Metropolitan Water Reclamation District of Greater Chicago

# STORMWATER MASTER PLANNING

## Partnering for Resilient Communities

## Status Update

April 2020

# Presentation Outline

- **Introduction**
  - History of MWRD Stormwater Management
  - Stormwater Master Planning - Program Scope
- **Status Summary**
  - Municipal Staff Survey
  - Individual Study Profiles
  - Stormwater Master Plans
- **Challenges & Lessons Learned**
- **Program Direction for the Future**
- **Questions**

# MWRD Stormwater Management

- **2004 -** District conveyed authority for general supervision of stormwater management in Cook County
- **2010 -** (6) Detailed Watershed Plans completed
- **2011 -** Phase 1 projects to address regional issues, mostly riverine flooding
- **2013 -** Phase 2 projects to address local drainage issues, including property buyouts
- **2015 -** Stormwater Master Plan “Pilot Studies”
- **2018 -** Stormwater Master Planning Program


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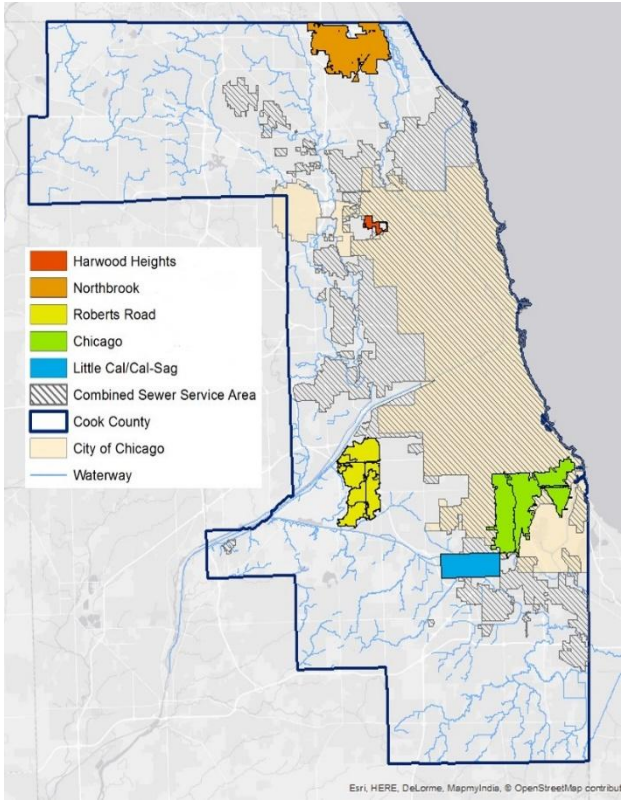
# Stormwater Master Plan Pilot Studies

- **Key Findings:**
- Traditional and even blended green and grey solutions to provide 100-year protection require exorbitant investments ($70 Billion)
- In combined sewer areas, private property interventions can be more cost effective to address basement backups
- Solutions should be examined to identify efficiencies in constructing  along with local transportation or other utility improvements
- A holistic approach with a focus on stormwater solutions that engage key partners and other stakeholders in the planning and implementation process.
- Prioritizing Master Planning throughout the county based on flood risk, targeting areas in need of planning resources.

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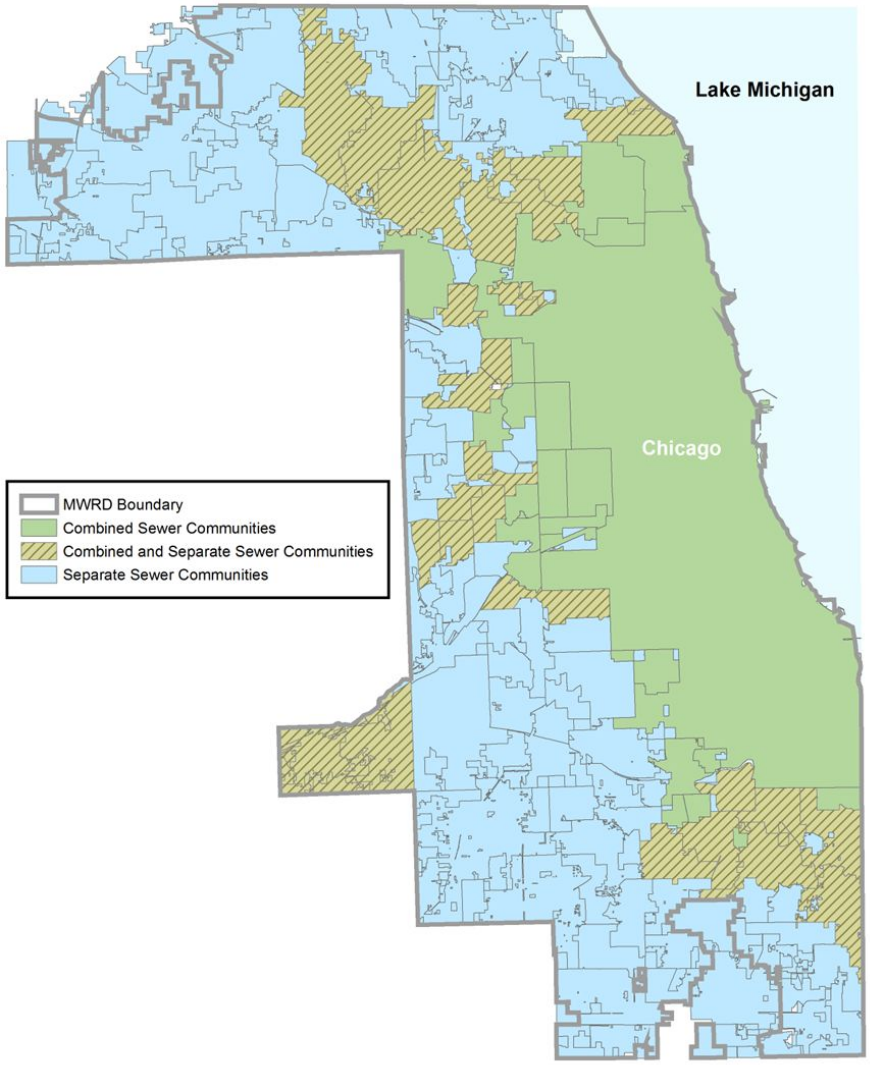
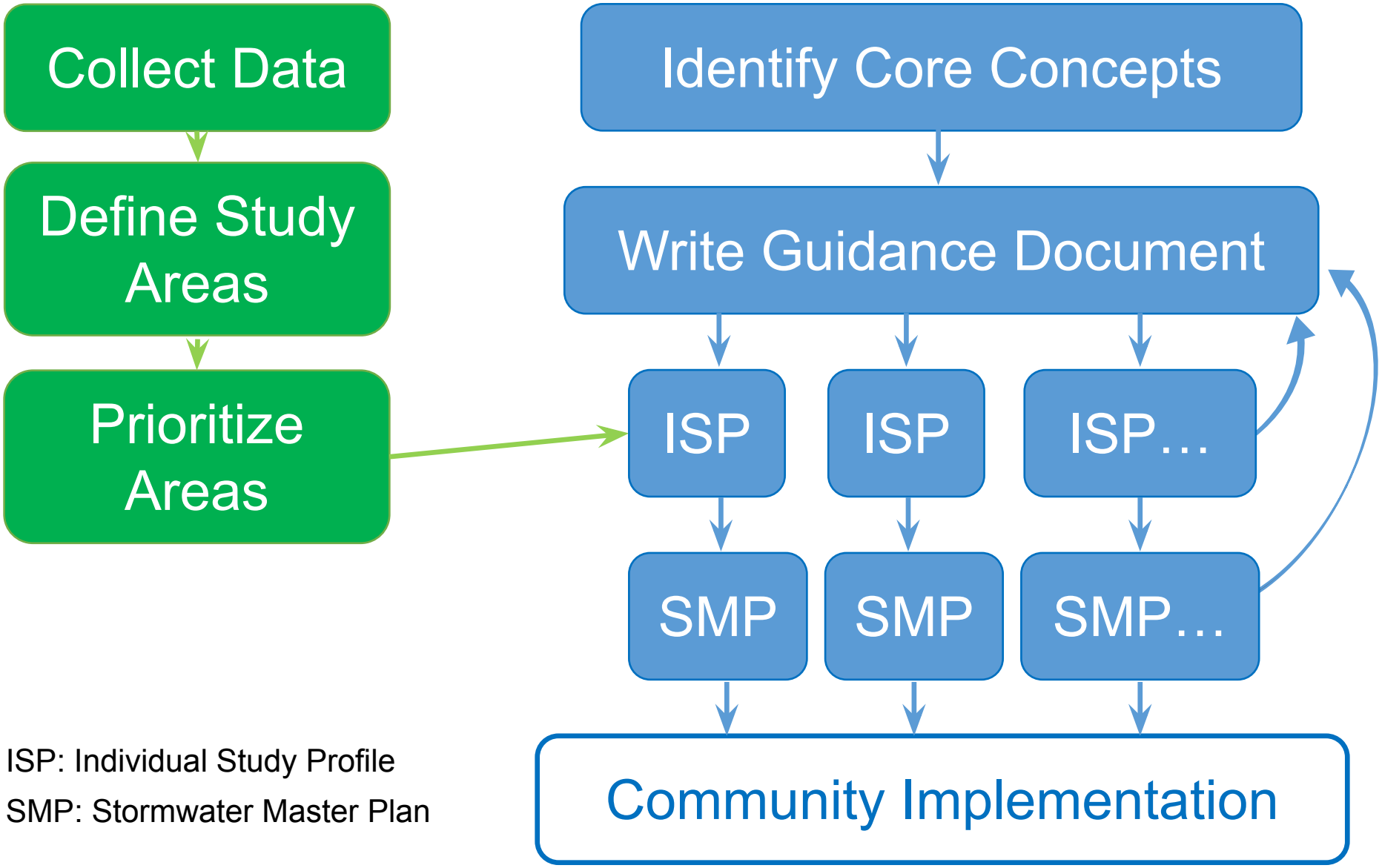
# Stormwater Master Planning Program

- **Guiding Principles:**
  - Perform planning in coordination with local municipalities and regional agencies
  - Develop innovative approach for flood reduction
  - Consider holistic solutions and opportunities
  - Leverage and build upon work of others
  - Develop a repeatable process
  - Create actionable plans to be implemented by municipalities



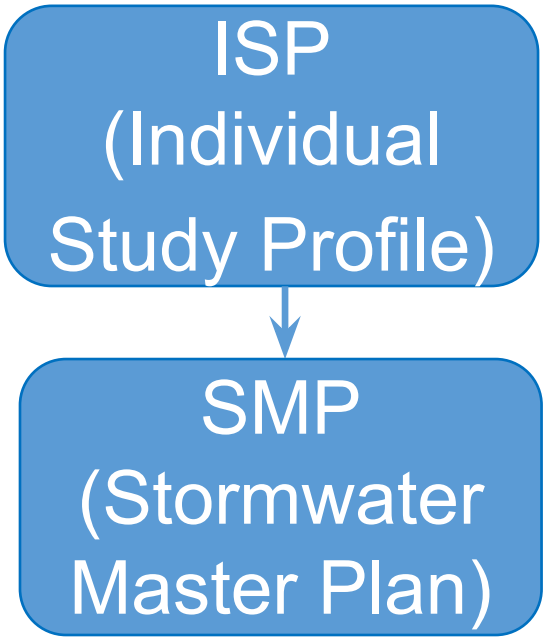
# Overview of Program Scope & Process




ISP: Individual Study Profile

SMP: Stormwater Master Plan

# Overview of Program Scope & Process




**What is an Individual Study Profile (ISP)?**

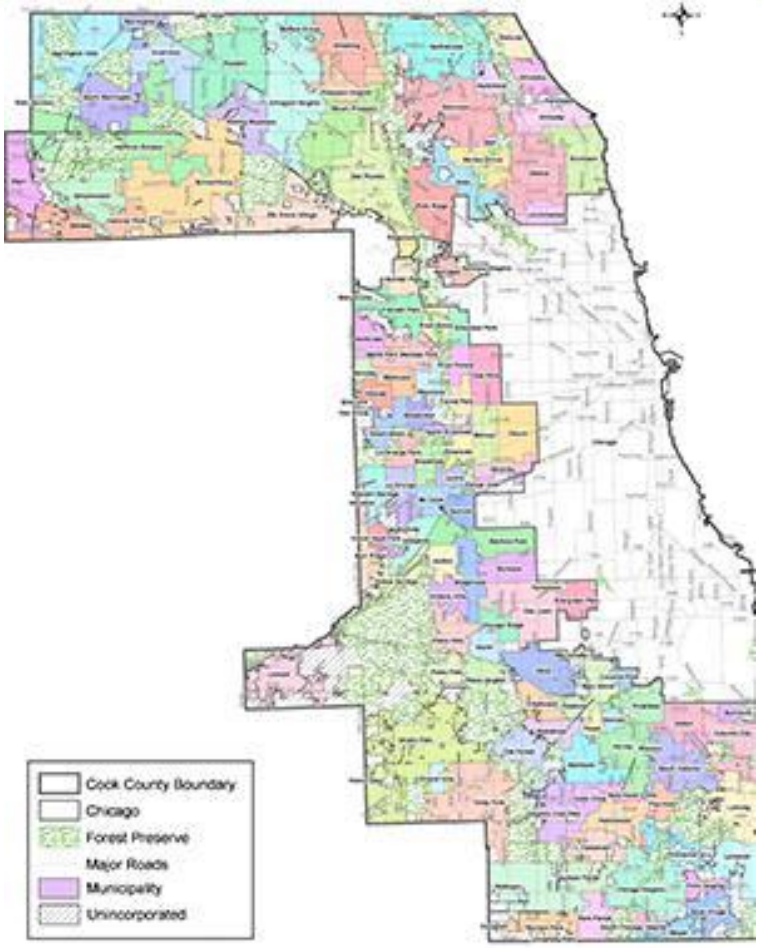
- Represents an initial assessment of current conditions, needs, & opportunities; framework for the SMP
- Prepared for a specific geographic study area

**What is a Stormwater Master Plan (SMP)?**

- Provides concept-level recommendations for flood and community resiliency
- Empowers communities to reduce flooding
  - Establishes platform for stakeholder collaboration
  - Identifies project concepts and policies, stakeholders or partners, and funding sources

# Municipal Staff Survey Update

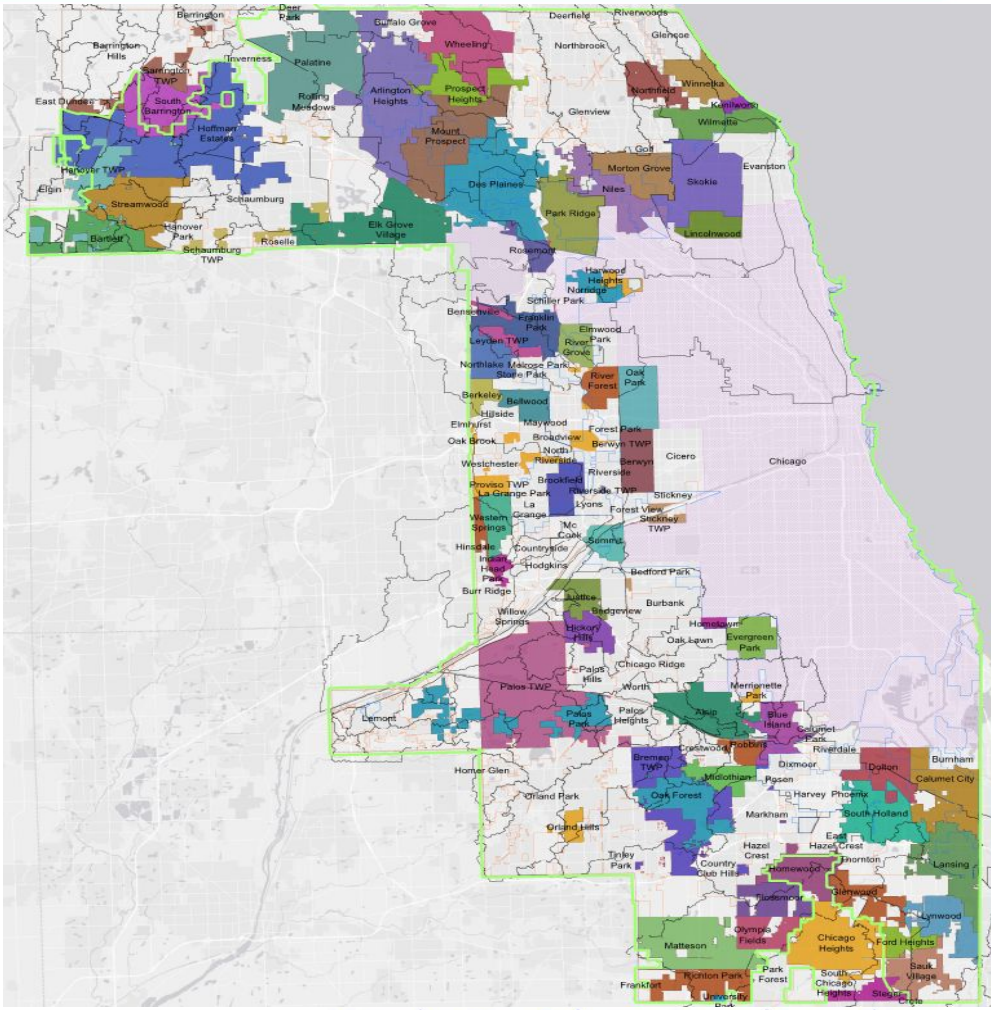
- Survey to determine:
  - Location, frequency and severity of flood problems
  - Degree to which flooding and flood solutions are important for the community
  - If planning or engineering efforts have already been made
- Sent to all municipalities and townships in Cook County
- Sent to CCDOTH and FPDCC
- City of Chicago coordination handled separately



# Municipal Staff Survey Update

Update Feb 2020:

- Approximately 50% response (82 of 162 surveys returned)
- 80% impacted by urban flooding
- 51% high priority; 27% medium priority
- 180 +/- unique flood problem areas identified

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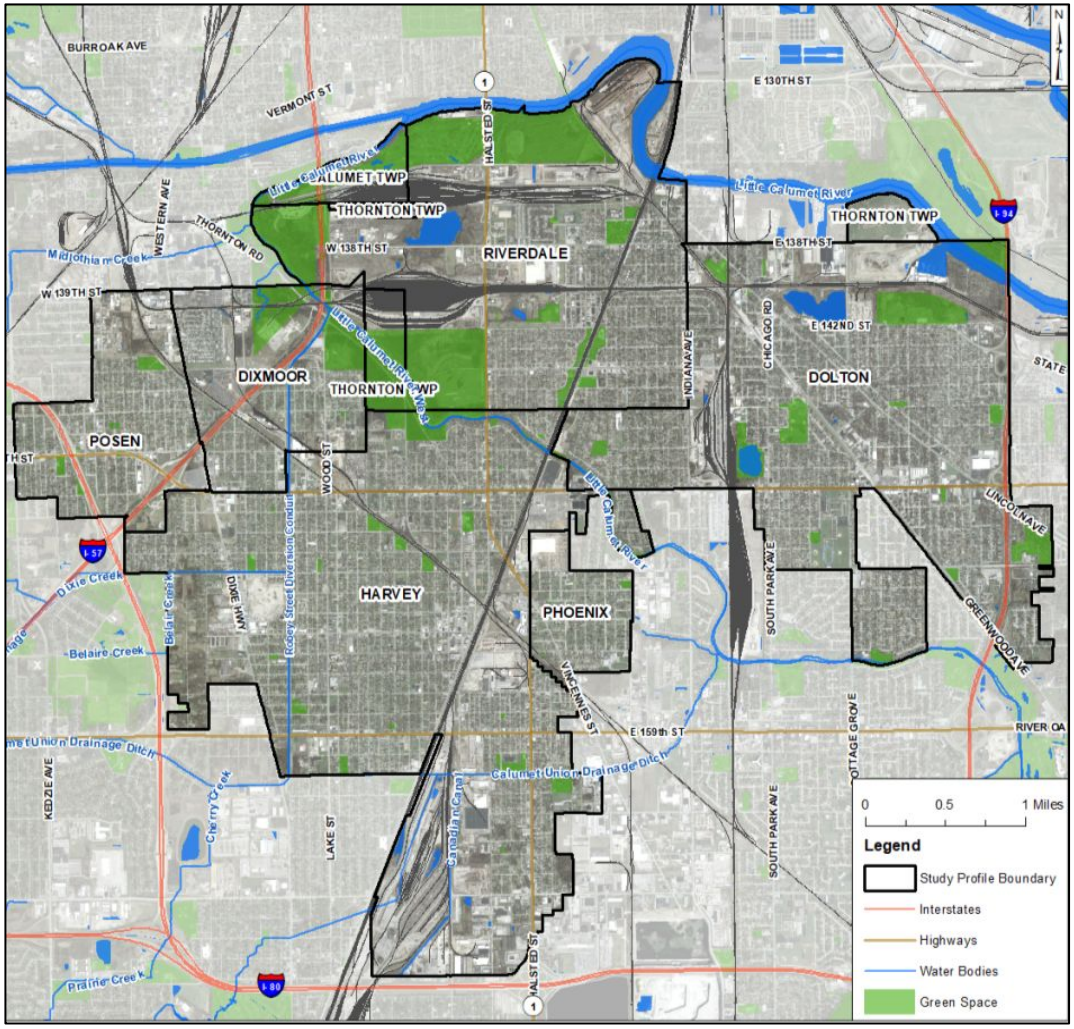
# Individual Study Updates

## Study #1: South Suburban Study Area




Municipalities

Dixmoor, Dolton, Harvey, Posen, Phoenix, Riverdale

18.2 square miles

Overview

- Community-based local drainage systems
- Mostly combined sewers
- Flows discharge to MWRD interceptors or overflow into Little Calumet River

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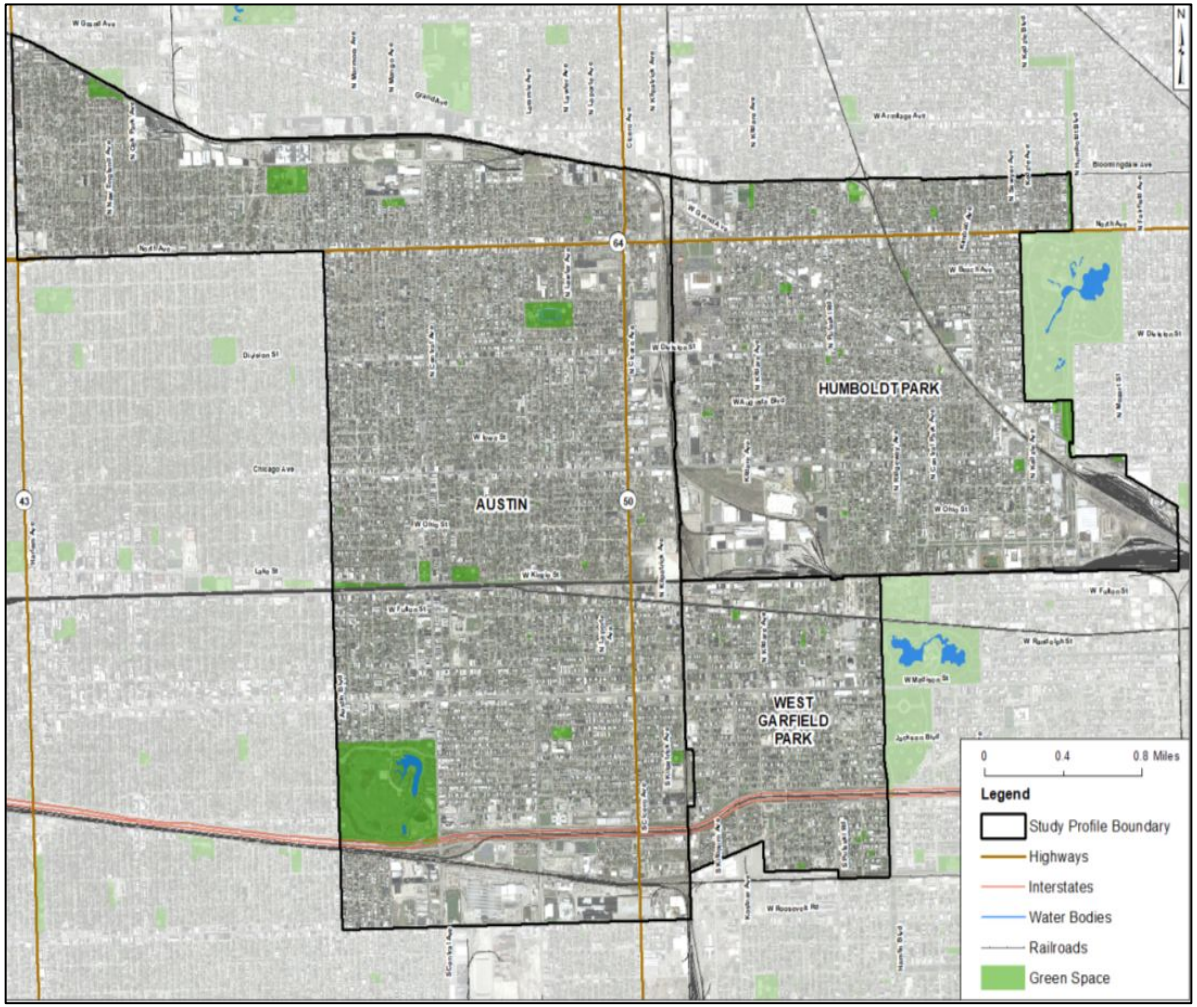
# Individual Study Updates

## Study #2: Chicago West Study Area




<u>Neighborhoods</u>

Austin

Humboldt Park

West Garfield Park

<u>Overview</u>

- 12.0 square miles
- Chronic flooding
- Highly impervious
- Lower than average household incomes

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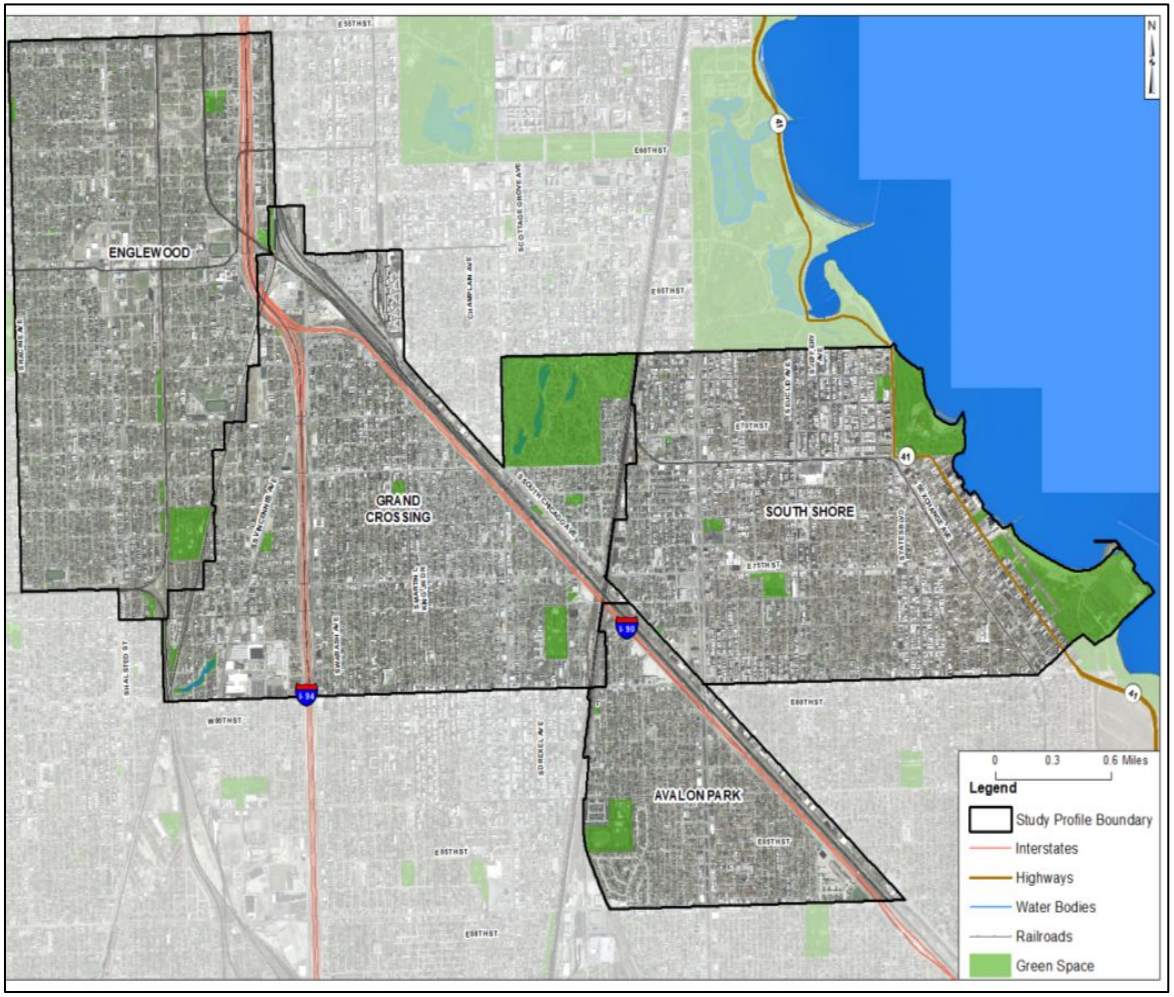
# Individual Study Updates

## Study #3: Chicago South Study Area




<u>Neighborhoods</u>

Avalon Park

Englewood

Greater Grand Crossing

South Shore

<u>Overview</u>

- 10.8 square miles
- Chronic flooding
- Highly impervious
- High unemployment

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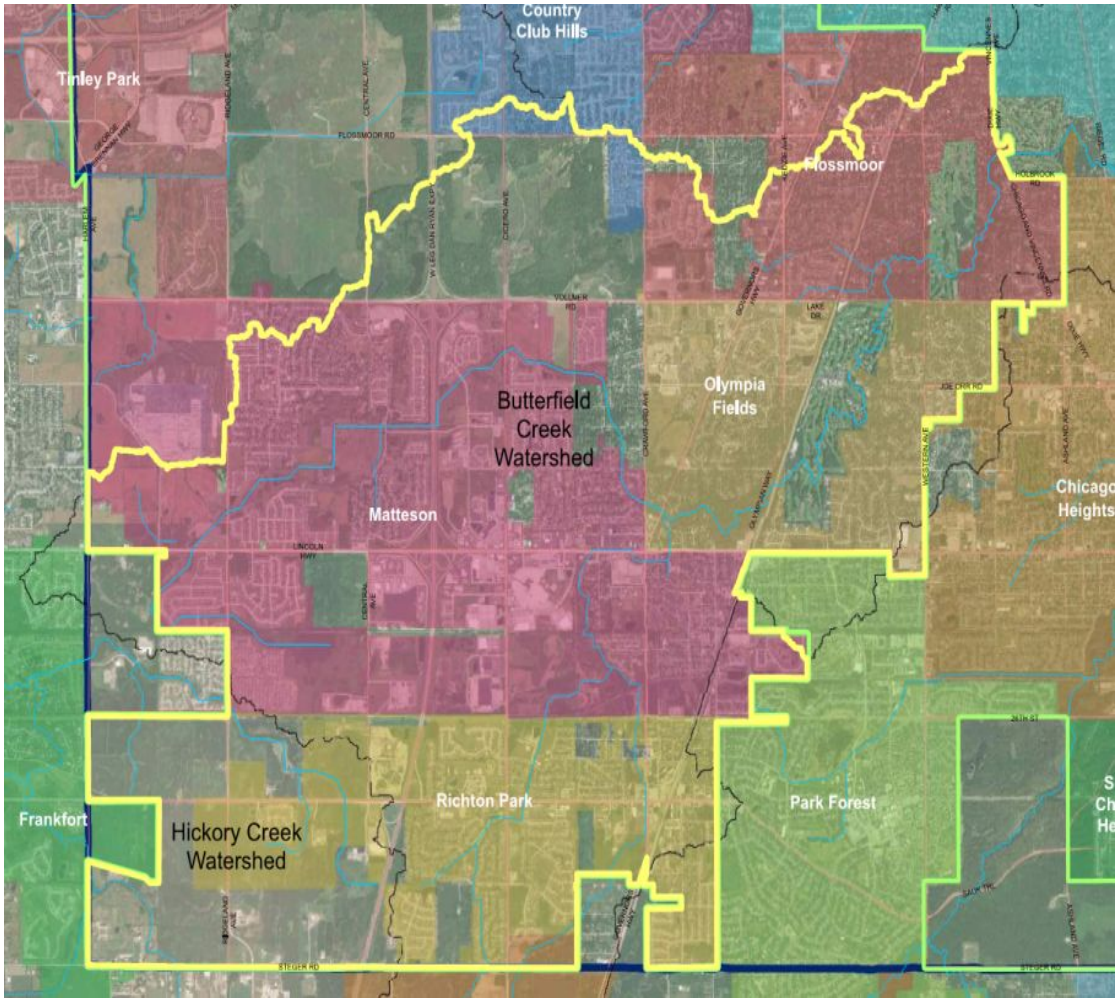
# Individual Study Updates

## Study #4: Butterfield Creek Study Area




<u>Municipalities:</u>

Olympia Fields, Richton Park, Matteson, Flossmoor, Rich Township, and small parts of Bloom Township, Chicago Heights, Country Club Hills, Frankfort, Park Forest

<u>Overview</u>

- 23.4 square miles
- Includes undeveloped and rural areas

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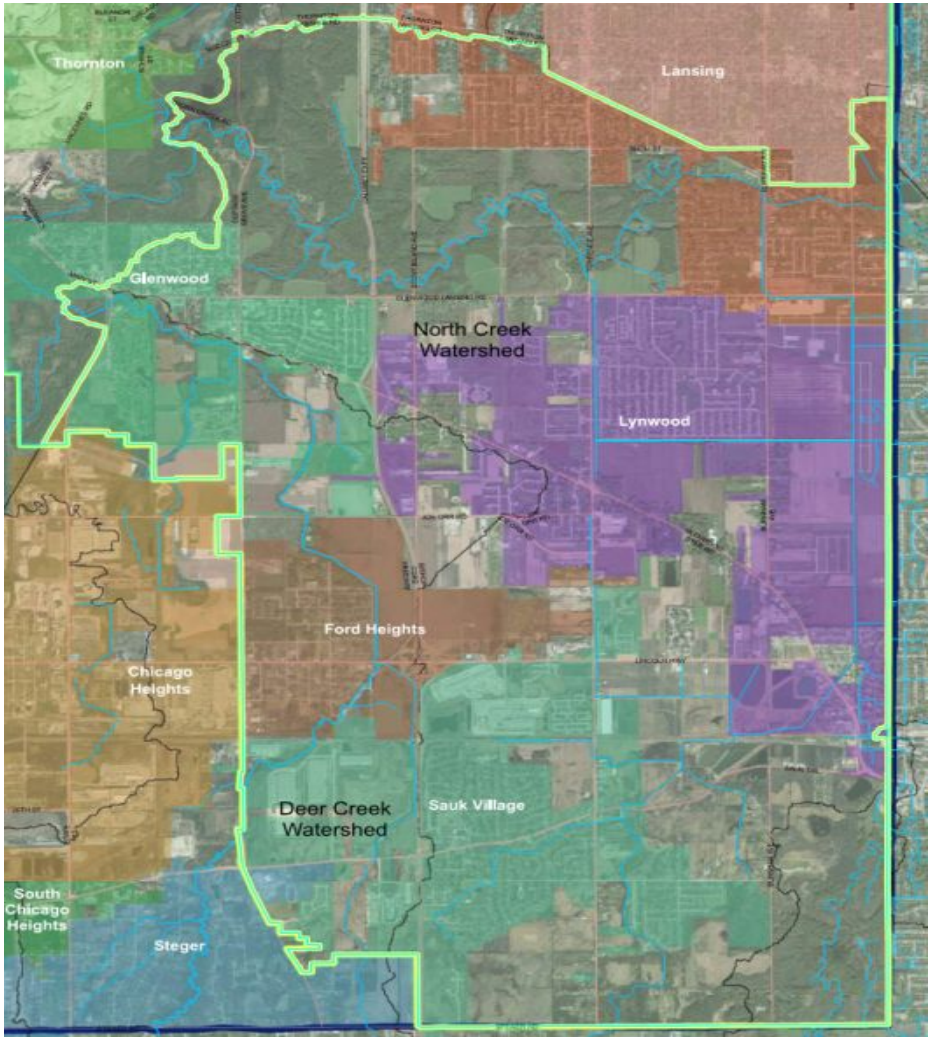
# Individual Study Updates

## Study #5: North and Deer Creek Study Area




Municipalities:

Ford Heights, Lynwood, Sauk Village, Bloom Township, Glenwood, Lansing, and small parts of Thornton Township, Chicago Heights, Steger

Overview:

- 25.2 square miles
- Undeveloped and rural areas
- High economic need

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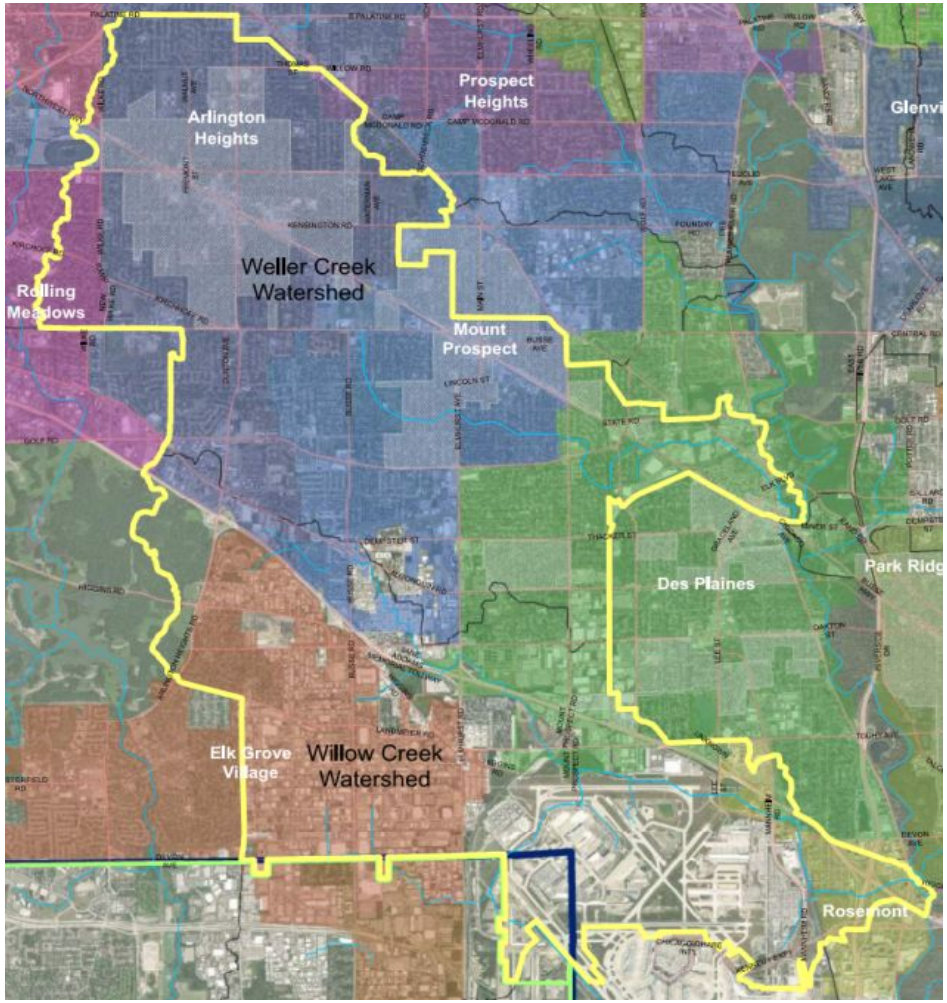
# Individual Study Updates

## Study #6: Weller and Willow Creek Study Area




Municipalities:

40% - 60% of:

Des Plaines, Arlington Heights, Elk Grove Village, Mount Prospect, and small parts of Rolling Meadows, Prospect Heights, Palatine, Rosemont, Elk Grove Township, Maine Township, O'Hare Airport

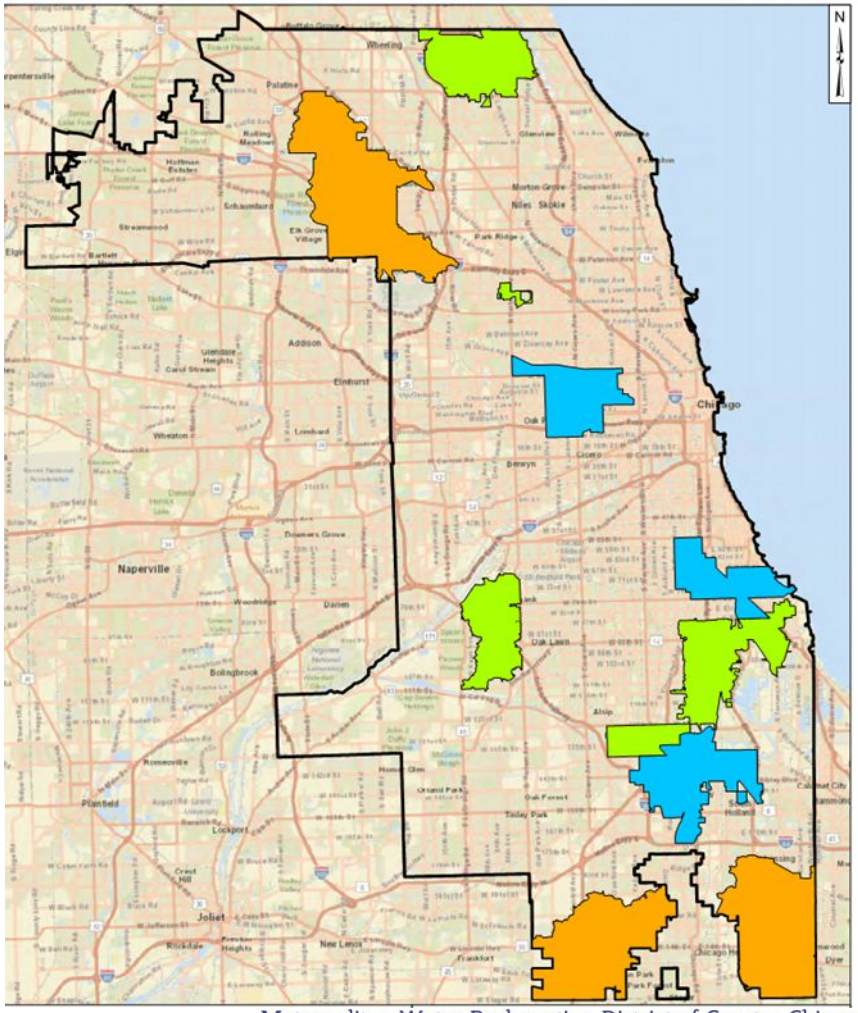
Overview:

- 34.4 square miles
- Combined sewer areas
- Many existing studies

# Request for Proposal - SMPs

19-RFP-32
Request for Proposal:
Professional Services for
Stormwater Master Planning

- Proposals November 2019
- Proposal Review Ongoing
- Scheduling Interviews
- 35 Firms Submitted Proposals
- 6 Study Areas

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# Challenges and Lessons Learned

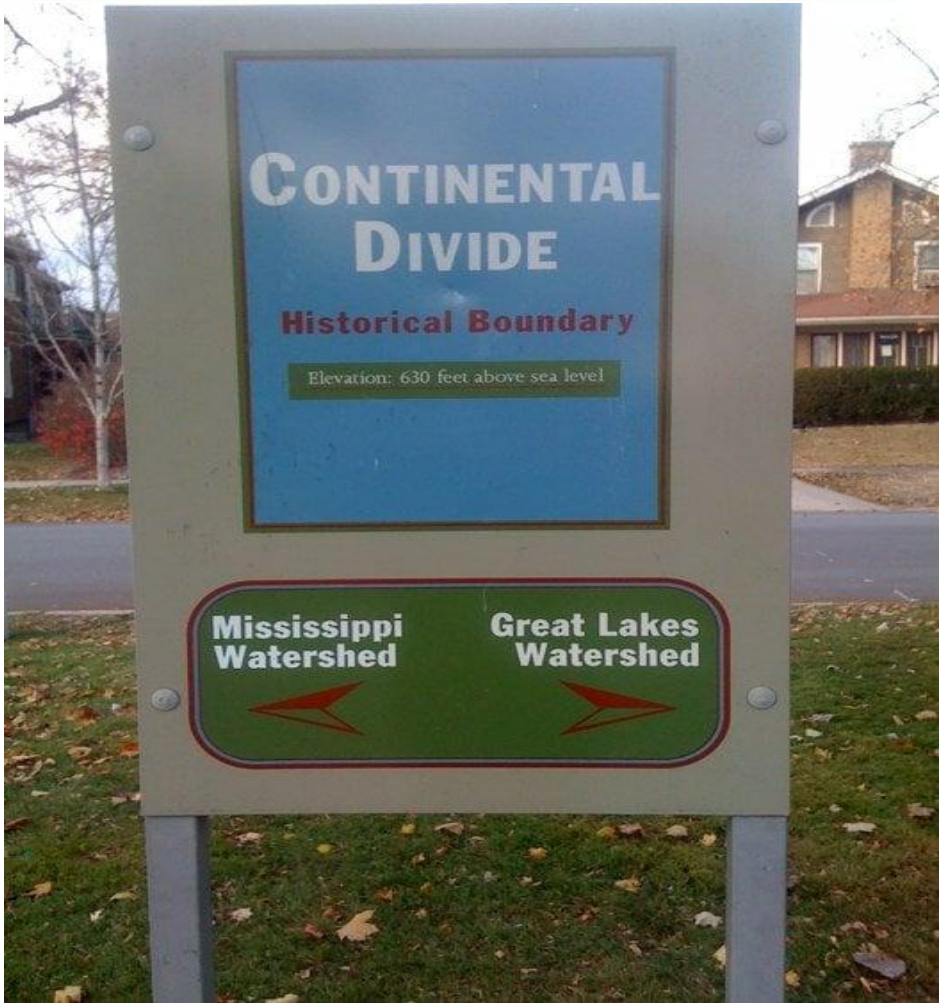
**Municipal staff participation:**

- Engagement can be difficult in some areas
- Resistance to planning/ Lack of buy-in
- Planning fatigue
- Municipal capacity
- Concerns with transparency; disclosing flood problem areas

# Challenges and Lessons Learned

**Scale and Delineation of Study Areas:**

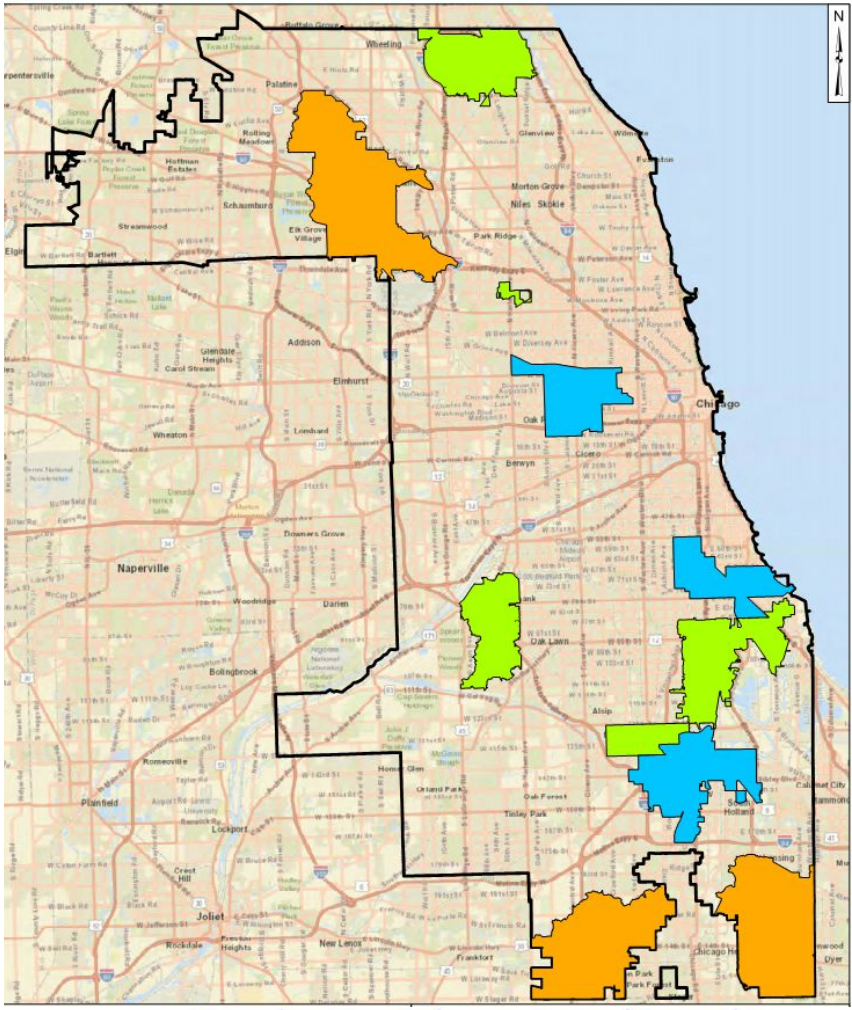
- Stormwater planning difficult in large areas with many problems
- Implementation of plan recommendations across multi-jurisdictional areas difficult without prior agreements



# Challenges and Lessons Learned

**Existing Studies:**

- Some areas have many existing plans and studies, but they lack a common goal consistent with District's SMP Guidance Document
- Need to develop a method to incorporate existing studies, with disparate goals, without reinventing the wheel

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# Challenges and Lessons Learned

**Cost:**

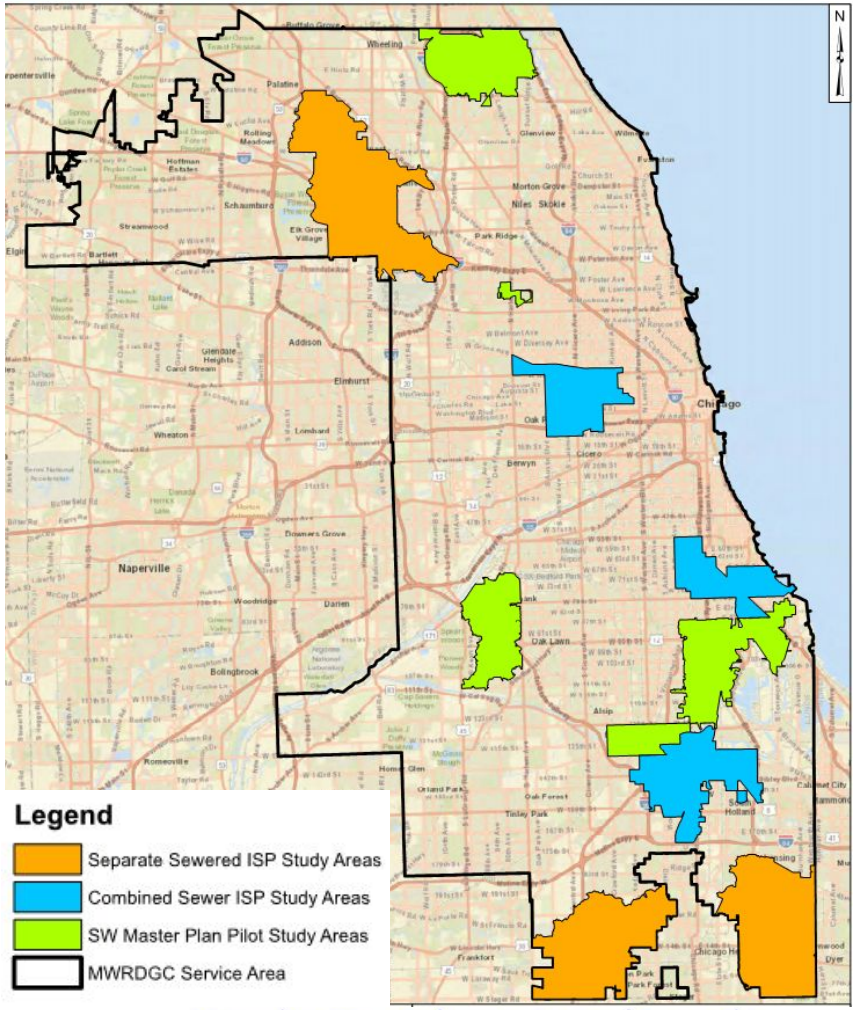
- SMP cost extrapolated across Cook County is prohibitive

**Time:**

- Current process is not efficient
- Initial plans may be obsolete before final plans are finished

**True End Goal?**

- Identify Projects
- Streamline the process

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# Program Direction for Future

## Mission and Vision are unchanged

*The Metropolitan Water Reclamation District of Greater Chicago (MWRD) has a mission to address flooding in Cook County to reduce the potential for stormwater damage to life, public health, safety, property and the environment.*

## Program Vision Statement

*Develop an enduring long-term program that establishes a transparent process to guide the investment of resources for the planning and implementation of innovative urban stormwater management solutions to mitigate flooding and enhance community resiliency.*

# Program Direction for Future

**MWRD will equip and empower local governments**

**Revised Objectives**

1. Quantify flood mitigation needs in Cook County and measure progress
2. Support local governments to identify, implement, and maintain flood mitigation projects, programs, and/or policies
3. Facilitate the creation of mutually beneficial partnerships to reduce flooding. Encourage local governments to participate in the Program, and to regularly plan, maintain, and implement initiatives to improve system performance.

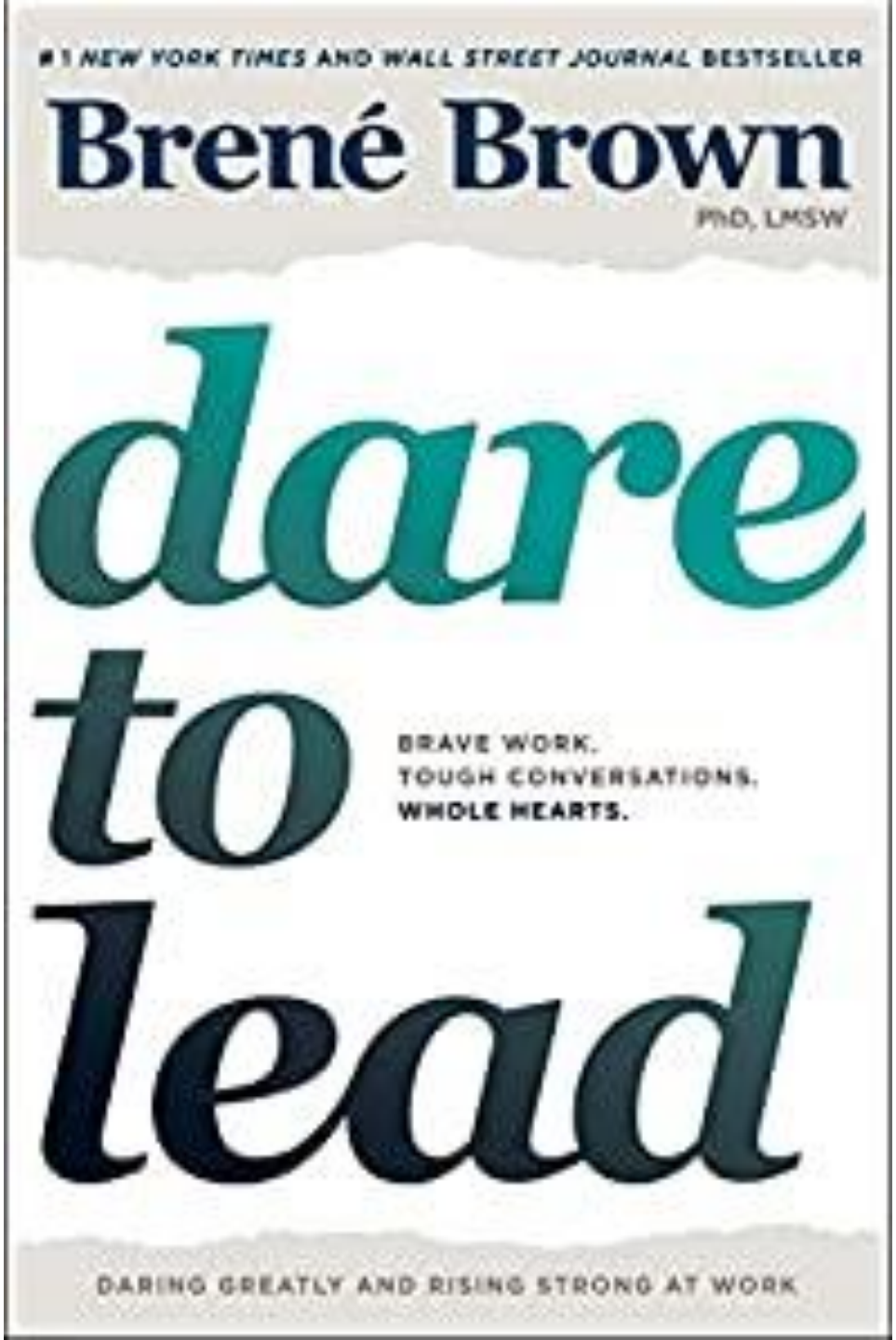
THE NEW YORK TIMES BESTSELLER

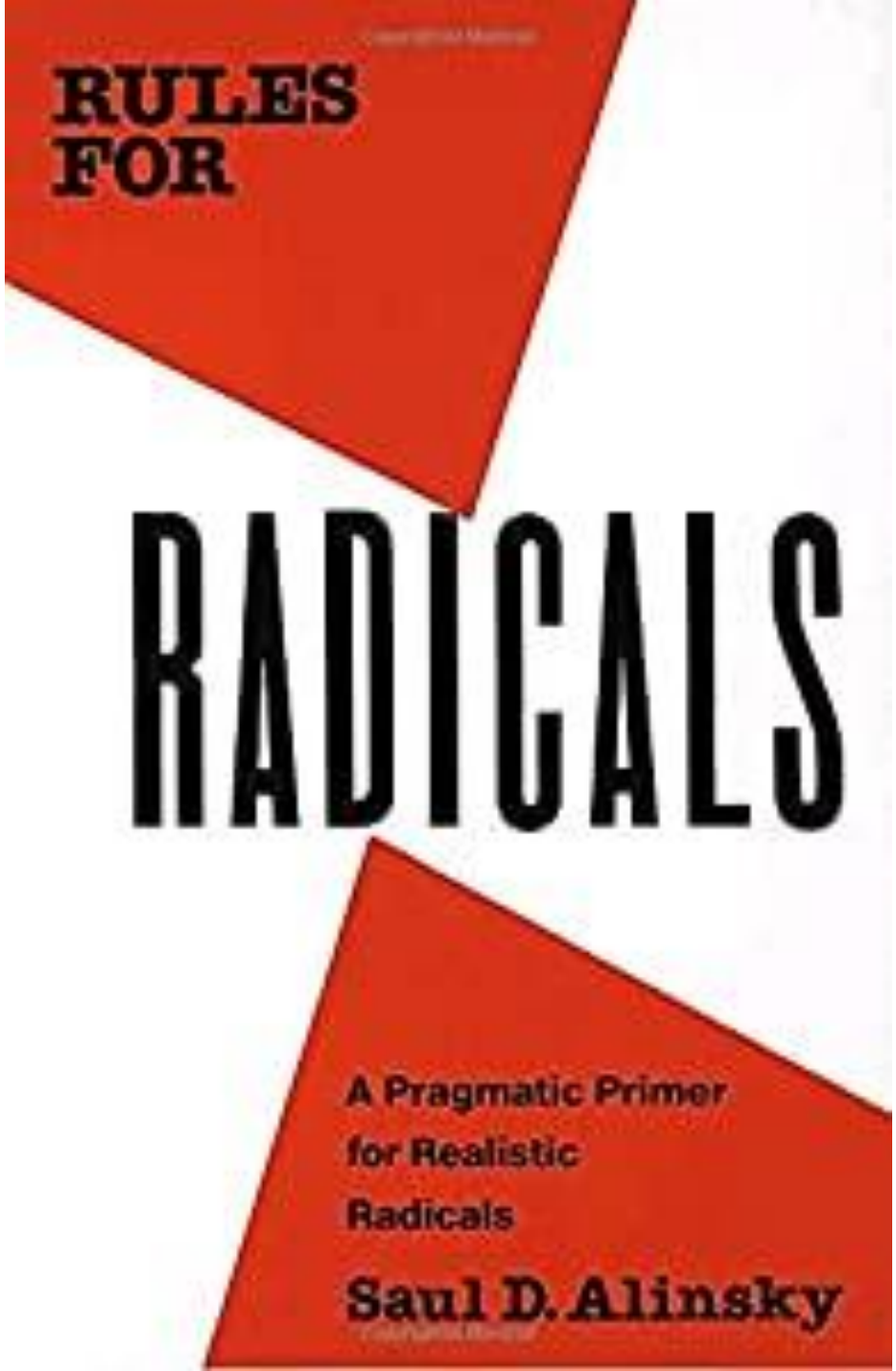
# THINKING, FAST AND SLOW

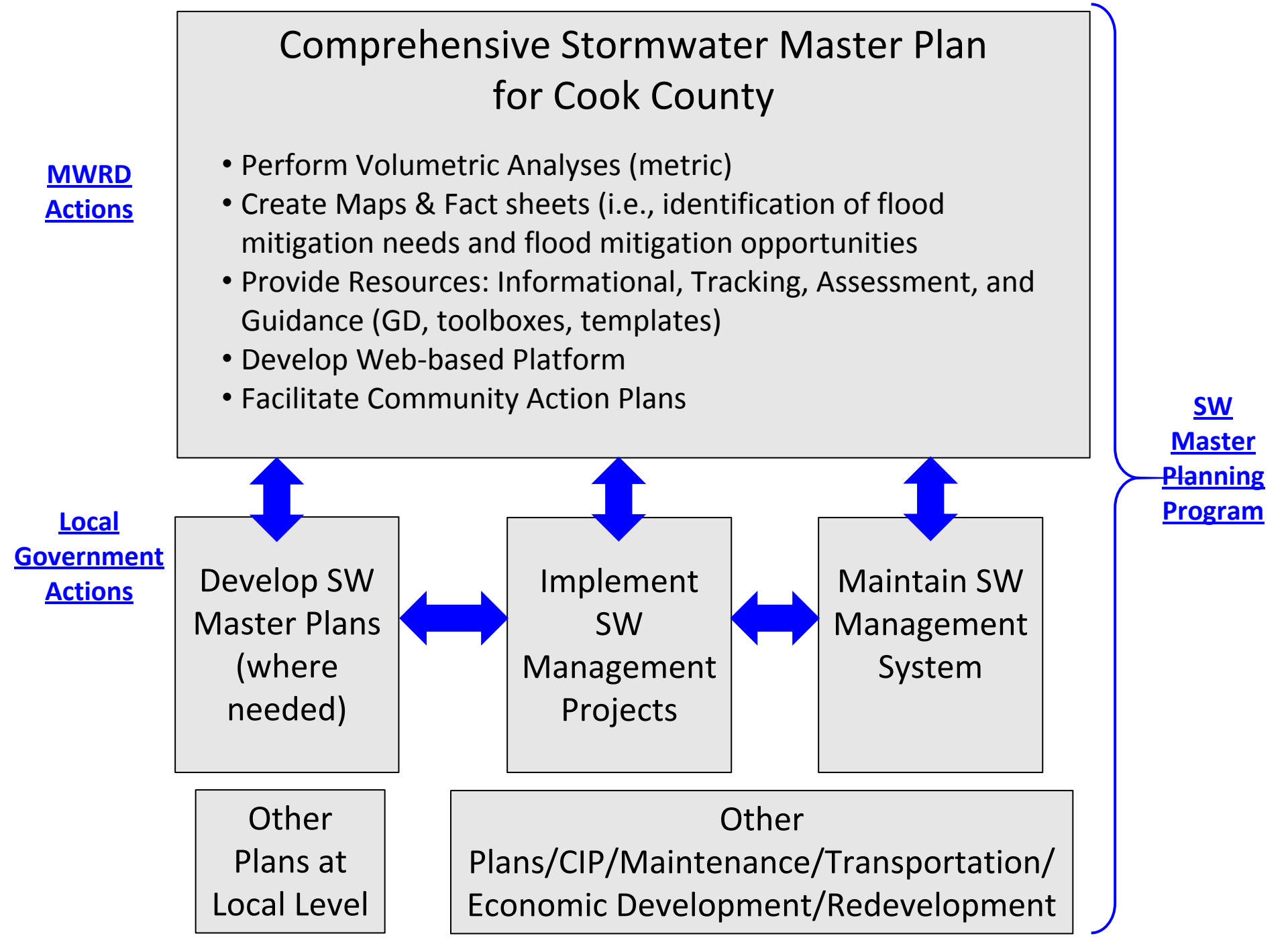
DANIEL KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS

"[A] masterpiece . . . This is one of the greatest and most engaging collections of insights into the human mind I have read." —WILLIAM EASTERLY, *Financial Times*


#1 NEW YORK TIMES AND WALL STREET JOURNAL BESTSELLER
Brené Brown
PhD, LMSW
dare to lead
BRAVE WORK.
TOUGH CONVERSATIONS.
WHOLE HEARTS.
DARING GREATLY AND RISING STRONG AT WORK


RULES
FOR
RADICALS
A Pragmatic Primer
for Realistic
Radicals
Saul D. Alinsky


Comprehensive Stormwater Master Plan for Cook County
• Perform Volumetric Analyses (metric)
• Create Maps & Fact sheets (i.e., identification of flood mitigation needs and flood mitigation opportunities
• Provide Resources: Informational, Tracking, Assessment, and Guidance (GD, toolboxes, templates)
• Develop Web-based Platform
• Facilitate Community Action Plans
MWRD Actions
Local Government Actions
SW Master Planning Program
Develop SW Master Plans (where needed)
Implement SW Management Projects
Maintain SW Management System
Other Plans at Local Level
Other Plans/CIP/Maintenance/Transportation/ Economic Development/Redevelopment

# Program Direction for the Future – Year 2

**Develop metric for flood mitigation needs**

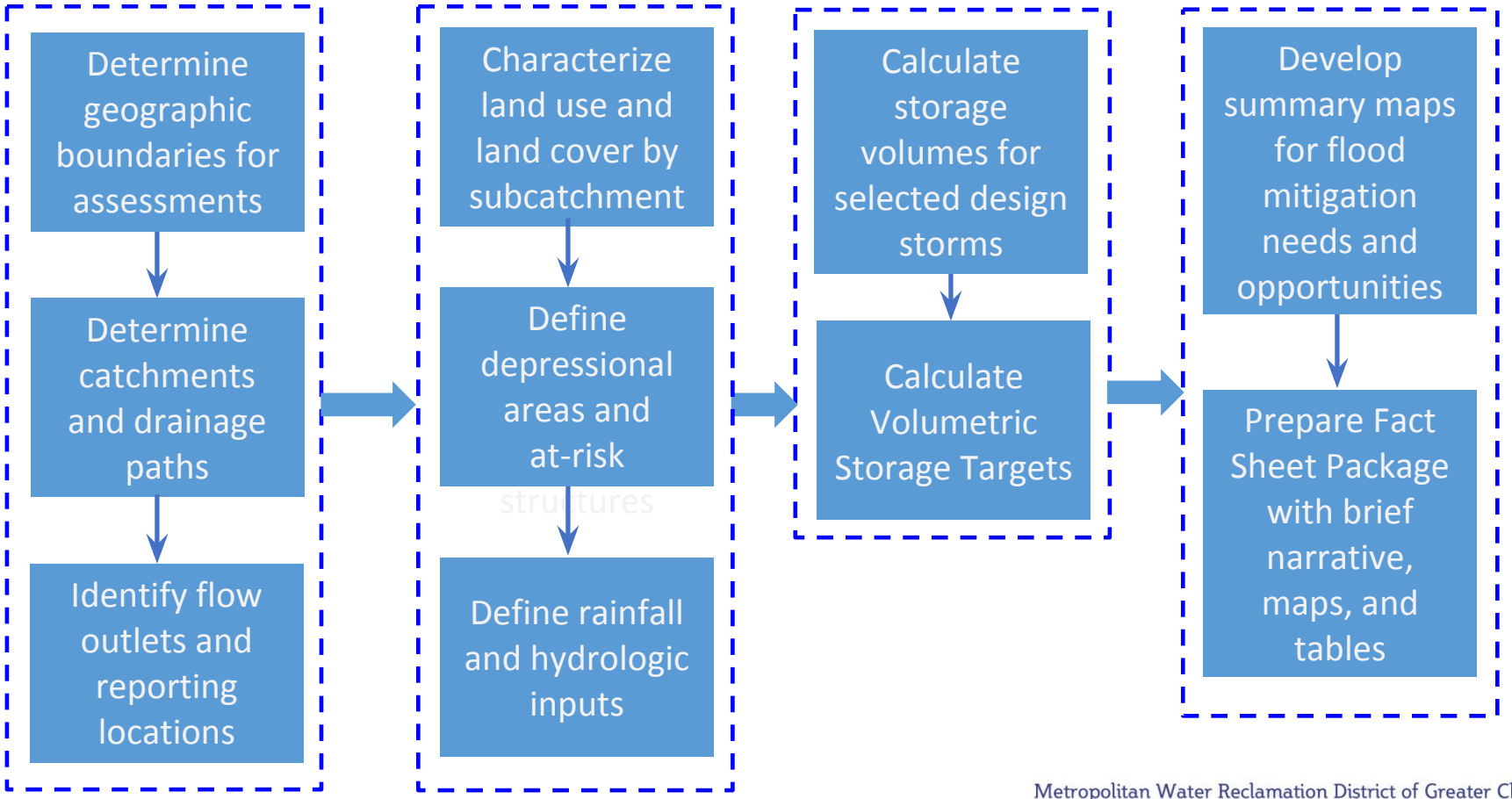
***Volumetric Storage Target*** = Storage volume increase necessary to eliminate flooding for target storm over and above existing drainage system capacity

**Create maps/fact sheets for local governments**

- Provide means for identifying and assessing flood mitigation priorities
- Provide means for identifying areas where flood mitigation initiatives could be effective

# Program Direction for the Future

## *Initial Volumetric Analysis Approach*

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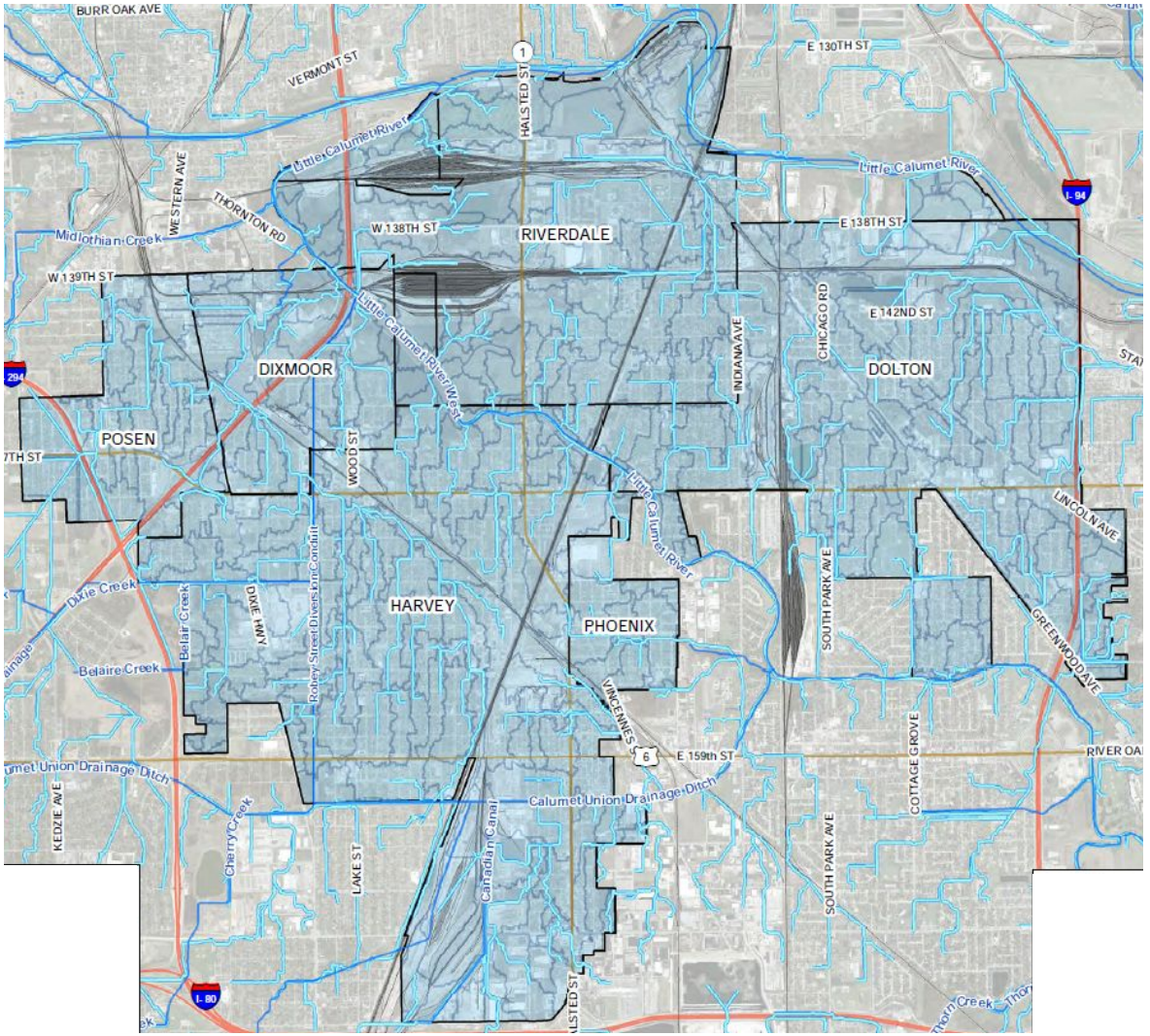
# Program Direction for the Future

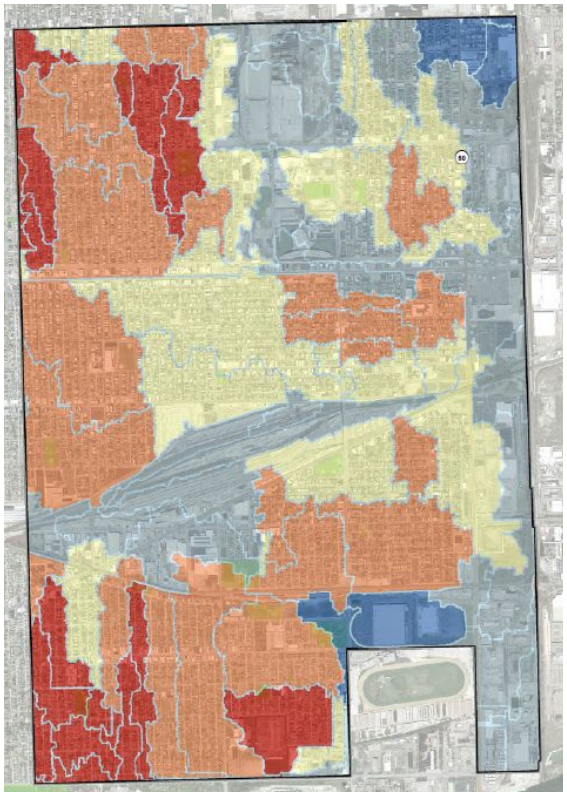
## delineate overland flow paths & subcatchments



# Program Direction for the Future

## maps and lookup tables for each local government

Flow paths and subcatchments



Averaged Urban Flood Susceptibility Index (FSI)

Land use

# Questions?

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