

Overview of CMAP's Stormwater Planning Program

Calumet Stormwater Collaborative, March 2016

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Chicago Metropolitan Agency for Planning

- Established in 2005 by the IL General Assembly
- Mission - to plan comprehensively for economic prosperity and quality of life
- Serves the third largest U.S. metro region
 - 7 counties, 284 municipalities, over 1,200 units of local government.



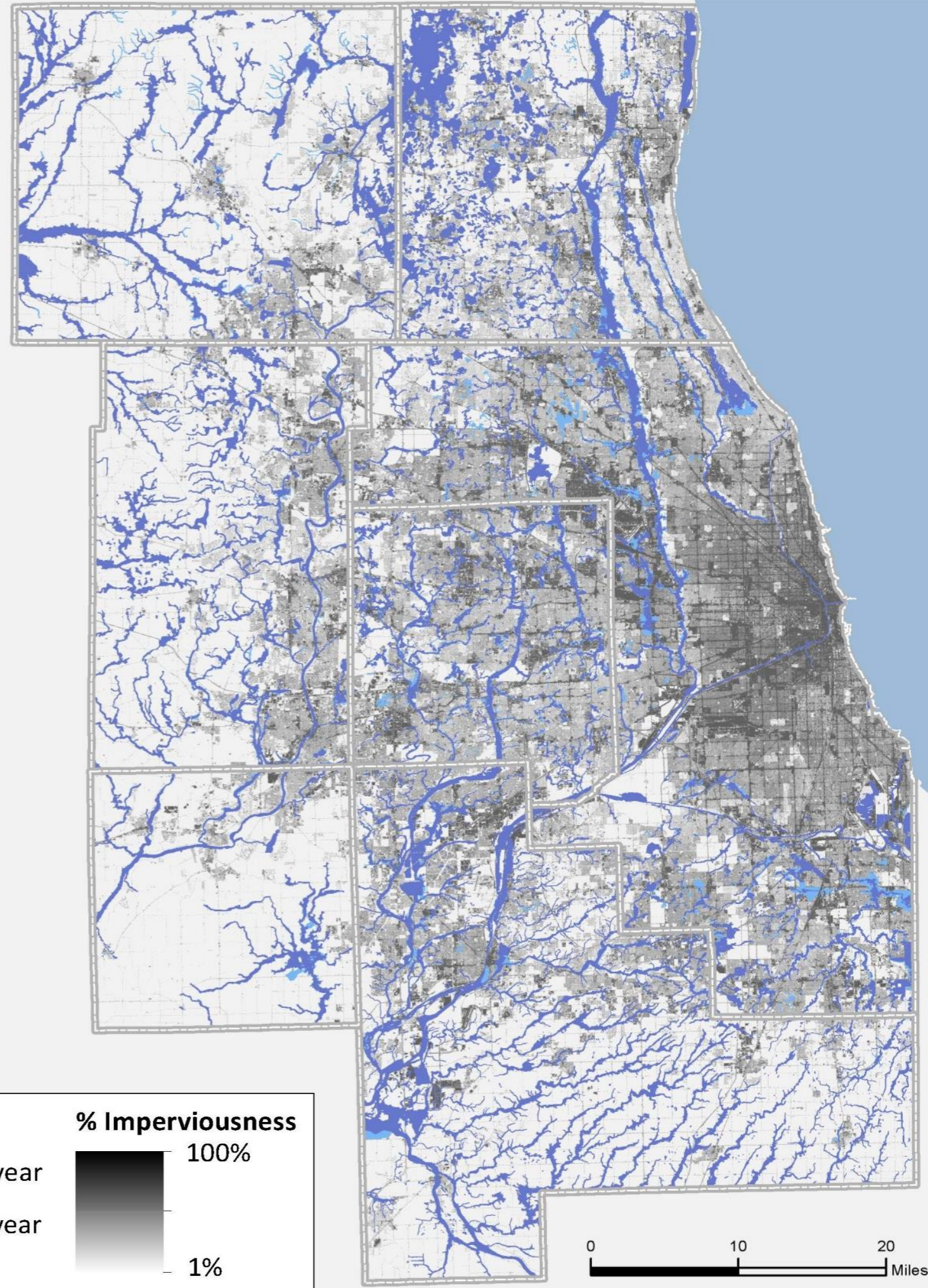
GO TO 2040 Plan Recommendations

Integrate land use policies
and site planning with water
resources



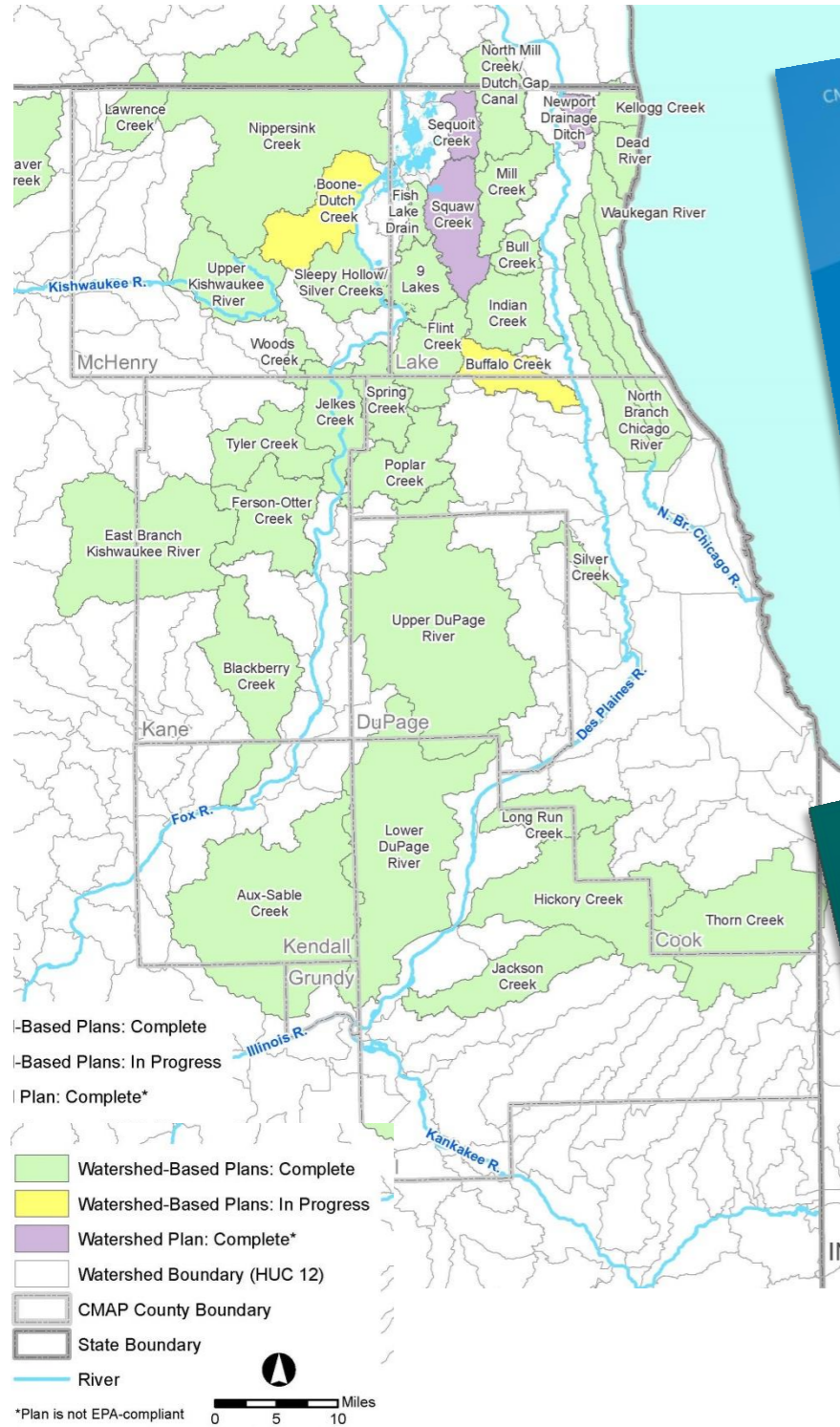
Plan Indicators

- No more than 640,000 acres of Impervious Coverage
2012: 556,000 acres
- Conserve 400,000 acres of open space
2013: 259,949 acres

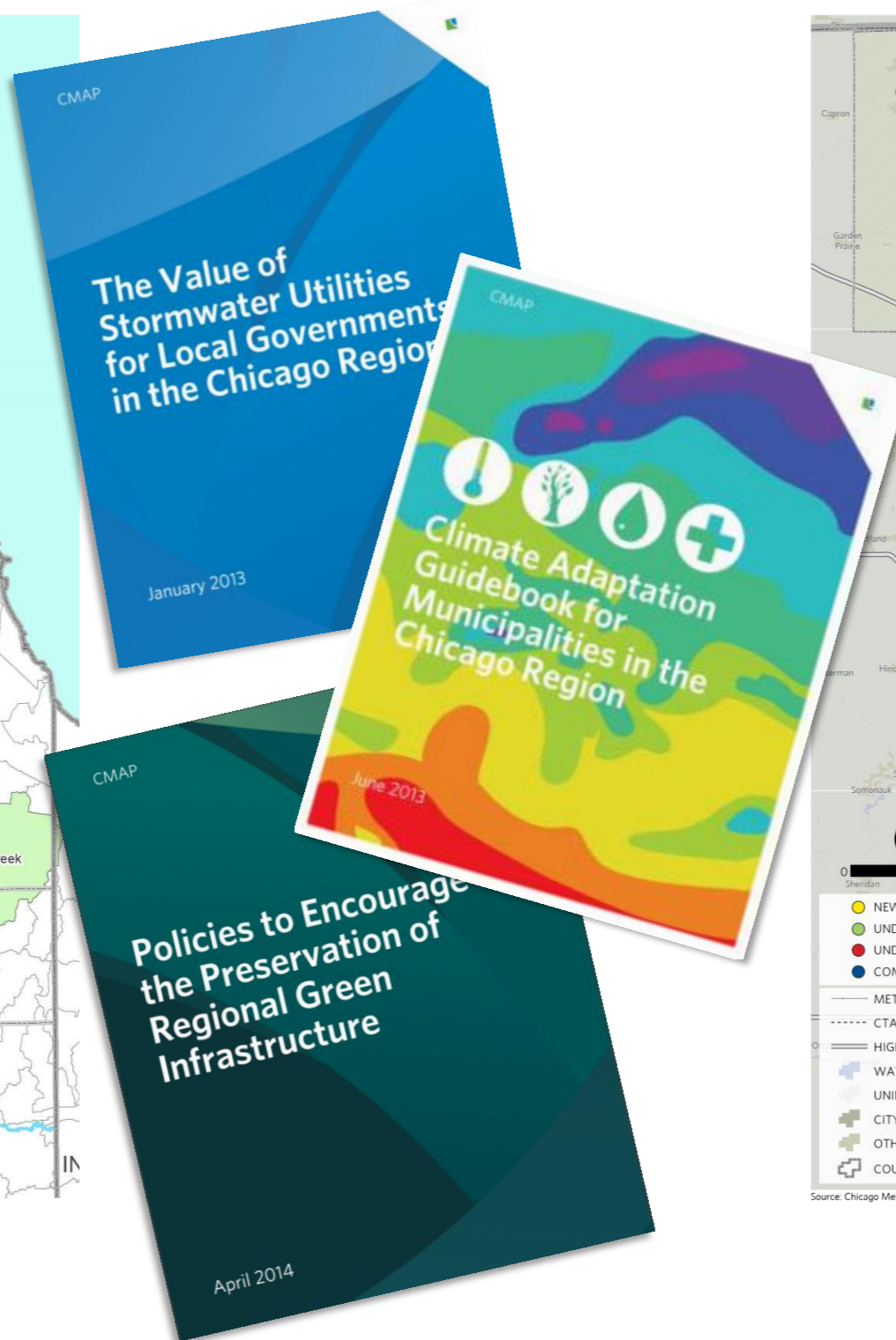


Plan Implementation

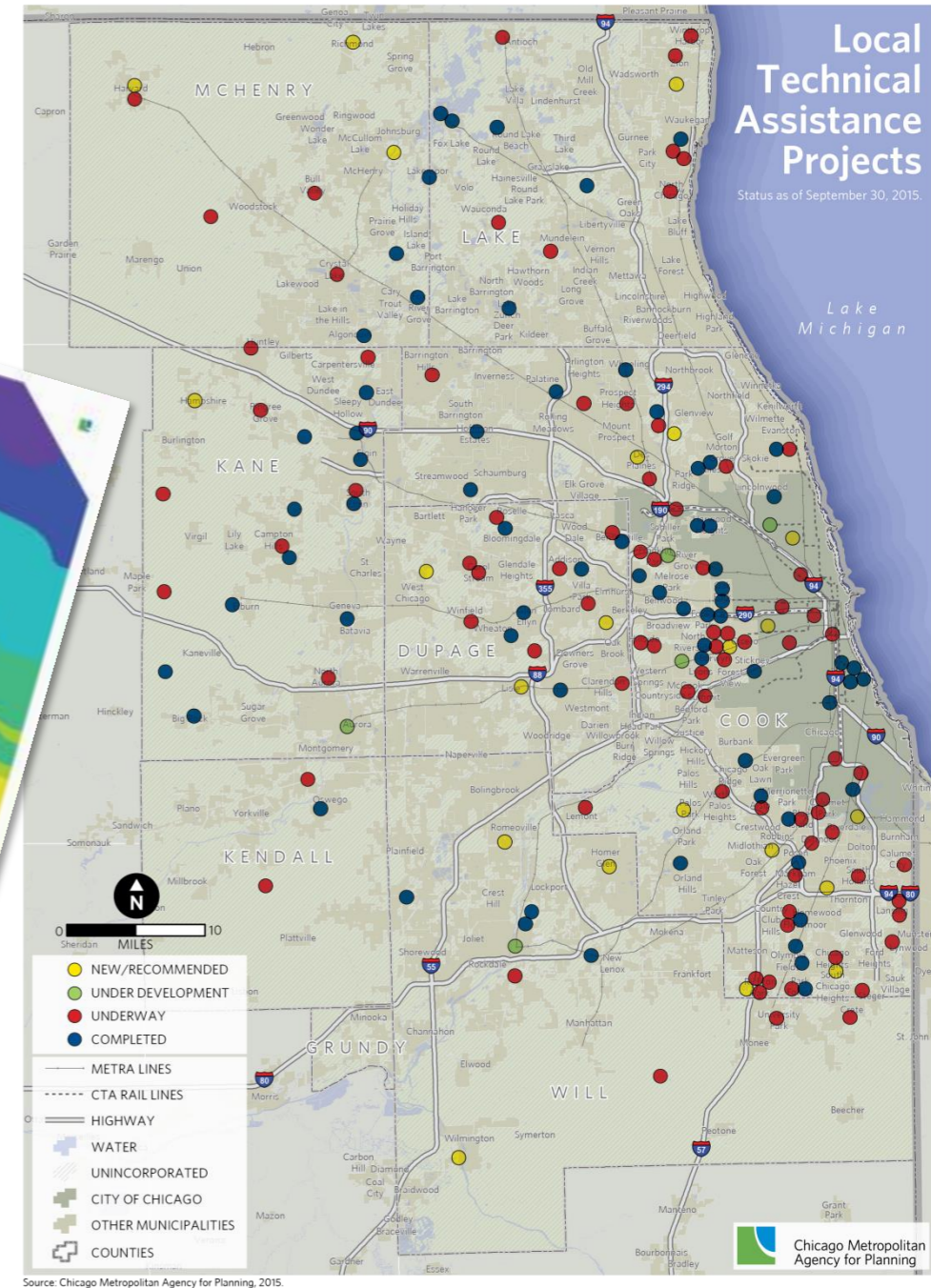
Watershed Planning



Toolkits



Local Technical Assistance



Urban Flooding



Experience in LTA communities

Participation in the Calumet Stormwater Collaborative



Current Stormwater Work

Funded through the MacArthur Foundation and Cook County CDBG - Disaster Relief

- Local Approach
- White Paper - Integrating Stormwater Management into Comprehensive Planning
- Data Sharing
- Regional Analysis



Local Stormwater Approach

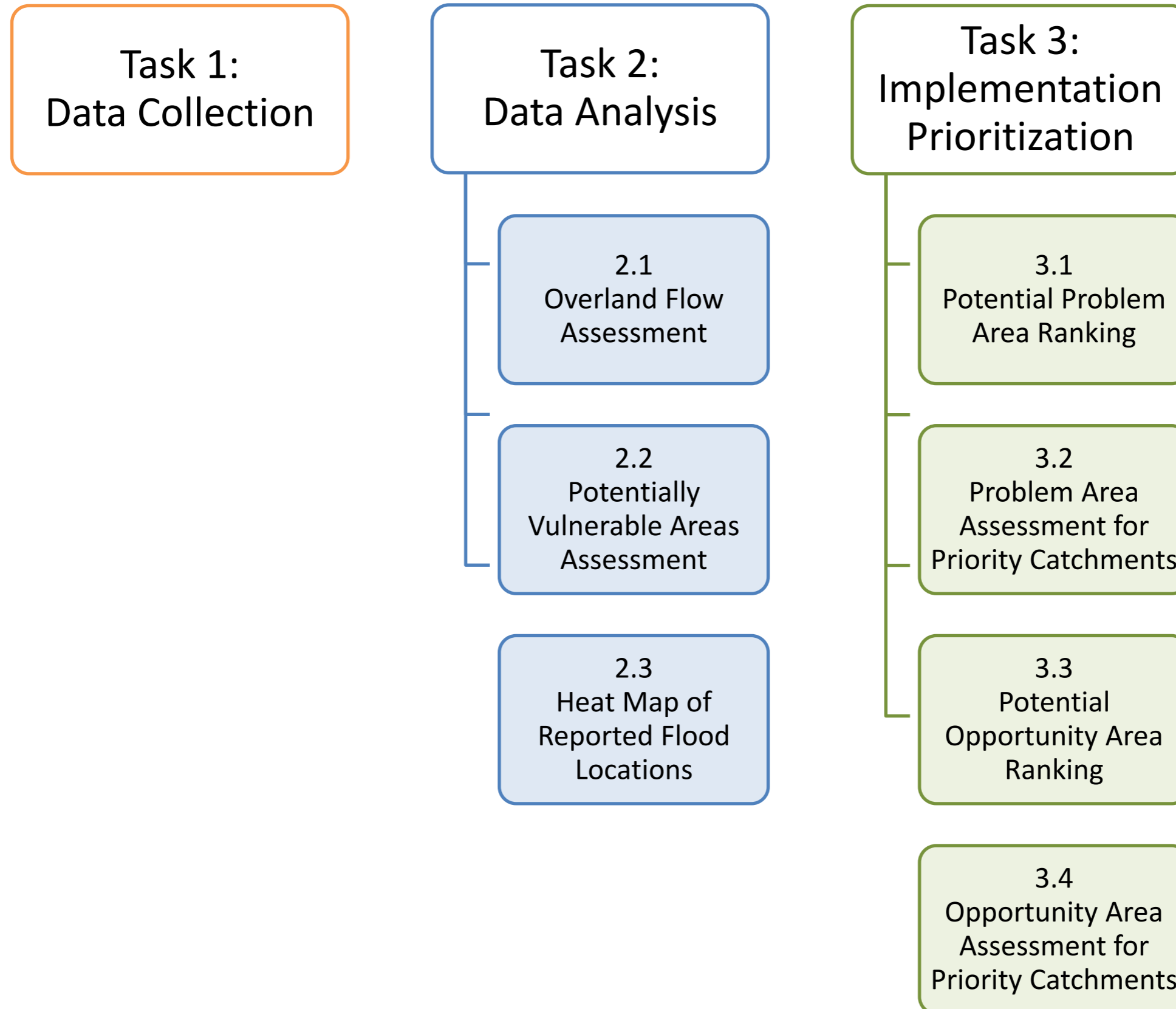


Overview

- Articulate flooding problem areas and causes
- Focus on above-ground solutions such as site-scale green infrastructure and conservation design practices
- Identify locations where further engineering study is needed
- Prioritize areas of the community for implementation



Draft Approach



Task 1: Data Collection

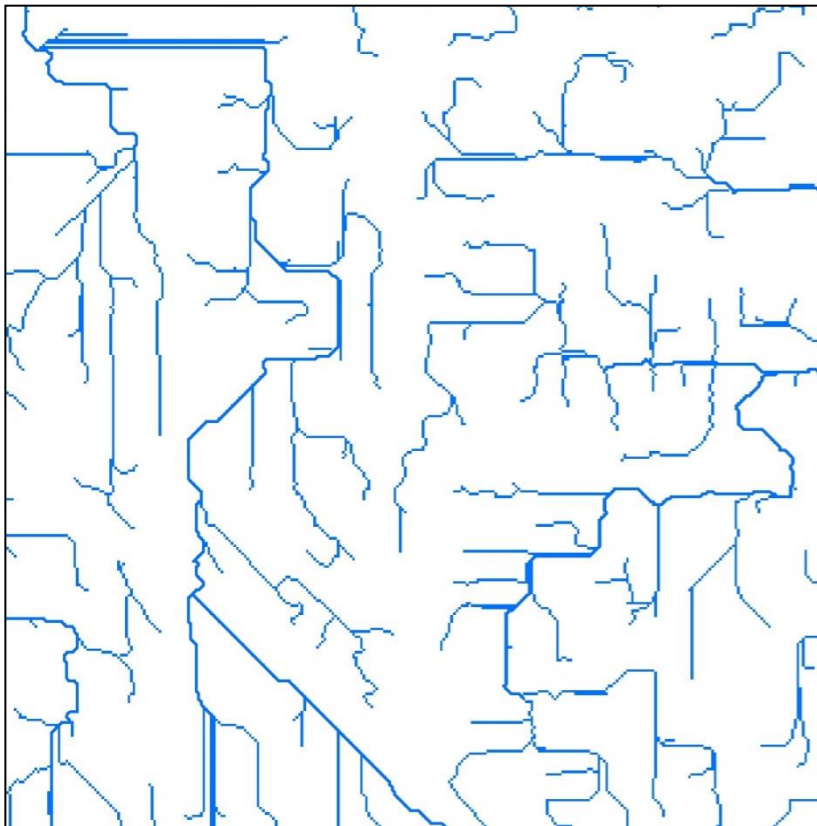
- Topography
- Soils
- Floodplains
- NFIP flood claims and local flood data
- FEMA Discovery map data
- Sewer infrastructure
- Impervious cover
- Land use
- Property characteristics (age, presence of basement)
- I/I hotspot locations (future MWRD requirement)
- Urban Tree Canopy (Morton Arboretum)
- Green infrastructure mapping (Chicago Wilderness, others)
- Topographic wetness index (ISWS)
- Pavement conditions
- Capital improvements
- Past and current plan recommendations



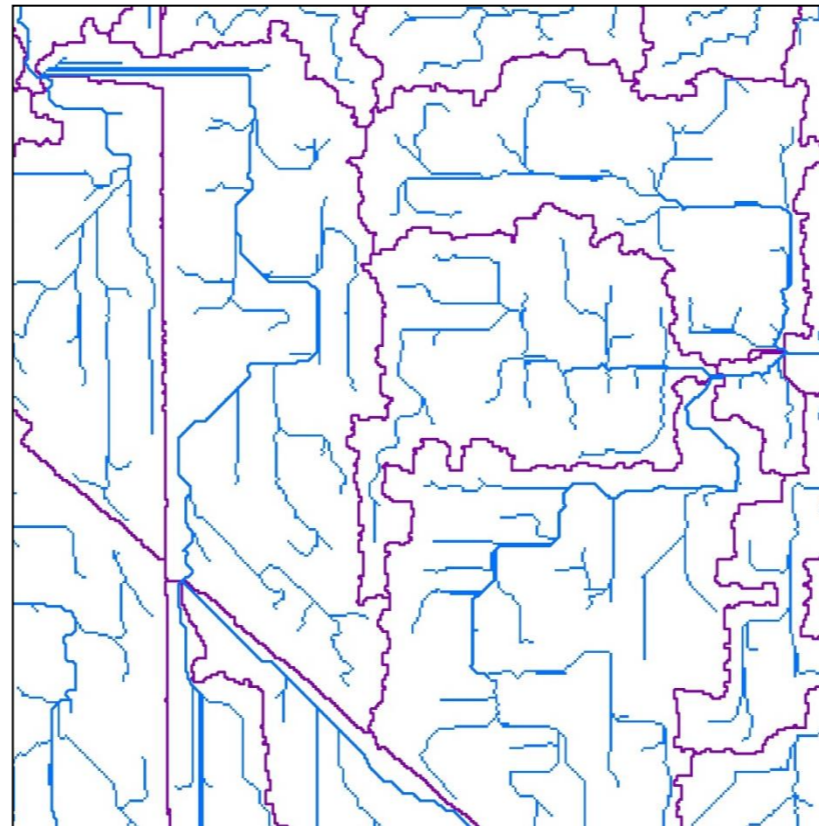
Task 2: Data Analysis

Overland Flow Assessment (Arc Hydro)

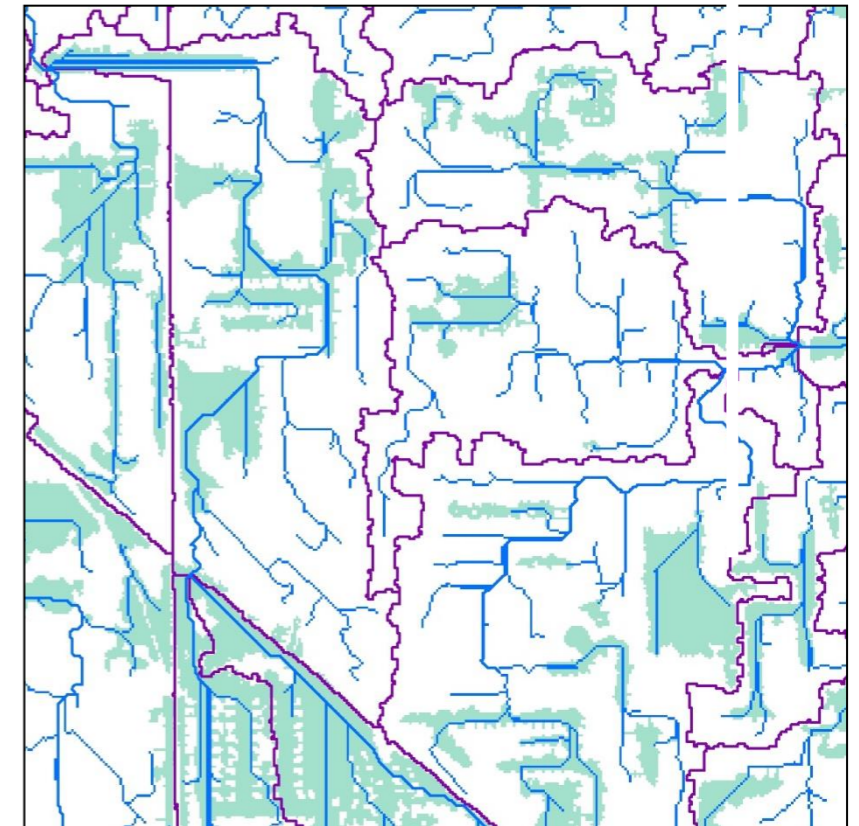
- Data inputs: hydrology, watersheds, digital elevation model (DEM)
- Data outputs:



Flowpaths



Catchments



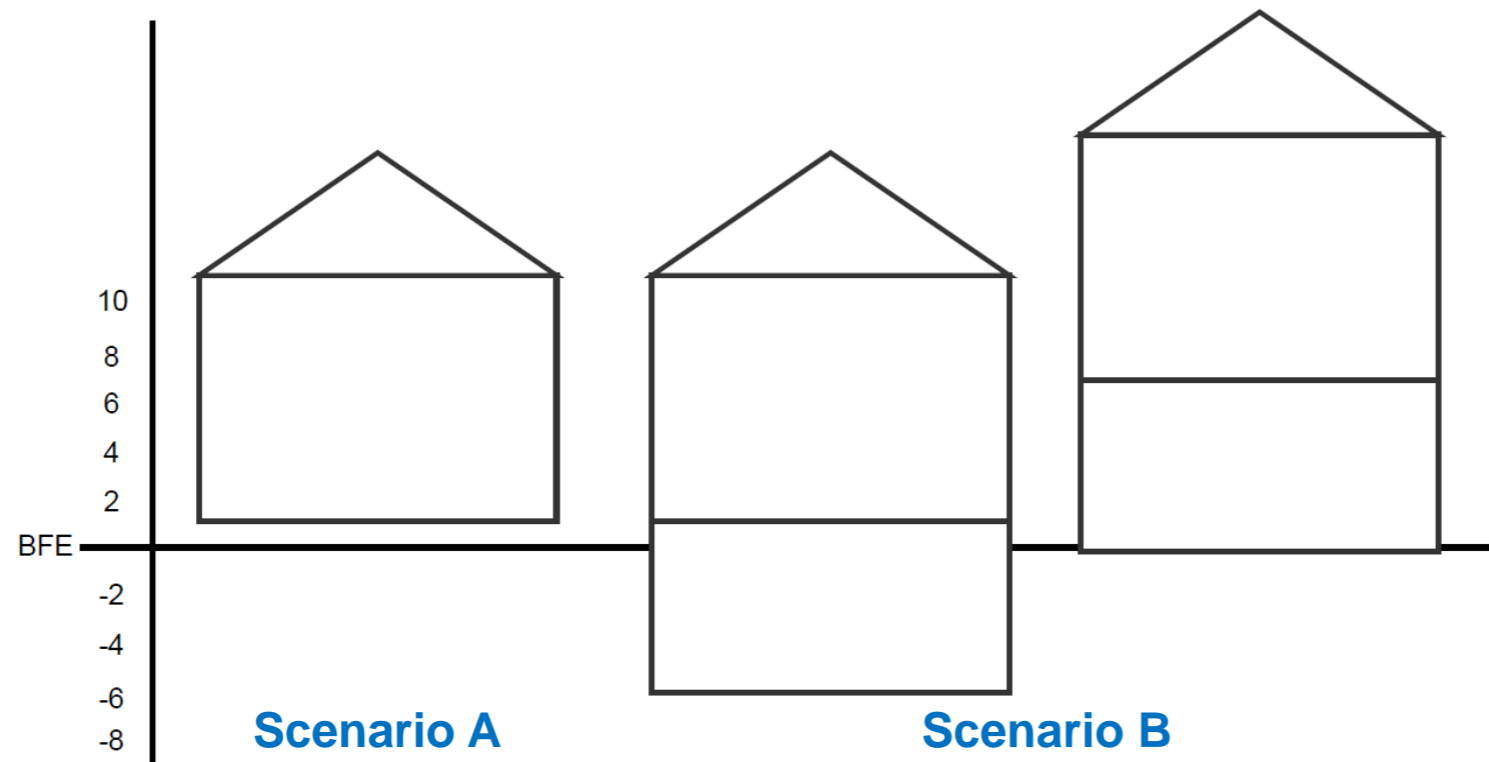
Depressions



Task 2: Data Analysis (cont.)

Potentially Vulnerable Areas Assessment

- A. Properties less than 1' above depression areas (>1.5')
- B. Basements below the 1% annual chance base flood elevation (BFE)



(A) Properties less than 1' above depressional areas

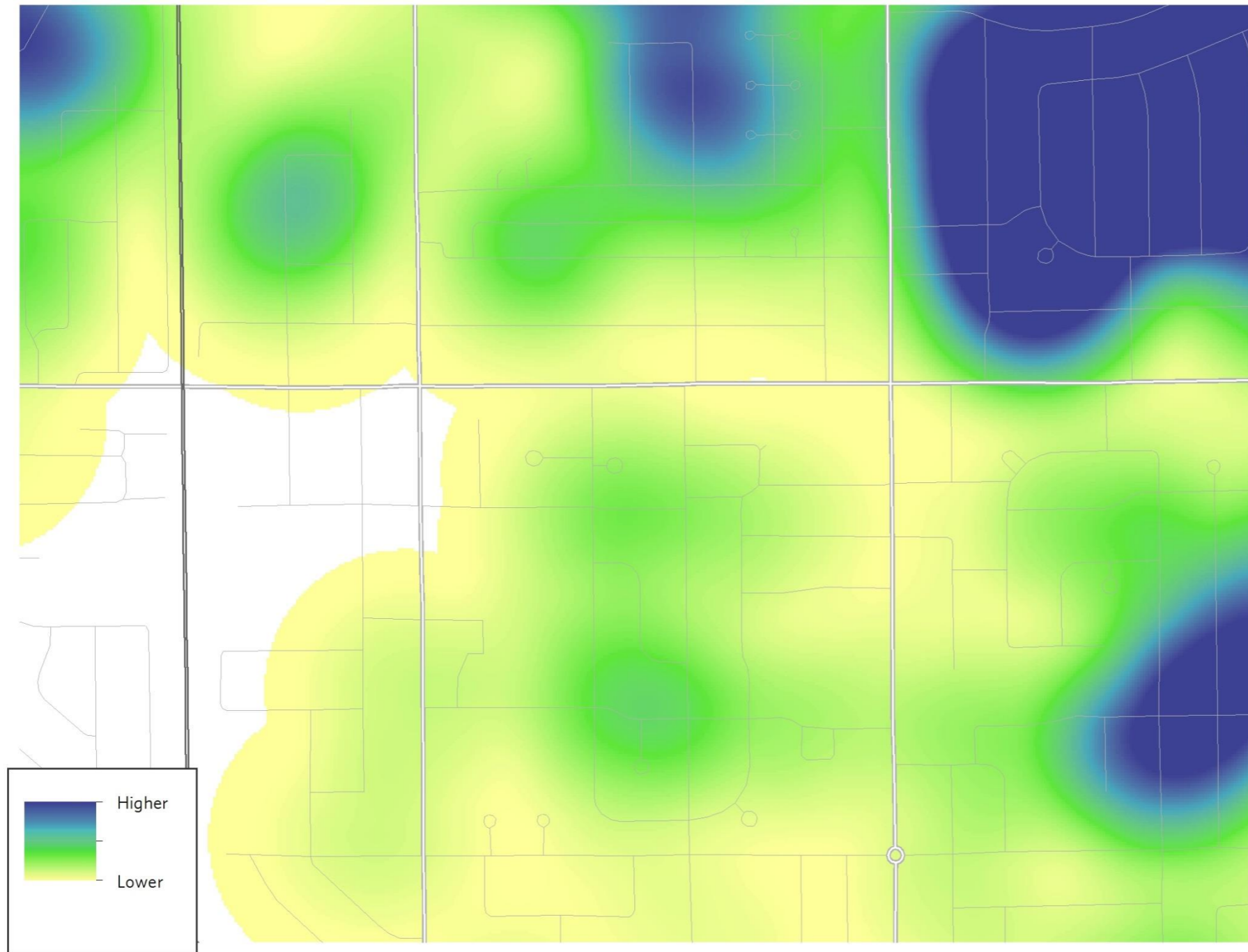


*Where depth is greater than 1.5 feet



Task 2: Data Analysis (cont.)

Heat Map of Known Problem Areas/Flood Response



Task 3: Implementation Prioritization

- Rank areas for implementation
- Focused on urban flooding
- Informed by community goals
- Assess priority catchments for flood type to provide tailored solutions



Task 3: Implementation Prioritization (cont.)

Python Script Tools

Summary Calculation

Combined Summary Tool

In Catchments

Out Workspace

Out Catchments

Parcel Centroids (with Flags) (optional)

Combined Problem Locations (optional)

Imperviousness Grid (optional)

SSURGO PWSL (optional)

Filtered Right-of-Way (optional)

Land Use Inventory (optional)

Publicly Owned (optional)

OK Cancel Environments... Show Help >>

Dynamic Scoring

Dynamic Catchment Scoring

Catchments

Include Depression Parcels

Depression Parcels Thresholds (optional)
0.0703, 0.2766, 0.5

Depression Parcels Scoring (optional)
1,2,3

Include Problem Areas

Problem Areas Thresholds (optional)
.0001, .0001, .0374

Problem Areas Scoring (optional)
1,2,3

Include non-FP Problem Areas

Non-FP Problem Areas Thresholds (optional)
.0001, .0001, .0184

Non-FP Problem Areas Scoring (optional)
1,2,3

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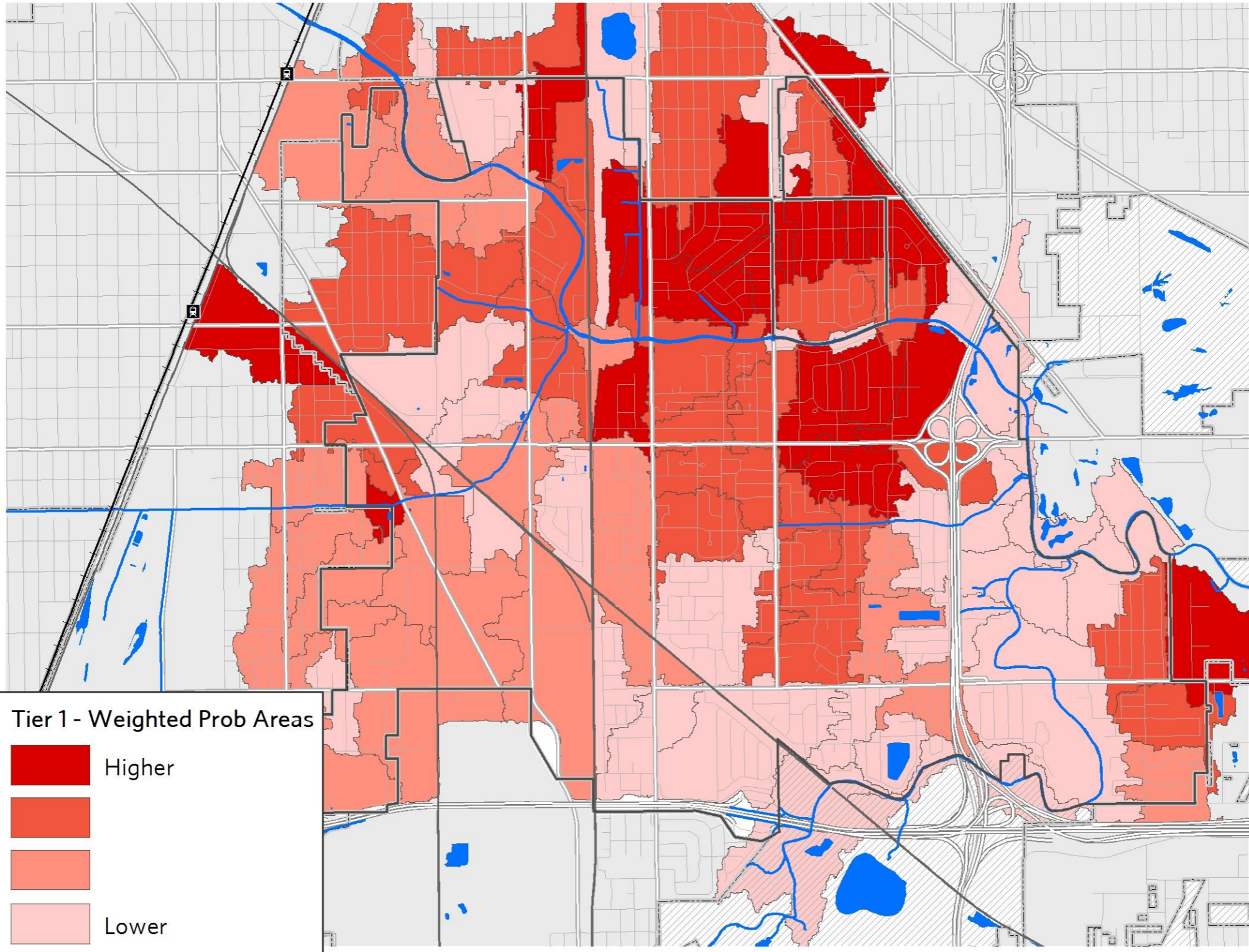
Task 3: Implementation Prioritization (cont.)

Potential Problem Area Ranking

- FEMA repetitive loss and NFIP claims
- Reported problem areas
- Potentially vulnerable properties
- Age of structure
- Impervious cover
- Hydric/potential wetland soils



Potential Problem Area Ranking



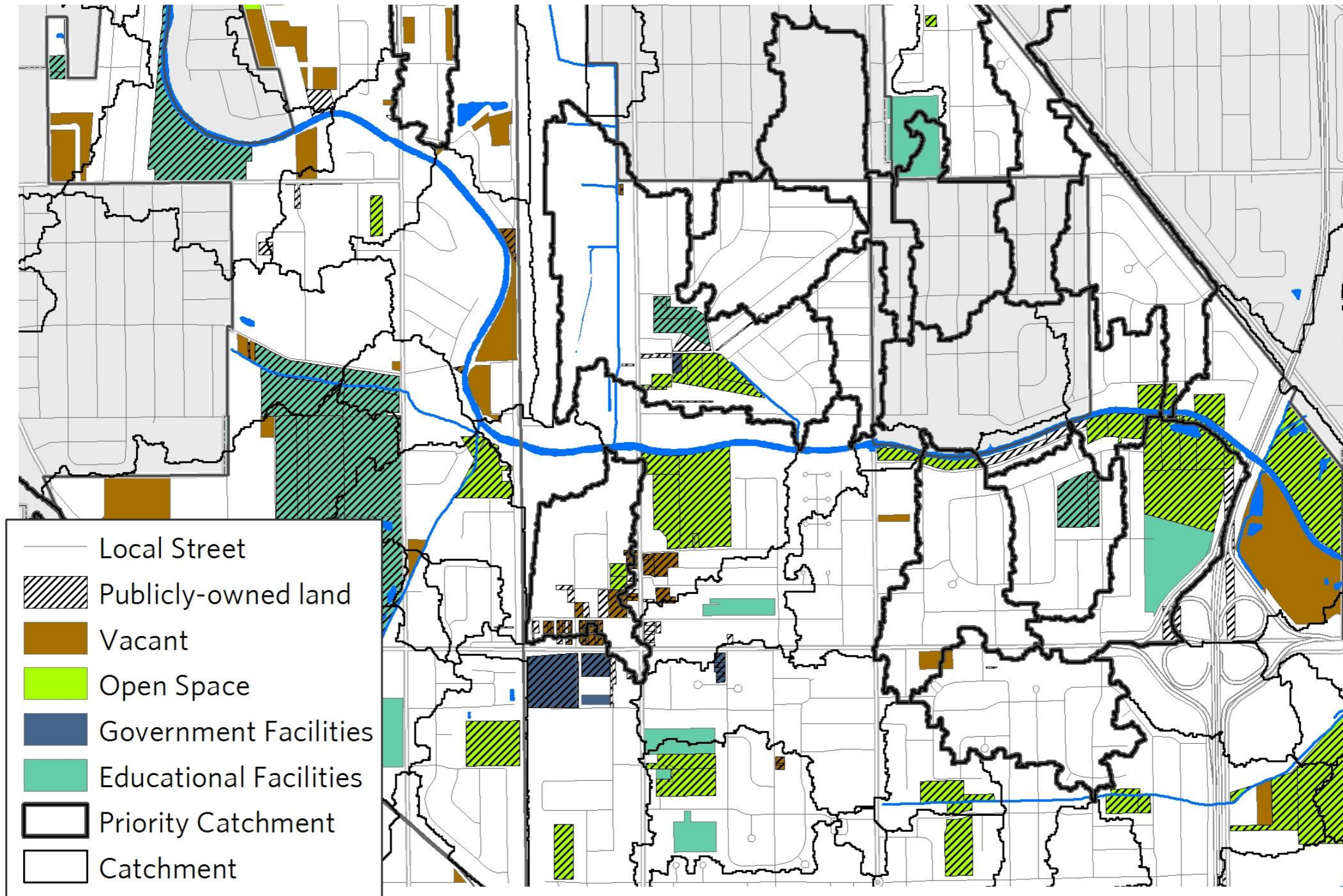
Task 3: Implementation Prioritization (cont.)

Potential Opportunity Area Ranking

- Public land
- Vacant land
- Schools
- Local streets and alleys
- “Large” residential properties
- Capital projects
- Plan priorities (conservation, redevelopment, community greening)



Problem Area Assessment for Priority Catchments



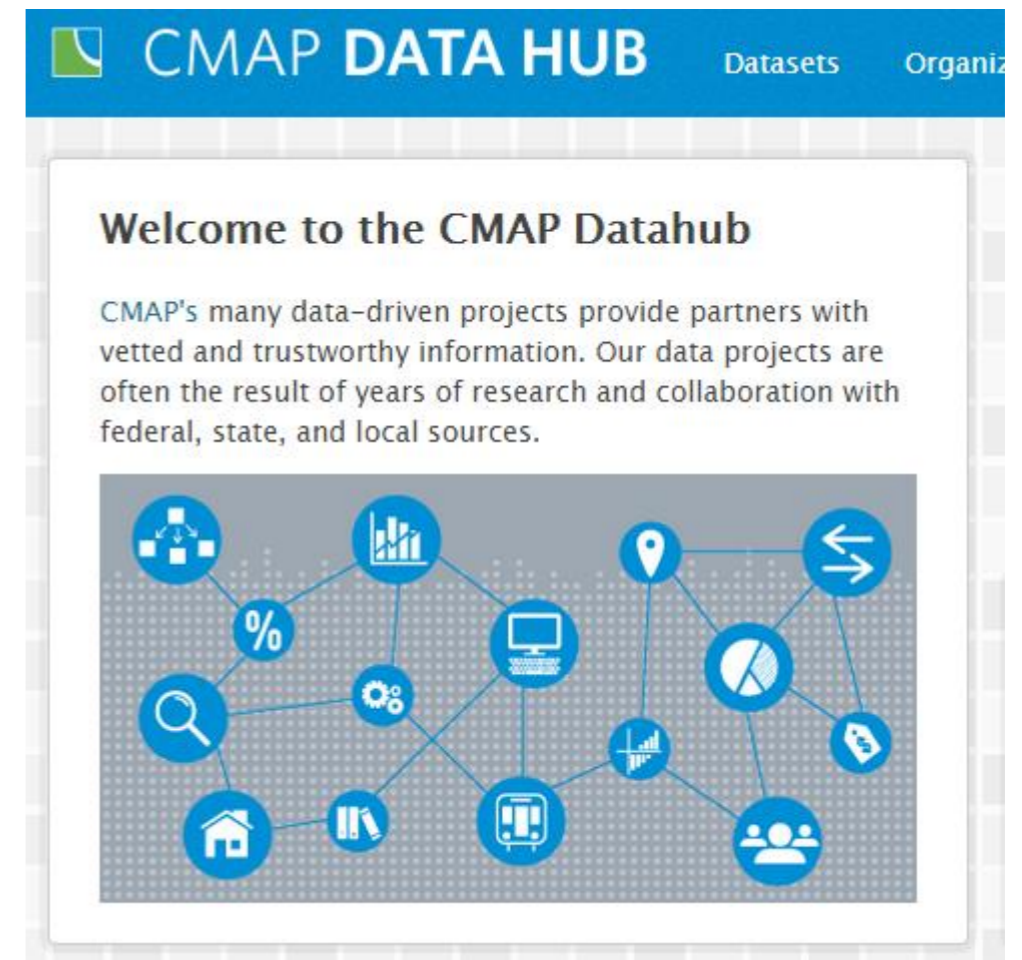
White Paper

- Local technical approach
- Outreach strategy
- Community-wide recommendations
 - Policies and ordinances
 - Engineering and capital improvements
 - Maintenance and monitoring
 - Financing
 - Community Involvement and Education



Data Sharing

Share relevant datasets with municipalities and other partners



<https://datahub.cmap.illinois.gov/>



Regional Stormwater Approach



Regional Analysis

Goals

To identify priority clusters across the region with the greatest stormwater mitigation needs to target outreach and planning assistance

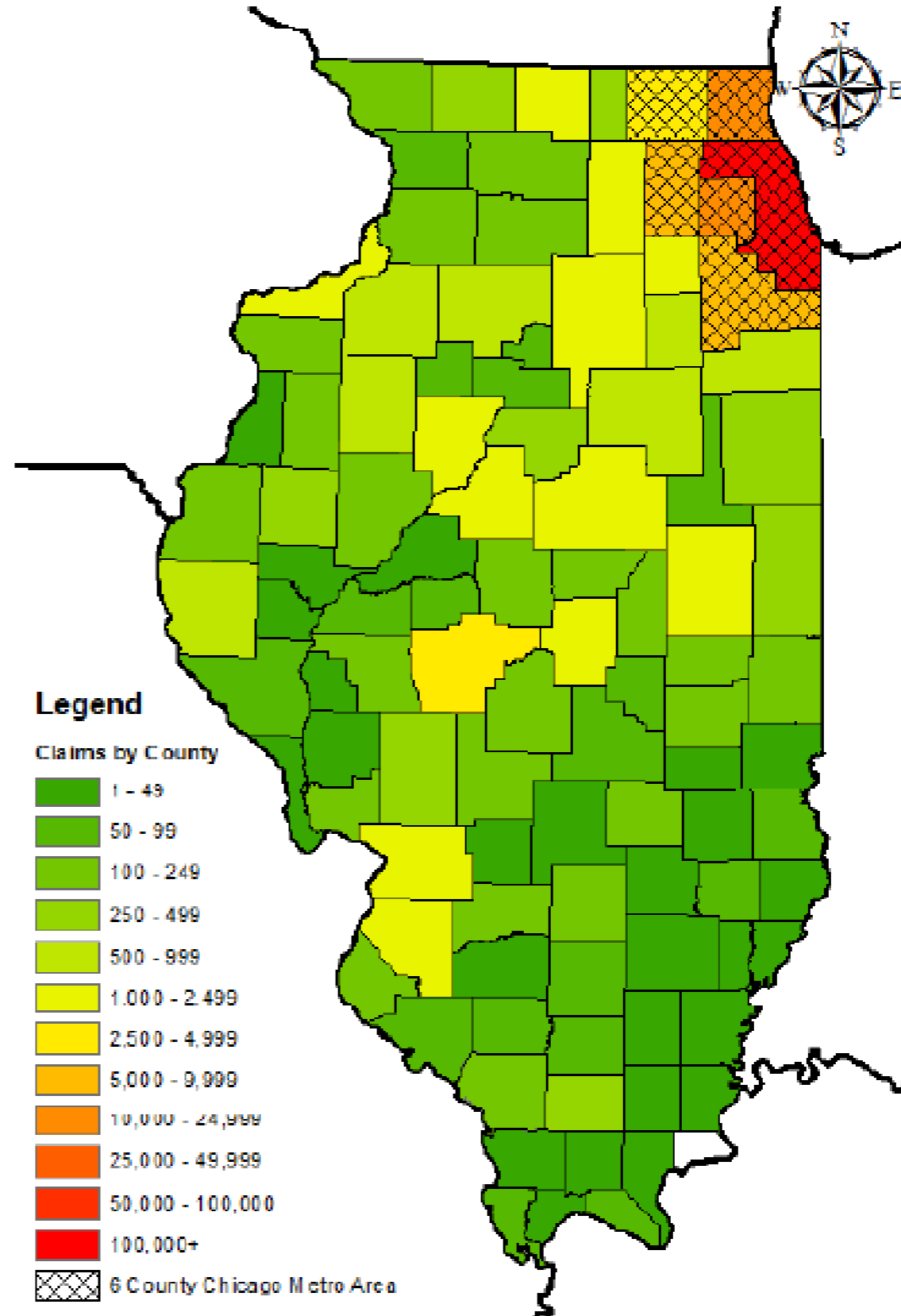
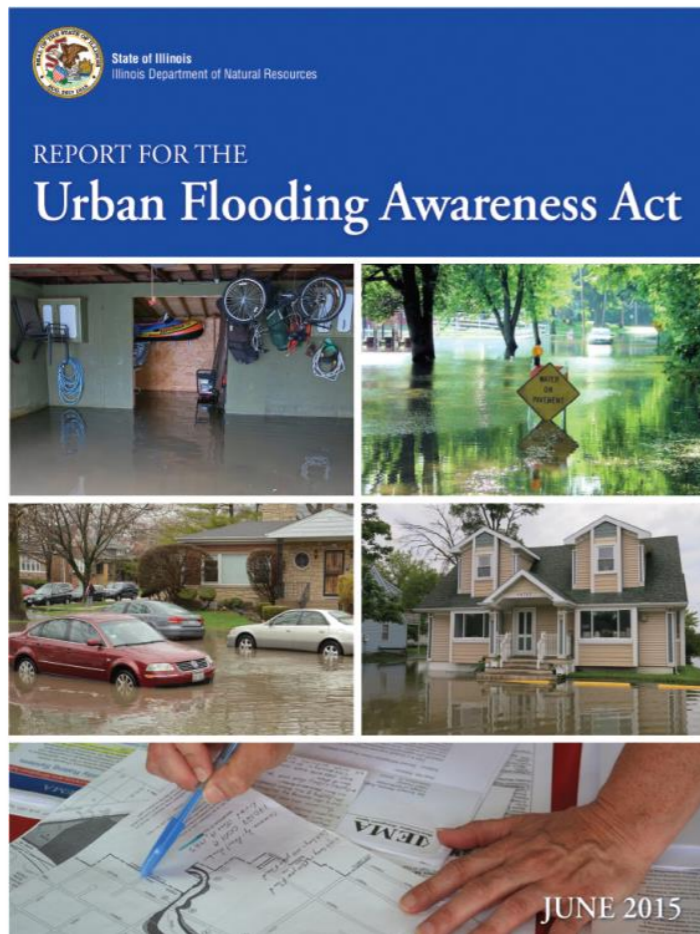
Encourage communities within those geographies to conduct local or joint stormwater planning activities

Approach

Scale up local approach to the HUC-12 watershed

Include additional datasets

Regional Analysis



ON TO 2050

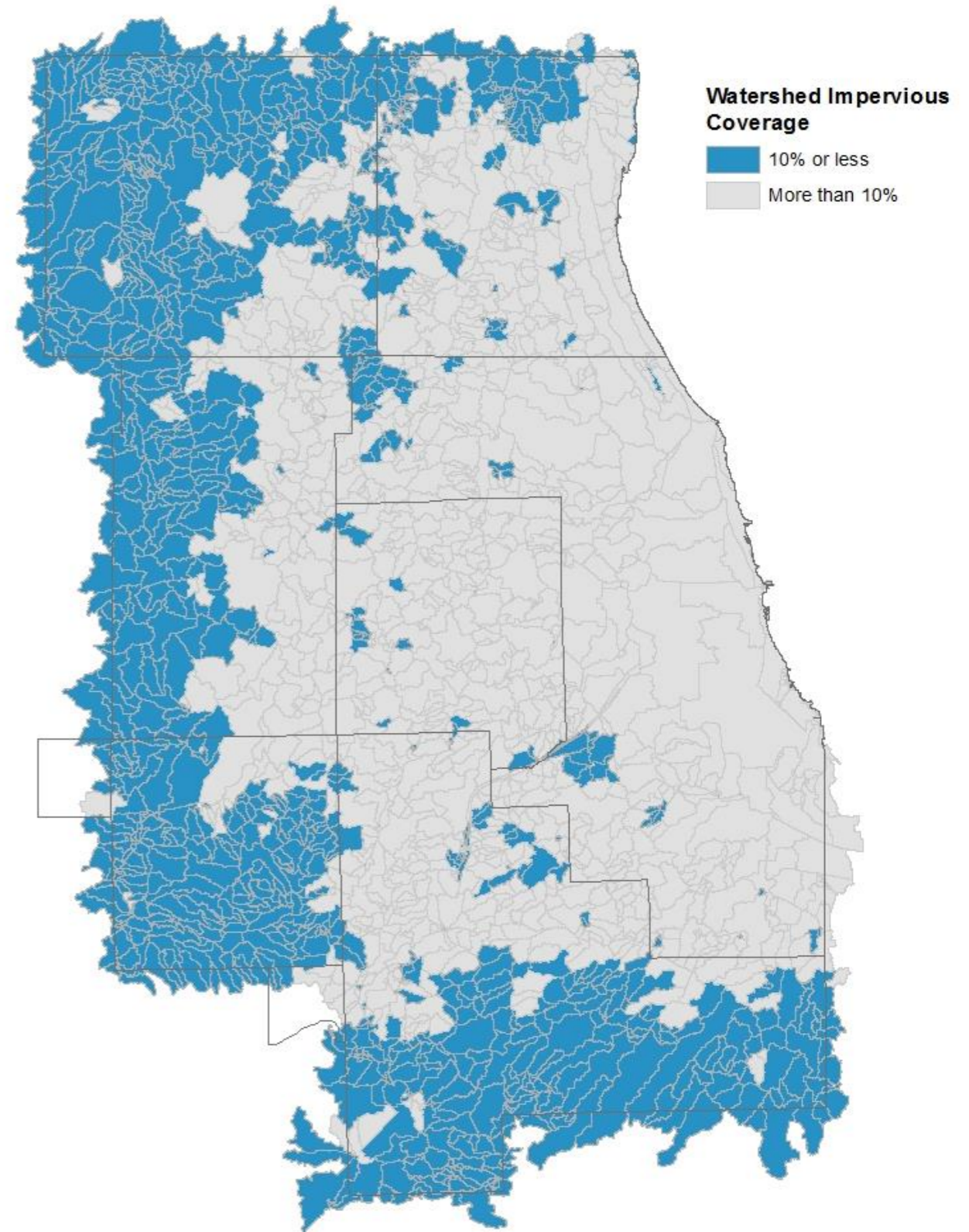
Climate Resilience

Green Infrastructure
Co-Benefits

Inclusive Growth

High Quality Natural
Resource Areas

Stormwater



NEXT STEPS

Data and Monitoring Workgroup

Share and review the draft local approach

Planning and Policy Change Workgroup

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