | Data

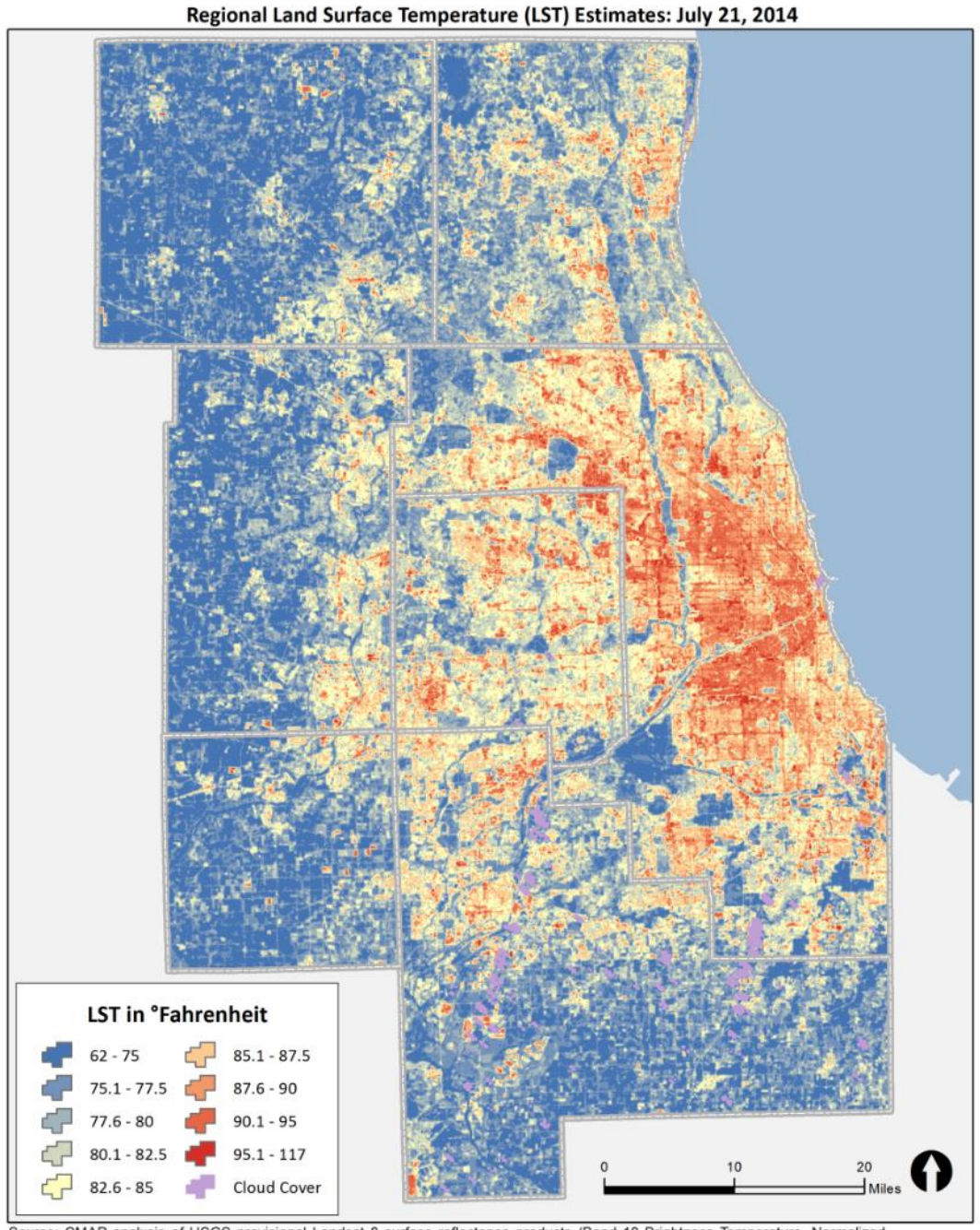


NOAA | Climate Explorer



http://mrcc.isws.illinois.edu/mw_climate/climateTrends.jsp

MRCC | Climate Trends Tool



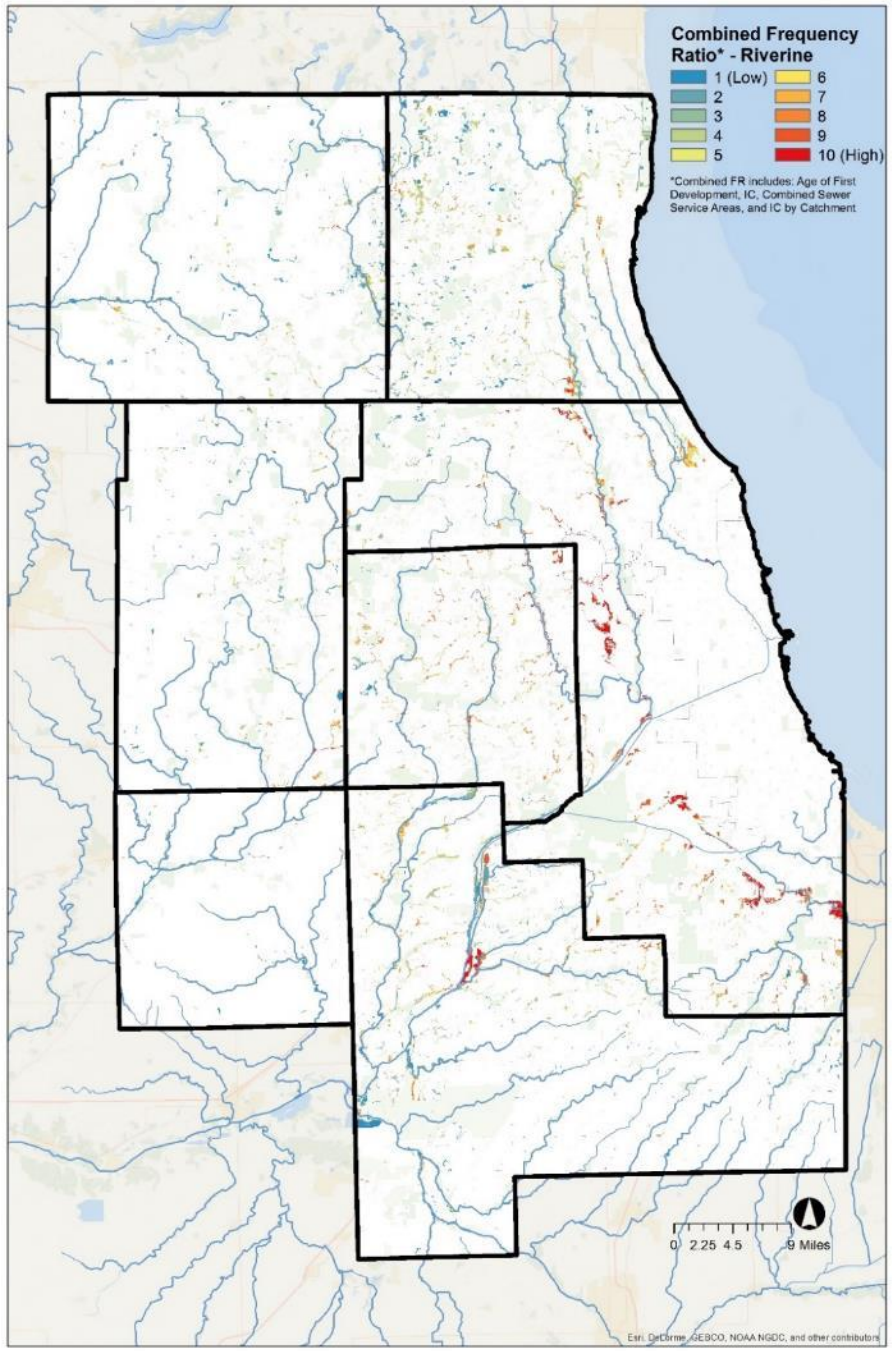
Source: CMAP analysis of USGS provisional Landsat 8 surface reflectance products (Band 10 Brightness Temperature, Normalized Difference Vegetation Index, and CFMask)

Data: Automated Land Surface Temperature Estimate

Source: CMAP Analysis of Landsat and U.S. Geological Survey data
(Available at https://datahub.cmap.illinois.gov/)

Subject: Shows relative land temperature and urban heat island effect

Heat Vulnerability

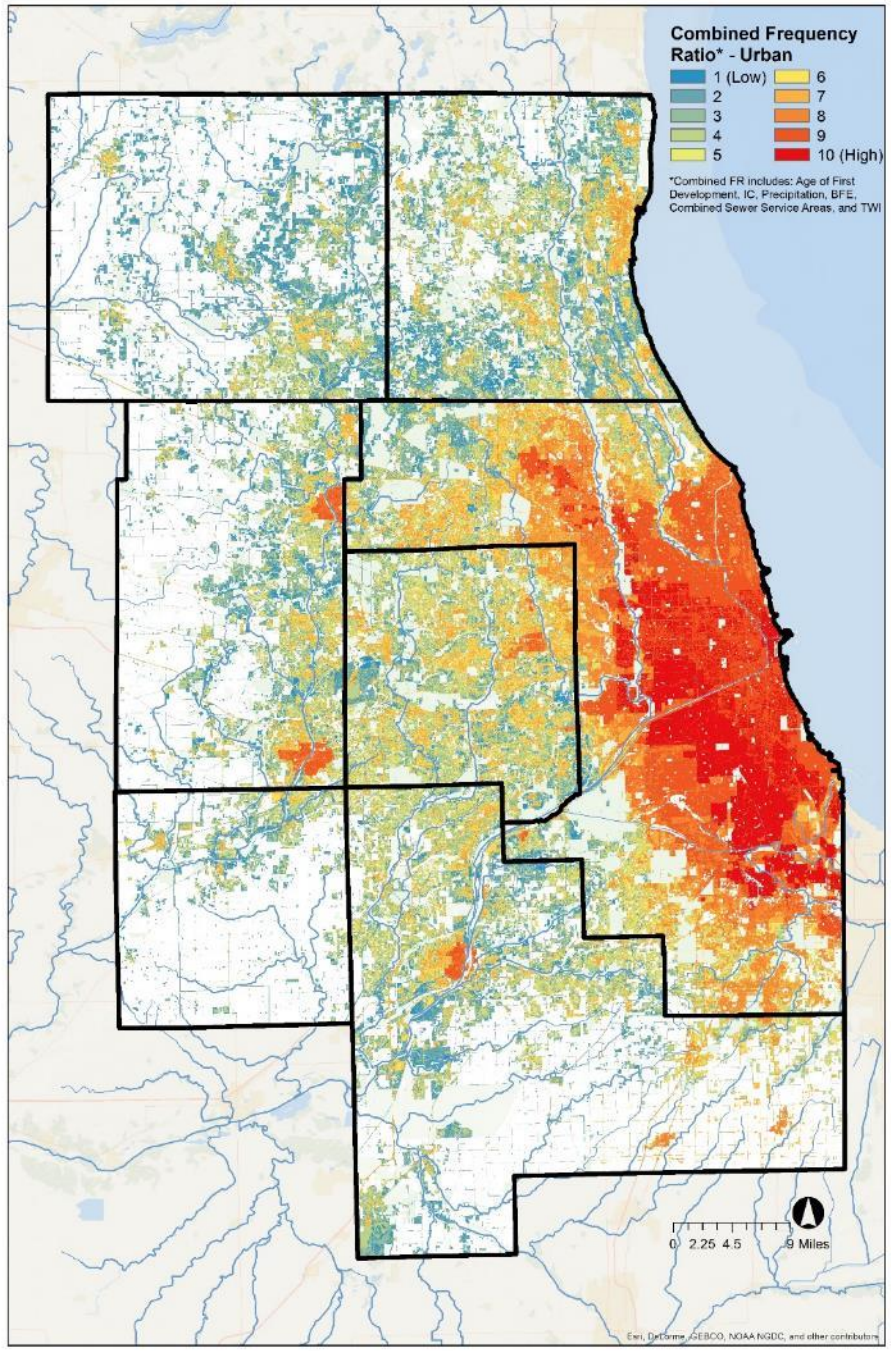


Data: Riverine Flooding Susceptibility Index

Source: CMAP analysis of flooding, land use, and geological data

Subject: Susceptibility to flooding for areas **inside** the 100-yr FEMA floodplain or MWRD 100-yr Inundation area

Riverine Flooding

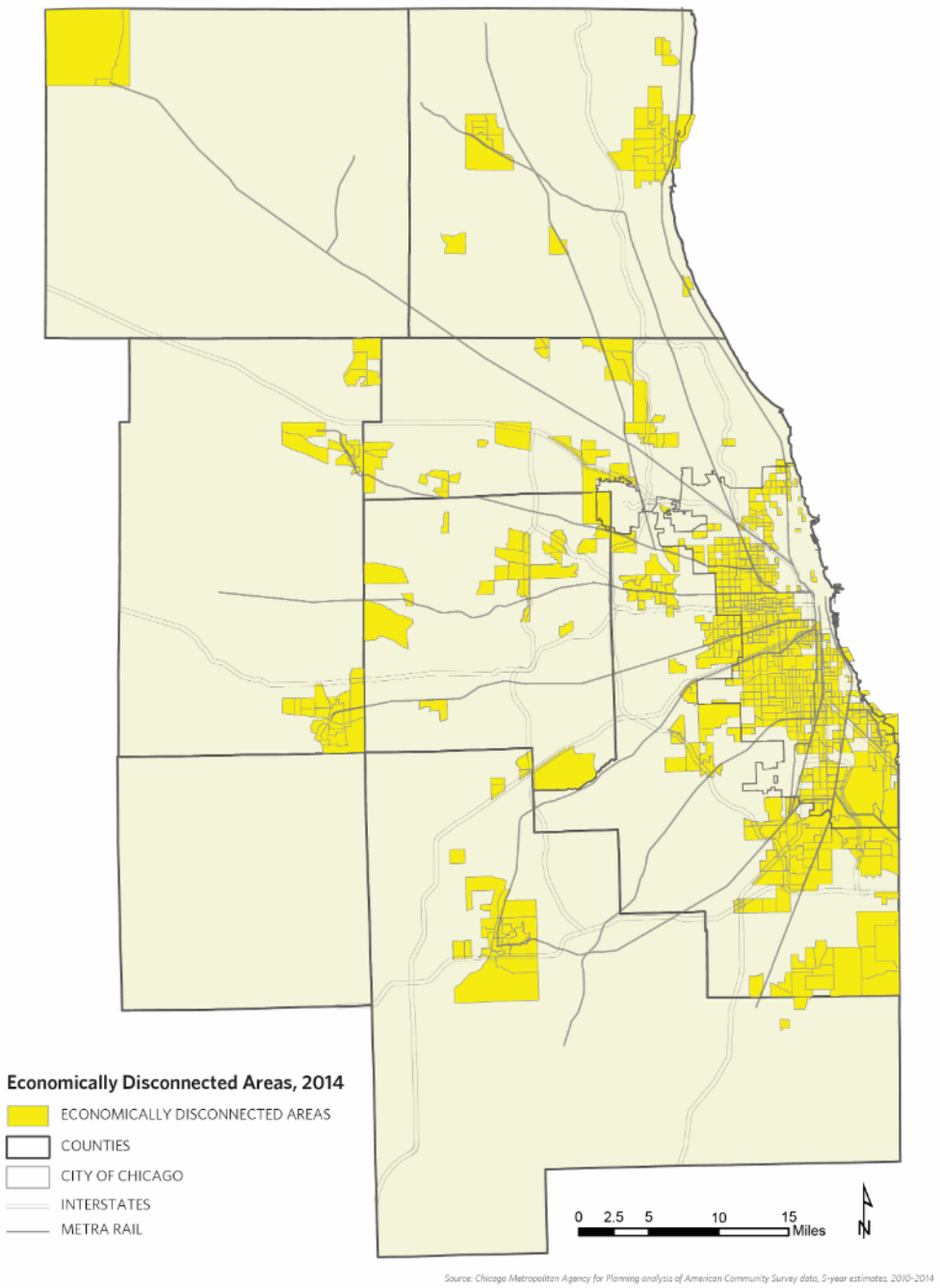


Data: Urban Flooding Susceptibility Index

Source: CMAP analysis of flooding, land use, and geological data

Subject: Susceptibility to flooding for areas **outside** the 100-yr FEMA floodplain or MWRD 100-yr Inundation area

Urban Flooding Vulnerability

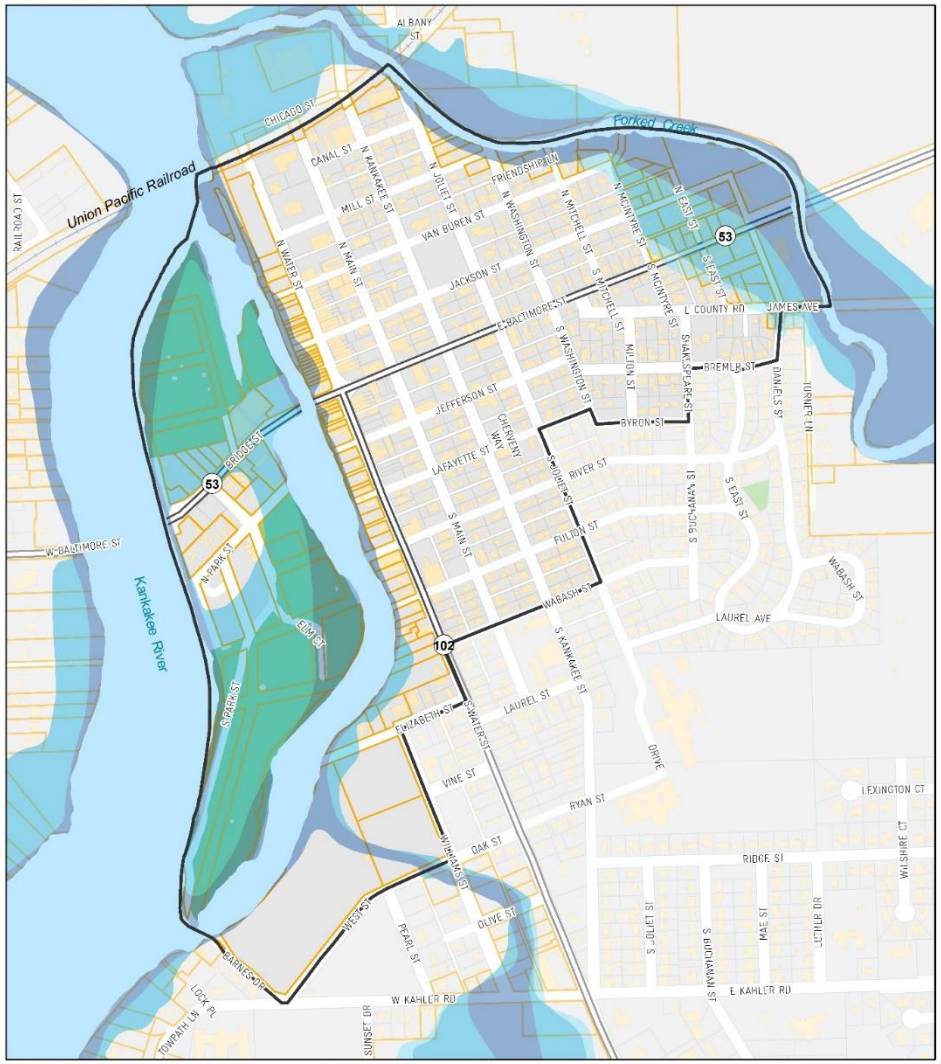


Data: Economically Disconnected Areas in the Chicago Region

Source: CMAP Analysis of American Community Survey data

Subject: Communities especially affected by inequality

Social Vulnerability



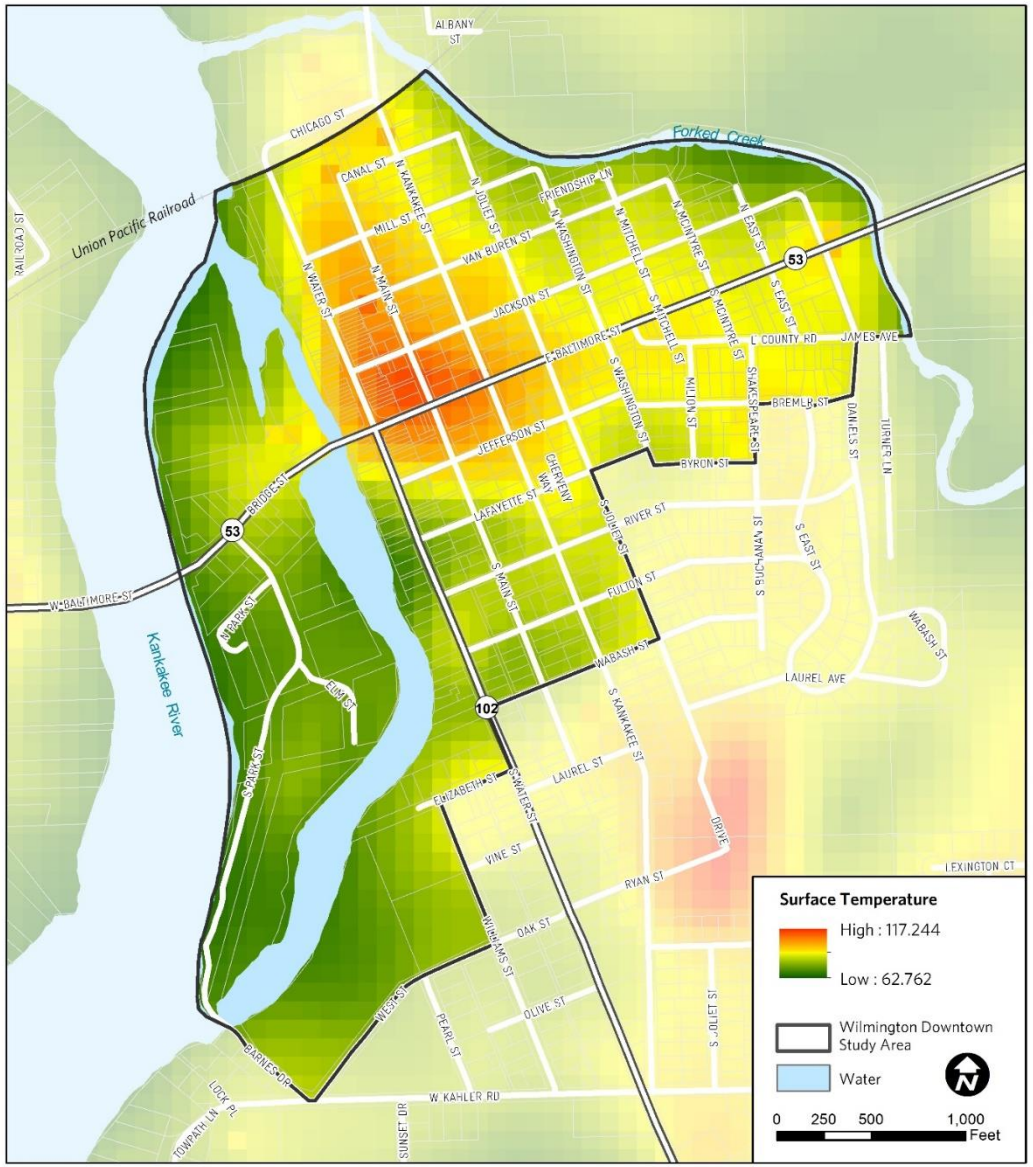
Key Findings

Climate and Natural Hazards

Vulnerability and Risk Assessment

1. Critical Infrastructure
2. Social Vulnerability
3. Economic Impacts

wilmington | vulnerability Analysis



Key Findings

Climate and Natural Hazards

Vulnerability and Risk Assessment

1. Critical Infrastructure
2. Social Vulnerability
3. Economic Impacts

Wilmington | Vulnerability Analysis

Remaining Steps

Complete pilot vulnerability assessments

Develop data tool and guidebook

Webinar series

Conference sessions