



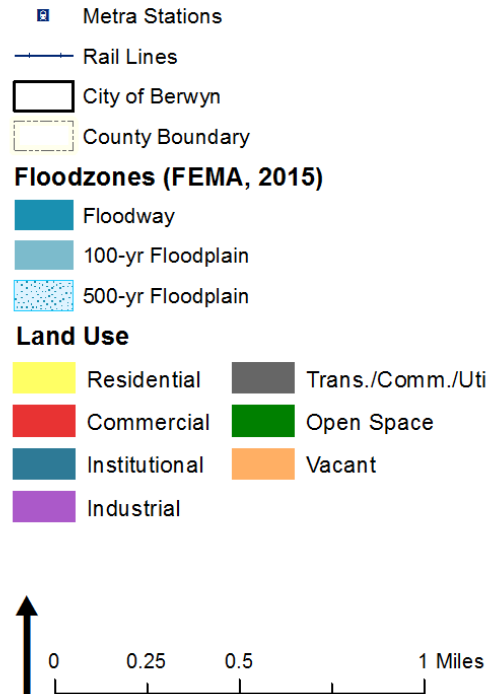
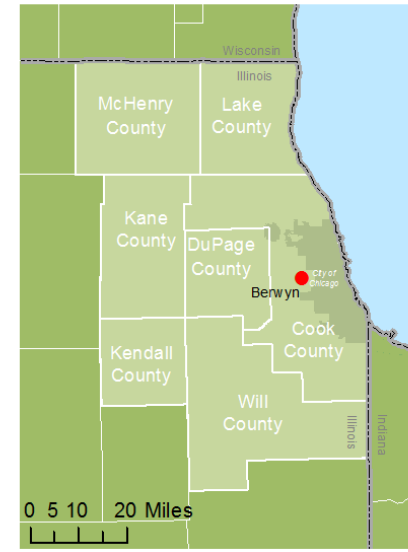
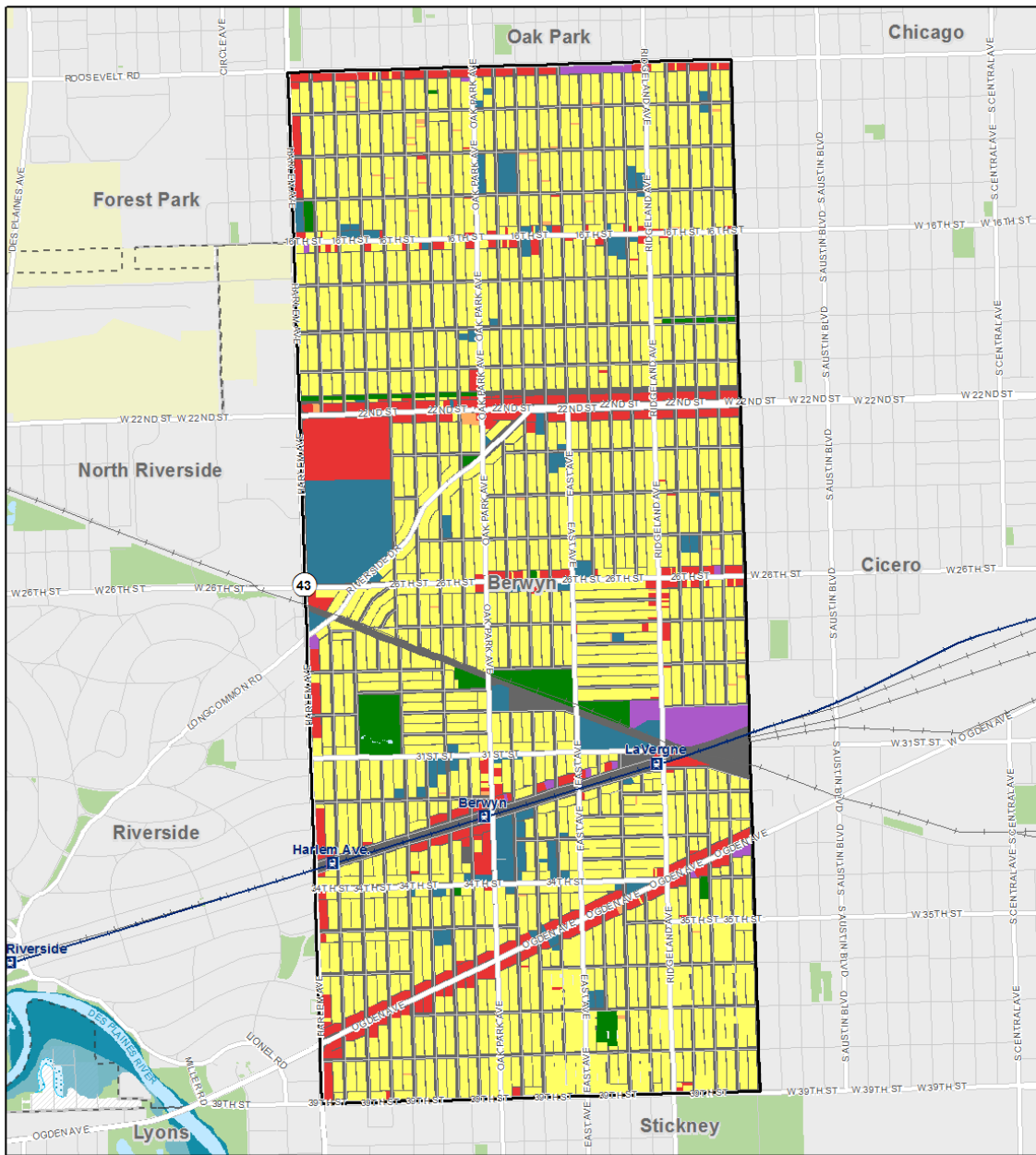
NOAA SARP | Integrating Climate Science into Local Planning

**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



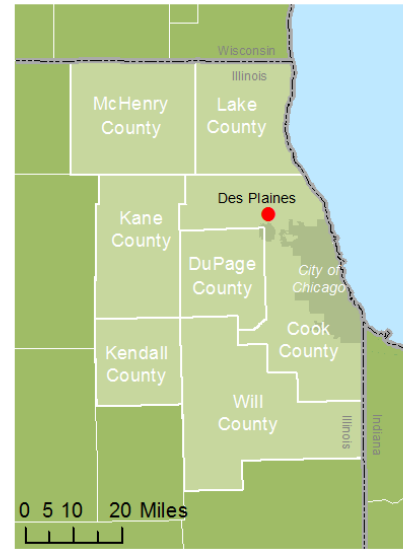
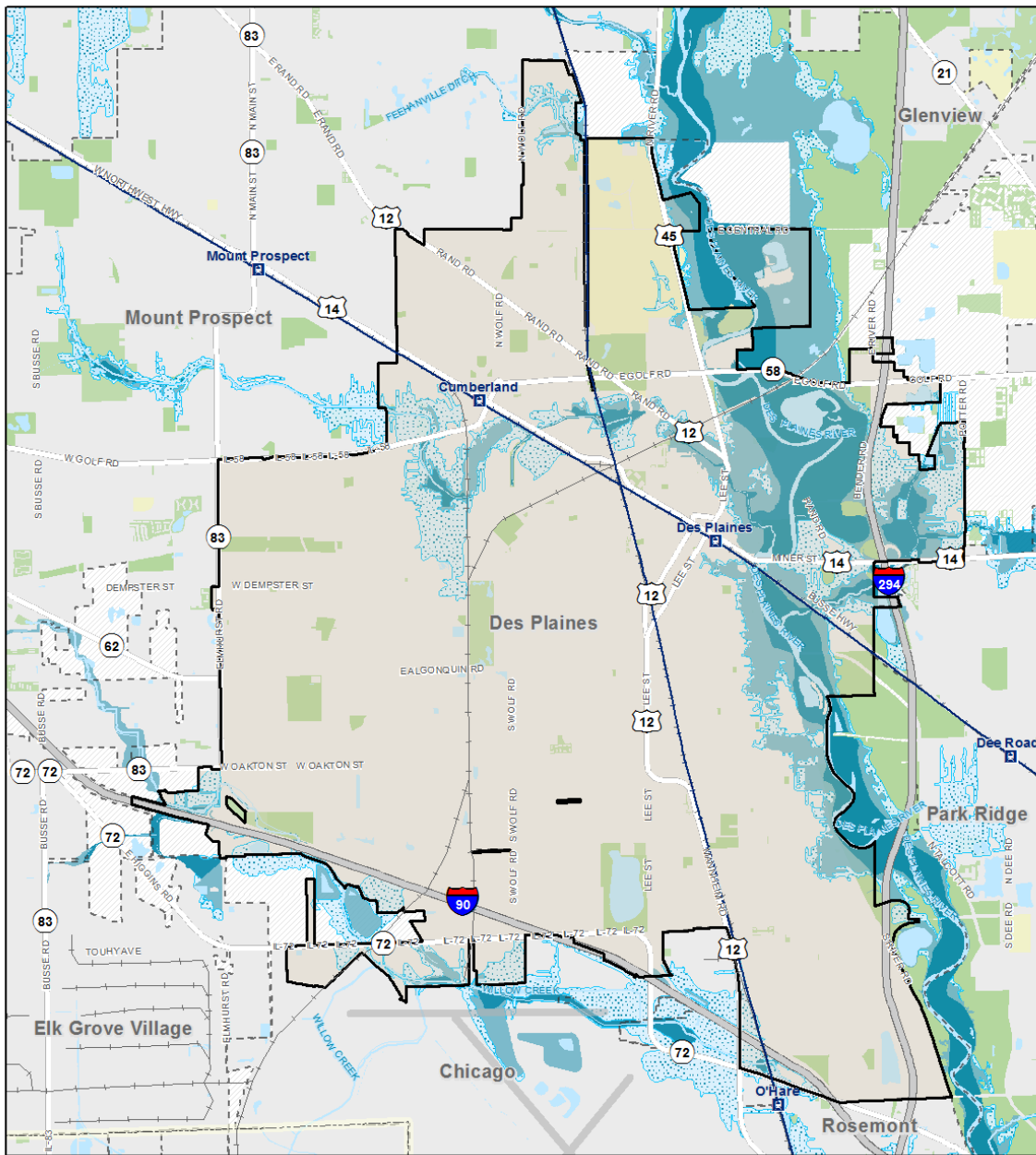
Local Technical Assistance | Pilot Communities



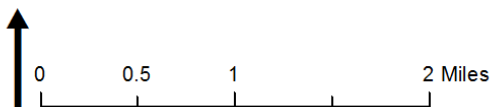
Issue: Urban flooding

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

Berwyn | Stormwater Plan



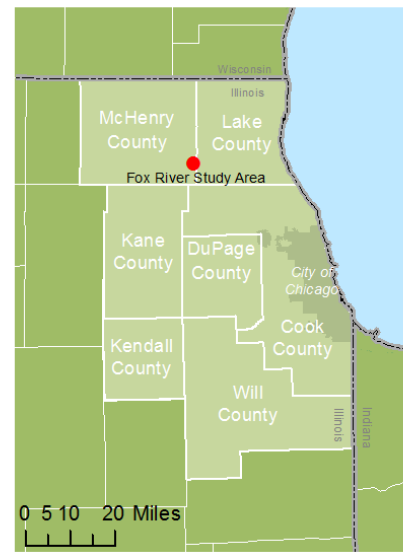
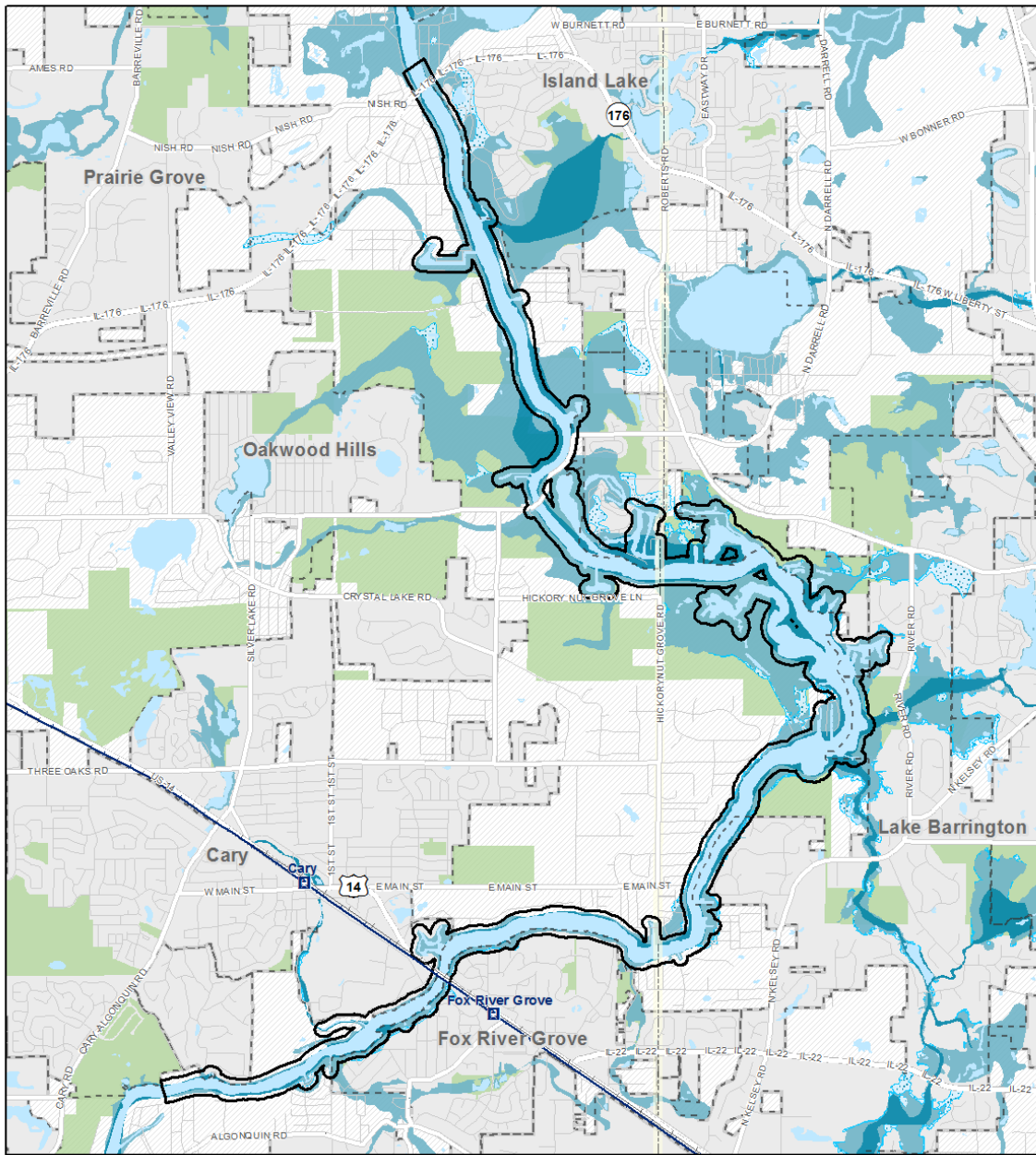
- Metra Stations
 - Rail Lines
 - City of Des Plaines
 - County Boundary
- Floodzones (FEMA, 2015)**
- Floodway
 - 100-yr Floodplain
 - 500-yr Floodplain
 - Open Space
 - Cemetery



Issues: Riverine and urban flooding

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

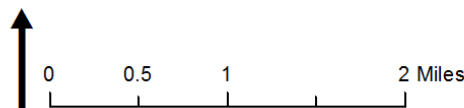
Des Plaines | Comprehensive



- 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

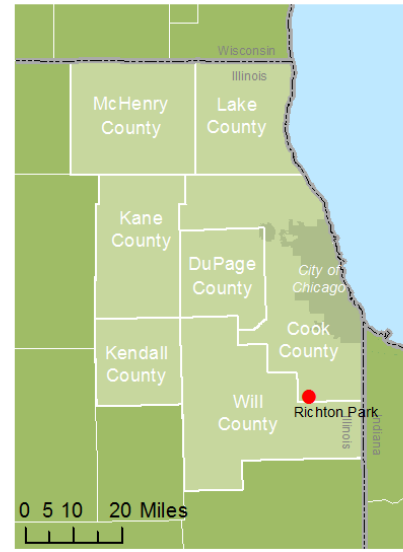
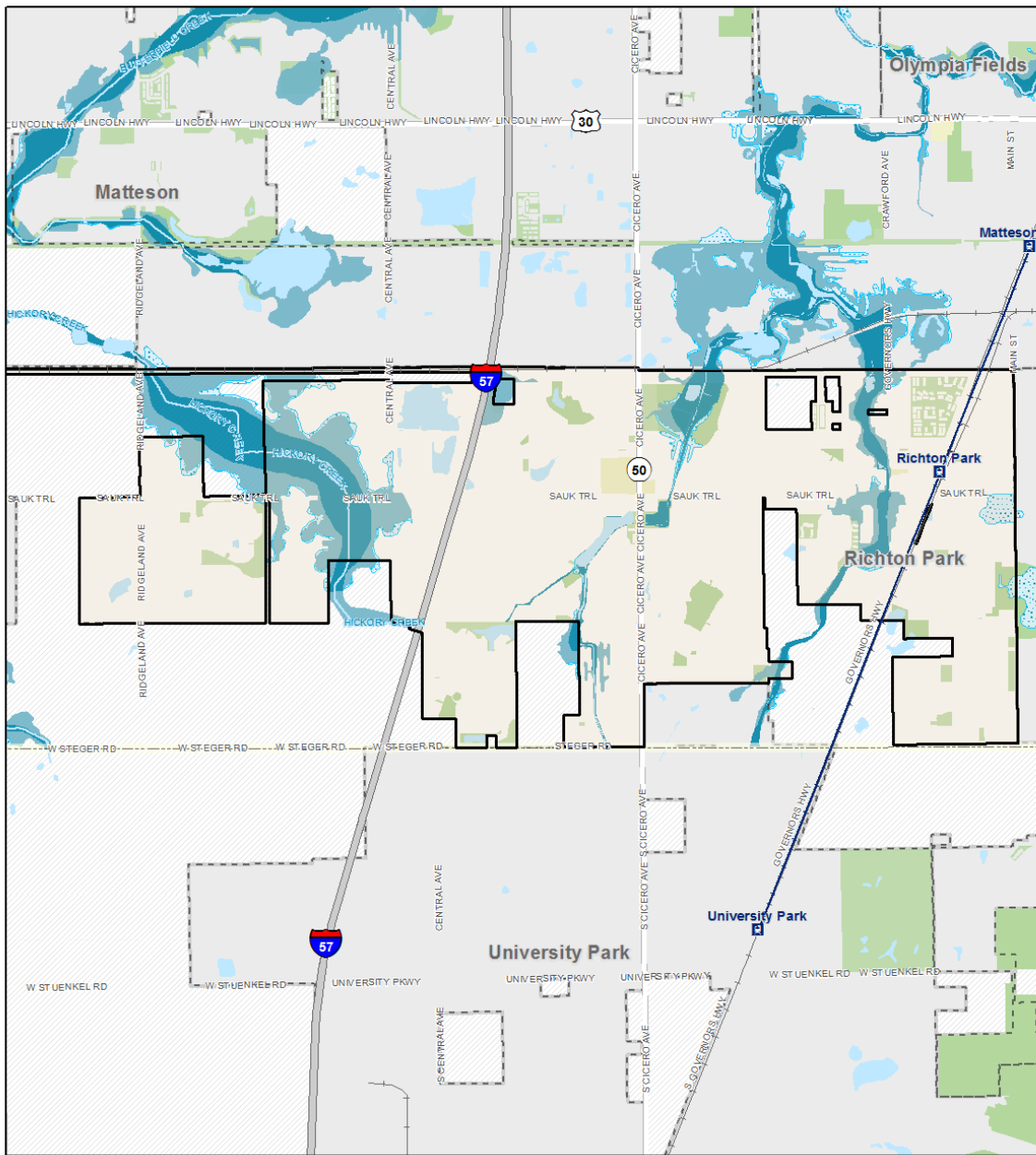


Issues: Impaired water quality, limited recreational access

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

McHenry County

River Corridor

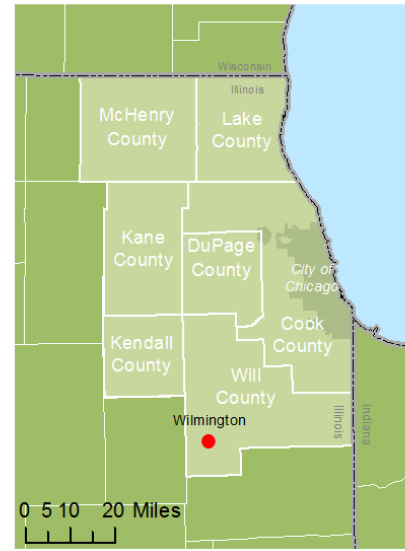
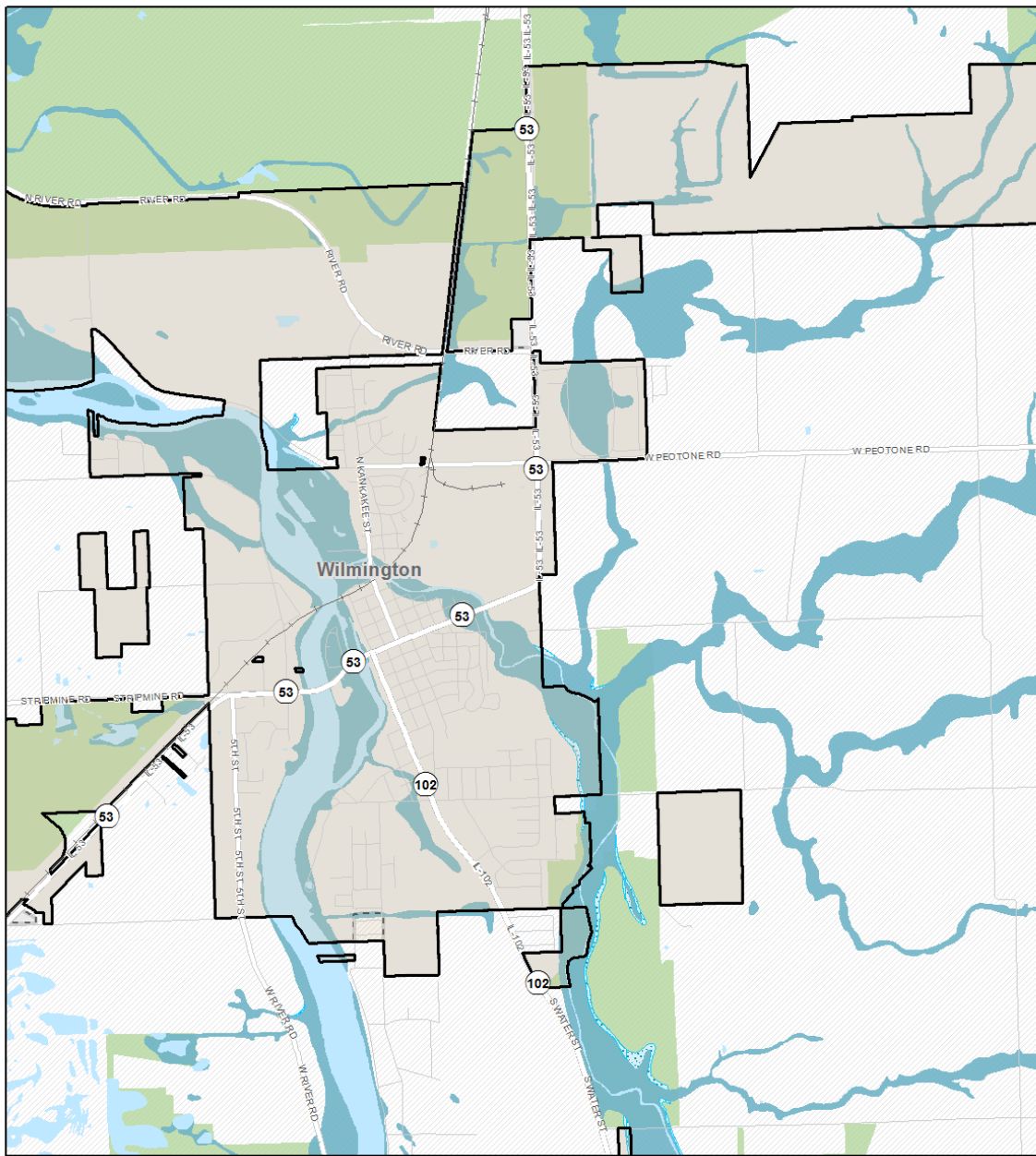


- Metra Stations
 - Rail Lines
 - Village of Richton Park
 - County Boundary
- Floodzones (FEMA, 2015)**
- Floodway
 - 100-yr Floodplain
 - 500-yr Floodplain
 - Open Space
 - Cemetery

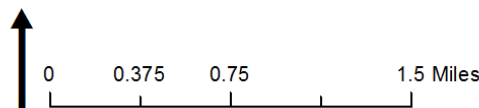
Issues: Riverine and urban flooding

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

Richton Park | Capital Improvement



- Metra Stations
- Rail Lines
- City of Wilmington
- County Boundary
- Floodzones**
- 100-yr Floodplain
- 500-yr Floodplain



Issues: Riverine flooding

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

Wilmington | Downtown Plan

Climate Resilience



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 Resilience



Climate data can help local plans

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



U.S. Climate
Resilience
Toolkit

[Steps to Resilience](#) [Case Studies](#) [Tools](#) [Expertise](#) [Regions](#) [Topics](#)

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NOAA | U.S. Climate Resilience
Toolkit



THE CLIMATE EXPLORER

Explore maps and graphs of historical and projected climate trends for any county in the contiguous United States. View data by topics to see how climate change will impact things you care about.

 Search by location

 View by variable

 View by topic

 New here? Take the tour

Explore: Marathon, Florida

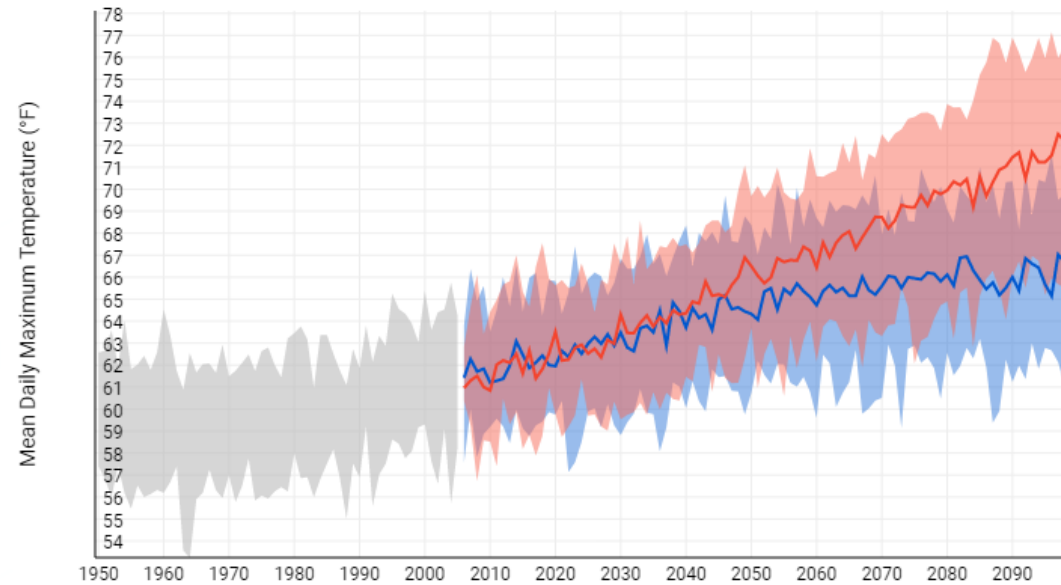
Temperature

- 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](#)



Observations Historical (Modeled) Lower Emissions Higher Emissions Medians

1950

2100

Precipitation

Mean Daily Precipitation ?

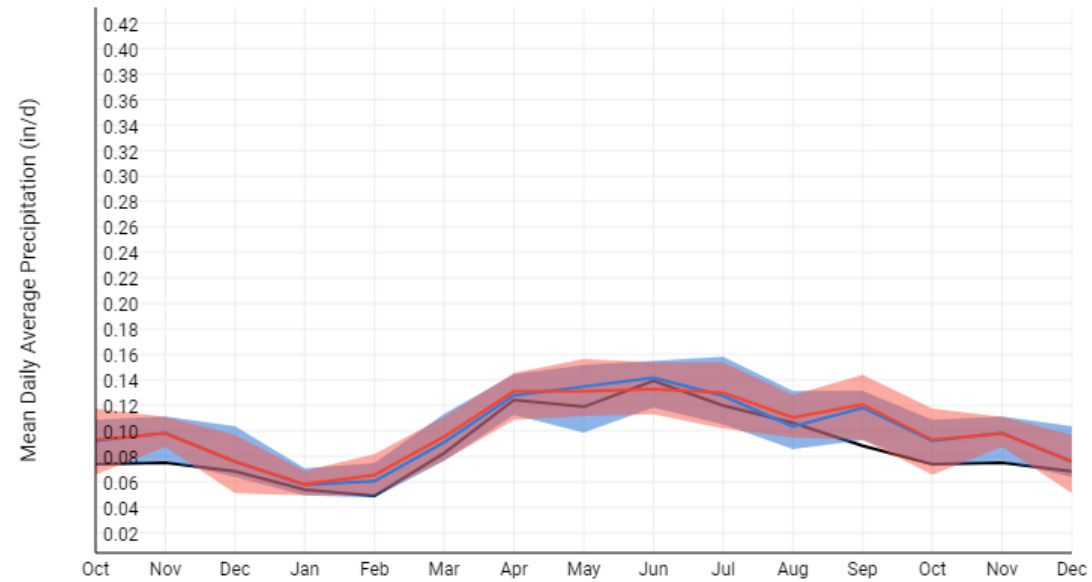
- Annual
- Monthly**
- Seasonal

Days of Precipitation Above 1 Inch ?

Display: **Actual** ▾

Chart: DuPage County
Mean Daily Precipitation

[How to read this](#) [Image](#) [Data](#)



Observations
 Lower Emissions
 Higher Emissions
 Medians

30 Years Centered in 2025
 30 Years Centered in 2050
 30 Years Centered in 2075

MIDWEST CLIMATE: CLIMATE TRENDS TOOL

[About This Tool](#)

Region

- Midwest
- U2U Region
- State Illinois
- Show Climate Divisions

Time Scale

- Annual
- Seasonal Spring (Mar-May)
- Monthly January

Variable

- Temperature Average Temperature
- Precipitation Days with Precipitation \geq 1"
- Drought Palmer Drought Severity Index
- Degree Days Heating Degree Days
- Growing Season Growing Season Length Based on 28°F

[Update Map](#)

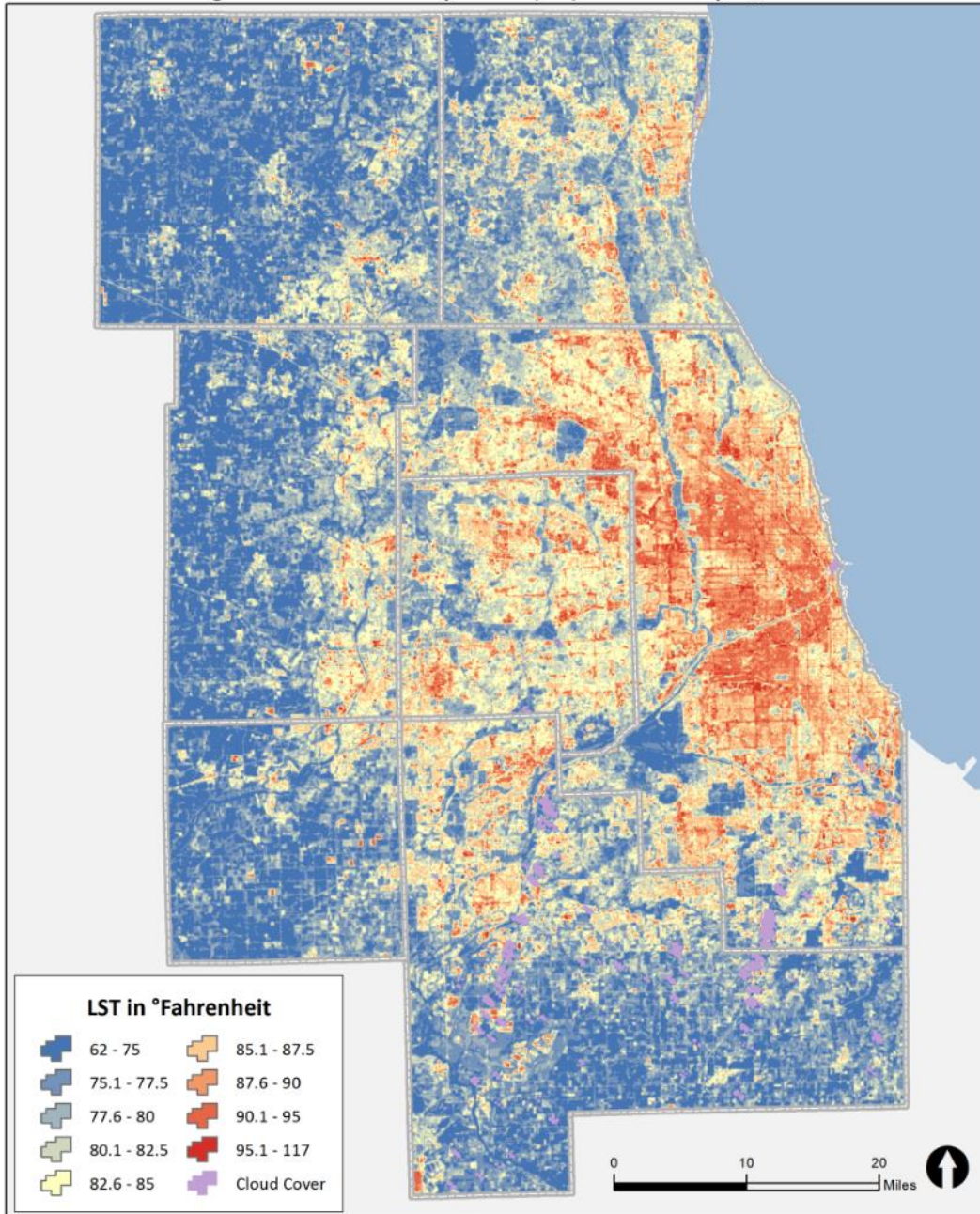
Annual Number of Days with Precipitation \geq 1 in
Trend based on 1895–2016 (Days per century)

© Midwestern Regional Climate Center [Click map for time series graph](#)

Annual Number of Days with Precipitation \geq 1 in
CCSM+MM5I: Scenario A2
(2041–2069 Avg) — (1971–1999 Avg)

© Midwestern Regional Climate Center [Click map for time series graph](#)

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



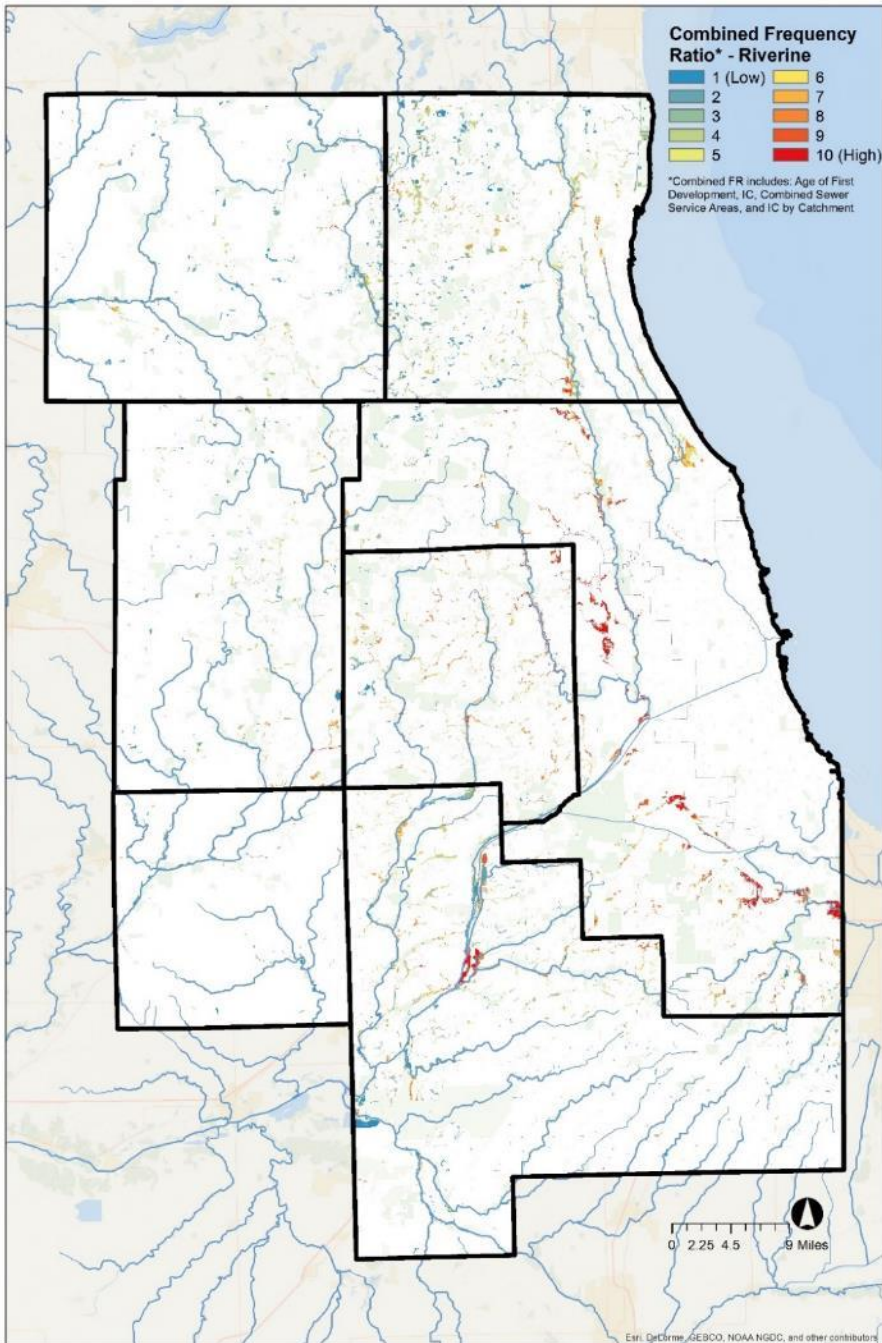
Source: CMAP analysis of USGS provisional Landsat 8 surface reflectance products (Band 10 Brightness Temperature, Normalized Difference Vegetation Index, and CFMask)

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



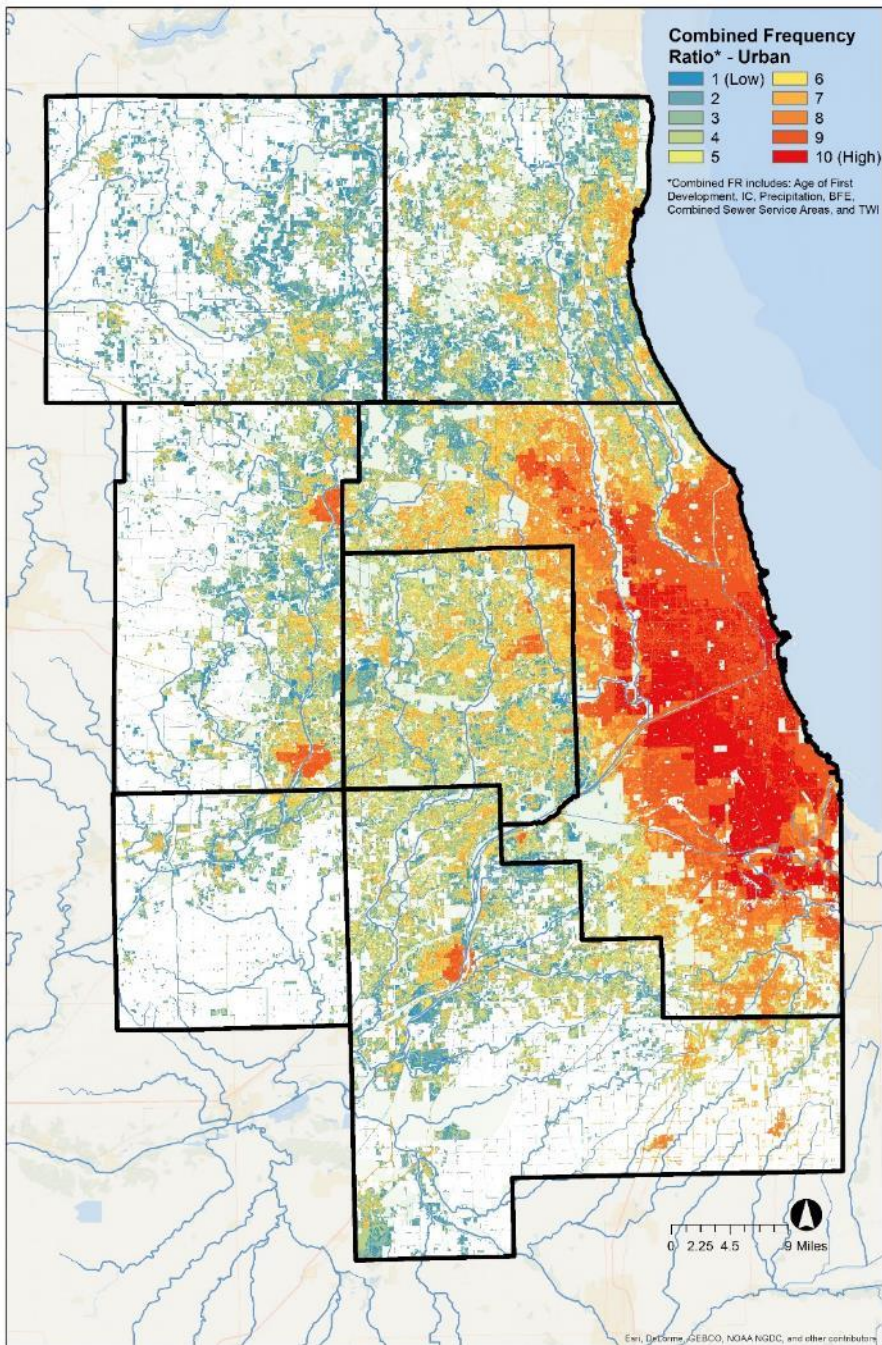
Data: Riverine Flooding Susceptibility Index

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

Watershed Susceptibility



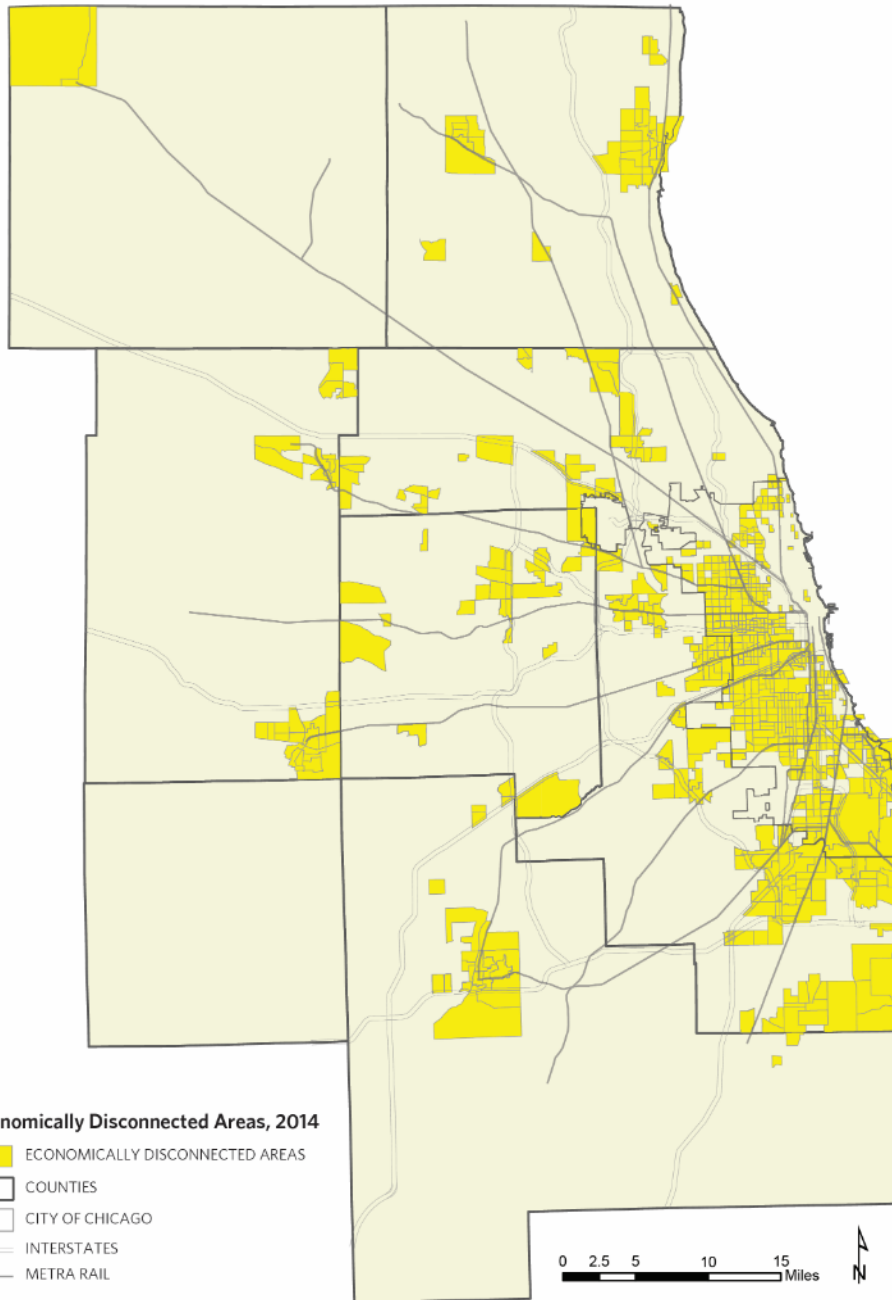
Data: Urban Flooding Susceptibility Index

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



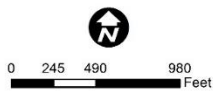
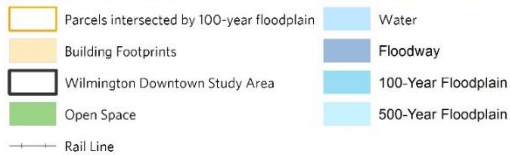
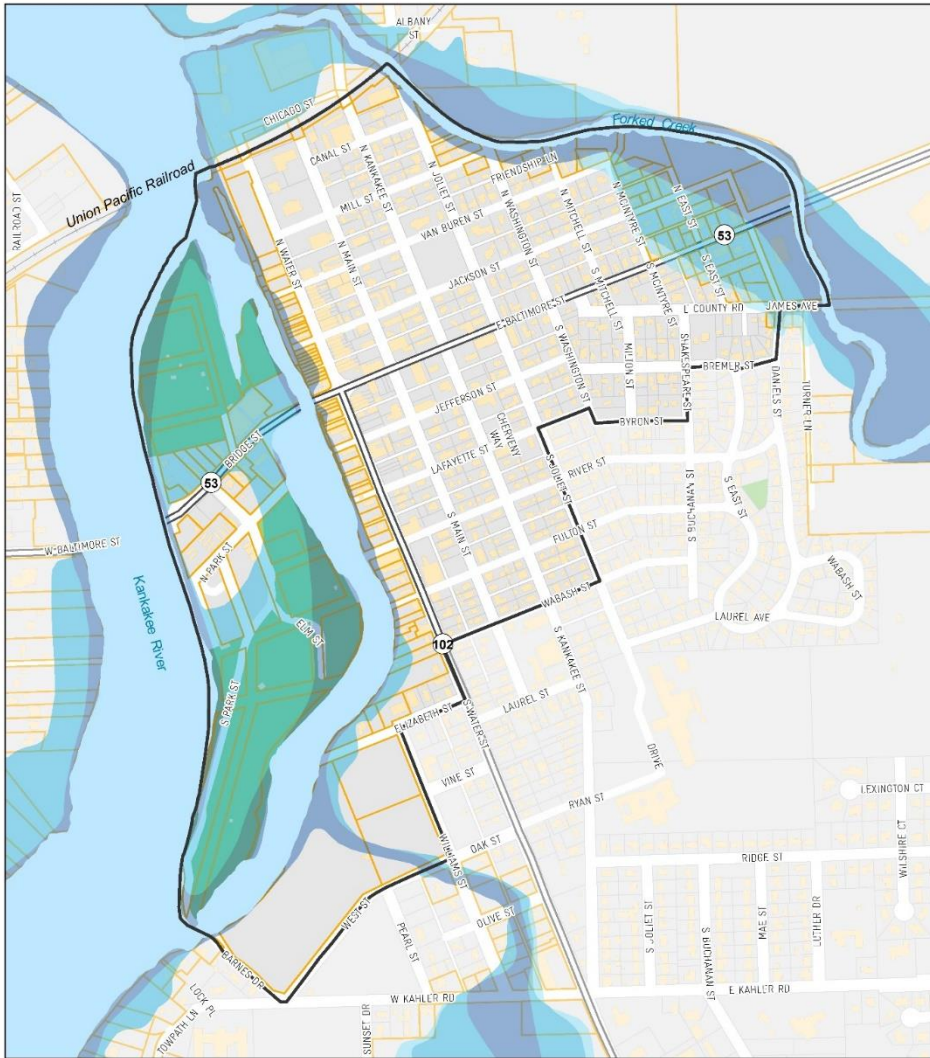
Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey data, 5-year estimates, 2010-2014

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

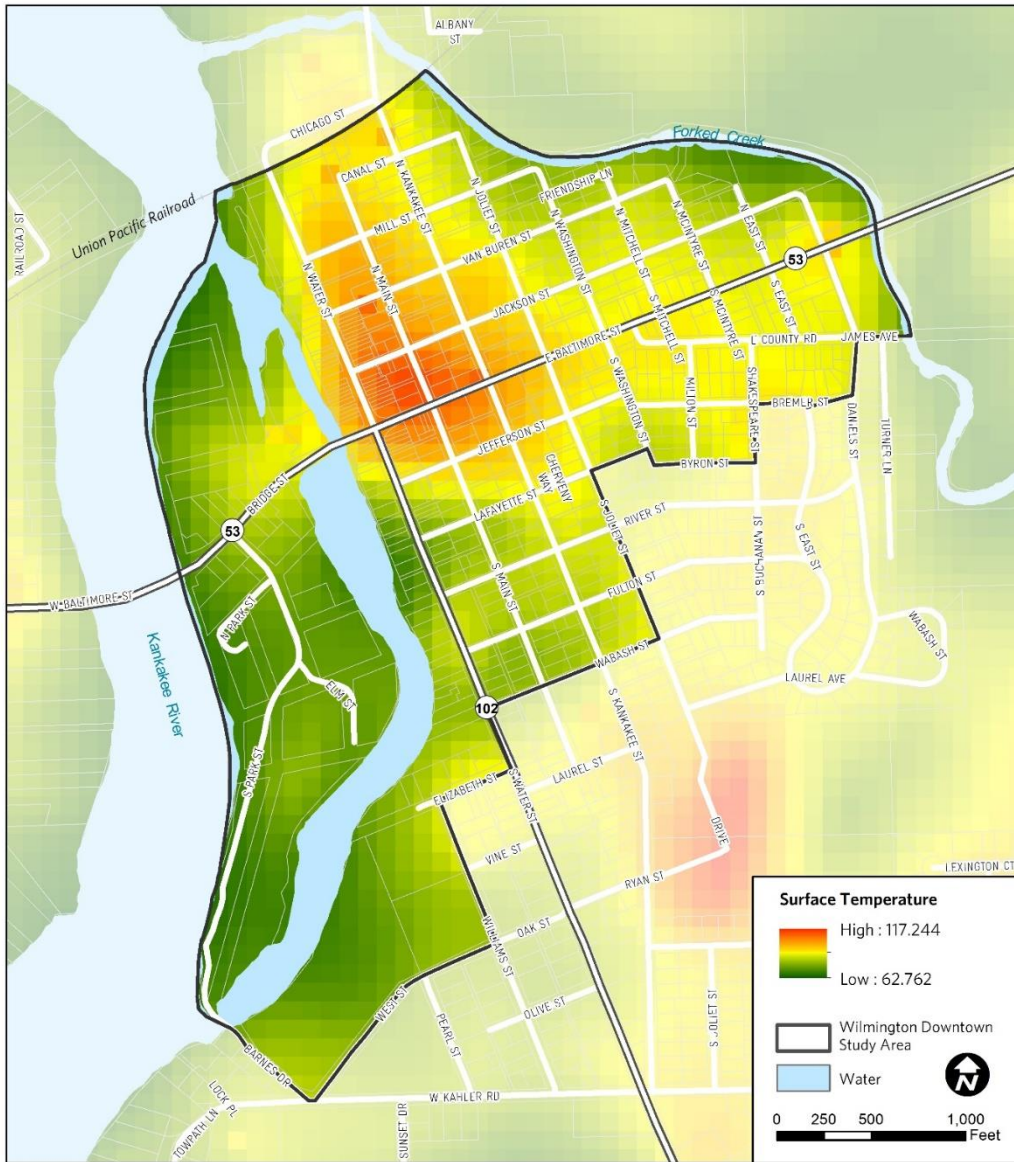
1. Critical Infrastructure
2. Social Vulnerability
3. Economic Impacts

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