



# Stormwater Management Commission Energy and Environment Committee Overview Part 2

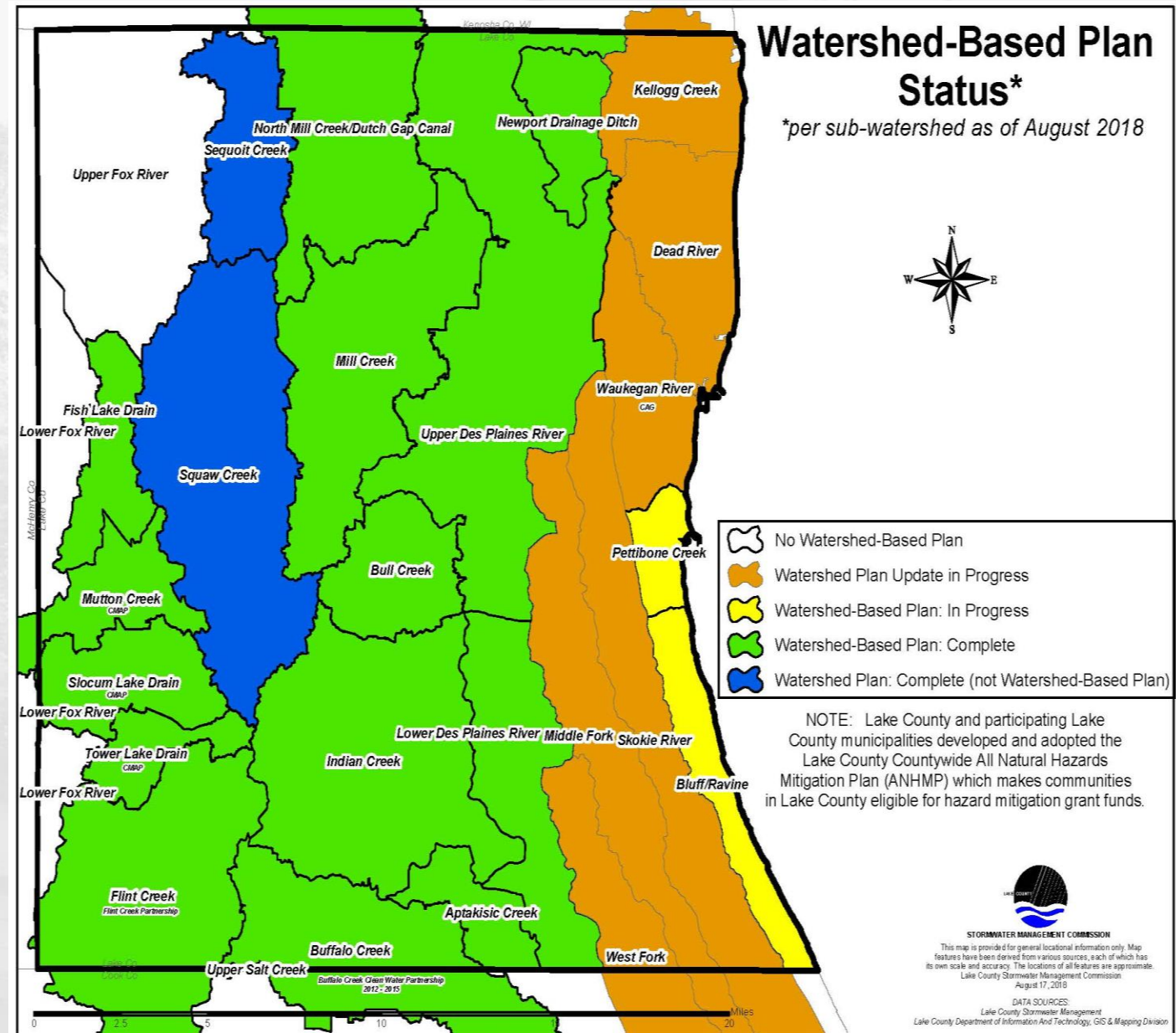
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# Today

- *Watershed Planning*
- *Multi-Benefit Flood Storage/Wetland Mitigation/Habitat*
- *Stream Restoration and Fluvial Geomorphology*

# Watershed Planning

- Statutory Authority
- Basis for water resource management
- Watershed-Based Planning Costs:  
**Over \$ 4.8 Million**
  - Allows grant funding eligibility
  - Additional costs allocated to Projects
- Stakeholder outreach and engagement
  - 4 Counties – Lake, Cook, McHenry & Kenosha
  - Over 174 Governmental Bodies

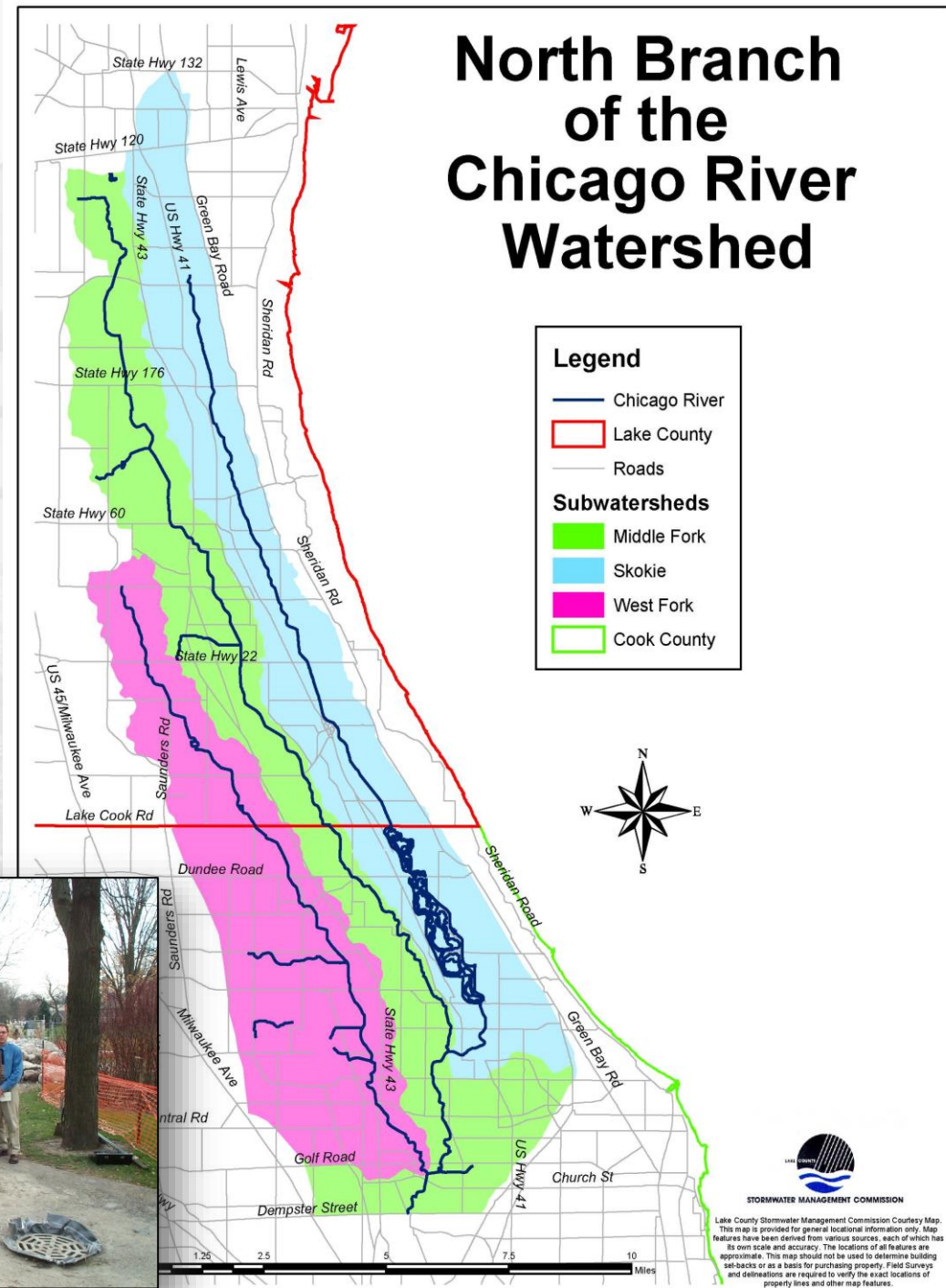




# North Branch Chicago River Watershed-Based Plan Update

- Total Cost: \$155,000
  - Funded by Illinois EPA grant
  - Update to 2008 Plan
- Partnerships
  - \$62,000: NBWW Monitoring
  - \$23,400: MWRDGC & FPDCC Stream & Detention Basin Inventory
- Watershed Coverage
  - Lake & Cook County
  - 10 Board Districts
  - 67 Governmental Bodies

## North Branch of the Chicago River Watershed







# CNT RainReady Pilot Program

*Helps protect homes and cities from flooding by offering owners practical and affordable improvements to help keep your property dry.*

- **Rain Ready North Chicago Pilot Program**
  - 3-Party Agreement: North Chicago, CNT & SMC
  - SMC Pilot Program Funding (\$12,000)
  - Pilot Program Implemented in Environ. Justice Areas
    - Meeting MS4 permit requirements
  - Public & Private landowner education on flooding BMPs
    - RainReady Socials, Community & Neighborhood Meetings, Social Media Outreach, 10 home assessments and one field assessment



STORMWATER MANAGEMENT COMMISSION

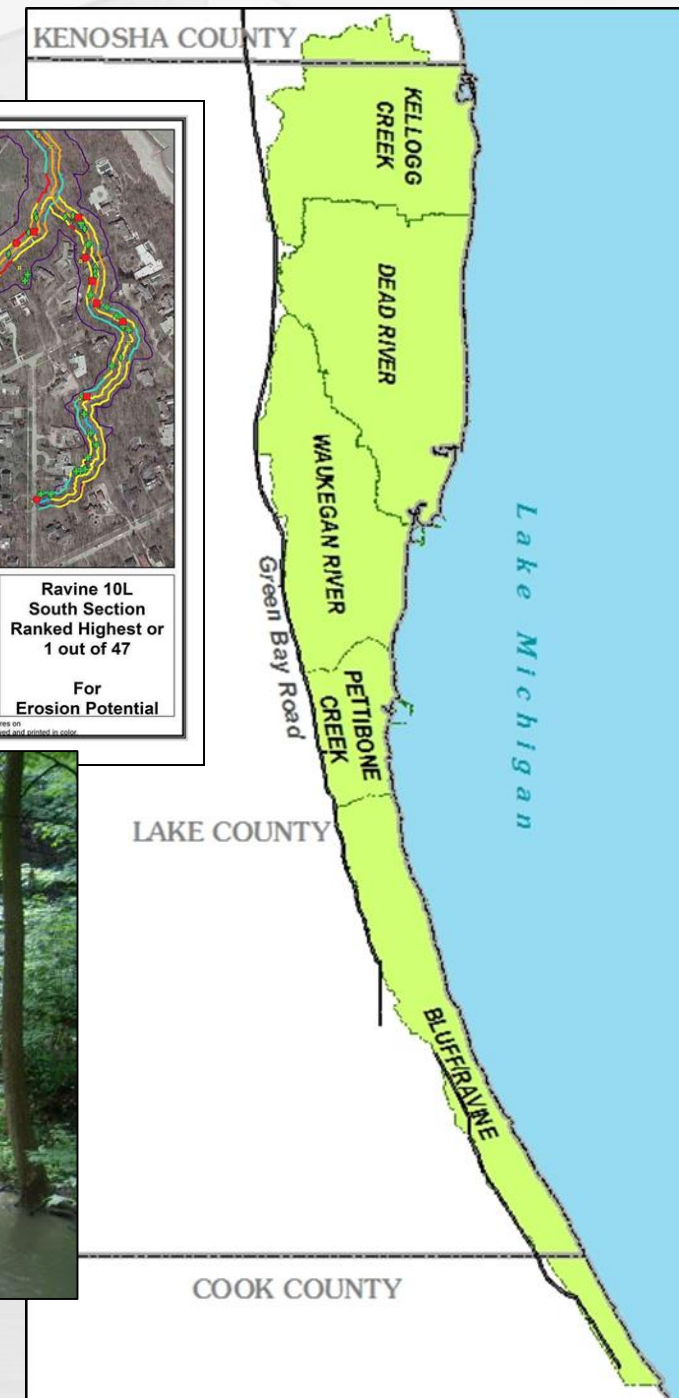
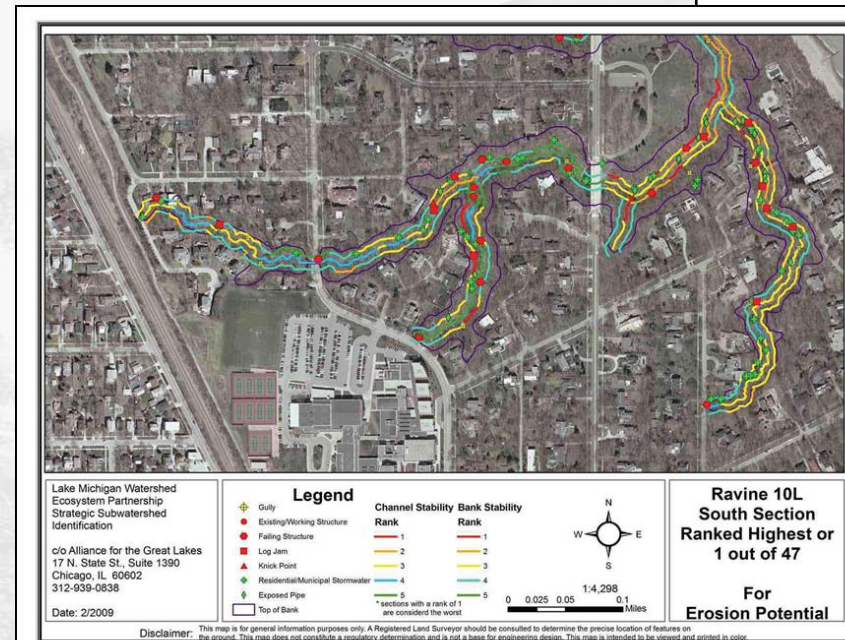




# Lake Michigan Watershed-Based Plan

- 56-square mile watershed
- \$252,000 Total Cost
  - IDNR & IL EPA grants
  - Local government match \$61,000
- Scope of Work
  - 10-yr. updates
  - New planning areas
- Watershed Coverage
  - Lake & Cook County
  - 9 Board Districts
  - 34 Governmental Bodies

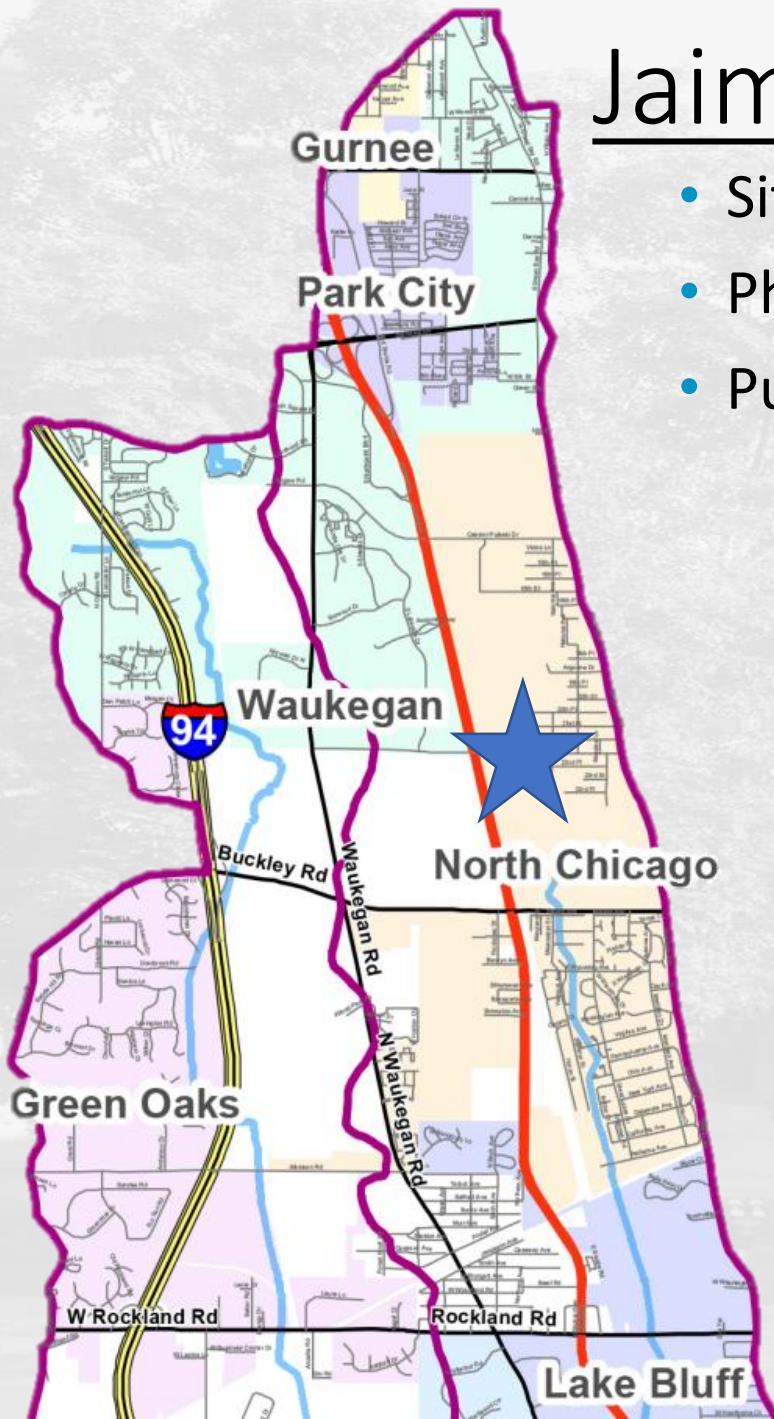
Stakeholder Meetings Underway!



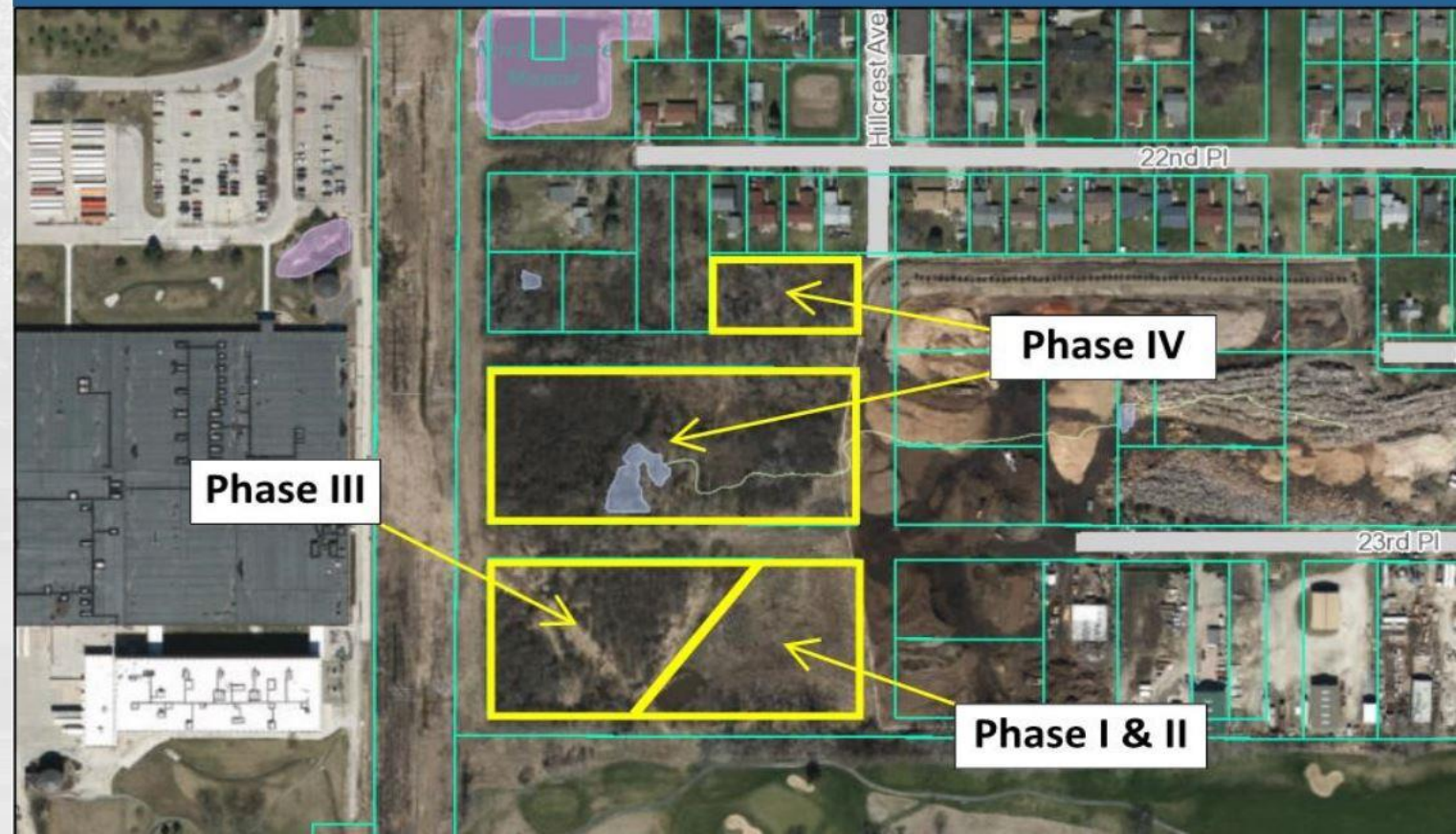


# Jaime Mitigation Project, North Chicago

- Site “3” identified in Skokie River flood study
- Phased-project approach began in 2012
- Public-Private partnerships (3 government - 4 private)



## Jamie Property | Location Map





# Multi-Objective Environmental Benefits

**Wetland  
Restoration  
and  
Mitigation**

**Floodplain  
Storage  
Excavation**

**Stormwater  
Conveyance  
Improvement**

**Water  
Quality  
Enhancement**





# Project Agreement Costs & Values

Seek to increase waste diversion from landfills and encourage composting and recycling (Strategy 3 of Strategic Plan Goal 4: Promote a Sustainable Environment)

- Excavation and nearby re-use of 12,000 cubic yards of clay soil (~\$350,000)
- Provide wetland mitigation:
  - 3.09 acres of wetland creation
  - 1.62 acres of wetland enhancement
  - 0.60 acres of upland buffer enhancement
- Plant material clearing and excess soil removal (\$102,000)
- Additional excavation and final grading (\$102,000)
- Wetland plantings, maintenance & management (\$22,000)
- Phase IV parcels donated to SMC for future work
- ComEd and Abbott overland flow path re-establishment



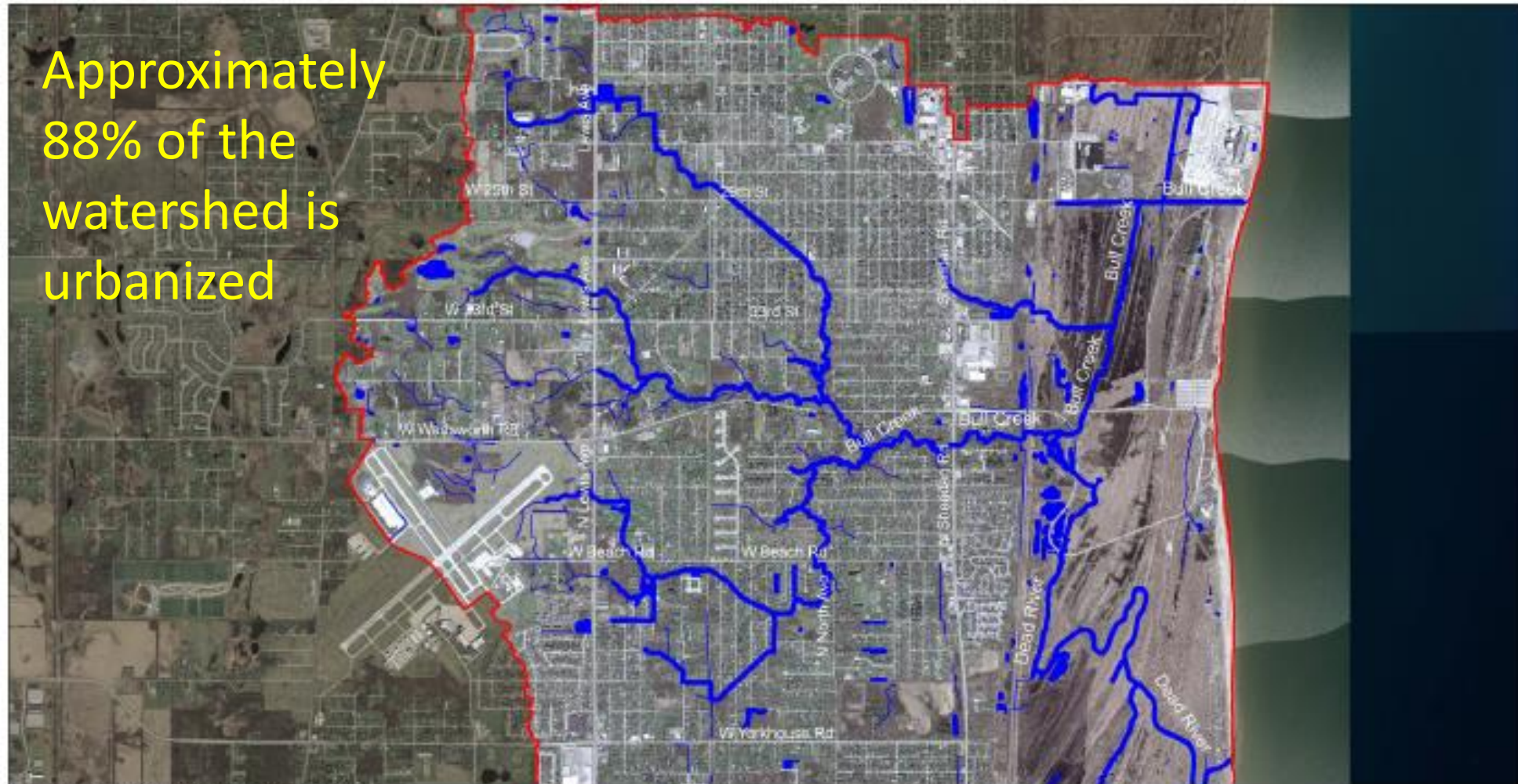
# Stream Restoration and Maintenance

- An Important Component of Surface Water Infrastructure
- SMC has statutory stream maintenance authority countywide
- Currently 3 types of stream maintenance project levels
  - Local Gov/Non-profit sponsored stream maint/cleanup (FOCR/FWA)
  - Small project SMC sponsorship grants \$500 with HOA/local group
  - Large restoration, usually grant funded with local match
- Widely varying stream systems
  - Fiddle Creek (Lake Barrington) – Drained Peat Bog, Slope is 2.3 ft/mile
  - Bull Creek (Lake Michigan Trib in Beach Park
  - Bluff Ravine system with highly erodible slopes, slope is 12.5 ft/mile



# Bull Creek Stream Restoration Project

Approximately 88% of the watershed is urbanized



Source: Aerial Photography 2015 - Map produced June 20, 2017

### Legend

-  Dead Dog Subwatershed  
 Dead Dog Streams

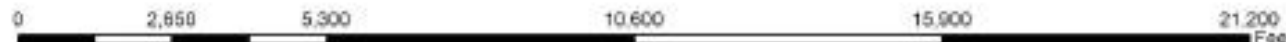
**BULL CREEK DRAINAGE AREA  
BEACH PARK, ILLINOIS**



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Traveler info provided for general informational purposes. Actual routes have been altered for construction purposes. Each project may show some road closures. The location of affected roads is approximate. Call 602-222-2222 for more information.

DATA SECURITY  
Lark County Districtwide Multipoint  
Data Security Department of Information Technology, 1000 Washington Street







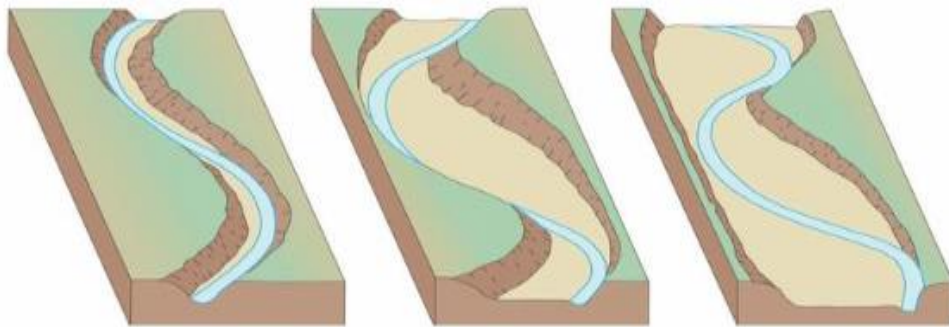
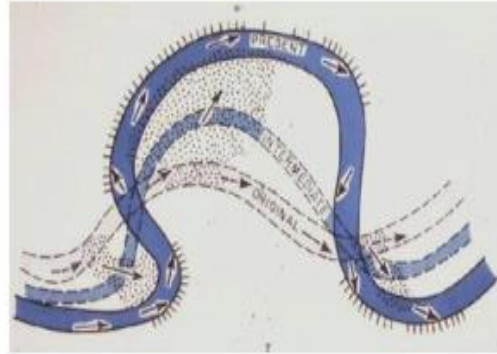


# Flow in Meanders

## Implications for Property Owners

### Meander migration

1. Cut banks erode
2. New sediment deposited on bar
3. Meander migrates
4. Planes off a valley



- Higher velocities and erosive forces occur on outside banks
- Invasive Canopy prevents native plant protection of ravine slopes
- Slope soil failures of Lake Michigan Ravines



# Project Scope

- **1500 ft total length of stream restoration -**
- **10 riffles - Stabilize stream bed (Provides habitat, Oxygenates)**
- **490 ft of Slope Toe Rock - Stabilize stream banks and reduce erosion**
- **135 ft of Bluff slope Re-shaping - Stabilize slope and stop erosion**
- **2.3 acres of Restored riparian corridor (Natives stabilize soil column)**
- **6,500 Native Plant Plugs installed**



# Project Partners/Funding

- USEPA Great Lakes Restoration Initiative (GLRI): \$446,000
- National Fish and Wildlife Foundation (NFWF): \$57,000
- Illinois DNR Coastal Management Program (CMP): \$25,000
- SMC Watershed Management Board Grant (WMB): \$25,000
- SMC consulting budget: \$40,000
- Village of Beach Park (Technical Services In-Kind)
- Bull Creek Stakeholders Association, NP, HOA Easement Donations



# Project Costs

- Construction and Field Management \$543,000
  - Design, Permitting \$50,000
- 

|                    |           |
|--------------------|-----------|
| Total Project Cost | \$593,000 |
| Cost/Linear Foot   | \$395     |

- Grant Funding \$530,000
- Percent of Project Grant Funded 90%

# Environmental benefits of the project

- Nitrogen Reduction
  - 210 lb/year or 2.4% reduction
- Phosphorus Reduction
  - 80 lb/year or 5.4% reduction
- Biochemical oxygen demand (BOD) Reduction
  - 425 lb/year or 1.4% reduction
- Sediment Reduction
  - 130 ton/year or 36.4% reduction





Before



During





After







After





After



# Landslide & Floodprone Buyout Project

**Total Project Cost:  
\$725,000**

**2 Homes Landslide Threat  
4 Total Homes Slope Repair**



- How much Stream Restoration is needed?
- Des Plaines stream inventory category  
'most severely eroding' = 16 stream miles
- Linear foot cost for stream bank stabilization and restoration (\$300/ln ft)  
Total cost = \$24.7M



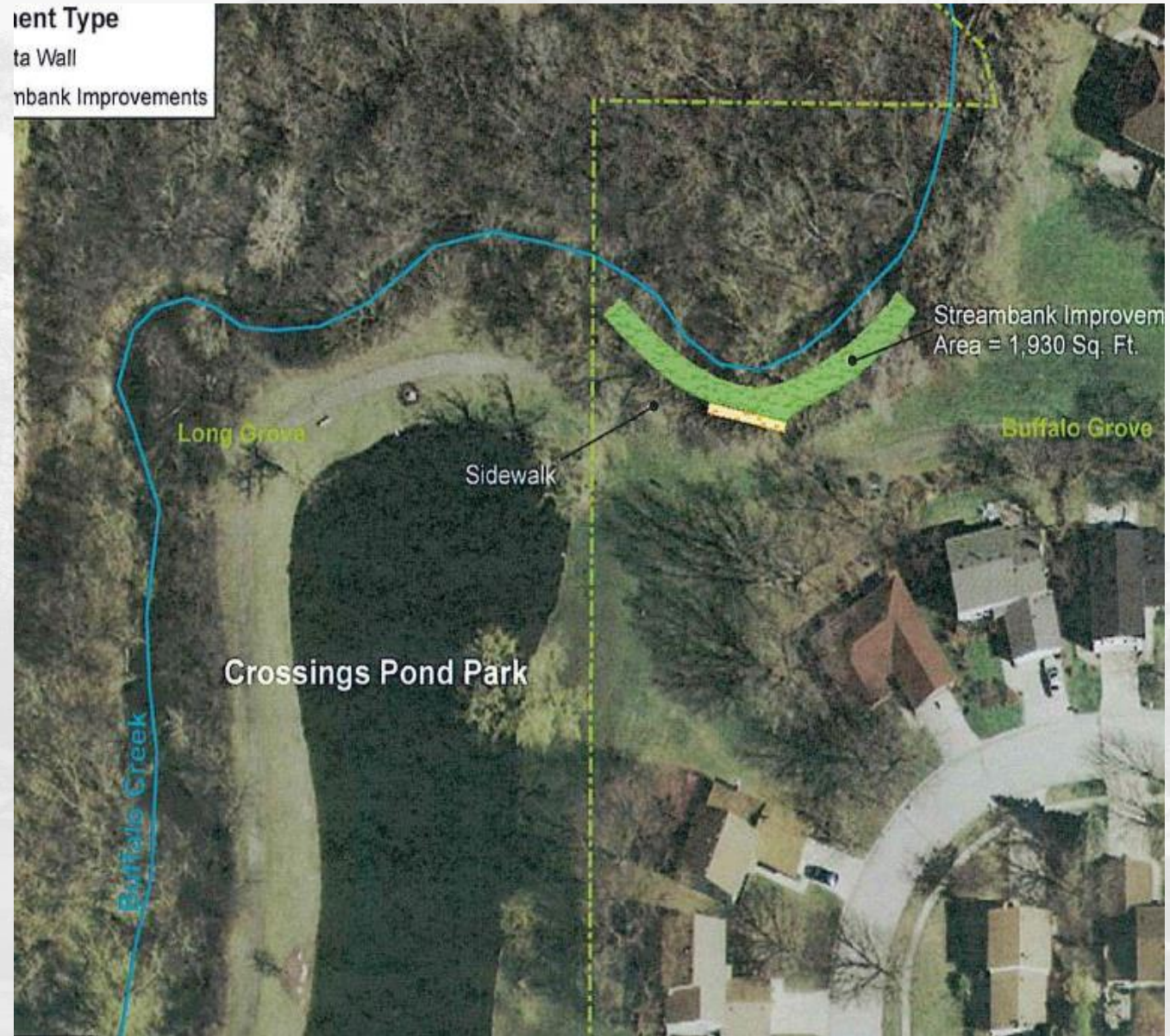
## Example: Crossings Park in Buffalo Grove (Buffalo Creek)

SMC completed prelim restoration design, funded by IEPA Grant

### Buffalo Grove Park District

- Received \$30k in SMC 2018 WMB funds for a \$75k total project
- (Repairs small section eroding under a walking path and jeopardizing the pond embankment)

SMC Capital Project  
Full Restoration = \$385k





# SMC Budget – Infrastructure Funding Sources

- SIRF (Stormwater Infrastructure Repair Fund)
- WMB (Watershed Management Board)
- CCIP (Lake County - Corporate Capital Improvement Program)
- Grants (USEPA/IEPA, FEMA/IEMA, IDNR, GLRI, NFWF, CDBG, Misc)
- Capital Bill (State/Federal)





QUESTIONS?

THANK YOU!