
Metropolitan Water Reclamation District of Greater Chicago

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Partnering for Resilient Communities



Village of Dolton
Community Presentation
June 3, 2022



Meeting Outline

1. Introductions
2. MWRD Roles and Responsibilities
3. Stormwater Management Program and Timeline
4. Riverine vs. Urban Flooding
5. Individual Study Profiles (ISP)
6. South Suburbs Stormwater Master Plan (SMP) Project
 - ☐ Existing Conditions Assessment and Priority Area Identification
 - ☐ Alternative Analysis
 - ☐ Conclusions and Recommendations
7. Open Discussion and Questions

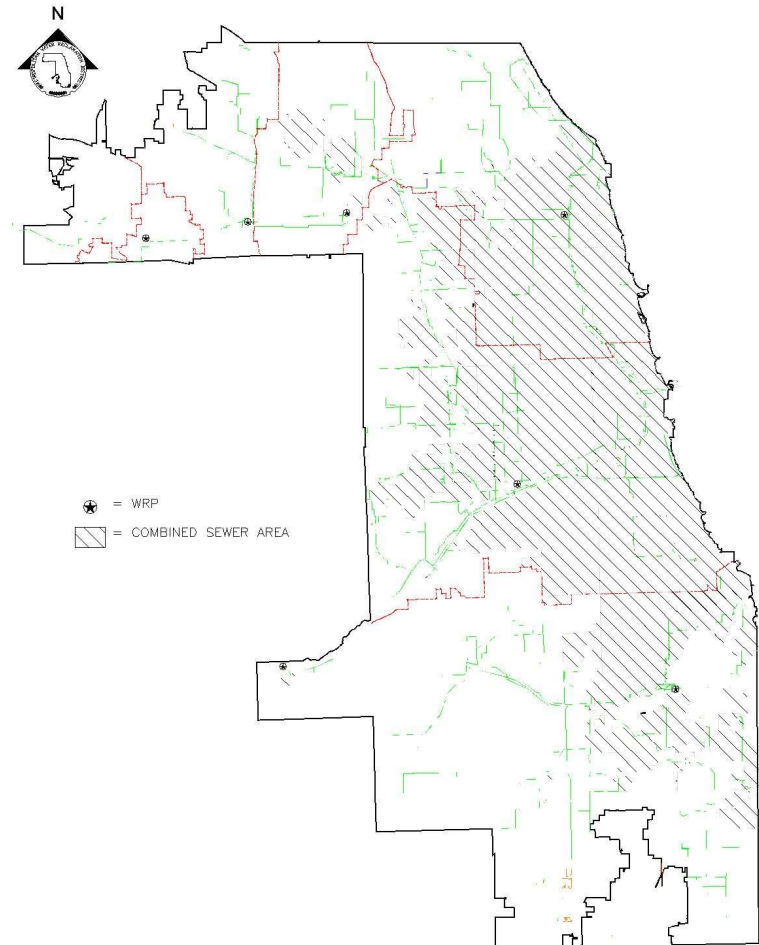
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MWRD Roles and Responsibilities

- MWRD was founded in 1889 to protect the Drinking water supply
- MWRD Boundary (883.6 square miles)
 - Combined area (375 square miles)
- 560 miles of intercepting sewer pipelines
- Tunnel and Reservoir Plan (TARP) System
 - 109 Miles of Tunnels
- 168 independently owned and operated local sewer systems
- 7 Water Reclamation Plants
- Stormwater Management Responsibilities for Cook County



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Stormwater Management Program

Phase I Projects

Identified from the DWPs to address overbank flooding “riverine flooding”

Phase II Projects

Working with local communities and agencies to address local drainage problems.

Stormwater Masterplans (SMP)

Investigate “urban flooding” issues and evaluate potential green and gray infrastructure solutions. Began with five “pilot” studies.

2004

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

2011

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.

2012

2013

2014

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

2015

2016

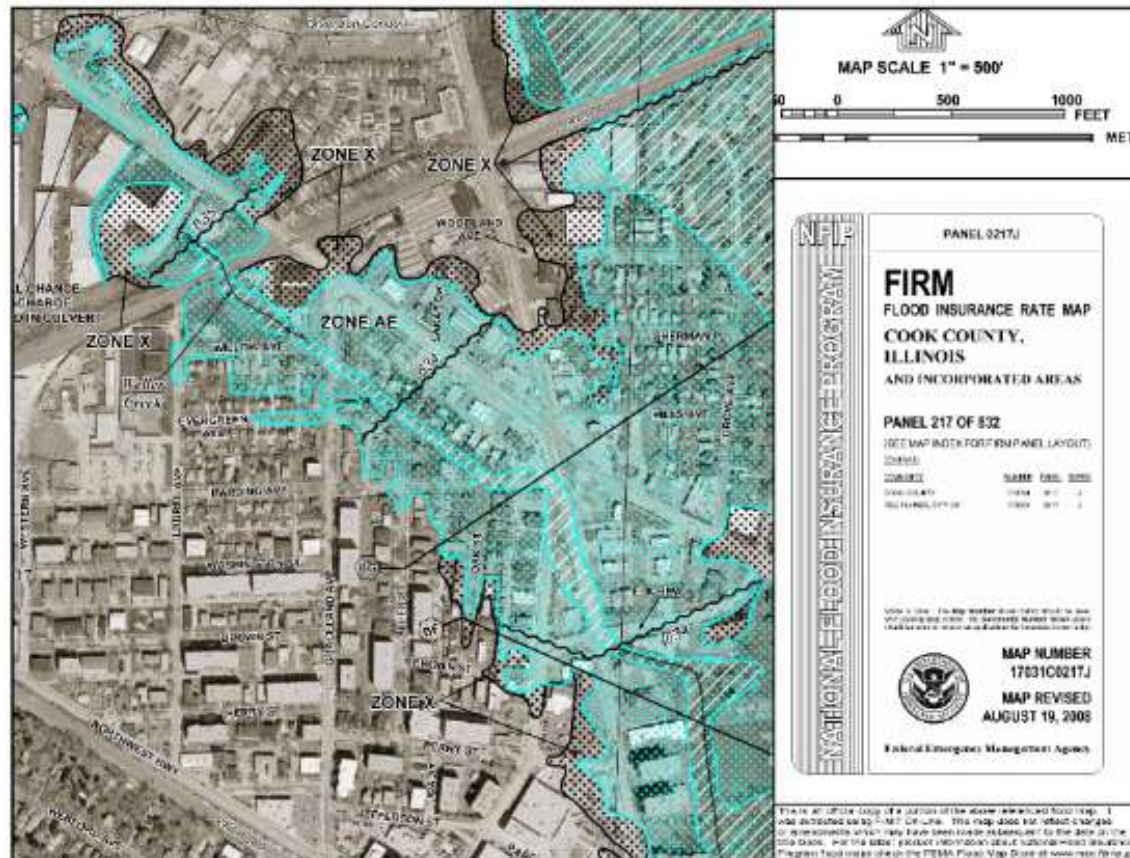
2017

2018



Riverine vs. Urban Flooding

“Riverine flooding” occurs when excess run-off causes a natural drainage-way (river, creek, etc.) to exceed its capacity. These areas are identified as flood hazards by FEMA.



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Riverine vs. Urban Flooding



“Urban Flooding” is the inundation of property in a built environment caused by rainfall overwhelming the capacity of local drainage systems.

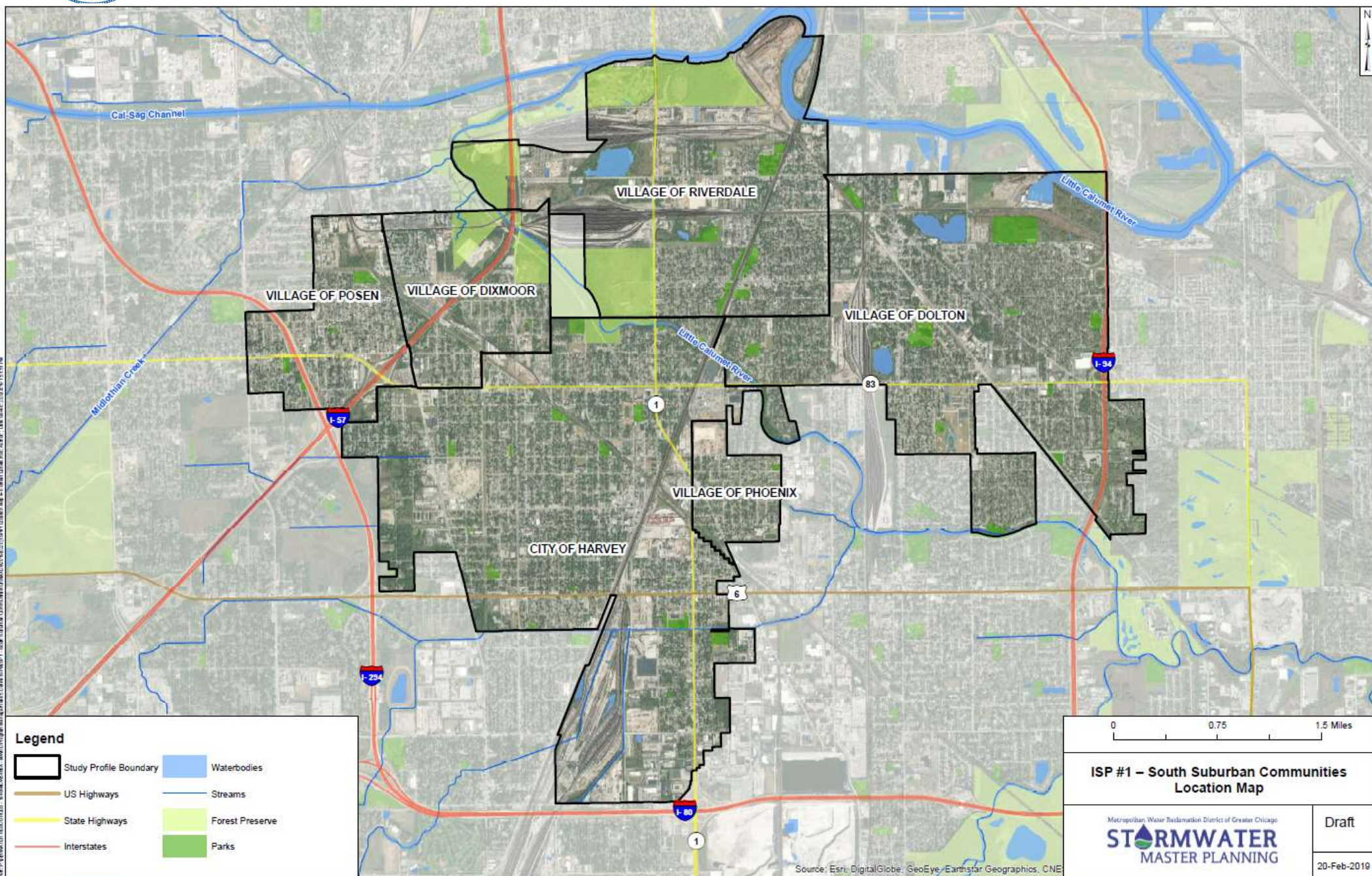
Examples: basement backups, street ponding

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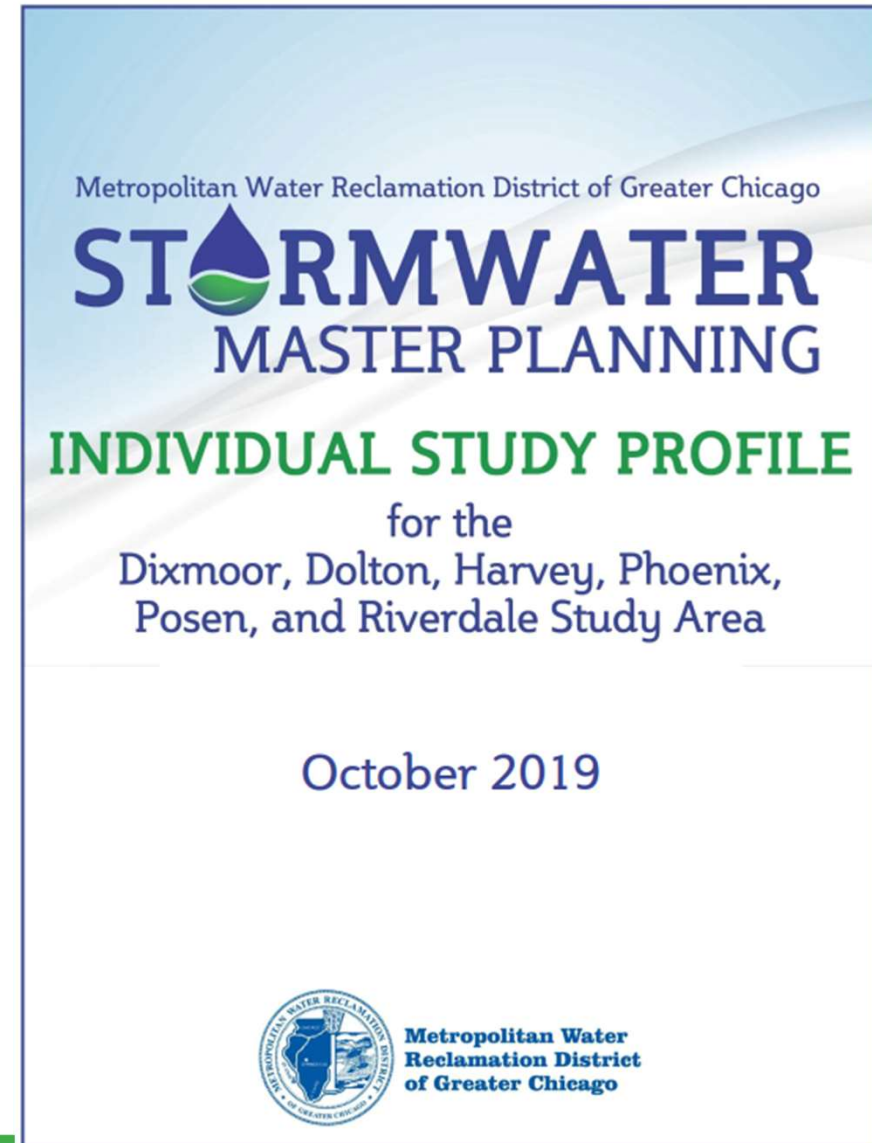
South Suburbs Study Area





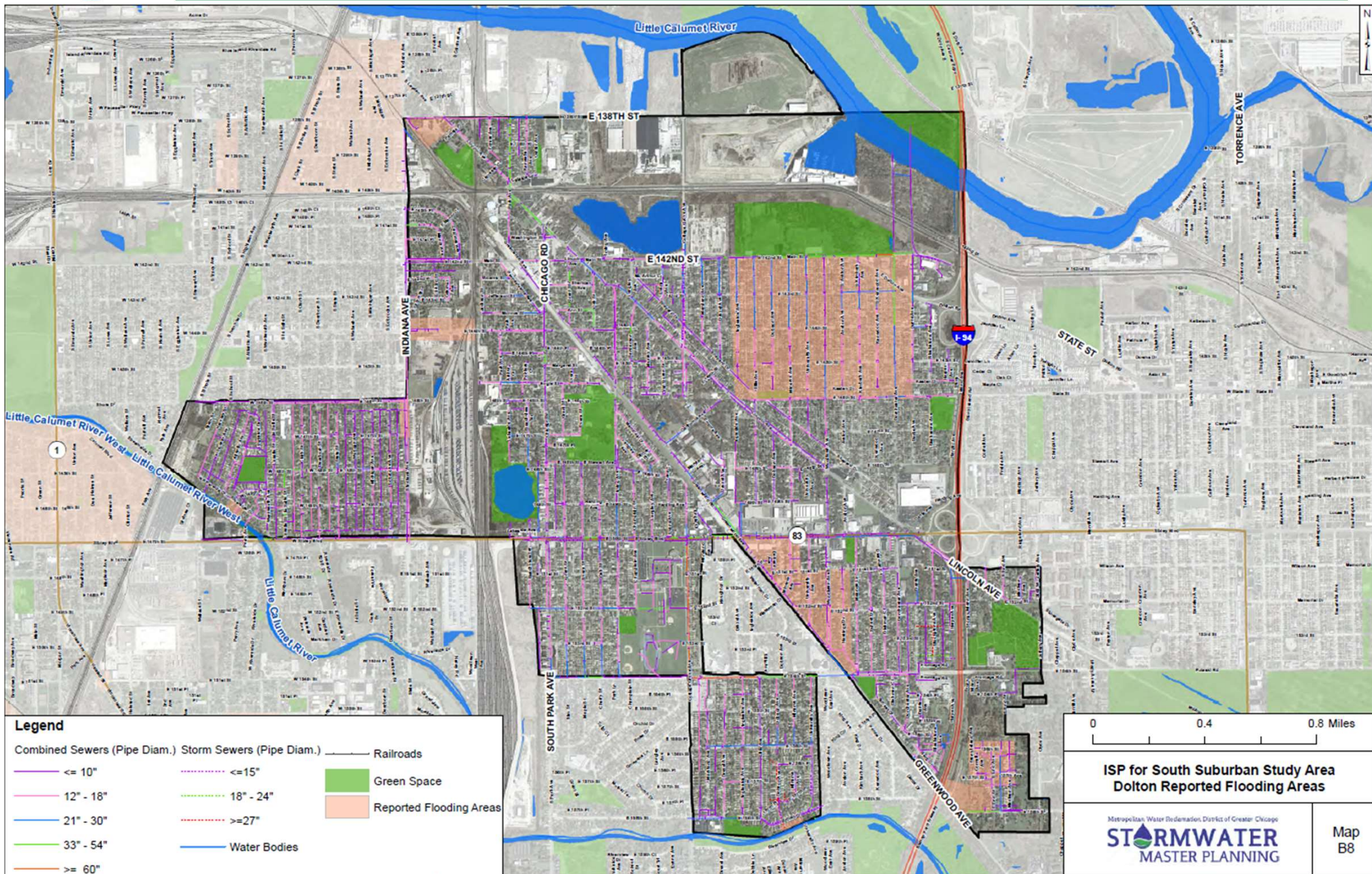
Individual Study Profile (ISP) Summary

- Baseline document for Stormwater Master Plan (SMP)
- Compiled existing information and input from communities
 - Area characteristics
 - Sewer atlases
 - Land use
 - Observed flooding
- High-level evaluation of flooding locations and causes
- South Suburbs communities served by combined sewer systems
- Preliminarily identified 10 flood reduction priority areas across the 6 study area communities



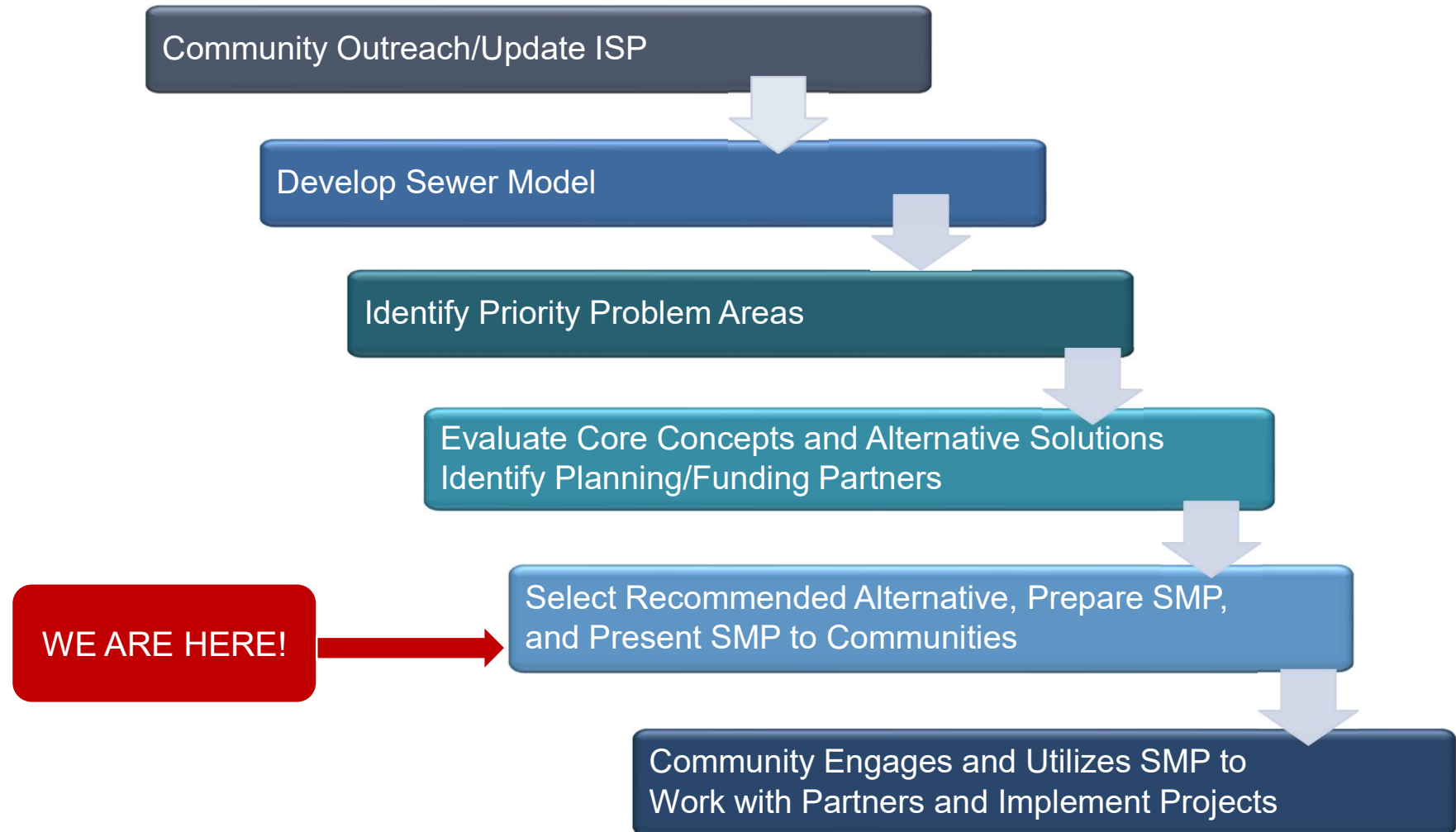


ISP Identified Flooding Areas





SMP Project Approach



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Community Outreach Meetings

- Held virtually in February 2021
- Provided Stormwater Master Planning update
- Reviewed and revised flooding problem areas identified in ISP
- Prioritized flooding problem areas
- Identified potential partners
- Discussed strategies for wider community input

Draft Meeting Notes



Date: February 12, 2021
To: All Attendees
Copy: File
From: Paul Shadrake
Attendees: Elizabeth Scott, Village Administrator (Village of Dolton)
Matt Stacey, Superintendent of Public Works (Village of Dolton)
Rebecca Cook, Center for Neighborhood Technology (CNT)
Haley Lewis (Northwestern University)
Leslie Phemister, South Suburban Mayors and Managers Association (SSMMA)
Jonathan Dykstra (Robinson Engineering)
Fred Wu (MWRD)
Patrick Jensen (MWRD)
Brad Jelonek (MWRD)
Kevin Fitzpatrick (MWRD)
Paul Shadrake (Donohue)
Michelle Madrid (Donohue)
Eric Cockerill (Donohue)

Re: MWRD South Suburbs SMP
Village of Dolton Community Input Virtual Meeting February 11, 2021

The purpose of these Notes is to document a Virtual Meeting that occurred by Zoom Conferencing on **February 11, 2021 at 1:00 pm**. The meeting generally followed the agenda and presentation previously distributed to attendees (attached). These notes summarize information clarifications, additional information provided, decisions, and action items resulting from the discussions.

Please contact Paul Shadrake (pshadrake@donohue-associates.com or 312.363.963) with any comments or questions concerning these Notes.

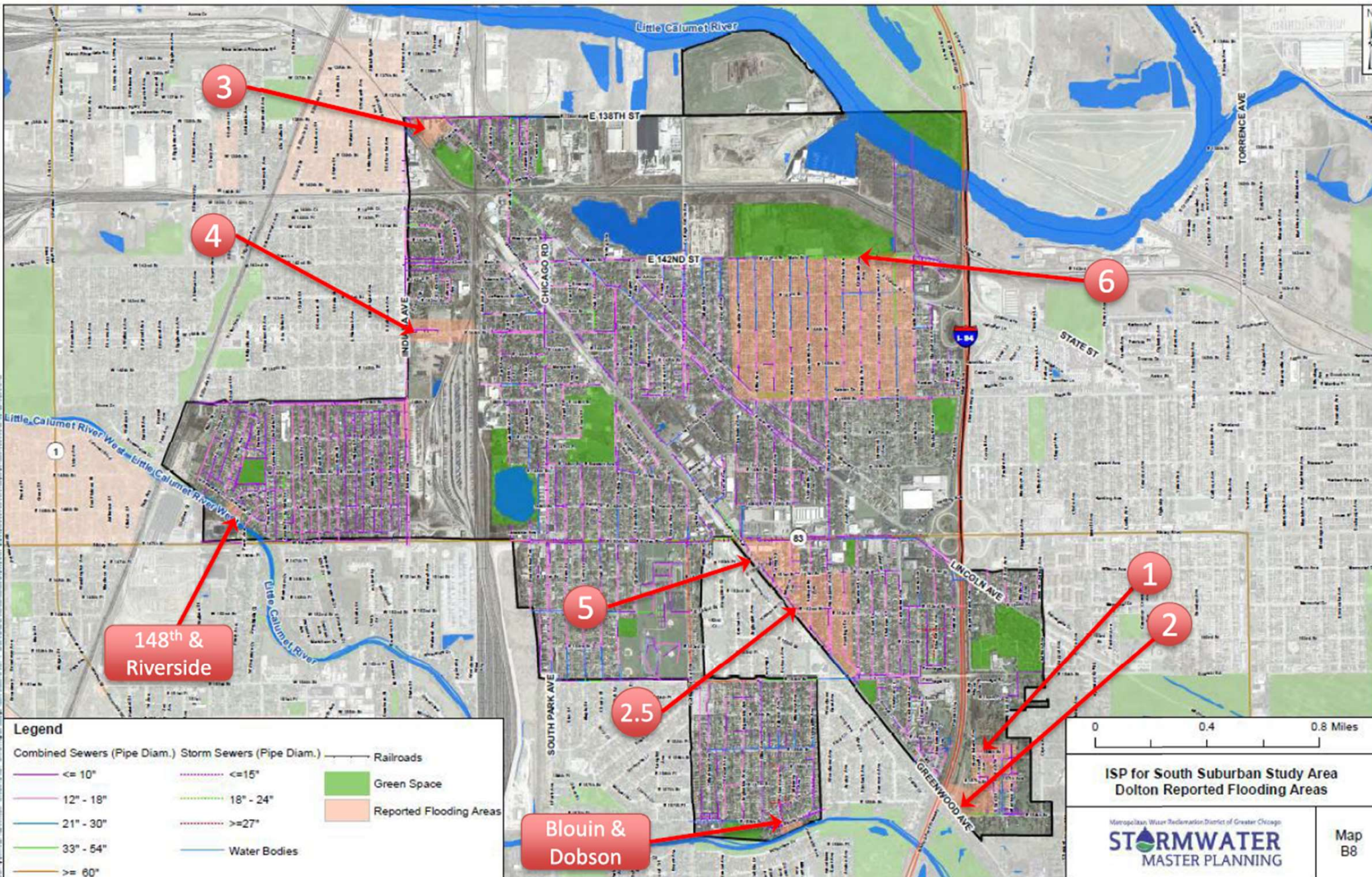
Note No.	Action By	Note
1	Information	MWRD (Fred) made introduction and discussed background of the project. This included past work under the Individual Study Profiles (ISP) and goals of the Stormwater Master Plan (SMP) process (urban flooding, not riverine flooding). Specific to Dolton, MWRD is doing a SMP for 6 south suburban communities, and Dolton is one. Others are Dixmoor, Harvey, Phoenix, Posen, and Riverdale

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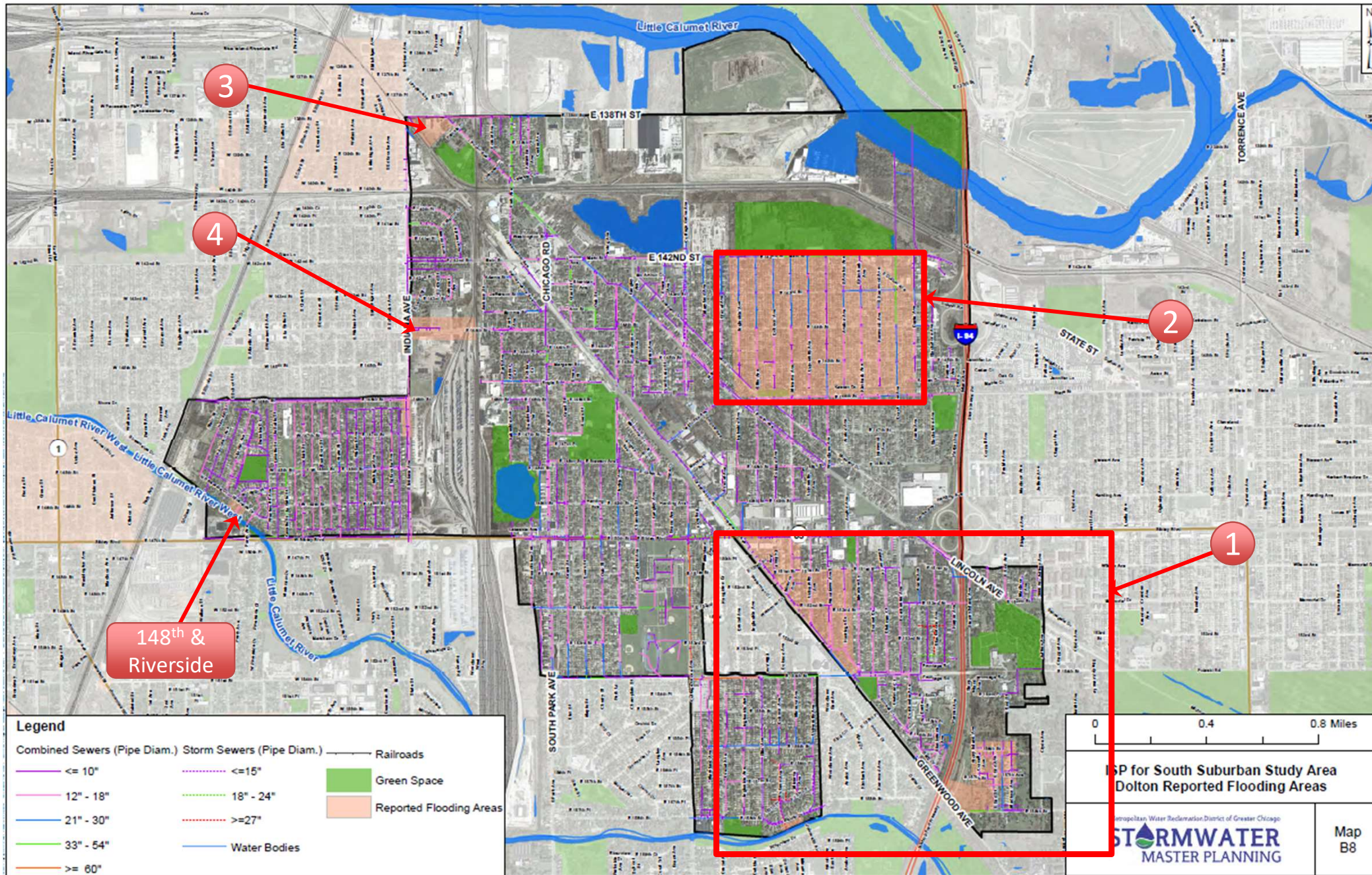


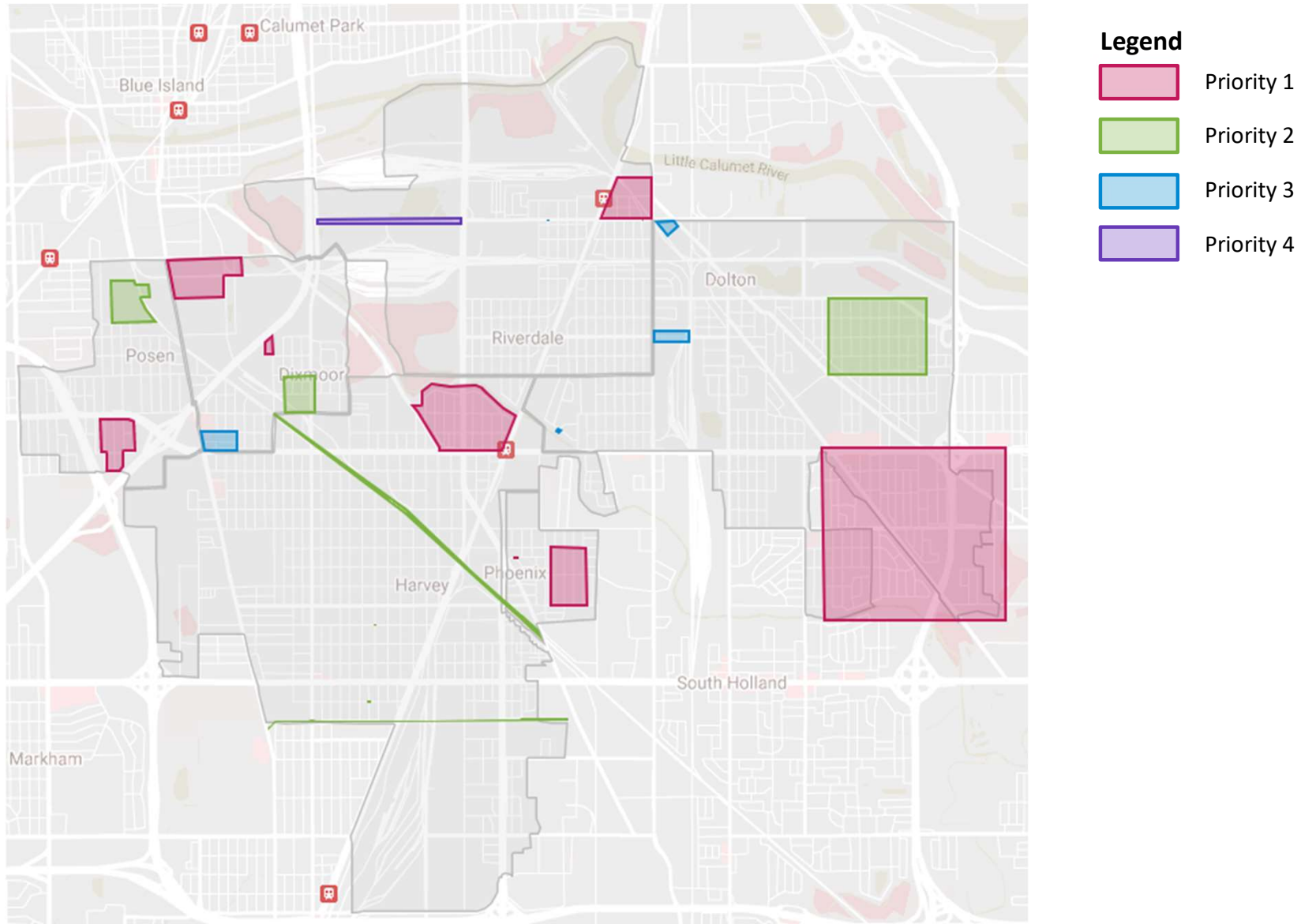
ISP Identified Flooding Areas





Updated Identified Flooding Areas







Community Surveys

- Distributed by Village in Spring 2021
- 255 responses received
- 230 flooding locations reported



Village of Dolton Stormwater Issues Community Survey

The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC), in partnership with your community and Donohue & Associates, is completing a study regarding urban stormwater flooding in your area and would like to hear from you! Please complete this survey regarding stormwater flooding issues in your neighborhood.

Completed surveys can be returned to the Village Hall Front Desk, Attn: Village Administrator. Village Hall is located at 14122 Chicago Road, Dolton, IL 60419.

Please return completed surveys by June 30, 2021. Thank you for your participation!

1. Have you observed flooding issues in your neighborhood following rain events/snow melt?

☐ Yes ☐ No If yes, please provide details on Page 2 of this form.

2. Have you made any improvements on your property and/or in your neighborhood to reduce flooding impacts?

☐ Yes ☐ No

If yes, please describe (check all that apply):

☐ Overhead sewer ☐ Disconnect/redirect downspouts ☐ Yard regrading ☐ Rain garden/infiltration area
☐ Sump pump ☐ Other _____

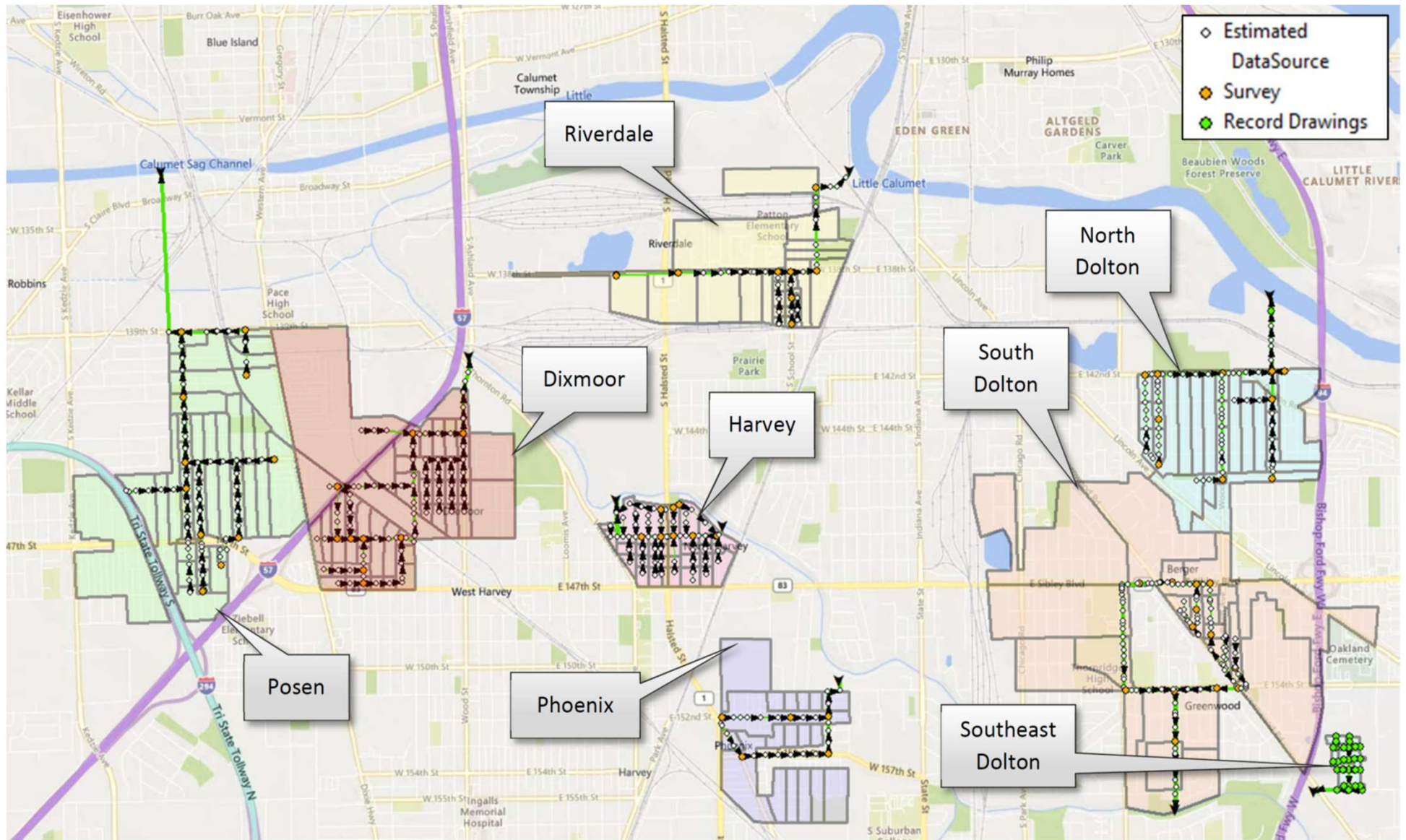
3. Parkways, open spaces, and even alleys present an opportunity to incorporate "green" stormwater management techniques in the community such as bioswales, rain gardens, and permeable paving. How would you describe your views toward implementation of this type of green infrastructure on your property and/or in your neighborhood?

☐ Positive
☐ Slightly Positive
☐ Neutral
☐ Slightly Negative
☐ Negative

4. Please use the space below to share any additional thoughts or comments regarding stormwater issues in your neighborhood/community. If you would like to provide more information that exceeds the space provided on this form, please contact Fred Wu, MWRD Project Manager (WuF@mwrdd.org or 312.751.4025), or Paul Shadrake, Donohue Project Manager (pshadrake@donohue-associates.com or 312.583.7211).



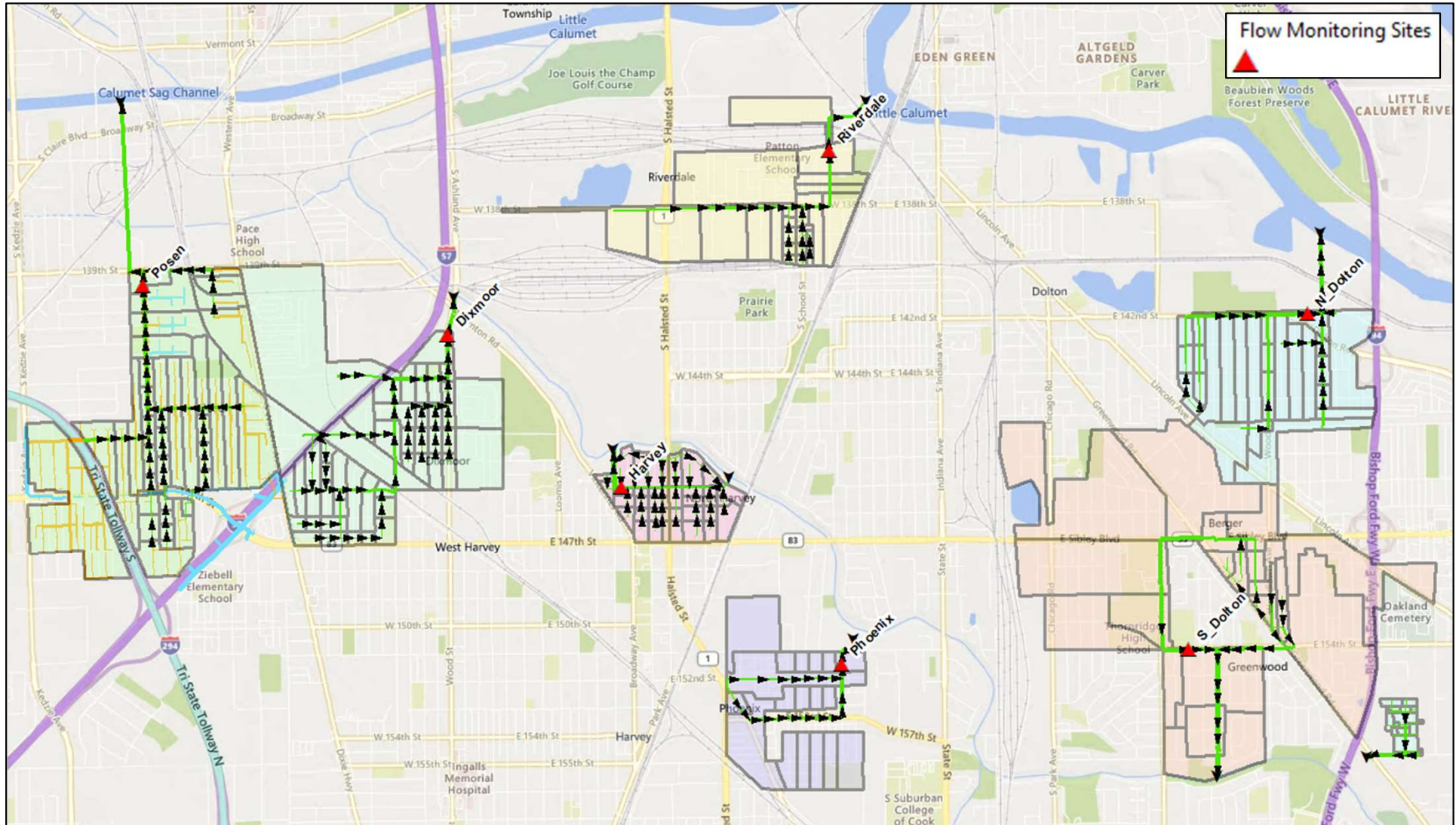
Sewer Model Development and Manhole Investigations



Model Networks and Surveyed Manholes



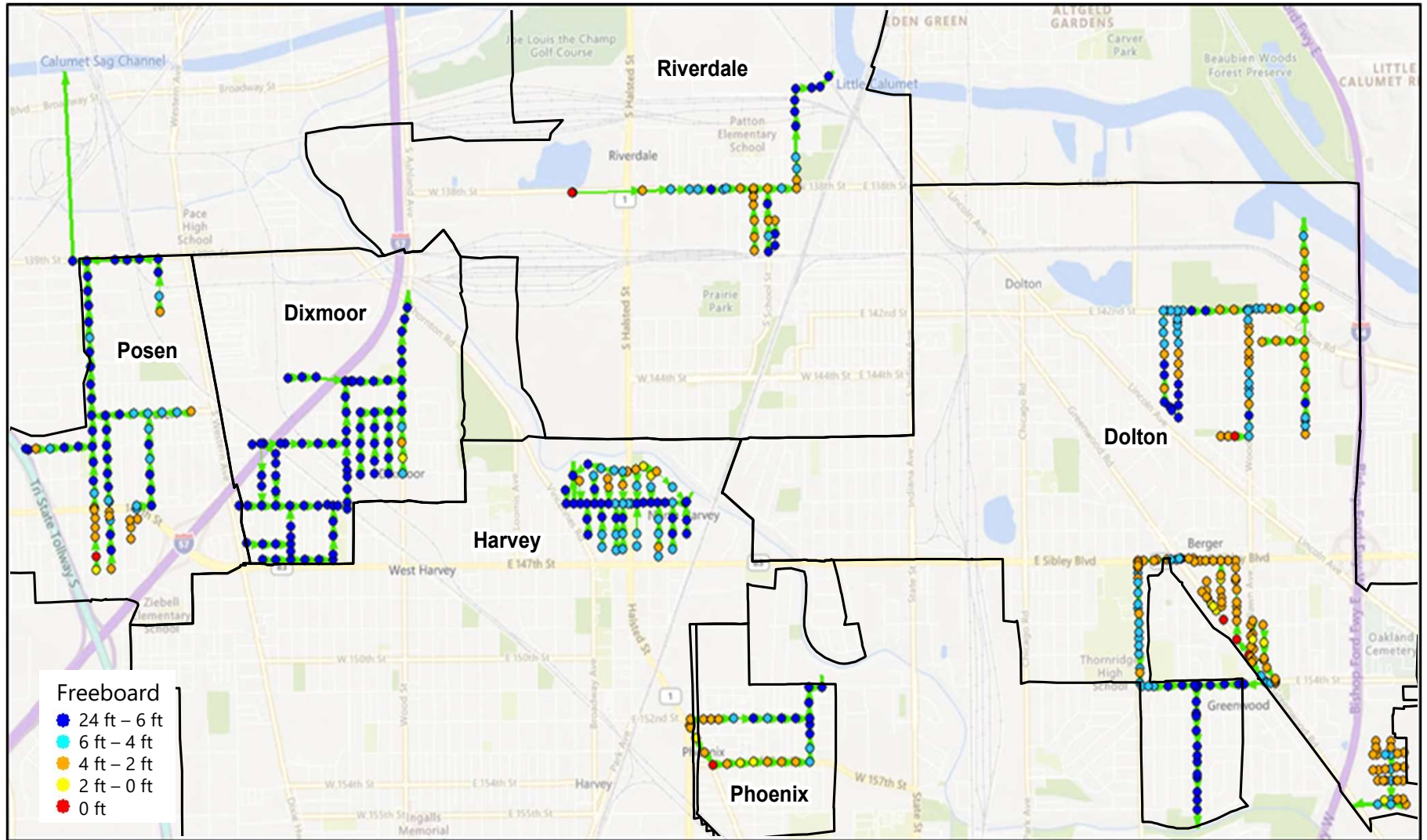
Flow Monitoring



Model Networks and Flow Monitoring Sites



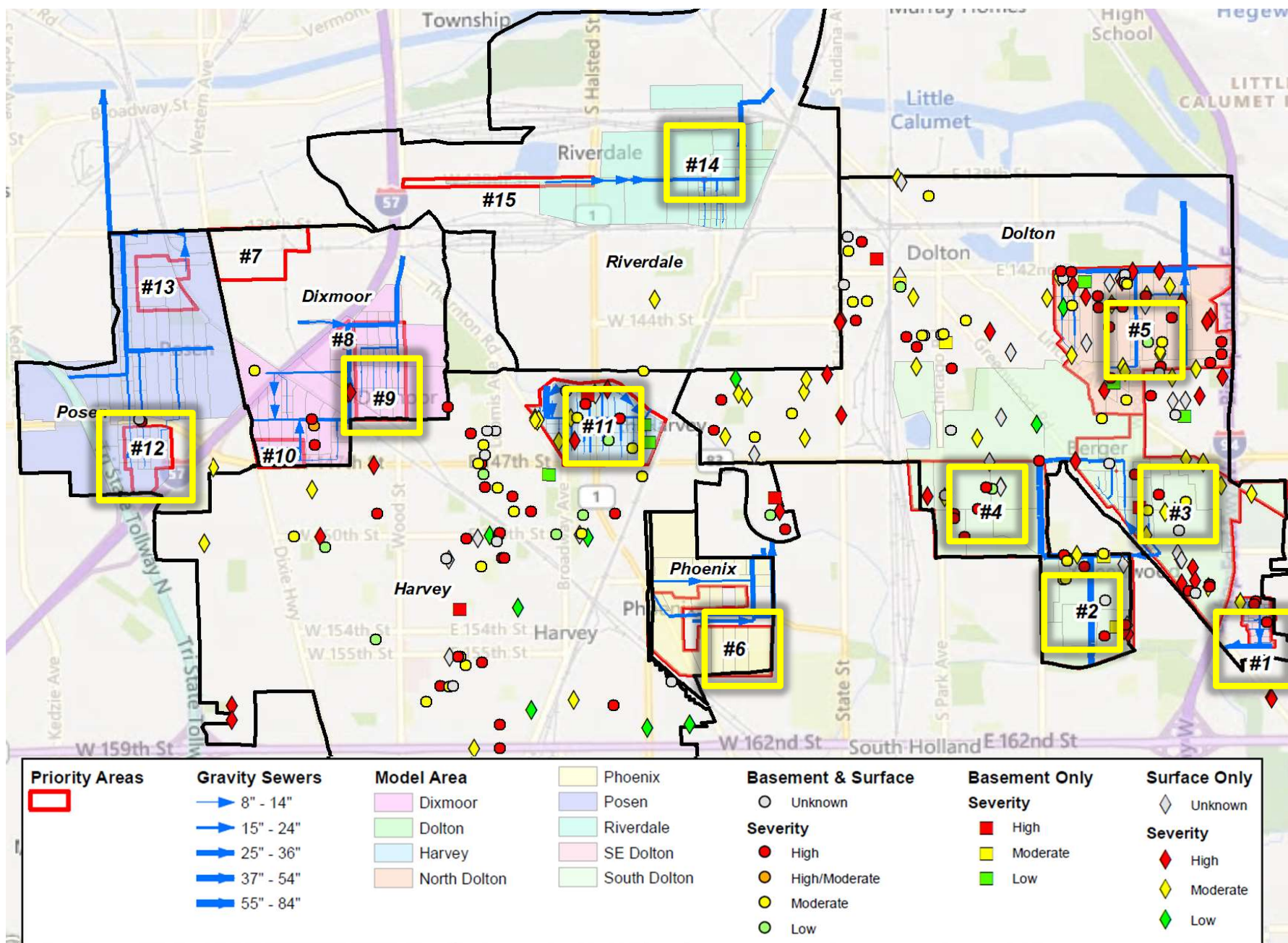
Existing Conditions Model Results



Existing Conditions Freeboard in Manholes, 5-Year Storm

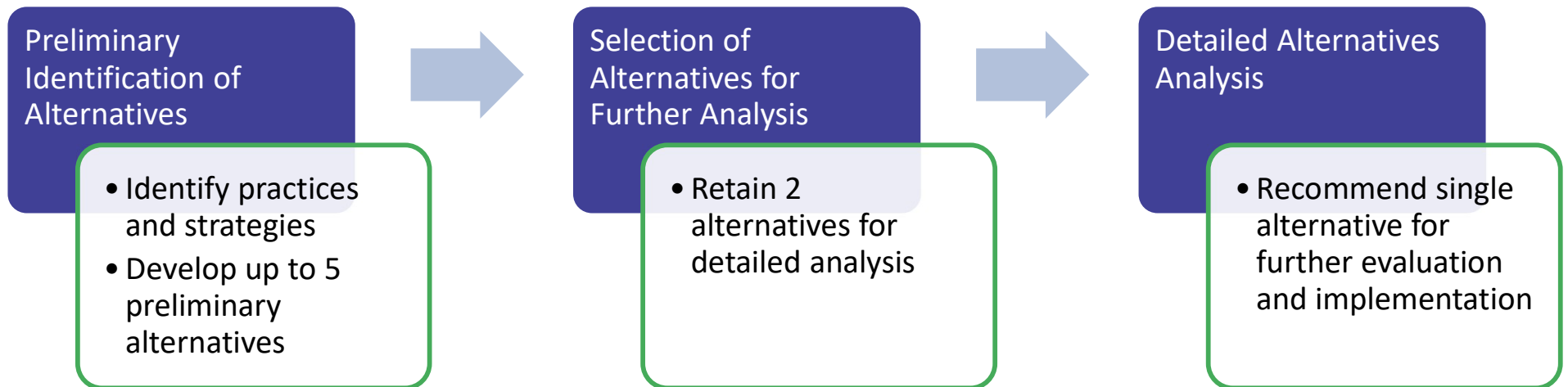


Priority Area Identification





Alternative Analysis





Practices and Strategies

- Combined relief sewers
- Separate storm relief sewers
- Surface flow
 - Bioswales
- Surface detention
 - Rain gardens
- Overhead Sewers/Backflow Prevention
- Inlet Control

Bioswale



Surface Detention



Backflow Prevention

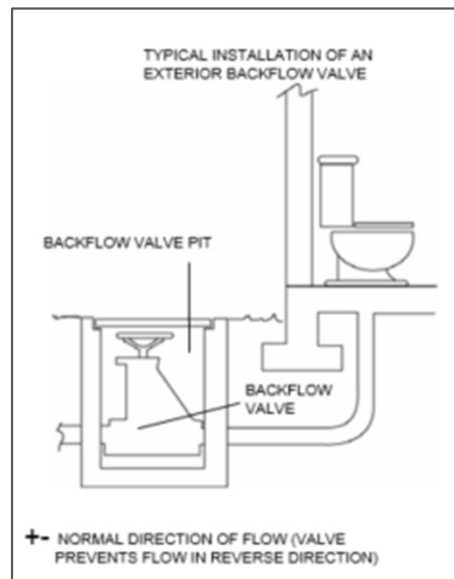
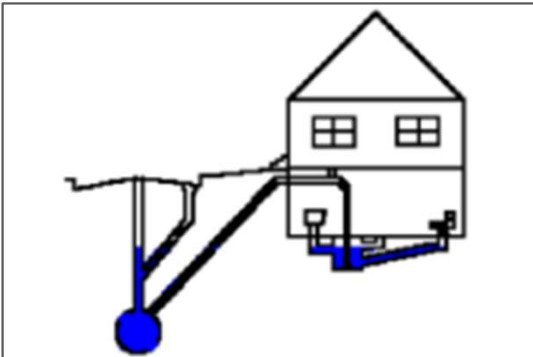


Image: FEMA

Raingarden

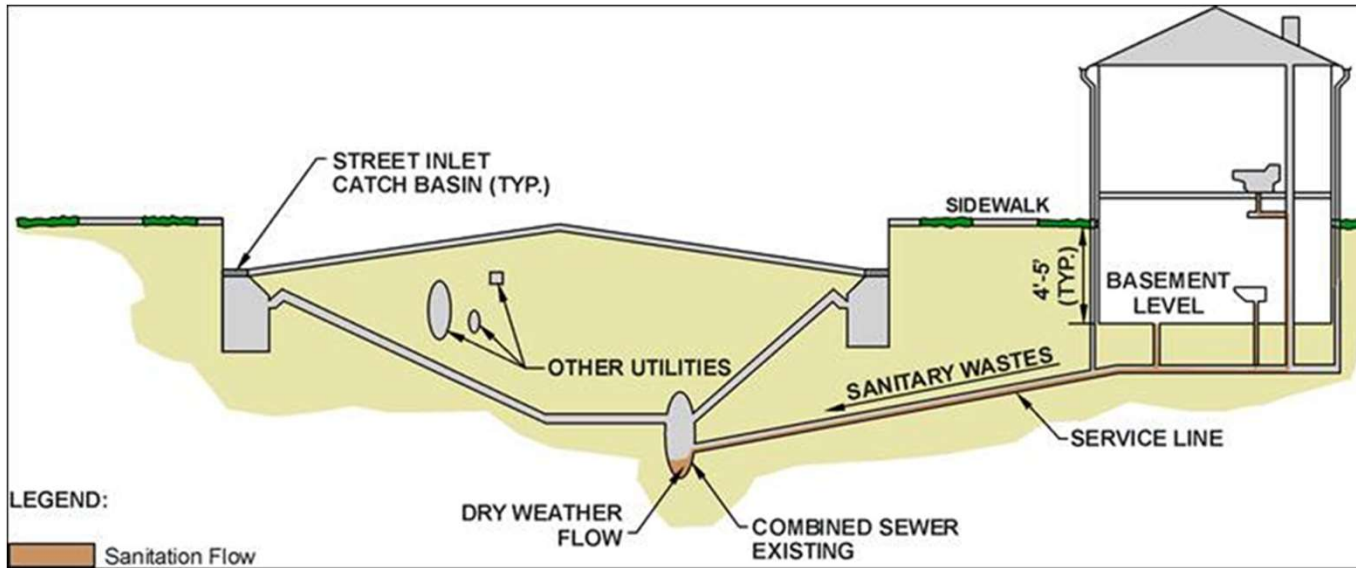


Overhead Sewer

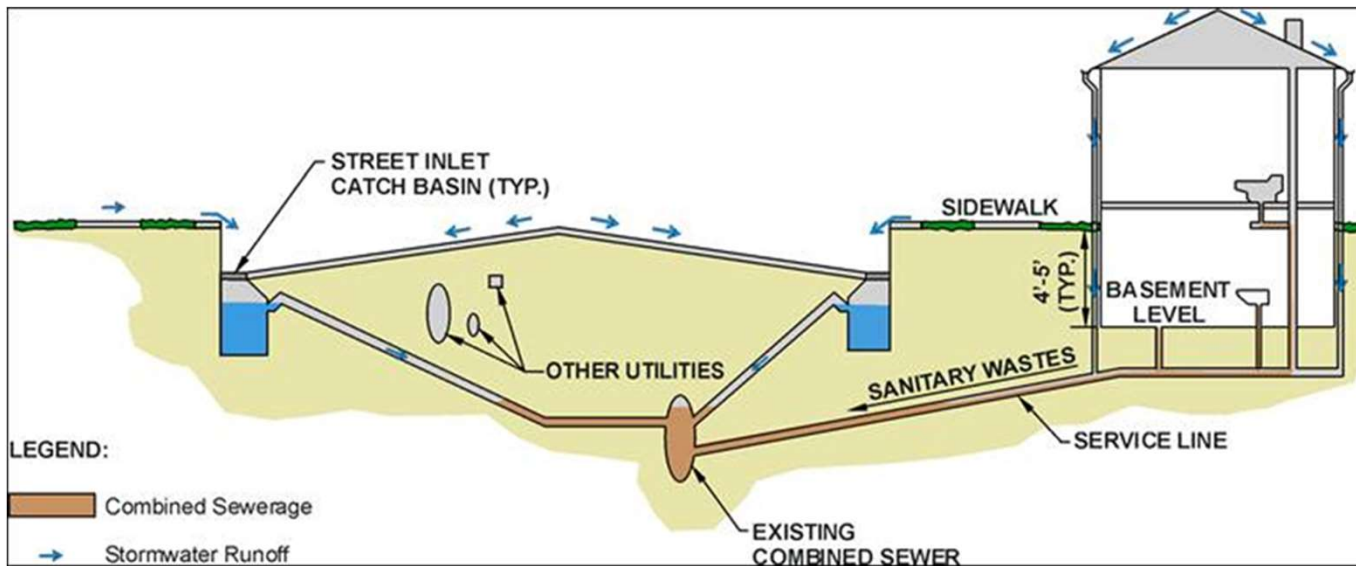




Inlet Control



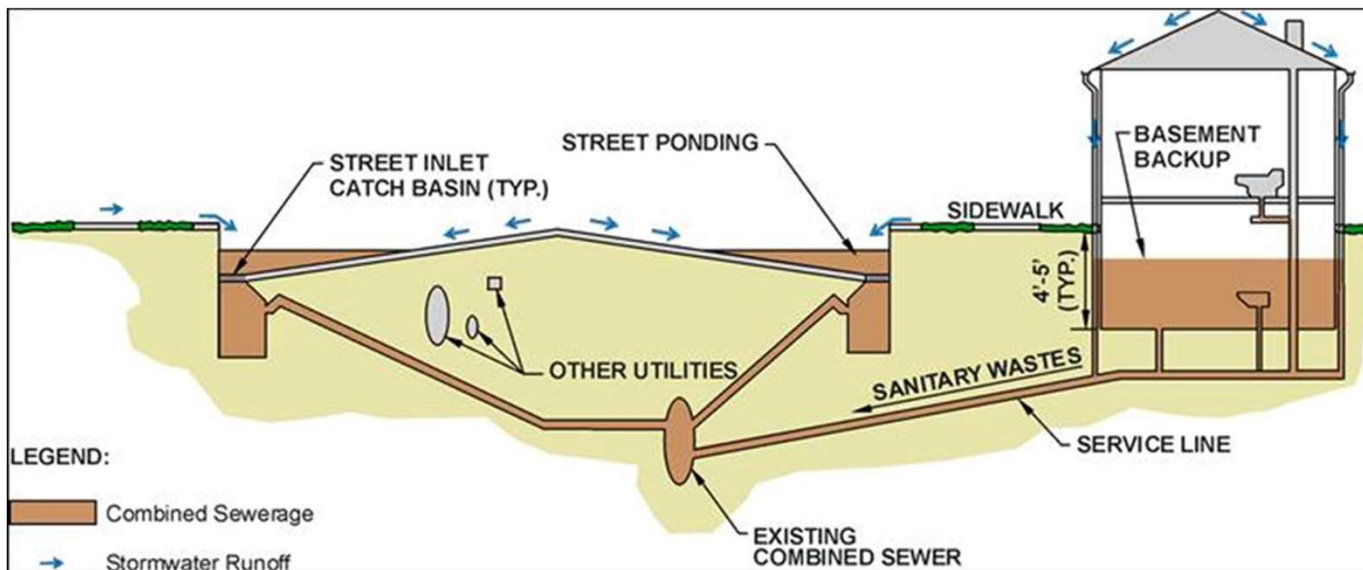
Dry Weather Combined Sewer Schematic



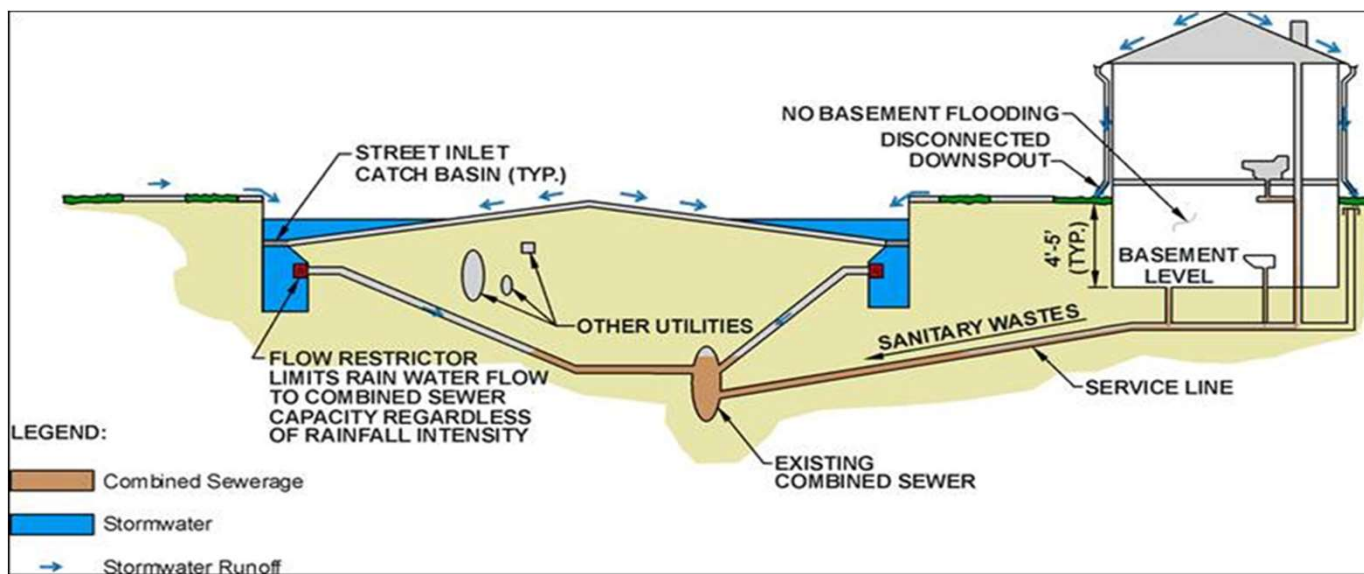
Light Rainfall Combined Sewer Schematic



Inlet Control



Heavy Rainfall Combined Sewer Schematic



Heavy Rainfall Combined Sewer Schematic with Inlet Control



Preliminary Alternatives

Priority Area	Alternative 1	Alternative 2	Alternative 3	Alternative 4
1	<ul style="list-style-type: none"> • Separate storm relief sewer • Bioswales 	<ul style="list-style-type: none"> • Separate storm relief sewer • Bioswales 		
2	<ul style="list-style-type: none"> • Combined relief sewers 	<ul style="list-style-type: none"> • Inlet control 	<ul style="list-style-type: none"> • Combined relief sewer • Separate storm relief sewer 	<ul style="list-style-type: none"> • Overhead Sewers/ Backflow Prevention
3	<ul style="list-style-type: none"> • Combined relief sewers 	<ul style="list-style-type: none"> • Inlet control • Separate storm relief sewer 	<ul style="list-style-type: none"> • Separate storm relief sewer 	<ul style="list-style-type: none"> • Overhead Sewers/ Backflow Prevention
4	<ul style="list-style-type: none"> • Inlet control • Separate storm relief sewer • Detention 	<ul style="list-style-type: none"> • Separate storm relief sewer • Detention 	<ul style="list-style-type: none"> • Overhead Sewers/ Backflow Prevention 	
5	<ul style="list-style-type: none"> • Inlet control • Separate storm relief sewer 	<ul style="list-style-type: none"> • Separate storm relief sewer 	<ul style="list-style-type: none"> • Overhead Sewers/ Backflow Prevention 	



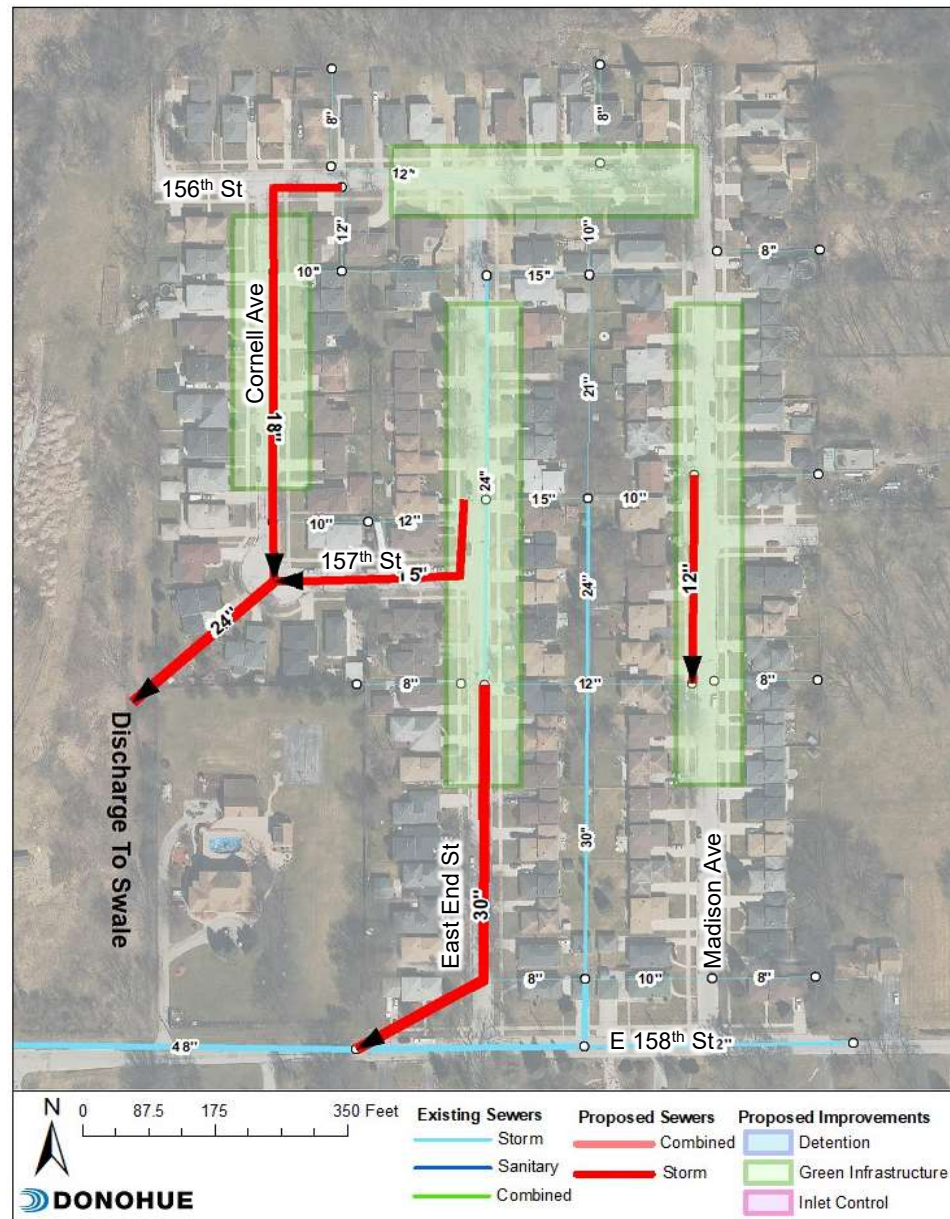
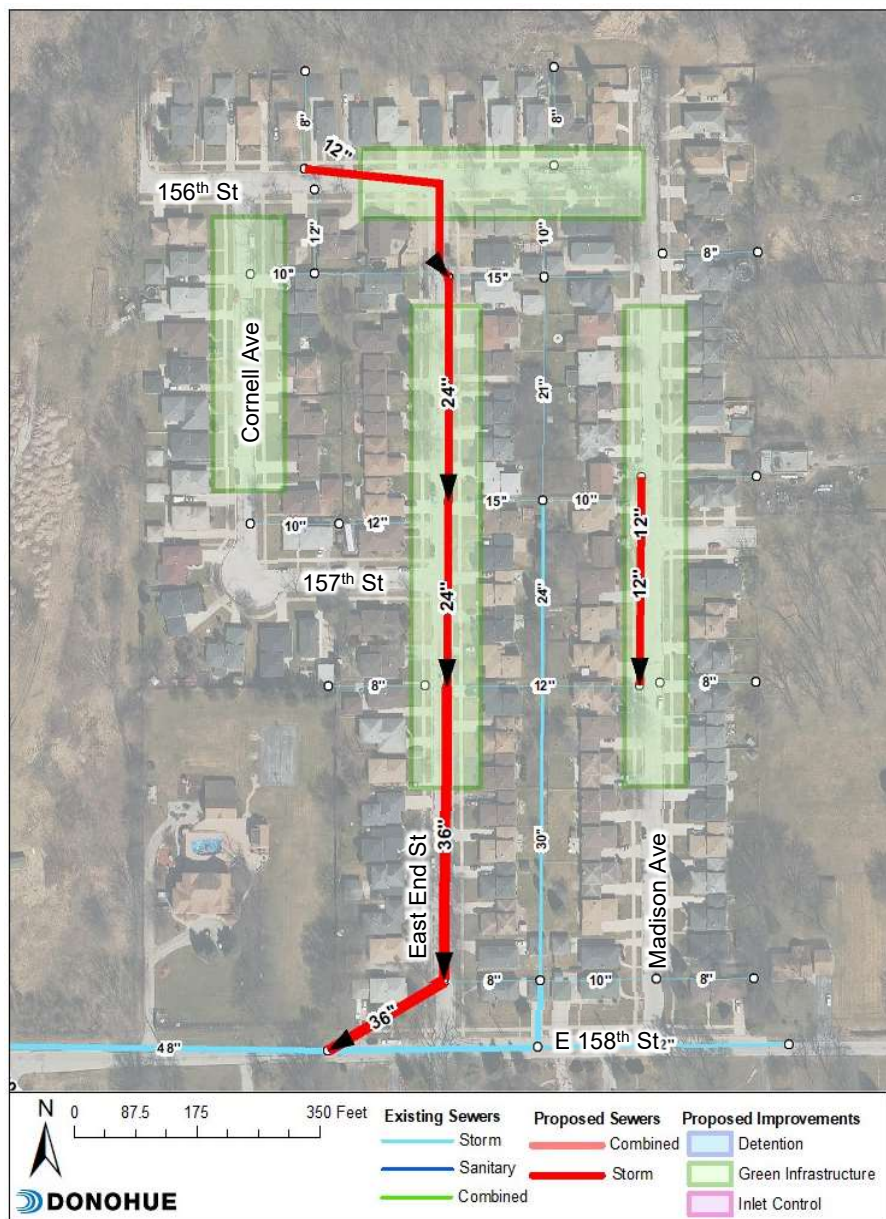
Evaluation Criteria

Category	Weighting	Evaluation Metric	Score
Flood Reduction Benefits	30%	5-Year Level of Service	8
Co-Benefits	10%	No Co-Benefits	1
		Co-Benefits from New Green Infrastructure	8
		Other Co-Benefits	Varies
Challenges	10%	Numerous or Difficult Permitting or Constructability Challenges	1
		No Permitting or Constructability Challenges	10
Environmental Site Assessment Risk	5%	High	1
		Low	10
Project Cost	25%	More than \$20 million	1
		Less than \$500,000	10
Maintenance Impacts	10%	Maintenance Requirements Comparable to Typical Gray Infrastructure Projects	5
Public Funding/ Partnership Opportunities	10%	No Opportunities	1
		Numerous Opportunities	10

Note: Scores are assigned on a scale of 1 to 10, with 10 being the best (most desirable) score.



Alternatives Analysis – Priority Area 1



Alternative 1 – Separate Storm Relief Sewer and Bioswales

Alternative 2 – Separate Storm Relief Sewer to Existing Swale, and Bioswales



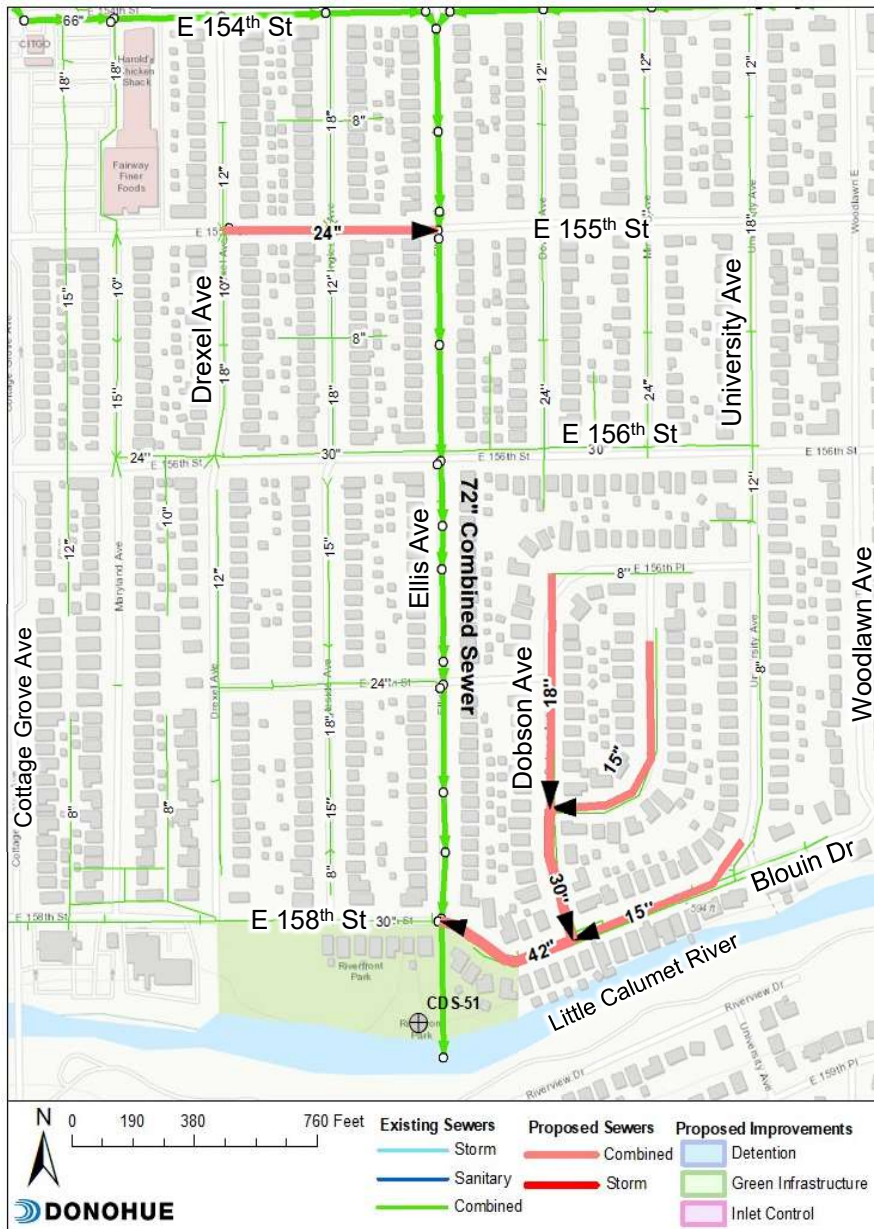
Alternatives Analysis – Priority Area 1

	Weight	Alternative 1		Alternative 2	
		Score	Weighted Score	Score	Weighted Score
Flood Reduction Benefits	30%	8	2.40	6	1.80
Co-Benefits	10%	8	0.80	8	0.80
Challenges	10%	6	0.60	3	0.30
Environmental Site Assessment Risk	5%	10	0.50	10	0.50
Project Cost	25%	9	2.25	9	2.25
Maintenance Impacts	10%	5	0.50	5	0.50
Public Funding/Partnership Opportunities	10%	6	0.60	8	0.80
Total	100%		7.65		7.05

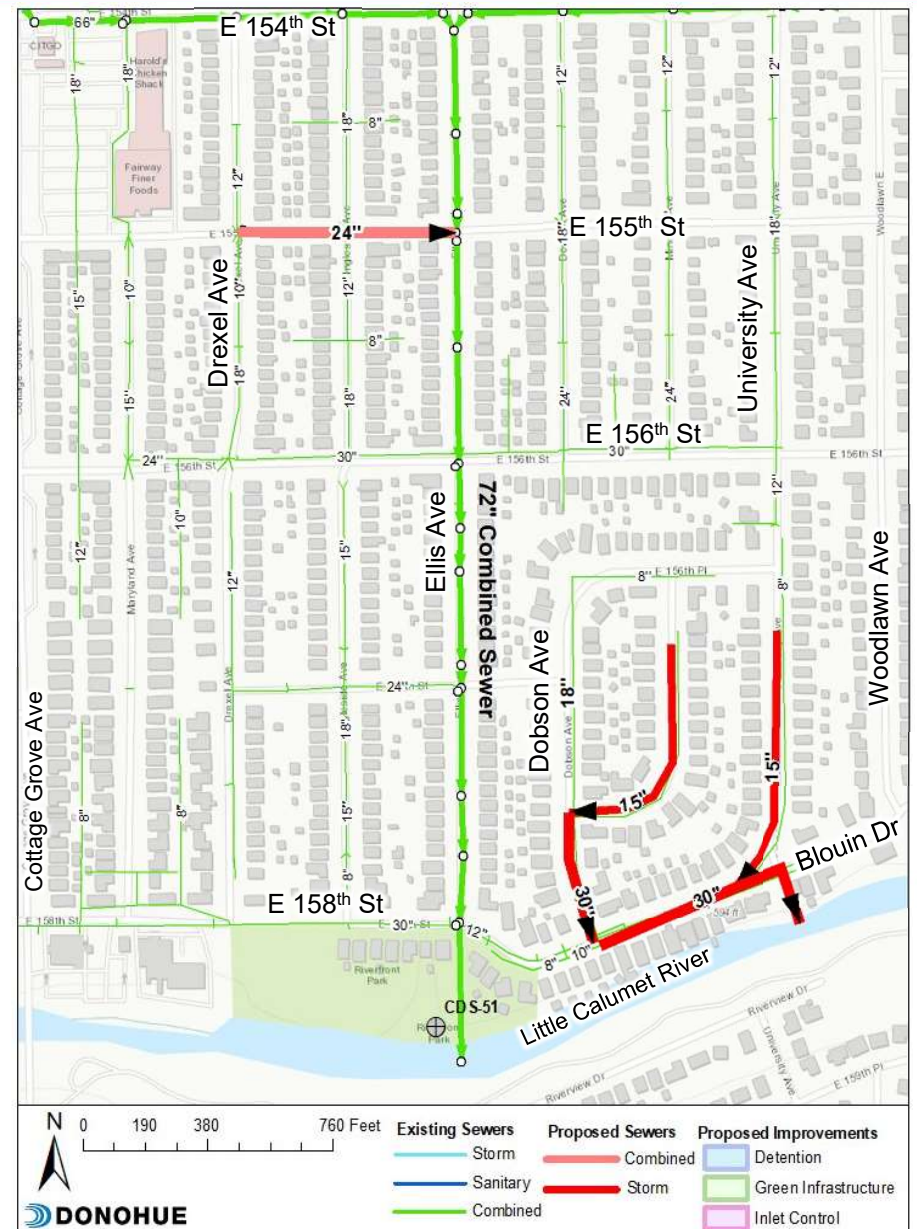
Note: Scores are assigned on a scale of 1 to 10, with 10 being the best (most desirable) score.



Alternatives Analysis – Priority Area 2



Alternative 1 – Combined Relief Sewer



Alternative 3 – Combined Relief Sewer and Separate Storm Relief Sewer



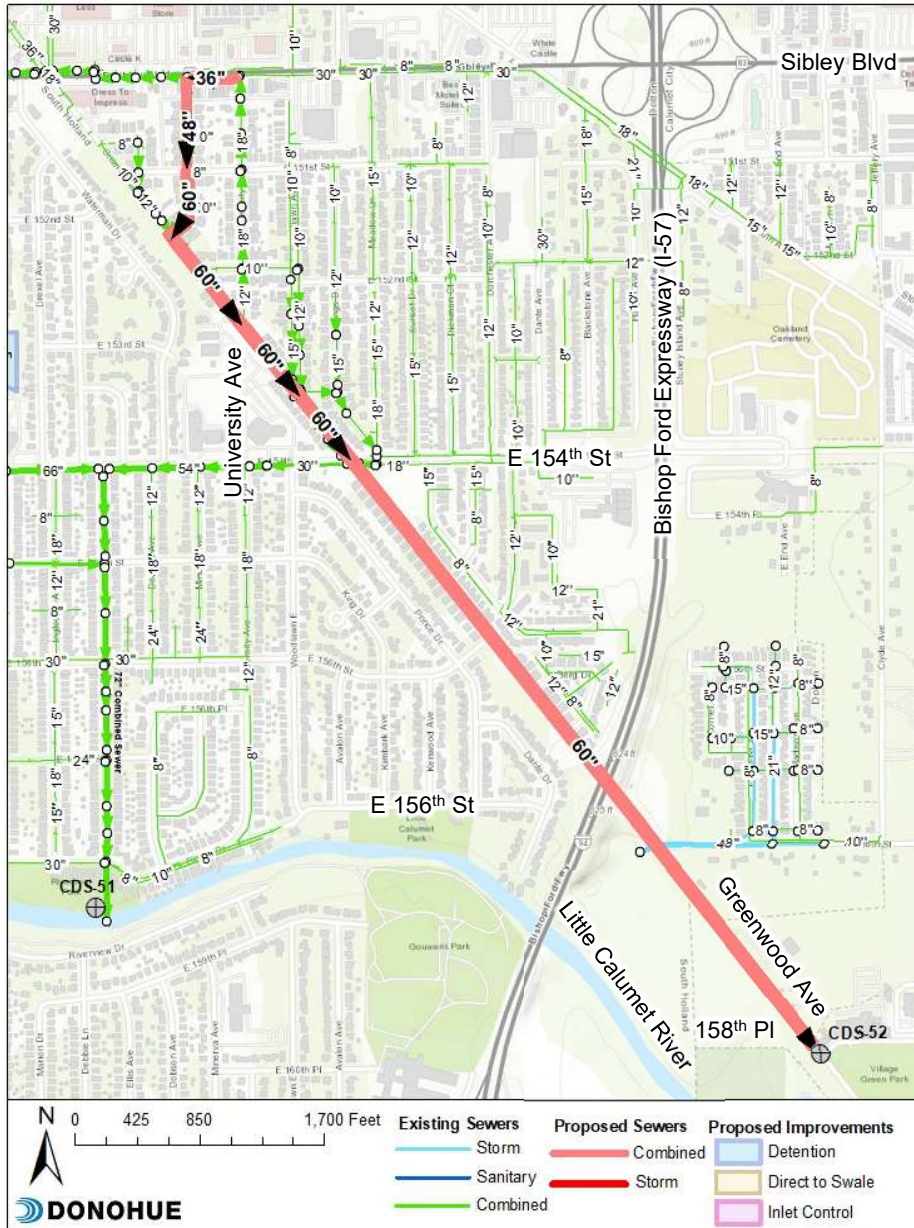
Alternatives Analysis – Priority Area 2

	Weight	Alternative 1		Alternative 3	
		Score	Weighted Score	Score	Weighted Score
Flood Reduction Benefits	30%	9	2.70	9	2.70
Co-Benefits	10%	1	0.10	5	0.50
Challenges	10%	8	0.80	7	0.70
Environmental Site Assessment Risk	5%	5	0.25	5	0.25
Project Cost	25%	9	2.25	9	2.25
Maintenance Impacts	10%	6	0.60	6	0.60
Public Funding/Partnership Opportunities	10%	3	0.30	3	0.30
Total	100%		7.00		7.30

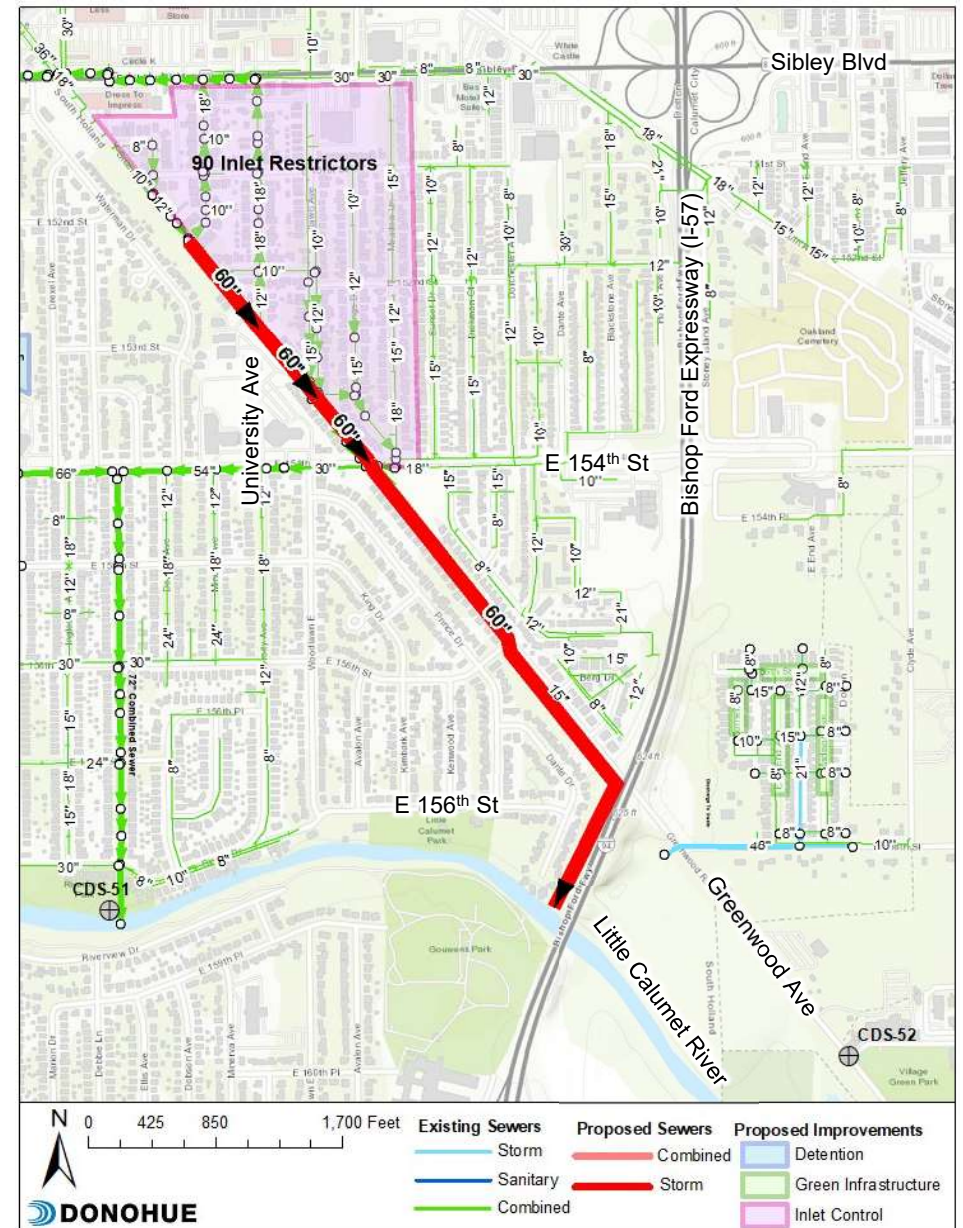
Note: Scores are assigned on a scale of 1 to 10, with 10 being the best (most desirable) score.



Alternatives Analysis – Priority Area 3



Alternative 1 – Combined Relief Sewer



Alternative 2 – Separate Storm Relief Sewer and Inlet Control



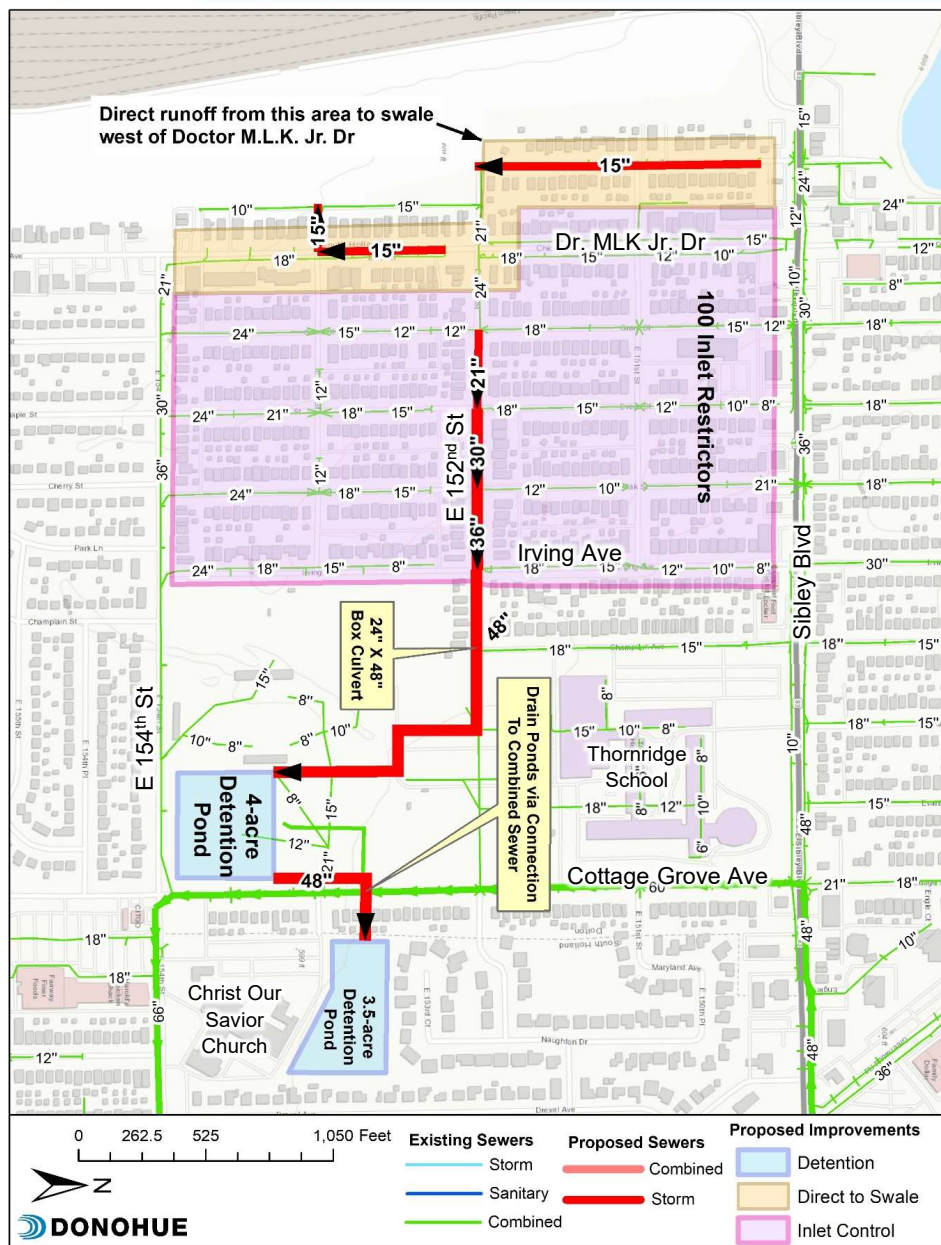
Alternatives Analysis – Priority Area 3

	Weight	Alternative 1		Alternative 2	
		Score	Weighted Score	Score	Weighted Score
Flood Reduction Benefits	30%	8	2.40	8	2.40
Co-Benefits	10%	1	0.10	5	0.50
Challenges	10%	6	0.60	7	0.70
Environmental Site Assessment Risk	5%	10	0.50	10	0.50
Project Cost	25%	5	1.25	7	1.75
Maintenance Impacts	10%	5	0.50	5	0.50
Public Funding/Partnership Opportunities	10%	3	0.30	3	0.30
Total	100%		5.65		6.45

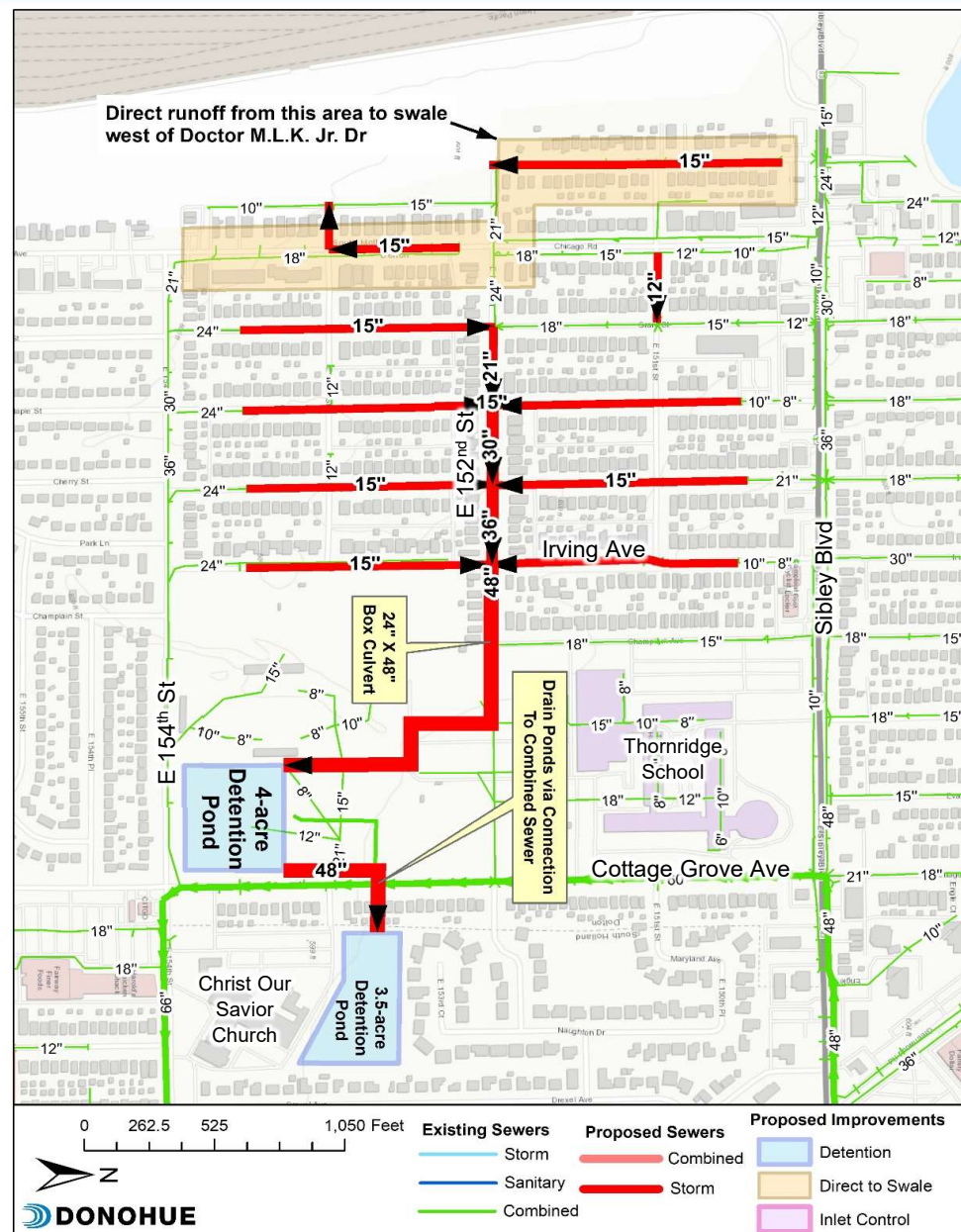
Note: Scores are assigned on a scale of 1 to 10, with 10 being the best (most desirable) score.



Alternatives Analysis – Priority Area 4



Alternative 1 – Separate Storm Relief Sewer with Inlet Control and Detention



Alternative 2 – Separate Storm Relief Sewer with Detention



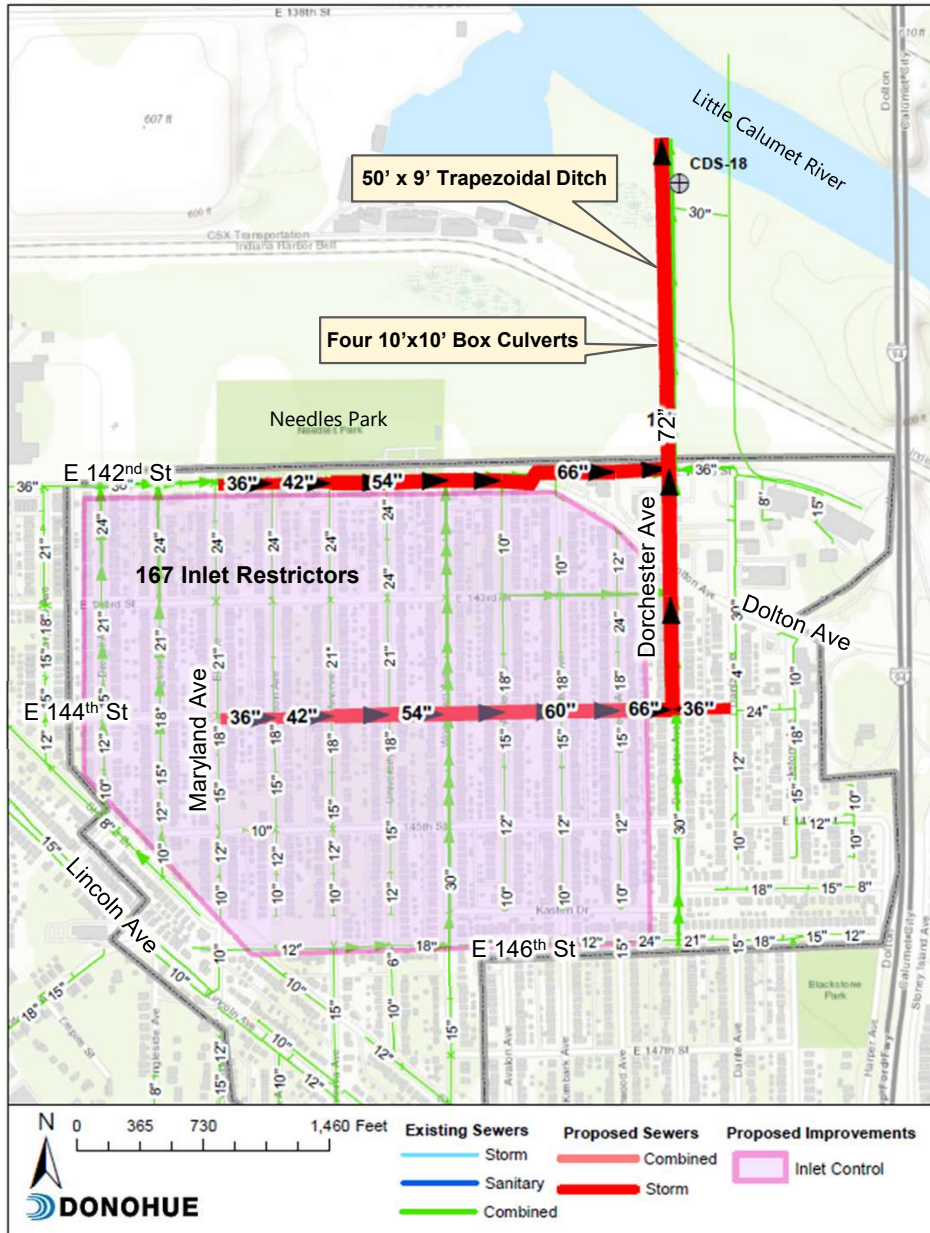
Alternatives Analysis – Priority Area 4

	Weight	Alternative 1		Alternative 2	
		Score	Weighted Score	Score	Weighted Score
Flood Reduction Benefits	30%	8	2.40	8	2.40
Co-Benefits	10%	8	0.80	8	0.80
Challenges	10%	5	0.50	4	0.40
Environmental Site Assessment Risk	5%	1	0.05	1	0.05
Project Cost	25%	6	1.50	4	1.00
Maintenance Impacts	10%	5	0.50	3	0.30
Public Funding/Partnership Opportunities	10%	7	0.70	7	0.70
Total	100%		6.45		5.65

Note: Scores are assigned on a scale of 1 to 10, with 10 being the best (most desirable) score.



Alternatives Analysis – Priority Area 5



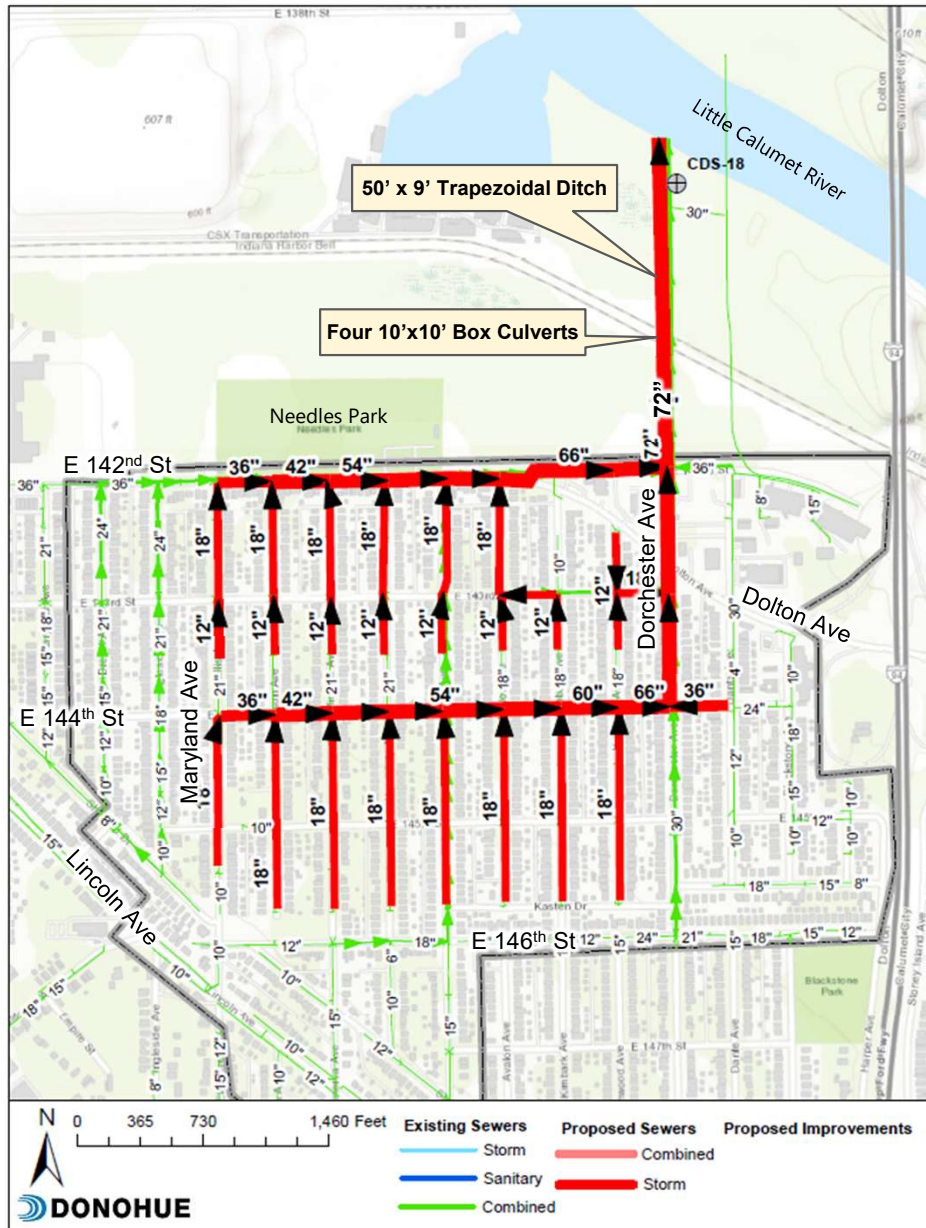
Alternative 1A – Separate Storm Relief Sewer with Inlet Control



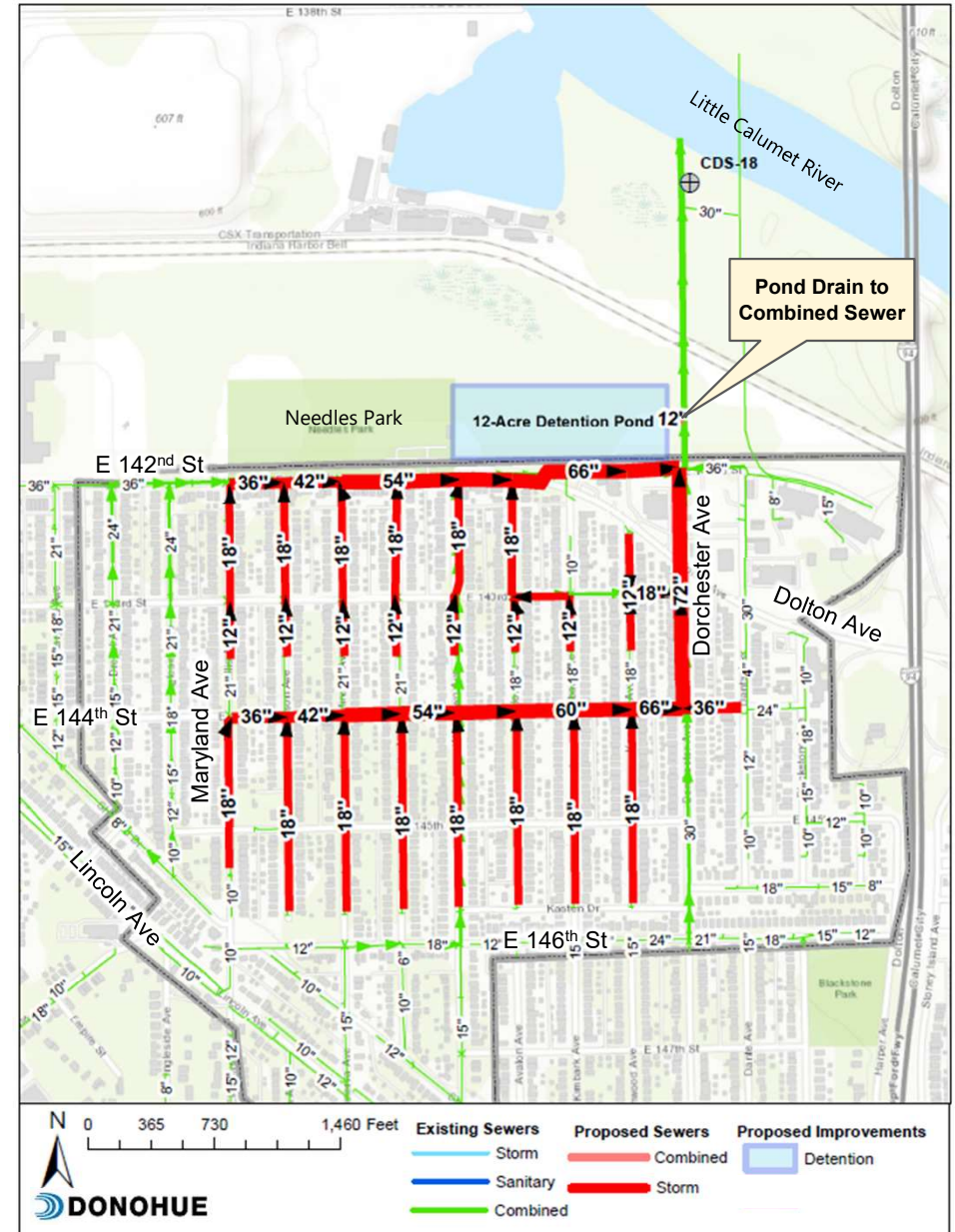
Alternative 1B – Separate Storm Relief Sewer with Inlet Control and Detention



Alternatives Analysis – Priority Area 5



Alternative 2A – Separate Storm Relief Sewer



Alternative 2B – Separate Storm Relief Sewer with Detention



Alternatives Analysis – Priority Area 5

	Weight	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
		Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Flood Reduction Benefits	30%	8	2.40	9	2.70	8	2.40	9	2.70
Co-Benefits	10%	3	0.30	7	0.70	3	0.30	7	0.70
Challenges	10%	1	0.10	5	0.50	1	0.10	4	0.40
Environmental Site Assessment Risk	5%	2	0.10	2	0.10	2	0.10	2	0.10
Project Cost	25%	1	0.25	1	0.25	1	0.25	1	0.25
Maintenance Impacts	10%	4	0.40	5	0.50	3	0.30	4	0.40
Public Funding/ Partnership Opportunities	10%	2	0.20	6	0.60	2	0.20	6	0.60
Total	100%		3.75		5.35		3.65		5.15

Note: Scores are assigned on a scale of 1 to 10, with 10 being the best (most desirable) score.



Recommended Alternatives

Priority Area	Recommended Alternative	Structures Benefitted	Estimated Project Cost	Potential Timeline
1	<i>Alternative 1</i> Separate Storm Relief Sewer	124	\$1,643,000	Year 1-2: Planning/Funding Year 3-4: Design/Funding Year 5-6: Construction
2	<i>Alternative 3</i> Combined Relief Sewer and Separate Storm Relief Sewer	203	\$1,911,000	Year 1-2: Planning/Funding Year 3-4: Design/Funding Year 5-6: Construction
3	<i>Alternative 2</i> Inlet Control and Separate Storm Relief Sewer	974	\$6,449,000	Year 1-2: Planning/Funding Year 3-5: Design/Funding Year 6-9: Funding/Construction
4	<i>Alternative 1</i> Inlet Control and Separate Storm Relief Sewer with Detention	596	\$8,966,000	Year 1-2: Planning/Funding Year 3-5: Design/Funding Year 6-9: Funding/Construction
5	<i>Alternative 1B</i> Inlet Control and Separate Storm Relief Sewer with Detention	1,558	\$19,917,000	Year 1-3: Planning/Funding Year 4-6: Design/Funding Year 7-12: Funding/Construction



Next Steps

- Village leadership to engage and confirm project priority
- Finalize project partners and funding opportunities
- Further study and design of recommended solution
- Develop planning and construction schedule
- Work with partners to implement project
- Monitor project performance and identify future stormwater improvement projects

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Funding and Partner Opportunities

- Funding sources
 - MWRD Stormwater Partnership Program
 - South Suburban Mayors and Managers Association (SSMMA)
 - FEMA
- Additional partners
 - Chicago Metropolitan Agency for Planning (CMAP)
 - Metropolitan Planning Council (MPC)
 - Center for Neighborhood Technology (CNT) RainReady
 - OAI, Inc.

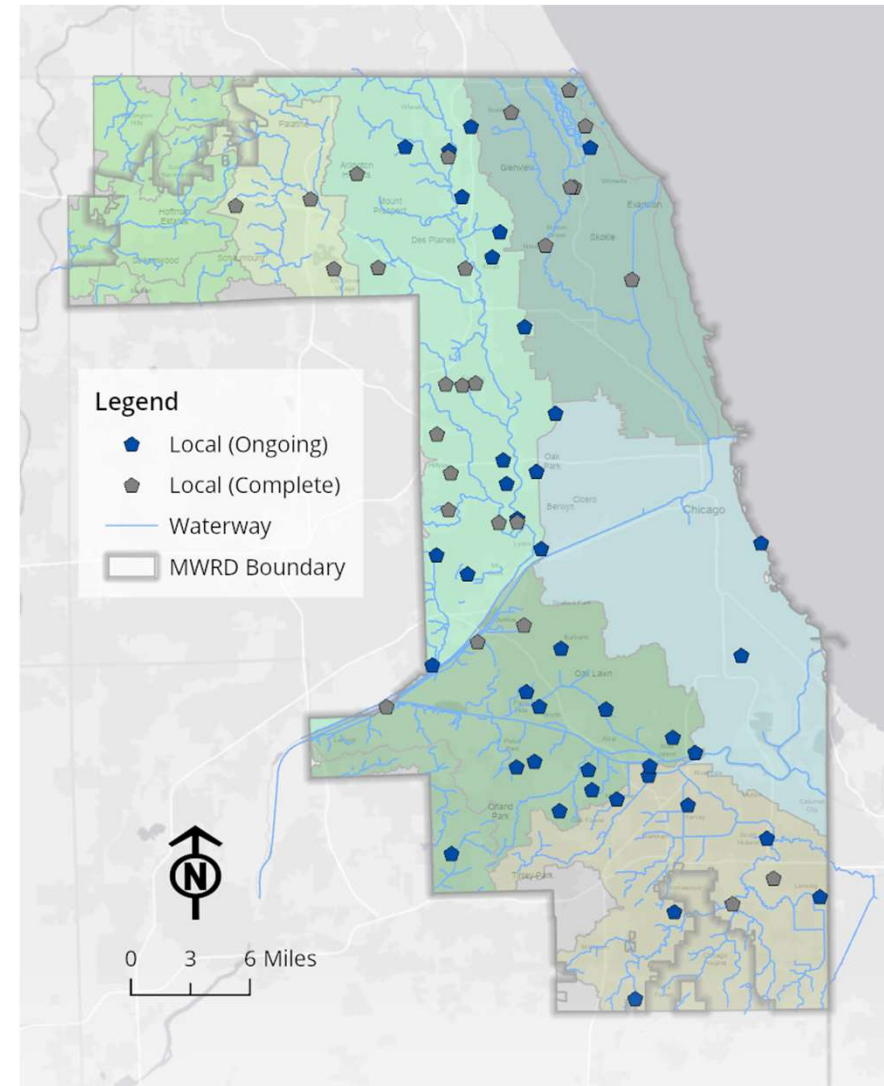
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Local Stormwater Partnership Opportunities

- Partnership opportunity with MWRD to address flooding.
- Local Stormwater Projects
 - » Localized storage
 - » Upsizing critical storm sewers/culverts
 - » Pump stations
 - » Establishing drainage ways
- Selected partners execute an IGA with the MWRD
- The program will accept applications in the Fall of 2022.
- The program is seeking both conceptual and shovel ready projects.
- Questions? Email: stormwater@mwrд.org



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Forging Resilient Communities

1. Address Infiltration and Inflow in separate sewer area within the City of Harvey and Villages of Dolton and Riverdale
2. This program is funded thru federal funds and matching municipal funds
3. Condition assessment of municipal sewer
4. Possible repair or replacement of problem sewer lines
5. Tree Planting within each communities





Open Discussion/Questions

MWRD Project Manager
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(312) 751-4025

Donohue & Associates
Paul Shadrake
pshadrake@donohue-associates.com
(312) 363-9663

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