

March 7, 2024

Brightmoor Stormwater Improvement Projects Update



Water & Sewerage
Department



Agenda

- Introductions
- Sewer system overview
- Brightmoor area projects overview
- Fenkell Stormwater Improvement Projects
 - Overview
 - Summary of community feedback and questions
 - Schedule
- Brightmoor Stormwater Improvement Project
 - Overview
 - Engagement process
 - Voluntary acquisitions
 - Schedule
 - FAQ
- Questions



Greetings & Introductions

- Project team

Detroit Water and Sewerage Department

Bryan Peckinpaugh (Public Affairs Director)

Sonali Patel (Public Affairs)

Lisa Wallick (Field Services Director)

Barry Brown (Compliance Engineering Manager)

Eric Wahrman (Project Engineer)

Anna Timmis (Project Engineer)

City of Detroit

Karla Williamson (District 1 Manager)

Steele Hughes (District 1 Deputy Manager)

Drummond Carpenter (Consultant)

Donald Carpenter (Fenkell Design Lead)

OHM Advisors (Consultant)

Patrick Droze (Brightmoor Design Lead)

Liz Whiddon (Engineer)



Sewer System Overview



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What is stormwater?

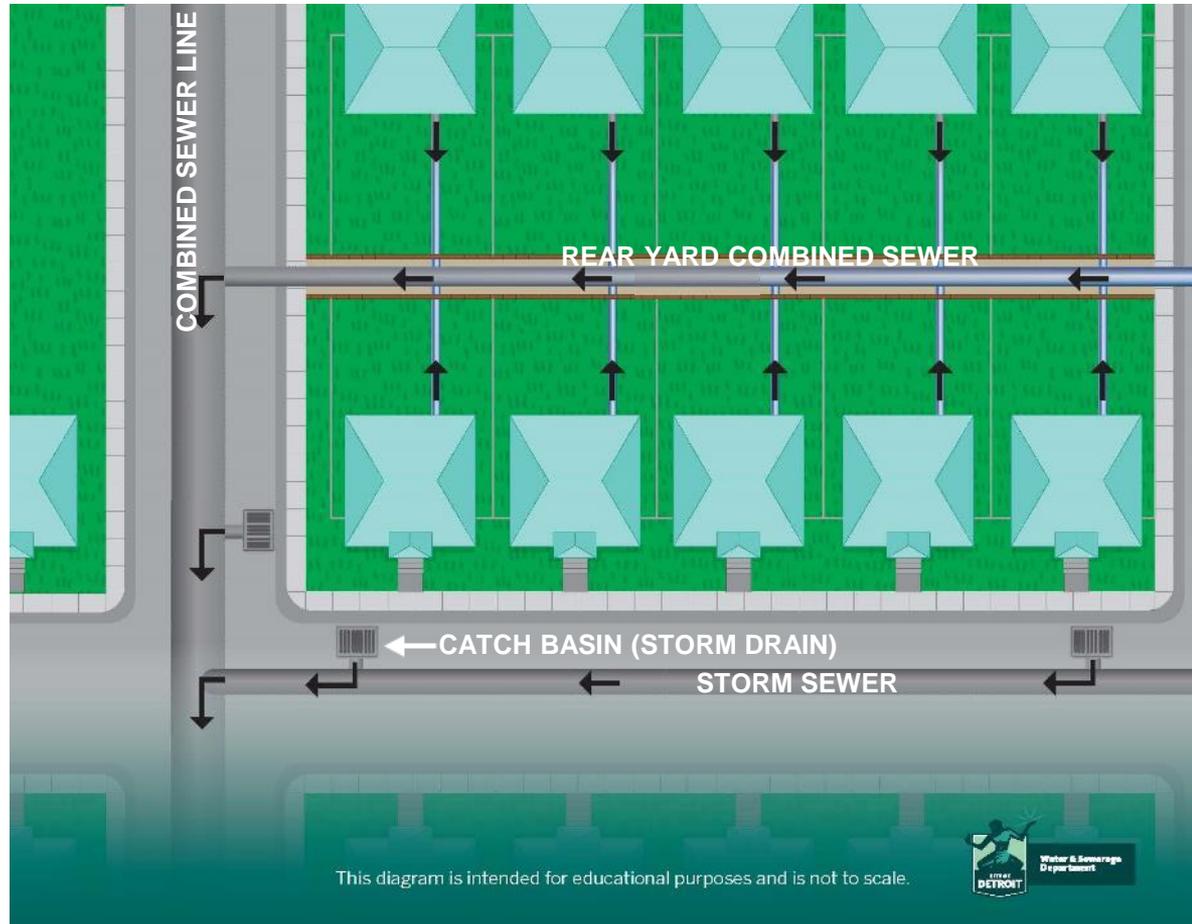
Rainfall and snowmelt that flows from impervious/hard surfaces into the combined sewer system. Impervious surfaces include:

- Roofs
- Streets
- Sidewalks
- Driveways
- Parking lots



Combined Sewer System

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



Combined Sewer System

What happens during intense rain events?

The combined sewers can reach capacity and get overwhelmed, resulting in:



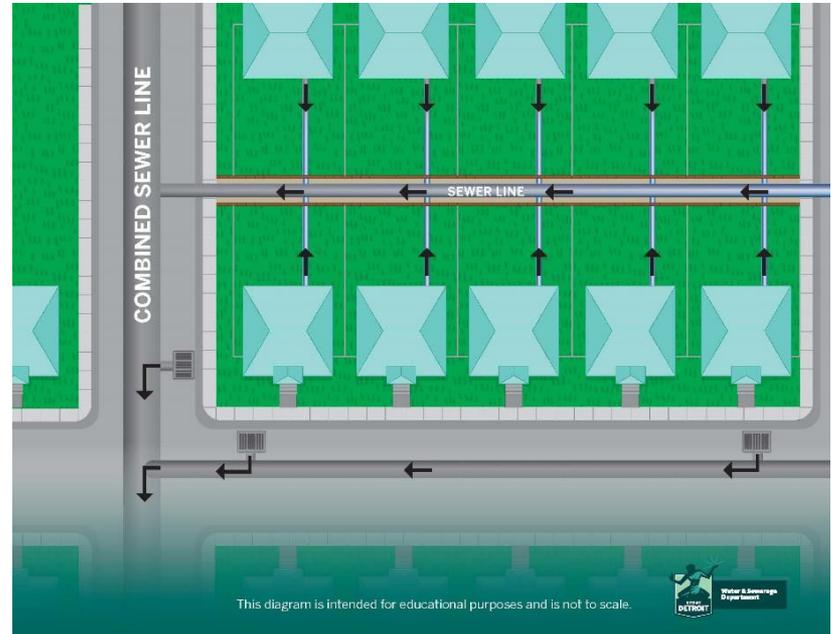
Basement backups



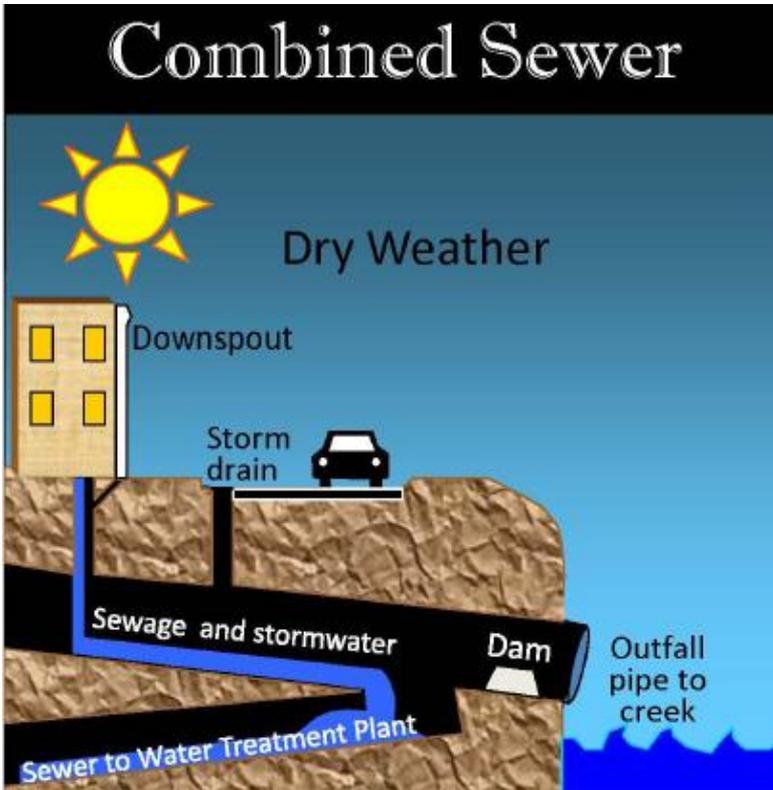
Street flooding



Combined sewer overflows



Combined Sewer Overflow

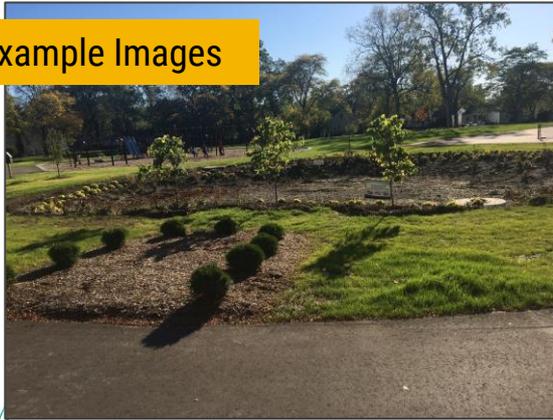


Green Stormwater Infrastructure

Green stormwater infrastructure (GSI) is an approach to managing stormwater using the natural processes of soils and plants to **soak up stormwater** where it falls **before it can enter and overwhelm** the combined sewer system.

Examples of GSI includes **bioretention/rain gardens**, bioswales, pervious pavers, and tree boxes.

Example Images



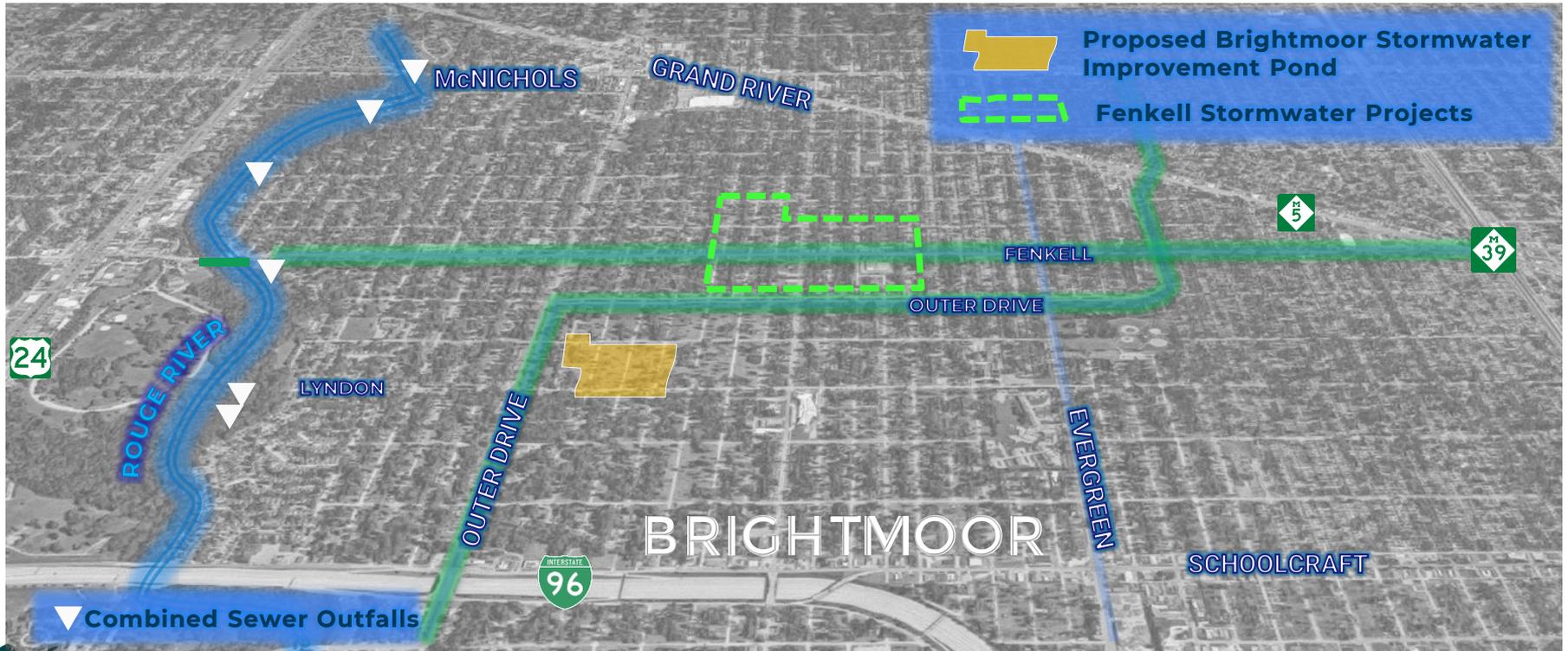
Brightmoor Overview



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Brightmoor Area



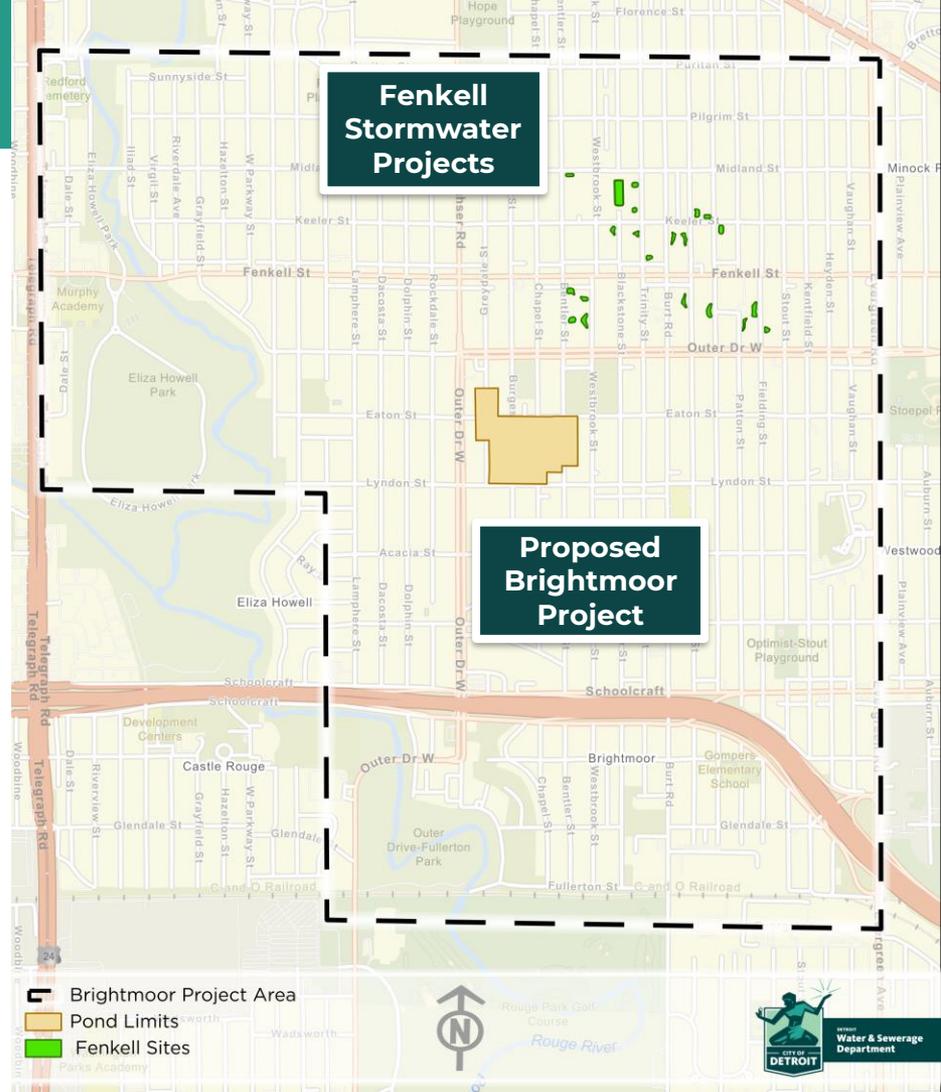
Brightmoor Stormwater Projects

DWSD has been advancing two initiatives within Brightmoor:

- **Fenkell Stormwater Improvement Projects**
- **Proposed Brightmoor Stormwater Improvement Project**

The **Fenkell Stormwater Improvement Projects** include 20 bioretention practices using 92 land bank parcels slated for construction later this year.

The proposed **Brightmoor Stormwater Improvement Project** is in study/design phase. Current efforts focus on a large stormwater basin and gaining community interest and property owners' support.



Fenkell Stormwater Projects



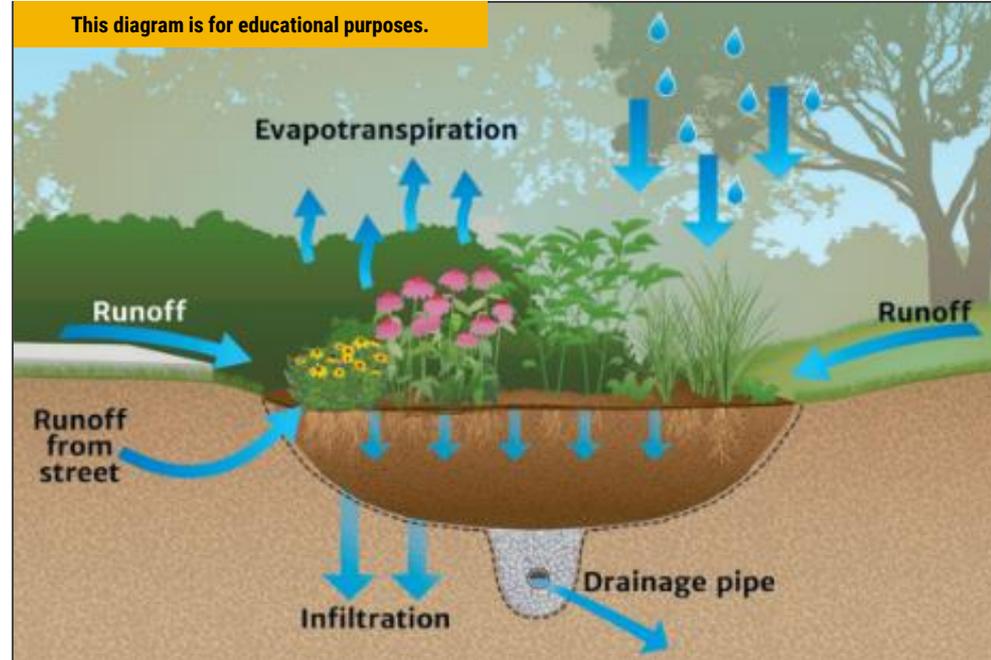
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Fenkell Stormwater Projects



Implementation of 20 bioretention practices including one street vacation – planting ~300 trees



Green Stormwater Infrastructure Example



Fenkell Stormwater Projects



Implementation of 20 bioretention practices including one street vacation – planting ~300 trees



\$3.4M project partially grant funded



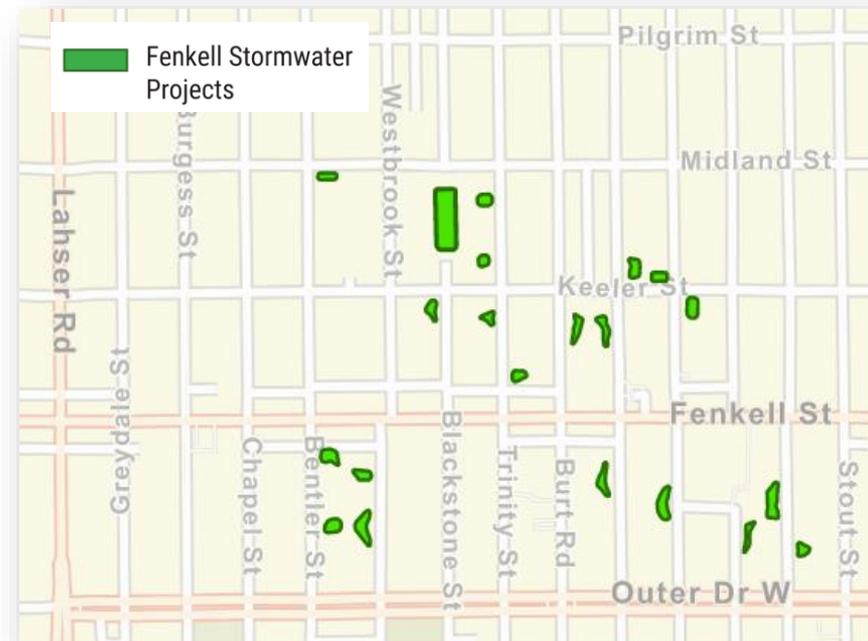
Manages stormwater runoff from roughly 50 acres



Manages 9 million gallons of stormwater annually



Benefits hundreds of homes in close proximity (neighborhood beautification investments, habitat, etc.) and reduces flooding for the entire neighborhood



Community Feedback

- Based on the feedback, two designs were developed to meet community preferences.

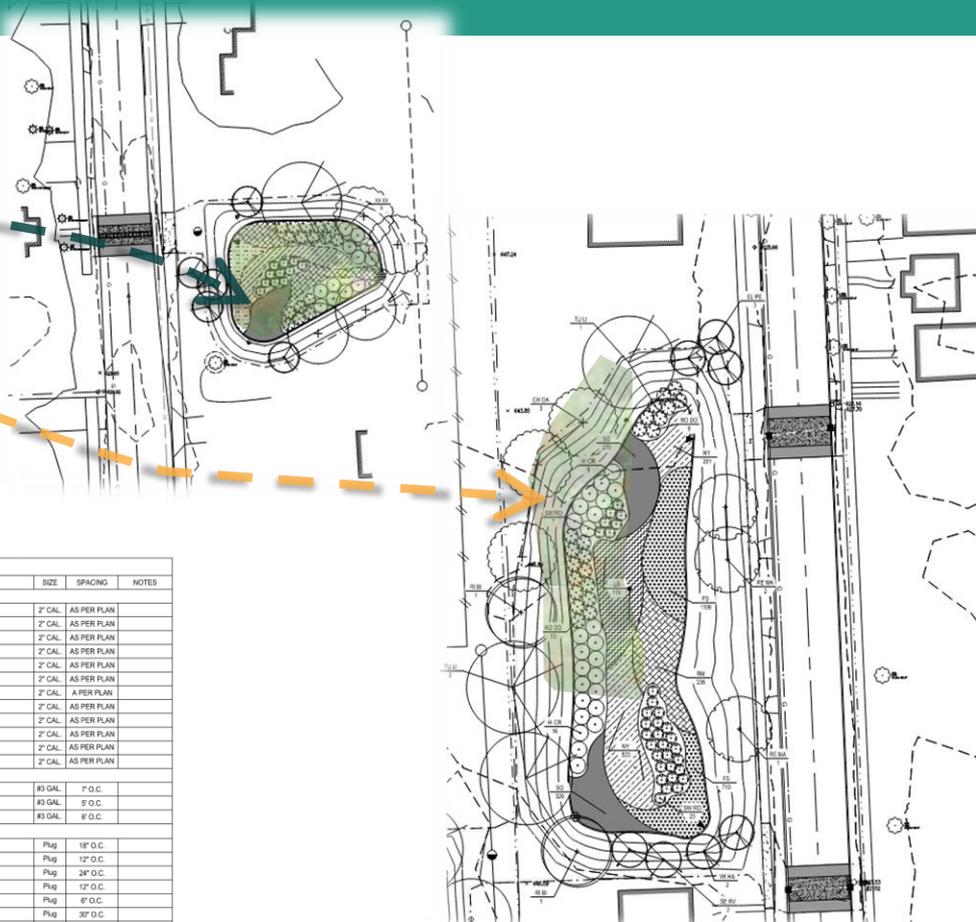
| GSI Type 1 – Sidewalk Edge | |
|------------------------------|------------------------------------|
| Plant Arrangement | Small groups of repeating patterns |
| Garden Layout Shape | Circular |
| Berms | Towards backyards |
| Edging | Concrete |
| Proximity to Sidewalk | Close to sidewalk |
| Lawn Type | Turf grass |

| GSI Type 2 – Rear Yard | |
|------------------------------|----------------|
| Plant Arrangement | Structured |
| Garden Layout Shape | Circular |
| Berms | No berms |
| Edging | Concrete |
| Proximity to Sidewalk | Offset |
| Lawn Type | Pollinator mix |

Community Feedback

- Structured **planting arrangement**
- Circular **planting edge**
- **Plant palette** with seasonal interest
- Desire to incorporate edible options such as fruit trees, herbs for teas and medicinal purposes, and fruiting shrubs

| PLANT LIST | | | | | | |
|--|-------|-----------------------------------|-----------------------|--------|-------------|-------|
| QTY | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING | NOTES |
| SHADE AND ORNAMENTAL TREES | | | | | | |
| | RE MA | Acer rubrum | Red Maple | 2' CAL | AS PER PLAN | |
| | SU MA | Acer saccharum | Sugar Maple | 2' CAL | AS PER PLAN | |
| | SE RV | Amelanchier arborea | Servicberry | 2' CAL | AS PER PLAN | |
| | RI BI | Betula nigra | River Birch | 2' CAL | AS PER PLAN | |
| | HA CK | Celtis occidentalis | Hackberry | 2' CAL | AS PER PLAN | |
| | WI HA | Hamamelis virginiana | Witch Hazel | 2' CAL | AS PER PLAN | |
| | TU LI | Liriodendron tulipifera | Tulip Tree | 2' CAL | AS PER PLAN | |
| | HO AP | Malus pumila 'SUNFIRE Honeycrisp' | Honeycrisp Apple Tree | 2' CAL | AS PER PLAN | |
| | ST CH | Prunus avium 'Stella' | Stella Cherry Tree | 2' CAL | AS PER PLAN | |
| | EL PE | Prunus persica 'Elberta' | Elberta Peach Tree | 2' CAL | AS PER PLAN | |
| | BU OA | Quercus macrocarpa | Bur Oak | 2' CAL | AS PER PLAN | |
| | CH OA | Quercus muhlenbergii | Chinquapin Oak | 2' CAL | AS PER PLAN | |
| SHRUBS | | | | | | |
| | RO DO | Cornus sericea | Red Osier Dogwood | #3 GAL | 1' O.C. | |
| | SW RO | Rosa pratincola | Sweet Rose | #3 GAL | 5' O.C. | |
| | HI CR | Viburnum trilobum | Highbush Cranberry | #3 GAL | 6' O.C. | |
| PERENNIALS / ORNAMENTAL GRASSES / SEDGES / RUSHES | | | | | | |
| | SM | Asclepias incarnata | Swamp Milkweed | Plug | 18" O.C. | |
| | FS | Carex vulpinoidea | Fox Sedge | Plug | 12" O.C. | |
| | RM | Phlox pilularis | Rose Mallow | Plug | 24" O.C. | |
| | BI | Iris versicolor | Blueflag Iris | Plug | 12" O.C. | |
| | CC | Patience sibirica | Common Chingebot | Plug | 18" O.C. | |
| | LI B | Schizanthus litoralis | Little Bluestem | Plug | 30" O.C. | |
| | SG | Solidago sempervirens | Seaside Goldenrod | Plug | 18" O.C. | |
| | NY | Symphoricarpos noveboracensis | New York Aster | Plug | 18" O.C. | |



Blackstone Street Vacation

- Removal of 460 feet of Blackstone Street between Keeler and Midland Street to create an urban forest (200+ trees) to manage stormwater.
- Dead-end street has been modified to include a turn-around for emergency vehicles per guidance from City of Detroit Department of Public Works.

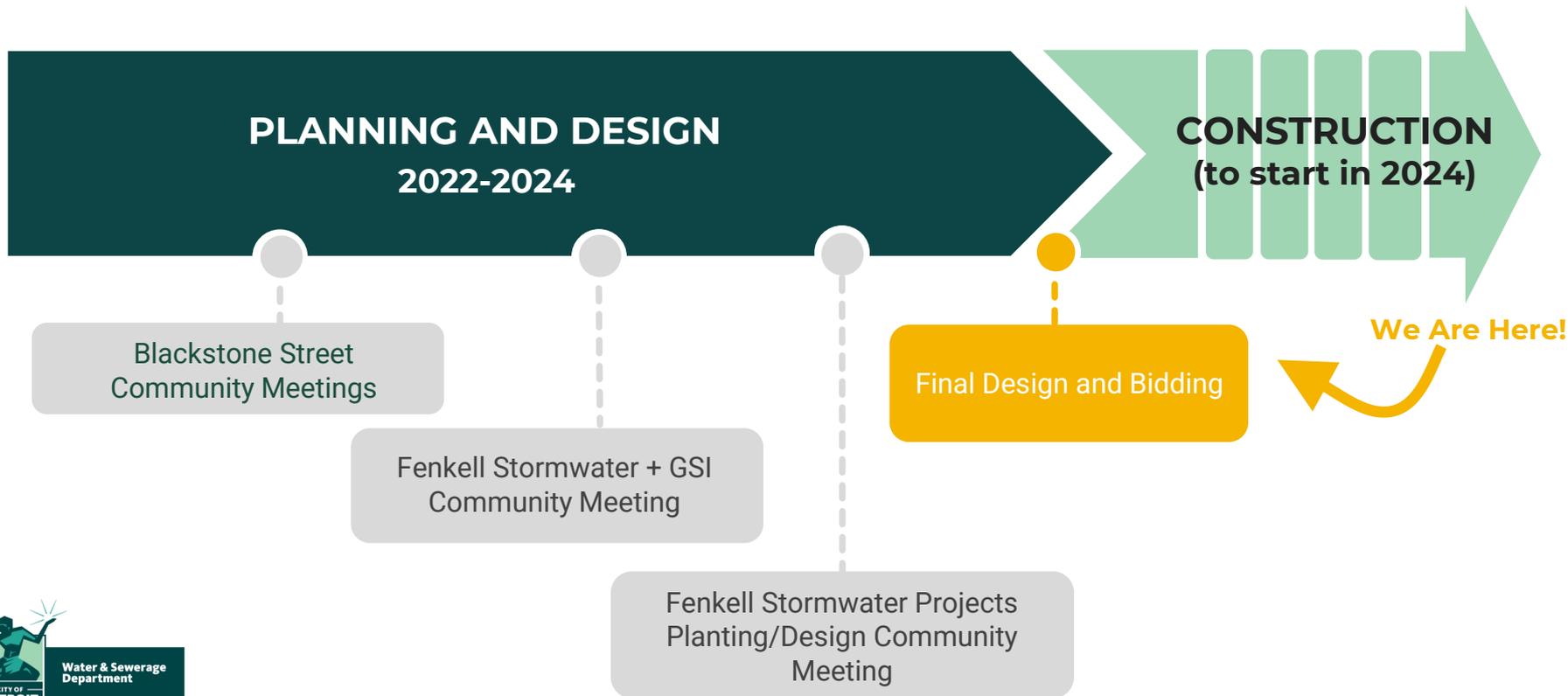


Future Condition



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Fenkell Timeline



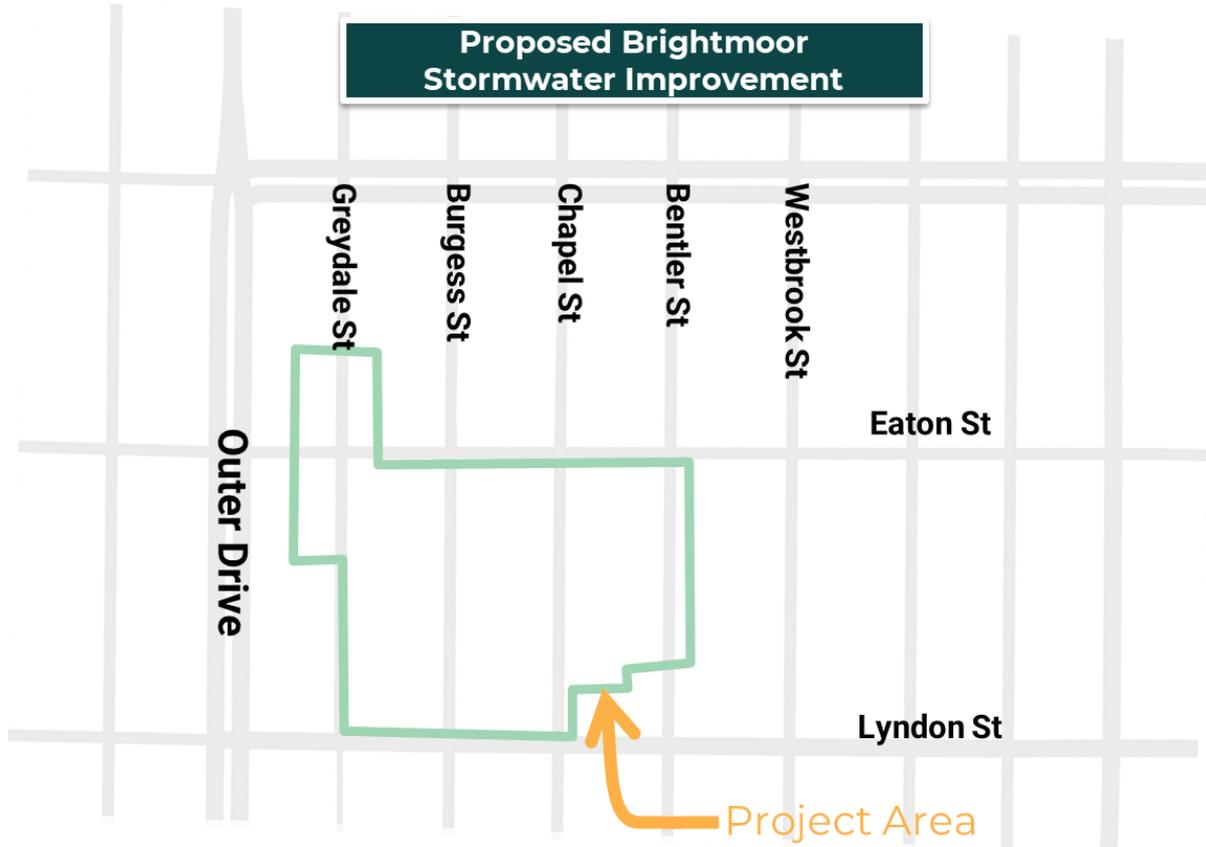
Proposed Brightmoor Stormwater Improvement Project



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Proposed Brightmoor Stormwater Improvement



Large-Scale Green Stormwater 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



Large enough to gradually reduce CSOs



Options for green spaces and functional amenities



Example - Far West Stormwater Improvement Project Rendering

Proposed Brightmoor Stormwater Improvement



Proposed Brightmoor Stormwater Improvement

Why Here?



Topography



Proximity to Rouge River



Combined sewer overflows

Why Now?



Trends in greater flood risk mitigation

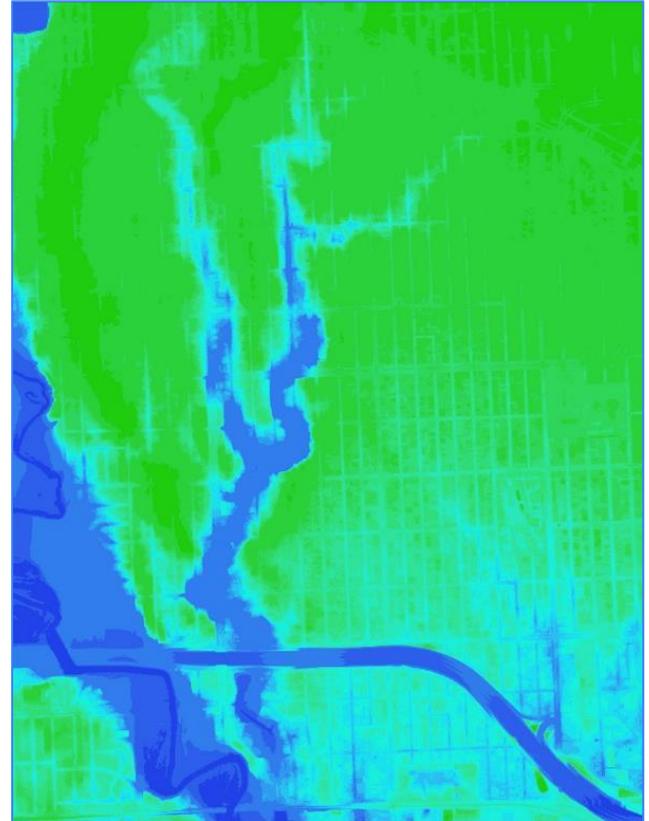


Land holds

What is it?



Large-scale stormwater management project



Proposed Brightmoor Stormwater Improvement Benefits



Storage Volume

Provides volume to detain stormwater runoff



Pollution Reduction

Provides pollution control and long-term community benefits



Basement Backup

Reduces basement backups by creating capacity in the combined sewer



Flooding Reduction

Flood reduction in higher risk, low lying areas



Cost Efficient

Less impact on ratepayers when compared to grey infrastructure

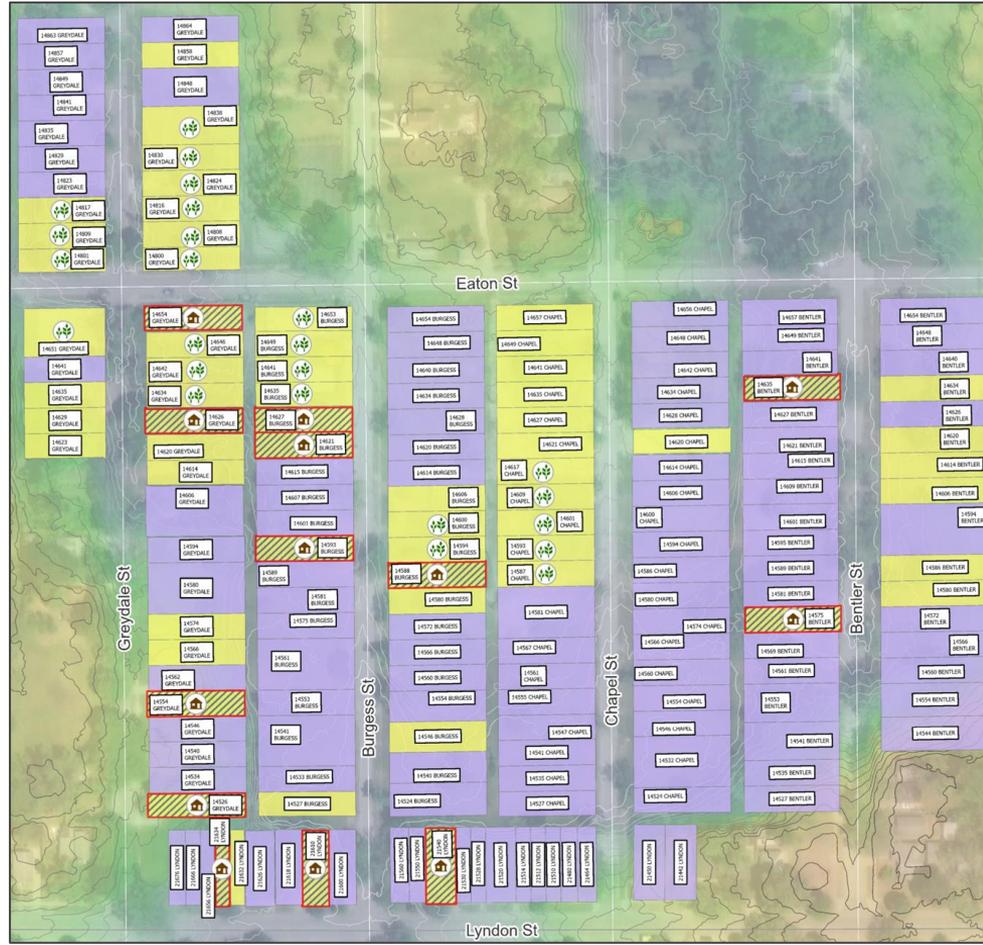


CSO Reduction

Reduces frequency and flow from high-priority CSOs



Project Area



Legend



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Proposed Brightmoor Stormwater Improvement Project

Voluntary Acquisition Program



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Voluntary Acquisition

- DWSD is seeking to acquire parcels using a program similar to the current Solar Program.
- Principal Residence Exemption (PRE) homes will receive an offer of 2x the appraised value (\$90,000 minimum).
- Rental properties will receive an offer of fair market value based on appraisals; tenants to receive 18 months of rent.
- Farms will receive an offer of going concern value.
- DWSD is seeking neighborhood support and will move forward if the project is supported by impacted property owners.



Proposed Brightmoor Stormwater Improvement Project

Engagement Process

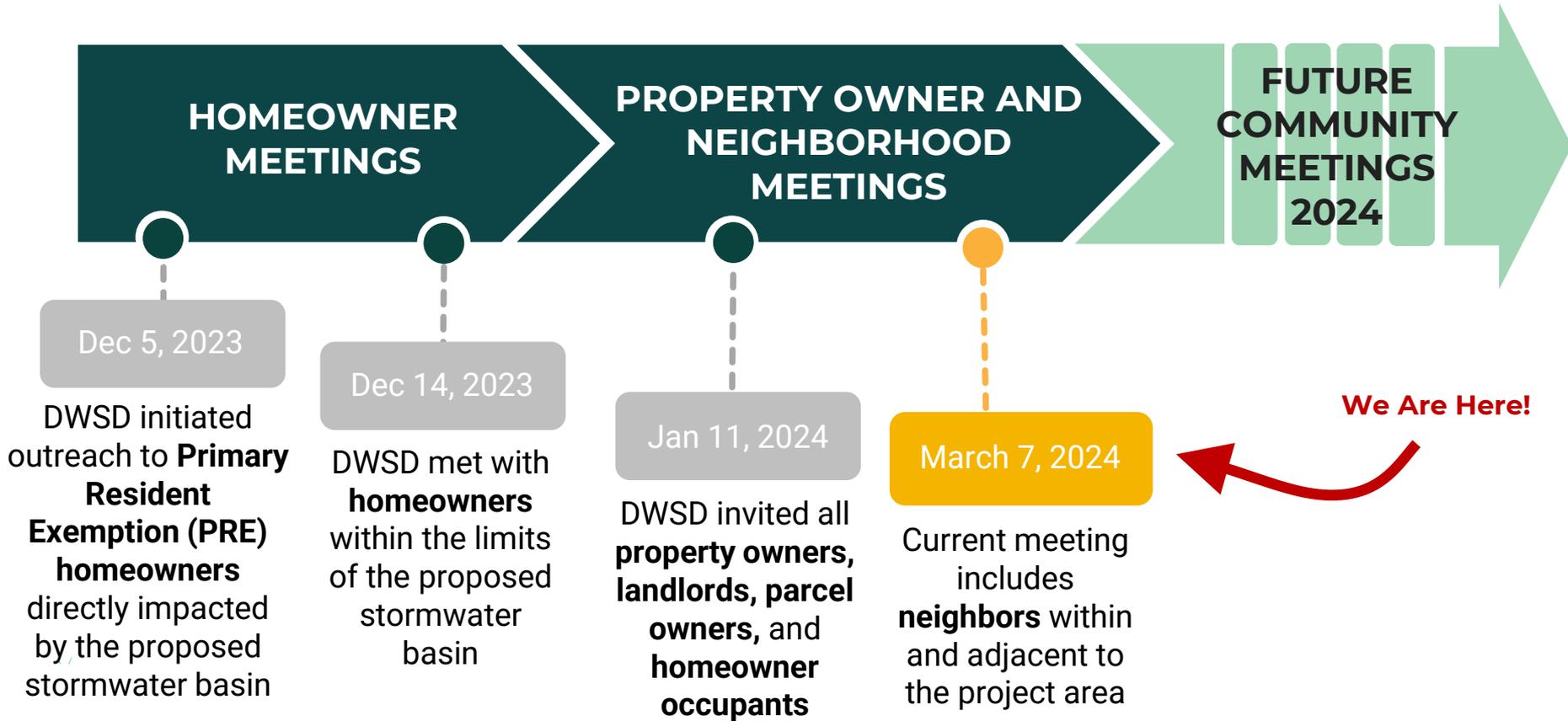


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Engagement Process



Engagement Process



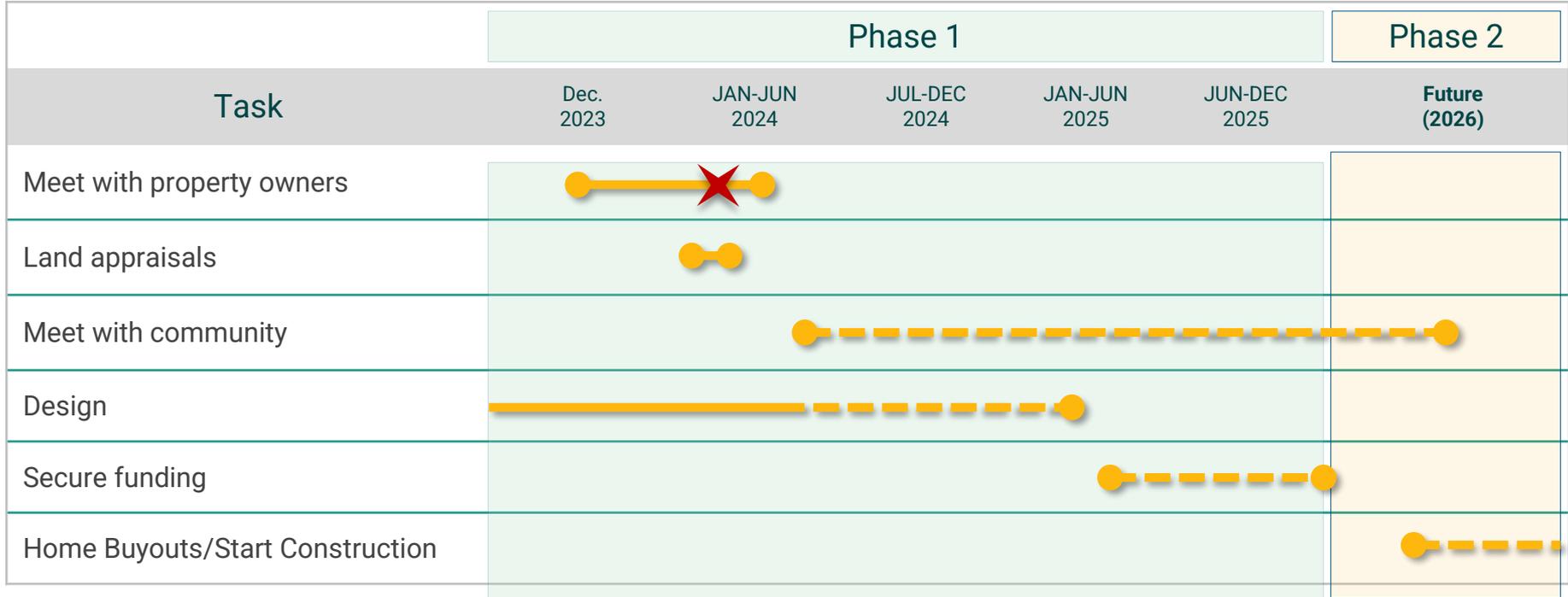
Proposed Brightmoor Stormwater Improvement Project

Schedule



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Schedule



Schedule Subject to Change

 **Current phase**

 **Contingent on prior phases**



FAQ

- **Who is being impacted?**
- **What determines whether the project will move forward or not?**
- **What will the project look like?**
- **When will the residents need to relocate?**
- **Why is the project needed?**
- **How will residents and property owners be notified?**



Thank You

Questions?

 313-880-2812

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 www.detroitmi.gov/DWSD



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