



**Water & Sewerage  
Department**

# **Permitting and Stormwater Management Group**

Update to BOWC

December 2023



# DWSD IS ADVANCING MULTIPLE INITIATIVES TO REDUCE IMPACTS FROM STORMWATER ACROSS THE CITY



## **PEAK FLOW CONTROL**

Reducing the intensity of runoff to the DWSD and GLWA system.



## **SOURCE REMOVAL**

Removing unnecessary impervious area from the sewer system.



## **REDEVELOPMENT**

Activating underutilized open space, promoting density and managing runoff via ordinance.



## **COLLABORATION**

Bigger projects result in impactful benefits with higher return on investment.

## **Creating Capacity. Reducing Flooding. Keeping Basements Dry.**



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# **Stormwater Regulations**

# Post Construction Stormwater Management Ordinance

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- Prior to 2018, City Code permitted unrestricted stormwater runoff from new development.
- Since enacting the ordinance, dozens projects have been approved that will manage over 557 acres of land.
- Projects have created stormwater storage across the City.
- These projects qualify for stormwater credits of up to 80% which can reduce monthly drainage charges for property owners.



# Reporting Metrics

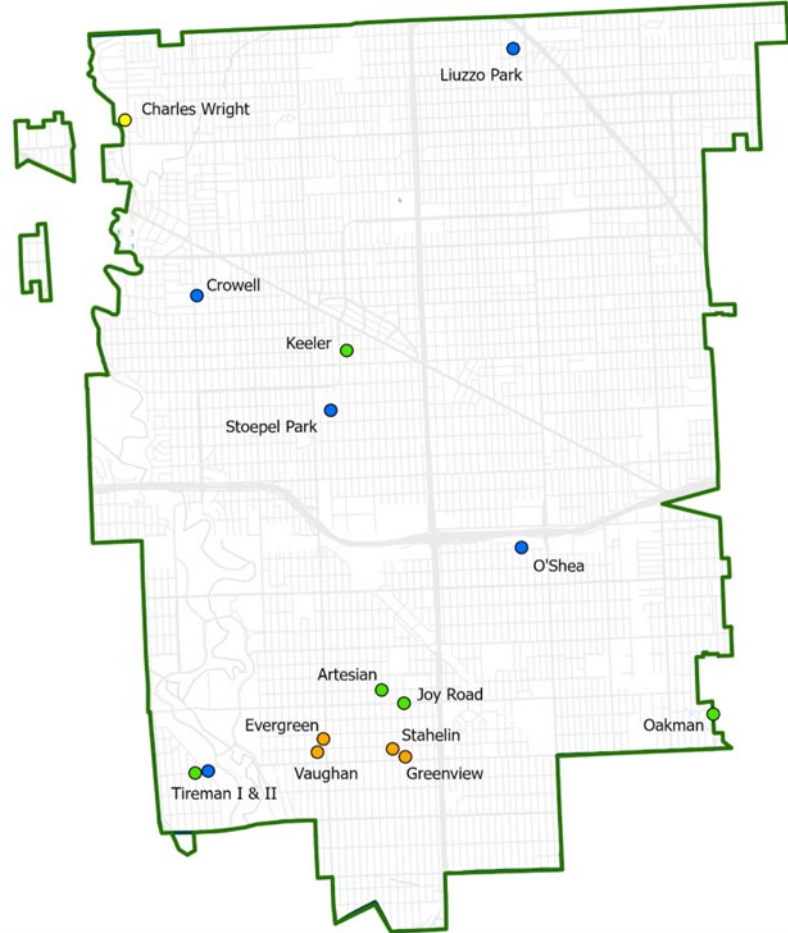
## Stormwater Management Ordinance

<b>Total Number of Projects</b>	<b>78</b>
<b>Peak Flow Reduction Volume Provided</b> <i>10 and 100 year peak flow detention volume</i>	<b>40 Million Gallons</b>
<b>Volume Reduction Provided</b> <i>Retention Volume</i>	<b>2.5 Million Gallons</b>





# DWSD GSI Program Completed Projects



Detroit Water and Sewerage Department - CS-1522 Green Infrastructure Program

## Green Stormwater Infrastructure Maintenance Locations



● Park with GSI

● Vacant Lot Bioretention

● Transportation Corridor with GSI

● School with GSI

□ URT Boundary

# DWSD Capital Projects

- DWSD has led the design and construction of over 19 projects that manage stormwater from streets and parking lots from over 300 acres across the City.
- These projects manage over 53 million gallons of volume and reduce peak stormwater flows to the DWSD sewer system.
- Projects include native landscaping to beautify streets and parks across the City.



# Reporting Metrics

## DWSD GSI Program - Completed Projects

<b>Total Number of Projects</b>	<b>19*</b>
<b>Project Construction Cost (estimated)</b>	<b>\$13.9M</b>
<b>Volume provided for peak flow reduction</b> <i>Design Target 2 yr-24 hr Event</i>	<b>2.2 Million Gallons</b>
<b>Annual Volume Reduction Provided</b> <i>Retention Volume and Direct Discharge</i>	<b>53 Million Gallons</b>

\*Includes Joy Road (GSI funding only)







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# **GSI Capital Projects in Construction**

# Current Projects

- Far West Detroit Stormwater Improvement Project is DWSD's largest stormwater project to date.
- \$32M investment providing new drainage infrastructure and stormwater basins within Rouge Park.
- The project will remove approximately 100 million gallons annually from the Detroit Combined Sewer System.
- Project is currently under construction and will manage stormwater from over 200 acres.



Far West Detroit Stormwater Improvements





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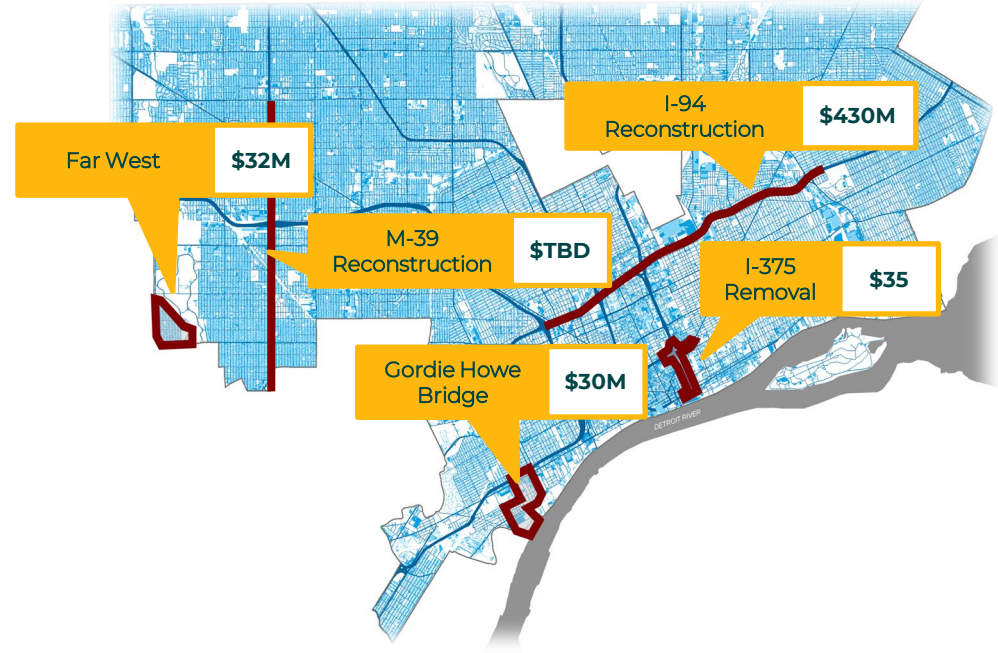
# **Stormwater Management Collaboration**



**Detroit Water and Sewerage Department**

# Collaboration Projects

- DWSD has partnered with MDOT, GLWA and the Gordie Howe Bridge to advance several large-scale projects.
- Project collaboration helps to leverage non-conventional funding sources to address stormwater.
- Collaborative partnerships on big projects yields big results for the local sewer system.



Vol\* 100s of million of gallons (MG) through I-94, I-375, GHIB  
Note: Costs are estimated stormwater component only.





# MDOT Collaboration



New MDOT drainage tunnel on I-94 to remove 5 miles of freeway and 10 miles of service drive stormwater runoff from the local sewer system.



New MDOT trunk sewer with a direct discharge to the Detroit River remove the entire freeway drainage area from the DWSD system.



Elimination of 100s of acres from the DWSD sewer system at the US point of entry through a direct river discharge.



Study phase to evaluating removing up to 6 miles of urban freeway from the DWSD system with a Rouge River direct discharge.

# Reporting Metrics

## MDOT Collaboration

- Projects will utilize existing and new outfalls to the Detroit River to remove 100s of acres of drainage area from the combined sewer system.
- Projects will manage 100s of millions of gallons annually in accordance with the ordinance.
- Improvements include deep storage tunnels, surface detention and green infrastructure.



**Conceptual rendering of I-375  
Freeway Removal Project**



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# **GSI Projects in Planning/Design**

# Fenkell Stormwater Projects

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Implementation of 22 bioretention practices including one street vacation – planting ~300 of trees



\$1.6M grant funds secured (& matched by DWSD) & Economic Redevelopment Opportunities



Stormwater runoff managed from roughly 50 acres



9 million gallons of peak flow controlled (2-year and 25-year storm)



Benefits 100's of occupied homes in close proximity (neighborhood amenities, public space, habitat, etc.) and reduces flooding for the entire neighborhood



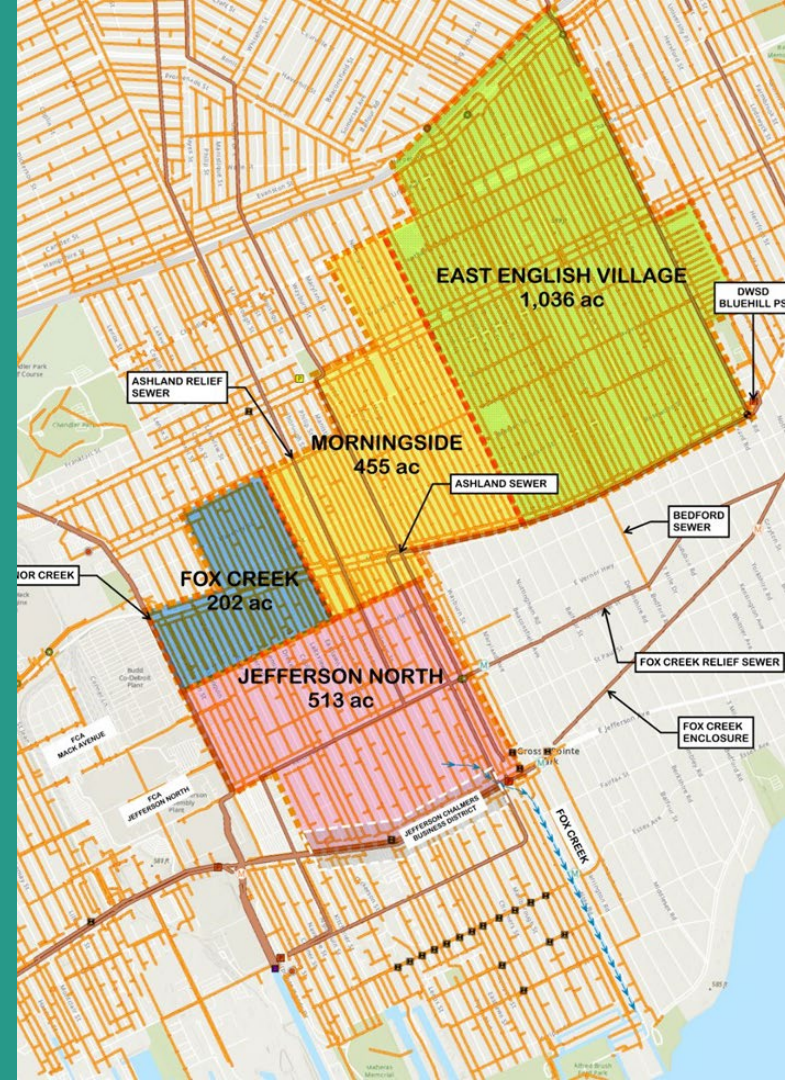


# East Side Stormwater Relief Project

## Project Study Area Awarded

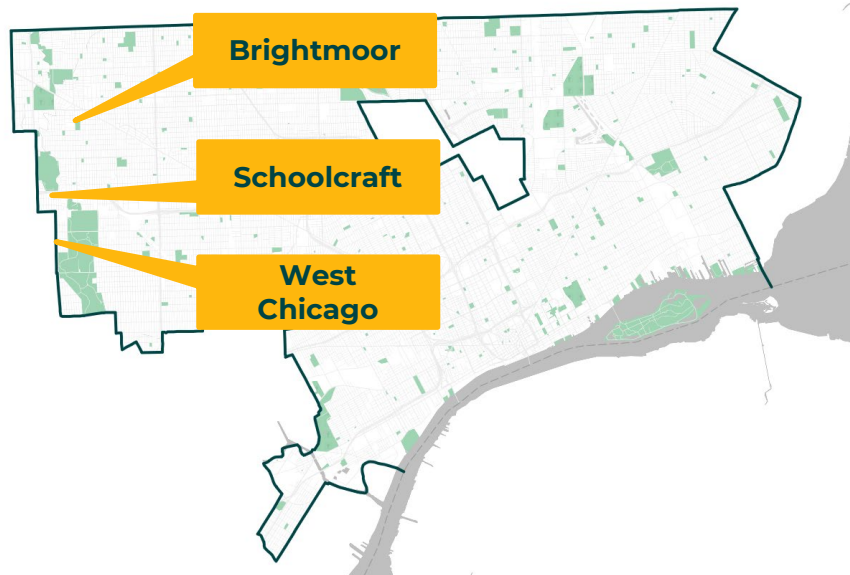
2 Grants awarded to study stormwater management and capacity enhancements for east side neighborhoods:

Drainage Area	Area (Acres)
East English Village	1036
Fox Creek	202
Jefferson North	515
Morningside	455
<b>TOTAL</b>	<b>2,208</b>



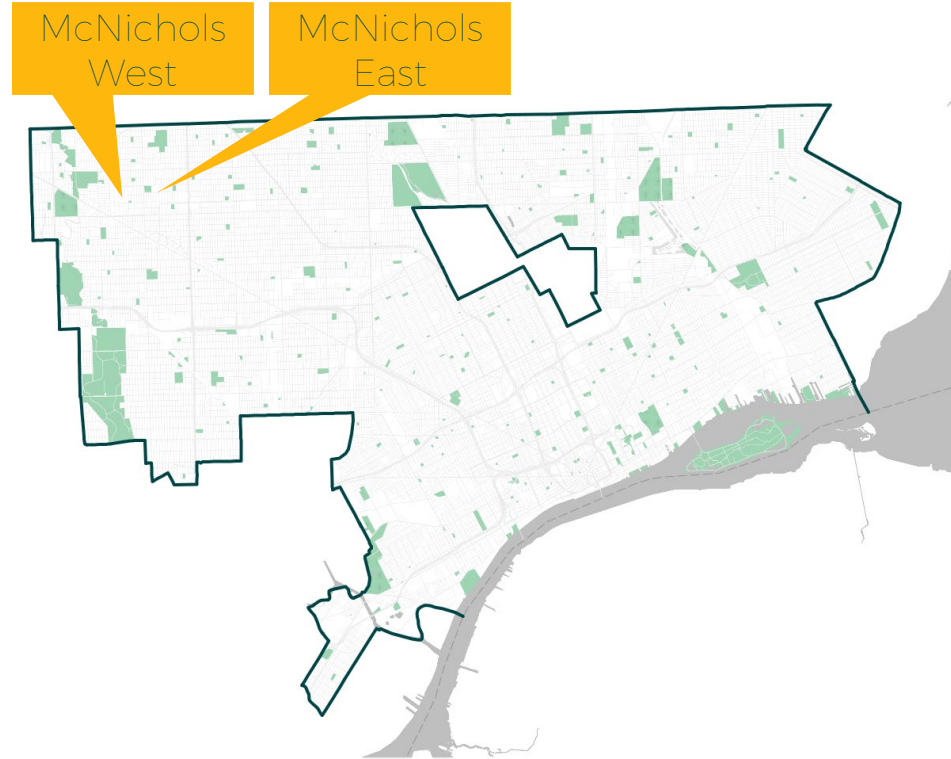
# West Side Planning Improvements

- Over \$90M of planned stormwater Improvements for the West Chicago, Schoolcraft and Brightmoor Areas
- Targeted investment to remove stormwater from combined sewer systems and improve water quality of the Rouge River by reducing combined sewer overflows
- Combination of gray and green infrastructure designed to maximize performance, create native landscapes
- Funding sought through State of Michigan Clean Water Revolving Fund with others being explored



# BRIC Scoping Grant Applications

- DWSD seeking \$975K in grants to study the viability of direct discharge to the Rouge River along McNichols Road between the Rouge River and the Southfield Freeway.
- The study will complement ongoing work by GLWA to create in-line storage within the combined sewer system and eventually convert the McNichols Relief Sewer to manage stormwater only.
- Study to help advance preliminary engineering required for future construction projects for NPDES permit compliance.
- The projects will also reduce the risk of localized flooding of streets and buildings.

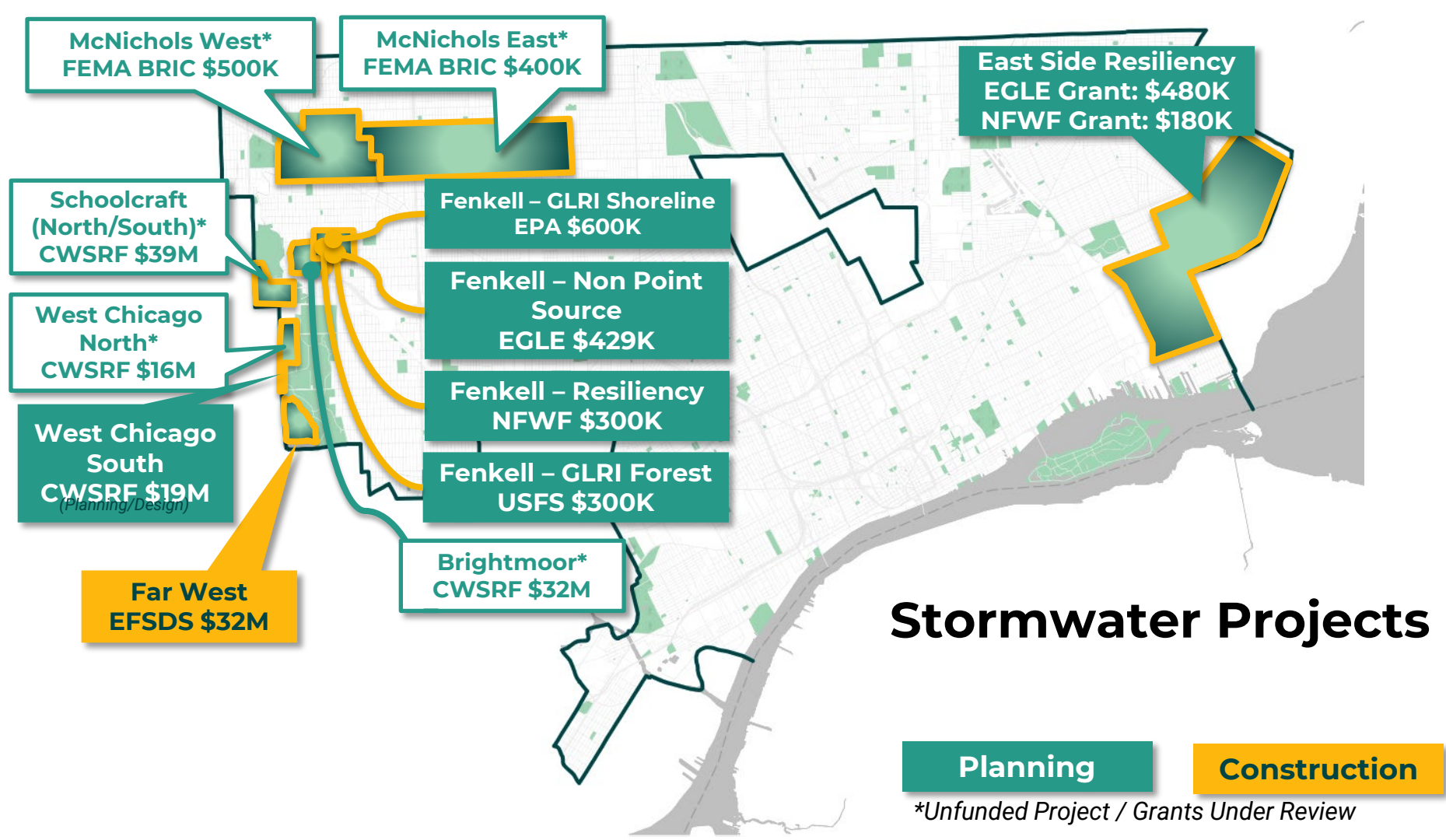




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# **PSMG GSI Planning and Construction Project Summary**





# DWSD's Green Credit Program



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# Incentivized Private Property Stormwater Management



562 million gallons managed annually through GSI (retention and detention)

*Based upon Detroit Average Annual Rainfall of 33.7 inches per year*



360 million gallons managed annually through direct discharge



200+ property assessments to demonstrate cost effective options



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# **PERMIT PROCESS IMPROVEMENTS**

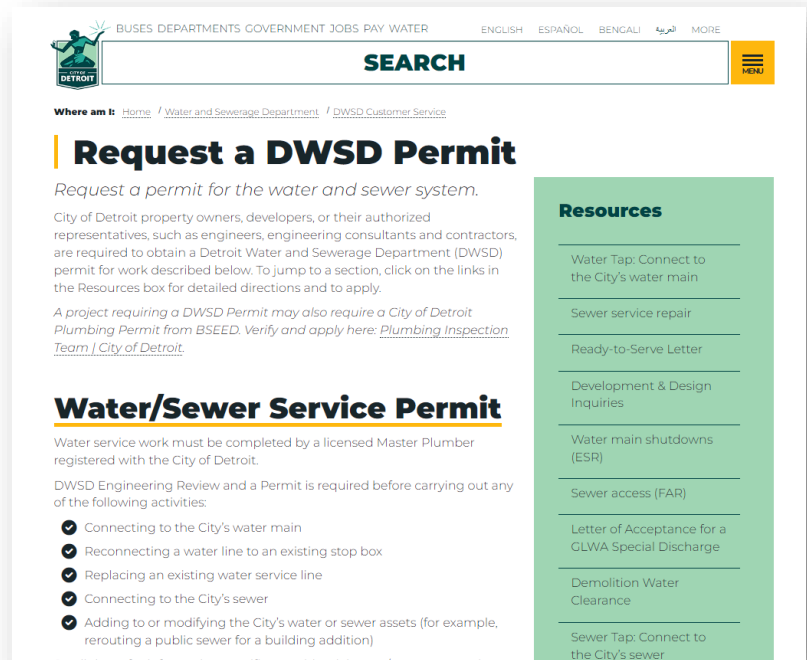


# FY2021-23 Improvements



## Customer Service Improvements

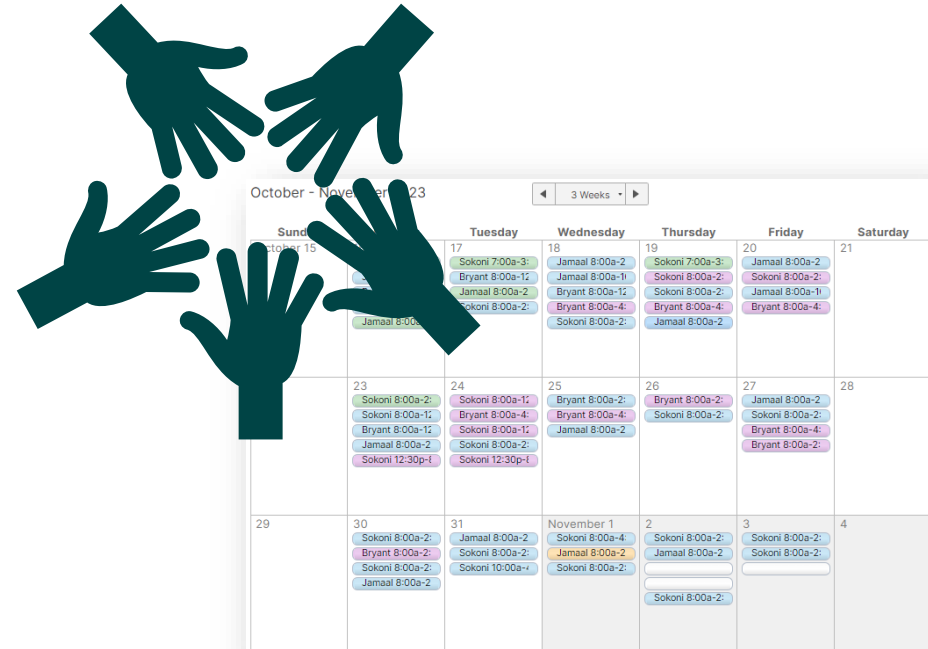
- Created webpage for customer access to education and resources regarding Permit services and requirements
- Improved communication and accessibility for public
- Implemented web-based permit submittal, review, and payment
- Implemented virtual meetings available to customers



# FY2021-23 Improvements

## Customer Service Improvements (Cont'd)

- Permitting Group and Stormwater Management Group merged for optimal customer service
- Implemented Inspection calendar for efficient Permit Inspection scheduling
- Put Inspection Scheduler in place for quicker customer response to coordinate and schedule permit inspections



# FY2021-23 Improvements

## Staff Improvements

- Trained staff and provided resources for electronic review
- Increased staff to meet demand
- Implemented Standard Operating Procedures for Permitting Engineering, Permitting Customer Service, and Permitting Inspection Staff



# FY2021-23 Improvements

## Staff Improvements (Cont'd)

- Implemented permit tracking & recording
- Implemented review-time metrics
  - 10 days for permit engineering review
  - 5 days for permit issuance once information received from customer
  - After 60 days of no response from customer, and 3 attempts to contact, permit is closed out



# FY2021-23 Improvements

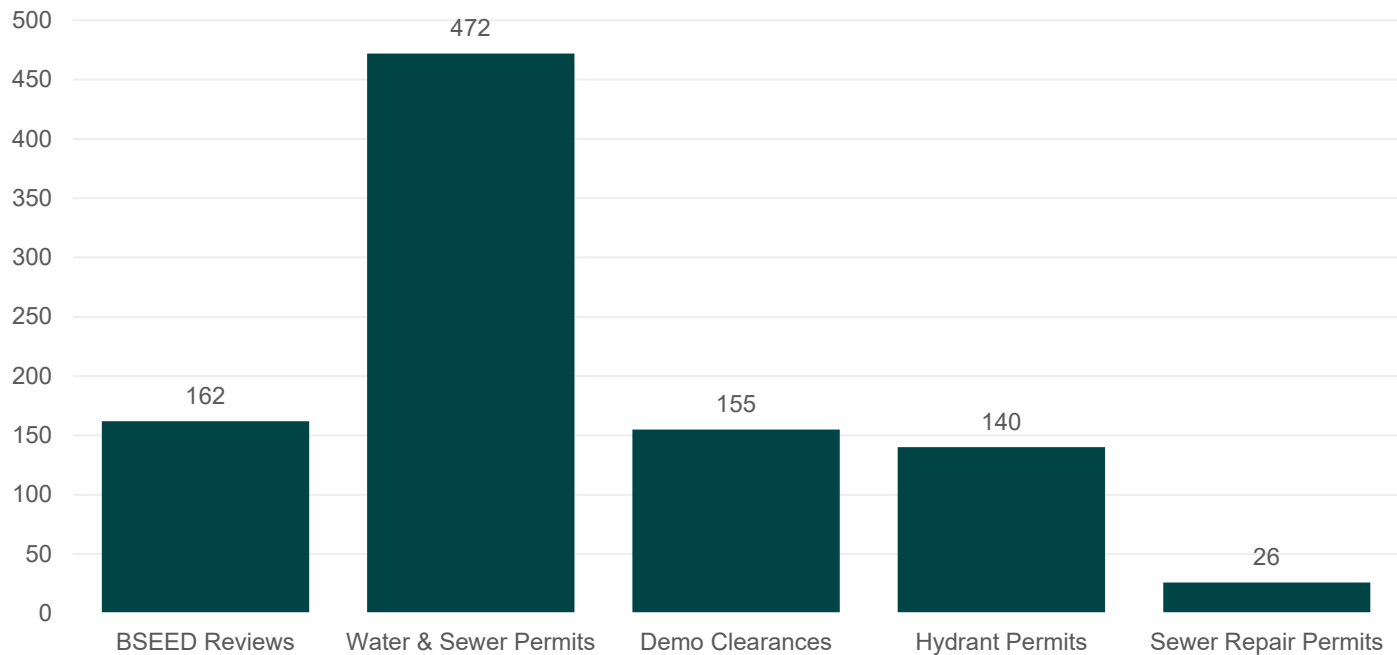
## Coordination Improvements

- Implemented communication and coordination with EGLE (State Department of Environment, Great Lakes, and Energy)
  - Modifications and additions to DWSD's Water System, sewer system, or public fire hydrants requires EGLE permit
- Implemented communication and coordination with internal DWSD divisions and other City Departments
- Standardized review & processing of petitions & easements





# Permits Completed FY23



# More Improvements Under Way

- Creating ticket-writing procedure for illegal connections; Permit Inspectors sworn in
- Selecting permit software to improve customer experience and reporting
- Collaborating across divisions to improve the Metered Hydrant Use process
- Training additional staff to address historical vulnerabilities from lack of knowledge redundancy
- Updating processes such as Flow Test Requests to run through CityWorks

