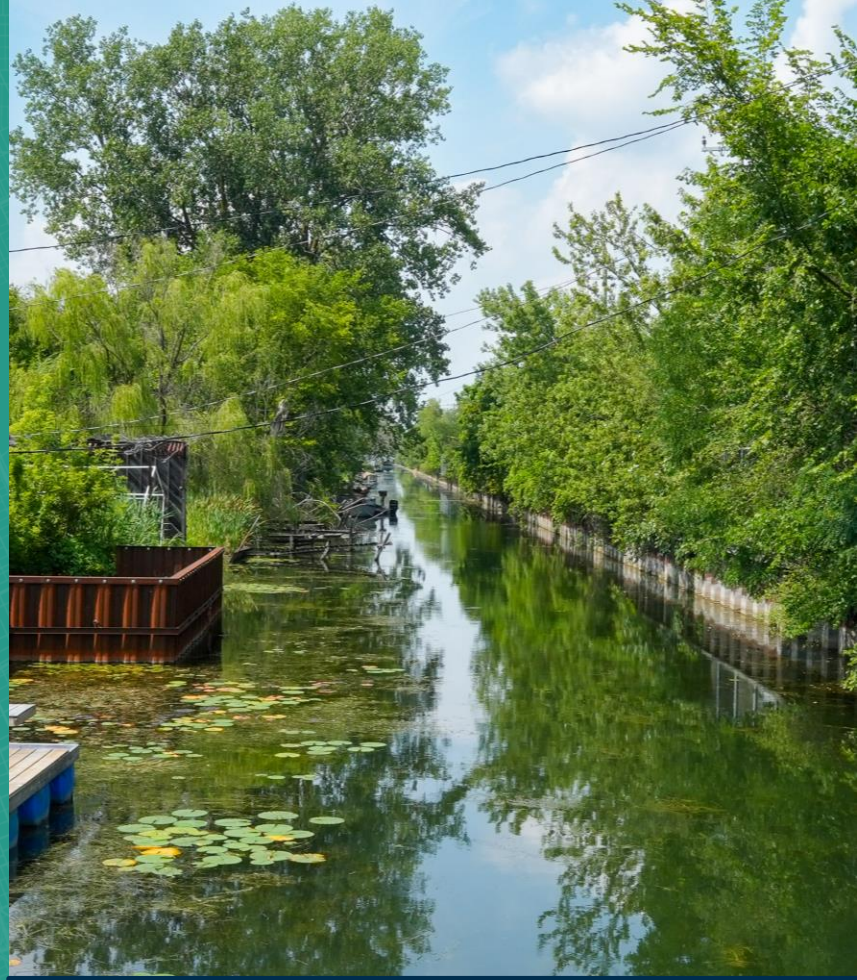
East Side Stormwater Resiliency Planning Study

Visioning Session

Water & Sewerage Department



For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Agenda

- Greetings and Introductions
- How the Sewer System Functions
- Planning Study Overview
- Potential Solutions & Design Concepts
- Next Steps

Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Visioning Session Purpose

- To share updates on technically feasible stormwater management strategies for Detroit's east side neighborhoods, developed from your input in Spring 2025.

- Collaboratively review and discuss these solutions to ensure they reflect your vision for the future of your neighborhoods.

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Project Team Introductions

Detroit Water and Sewerage Department

Lisa Wallick (Field Services Director)
Barry Brown II (Compliance Engineering Manager)
Bryan Peckinpaugh (Director of Public Affairs)
Sonali Patel (Infrastructure Communications Manager)
Anna Timmis (Project Engineer)
Grayson Obey (Project Engineer)
Juliana Witt (Project Engineer)

OHM Advisors (Consultant)

Patrick Droze (Project Manager)
Liz Whiddon (Project Engineer)
Madison Merzlyakov (Communications)

Drummond Carpenter (Consultant)

Donald Carpenter (Project Manager & Grant Administration)
Rachel Pieschek (Project Engineer)
Nathan Zgnilec (Project Engineer)

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

How the Sewer System Functions

Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Detroit Sewer System: Private Portion

Less than 20% of homes in Detroit have the sewer service line in front of the house, including some parts of Jefferson Chalmers and in several westside neighborhoods.

Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

What is stormwater?

Rainfall and snowmelt flow from impervious/hard surfaces into the combined sewer system. Impervious surfaces include:

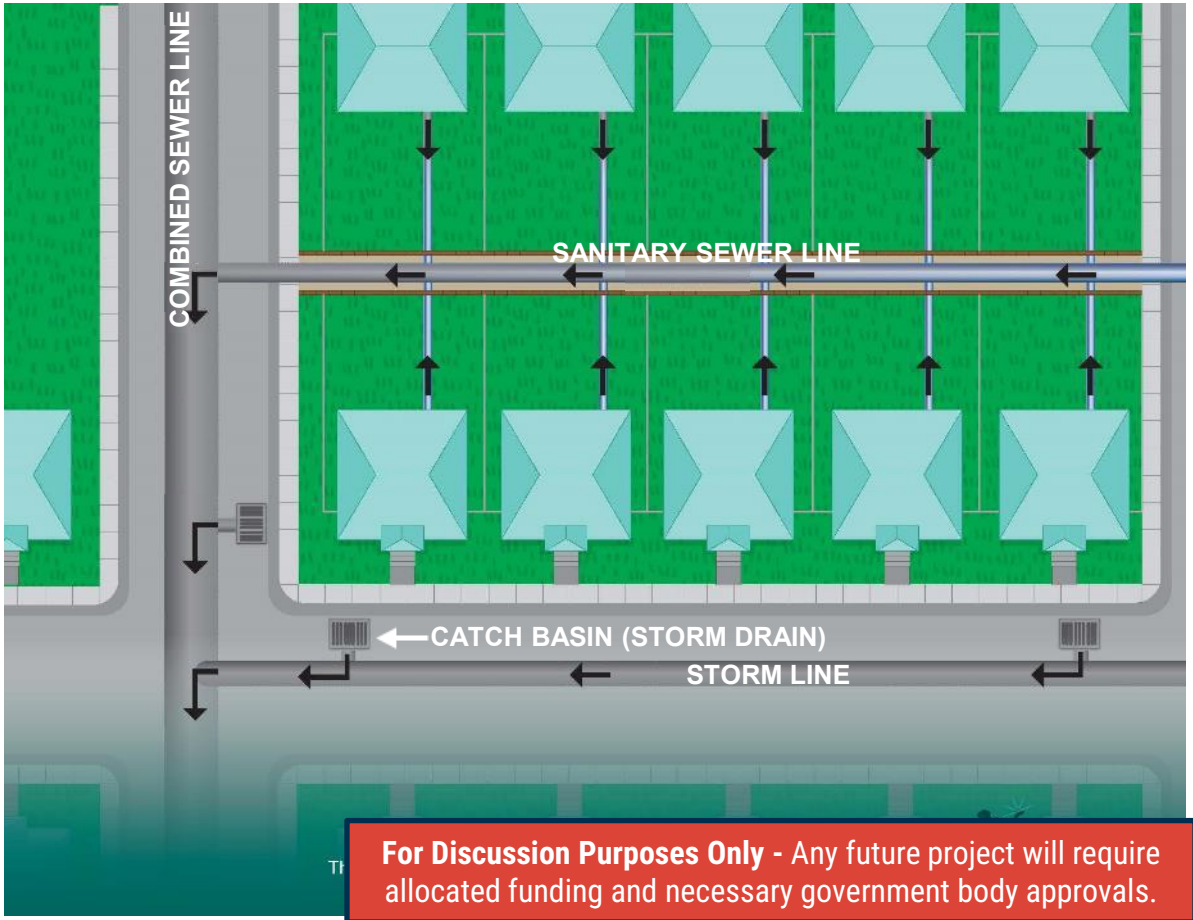
- Roofs
- Streets
- Sidewalks
- Driveways
- Parking lots

Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Combined Sewer System

The combined sewer system is separate from the water system – untreated sewage and stormwater is collected in pipes, pumped and treated at nine wet weather facilities, and full treatment at the GLWA Water Resource Recovery Facility.



Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Stormwater Management Strategies

Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Infrastructure Options to Manage Stormwater

Small-Scale Green Infrastructure

Local stormwater runoff is managed with **small-scale natural systems**. Soils and plants soak up stormwater where it falls before it can enter and overwhelm the combined sewer system.

- Little land use required
- Can be cost prohibitive
- Individual areas manage small rainfall events
- Native plants and trees can improve air and water quality

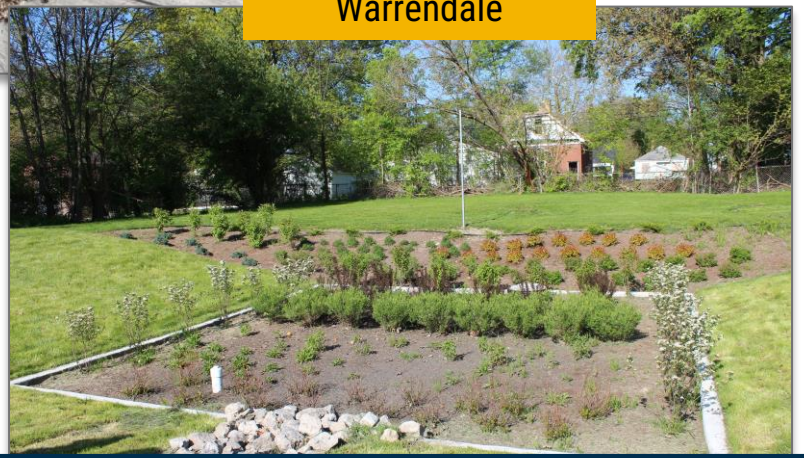
Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Local Examples of Small-Scale GSI

Viola Liuzzo Park

Warrendale



For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

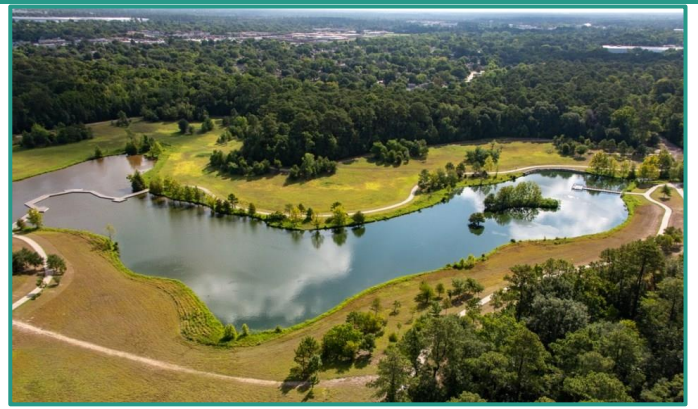
Water & Sewerage Department
CITY OF DETROIT

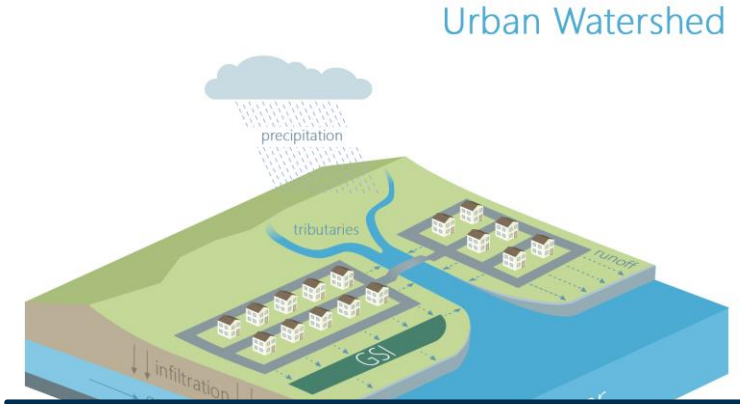
Infrastructure Options to Manage Stormwater

Large-Scale Green Infrastructure

Large-scale GSI captures stormwater runoff from a much larger area and can benefit multiple tributaries along a river rather than just localized areas.

- Requires more land —
- Cost effective 👍
- Can manage large storm events 👍
- Options for green spaces and functional amenities 👍





Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Local Examples of Large-Scale GSI

- Far West Stormwater Improvement Project in D7

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Water & Sewerage Department
CITY OF DETROIT

Local Examples of Large-Scale GSI

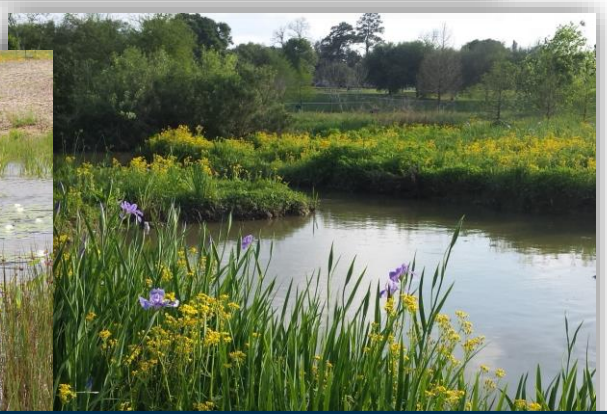
- Chandler Park Marsh

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Water & Sewerage Department
CITY OF DETROIT

National Examples of Large-Scale GSI

- Exploration Green in Clear Water (Houston, TX)



For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

CITY OF DETROIT Water & Sewerage Department

National Examples of Large-Scale GSI

- North Carolina Museum of Art Stormwater Pond (Raleigh, NC)

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

CITY OF DETROIT
Water & Sewerage Department

Infrastructure Options to Manage Stormwater

Grey Infrastructure

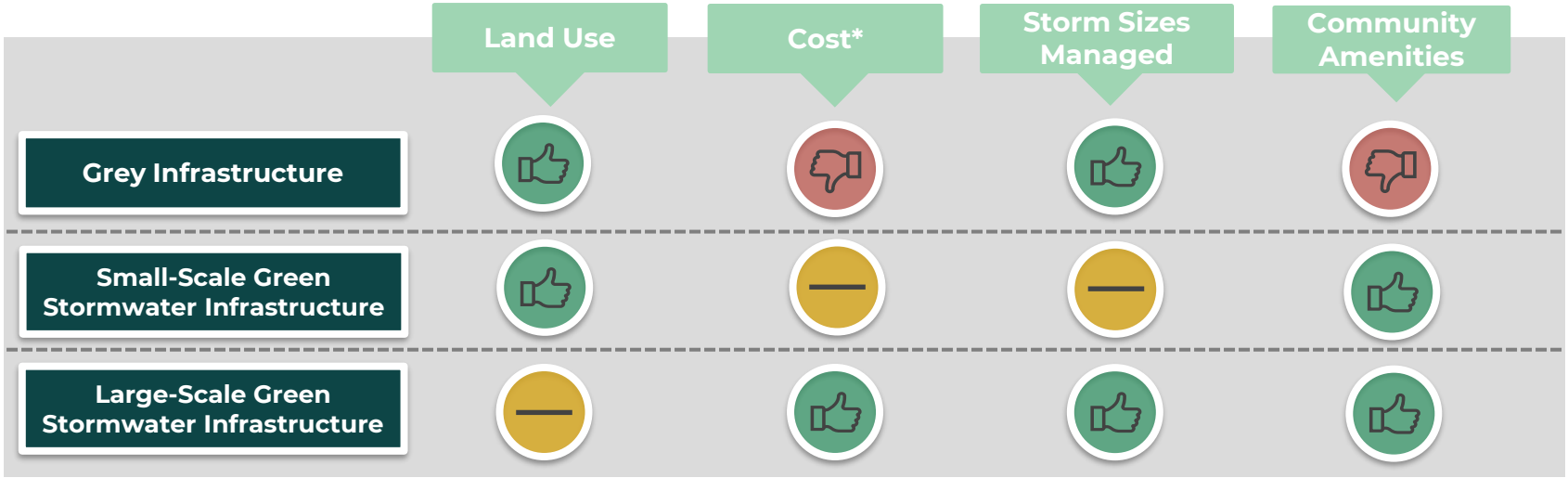
Stormwater runoff is managed with **traditional structures** such as underground sewers, underground basins, or water treatment plants which require pumps, gates, concrete tanks, chemical treatment, odor control, etc.

- Little land use required
- High cost for rate-payers
- Manages a variety of storm sizes
- Does not include green spaces or visible community amenities

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Comparison of Different Infrastructure Options



*DWSD evaluates all options and works towards the most cost-effective option to reduce impacts on rate payers.

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

East Side Stormwater Resiliency Planning Study

Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Grant Funding

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

DWSD has secured two grants totaling $660,000 which fully fund the East Side Stormwater Resiliency Study. Together, the grants allow for DWSD to advance the study without any use of ratepayer dollars.

EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

$480,000 - High Water Resiliency Grant

NATIONAL FISH AND WILDLIFE FOUNDATION NFWF

$180,000 - High Water Resiliency Grant

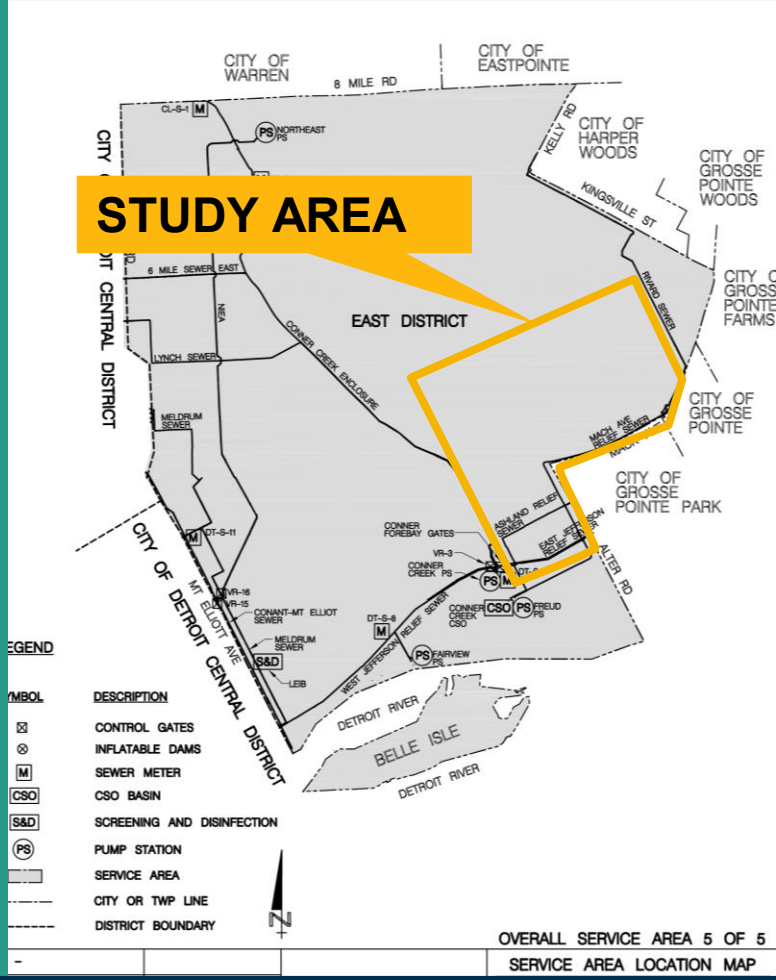
August 1, 2024
Site Tour with NOAA Staff and Legislative Staff

CITY OF DETROIT Water & Sewerage Department

East Side Sewer System

Detroit's east side sewer district is a 27 square mile area which collects and conveys sewage towards Connor Creek which is the lowest point in the east side system.

During wet weather events, these areas experiences extreme flooding due to its elevation.

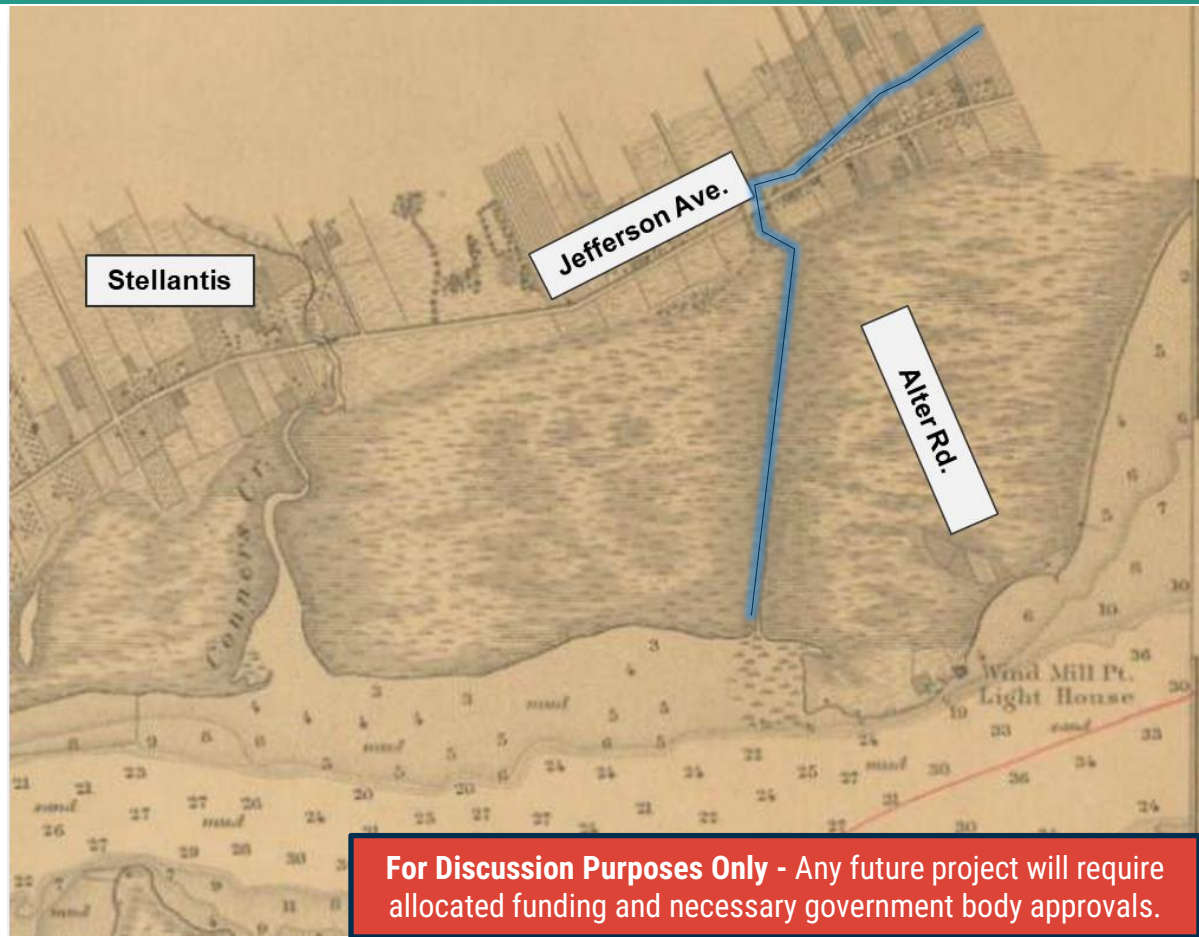


Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Historical Context

- Neighborhood in 1876
- Mostly marshland
- Quickly developed and built out by 1937



Water & Sewerage Department
CITY OF DETROIT

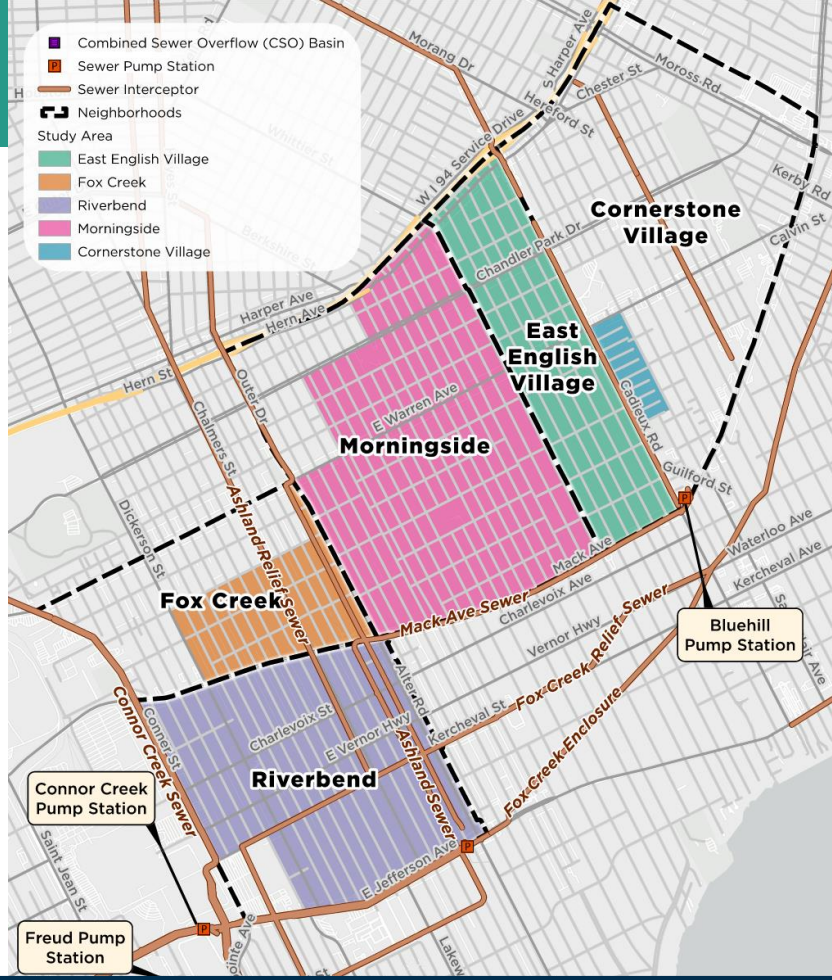
For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Planning Study Goals

The East Side Stormwater Planning Study will develop a plan and strategy for implementing feasible, affordable, near-term nature-based solutions for catastrophic flooding in Detroit.

This is a study, not a construction project. The study is not focused on areas outside the designated project area.

Drainage Area	Area (Acres)
East English Village	404
Fox Creek	202
Riverbend	665
Morningside	823
Cornerstone Village	47
TOTAL	2,141



For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Water & Sewerage Department
CITY OF DETROIT

Holistic Project Objectives

Flood Risk Reduction

Divert stormwater from the combined sewer system to reduce water in basements and street flooding

Infrastructure Resiliency

Find cost effective improvements in the DWSD and GLWA sewer system to reduce wet weather impacts

Water Quality

Improve water quality within the Fox Creek and east side canal network

Community Benefits

Enhance opportunity on the east side of Detroit through the creation of green stormwater infrastructure public spaces

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

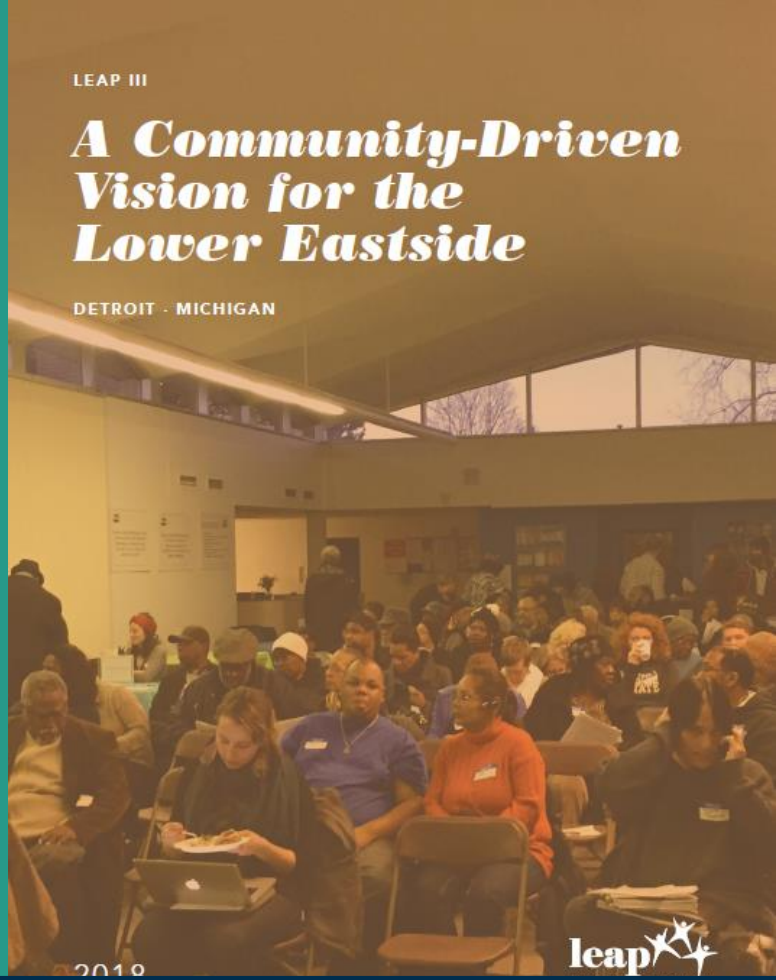
Planning Study Timeline

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Review of Past Planning

- LEAP III - A Community-Driven Vision for the Lower Eastside
- East Warren/Cadieux Framework Plan
- USACE Flood Risk Reduction Study for Jefferson-Chalmers
- Mack Avenue Improvement Plan



Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Previous Community Engagement

- 4 Community Meetings in Spring 2025
- Lawn signs with meeting information
- Emails to community leaders
- 28 Attendees:
  - Morningside: 4
  - East English Village: 4
  - Fox Creek: 1
  - Riverbend: 1
  - Cornerstone Village: 1
  - Other/Unknown: 17
- Presentation at East English Village Monthly Meeting (6/17) and D4 Community Meeting (7/21)

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Spring 2025 Community Meetings – What We Heard

- **Support for using vacant land to manage stormwater**, with interest in projects including amenities like gardens, wetlands, and educational spaces.
- **Rain gardens are widely supported**, especially in vacant lots and medians.
- **Support for removing underutilized roads** to reduce flooding, provided it doesn't displace residents or disrupt traffic flow.
- Desire for education around stormwater, collaboration with businesses and schools.
- Concerns about continued maintenance.

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

WORKSHOP: Potential Solutions and Design Concepts

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Technical Feasibility Evaluation

Land Use and Availability

Cost

Impact Area

Community Amenities

Schedule/Time to Implement

Water & Sewerage Department
CITY OF DETROIT

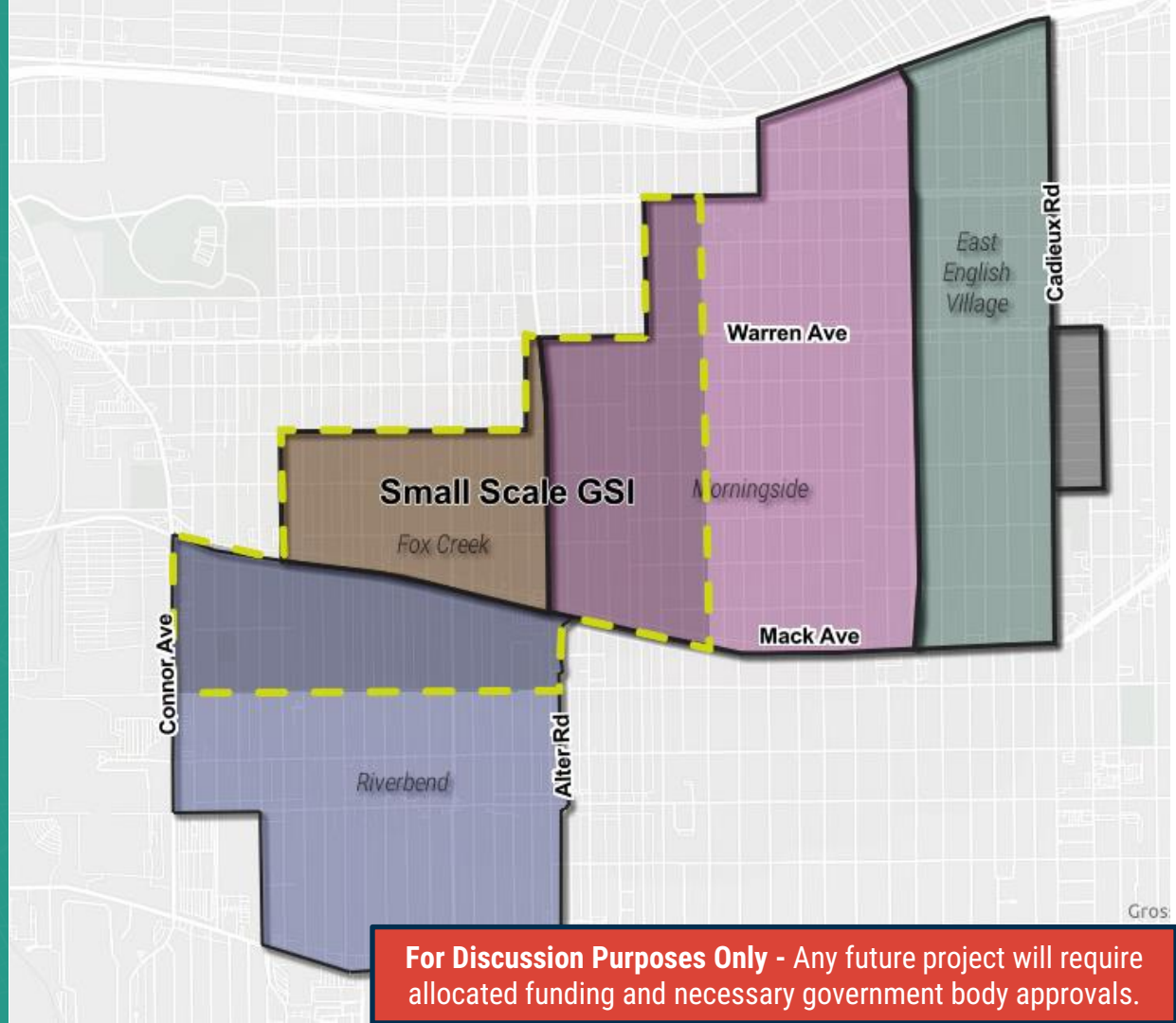
For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Small Scale GSI: Rain Gardens

- Viable in areas with vacant land
- Manages stormwater runoff close to where it is generated
- Minimal impact to existing neighborhood land use

Potential Neighborhoods:

- Riverbend
- Fox Creek
- Morningside



Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Small Scale GSI: Rain Gardens

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

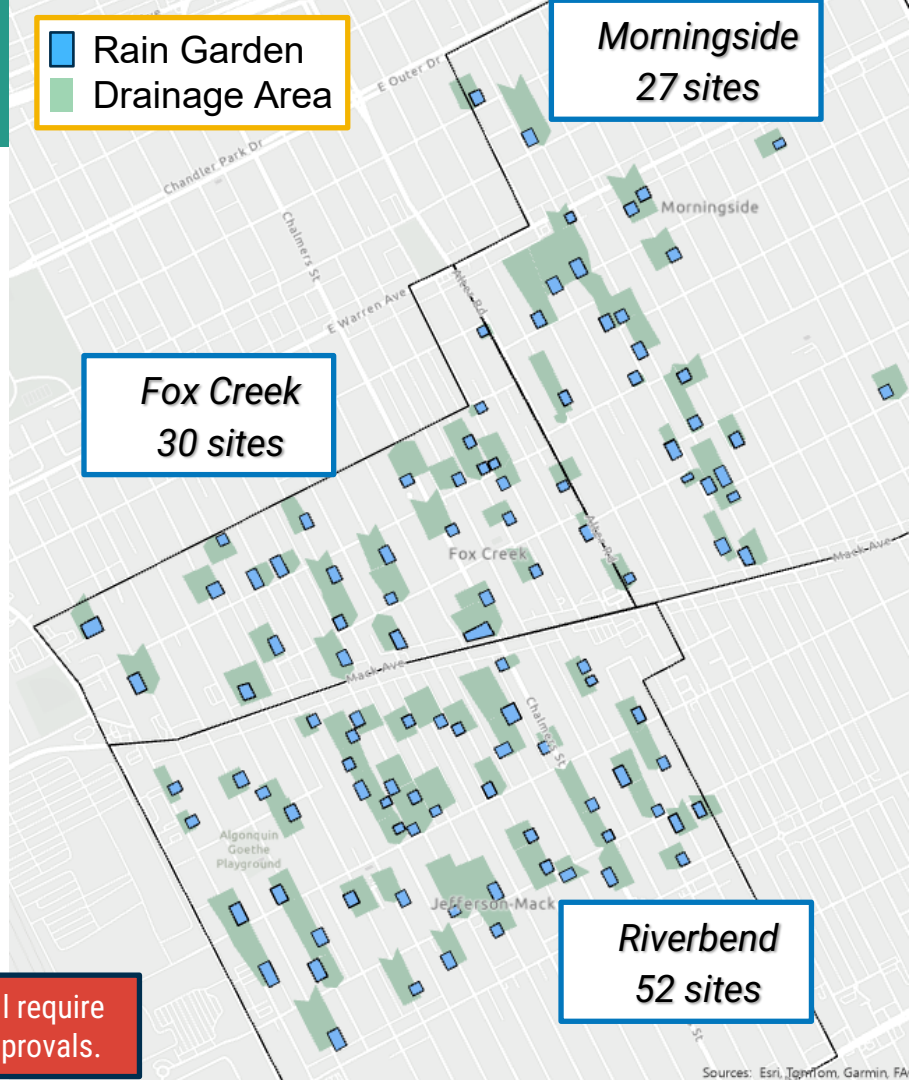
- Converting vacant parcels to rain gardens
- Utilizing +300 parcels
- 40 acres of vacant land

Water & Sewerage Department
CITY OF DETROIT

Small-Scale GSI: Rain Gardens

- Local runoff flows to vacant parcels by gravity
- Rain gardens provide temporary storage of rainfall
- 109 rain gardens provide 11M gallons of stormwater storage

Rain gardens can be implemented in a variety of combinations



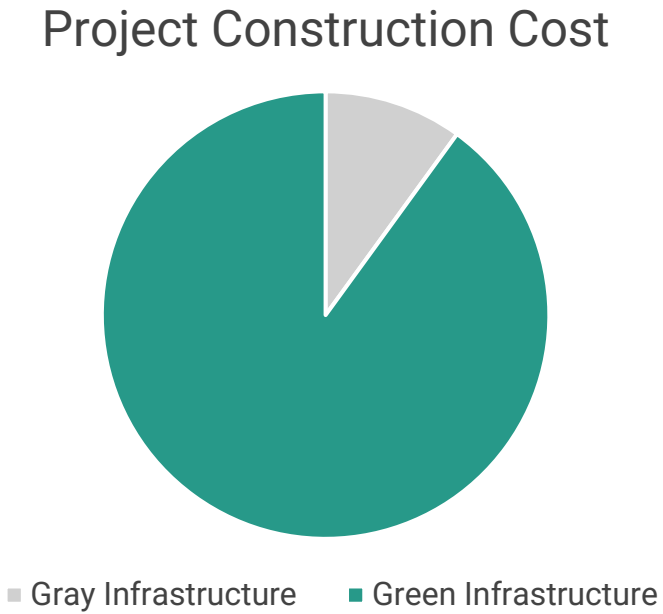
Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Small-Scale GSI: Rain Garden Example

Size of Green Stormwater Infrastructure	3 Acres
Size of Drainage Area Managed	15 Acres
Storm Size Managed	
Project Construction Cost	
Long Term Maintenance Cost	
Time to Implement	

Metrics are for a single rain garden



Water & Sewerage Department
CITY OF DETROIT

Potential challenges: Availability of land, funding

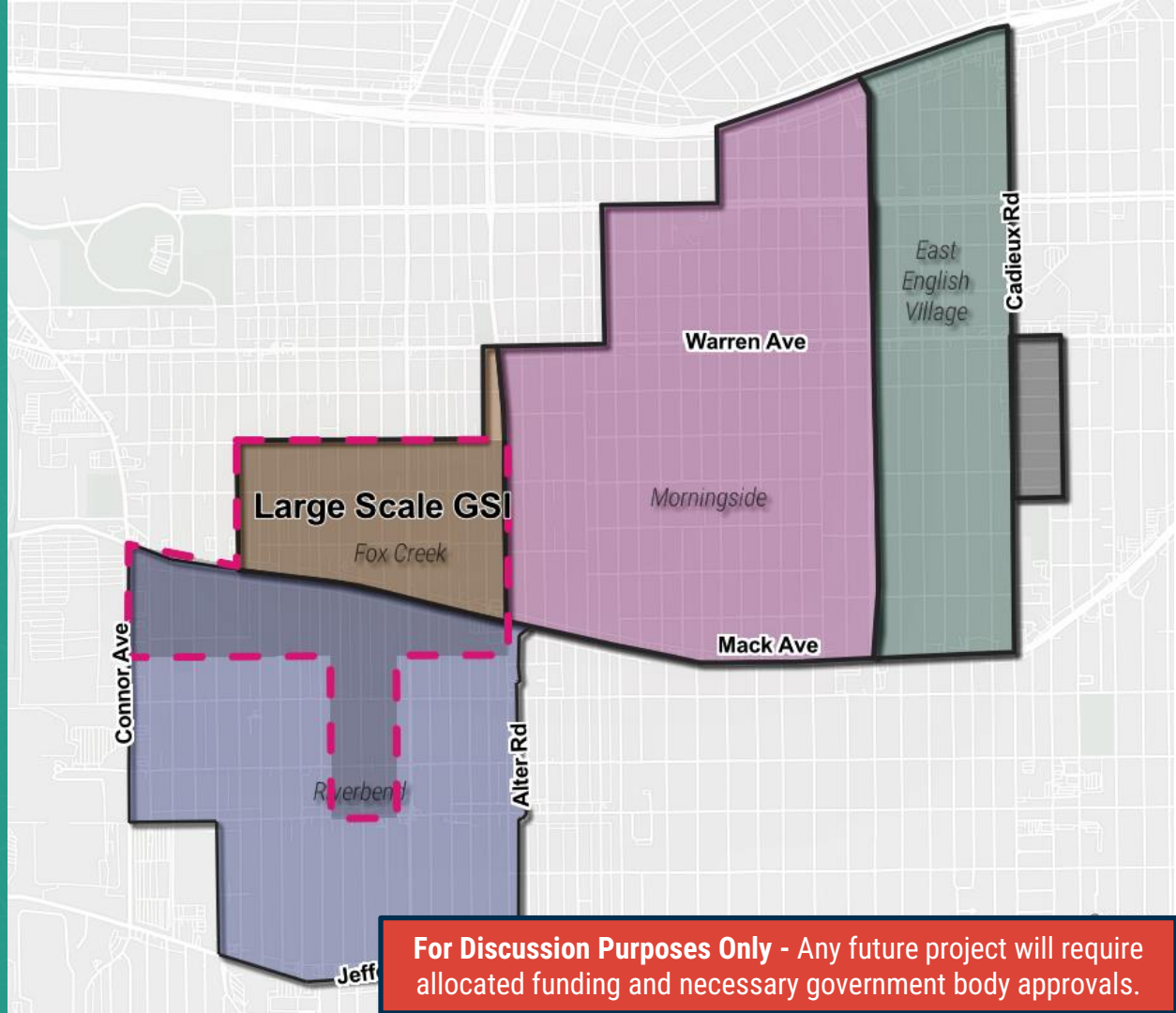
For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Large Scale GSI:
Stormwater Channels

- Viable in areas with large stretches of vacant land
- Manages stormwater within neighborhoods where it is generated
- Potentially large impacts to existing neighborhood land use

Potential Neighborhoods:

- Riverbend
- Fox Creek
- Morningside

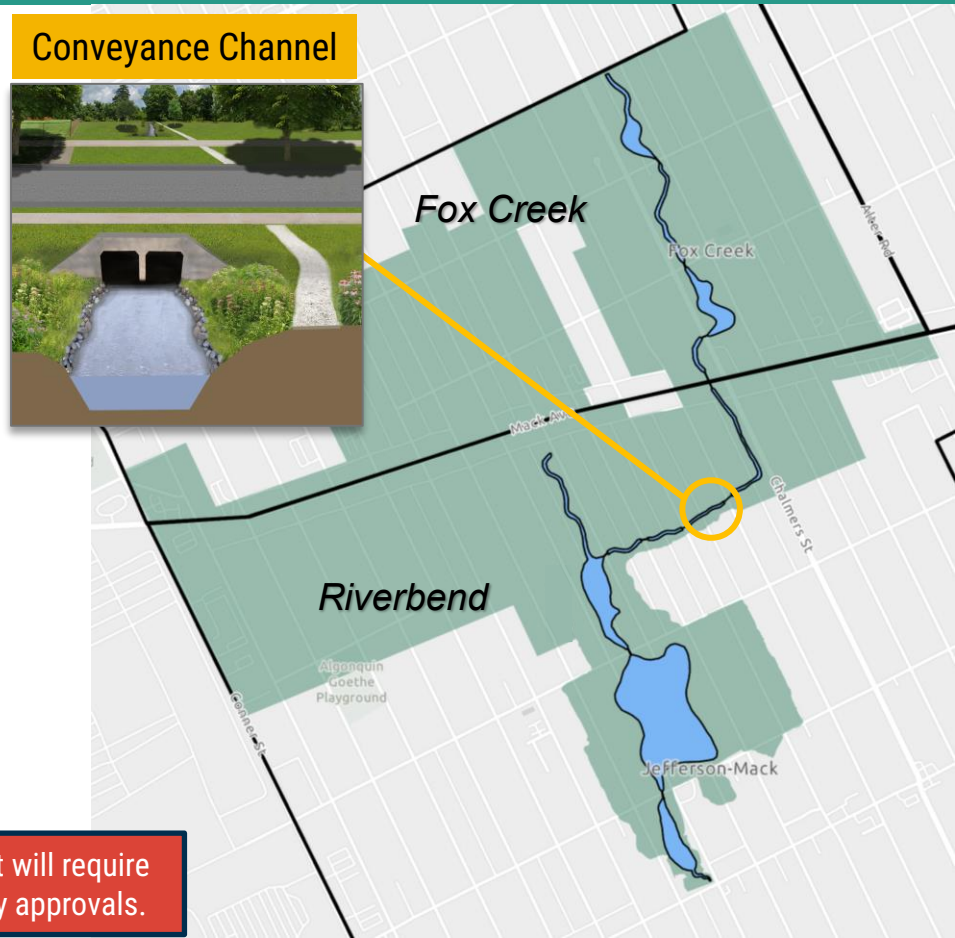


City of Detroit Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Large-Scale GSI: Stormwater Channels

- 274 total parcels / 42 acres
- Conveyance channels move water from north to south
- Converting vacant parcels to large-scale stormwater detention basins
- Basins capture and hold stormwater during rain events

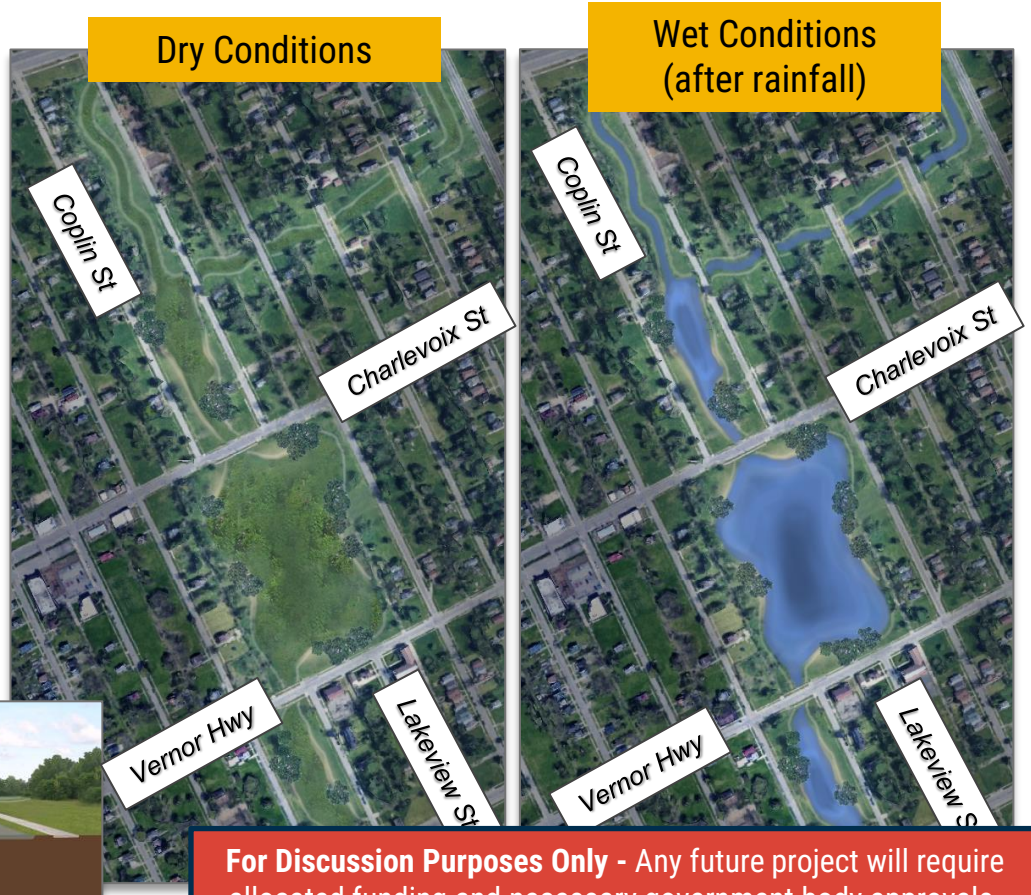


Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Large-Scale GSI: Stormwater Channels

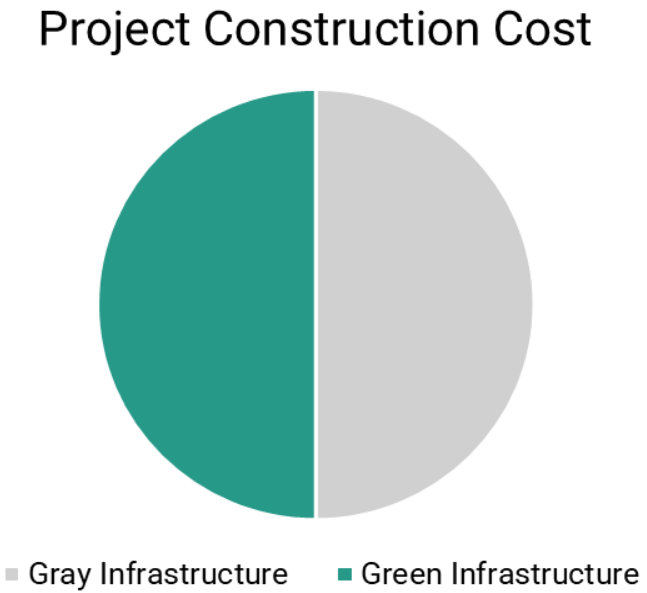
- Stormwater discharge options:
  - Into the combined sewer
  - Into the Detroit River using a pump station
  - Into another stormwater practice that connects to the Detroit River or Fox Creek



For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Large-Scale GSI: Stormwater Channels

Size of Green Stormwater Infrastructure	42 Acres
Size of Drainage Area Managed	192 Acres
Storm Size Managed	5 drops
Project Construction Cost	$ $ $ $ $
Long Term Maintenance Cost	$ $ $ $ $
Time to Implement	3 of 5



Water & Sewerage Department
CITY OF DETROIT

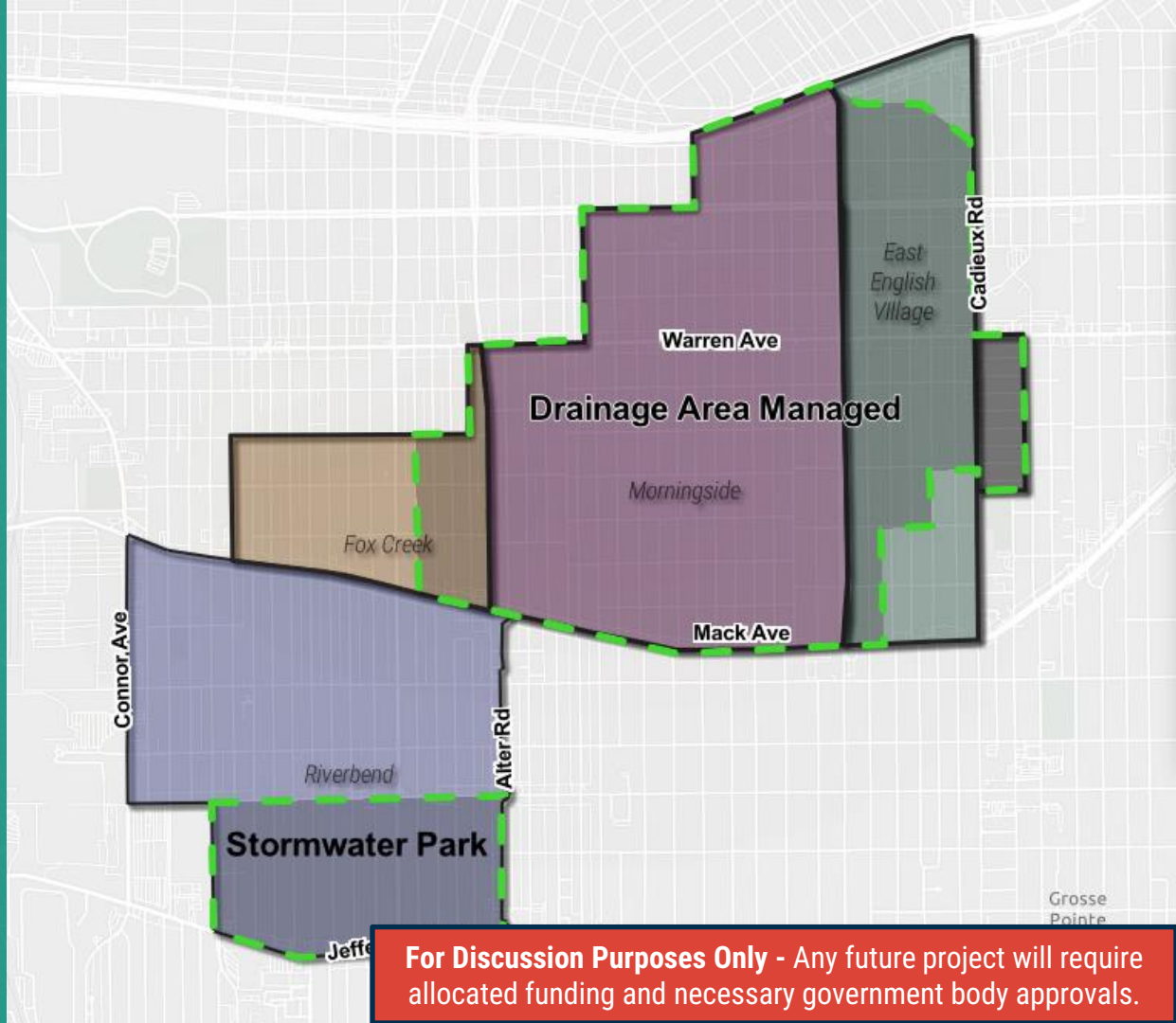
Potential challenges: Availability of land, funding, impact to cost to integrate with GLWA system

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Large Scale GSI:
Stormwater Park

- Utilizes vacant land in other areas of the City by using existing sewer system.
- No impact to land within managed neighborhoods

Potential Neighborhoods:
- Morningside
- East English Village
- Cornerstone Village
- Riverbend (for basin)



Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

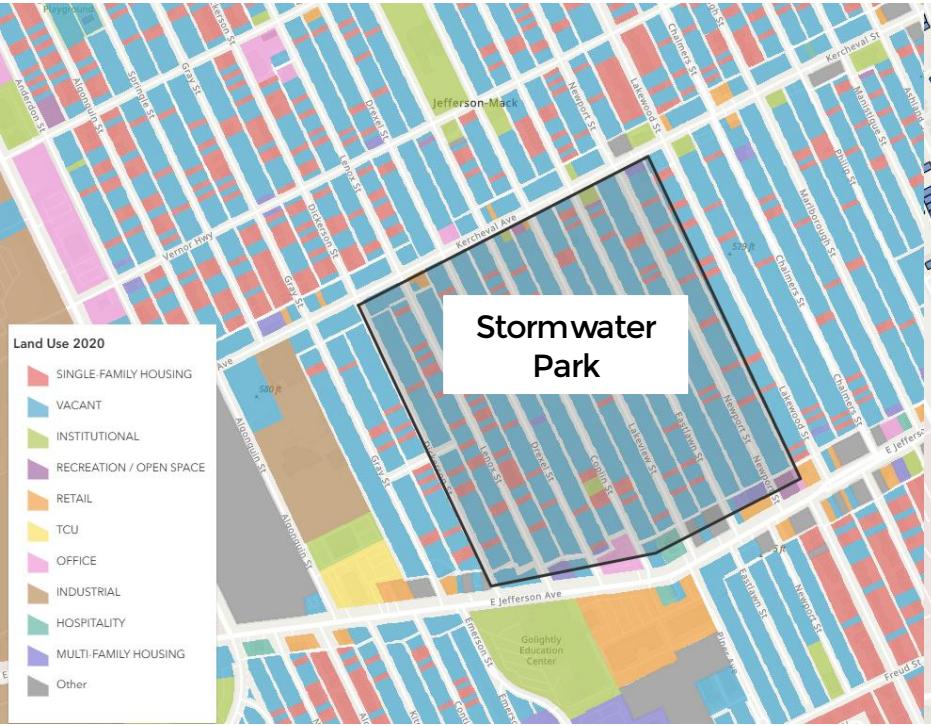
Large Scale GSI: Stormwater Park

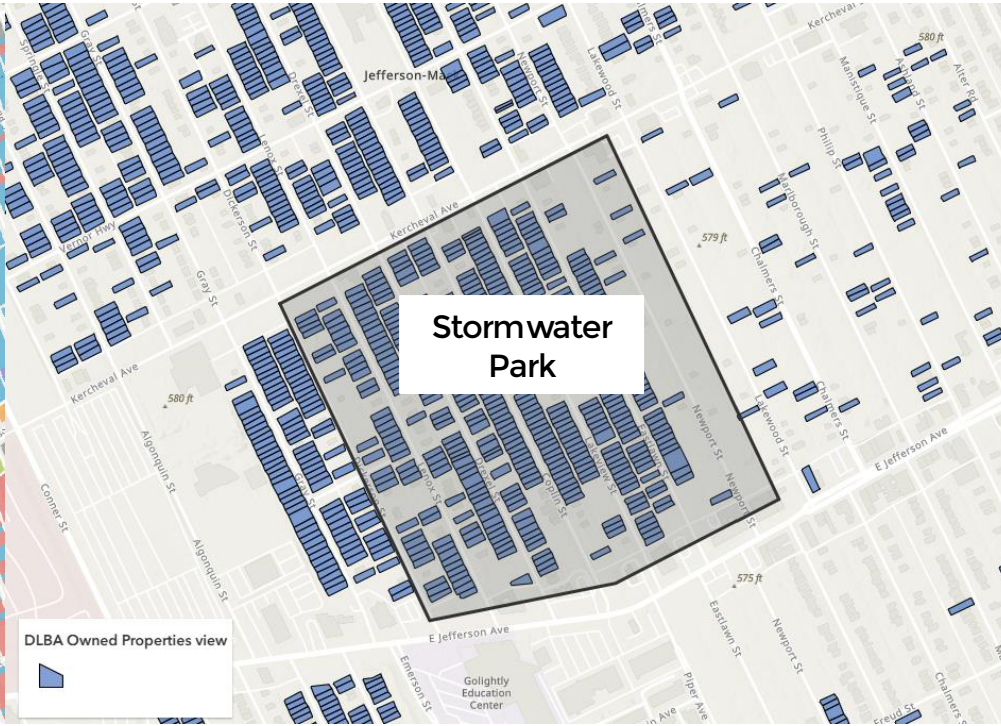
- Leverages existing infrastructure to convey stormwater runoff from more than 680-acres
- Adjust more than 52 miles of existing storm pipe
- The Fox Creek enclosure will be converted back to a stormwater only drainage way before discharging into GSI in the Stormwater Park
- The Stormwater Park utilizes vacant land in Riverbend and can provide at least 90-acres of stormwater management practices
- This area to be designed based on resident preference for future land use

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Stormwater Park – Current Land Use





Water & Sewerage Department

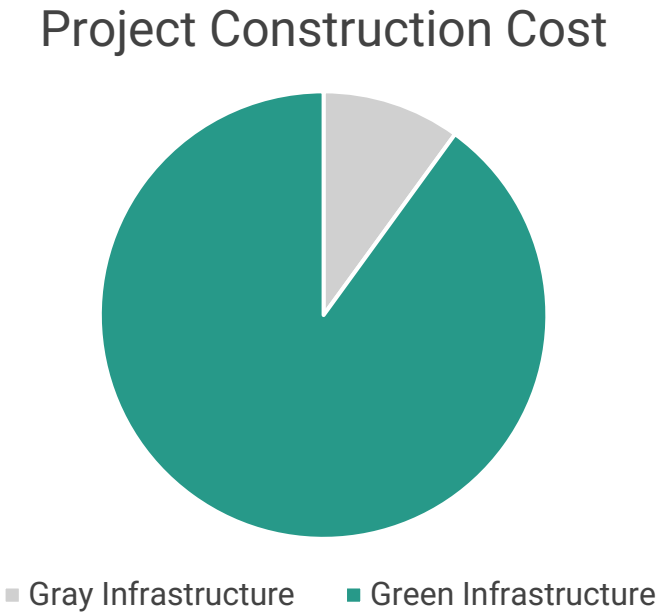
For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Rendering of alternative at future Stormwater Park

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Large Scale GSI: Stormwater Park

Size of Green Stormwater Infrastructure	45-90 Acres
Size of Drainage Area Managed	680 Acres
Storm Size Managed	
Project Construction Cost	
Long Term Maintenance Cost	
Time to Implement	



Water & Sewerage Department
CITY OF DETROIT

Potential challenges: Availability of land, funding, impact to cost to integrate with GLWA system

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Group Discussion

For each potential solution:

- What questions do you have?
- What do you like the most?
- What do you like the least?
- How do you see yourself using this space?

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Next Steps

- Project team will incorporate your feedback and finalize the report.
- Planning studies are a key step in getting funding for construction projects!
- Sign up for emails to stay up to date!

Water & Sewerage Department
CITY OF DETROIT

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.

Thank You

Questions or additional feedback?

313-267-8000

dwsd-publicaffairs@detroitmi.gov

www.detroitmi.gov/DWSD

CITY OF DETROIT
Water & Sewerage Department

For Discussion Purposes Only - Any future project will require allocated funding and necessary government body approvals.