Improving Stormwater Management on Oakman Boulevard Through GSI

February 20, 2020

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Water & Sewerage Department

Oakman Boulevard

WELCOME

Palencia Mobley, P.E.

DWSD Deputy Director & Chief Engineer

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Aviation Sub and District 7

Gabe Leland

Detroit City Council – District 7

Oakman Boulevard

Project Overview

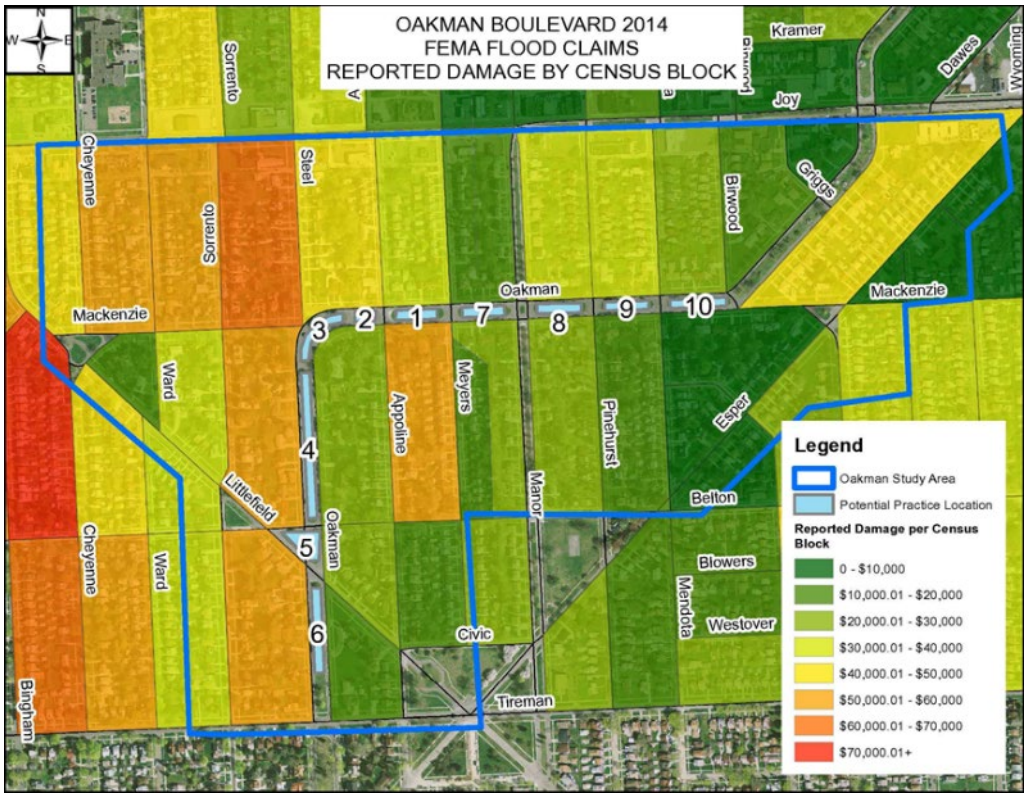
- **Lisa Wallick, P.E.**
  Manager, DWSD Stormwater Management Group

- **Barry L. Brown**
  Engineer, DWSD Stormwater Management Group

Oakman Boulevard

Why a Stormwater Management Project for Oakman Boulevard?

- **Addresses state regulatory requirement** while addressing local flooding
- **Extreme** flooding in Detroit during **August 2014**
  - **450 homes** (56%) in the Oakman Boulevard area suffered basement backup during the 2014 storm
  - **Estimated** economic impact of **$5 million**
  - **Commitment** made to residents to address the problem



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Technical Considerations for Managing Stormwater: Opportunity on the Medians

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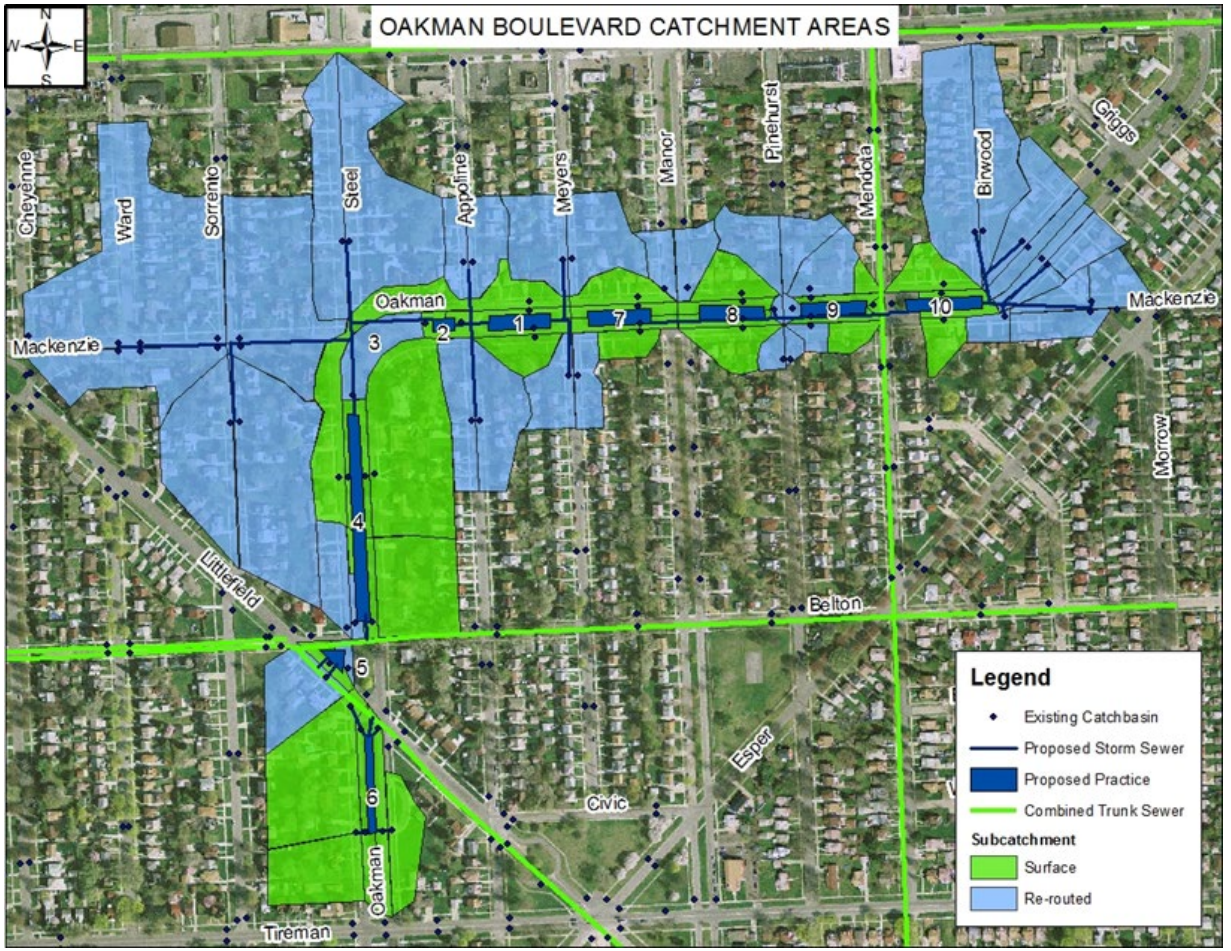
Evaluating Project Drainage Area

Feasible **surface** GSI drainage area = 20.5 acres

Additional **subsurface** drainage area = 42.5 acres

Total drainage area = 63 acres



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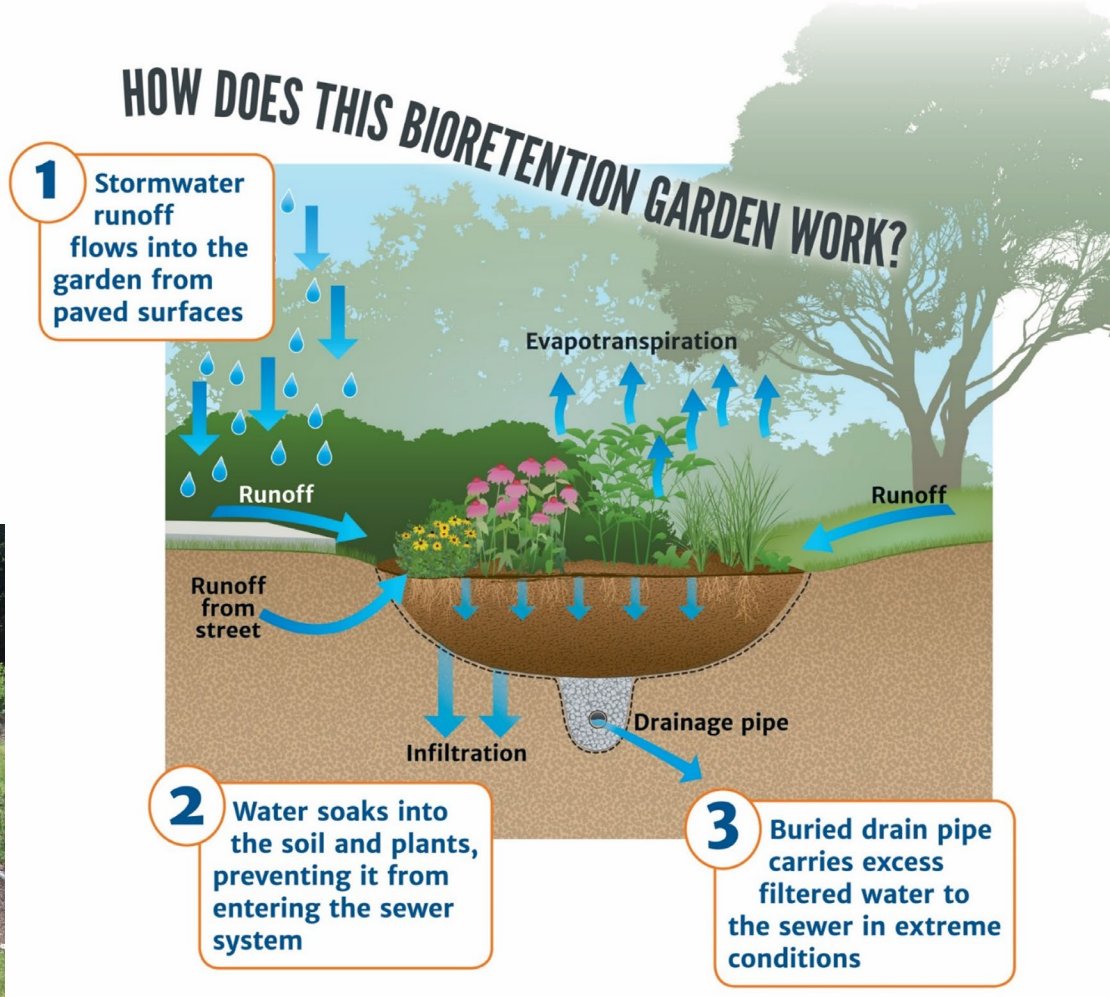
Surface Bioretention



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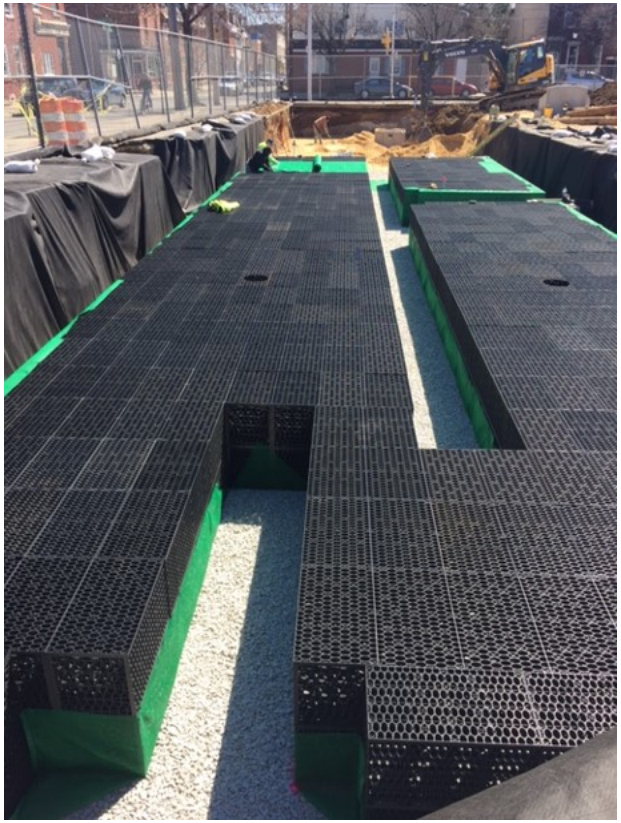
Median Subsurface Storage

- **Designed** to temporarily **store** and **slowly release** runoff to the combined sewer system with a **controlled outlet**

- **Located** under **8 medians**
  - **Co-located** with surface bioretention
  - **Located** to **avoid** areas with protected **trees**



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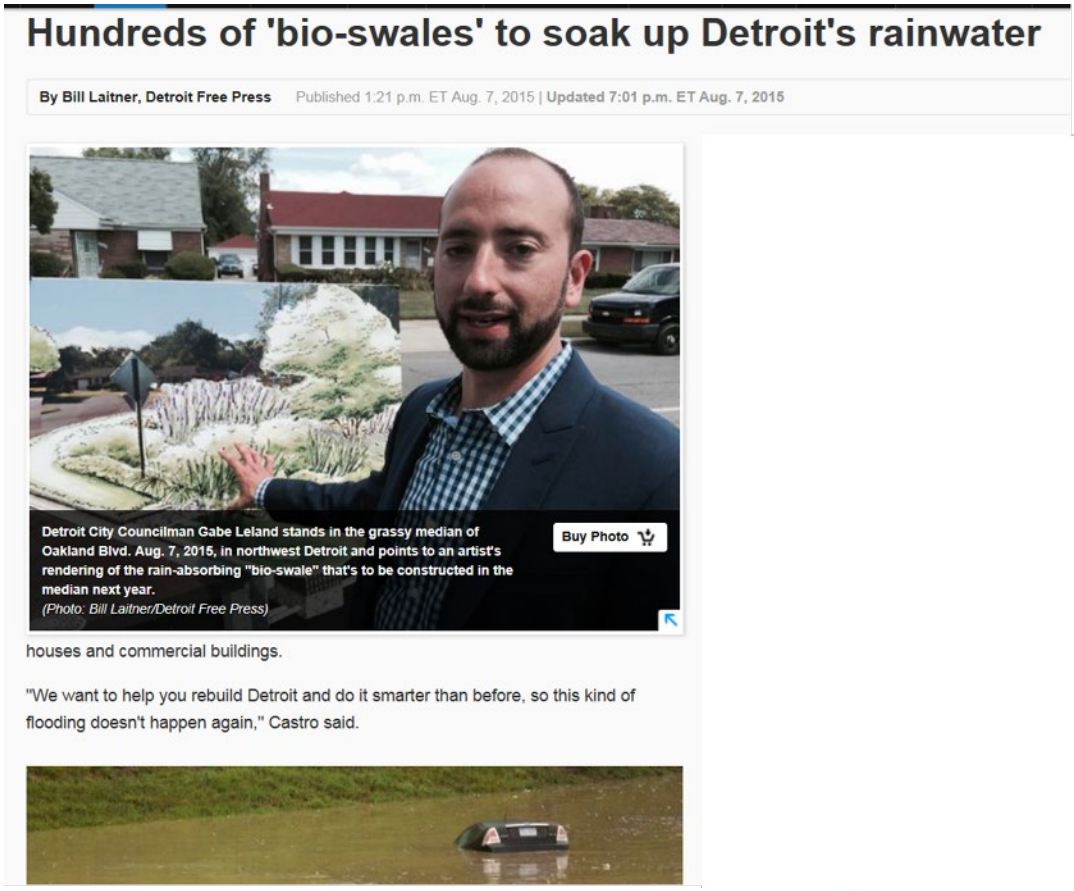
Project Goals and Benefits

Primary Goals:

- Maximize feasible stormwater control for CSO reduction
- Reduce flow loading on local sewers
- Reduce local flooding

Desired Benefits:

- Economic
- Public health protection
- Private property protection
- Beautification



Hundreds of 'bio-swales' to soak up Detroit's rainwater

By Bill Laitner, Detroit Free Press Published 1:21 p.m. ET Aug. 7, 2015 | Updated 7:01 p.m. ET Aug. 7, 2015

Detroit City Councilman Gabe Leland stands in the grassy median of Oakland Blvd. Aug. 7, 2015, in northwest Detroit and points to an artist's rendering of the rain-absorbing "bio-swale" that's to be constructed in the median next year.
(Photo: Bill Laitner/Detroit Free Press)

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houses and commercial buildings.

"We want to help you rebuild Detroit and do it smarter than before, so this kind of flooding doesn't happen again," Castro said.

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Public Outreach and Stakeholder Engagement

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Planned Median Landscape Changes

Existing Median

Proposed Planned Landscape (above subsurface storage)

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Vegetation Enhancement for Proposed Planting Design

Planting 78 new trees and 465 shrubs

Keeping 21 existing trees

Relocating 1 tree

Removing 71 trees and 40 shrubs that were in poor condition

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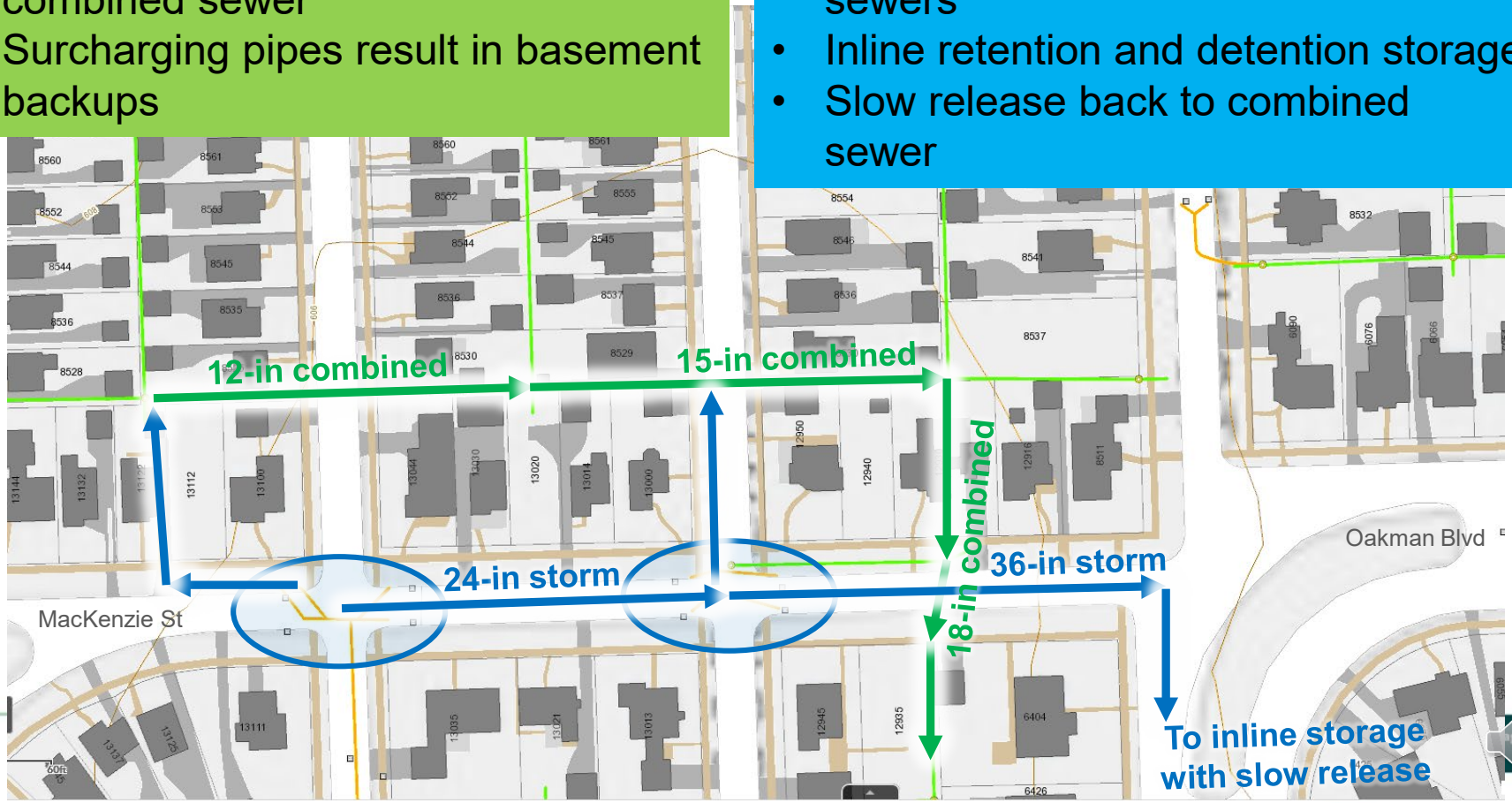
Drainage Patterns Existing and Proposed

Existing Conditions

- Catch basins connected to small combined sewer
- Surcharging pipes result in basement backups

Future Conditions

- Catch basins rerouted to larger storm sewers
- Inline retention and detention storage
- Slow release back to combined sewer



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Roads Anticipated to be Affected by Construction

- Oakman Blvd from Tireman Ave to Joy Rd.
- Mackenzie St. from Ward Ave. to Oakman Blvd.
- Belton St. at Oakman Ave.
- Steel St., Appoline St., Meyers Rd., Manor Ave., Pinehurst St., Mendota St., and Birwood Ave at Oakman Blvd and approximately north and south of Oakman Blvd. at each of these streets

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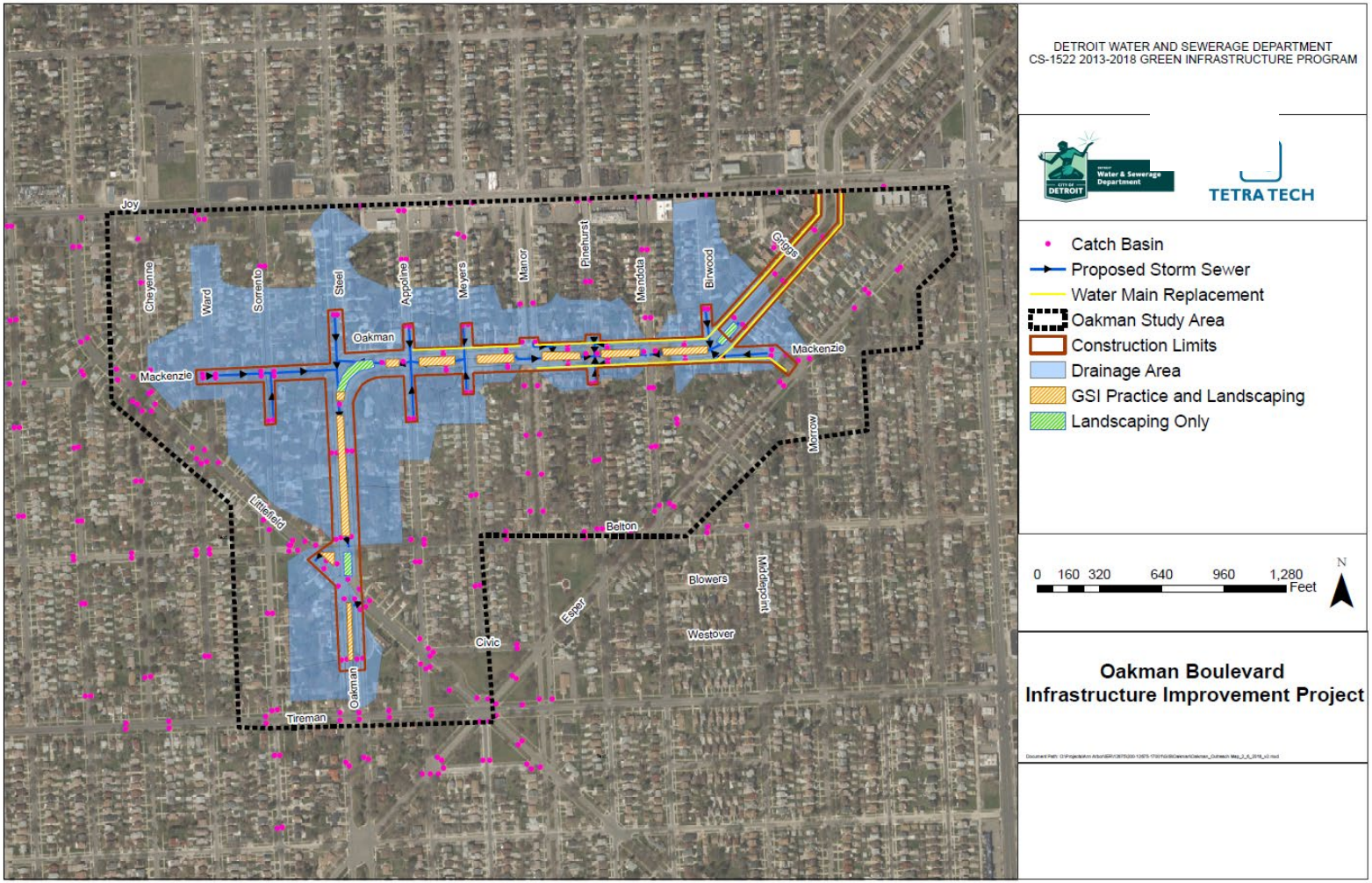
Final GSI Project Area



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Final GSI Project Components

- **Bioretention** on the median for direct surface flow
- **Subsurface storage** under medians for greater volume management and larger tributary area
- **Infrastructure** to redirect stormwater and reconnect flow around local bottlenecks and sensitive areas
  - Storm sewers to collect and convey stormwater to the subsurface storage
  - Curb cuts, catch basins, and shallow storm sewers to convey stormwater to surface bioretention

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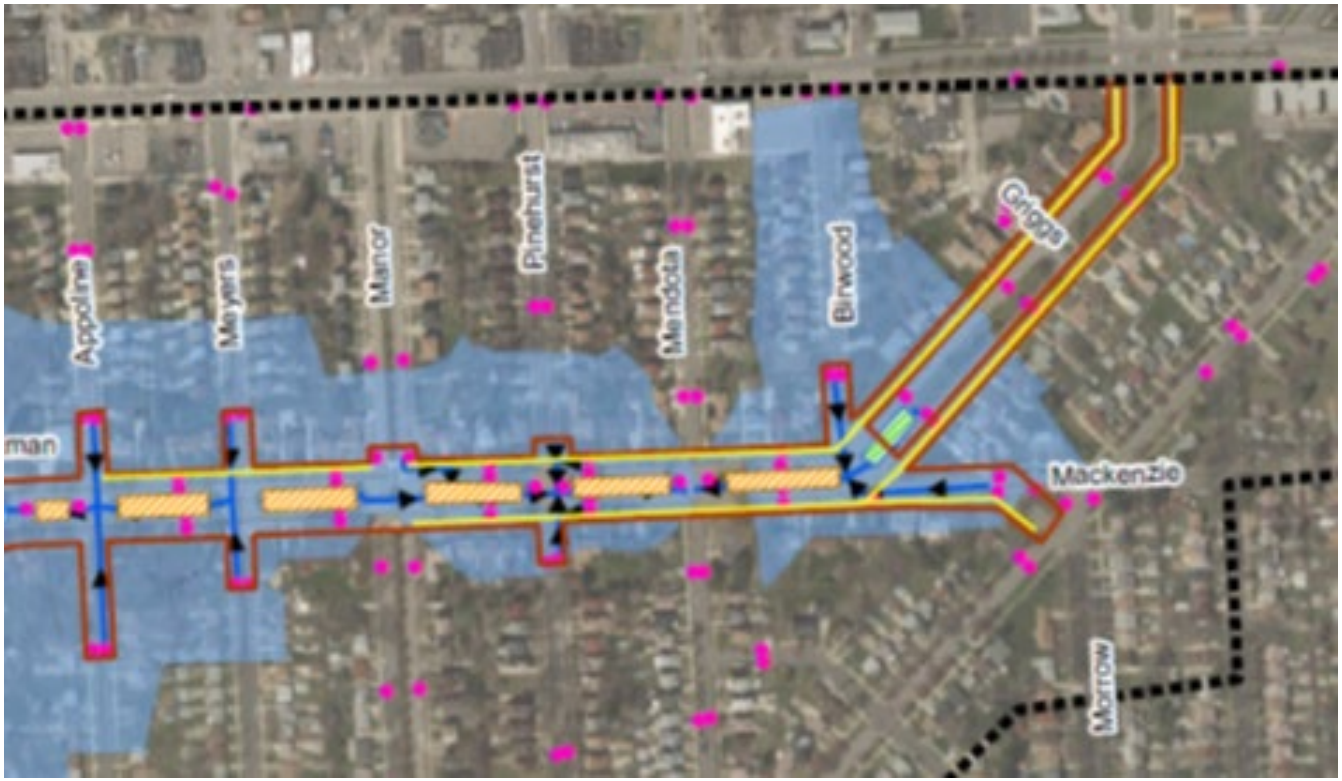
Coordination with Water Main and Lead Service Line Replacement



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Project Contractor

Blaze Contracting, Inc.

- **Ahmad Hoballah, P.E.** – Project Manager
- **Gayl Turk** – Director of Business Development

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2020 Construction Season Key Dates

- Exploratory Investigation: March 2 – March 20
- Mobilization: March 26
- Soil Erosion and Sedimentation Control: March 30 – April 1
- Tree Removals across the project site: April 2

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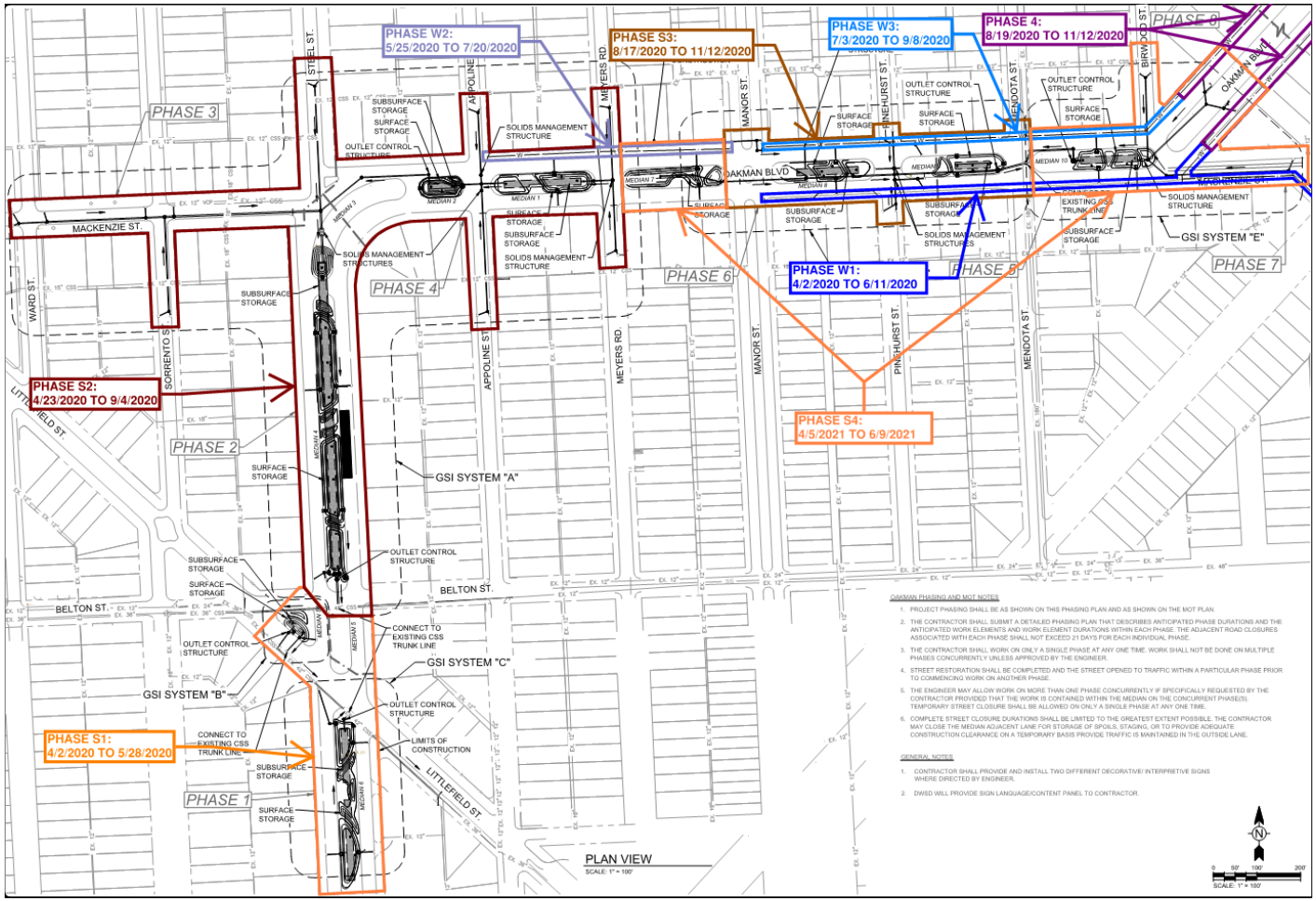
Construction Phasing and Timing



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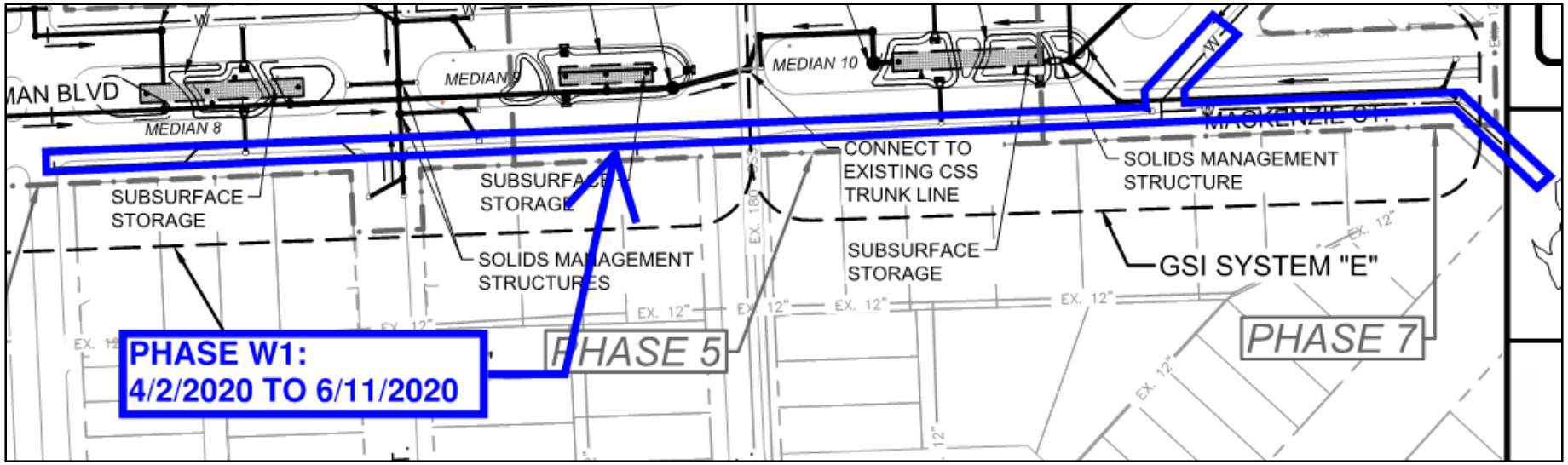
Water Main Phasing

Phase W1: Manor Street to Esper Street (South)



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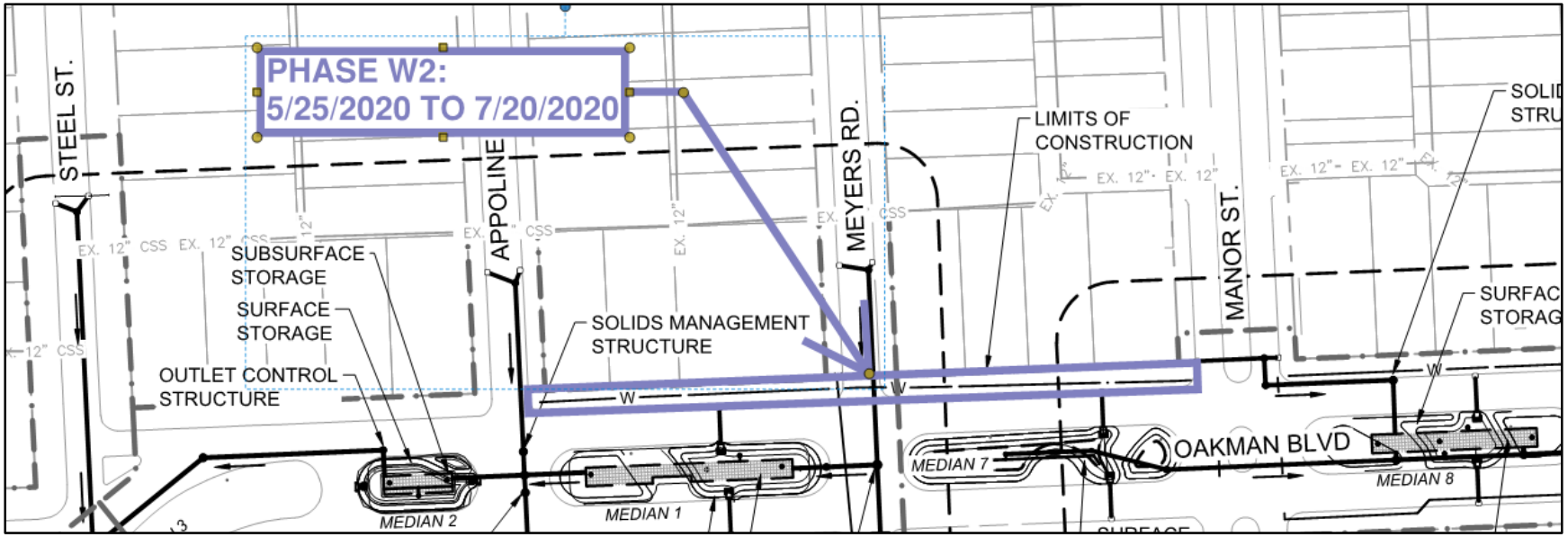
Water Main Phasing

Phase W2: Appoline to Manor Street (North)



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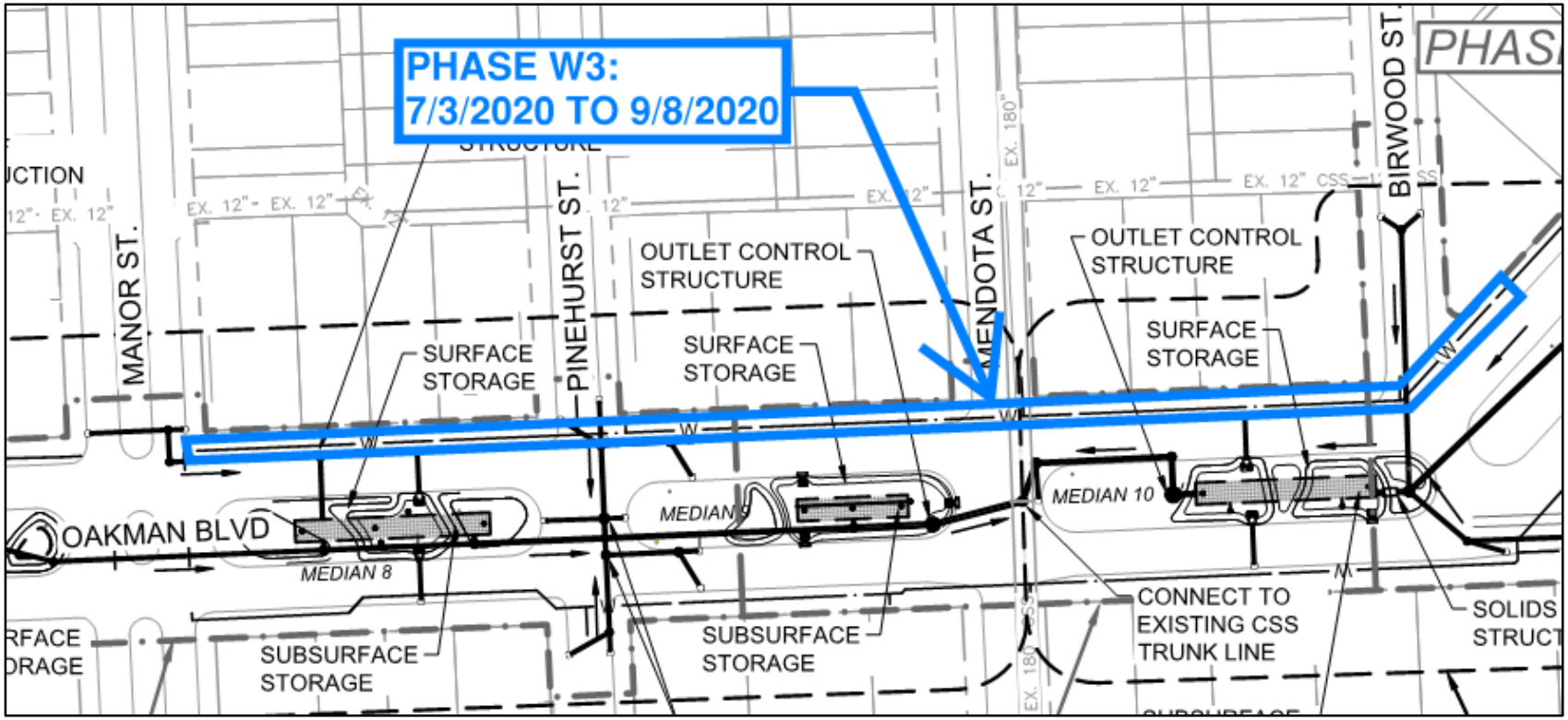
Water Main Phasing

Phase W3: Manor Street to Birwood Street (North)



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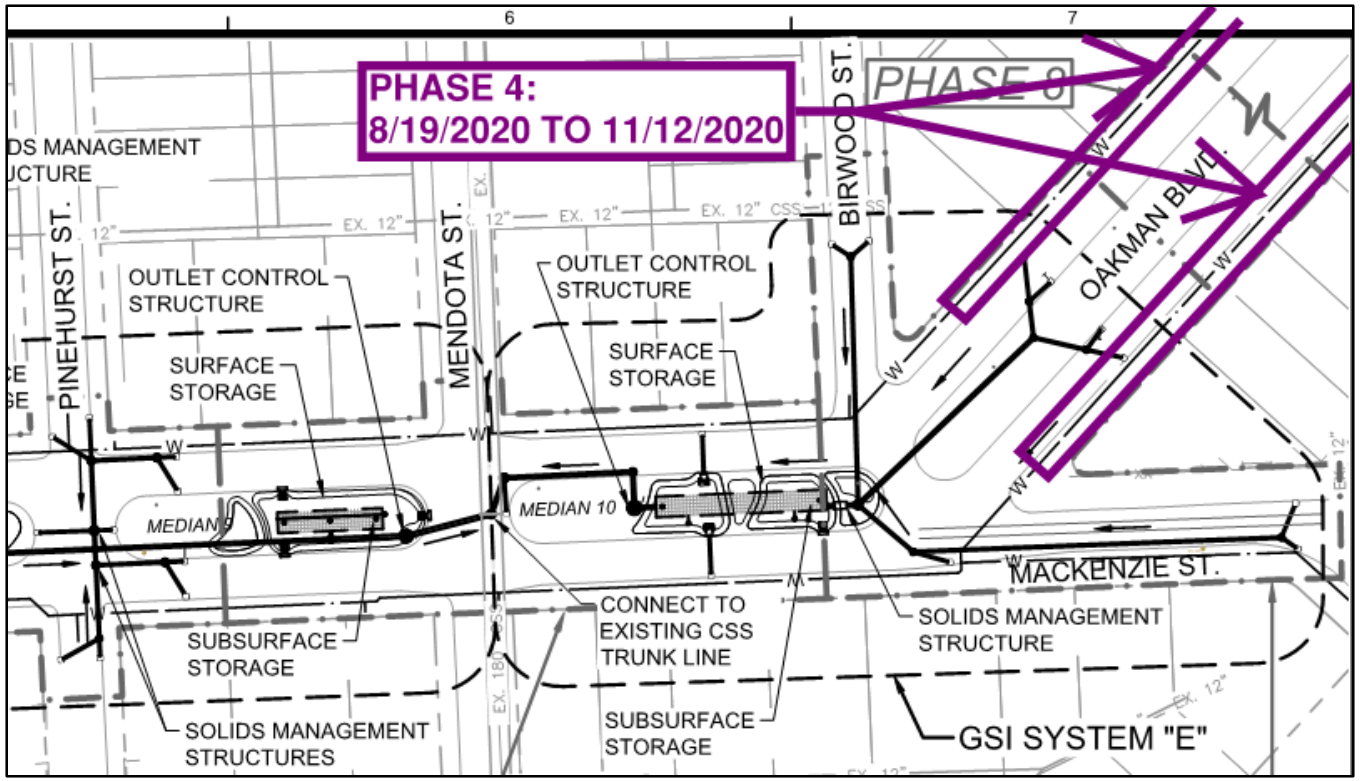
Water Main Phasing

Phase W4: MacKenzie to Joy Road (East and West)



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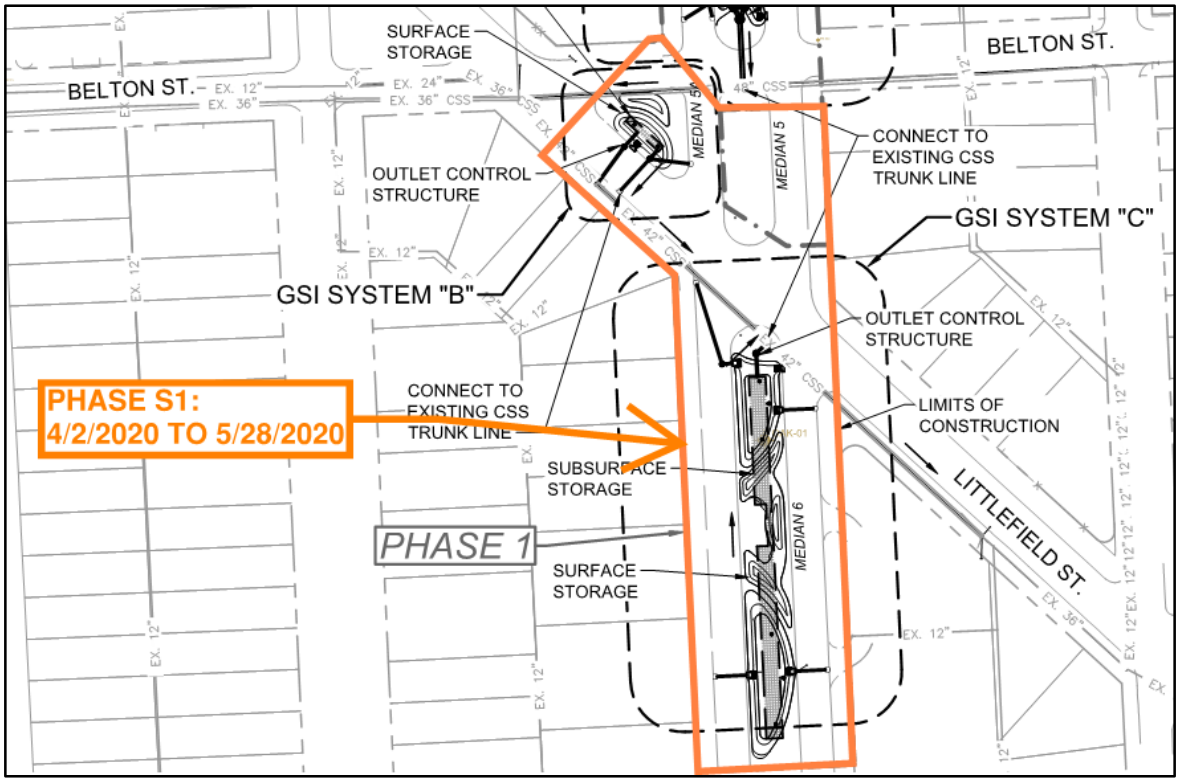
Green Stormwater Infrastructure Phasing

Phase S1: Tireman Avenue to Littlefield Street (Medians 6 & 5A)



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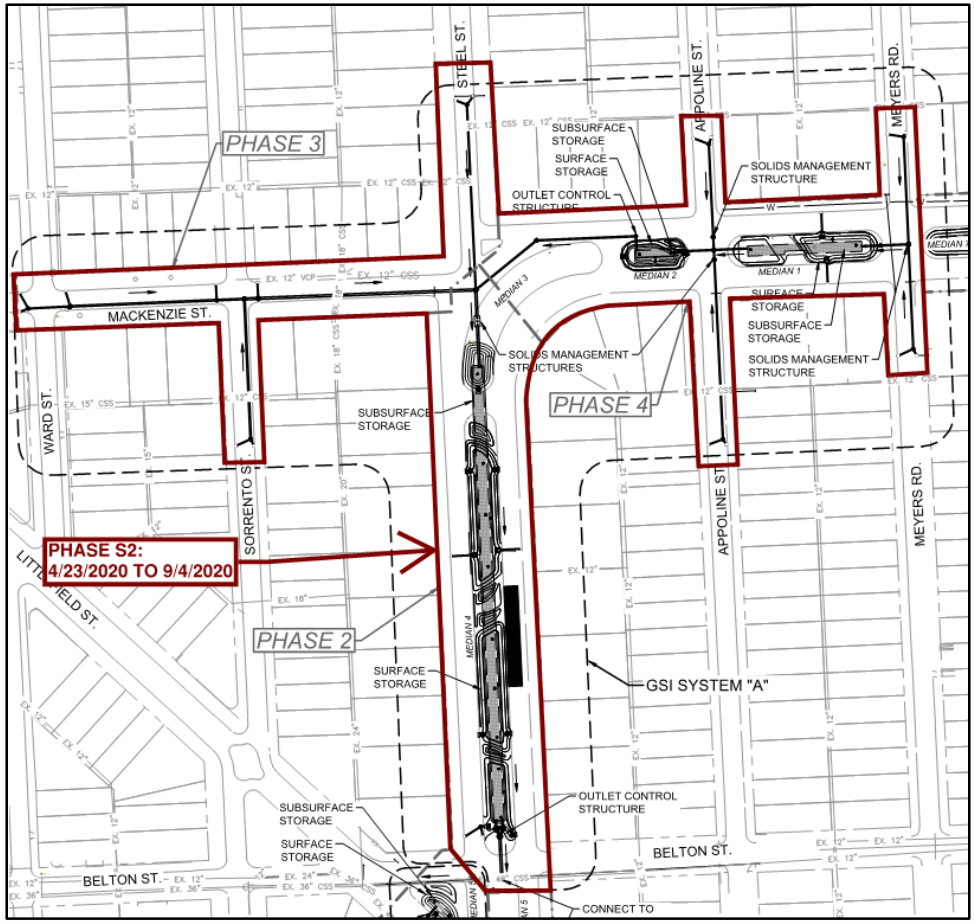
Green Stormwater Infrastructure Phasing

Phase S2: Littlefield Street to Meyers Road



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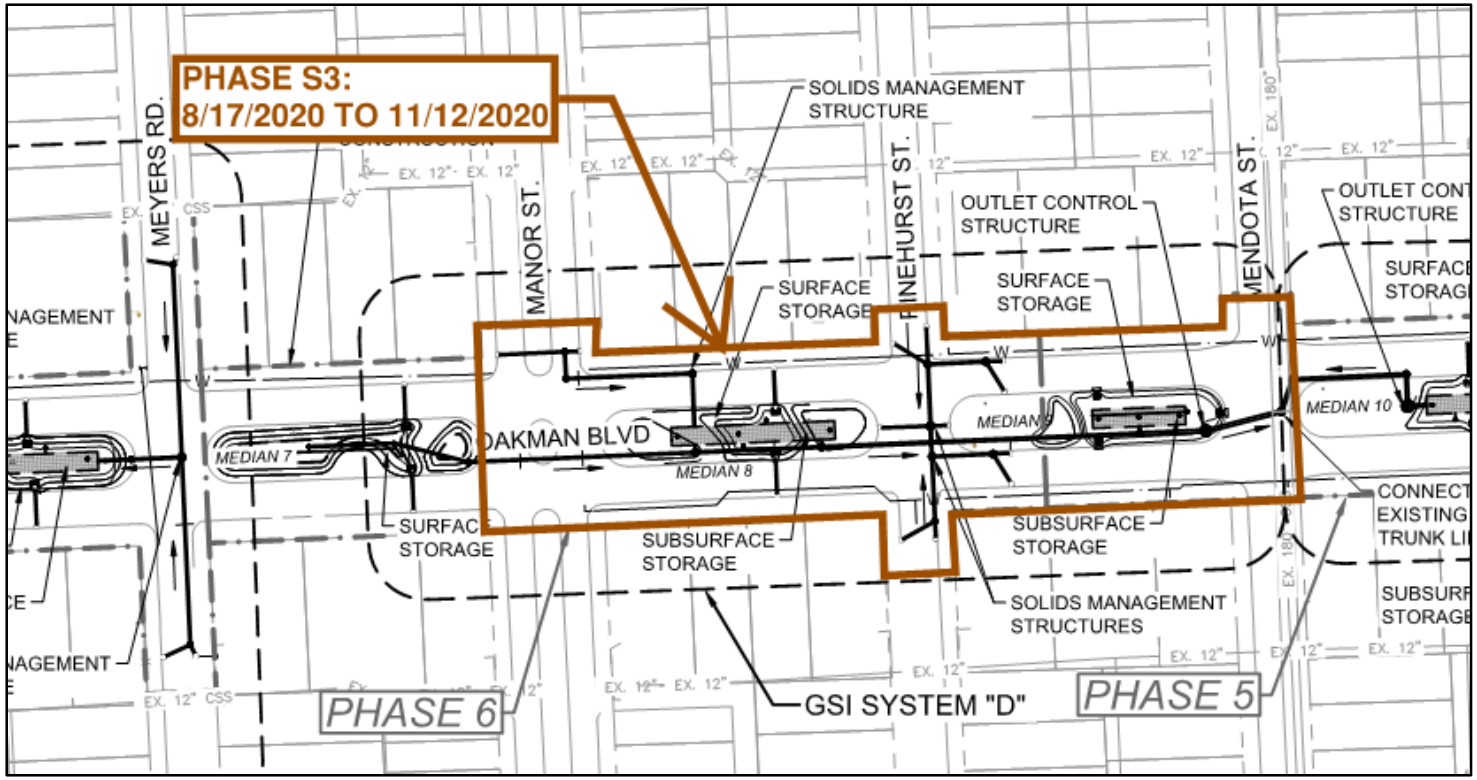
Green Stormwater Infrastructure Phasing

Phase S3: Mendota Street to Manor Street



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2021 Construction Season Key Dates

- Mobilization: April 7, 2021
- Soil Erosion and Sedimentation Control: April 9 – April 13, 2021

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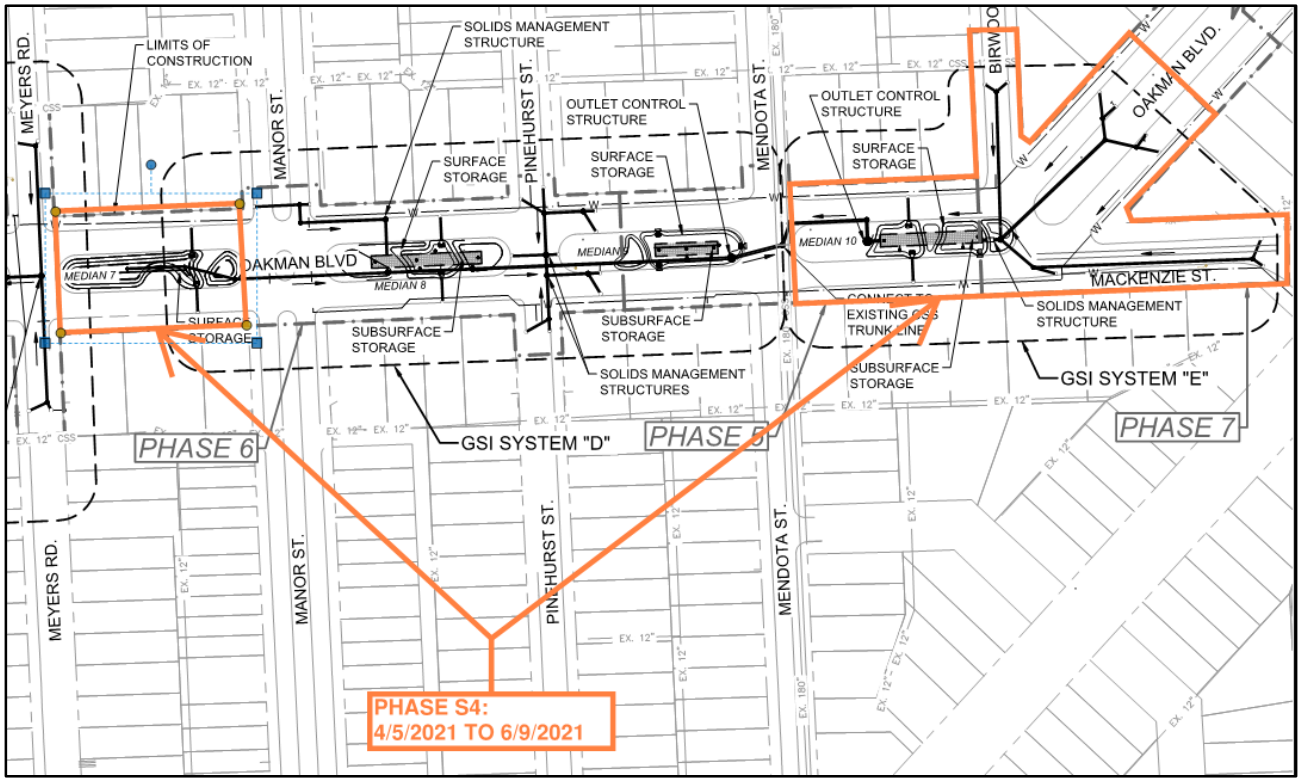
Green Stormwater Infrastructure Phasing

Phase S4: Meyers Road to Birwood Street



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Traffic Control

Water Main Operations:

- No on-street parking
- Maintain 1 lane of traffic in each direction (see next slide)
- Sidewalks will be removed and closed for the duration of each section
- Driveways may be closed for a short period of time to install new water main
- Temporary driveways will be in place after the water main is installed
- Any water service interruptions will be communicated 3 days ahead of time
- Any driveways scheduled to be closed will be communicated 3 days ahead of time
- We are here to help ease this process, if you have any questions or concerns please do not hesitate to ask our on-site foreman

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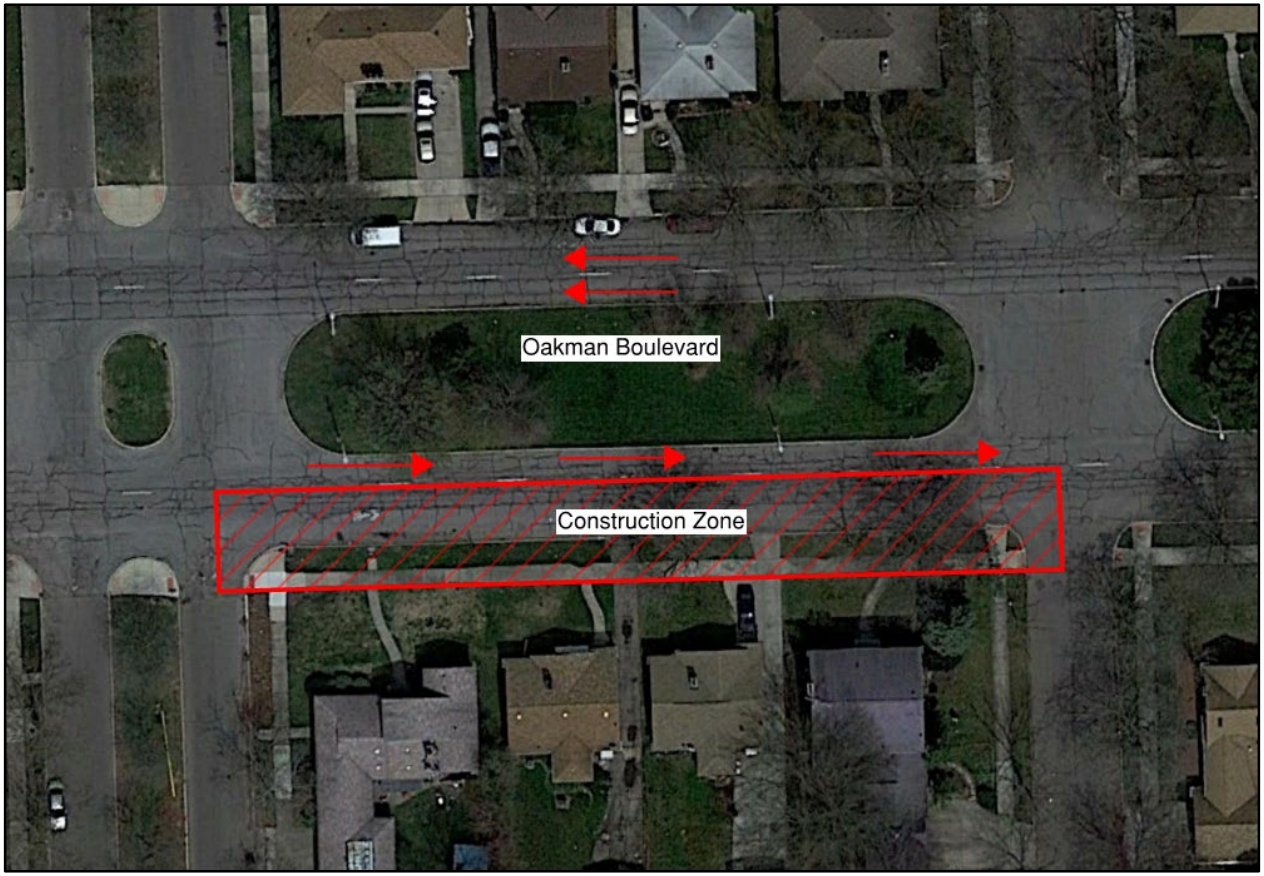
Tentative Traffic Control During Water Main Installation



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Traffic Control

Storm Sewer Operations:

- On-street parking may be prohibited in some areas
- Maintain 1 lane of traffic in each direction
- Pavement may be removed across the street and filled with stone or plated after installation of new sewer
- Roadway may be closed for a short period of time as the storm sewer across the road is being installed – one of our personnel will be happy to redirect you around the closure
- Any driveways scheduled to be closed will be communicated 3 days ahead of time
- We are here to help ease this process, if you have any questions or concerns please do not hesitate to ask our on-site foreman

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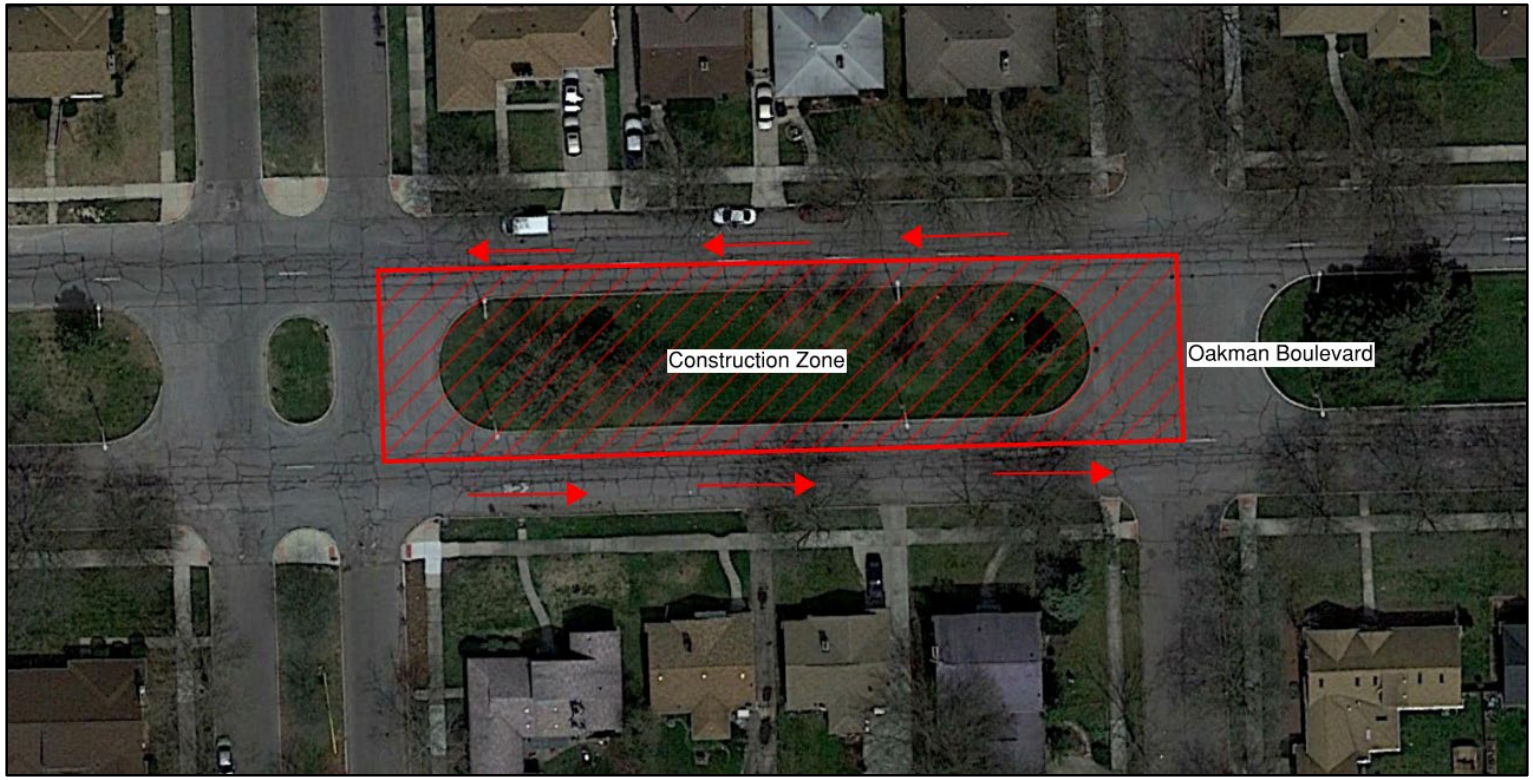
Tentative Traffic Control During Storm Sewer Installation (In the Median)



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Tentative Traffic Control During Storm Sewer Installation (In the Road)

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Contact Information

On-Site – Blaze Foreman – TBD

Project Manager – Ahmad Hoballah

Project Support – Angel Sheffield

Public Relations (Blaze) – Gayl Turk

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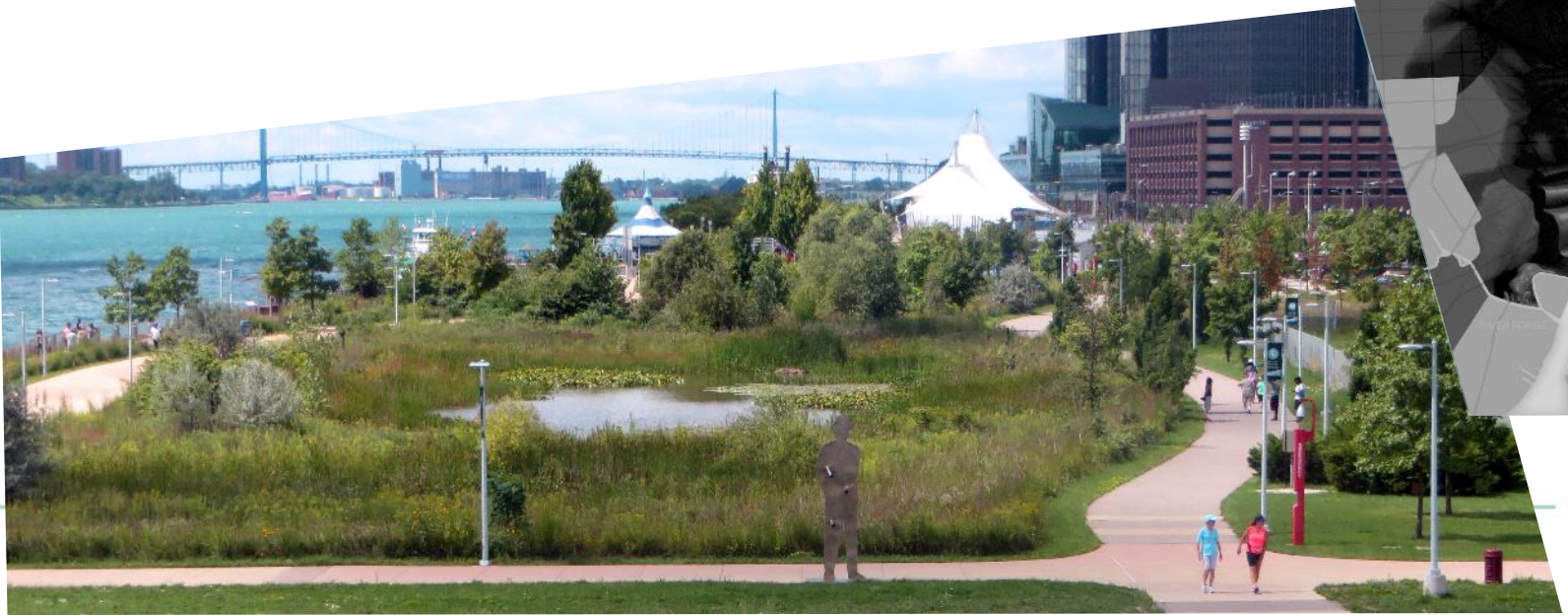
Questions and Answers



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