Metropolitan Water Reclamation District of Greater Chicago

WELCOME

TO THE FEBRUARY EDITION

OF THE 2020

M&R SEMINAR SERIES

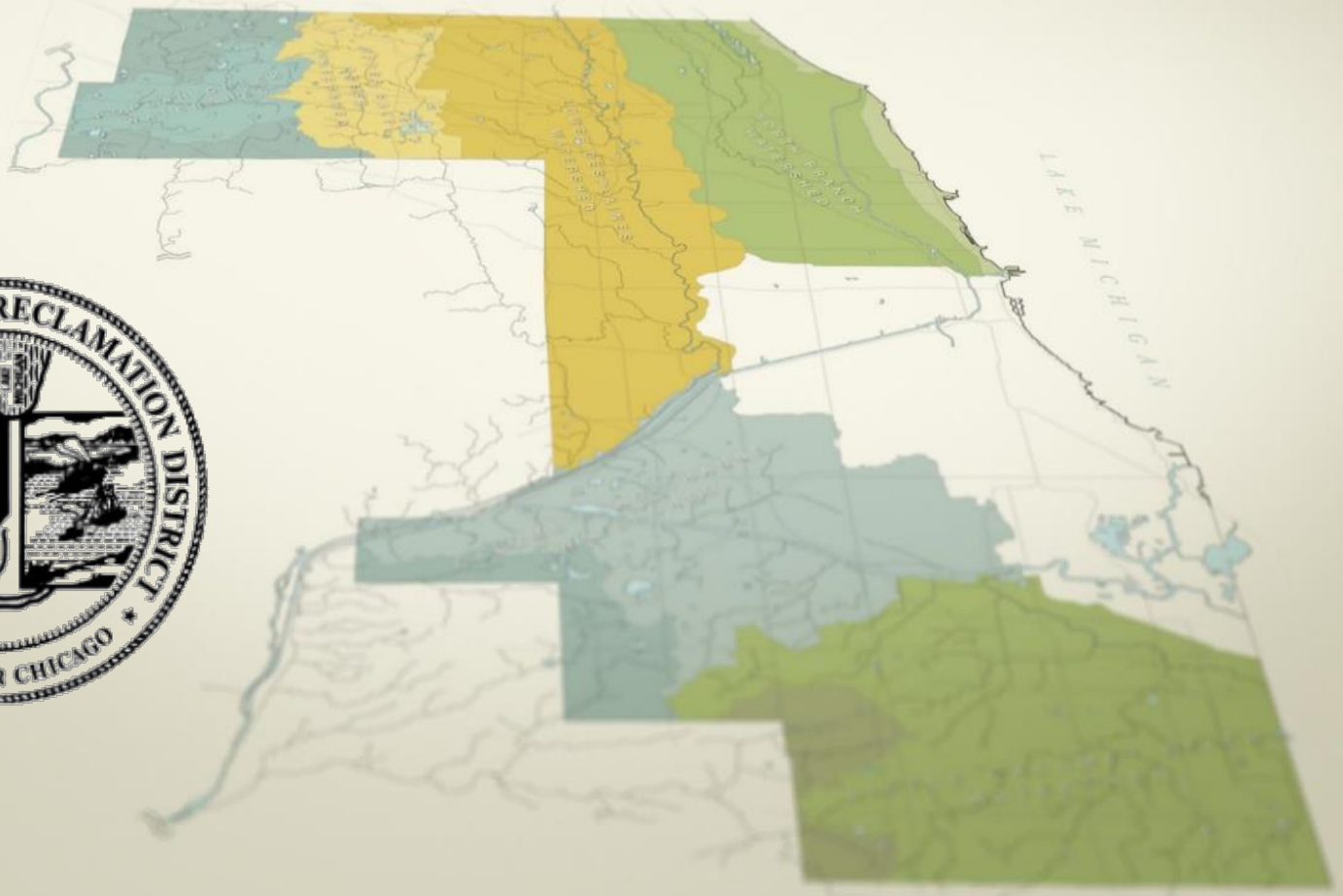
BEFORE WE BEGIN

- **SAFETY PRECAUTIONS**
  - **PLEASE FOLLOW EXIT SIGNS IN CASE OF EMERGENCY EVACUATION**
  - **AUTOMATED EXTERNAL DEFIBRILLATOR (AED) LOCATED OUTSIDE**
- **PLEASE SILENCE CELL PHONES AND/OR SMART DEVICES**
- **QUESTION AND ANSWER SESSION WILL FOLLOW PRESENTATION**
- **PLEASE FILL OUT EVALUATION FORM**
- **SEMINAR SLIDES WILL BE POSTED ON MWRD WEBSITE** (https://mwrd.org/seminars)
- **STREAM VIDEO WILL BE AVAILABLE ON MWRD WEBSITE** (https://mwrd.org/seminars)

Joseph R. Kratzer, P.E. , CFM

- Joe Kratzer has been with the Metropolitan Water Reclamation District of Greater Chicago for over 16 years and is the Managing Civil Engineer for its Stormwater Management Section.
- Joe has a Bachelor of Science in Civil Engineering from Purdue University in West Lafayette, Indiana. He is a Certified Floodplain Manager and a member of the Illinois Association of Floodplain and Stormwater Managers. Prior to joining the District in 2003, Joe worked as a consulting engineer for seven years.

Stormwater Management Program Update



MWRD M&R Seminar - February 21, 2020

Joe Kratzer, MWRD

Agenda

- Stormwater Management Timeline
- Stormwater Project Summary to Date
- Stormwater Projects
  - Regional DWP Projects (Phase I)
  - Local Partnership Projects (Phase II)
  - Flood-Prone Property Acquisitions
  - Green Infrastructure Projects
- Rainfall Trends and Local Impacts
- Stormwater Master Planning
- Green Neighbor Guide

Stormwater Management Timeline

Regional (Phase I) DWP Projects
Identified from the DWPs to address overbank flooding "riverine flooding"

Local (Phase II) Projects and Green Infrastructure Plan
Working with local communities and agencies to address local drainage problems.

Stormwater Master Planning
Investigate "urban flooding" issues and evaluate potential green and gray infrastructure solutions.

2004 2011 2012 2013 2014 2015 2016 2017 2018 2019

The authority for general supervision of stormwater management in Cook County was conveyed to the District by the Illinois State legislature.

Detail Watershed Plans (DWPs) completed for the 6 major watersheds of Cook County: Cal-Sag Channel, Little Calumet River, Lower Des Plaines, North Branch of the Chicago River, Poplar Creek, and Upper Salt Creek.

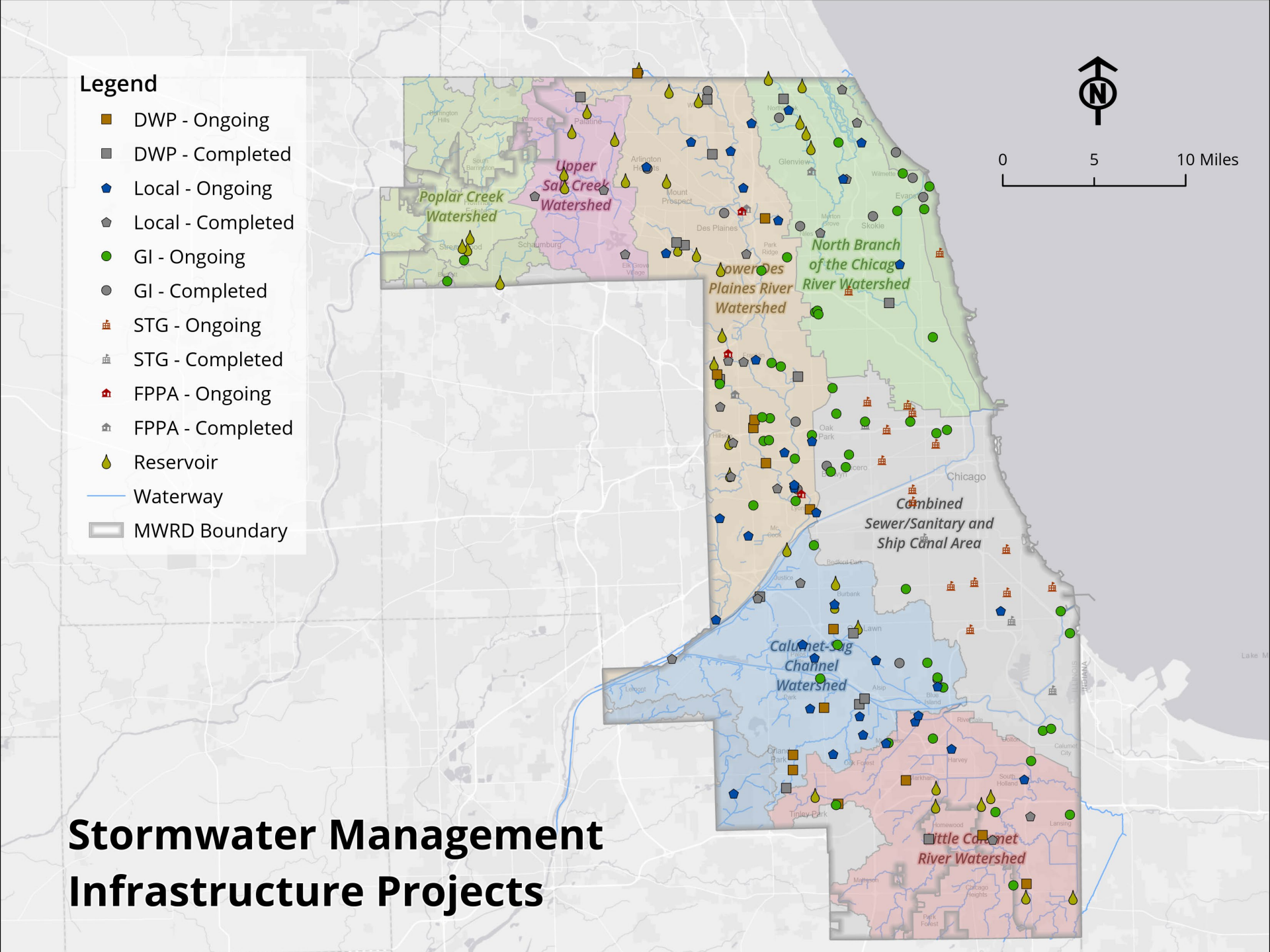
District's authority amended to allow for flood-prone property acquisition and to plan, implement, and finance local stormwater management projects.

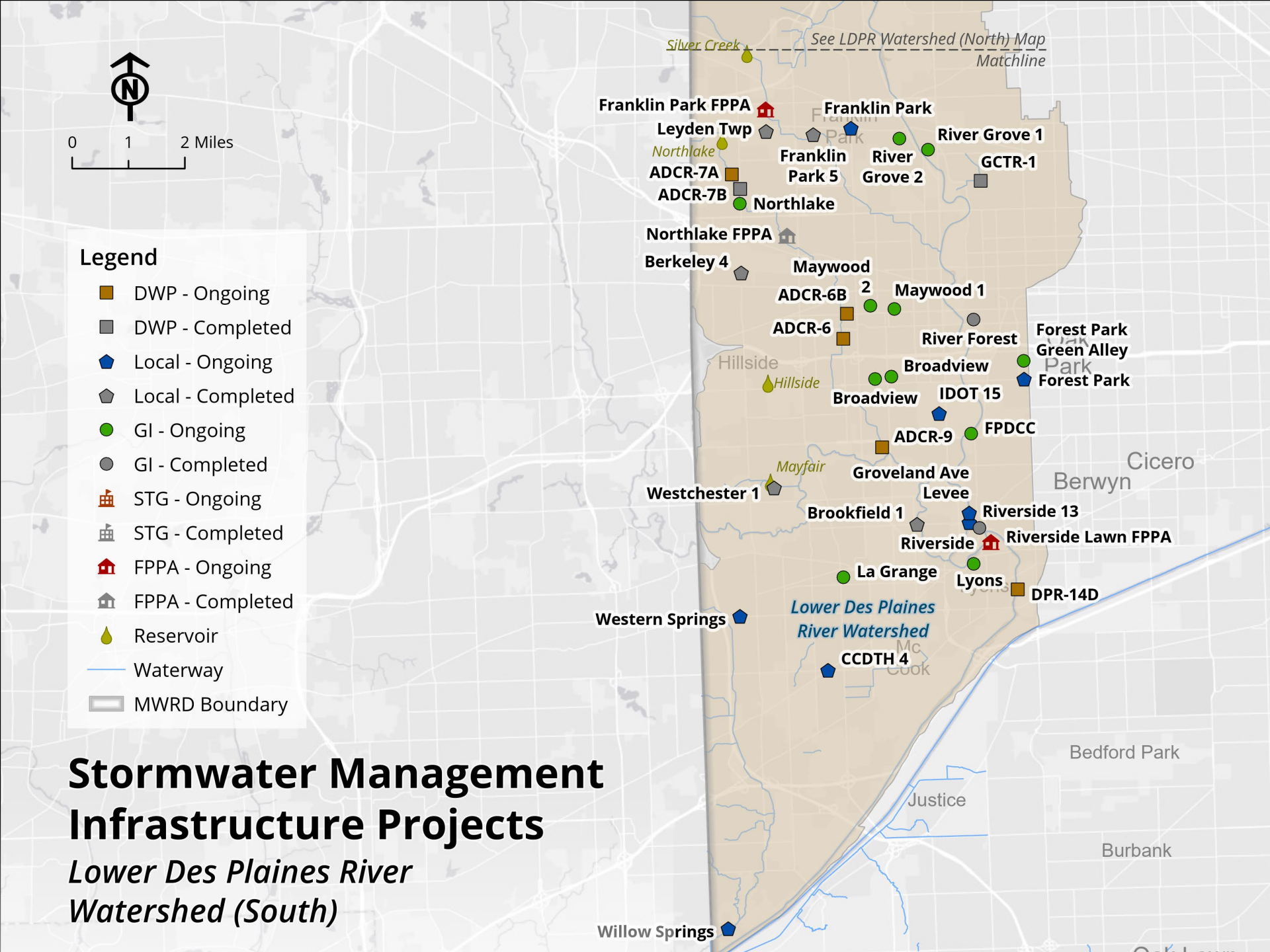
Initiated Five Master Plan Pilot Studies
Green Infrastructure Plan Adopted

Stormwater Program to Date

Program Component	Current Number of Projects	Structures Protected / Removed	Construction / Acquisition Cost ($Million)	MWRD Cost ($Million)
Regional Stormwater Projects (Phase I)	27	4,423	$369	$315
Local Stormwater Partnership Projects (Phase II)	52	>6,000	$186	$95
Green Infrastructure Projects	100*	>4,000	$100	$40
Flood Prone Property Acquisitions	6	154	$46	$27
Totals	**185**	**>14,000**	**$701**	**$477**

*-includes all 34 Space to Grow projects to be completed by 2022.


Legend
DWP - Ongoing
DWP - Completed
Local - Ongoing
Local - Completed
GI - Ongoing
GI - Completed
STG - Ongoing
STG - Completed
FPPA - Ongoing
FPPA - Completed
Reservoir
Waterway
MWRD Boundary
N
0
5
10 Miles
Poplar Creek Watershed
Upper Salt Creek Watershed
Lower Des Plaines River Watershed
North Branch of the Chicago River Watershed
Combined Sewer/Sanitary and Ship Canal Area
Calumet-Sag Channel Watershed
Little Calumet River Watershed
Chicago
Stormwater Management Infrastructure Projects



Stormwater Management Infrastructure Projects

Lower Des Plaines River Watershed (South)

13-199-3F, Flood Control Project on the Des Plaines River in Lyons Phase I Flood Control Project

- **Project #: 13-199-3F**
- **Location: Forest View, Illinois**
- **Project Description:**
  - **Flood Control Improvements to Lyons Levee along Des Plaines River between Joliet Road and south of 47th Street**
- **Estimated Construction Cost: $3,300,000**
- **Project Status:**
  - **Construction Contract has been awarded by the Army Corps of Engineers, with MWRD as the local sponsor.**
  - **Contract work is in progress**
  - **Right-of-way Acquisitions from BNSF and CN railroads, and ComEd in Progress**

18-IGA-23, Reuters Subdivision Improvements- Phase IB
Phase II Flood Control Project

- **Location: Franklin Park, Illinois**
- **Project Description:**
  - **This project upsizes existing storm sewers, constructs new sewers and other infrastructure improvements in the Reuter's subdivision in order to protect an estimated 67 structures from a 100-year design storm.**
- **Estimated Construction Cost: $3,242,000**

14-108-5F, Streambank Stabilization Projects for Addison Creek Phase I Flood Control Project

- **Location: Northlake and North Riverside, Illinois**
- **Project Description:**
  - **1,950 linear feet of streambank stabilization adjacent to Fullerton Avenue in Northlake**
  - **410 linear feet of streambank stabilization adjacent to 19th Avenue in North Riverside**
  - **Project will address critical erosion threatening buildings, roads, and utilities**
- **Estimated Construction Cost: $1,546,000.00**

11-186-3F, Addison Creek Reservoir

- **Project Description:**
  - **600 ac-ft reservoir with diversion structure, spillway, pump station, outfall structure, and channel improvements**
  - **The reservoir and channel improvements will provide benefits to approximately 2200 structures**
- **Estimated Construction Cost: $63.28**

Addison Creek Reservoir Construction

Metropolitan Water Reclamation District of Greater Chicago

mwrd.org

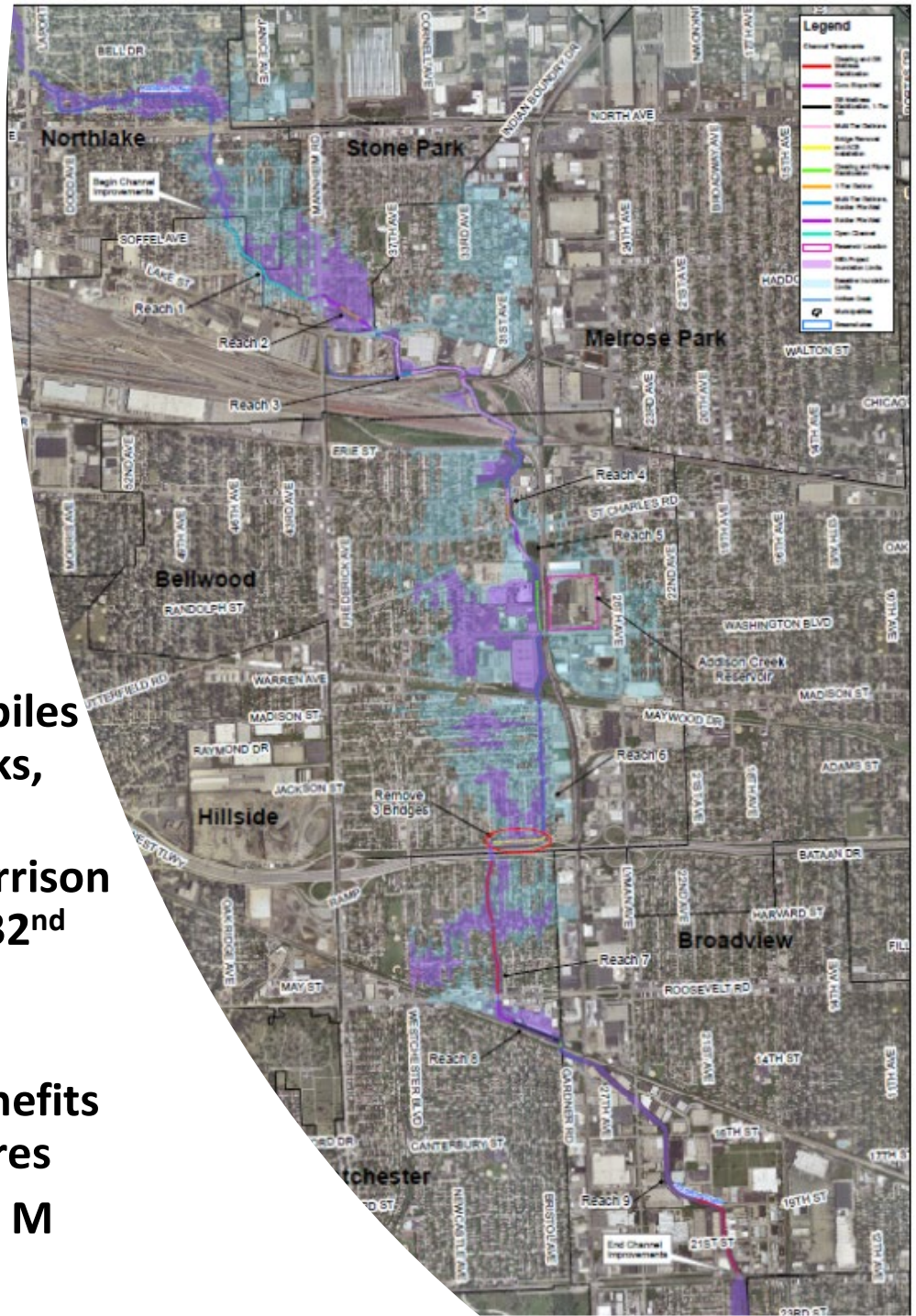
Starting: Spring 2019

Estimated completion: Spring 2022

Contractor: IHC Construction Companies, LLC

11-186-3F, Addison Creek Channel Improvements

- **Project #: 11-187-3F**
- **Project Description:**
  - **Channel improvements from Northlake to Broadview that include open channel, solider piles wall, articulated concrete blocks, gabions, and channel clearing**
  - **Removal of 3 bridges along Harrison St. at 30th Ave., 31st Ave., and 32nd Ave.**
  - **The reservoir and channel improvements will provide benefits to approximately 2200 structures**
- **Estimated Construction Cost: $43.4 M**



16-IGA-03, Riverside - Railroad Watershed Outlet

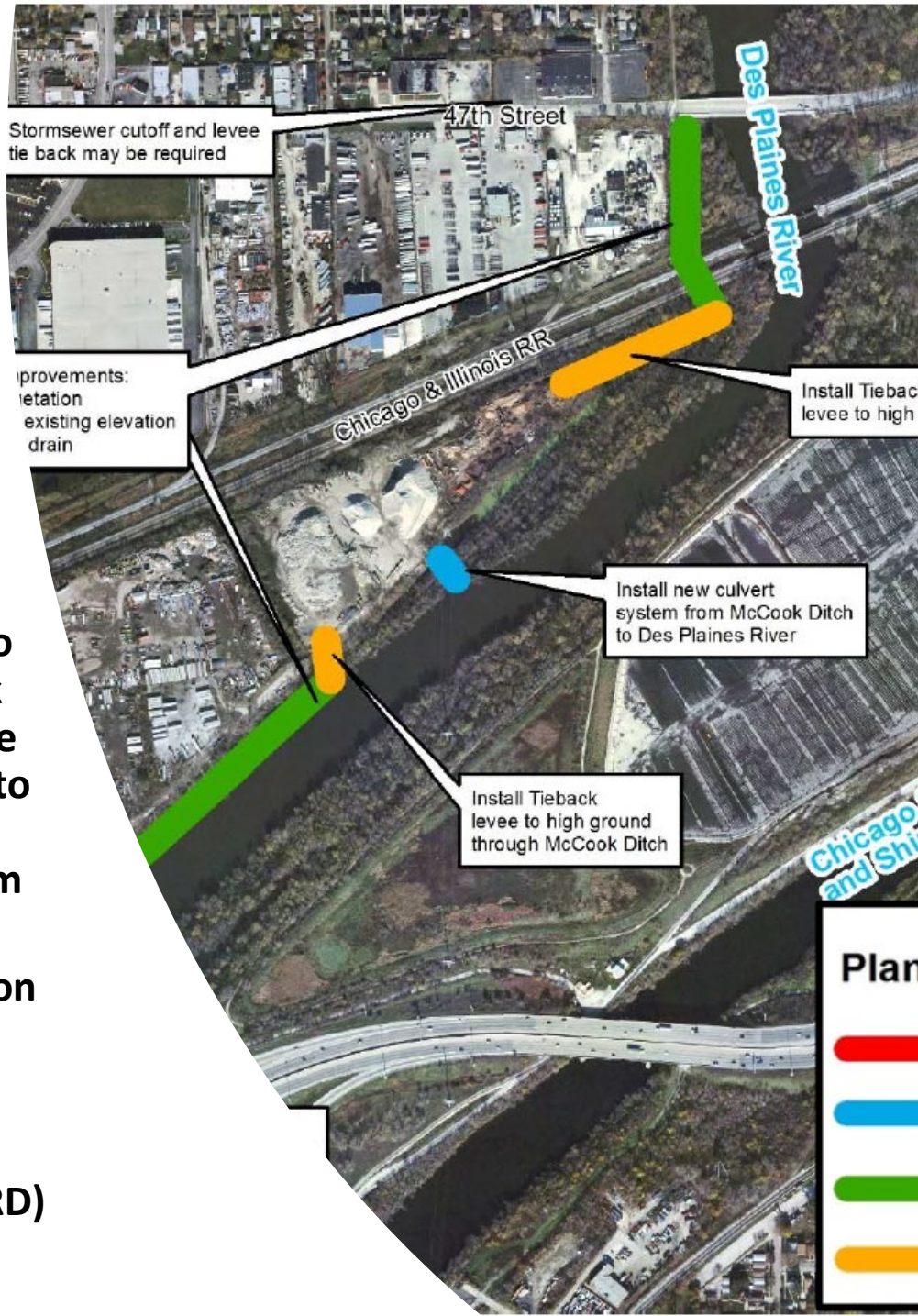
- **Location: Riverside, Illinois**
- **Project Description:**
  - **Construction of a new storm sewer outlet in Railroad Watershed Area.**
- **Project Status:**
  - **IGA Executed between MWRD and the Village of Riverside.**
  - **Contract awarded, substantial completion expected Spring 2020**

14-111-5F, Flood Control Project on 1st Avenue

- **Location: Maywood, Illinois**
- **Project Description:**
  - **Replace the existing storm sewer with two new parallel trunk sewers and a new outlet to the Des Plaines River**
  - **Bioswales will be constructed on Forest Preserve**
- **Estimated Construction Cost: $5.2M**
- **Cost share with IDOT**

McCook Levee Section 205 Small Flood Risk Management Project

- **Location: McCook, Illinois**
- **Project Description:**
  - **Army Corps of Engineers plans to modify segments of the McCook Levee, elevate portions that have failed and provide a new outlet to the Des Plaines River in order to protect local area structures from flood risk.**
  - **The MWRD is the local sponsor on this project and provide project funding and in-kind services.**
- **Estimated Construction Cost: $6.13M**
- **65% Federal, 35% Non-Federal (MWRD)**



16-IGA-06, Riverside Lawn Flood Prone Property Acquisitions

- **Location: Riverside Lawn, Illinois**
- **Project Description:**
  - **In collaboration with the Cook County Land Bank Authority purchase flood-prone properties in the unincorporated area of Cook County know as Riverside Lawn**
- **Estimated Acquisition Cost: $12,000,000**
- **MWRD - $8,000,000**
- **CDBG-DR - $4,000,000**
- **Project Status:**
  - **Acquisitions complete**
  - **21 of the 39 homes acquired**

16-IGA-13, Franklin Park Flood Prone Property Acquisitions

- **Location: Franklin Park, Illinois**
- **Project Description:**
  - **In collaboration with the Cook County Land Bank Authority (CCLBA) purchase 32 flood-prone properties along Silver Creek**
- **Estimated Acquisition Cost: $6,400,000**
  - **MWRD - $4,681,280**
  - **CDBG-DR - $1,718,720**
- **Project Status:**
  - **IGA has been executed, appraisals are currently being performed**

19-IGA-08, Village of La Grange Parking Lot improvement Project

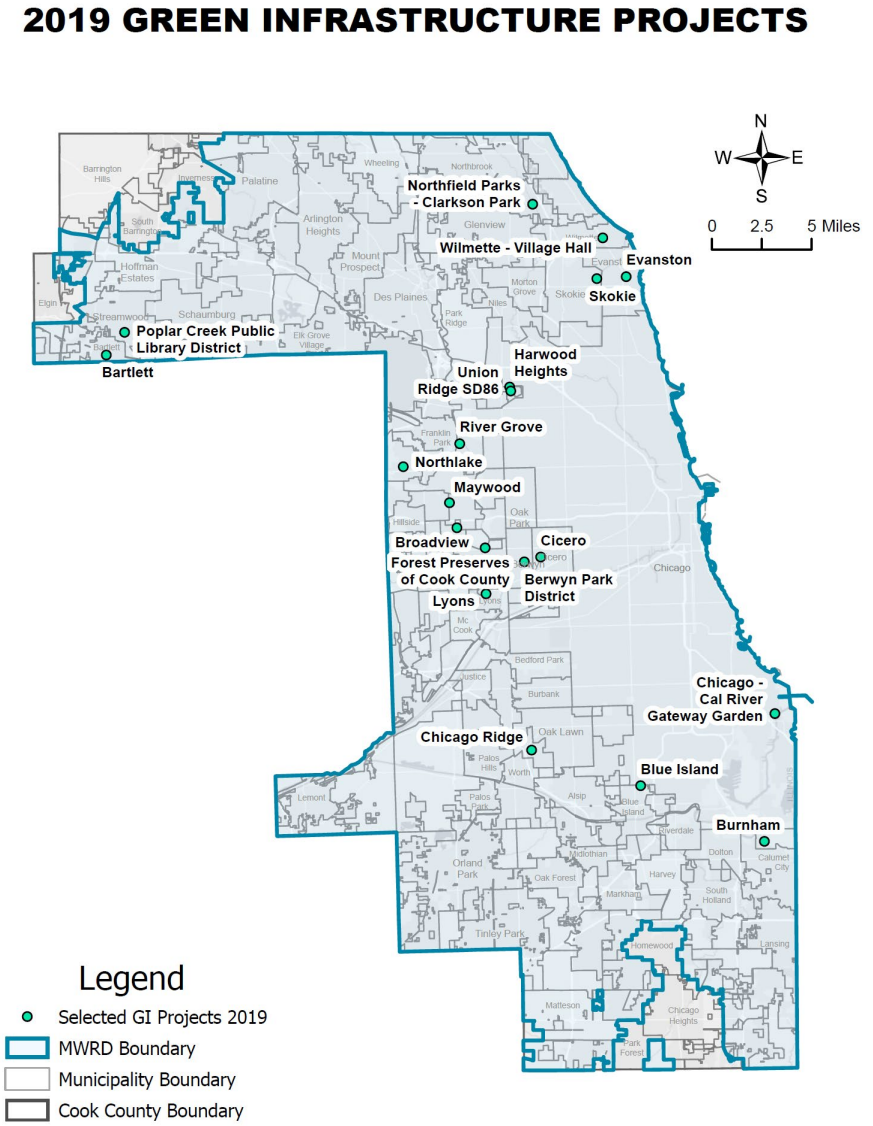
- **Location: LaGrange, Illinois**
- **Project Description:**
  - **Reconstruction of two public parking lots located with permeable pavers.**
- **Construction Cost: $596,700**
- **($298,350 MWRD contribution)**

20-IGA-13
Village of Maywood Green Alleys Program

- **Location: Maywood, Illinois**
- **Project Description:**
  - **Construction of green alleys at four locations located in the Village of Maywood.**
- **Construction Cost: $1,130,940**
  - **($541,000 MWRD contribution)**
- **Project Status:**
  - **Construction is anticipated to start in 2020.**

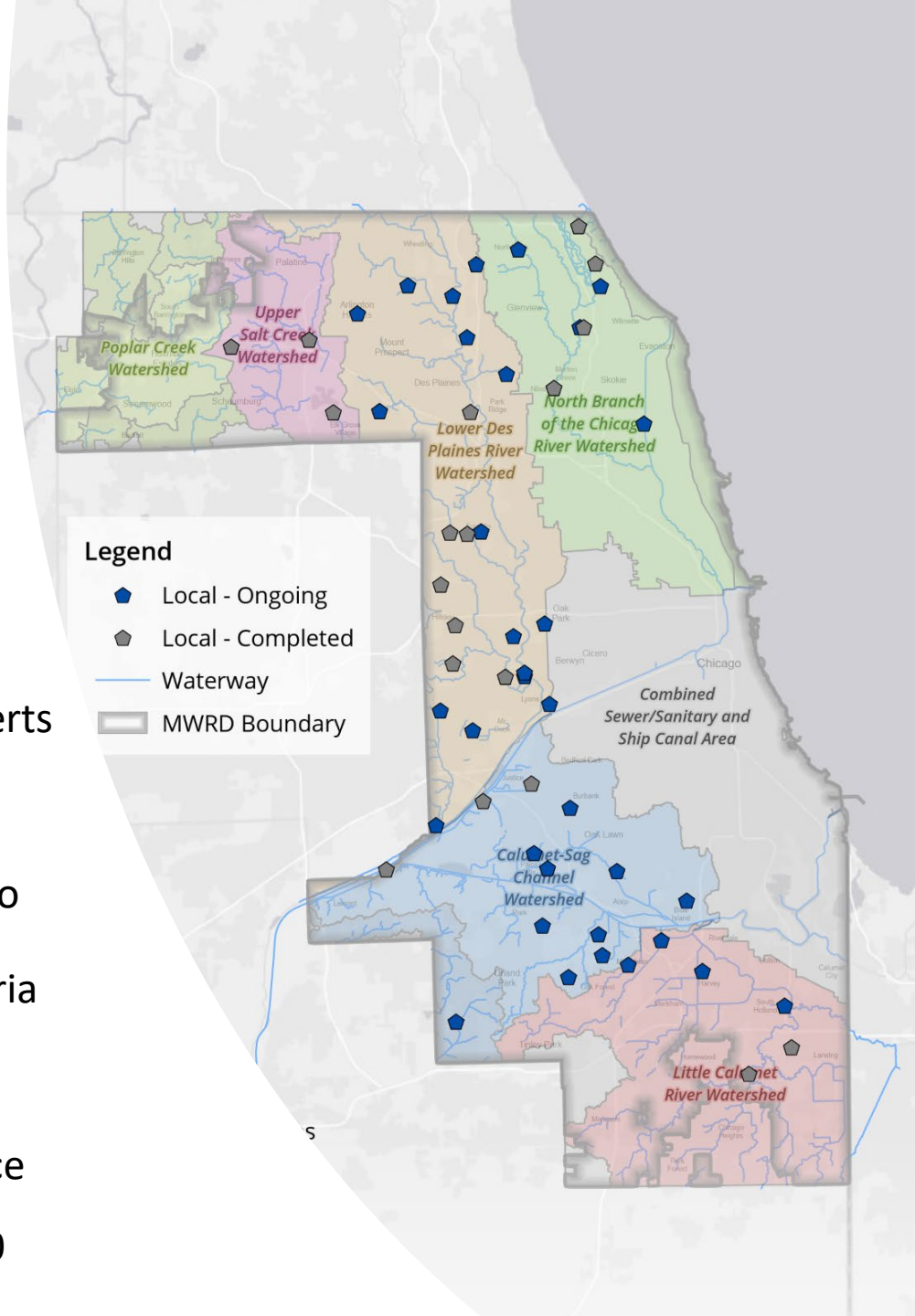
2019 Green Infrastructure Projects

- **2019 Call for Green Infrastructure Projects**
- 20 Green Infrastructure Projects were selected. Most projects will be started in 2020.
- $9.7M estimated total Construction Costs
- 1,205 Structures Benefitted
- 1.4M gal Design Retention Capacity estimated
- Future call for GI projects in Summer 2020.



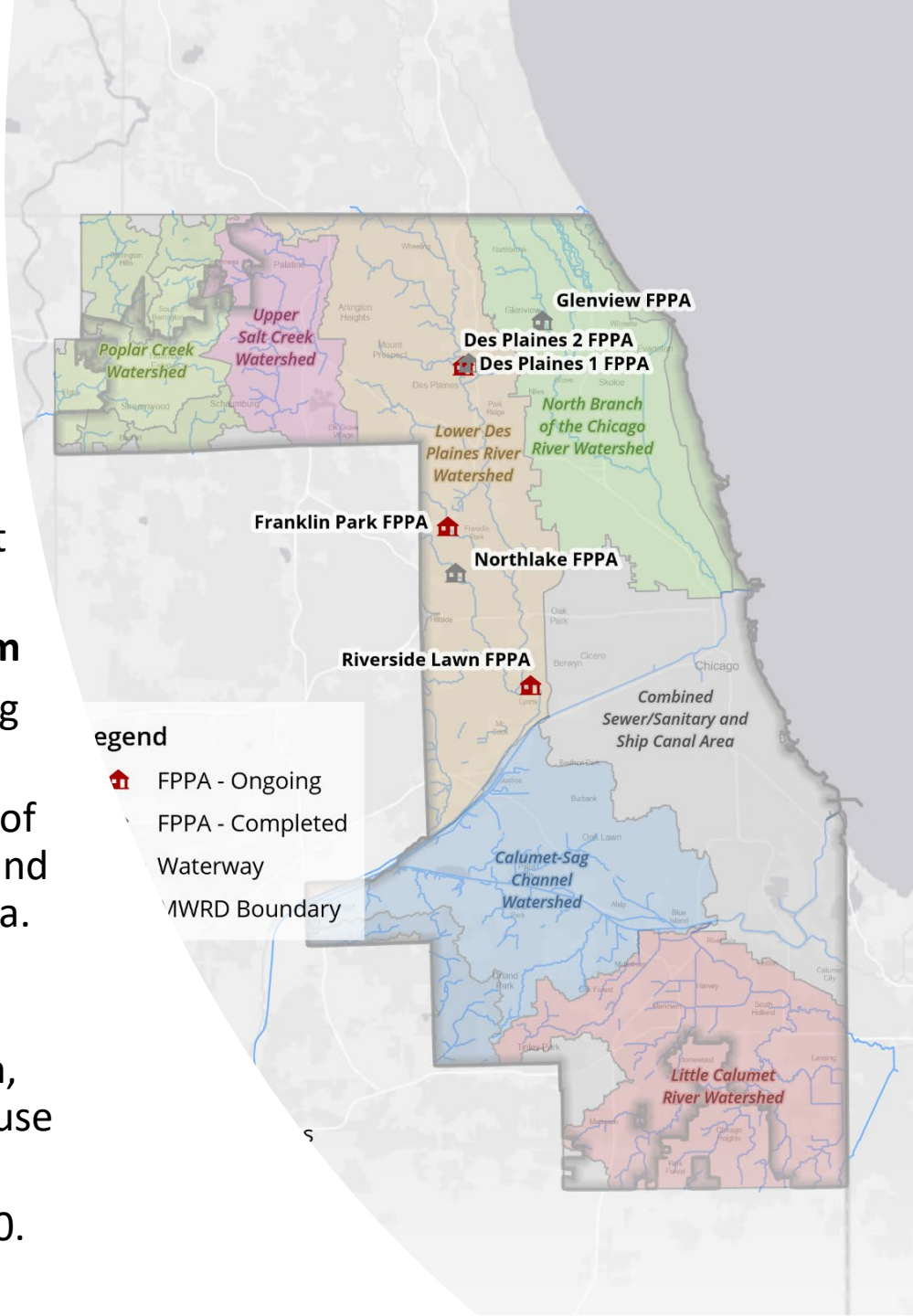
Local Stormwater Partnership Opportunities

- Partnership opportunity with MWRD to address flooding
- Example Local Stormwater Projects:
  - Localized storage
  - Upsizing critical storm sewers/culverts
  - Pump stations
  - Establishing drainage ways
- Projects are prioritized on their ability to reduce flooding and the number of structures benefited among other criteria
- Selected partners execute an IGA
  - Local partners are responsible for long term operation & maintenance
- Recent call closed on February 14, 2020



Flood-Prone Property Acquisition Program

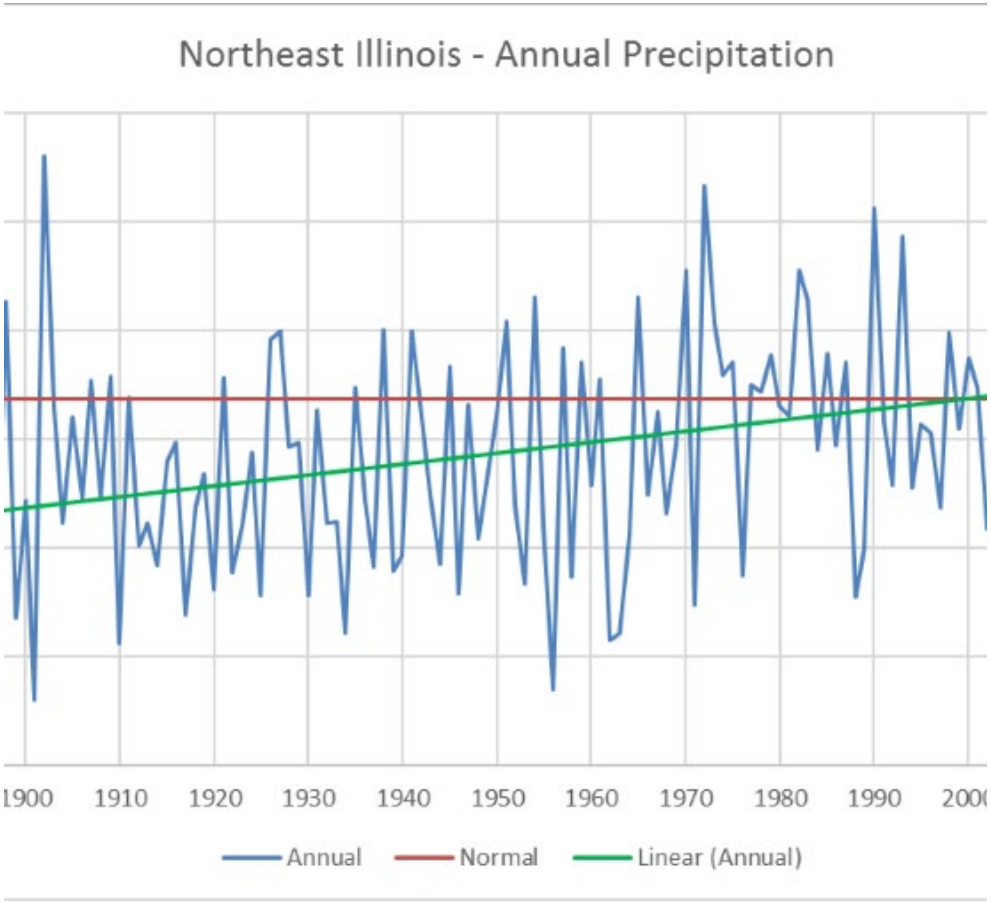
- **Local Sponsor Assistance Program**
  - Facilitate FEMA's program and assist local sponsor communities.
- **Local Government Application Program**
  - Assist local governments in acquiring properties in flood-prone areas.
- Projects are prioritized on the number of structures in the floodway/floodplain and benefit cost ratio amongst other criteria.
- Selected partners execute an IGA
  - Partner agency responsible for appraisals, acquisitions, demolition, and ensure perpetual open-space use and maintenance.
- Recent call closed on February 14, 2020.



Rainfall Trends and Local Impacts

National and Local Rainfall Trends

- U.S. annual precipitation increased 4% from 1901-2015
- Illinois experienced a 11% rise over this same period
- According to NOAA 2019 was the second wettest year on record.
- Only in 1973 did the U.S. receive more precipitation over the course of a year.



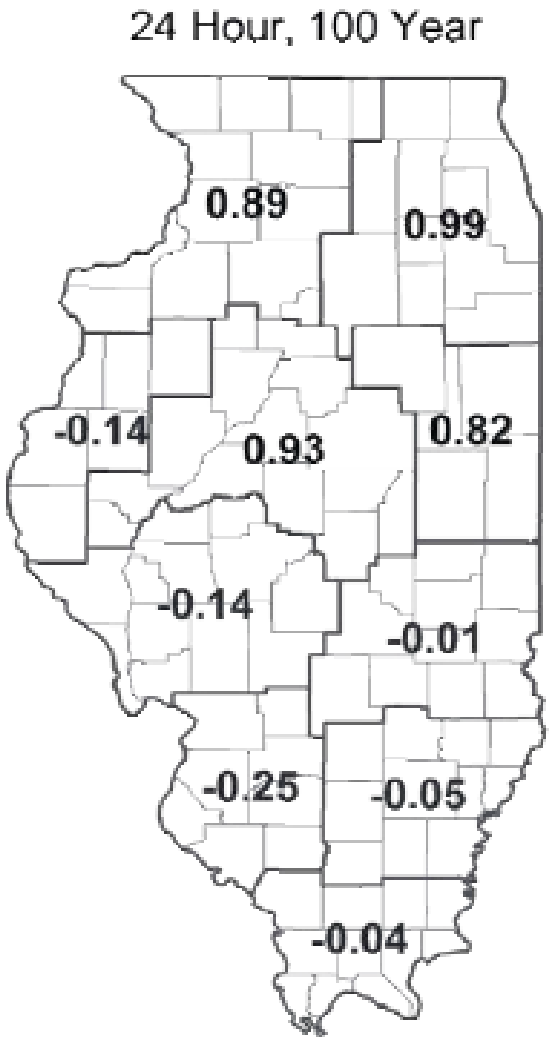
Rainfall Trends and Local Impacts

Evolving Stormwater Design Standards:

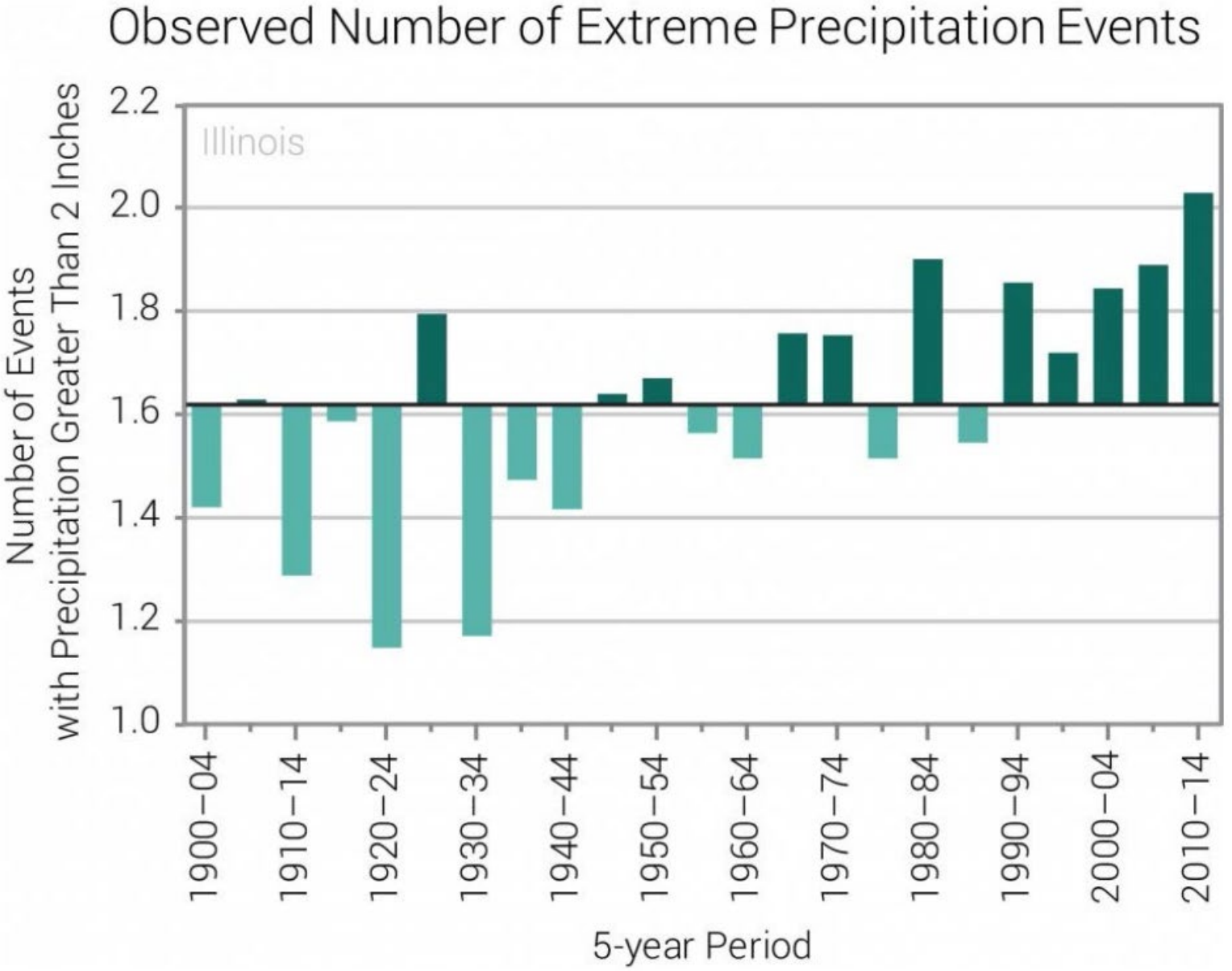
- Published in 1989, Bulletin 70 was based on Illinois rainstorm data from 1901 to 1983.
- Researchers at the Illinois State Water Survey (ISWS) have recently applied newer data to update Bulletin 70.
- Difference in inches between **Bulletin 75** and Bulletin 70 for a **24-hour, 100 Year event**

= 0.99” in Northeast IL

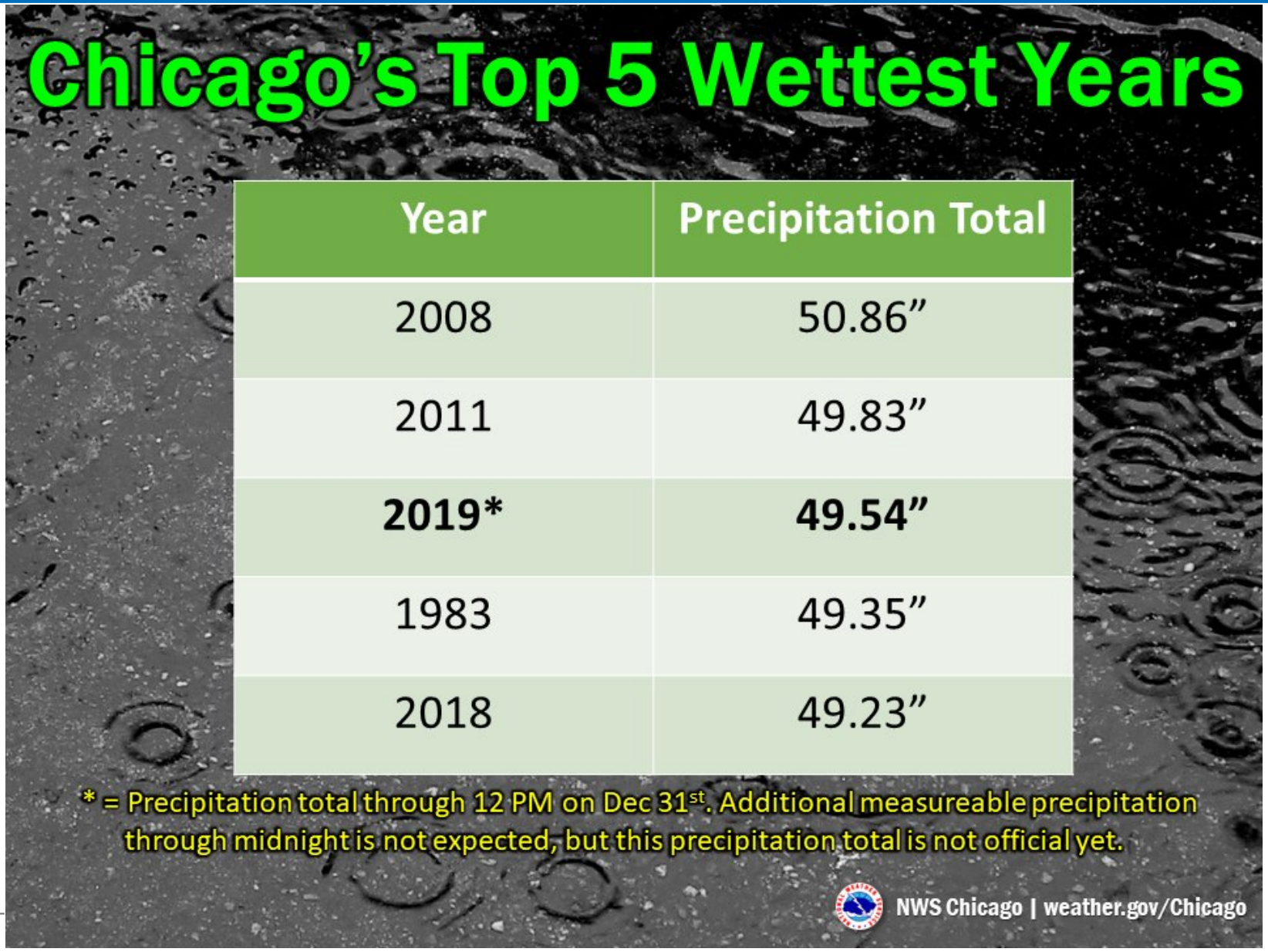
- Results indicate that the number of storms in Illinois producing over 2 inches of rain has nearly doubled over the past century.



Rainfall Trends and Local Impacts



Rainfall Trends and Local Impacts



Stormwater Masterplan Initiative

Program Background

- 2017 - completed five pilot studies to identify the types of solutions needed to protect communities from flooding up to a 100-year storm event.
- Based on lessons learned from previous pilot studies, the Stormwater Master Planning program will continue to evaluate stormwater management needs throughout the county and assist priority flood-prone areas with developing master plans.

Stormwater Masterplan Initiative

Program Goals

- Empower municipalities to reduce the risk of urban flooding for Cook County homes, businesses and critical facilities.
- Establish a methodology for municipalities to prioritize stormwater management investments.
- Facilitate partnerships among agencies and local communities to plan and implement priority stormwater management projects.

Stormwater Masterplan Initiative

Program Progress

- 2018 - retained program managers to review priority areas for future master plans, and develop approach
- 2019 - RFP issued for 6 new stormwater master plans
  - 3 in Combined Sewer Area
  - 3 in Separate Sewer Area
- 2020 - Commence 6 new stormwater master plans
- 2020 and beyond – continue to evaluate stormwater management needs throughout the county and assist priority areas with developing master plans, based on flood risk and areas in need of planning assistance.

New GI Initiative – Green Guides

Green Guides targeting multiple audiences:

- Green Neighbor Guide
  - Step-by-step instructions on how to manage stormwater on residential properties
  - Covers rain barrels, rain gardens, permeable pavement, and dry wells
  - **Available for download at:** https://mwrd.org/sites/default/files/documents/Green_Guide_191220.pdf
- Guide for Professionals
  - Enhanced green infrastructure details for developers
  - Suite of GI/BMP details for use by municipal engineers
  - Under development

Questions?

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