

ON TO 2050

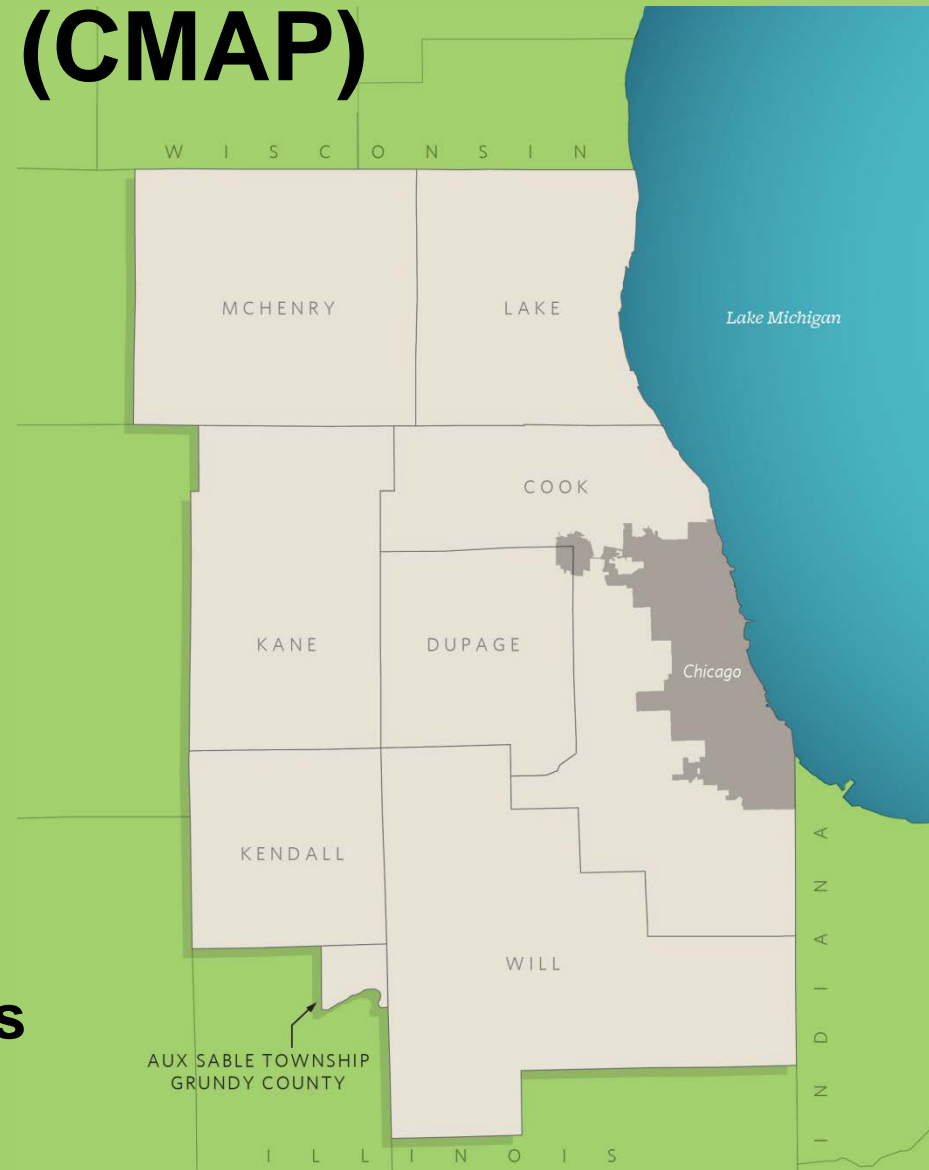


# Water Resources: A Regional Perspective

DRWW Annual Meeting  
February 15, 2017

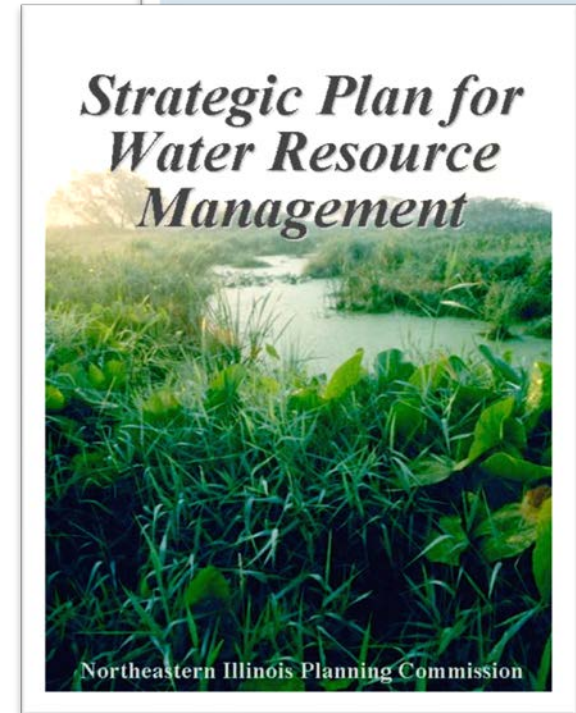
# Chicago Metropolitan Agency for Planning (CMAP)

- **CMAP** is the regional planning organization for the seven counties of northeastern Illinois
- **Mission:** to develop coordinated strategies that lead to economic prosperity and quality of life
- **Role:** CMAP does research, analyzes data, and works with counties, cities, & villages
- **The Plan: ON TO 2050**



# Water Resource legacy

- Ongoing Priorities: Water Quality, Water Supply, Stormwater & Flooding
- Nationwide Urban Runoff Program (NURP – 1979-83)
- Areawide Water Quality Management Plan (1980s)
- Model stormwater ordinances and TA (1980s and 90s)
- Strategic Plan for Water Resource Management (2002)
- Water 2050: NEI Water Supply/Demand (2010)
- GO TO 2040 (2010)



## **Resilience**

*A strong region requires communities, infrastructure, and systems that are able to thrive in the face of uncertain future economic, fiscal, and environmental shifts*

## **Inclusive Growth**

*Long-term regional economic prosperity requires increased economic opportunity and improved quality of life for all residents*

## **Prioritized Investment**

*Achieving regional goals in an era of limited resources requires coordinated prioritization of investments across sectors, including infrastructure, land use, and our economy*

# Progress has been made in water quality ...

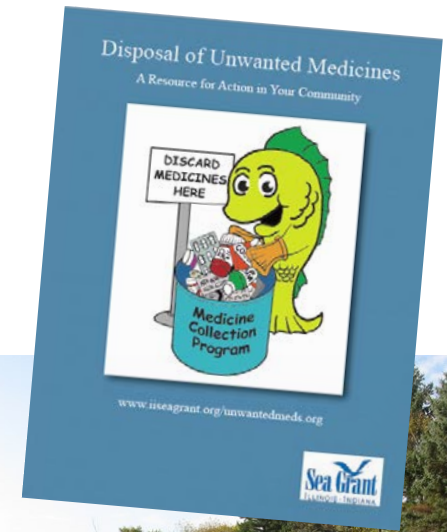
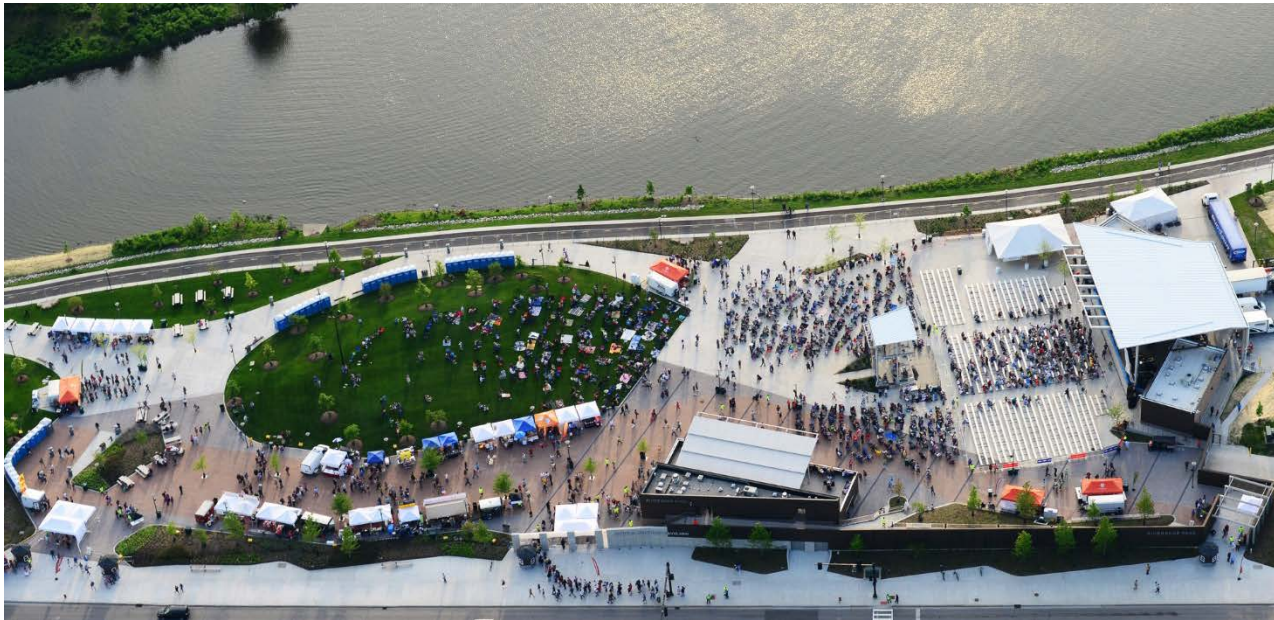


Photos: River Network; MWRD; stock



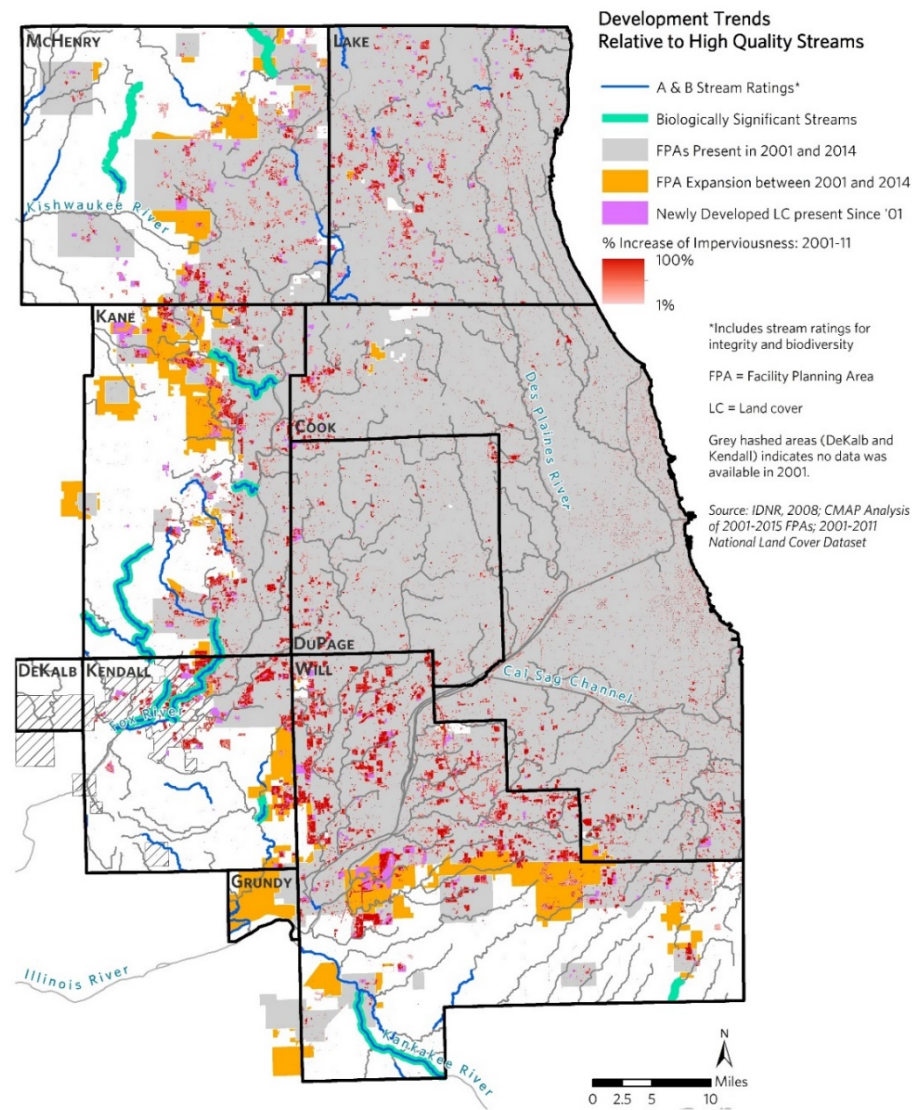
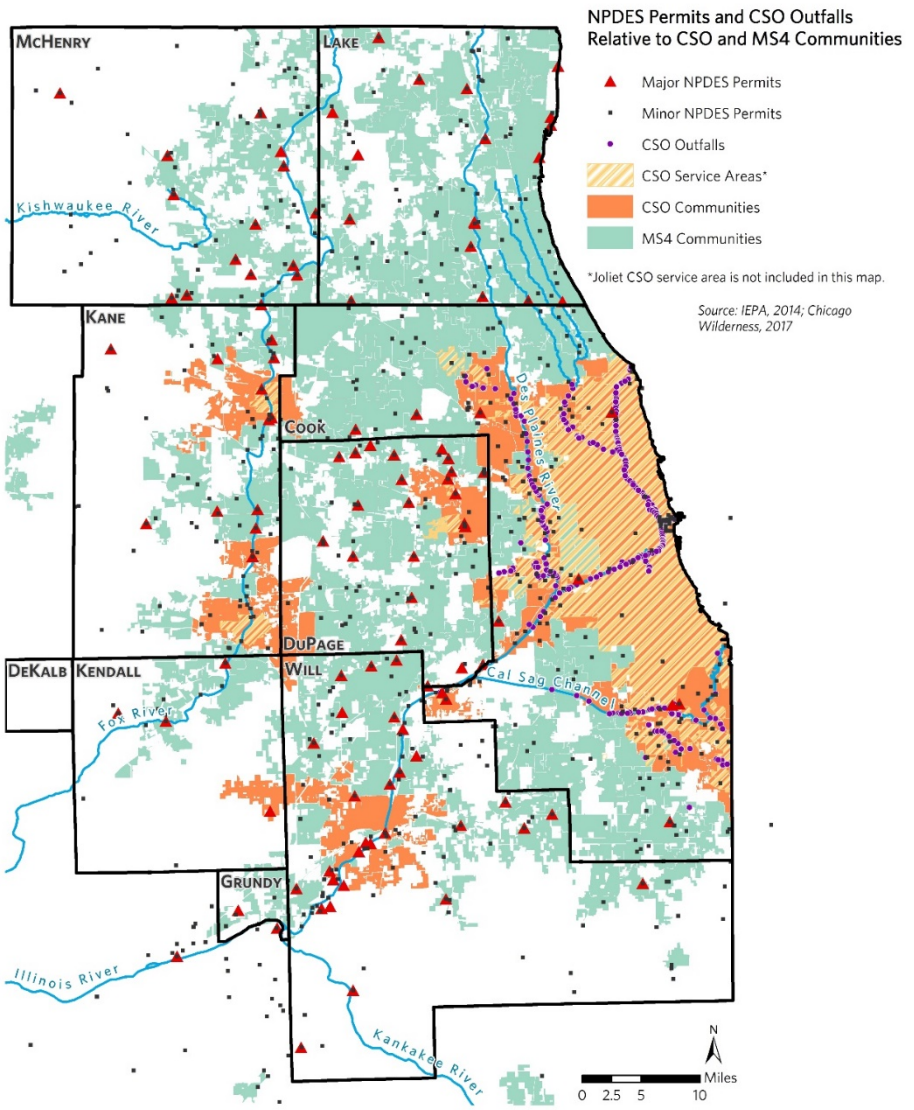
# Progress has been made in water quality ...

*“Last month, the Executive Committee of The Chicago Community Trust approved \$800,000 for locally driven projects that seek to revitalize communities along Chicago’s vast river system.” – Michael Davidson, Our Great Rivers, Chicago Community Trust*



Photos : ArchDaily; Alchetron; CMAP

# ... but water quality continues to be impaired

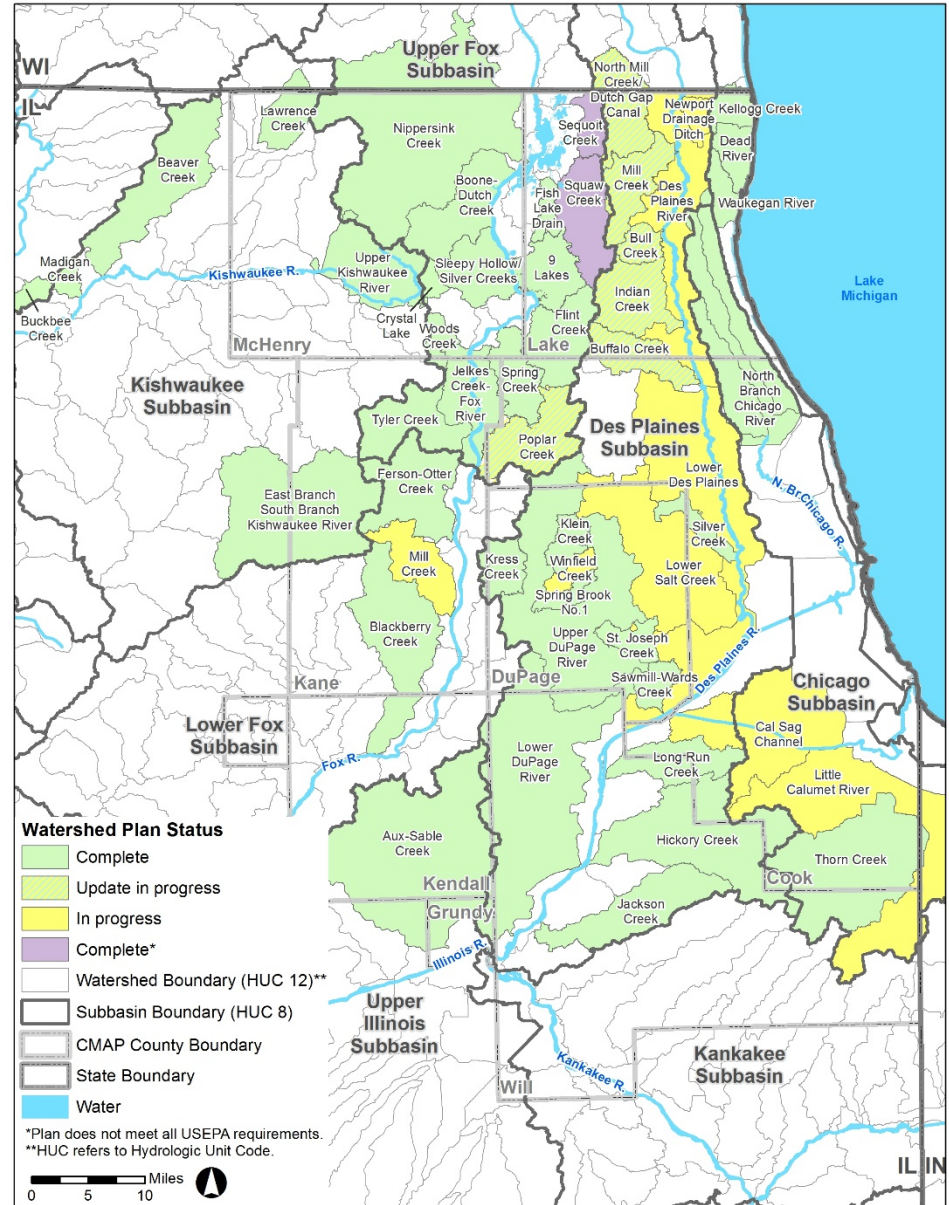


# Water quality strategies

- Watershed planning and stakeholder collaboration to address impairments
- Transfer of Benefits – water quality credits and trading
- Funding program flexibility (e.g., State Revolving Fund for stormwater projects as well as planning and design)
- Greater emphasis on value of Green Infrastructure and open space systems (incl floodplains) for cleaning water
- Infrastructure and development standards (stormwater systems are primarily single purpose)

Watershed-based Plans in Northeastern Illinois

As of December 2017



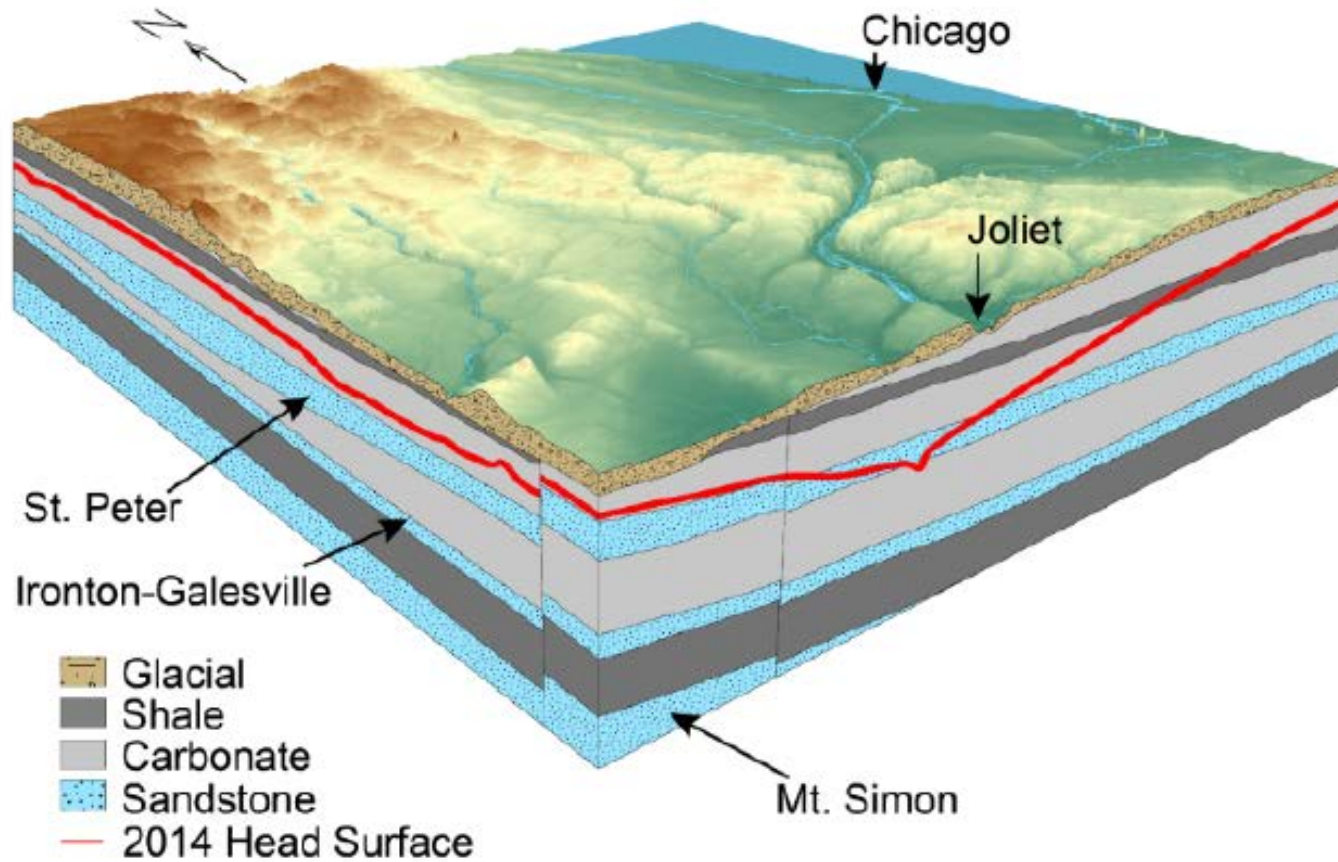
Chicago Metropolitan Agency for Planning, December 2017





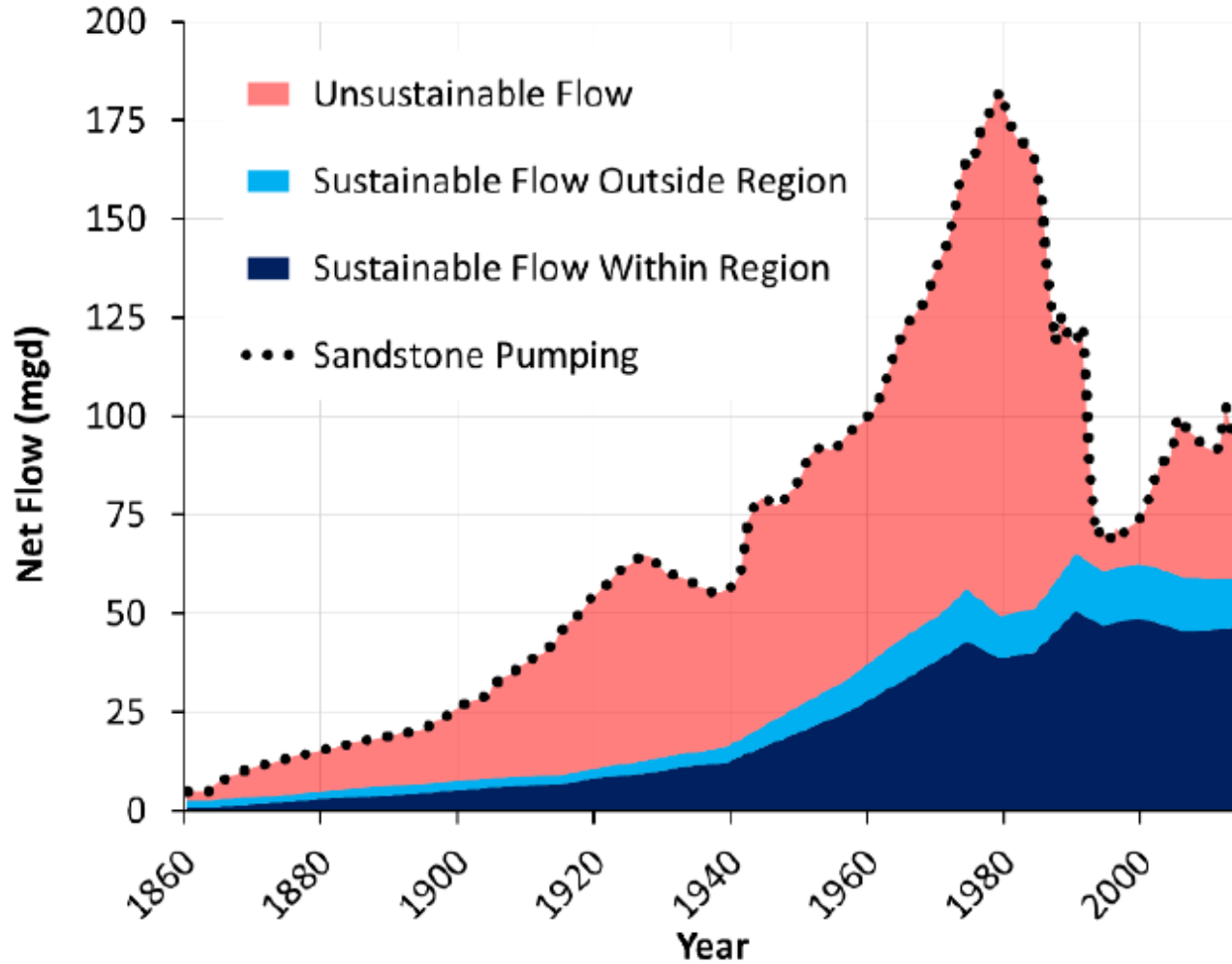


# Progress has been made in water supply ...

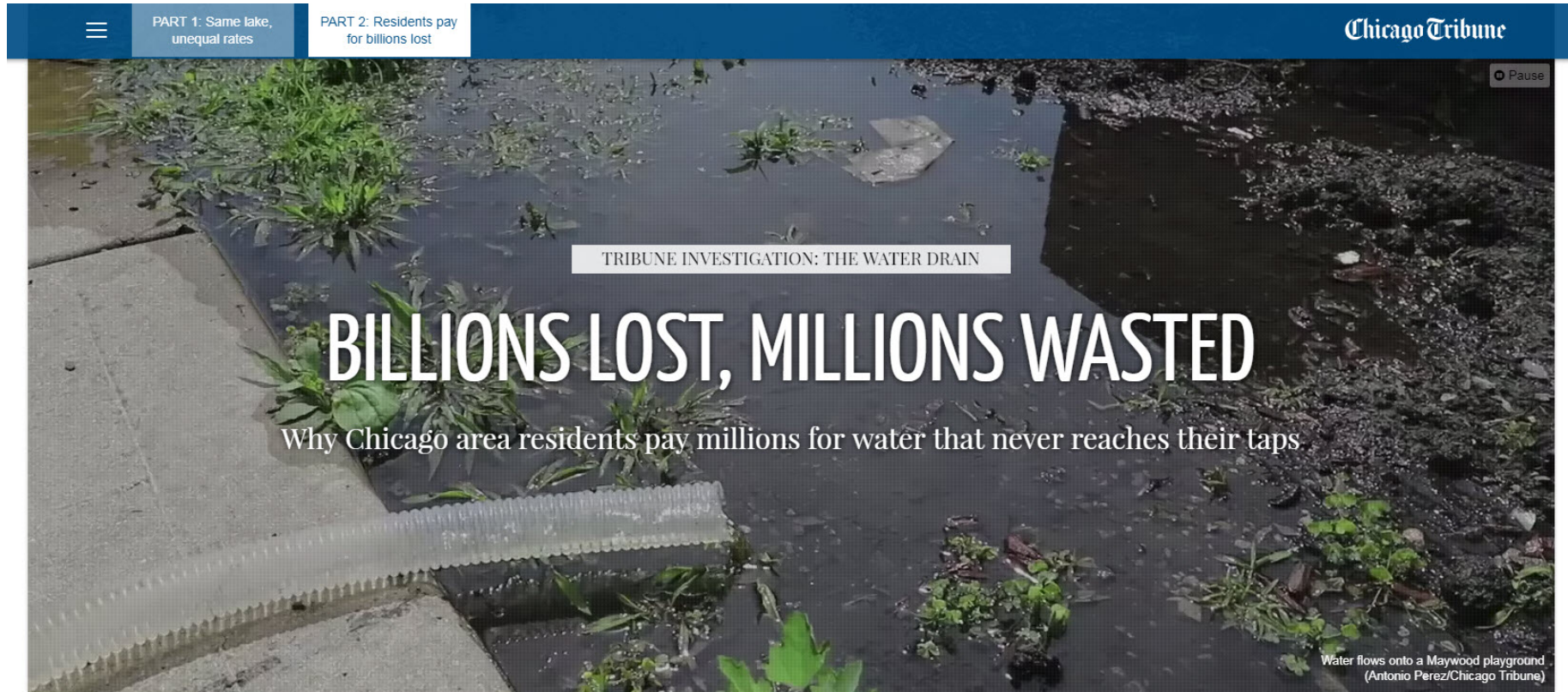


**Figure 2.** Conceptual image showing 2014 head in relation to the sandstone aquifers in northeastern Illinois

# Progress has been made in water supply ...



# Progress has been made in water supply ...



# ... but water supply is still at risk

Water Supply Sources by Community

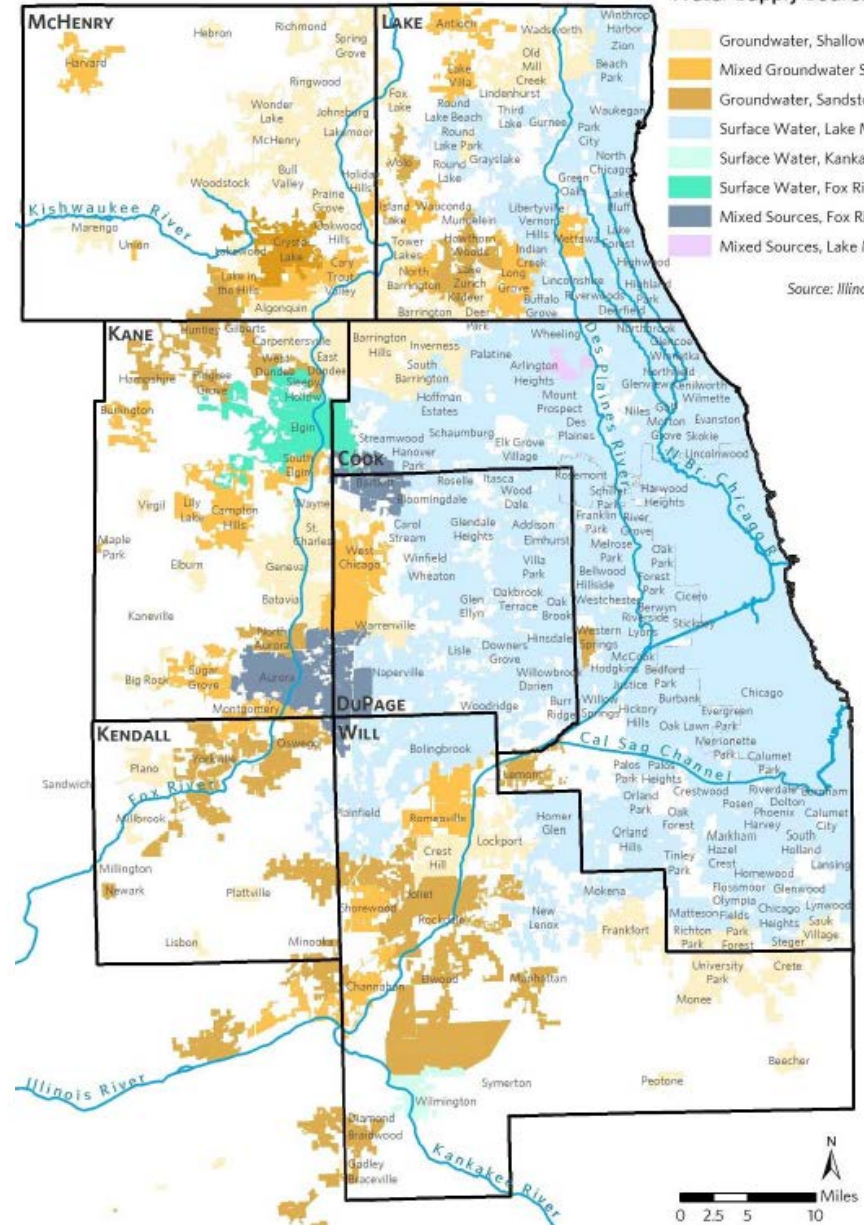
- Groundwater, Shallow
- Mixed Groundwater S
- Groundwater, Sandst
- Surface Water, Lake I
- Surface Water, Kanka
- Surface Water, Fox Ri
- Mixed Sources, Fox R
- Mixed Sources, Lake I

Source: Illinc

Source Protection for Shallow Aquifer Communities

- Shallow Aquifer Community
- Major Sand Gravel Aquifer (IDNR)
- Aquifer Sensitivity**
- High Potential for aquifer contam
- Moderately High Potential for aqu

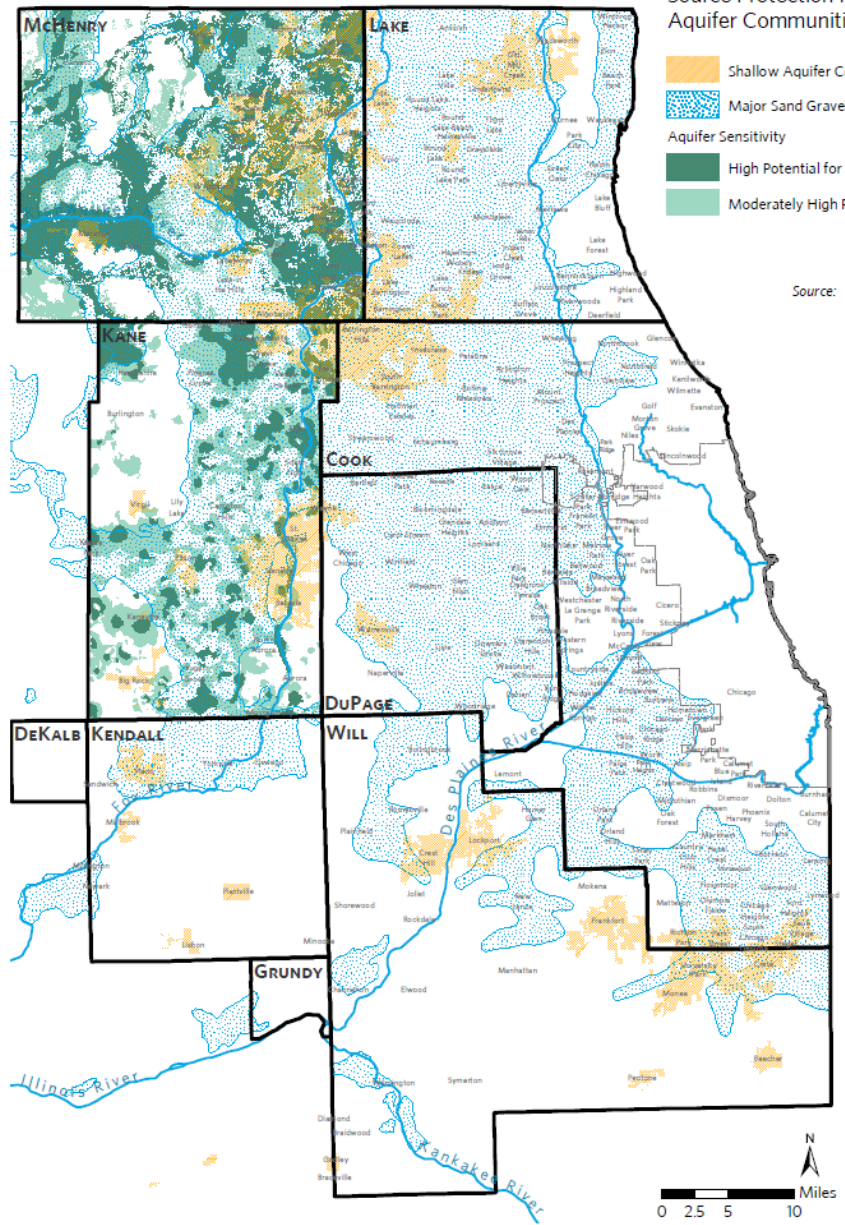
Source:



Chicago Metropolitan Agency for Planning, 2017.

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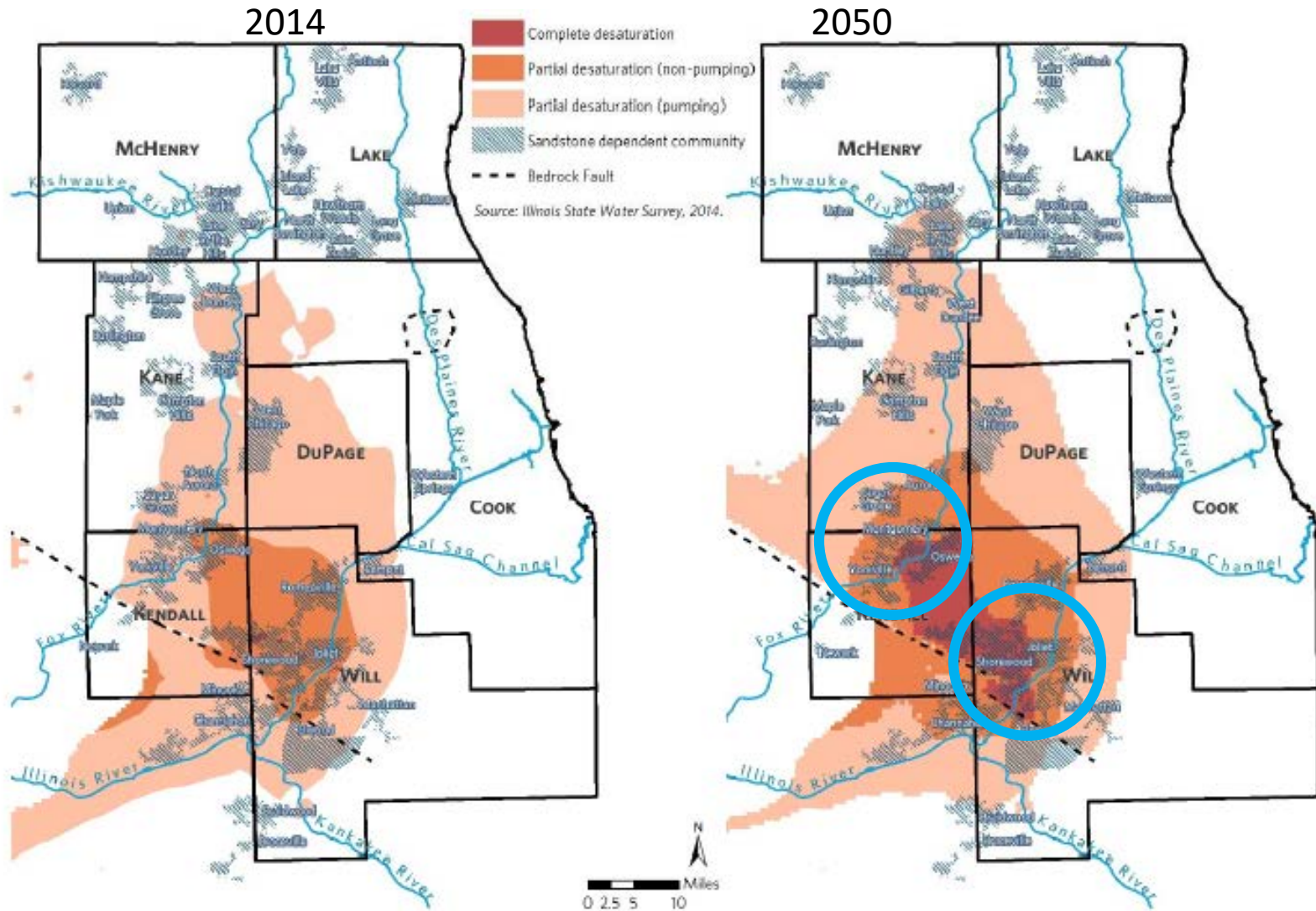
Source:



Chicago Metropolitan Agency for Planning, 2017.

# ... but water supply is still at risk

## Risk of Desaturation of St. Peter Sandstone

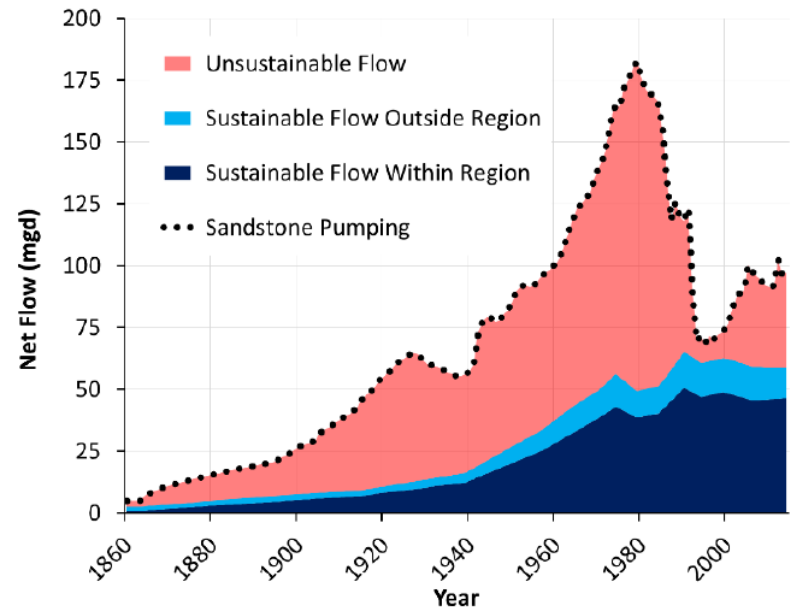


Chicago Metropolitan Agency for Planning, 2017.

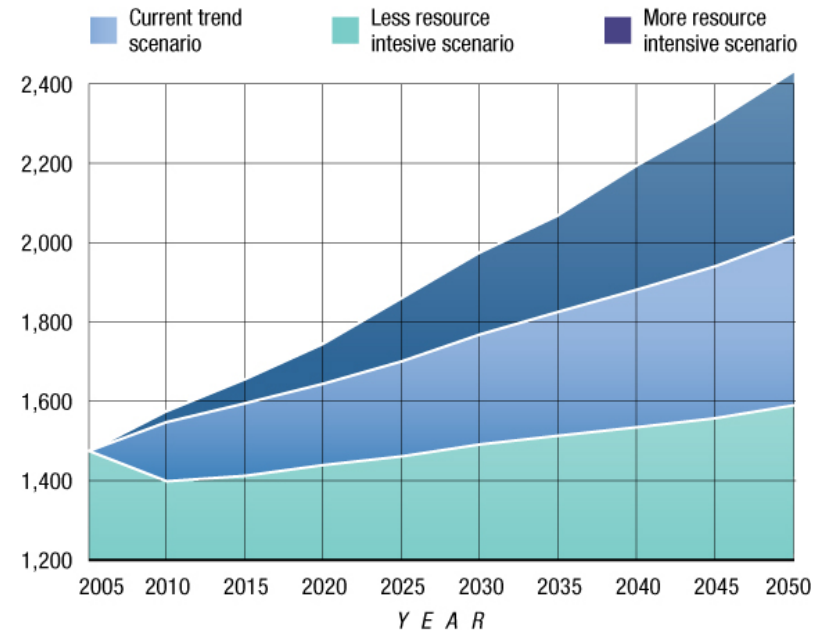
Source: 2014 Illinois State Water Survey

# Water supply strategies

- More information about groundwater and river water availability and sustainable withdrawal rate
- Better coordination of users and monitoring of water withdrawals
- Get serious about water reuse
- New data and tools to assist local governments with water supply planning (IDNR funding)
  - Support organizational efforts with Public Water Commission communities in Joliet area
  - Investigate joint water supply governance structure with Oswego, Montgomery, and Yorkville
  - Develop municipal scale, 2050 water demand forecasts to assist with local and regional planning

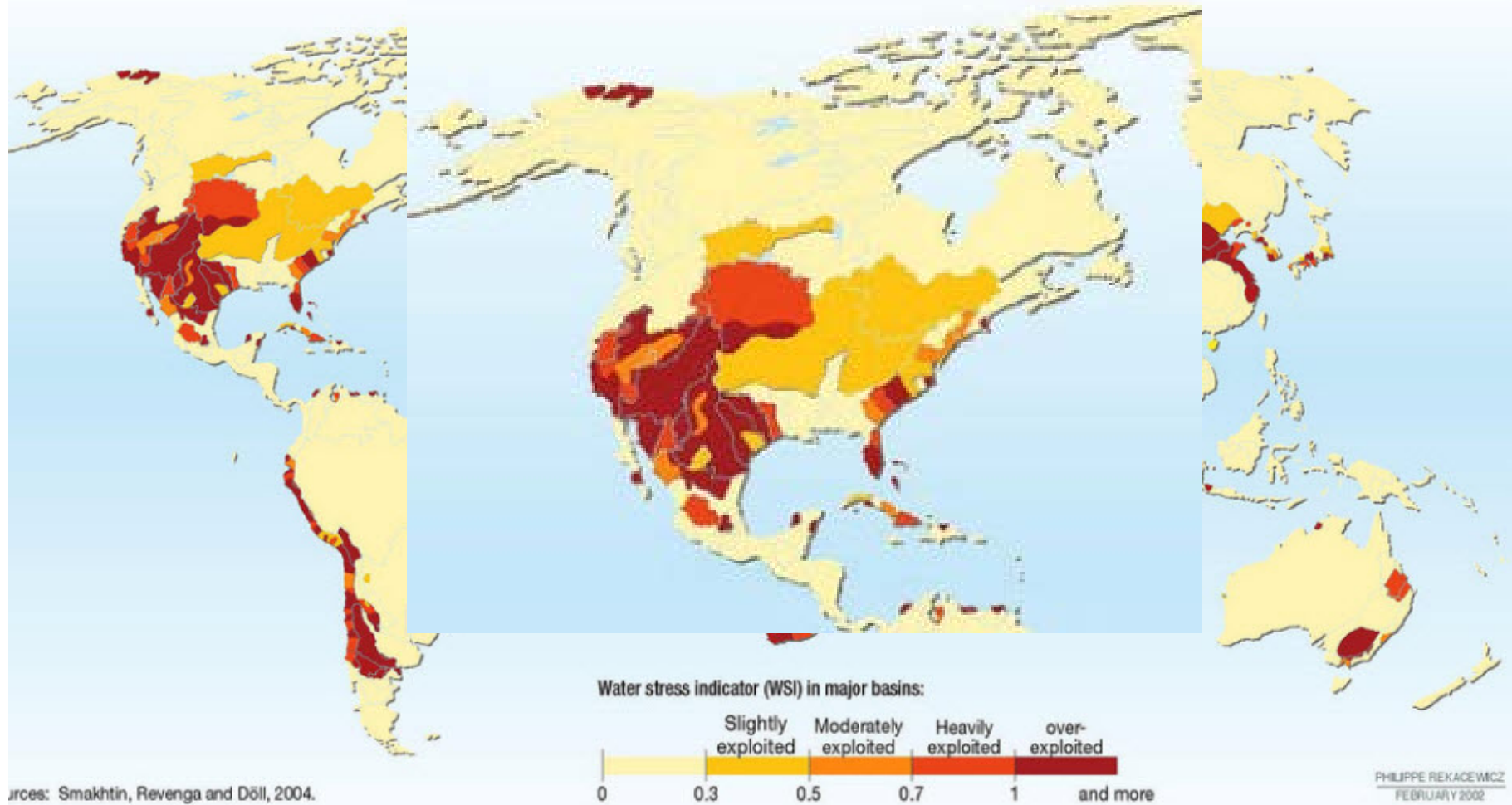


Scenario water withdrawals: 2005 - 2050, in million gallons per day



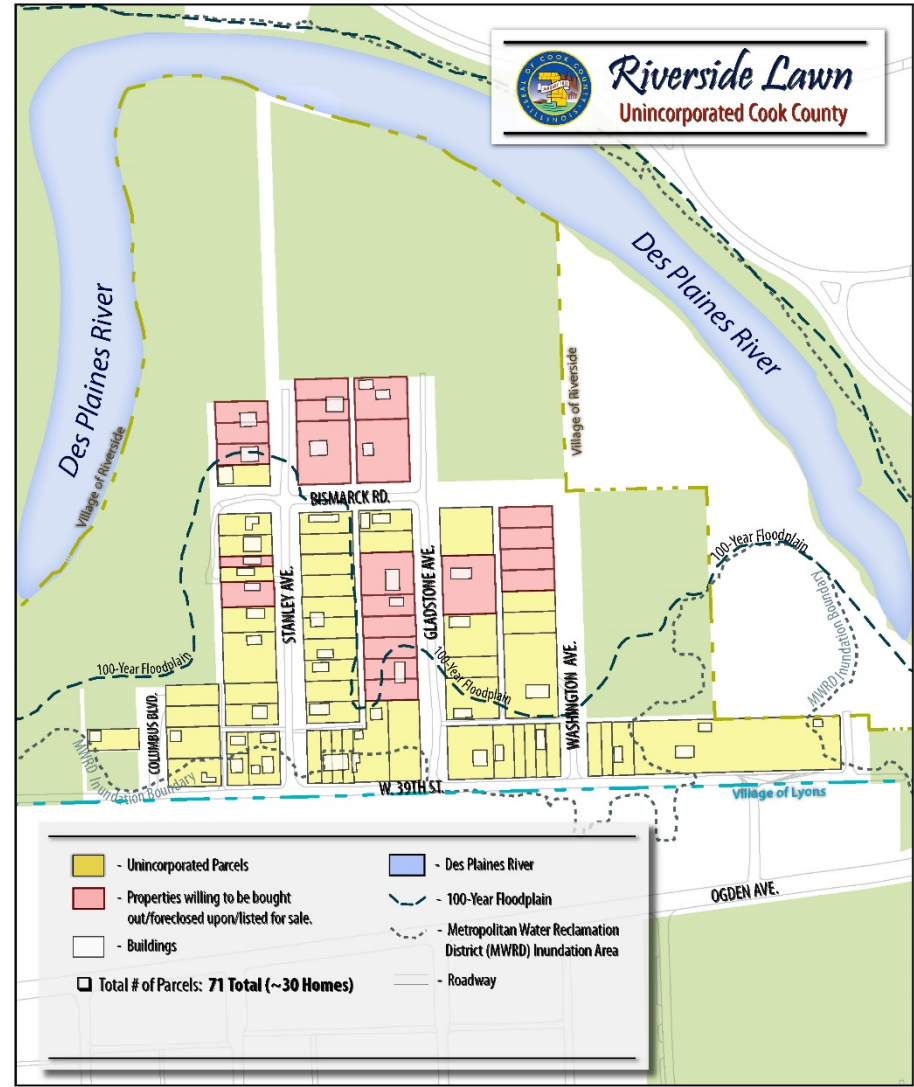
Source: B. Dziegielewski and F.J. Chowdhury, 2008, Southern Illinois University Carbondale

# What if ...





# Progress has been made in stormwater and flooding ...



**Cook County Land Bank Authority**

69 W. Washington St., Suite 2938, Chicago, IL 60602 | (312) 603.8015 | info@cookcountylandbank.org

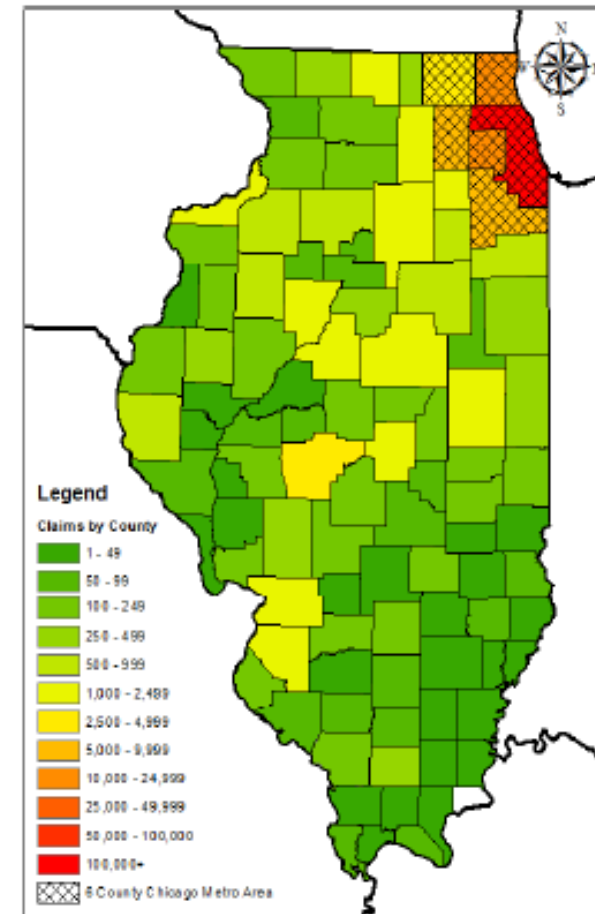
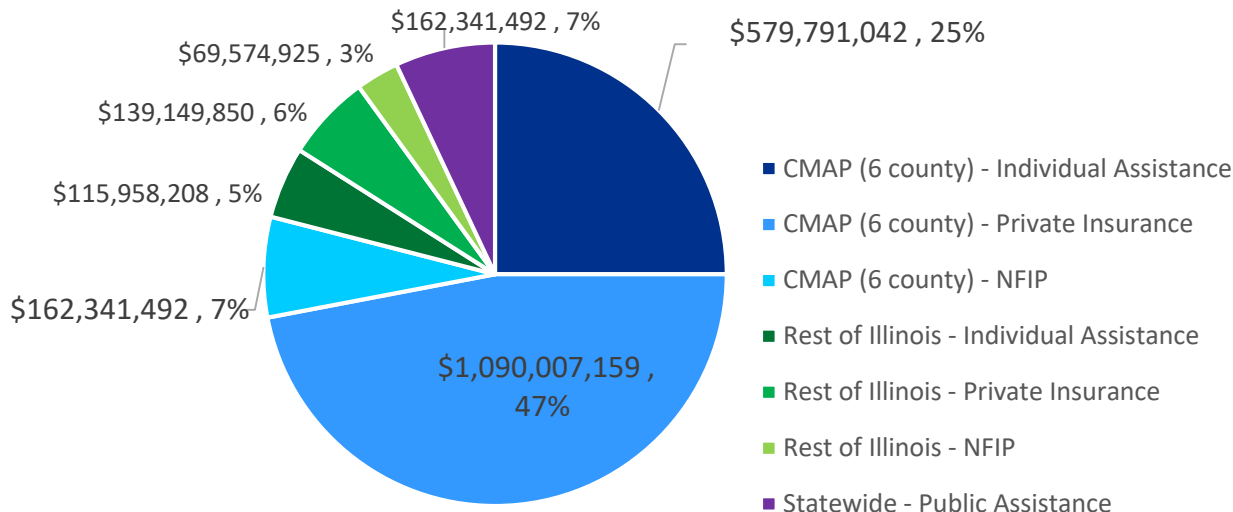
**cclba**  
Cook County Land Bank Authority

# ... but flood damages are ongoing

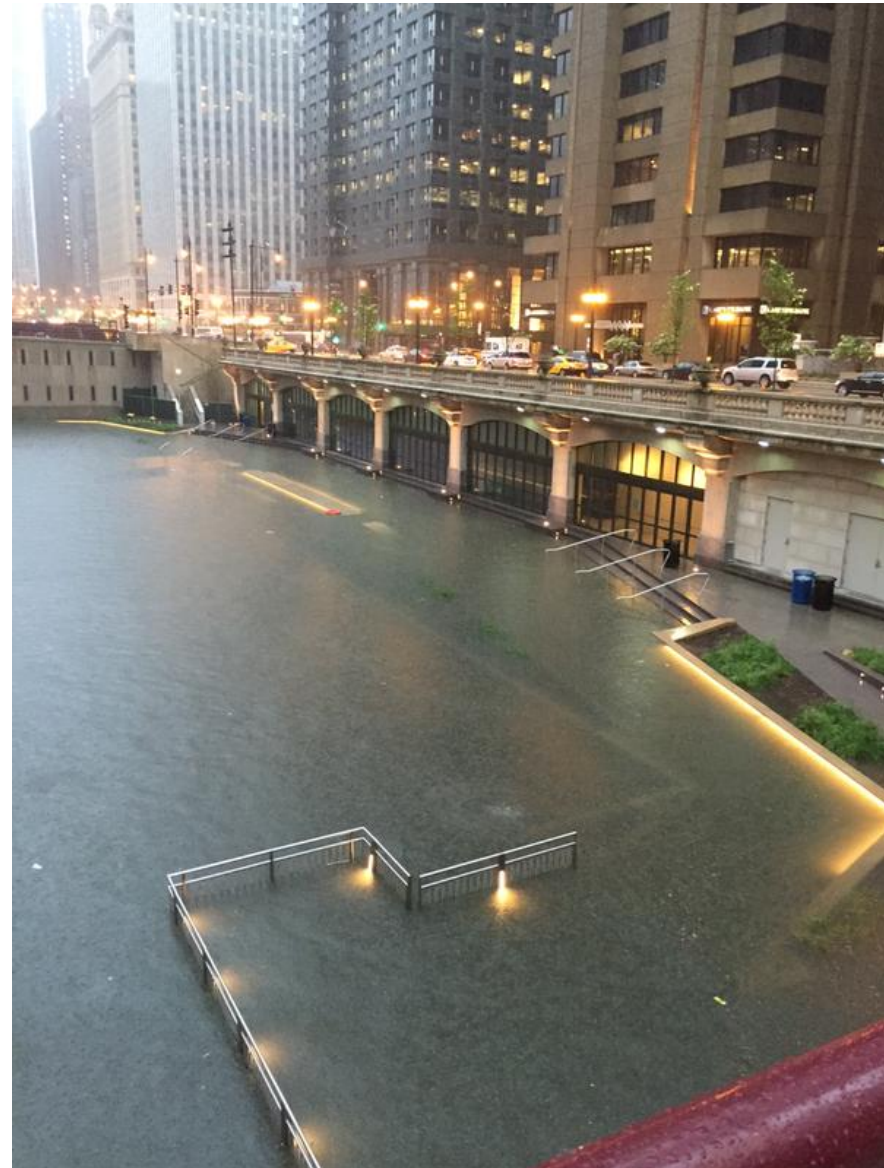
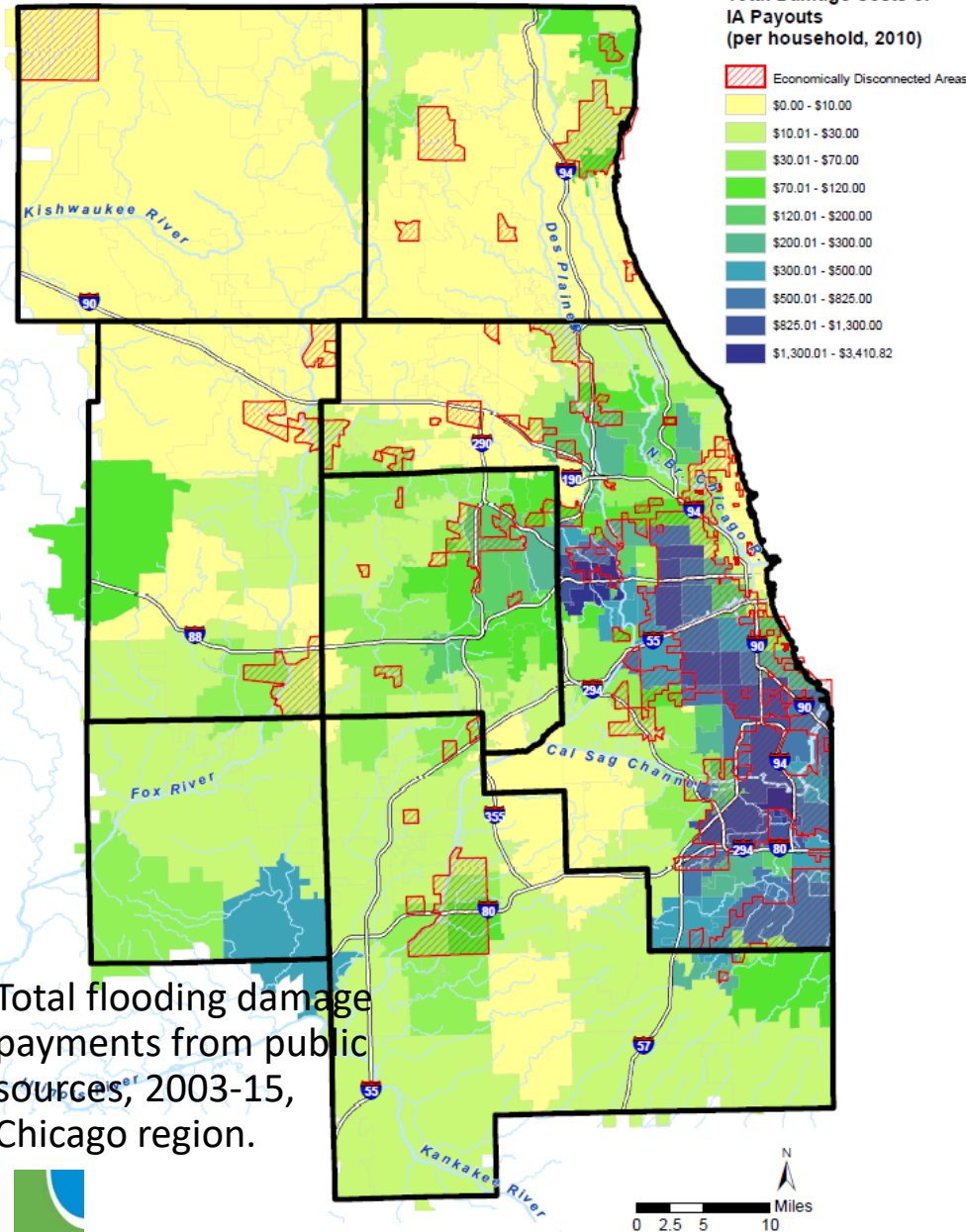
## IDNR Urban Flooding Awareness Act Report

- 85% (\$2 billion) of statewide flood damage occurred in the 6-county region (2007-2014).
- Majority of payments due to 5 storm events
- 90% of claims outside of mapped floodplain

**Total insurance and disaster relief payouts by claim type and region for the State of Illinois, 2007-2014.**



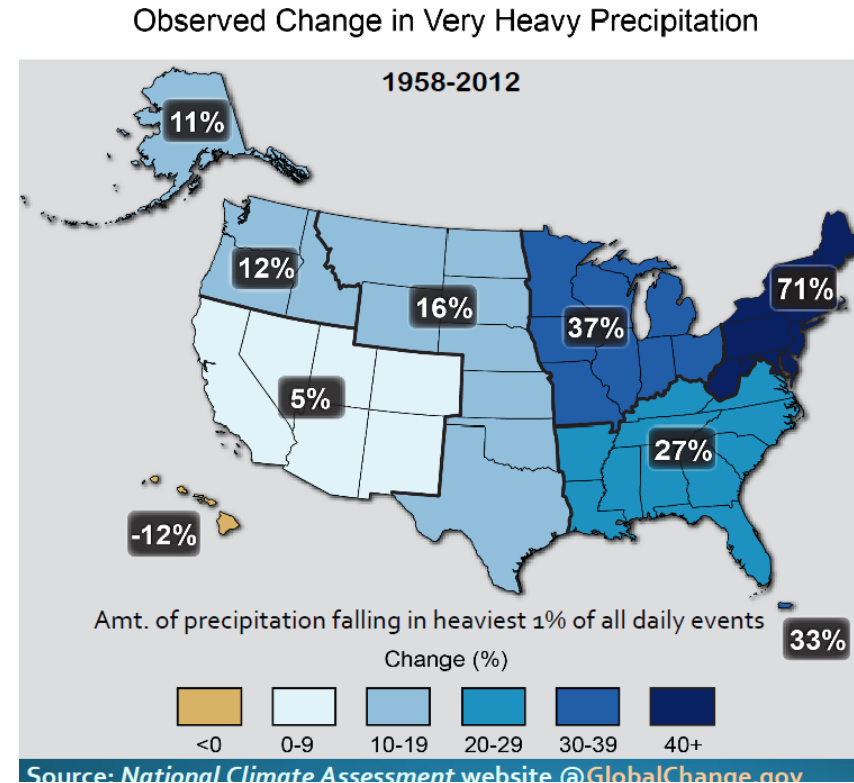
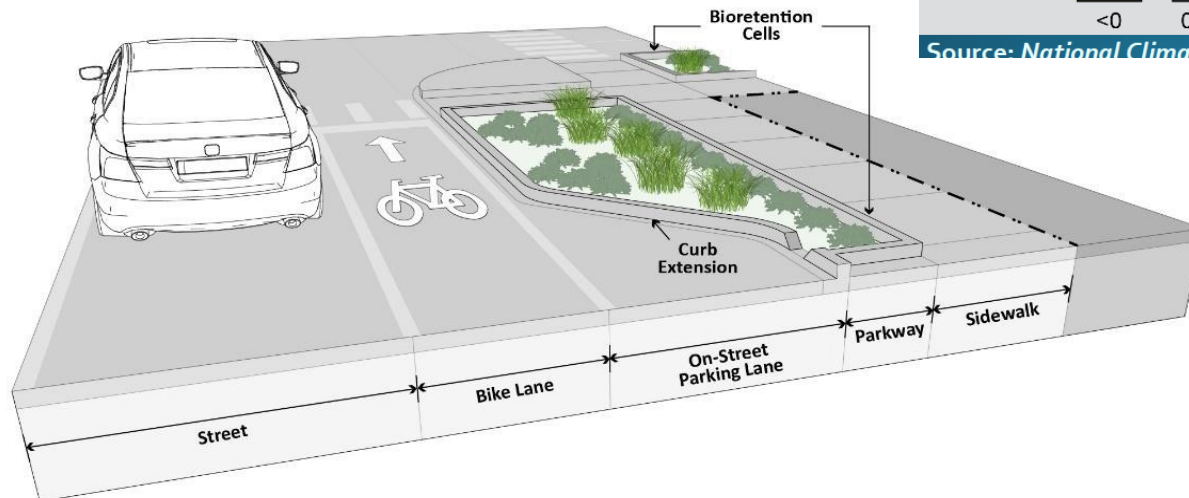
# ... but flood damages are ongoing



Photos: David Mixner; Chicago Tribune; CBS Chicago

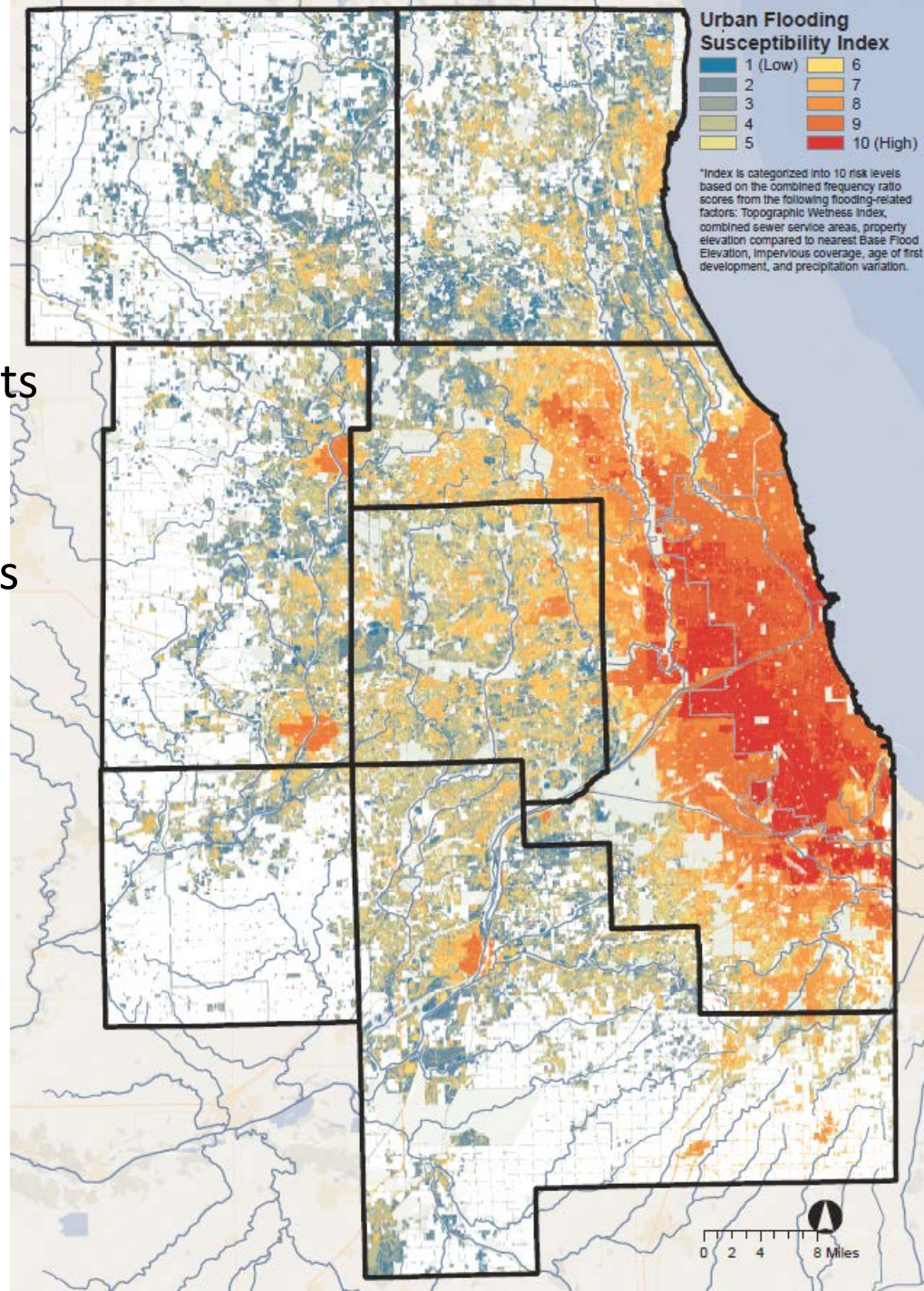
# Stormwater and flooding strategies

- Transfer of Benefits (i.e., volume and detention trading)
- Acceptance, codification, and funding for Green Infrastructure (IEPA, MWRD)
- Awareness and integration of climate impacts and vulnerability
- New data and tools to assist with stormwater and flooding



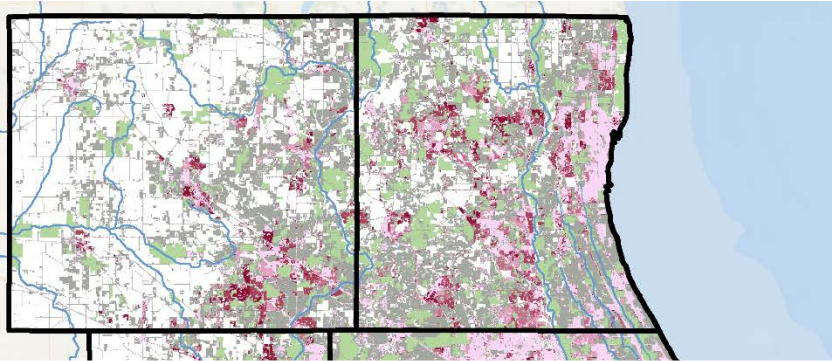
# Regional Urban Flooding Susceptibility Index

- NFIP claims
- FEMA Individual Assistance Grants
- FEMA Discovery Data
- City of Chicago 311 reports
- MWRD Detailed Watershed plans
- County data
- Impervious Cover
- Age of First Development
- Combined Sewer Service Areas
- Topography
- Soils data (eg, wetland soils)



# Regional Urban Flooding Susceptibility Index

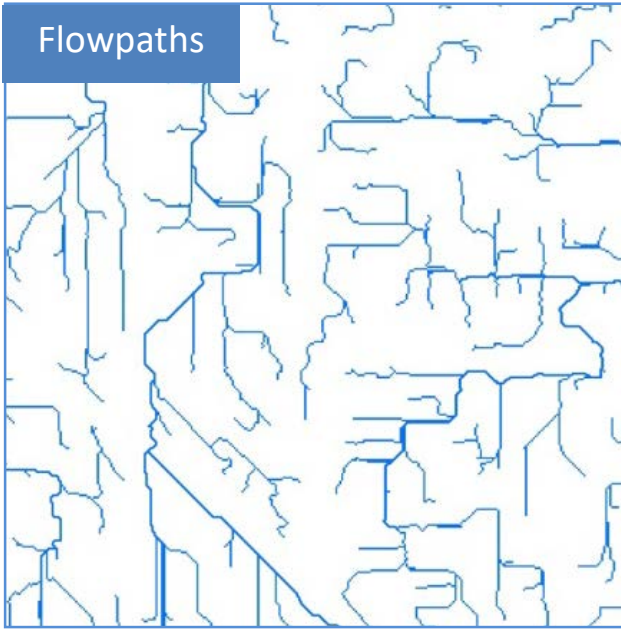
## Age of First Development



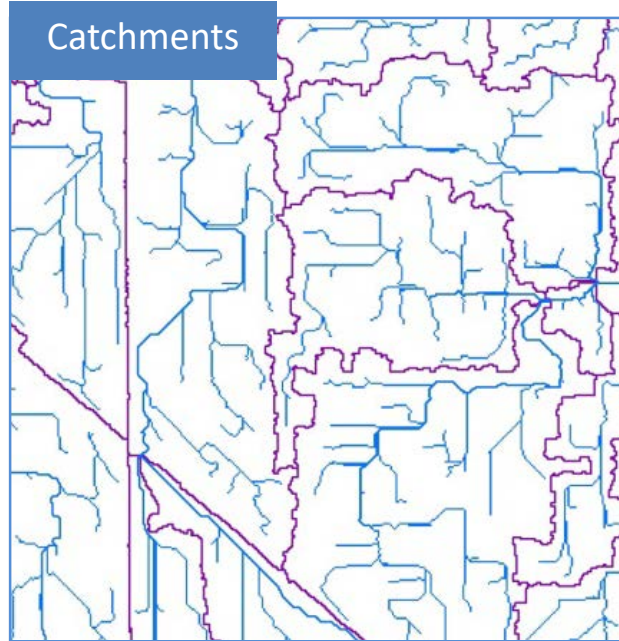
	Categories	Percent (%) of Study Area	Percent (%) of Flood Locations	Frequency Ratio
1	Prior to 1974	41.2%	74.0%	1.8
2	1974-1982	5.4%	4.4%	0.81
3	1982-1992	3.3%	1.9%	0.56
4	1992-2002	5.0%	1.9%	0.38
5	2002-2012	4.6%	1.1%	0.24
6	Undeveloped/ post-2012	40.6%	16.8%	0.41

# Local stormwater analysis tools

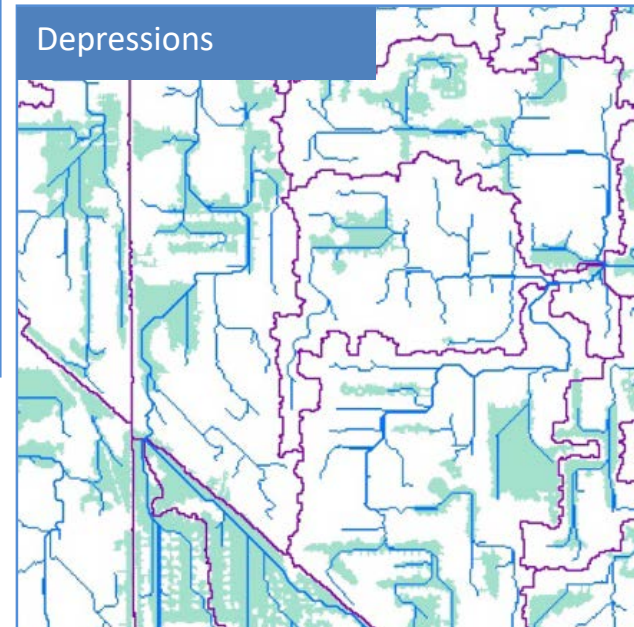
Flowpaths



Catchments



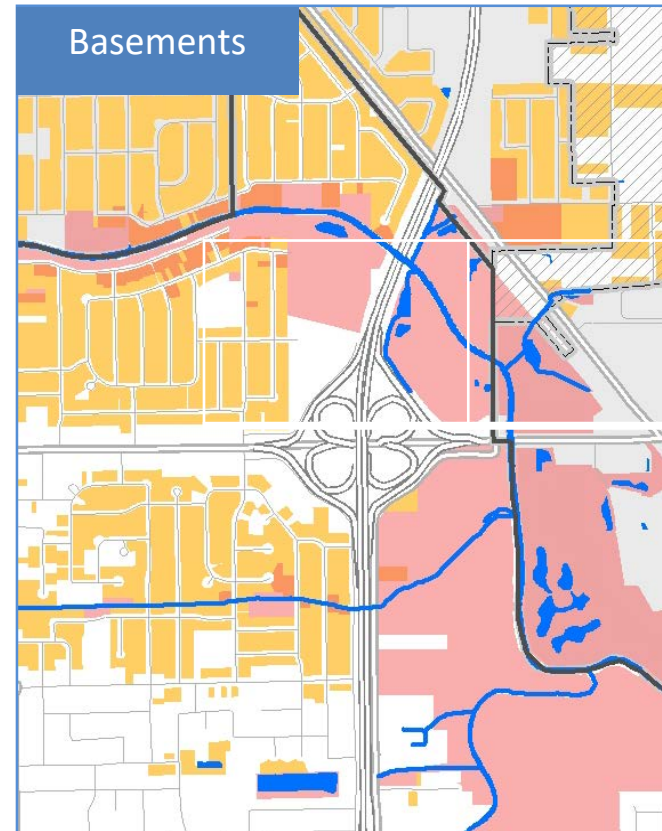
Depressions



Planning-level stormwater analysis



# New tools and data enhance understanding

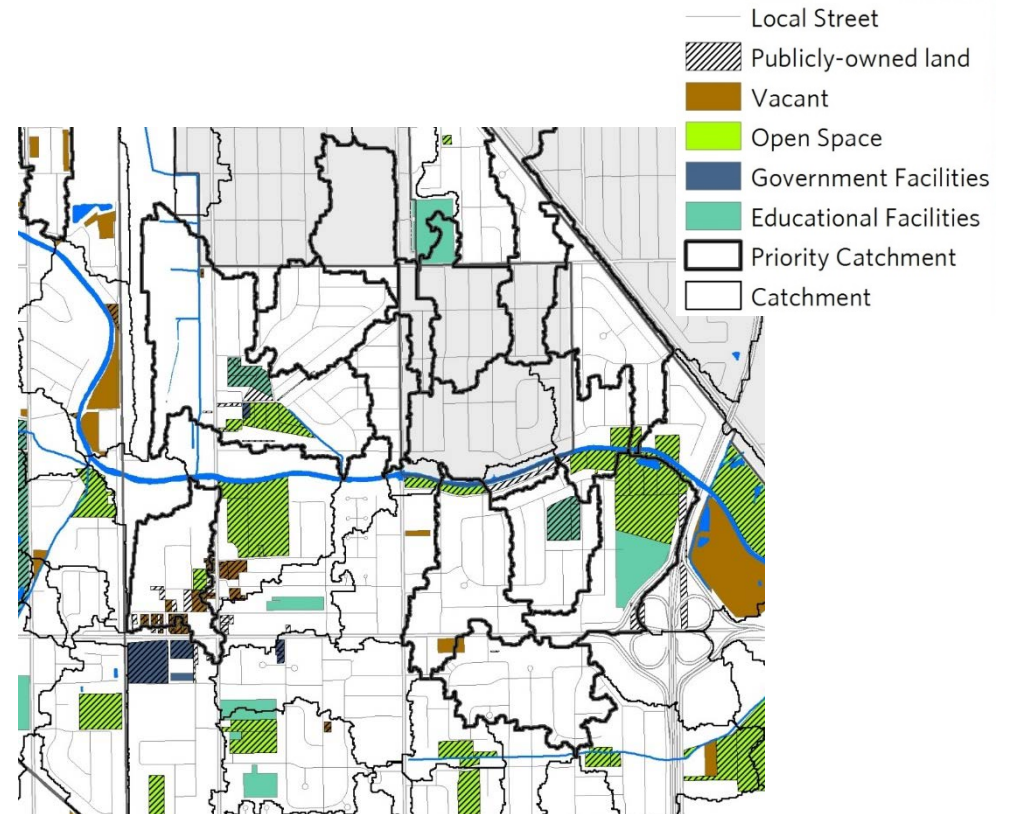
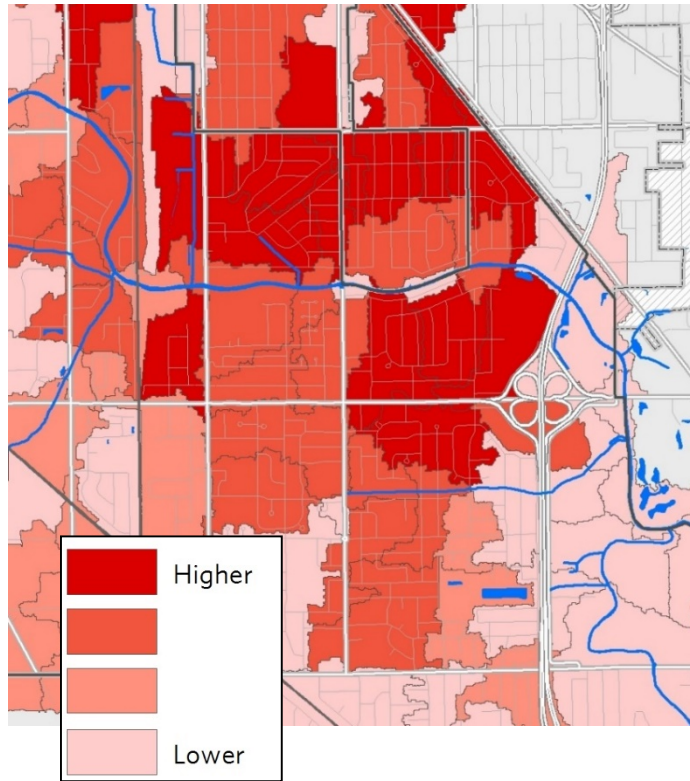


Planning-level stormwater analysis





# New tools and data enhance understanding



Planning-level stormwater analysis



# Applying the stormwater analysis approach in LTA communities

- Berwyn Stormwater Plan
- Des Plaines Comp Plan
- Midlothian 147<sup>th</sup> Street Corridor Study
- Richton Park Stormwater Plan
- South Holland Comp Plan
- Franklin Park Comp Plan
- Maine & Northfield Townships



Image: Bondy Studio

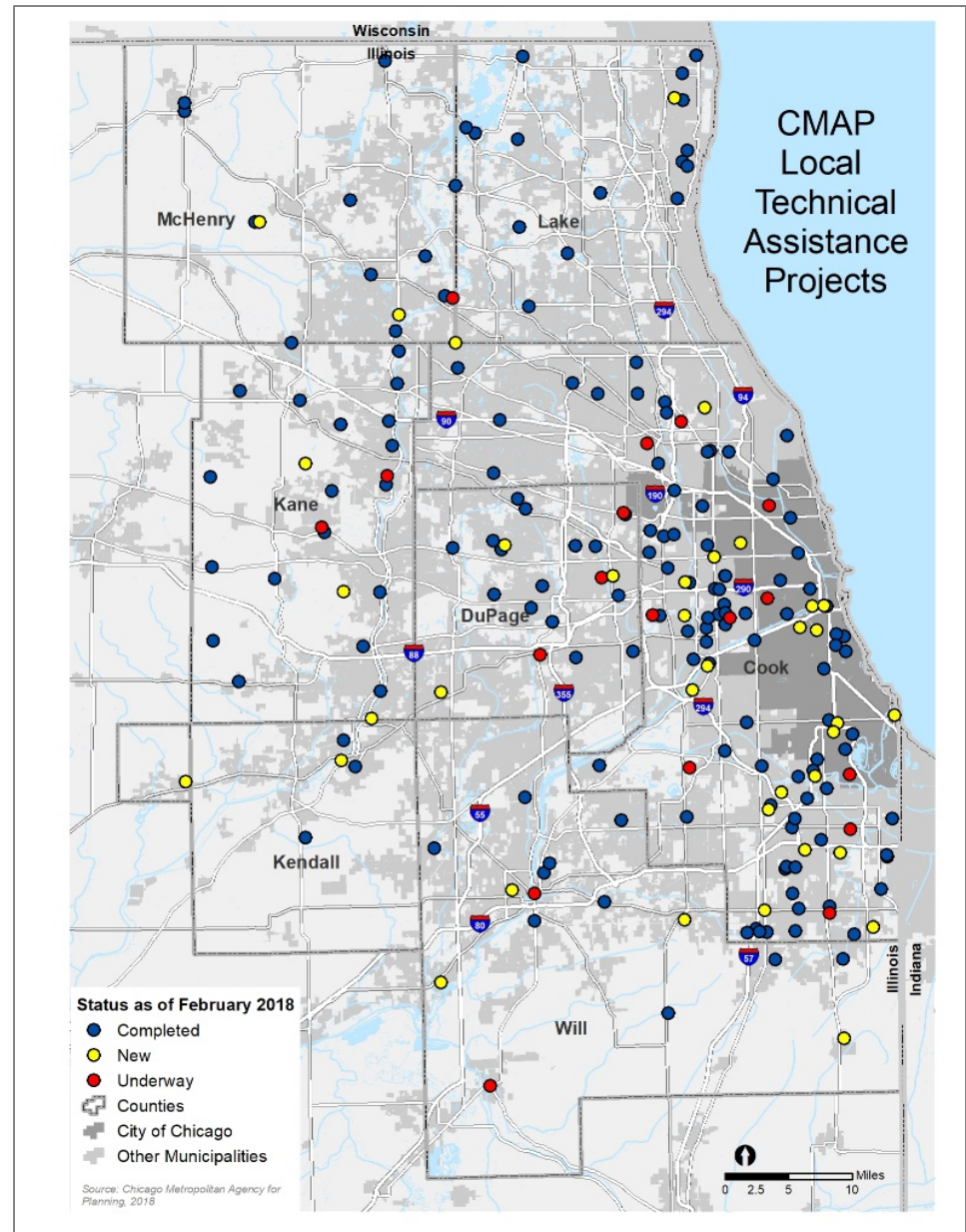
Support from Cook County CDBG –  
Disaster Relief funding



# CMAP Local Technical Assistance (LTA) Program

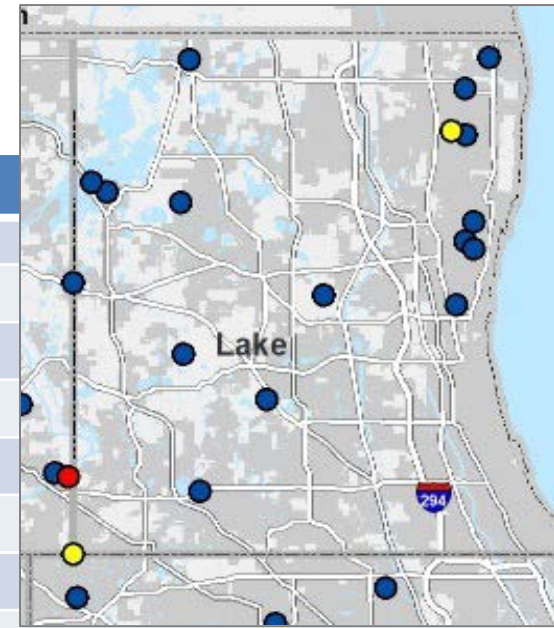
- GO TO 2040 implementation
- Collaborate w/ regional partners to provide planning support to local communities
- 170+ projects completed since 2011

<http://www.cmap.illinois.gov/programs/LTA>



# LTA projects in Lake Co.

Sponsor	Project
Antioch	Antioch Lifestyle Corridor Plan
Fox Lake	Fox Lake Greenways and Bikeways Plan
Lakemoor	Lakemoor Comprehensive Plan
Lake Zurich	Lake Zurich Integrated Water Resources Study
Round Lake Heights	Round Lake Heights Comprehensive Plan
Waukegan	Waukegan Planning Priorities Report
Waukegan	Washington Street Corridor Plan
Lake County	Lake County 53/120 Corridor Plan
Liberty Prairie Conservancy	Liberty Prairie Reserve Master Plan and Lake County Sustainable Local Food Systems Report
Lake Co./Round Lake	Homes For a Changing Region Study - Lake County/ Round Lake
North Chicago	North Chicago Comprehensive Plan
Winthrop Harbor	Winthrop Harbor Comprehensive Plan
Zion	Zion Comprehensive Plan
Lake County	Lake County Sustainability Chapter
Fox Lake	Fox Lake Planning Priorities Report
McHenry Co. P & D	McHenry County Fox River Corridor Study ( <i>ongoing</i> )
Village of Beach Park	Beach Park Planning Priorities Report
Beach Park	Regional bike plan ( <i>new</i> )
Northwest Municipal Conf.	Multimodal transportation plan ( <i>new</i> )



# CMAP LTA program

- Eligible applicants include:
  - local governments
  - multijurisdictional groups
  - nonprofit organizations (*with demonstrated local gov't support*)
- Eligible projects address:
  - transportation
  - land use
  - housing
  - natural environment
  - water resources
  - economic development
  - community development
- CMAP staff assistance or consultant assistance



# Project Types

- Most common:
  - comprehensive plans
  - downtown or corridor plans
  - zoning ordinances
  - planning priorities reports
  - implementation efforts
- Multijurisdictional projects prioritized
- Most projects address land use and transportation – other projects are eligible, such as housing plans, water resource plans, and others
- Particular attention to projects that address inclusive growth, climate resilience, and other priorities of ON TO 2050



# Selection Criteria

- Basic eligibility: in region, eligible applicant, eligible project type
- Demonstrated local commitment
- Feasibility and ability to implement
- Alignment with GO TO 2040 and ON TO 2050
- County, COG, and transit service board feedback
- Interjurisdictional coordination & involvement of partners
- Community need (based on median income, tax base, size)
- Geographic balance

# Example: Park Forest sustainability plan

Addresses development patterns, transportation, open space, water, energy, greenhouse gas emissions, local food, health, housing, education, and arts  
 Recognized with APA and CNU awards  
 Followed by update to Unified Development Ordinance



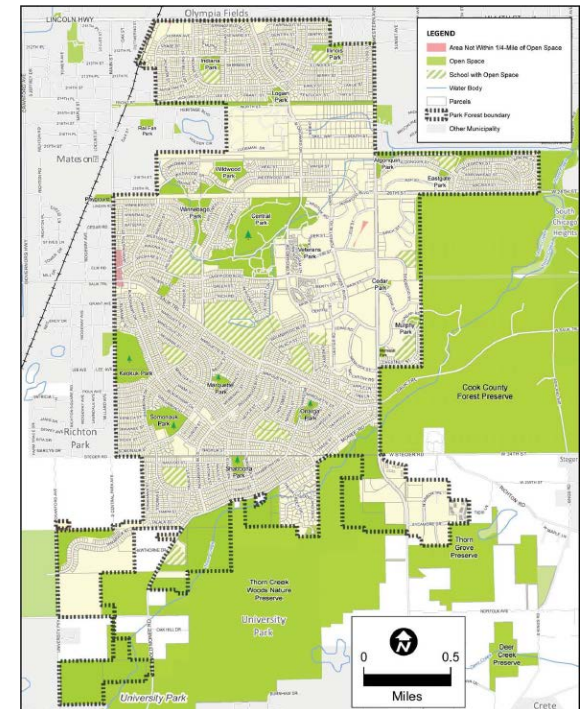
Table 2B. Implementation matrix

STRATEGY	LEAD & PARTNERS <sup>1</sup>	PHASING <sup>2</sup>	RESOURCES <sup>3</sup>
1. Reduce the community's annual vehicle miles traveled (VMT).	VPF	Long-term	VTPI report
2. Work with Pace to explore improved service and additional transit amenities.	VPF, Pace, Rich & Bloom Townships	Long-term	
3. Expand Jolly Trolley service.	VPF, Pace, Rich & Bloom Townships	Mid-term	Pace purchasing department
4. Develop a public marketing campaign to promote transportation alternatives.	VPF PIO/SC, Environment Commission	Immediate	FTA's Individualized Marketing Demonstration Program
5. Establish car sharing services at Metra stations and other key locations around the Village.	VPF, Metra	Mid-term	i-GO car sharing; Zipcar car sharing
6. Encourage the use of fuel-efficient vehicles by providing needed infrastructure.	VPF	Mid-term	
7. Create street types appropriate for Village context areas.	VPF DPW	Short-term	National Complete Streets Coalition
8. Continue to evaluate the Village's Capital Plan to ensure sustainable transportation improvements.	VPF DPW & DF	Ongoing	Oak Park, IL
9. Create a bicycle routes plan that establishes criteria for new bike lanes and trailways.	VPF DPW, Bicycle Advocacy Committee	Mid-term	Active Transportation Alliance
10. Explore bicycle parking requirements for new developments.	VPF DEDP	Short-term	LEED-ND NPD Credit 5 for standards
11. Improve walkability and pedestrian safety throughout the community.	VPF DCD & PD, school districts	Ongoing	Illinois Safe Routes to School

1 VPF = Village of Park Forest; PIO = Public Information Officer; SC = Sustainability Coordinator; DEDP = Department of Economic Development and Planning; DPW = Department of Public Works; DCD = Department of Community Development; PD = Police Department; DF = Finance Department.

2 When implementation should occur: Short-term, 0-3 years; Mid-term, 4-6 years; Long-term, 7+ years; Immediate = as soon as funding/staff time is available.

3 Links and further resources and case studies may be found in Appendix A.





# Example: Fox River Corridor Plan in Algonquin and Carpentersville

Conceptual illustrations highlighting the vision for the Fox River Corridor.



Illustrations by Bruce Bondy.

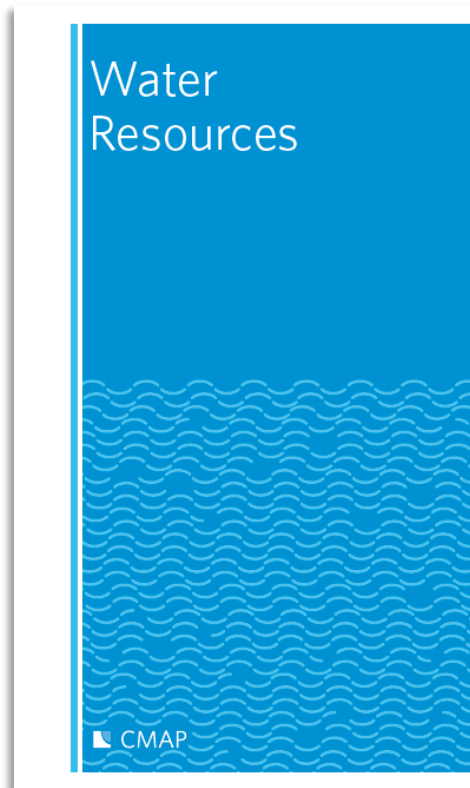
## FOX RIVER CORRIDOR LOCATION



# ON TO 2050 Strategy Papers

- Transportation System Funding
- Tax policies and land use trends
- Highway operations
- Reinvestment and infill
- Housing supply and affordability
- Inclusive growth
- Energy
- Asset management
- Transportation technology
- Municipal capacity
- Regional economy
- Transit modernization
- Economic resilience
- Public health
- Water Resources
- Stormwater and Flooding
- Integrating Green Infrastructure
- Climate resilience
- Lands in transition

<http://www.cmap.illinois.gov/onto2050>



# Integrated Water Resource Management (One Water)

## Stormwater and Flooding

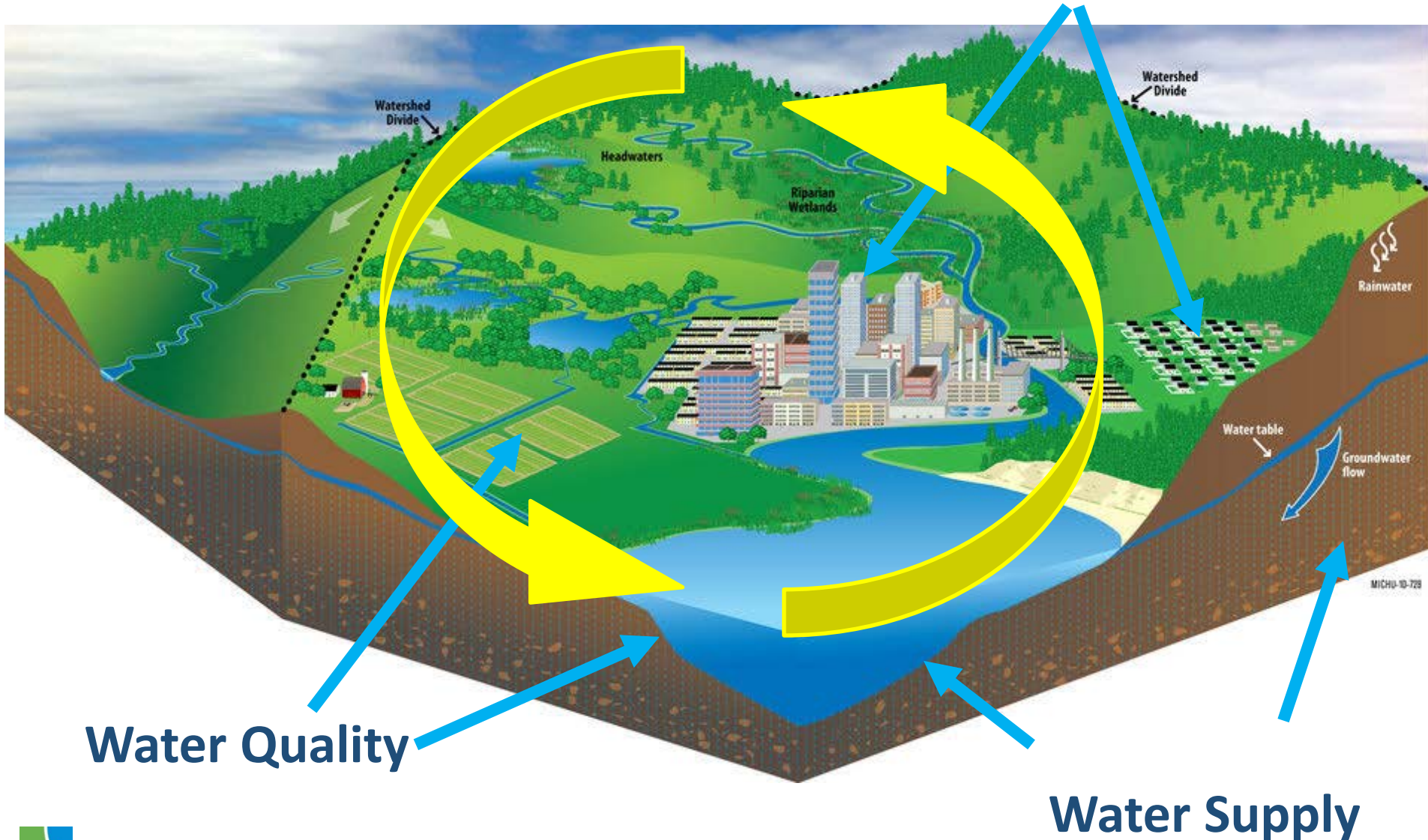


Image: Mississippi Watershed Management Organization





Metropolitan Chicago's Next Comprehensive Regional Plan

[www.cmap.illinois.gov/about/involvement](http://www.cmap.illinois.gov/about/involvement)

ON TO 2050

 CMAP

ON TO 2050



## Water Resources

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Zach Vernon  
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