



*Baltimore City Department of Public Works*

# FY 2023 Capital Improvement Program Presentation, Bureau of Water & Wastewater

January 6, 2022





*Department of Public Works*

# Mission

We support the health, environment, and economy of our City and the region by providing customers with safe drinking water and keeping neighborhoods and waterways clean.

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*Department of Public Works*

# Vision

To be a strong proponent and protector of our environment and the health and vitality of our communities.





# Office of the Director - Organizational Chart



Director  
Jason W. Mitchell



Deputy Director  
Matthew W. Garbark



Chief Administrative Officer  
Julie Day



Chief of Staff  
Audree Jones-Taylor



Acting Bureau Head-Solid Waste  
Yvonne Moore-Jackson



Bureau Head-Water and Wastewater  
Yosef Kebede



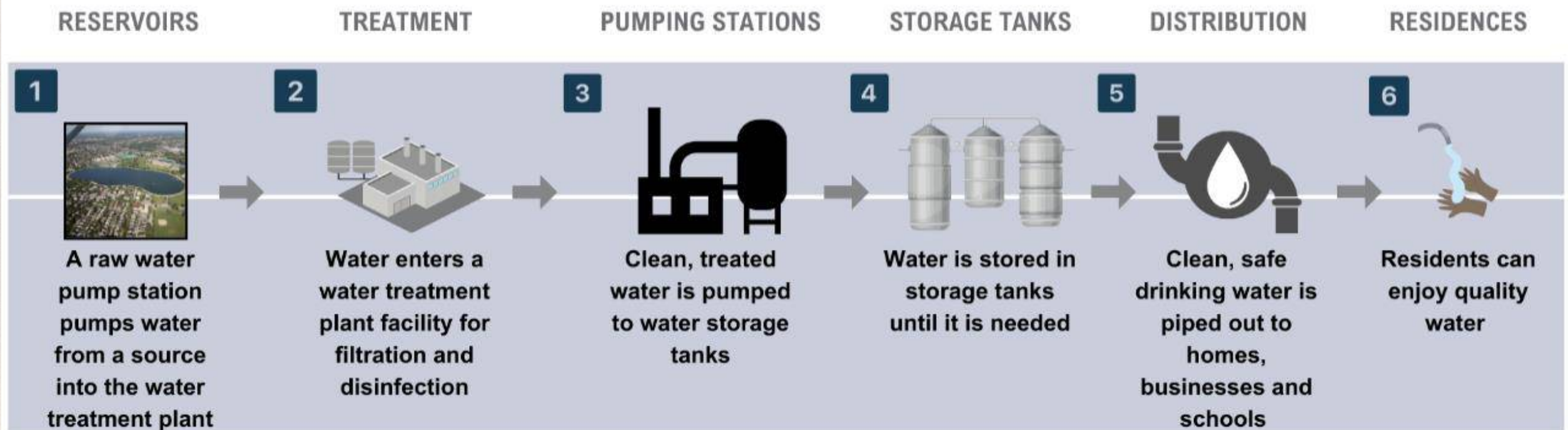
Acting Chief OEEJ  
Marco Merrick





# Drinking Water System

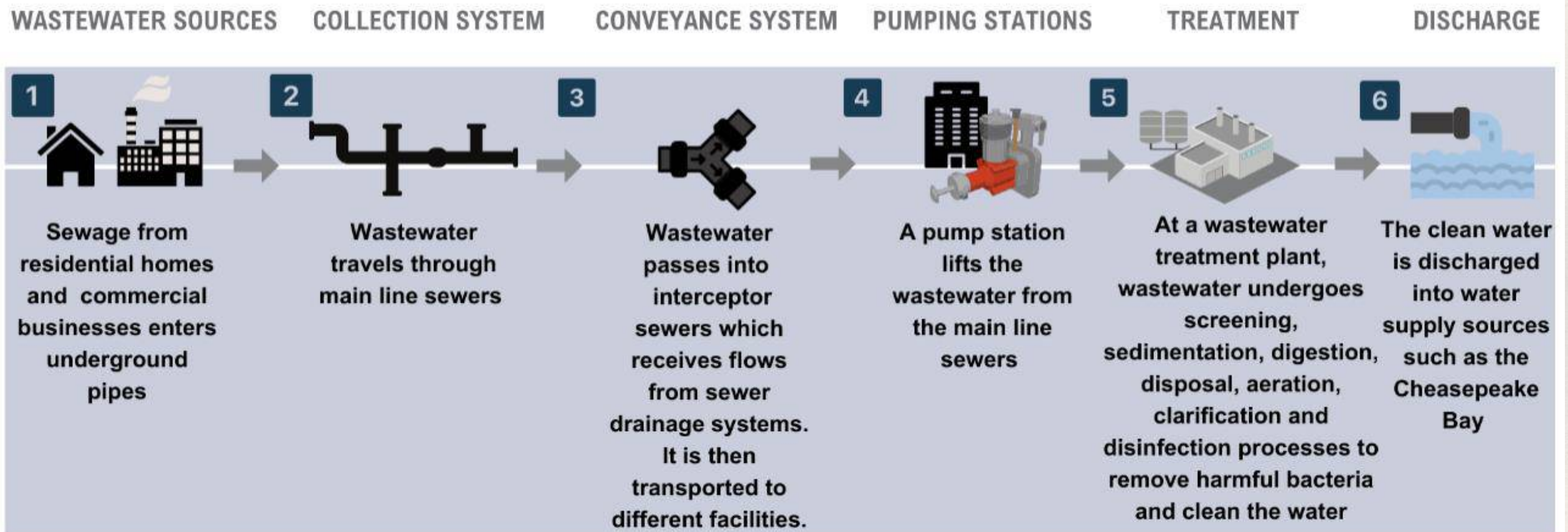
## *Baltimore City Drinking Water System*





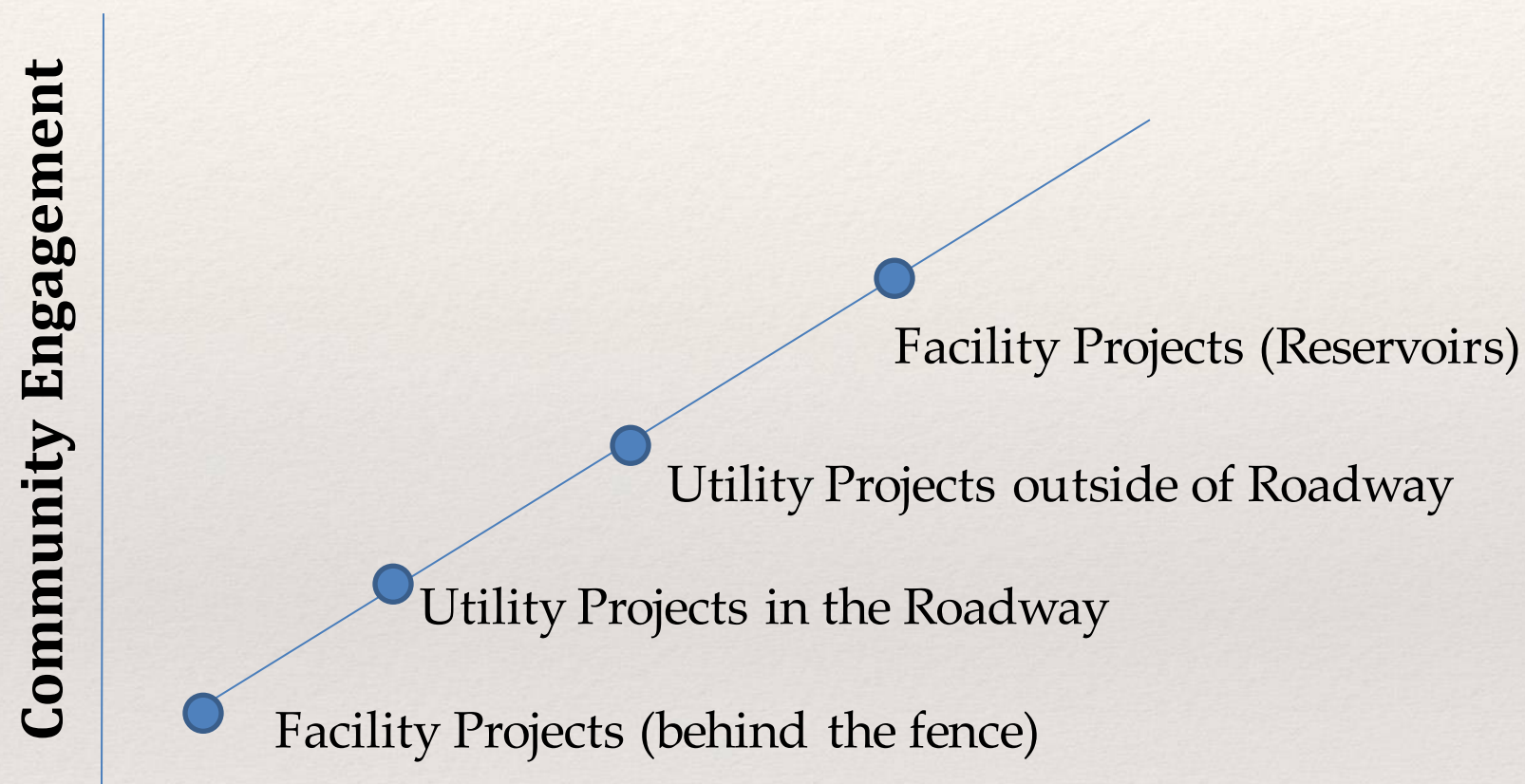
# Wastewater Treatment System

## *Baltimore City Wastewater Treatment System*





# DPW Community Engagement



**Impact to Community During and After Construction**





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# DPW's Routine Community Engagement

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- ◉ DPW in the Community Meetings
- ◉ Consent Decree Annual Meeting
- ◉ Staff Dedicated to Routine Engagement and Outreach
- ◉ Programs
- ◉ Events
- ◉ Publications
- ◉ Social Media





# Equity in the CIP

## 1. Equity Analysis and Insights

Incorporate a data-driven methodology that more accurately captures spatial and demographic context for projects and impacts.

## 2. Visibility and Impact of Equity in DPW Decision-Making

Develop an 'Equity Lens' for projects that highlight how Equity has been incorporated and considered. Increase the Role of Equity in scoring projects.

## 3. Make Equity Considerations More Comprehensive

Bake-In Equity in all social, environmental, economic, and operational criteria and incorporate co-benefits for disadvantaged communities.

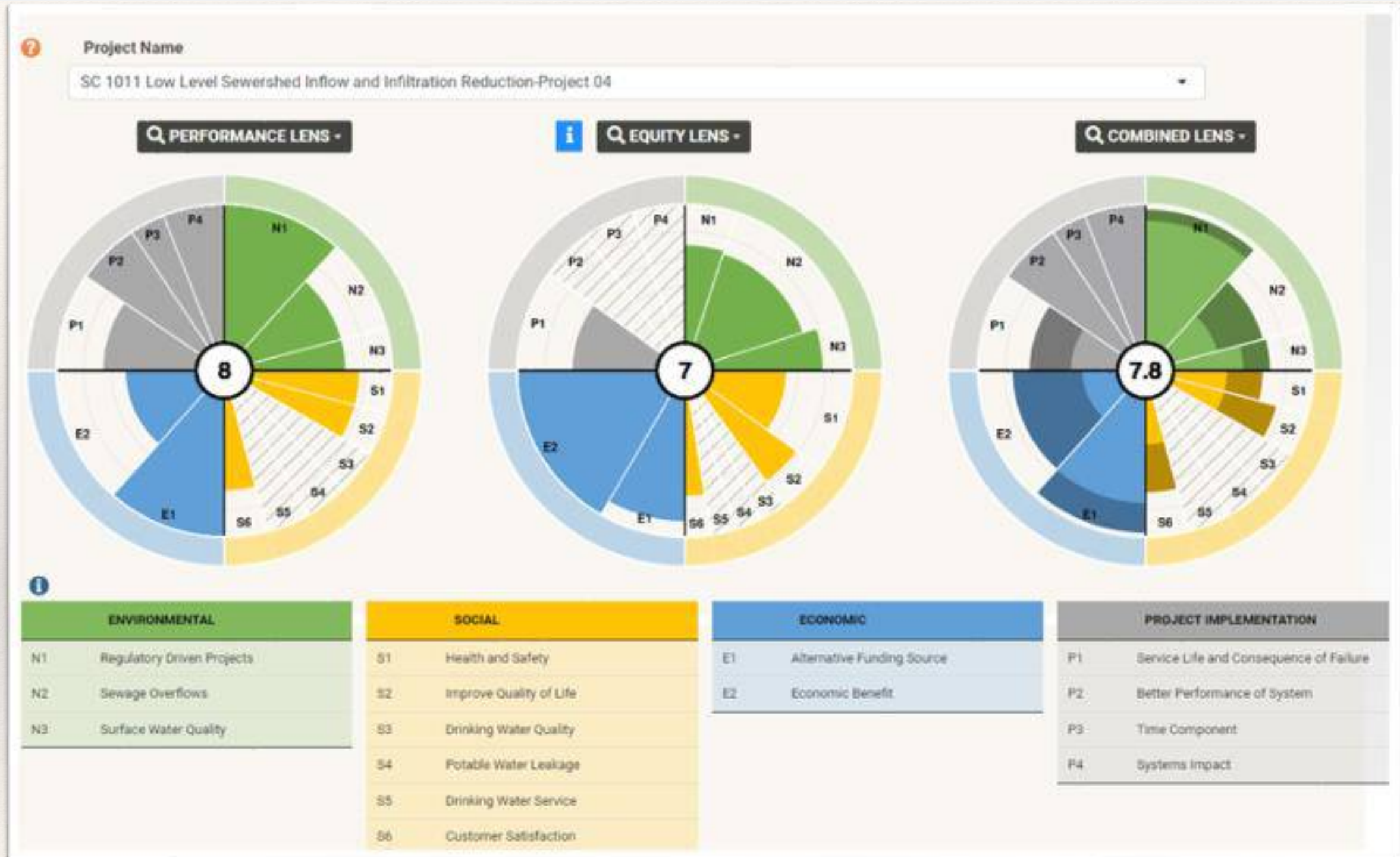


Data Sources – 1) US Census;  
2) US EPA EJScreen;  
3) Baltimore Neighborhood Indicators Alliance (BNIA) Vital Signs Report



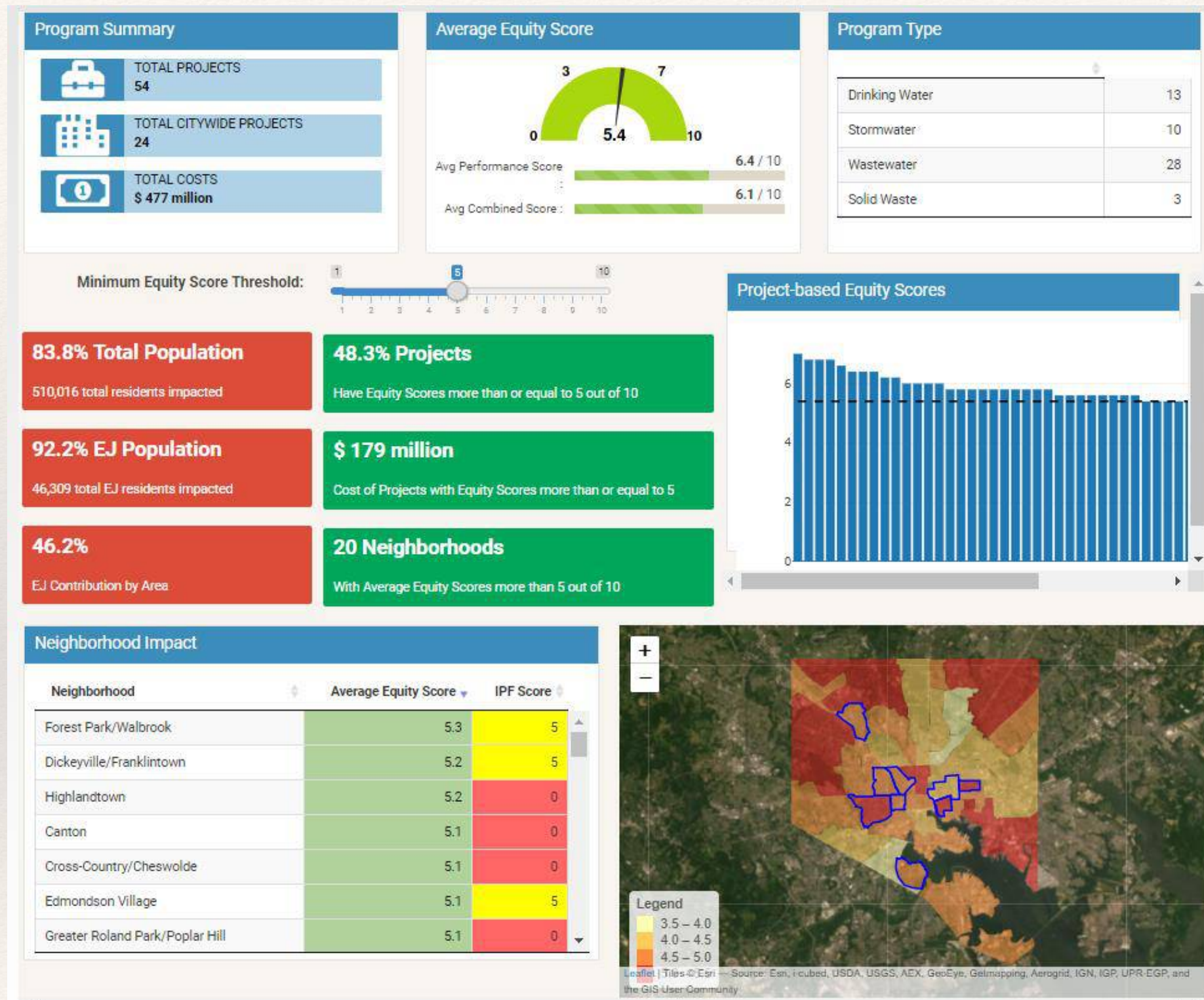


# The Three Lens Scorecard





# Equity-Based Program Evaluation





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# **FY 2023-2028**

## **Capital Improvement Program Summary**

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| <b>CIP #</b>             | <b>Program</b>                            | <b>( \$ in Millions)</b> |
|--------------------------|---|--------------------------|
| <b>520 &amp;<br/>525</b> | <b>Stormwater &amp;<br/>Environmental</b> | <b>249.3</b>             |
| <b>551</b>               | <b>Wastewater</b>                         | <b>1,159.1</b>           |
| <b>557</b>               | <b>Water</b>                              | <b>919.4</b>             |

***FY 2023 - FY 2028 Total = \$ 2.3 Billion***





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# FY 2023

## Capital Improvement Program Summary

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| CIP #                    | Program                                   | ( \$ in Millions) |
|--------------------------|---|-------------------|
| <b>520 &amp;<br/>525</b> | <b>Stormwater &amp;<br/>Environmental</b> | <b>60.7</b>       |
| <b>551</b>               | <b>Wastewater</b>                         | <b>160.7</b>      |
| <b>557</b>               | <b>Water</b>                              | <b>126.7</b>      |

***FY 2023 Total = \$ 361 Million***





# Stormwater & Environmental Programs

## FY 2023 Request (1 of 3)

| CIP #   | Program                                | ( \$ in Millions) |
|---------|--|-------------------|
| 525-070 | ER 4024 Stream BMP Monitoring          | \$2.0             |
| 525-057 | ER 4055 Stream Repair (BMP)            | \$2.0             |
| 520-069 | SDC 7769 North Point Rd Drainage       | \$0.5             |
| 520-055 | MS4 Baltimore City Permits             | \$9.8             |
| 525-064 | ER 4073 Large Debris                   | \$2.3             |
| 525-030 | ER 4121 (ER-4050) Dead Run Stream      | \$2.5             |
| 525-036 | ER 4122 (ER4031) Franklin Town<br>Blvd | \$2.4             |





# Stormwater & Environmental Programs

## FY 2023 Request (2 of 3)

| CIP #   | Program                             | ( \$ in Millions) |
|---------|-------------------------------------|-------------------|
| 525-018 | ER 4126 Env. Rest. Bundle 10        | \$2.5             |
| 525-019 | ER 4127 Hamden/Wyman Bundle 14      | \$0.5             |
| 525-013 | ER 4128 Herring Run Restoration     | \$4.5             |
| 525-015 | ER 4129 Clifton Park Env Rest.      | \$4.2             |
| 525-017 | ER 4130R Frankford/Belair Env Rest. | \$2.2             |
| 525-995 | ER 4034 Biddison Run                | \$1.1             |
| 525-005 | ER 4040 Moore's Run                 | \$2.3             |
|         |                                     |                   |





# Stormwater & Environmental Programs

## FY 2023 Request (3 of 3)

| CIP #  | Program                              | ( \$ in Millions) |
|--|--------------------------------------|-------------------|
| 520-046                                      | SDC 7768 Harris Creek Storm Drain    | \$10.4            |
| 520-013                                      | SDC 7772 Patapsco Ave Flooding       | \$8.5             |
| 520-065                                      | SDC 7802 35th & Hillen Rd Flooding   | \$1.7             |
| 520-715                                      | SWC 7770 Northeast Balt Drainage     | \$0.3             |
| 520-051                                      | SDC 7774 Balt Harbor Drainage        | \$0.6             |
| 520-066                                      | Asset Management Program Development | \$0.1             |
| 525-038                                      | Bioretention Areas (Masonville)      | \$0.3             |
| <b>TOTAL FY 2023 Total = \$ 60.7 Million</b> |                                      |                   |





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# Stormwater Program 520

## Recent CIP Accomplishments

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**ER4018 Powder Mill Run Stream Restoration Project**  
**Approximately 3,900 Linear Feet**  
**\$21.1 Million Construction Cost, 249 Impervious Acres MS4 Credit.**



**Before**



**After**





# Stormwater Program 525

## Recent CIP Accomplishments

**ER4021 Chinquapin Run Stream Restoration Project**  
**Approximately 12,700 Linear Feet Stabilized**  
**\$16 Million Construction Cost, 200 Impervious Acres MS4 Credit.**



**Before**



**After**





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# Stormwater Program 520

## Recent CIP Accomplishments

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### Current Conditions Missing Mortar and Bricks



### SDC-7768 Storm Drain Design in Harris Creek Watershed – Addressing Structural Deficiencies



### Structural Design to Prevent Future Failures



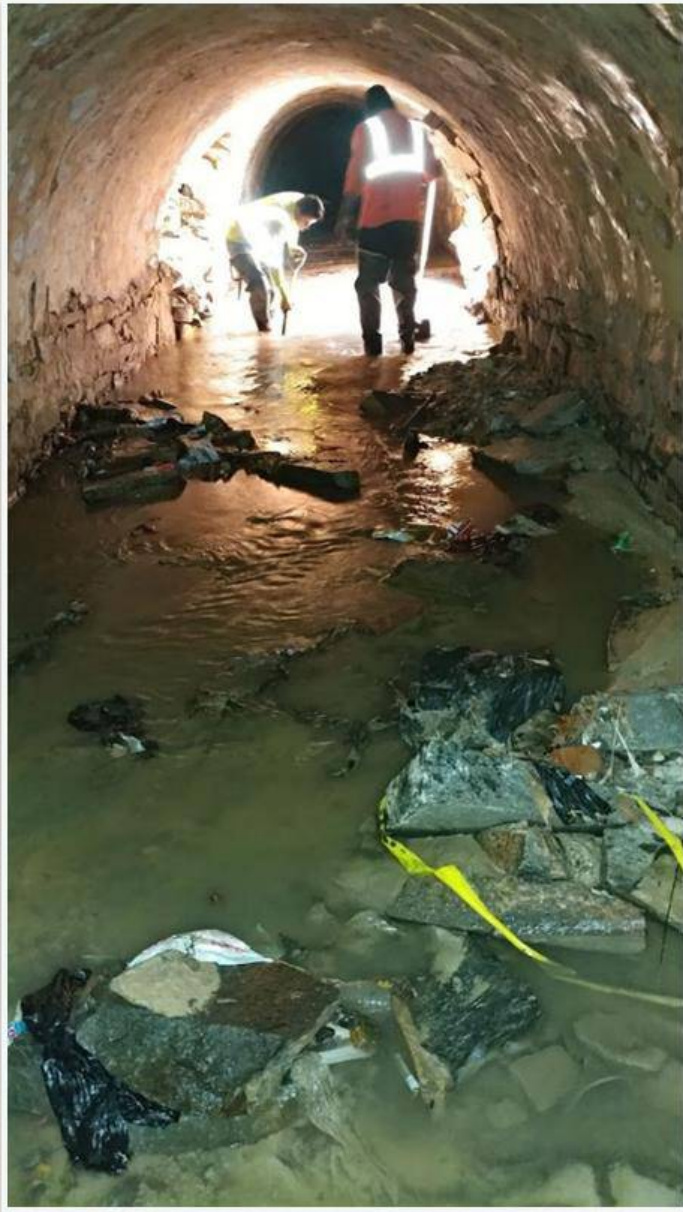
**Kenwood Avenue**





# Stormwater Program 520

## Long Term Capital Needs



**Aging Infrastructure  
Repair on 66" Storm Drain**

### Chronic Flooding Problem – 35th St. & Hillen Rd.



#### Other Locations Prone to Flooding:

- SDC 7768 Harris Creek – Chesterfield Ave to Patterson Park
- SDC 7772 Patapsco Ave. & Cherry Hill Storm Drain Improvements
- SDC 7769 North Point Road Drainage Project





# Wastewater Program 551

## FY 2023 Utilities Request ( 1 of 2)

| CIP #   | Project  | ( \$ in Millions) |
|---------|--|-------------------|
| 551-034 | SC-985 High Level Interceptor Rehabilitation                                 | 27.2              |
| 551-045 | Project 1294 Consent Decree Program Management Amendment                     | 7.5               |
| 551-047 | SC-978 Small Diameter Sewer Main Replacements in Roland Park                 | 4.5               |
| 551-137 | SC-1011 Low Level Sewer Shed Inflow and Infiltration Reduction _Project 04   | 15.7              |
| 551-163 | On Call for Engineering Services for Improvements to Baltimore City Sanitary | 2.0               |
|         |  |                   |





# Wastewater Program 551

## FY 2023 Utilities Request (2 of 2)

| CIP #                           | Project   | ( \$ in Millions) |
|---------------------------------|---|-------------------|
| 551-164                         | Project 1303.2 Amendment 1 Sanitary Sewer Interceptors and Siphons  | 2.1               |
| 551-166                         | SC-1030 Urgent Needs Improvements to Baltimore City Sanitary Sewers | 10.2              |
| 551-167                         | SC-1029 Urgent Needs Improvements to Baltimore City Sanitary Sewers | 10.2              |
| 551-168                         | SC-998 Replacement 1  | 9.2               |
| FY 2023 Total = \$ 88.6 Million |   |                   |





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# Wastewater Program 551

## FY 2023 Facilities Request

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| CIP #                           | Project                                       | ( \$ in Millions) |
|---------------------------------|---|-------------------|
| 551-159                         | Asset Management Program Development          | 0.8               |
| 551-526                         | Back River WWTP Egg-Shaped Digester Rehab     | 35.8              |
| 551-533                         | Annual Wastewater Facilities Improvement FY23 | 30.0              |
| 551-681                         | CMMS Implementation for Facilities            | 5.4               |
|                                 |   |                   |
|                                 |   |                   |
| FY 2023 Total = \$ 72.0 Million |   |                   |

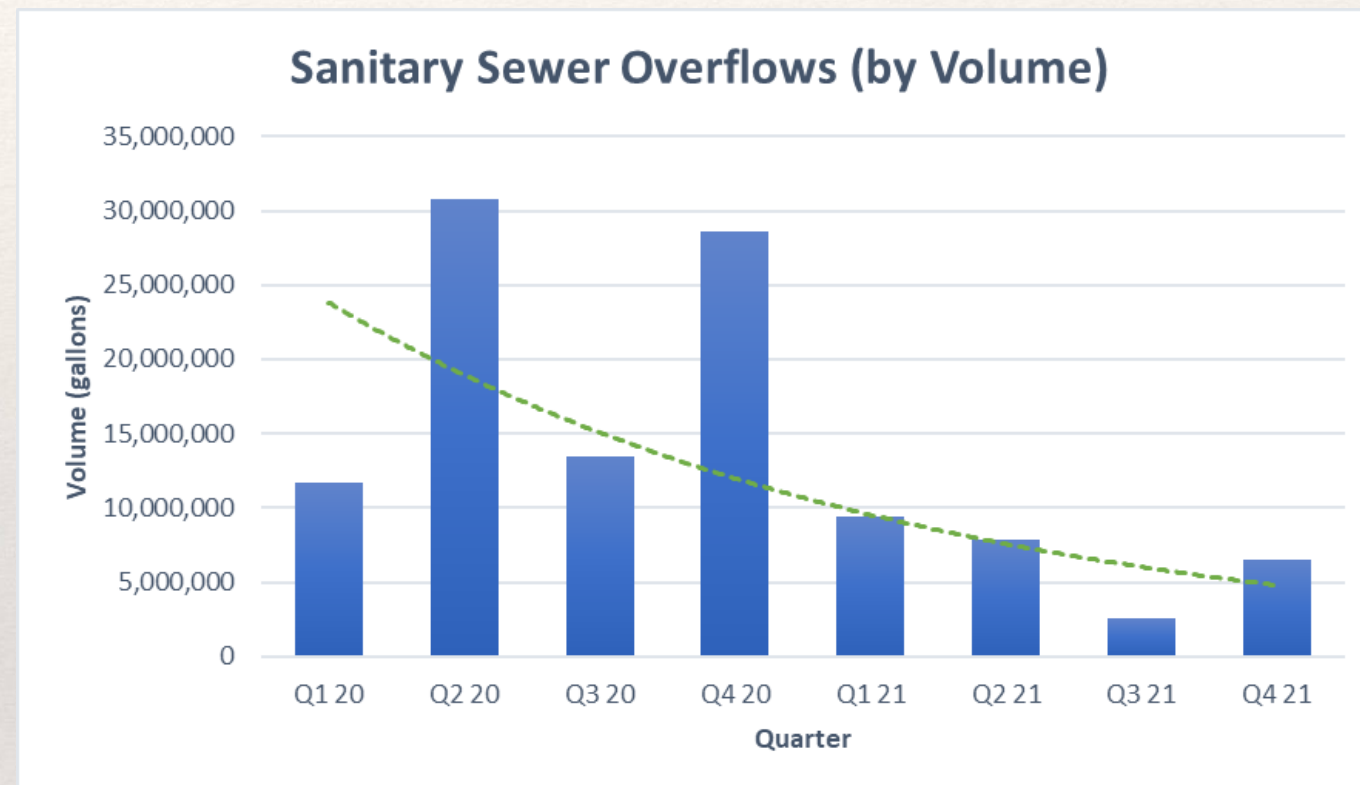




# Wastewater Program 551

## Modified Consent Decree

- ◉ **Consent Decree entered in September 2002**
  - ◉ Addresses sanitary sewer overflows (SSOs) from the City's collection system
- ◉ **Modified Consent Decree was entered in October 2017.**
  - ◉ The City is doing more
  - ◉ The City is working smarter
- ◉ **Phase I deadline – January 1, 2021**
- ◉ **Phase II deadline – December 31, 2030**



**69% reduction in wet-weather SSO volume  
(pre and post Headworks project)**





# Wastewater Program 551

## Recent CIP Accomplishments

SC 940 – High Level Sewershed – Wabash Avenue & Coldspring Lane



Micro Tunneling  
Receiving Pit



Sewer Pipe in  
Casing

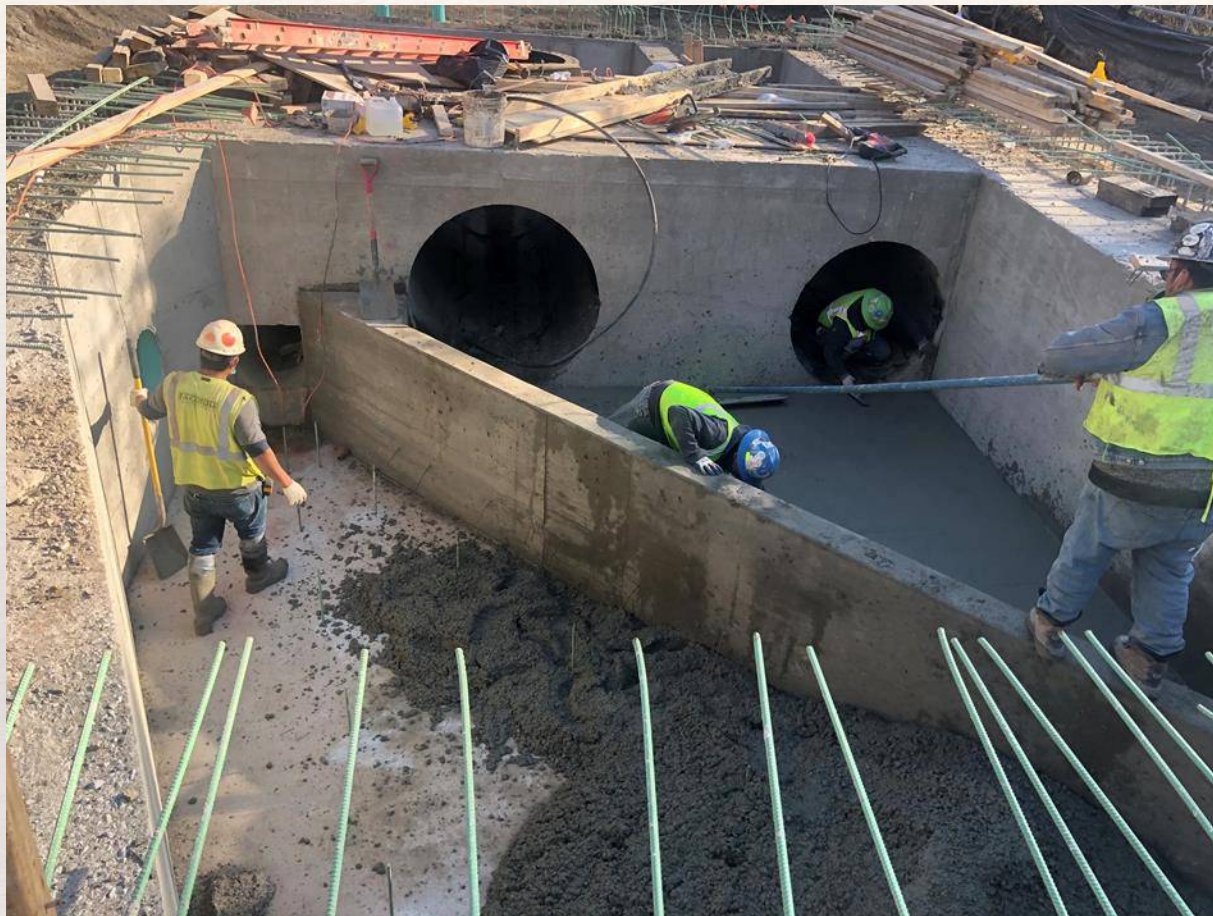




# Wastewater Program 551

## Recent CIP Accomplishments

### SC 941 – Jones Falls Sewershed – Falls Road Corridor



**Sewer Confluence Structure:  
During Construction**



**Sewer Confluence Structure:  
After Construction**





# BRWWTP Completed Headworks Project

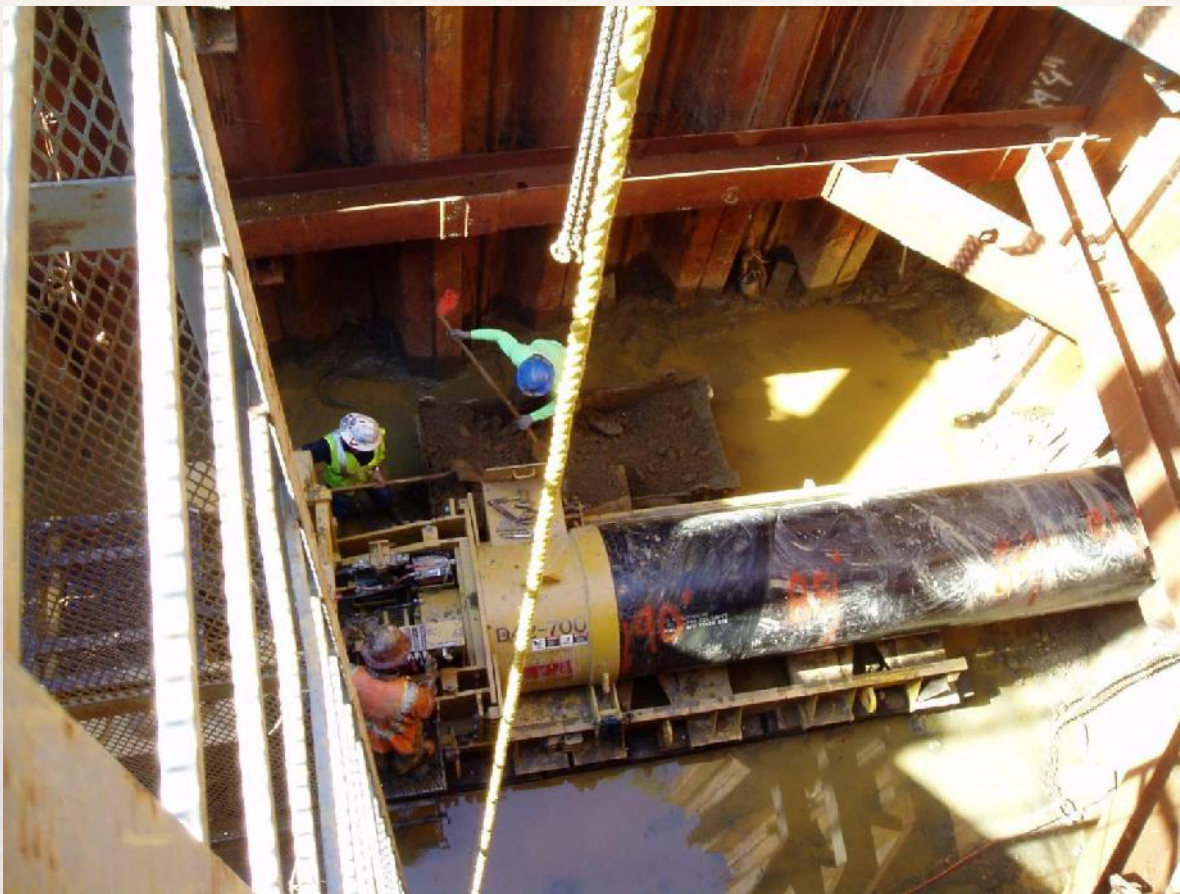




# Wastewater Program 551

## Recent CIP Accomplishments

### SC 910 – Chinquapin Run



Jack & Bore of Steel Casing  
for New Sewer Pipe





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# Wastewater Program 551

## Long Term Capital Needs

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- ◉ Ongoing Federally mandated Consent Decree Anticipated > \$2.6 Billion (FY 2002 through FY 2030).
- ◉ Phase II Consent Decree projects initiated:
  - ◉ Sanitary sewer rehab contracts (SC 1004-1007) are currently being finalized.
  - ◉ CCTV contracts (SC 1019-1022) were advertised in Sep/Oct 2021.
  - ◉ Scope for these rehab contracts will come from the CCTV contracts
- ◉ Ongoing City support for capital improvements for Power Reliability, Pump Station, WWTP Security, Biosolids Upgrades & Patapsco WWTP Headworks requiring ~ \$0.7 Billion.





# Water – Program 557



*WC 1339 Upton Water Main Replacement*





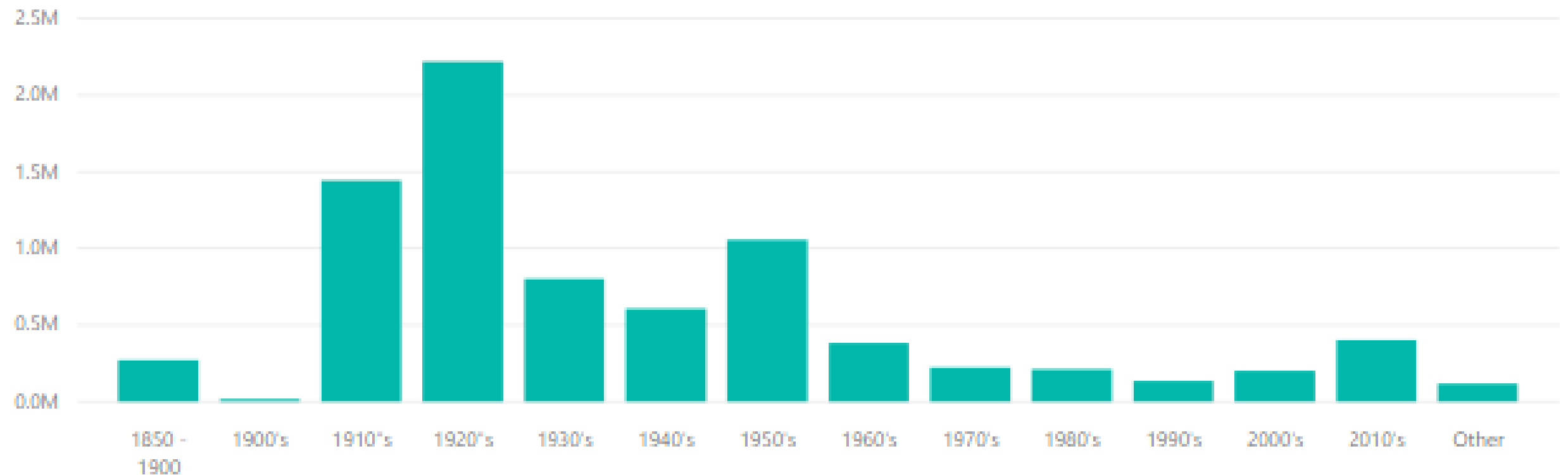
# Water Program 557

## Long Term Capital Needs - Utilities

### Average Age of Water Main Assets Approximately 80 Years

Length of Active Baltimore City Water Mains Installed by Decade  
Average Age is Approximately 80 Years Old

Water Main Installation by Decade





# **Water Program 557**

## **Long Term Capital Needs - Facilities**

### **Ashburton WFP and Montebello WFP 1 & 2 Renovations**

**Mechanical/Structural/Electrical/Controls/Filter Upgrade Work**

**Future Appropriations > \$ 250 Million**



**Hydraulic Valve  
Actuator  
Corroded Leakage**



**Ground Water Leakage**



**Existing Filter Piping  
Conditions**



**Existing Mixing Basin Conditions**



**Existing Filter Bay Conditions**





# **Water Program 557**

## **FY 2023 Utilities Requests (1 of 2)**

| <b>CIP #</b>       | <b>Program</b>                                      | <b>( \$ in Millions)</b> |
|--------------------|---|--------------------------|
| <b>557-148</b>     | <b>WC 1292 Belair Road WM Replacement</b>           | <b>8.1</b>               |
| <b>557-152</b>     | <b>WC 1315 Hillen &amp; Pen Lucy WM Replacement</b> | <b>21.2</b>              |
| <b>557-154</b>     | <b>WC 1317 Conkling St WM Replacement</b>           | <b>10.4</b>              |
| <b>557-187</b>     | <b>WC 1301 Replacement Contract</b>                 | <b>6.9</b>               |
| <b>557-205,6,7</b> | <b>Urgent Needs Infrastructure Contracts (3)</b>    | <b>34.7</b>              |
| <b>557-244</b>     | <b>WC 1387 WM Replacements at Various Locations</b> | <b>9.1</b>               |
| <b>557-245</b>     | <b>WC 1428 Perkins WM Replacement</b>               | <b>4.0</b>               |





# Water Program 557

## FY 2023 Utilities Requests (2 of 2)

| CIP #                                     | Program                                   | ( \$ in Millions) |
|---|---|-------------------|
| 557-250                                   | WC 1391 Lower Fells WM Replacement        | 5.1               |
| 557-252                                   | WC TBD Design and Engineering Services    | 5.4               |
| 557-253                                   | WC 1429 Frederick Ave WM Replacement      | 0.2               |
| 557-255                                   | WC TBD Water Hydraulic Model Upgrades     | 1.3               |
| 557-256, 7                                | WC 1430 & 1431 WM Rehab at Various (2)    | 0.4               |
| 557-258                                   | WC 1393 Water Main Replacement and Rehab. | 1.1               |
| FY 2023 Facilities Total = \$ 108 Million |   |                   |





# Water Program 557

## FY 2023 Facilities Requests

| CIP #                                    | Project                                      | ( \$ in Millions) |
|--|--|-------------------|
| 557-027                                  | Ashburton WFP Low Lift Pump Controls         | 14.7              |
| 557-105                                  | Montebello WFP 1 & 2 Filter Control Panels   | 6.4               |
| 557-106                                  | Montebello WFP 2 Sedimentation Basins        | 5.5               |
| 557-251                                  | WC 1408 Montebello Plant 2 Electrical        | 21.0              |
| 557-254, 261                             | Asset Management Program and Facilities CMMS | 3.6               |
| 557-731                                  | WC 1131 Water Recycling Deappropriation      | -32.8             |
| FY 2023 Facilities Total = \$ 18 Million |  |                   |





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# Water Program 557

## Recent Accomplishments - Utilities

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### *WC 1363 Allendale Neighborhood Water Main Replacement*



*Aged water main removed for replacement*



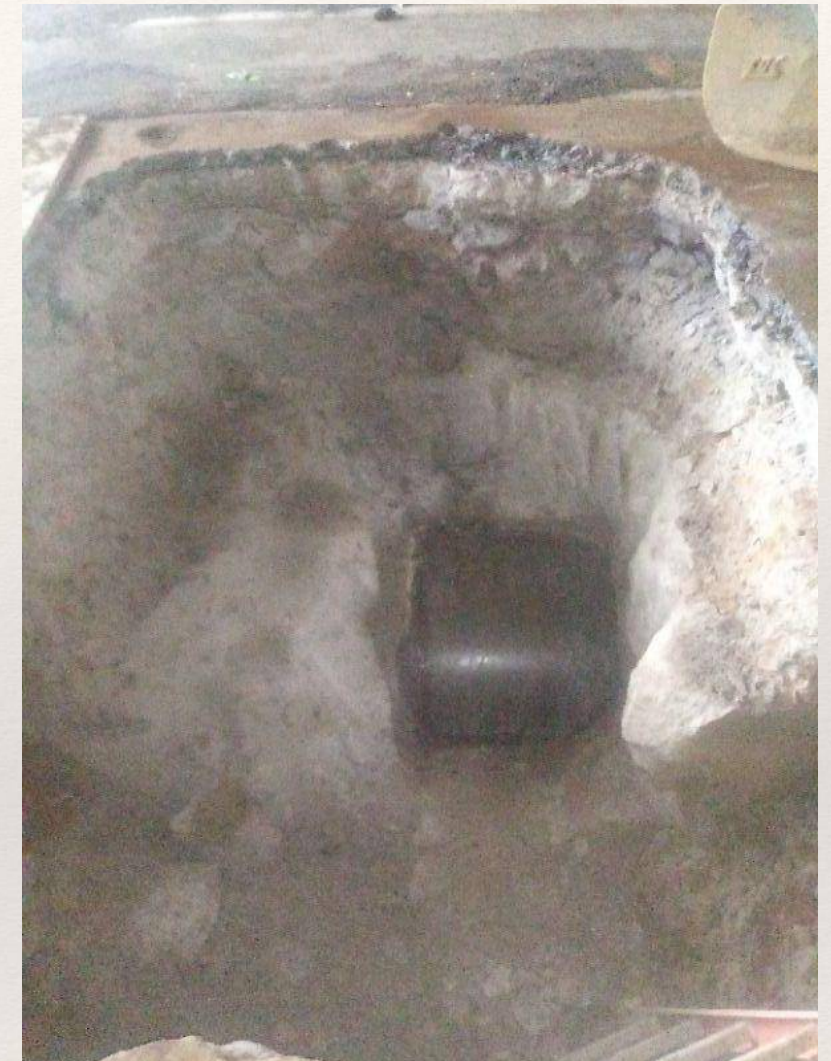
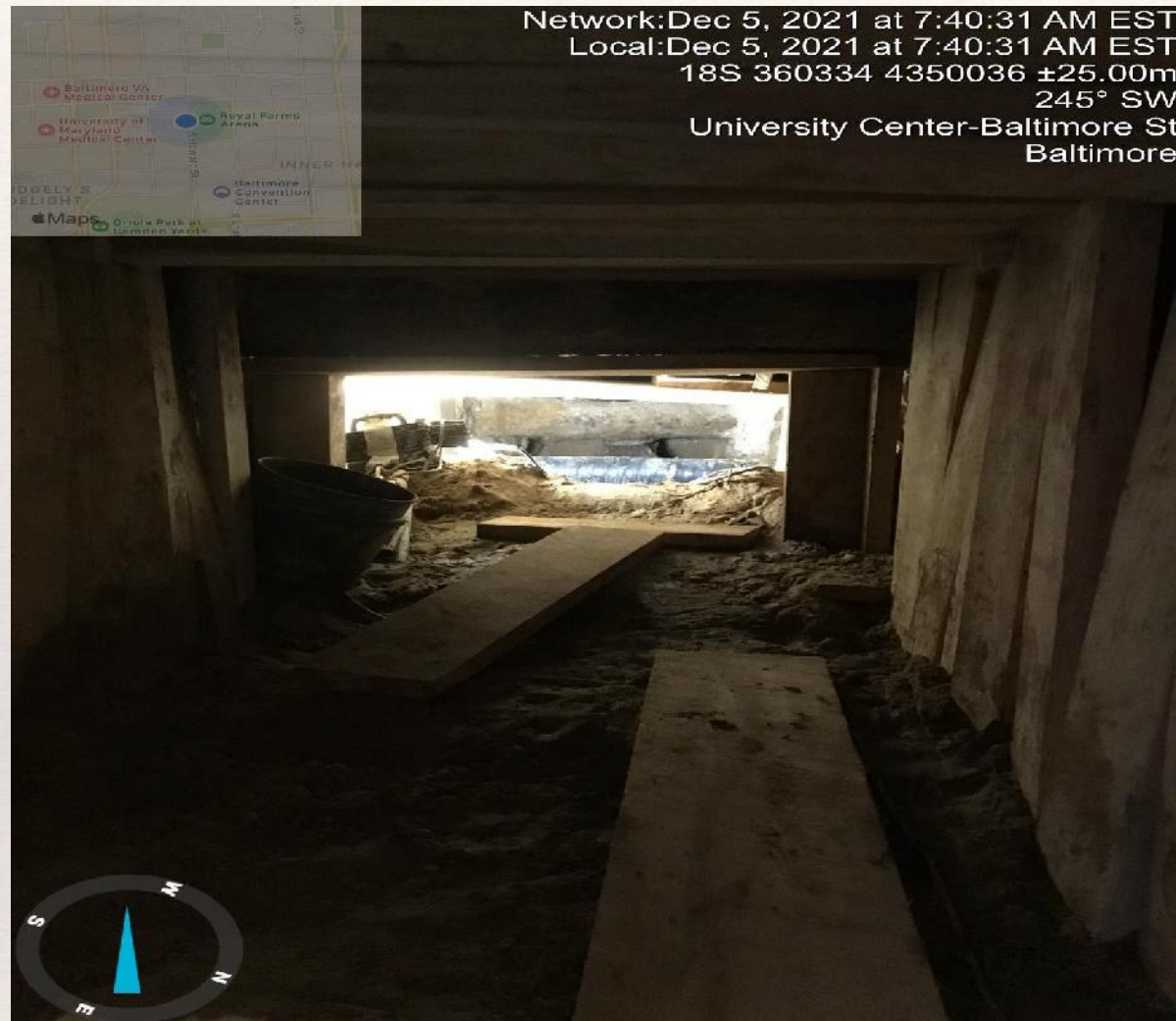
*Replacement Ductile Iron Pipe (DIP) installation*





# Water Program 557

## Recent CIP Accomplishments - Utilities



**Tunneling in Howard St under MTA Light Rail Tracks to repair water leaks**

**48" Main break repair on I-83 ramp**





# PCCP Repairs





# Water Program 557

## Recent CIP Accomplishments - Utilities



New Manway Access Tap on 48" PCCP



Complete CFRP Repair of  
Manway Access Tap on 48" PCCP



Complete Mortar Joint Repair of  
48" PCCP



Proactive Internal Carbon-  
Fiber Repair of 48" PCCP





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# Water Program 557

## Recent CIP Accomplishments - Utilities

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Hoop Layer of CFRP of 48" PCCP



Longitudinal Layer of CFRP of 48" PCCP

Proactive Internal Carbon-  
Fiber Repair of 48" PCCP





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# Water Program 557

## Recent CIP Accomplishments - Facilities

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**WC 1120 Guilford Pump Station Renovations & New Electrical and Hypochlorite Building**  
**Combined Project Costs ~\$25 million**  
**Construction at 90% Complete**

**WC 1328 Montebello WFP 1**  
**Improvements – Coagulant Building**  
**Project Costs ~ \$59.3 Million**  
**Construction at 68% Complete**

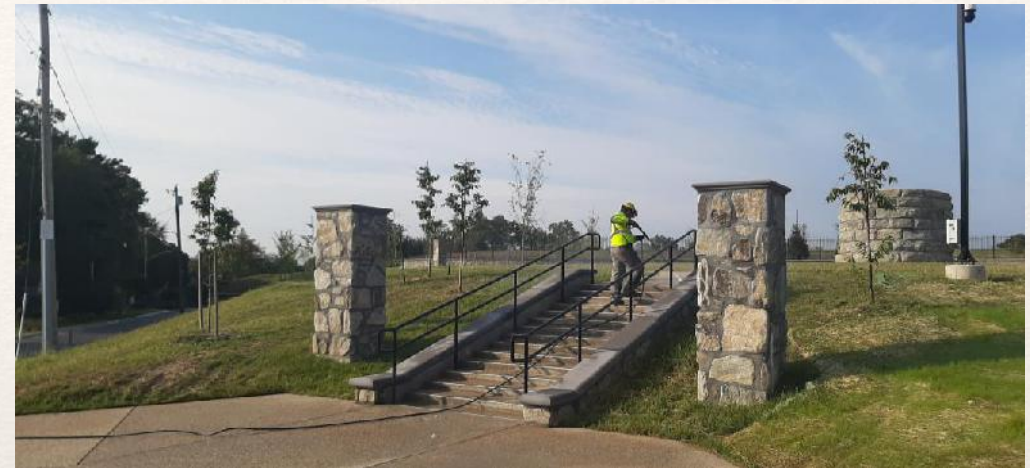




# Water Program 557

## Recent CIP Accomplishments - Facilities

**WC 1173R Guilford Finished Water Reservoir**  
Project Costs ~ \$ 70 Million  
Construction at 99.5% Complete



**WC 1204 Druid Lake Finished Water Reservoir**  
Project Costs ~ \$212 Million  
Construction at 92% Complete



**WC 1211 Ashburton Lake Finished Water Reservoir**  
Project Costs ~ \$178 Million  
Construction at 67% Complete



**Combined Project Cost of the five LT2  
Finished Water Reservoir Projects - \$526 Million**







## FY 2023 CIP Presentation



# Questions?