

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY Board of Directors

Meeting of the Environmental Quality and Operations Committee

Thursday, October 19, 2023 9:30 a.m.

Microsoft Teams meeting Join on your computer, mobile app

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Meeting ID: 256 285 208 69

Passcode: 5pY3Tw

Or call in (audio only)

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Phone Conference ID: 238 278 502#

9:30 a.m.	I	Call to Order	Sarah Motsch Chair
	II	Roll Call	Michelle Rhodd Board Secretary
9:35 a.m.	Ш	BPAWTP Performance Update	Nicholas Passarelli
9:40 a.m.	IV	Clean Rivers Project Status Update	Moussa Wone
10:00 a.m.	٧	Risk-based prioritization of Linear Assets	Getachew Melsew
10:20 a.m.	VI	Styrene Cost Impacts to CIP	William Elledge
10:40 a.m.	VII	Action Items	Joel Grosser Brent Christ

Joint Use

- 1. Contract No. 10068 Supply and Delivery of Calcium Hydroxide W.K. Merriman, Inc.
- 2. Agreement No. DCFA #535 Non-Process Facility Design Service
 Basic Ordering Agreement Alphatec PC

10:50 a.m. VII Other Business/Emerging Issues

10:55 a.m. VIII Executive Session*

11:00 a.m. IX Adjournment Sarah Motsch

This meeting is governed by the Open Meetings Act. Please address any questions or complaints arising under this meeting to the Office of Open Government at opengovoffice@dc.gov.

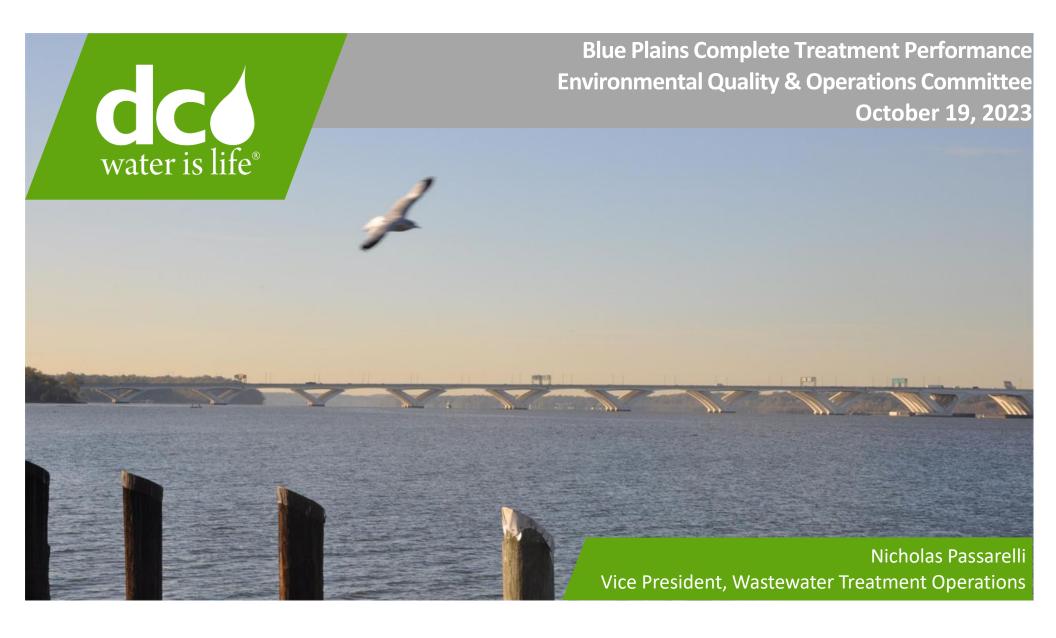
Follow-up Items from Prior Meetings:

- Getachew Melsew (Sr. Manager, Planning, Engineering): To provide copy of white paper on the equity analysis benefits and either a presentation to the full Board or the opportunity for Board Members to observe a training session on the equity analysis tool and dashboard.
 Due November 2023.
- 2. Nicholas Passarelli (Vice President, Wastewater Operations): Information on how many tons of Bloom were generated compared to how many tons were sold. Nick Passarelli will present these numbers for October's committee meeting.
- 3. Paul Guttridge (Director, CIP Infrastructure Management): Confirm total underspending amount at end of year meeting.

¹The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss certain matters, including but not limited to: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); terms for negotiating a contract, including an employment contract, under D.C. Official Code § 2-575(b)(2); obtain legal advice and preserve attorney-client privilege or settlement terms under D.C. Official Code § 2-575(b)(4)(A); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security matters under D.C. Official Code § 2-575(b)(8); disciplinary matters under D.C. Official Code § 2-575(b)(9); personnel matters under D.C. Official Code § 2-575(b)(10); third-party proprietary matters under D.C. Official Code § 2-575(b)(12); adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters or violations of laws or regulations where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14); and other matters provided under the Act.



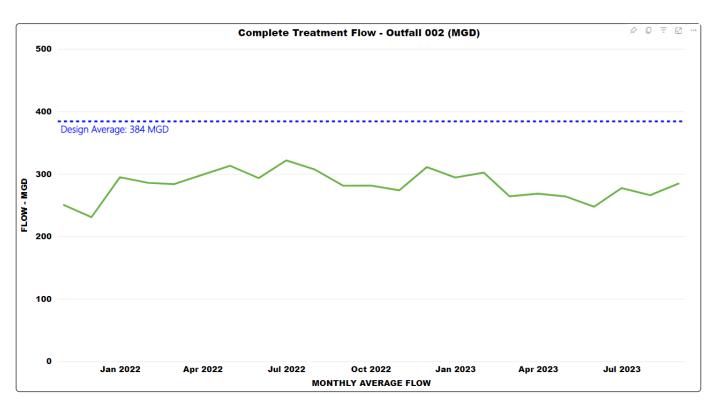
BPAWTP UPDATE





Operational Performance Complete Treatment

Monthly Average Flow Trend to Complete Treatment (MGD)



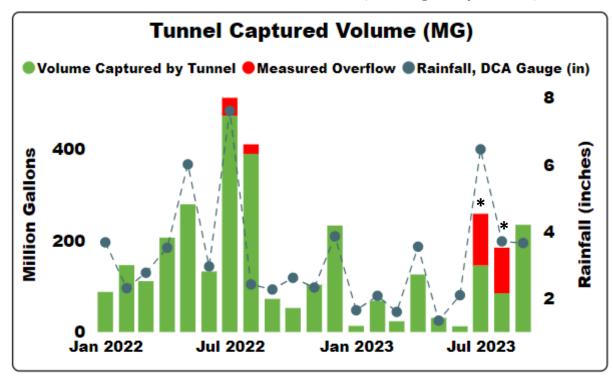
All weekly and monthly NPDES permit requirements were met

Average Outfall 002 flow for Sept: 284 MGD



Operational Performance Tunnel Systems and Wet Weather Treatment

Anacostia River Tunnel System Annual Performance 2022 – 2023 (Through Sept 2023)



^{* -} CSO 019 diversion to tunnel was out of service July 5 - Aug 29 for commissioning of Northeast Boundary Tunnel, causing temporary increase in overflows. Necessary for safety of workers in tunnel. EPA/DOEE advised in advance.

Total System Annual Performance 2018-2022

	Anacostia River Tunnel System	Total System
Number of events	61	398
Volume Captured, MG	14,786	18,177
Volume to CSO, MG	1,342	6,943
Percent Captured, %	91.7	72.4

 $\label{thm:continuous} \textbf{Note: Total System includes Anacostia, Potomac, and Rock Creek}$

MG ~ Million Gallons

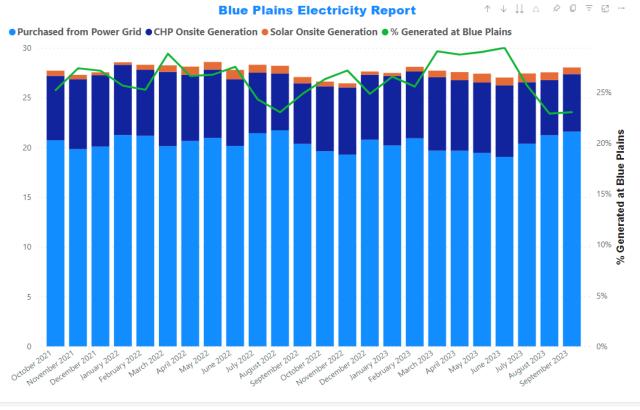
CSO~ Combined Sewer Overflow

742 MG of volume captured by Anacostia Tunnel in Calendar Year 2023 through September, with 213 MG overflow, which took place in July and August due to outages required by NWBT commissioning



Operational Performance Electrical Energy Use and Generation

Blue Plains Electrical Energy Use and Generation

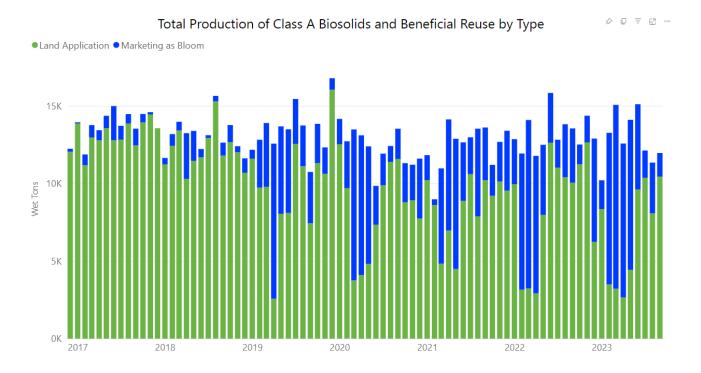


- 23% of electricity was generated onsite
- Combined Heat and Power (CHP) facility produced an average of 7.1 megawatts (MW), with 5.8 MW net to Blue Plains grid
- Solar System produced an additional
 0.7 MW of power on average
- Total electricity consumption at Blue Plains averaged 28.0 MW
- DC Water purchased an average of 21.6 MW of electricity from PEPCO



Operational Performance Class A Biosolids Production

Total Production of Class A Biosolids and Beneficial Reuse by Type



In September, Blue Drop sold approximately 1,524 tons of Bloom, sending us further over the FY23 goal of 55,000 tons to 64,818 tons through FY23.

Blue Plains Produced 11,963 tons of biosolids for the month with the remaining 10,439 tons managed though land application contracts.



Clean Rivers Project Status Update





(Mar-Dec)

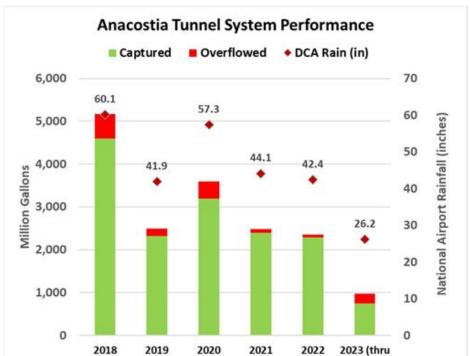
Anacostia Tunnel System Performance

Sep)









Over 15.5 billion gallons (137 million gallons captured during Sept. 22 Tropical Storm) captured Mar 2018 – Sept 2023

Over **9,961 tons of trash**, debris, and other solids captured Exceeding predicted capture rate (91%>80%)



Trash, Debris and Solids Removal from Screening Shaft at Tunnel Dewatering Pumping Station

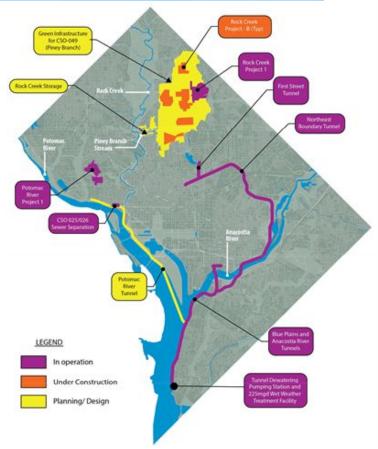
Performance affected by commissioning of Northeast Boundary Tunnel, which had CSO 019 diversion to tunnel out of service July-Aug 2023



DC Clean Rivers Project Snapshot



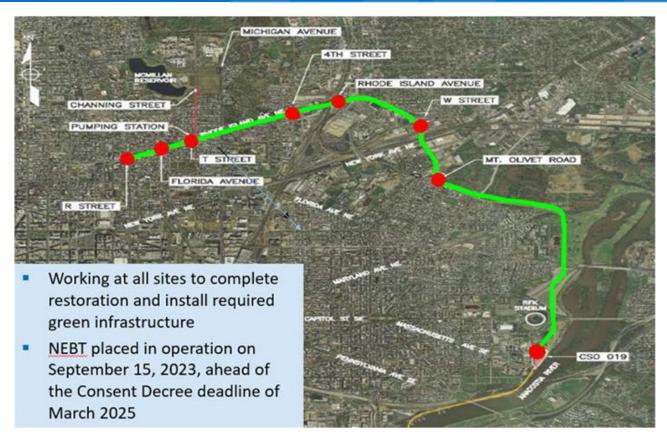
Area	Status			
Anacostia				
Anacostia Tunnel System	 More than 15.5 billion gallons captured More than 9,961 tons of trash/debris removed 			
Northeast Boundary Tunnel	Tunnel commissioned September 15, 2023.			
Potomac				
CSO 025/026 Separation	Completed, administrative closeout underway			
Potomac Tunnel Advance Utility Construction	 Project has achieved Substantial Completion Remaining work at CSO 024 to accommodate for PEPCO relocation for Potomac Tunnel 			
Potomac Tunnel Construction	 Board approved design-build contract Oct 5, 2023, Notice to Proceed is pending 			
Rock Creek				
Green Infrastructure (GI) Project B	 Three alley segment permeable pavements are currently under construction. Substantial Completion: October 21, 2023 Final Completion: December 29, 2023 Consent Decree Date: January 23, 2024 			





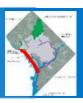
Division J – Northeast Boundary Tunnel Construction Progress

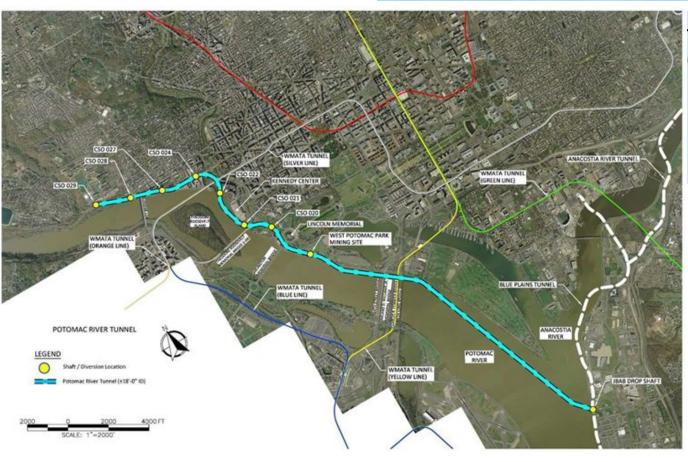






Potomac River Tunnel





Tunnel Contract (Best Value Design-Build):

- ✓ Board approved contract to CBNA/Halmar Joint Venture (JV) Oct. 5, 2023
- Notice to Proceed (NTP): Nov. 2023
- Place in Operation: Feb. 2030



Potomac River Tunnel Contract A Advanced Utility Construction



Purpose: Construct high voltage electric duct banks to power Potomac River Tunnel Contract B (PRT-B) tunnel boring machine and construct power drops to shaft work sites for PRT-B.

Substantial Completion achieved on May 26, 2023

Installation of an additional 4-way duct bank in K Street NW beneath the Whitehurst Freeway is ongoing.

Final completion, is scheduled for October 31, 2023.



Pepco 4-Way in K Street NW



Green Infrastructure Rock Creek Project B



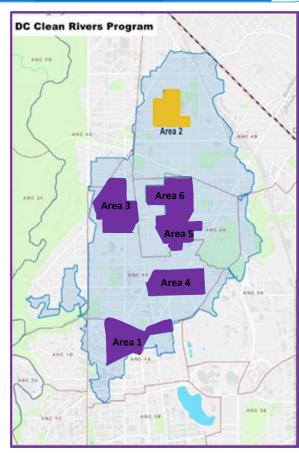
Consent Decree Requirements

- Manage 22 impervious acres with GI
- Place in operation by January 23, 2024

Construction Status

- Area 1 Columbia Heights
 All facilities completed
- Area 2 Takoma DC
 Three (3) APPs segments in construction
- Area 3 16th St Heights All facilities completed
- Area 4 Grant Circle
 All facilities completed
- Area 5 Sherman Circle
 All facilities completed
- Area 6 Brightwood Park All facilities completed







DC Clean Rivers Public Outreach Efforts







Category	Activities:
Community Coordination	 Initiated outreach to complete PRT-B pre-construction surveys: 32 properties contacted, and 20 property surveys completed. Completed walkthrough with residents and Commissioner Parker's office to answer restoration questions and address safety concerns.
Community Outreach	 Providing updates to the community and Commissioner of 2E05 regarding PRT-A CSO 024 Phase 5 work. Engaging communities about NEBT restoration work and coordinating with the contractor to minimize impacts. Extending outreach to Channing Street NW communities about work on structures necessary to put the FST system in its final configuration. Completion of the Downspout Disconnection Program resulting in a total of 471 downspouts disconnected.
Milestone Celebration	 DCCR and OMAC collaborating to organize the Anacostia River Tunnel System Commissioning Celebration, on October 21, 2023, at the Anacostia Park Roller Skating Pavilion.







Clean Rivers Budget









Clean Rivers expenditures on Northeast Boundary Tunnel are not expected to exceed the budget





Northeast Boundary Tunnel Surface Work Detailed Updates

Division J – Northeast Boundary Tunnel Construction Progress: Tunnel









NEBT Tunnel

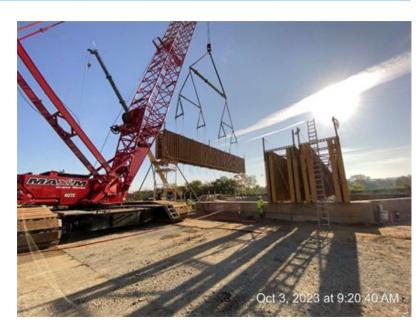
• Commissioning of the NEBT Tunnel is complete



Division J – Northeast Boundary Tunnel Construction Progress: CSO 019 (near RFK Stadium)







- Site restoration work ongoing
- Working on completing the shaft cover



Division J – Northeast Boundary Tunnel Construction Progress: Mount Olivet Road







Drop Shaft Site

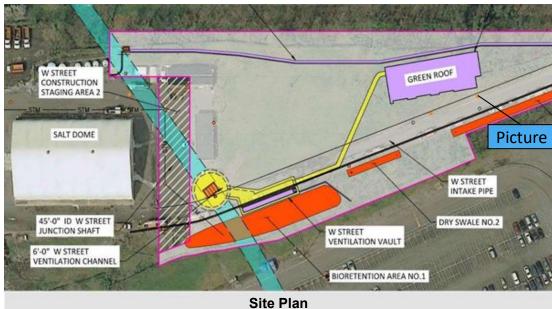
• Site restoration and construction of Green Infrastructure Bioretention Ponds

Diversion Chamber Site

• Site restoration and construction of Green Infrastructure Bioretention Ponds

Division J – Northeast Boundary Tunnel Construction Progress: W Street







an Ventilation Control Facility

- Continue Ventilation Control Facility (VCF) mechanical, electrical and plumbing work including setting the Motor Control Cabinet (MCC) and Adjustable Frequency Drives (AFDs)
- · Continued VCF Exterior Precast Panel Installation and commenced Curtain Wall installation
- · Commenced installation of the Green Roof
- Completed the overhead door installations, roof fall protection system, and monorail crane steel

Division J – Northeast Boundary Tunnel Construction Progress: Rhode Island Avenue





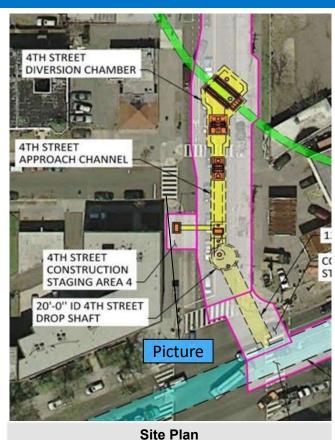


- e Pian Site
- Commissioned the Near Surface Structures by setting stop logs, removing gates, and installing orifice plates.
- Commenced site restoration including roadway and sidewalks

Completed construction of Inlet 1 (District Dogs NE side) and Bioretention

Division J – Northeast Boundary Tunnel Construction Progress: 4th Street







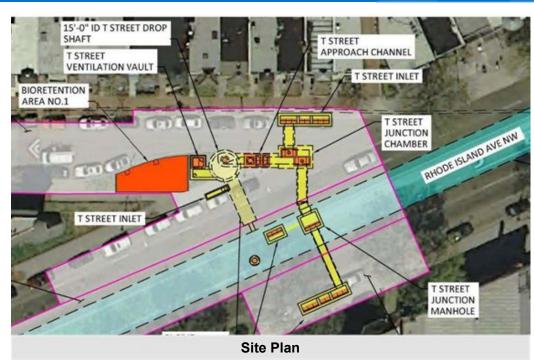
4th Street Restoration

- · Completed striping the roadway
- Commissioned the Near Surface Structures by setting stop logs, removing gates, and installing orifice plates.



Division J – Northeast Boundary Tunnel Construction Progress: T Street







- Completed sidewalk and pavement restoration
- Continue performing restoration activities along Rhode Island Avenue and T Street



Division J – Northeast Boundary Tunnel Construction Progress: Pump Station







Pump Station Shaft

- Completed installation of inlet on eastbound lane of Rhode Island Avenue
- Performing restoration activities along Rhode Island Avenue and T Street
- Pump Station (PS) Shaft Flow Filled





Rock Creek Project B (Green Infrastructure) Detailed Update

Green Infrastructure Rock Creek Project B







- 47 Alleys Segments Permeable Pavements (APPs) within the sewershed have passed their functional test and are providing a performance benefit
- Contractor working on the last three APPs

Green Infrastructure Rock Creek Project B





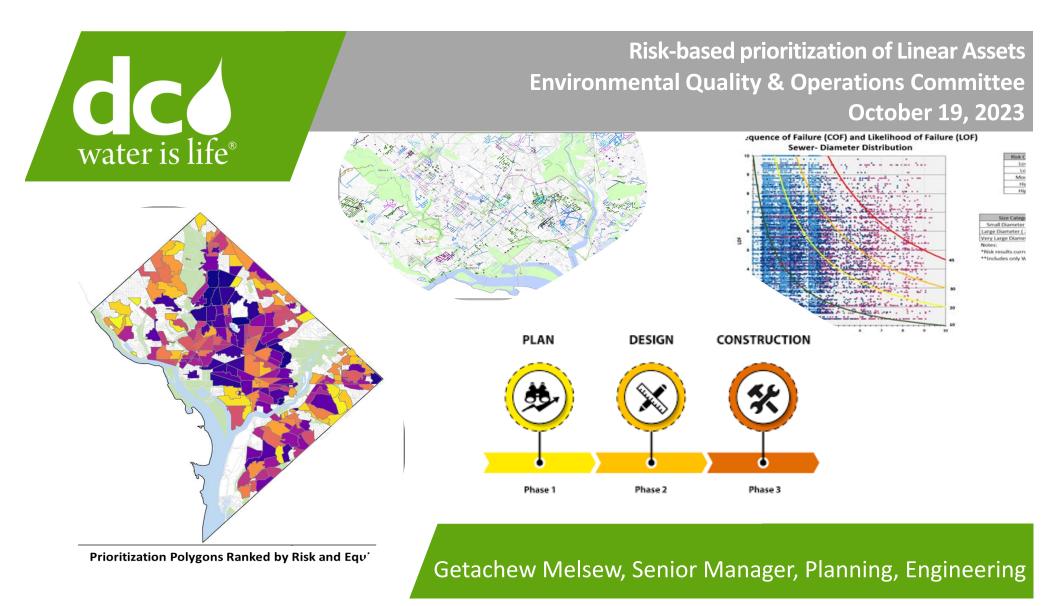


 All the 19 Planter Bioretentions (PBRs) within the sewershed have been completed, passed their functional test, and are providing a performance benefit





Risk-based prioritization of Linear Assets





The Importance of Asset Renewal



Aging Infrastructure

Aging pipes are a considerable risk. It leaves our systems vulnerable to leaks and breaks when they reach the end of their service life.



Regulatory Compliance

State and federal laws require us to keep our facilities in good running order.



Protecting Public Health

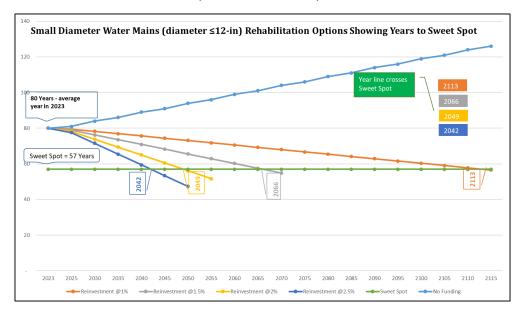
Renewed assets ensure a secure and safe water infrastructure for our communities provided by us.

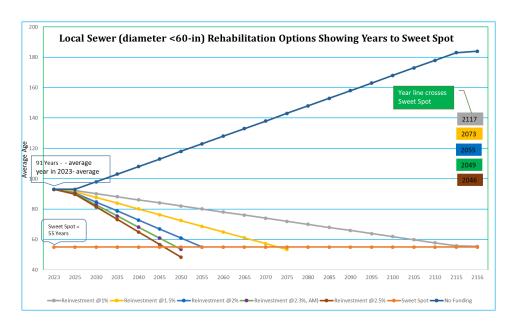
It is our core mission to exceed expectations by providing high quality water services in a safe, environmentally friendly, and efficient manner.



The Importance of Asset Renewal

- Goal: Achieve a balance between asset age and remaining useful life
- ◆ Asset age << residual service life = new system or extensive investment into system</p>
- ▲ Asset age >> residual service life = old system and under investment into system
 - · System will reach the end of its service life soon
 - High investments required in the future
- "Sweet Spot": Asset Age = Residual Service Life
 - Target value: residual service life 40-60% of asset age
 - Continuous and adequate asset renewal per model => 50%







Linear Asset Management Timeline

Reactionary Asset Management

- Urgent Concerns
- Problems of the Day
- "Squeaky Wheel" Logic

2001 - 2009

Negligible Equity Considerations



Asset Management with limited Available Data

- Prioritized Assets
- Physical Pipe Attributes
- Main Breaks
- Pipe Age

2010 - 2014

Formalizing System Asset Management Plan

- Consequence of Failure
- Likelihood of Failure
- Condition Assessments
 Data
- System Asset
 Management Plan
 prepared in 2017

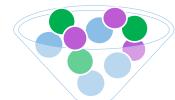
2015 - 2017

Asset Management using a capital planning tool

- Small Diameter Mains Programs
- Large Diameter
 Mains Rehab Programs
- Sewer Inspection and Assessment Programs

2018 - 2023

Equity Boosting
Introduced in 2021



Continue to Refine Asset Management Tools

- Equity Data
- Lifecycle Cost Analysis
- Refined Assessment Data

2024 - 2027

Continue Developing Equity Consideration in Prioritization



Balanced Project Distribution by Ward







Prioritizing Asset Renewal to Minimize Risks

Our risk prioritization approach protects the community



Assessing Condition and Capacity

Assess asset conditions and conduct hydraulic modeling to determine assets condition and capacity.



Evaluating Consequences

Determining the impact of a failure on our residents, businesses, and the environment.



Probability Analysis

Calculating the likelihood of a failure based on condition, past incidents and future scenarios.



Mitigating Risks

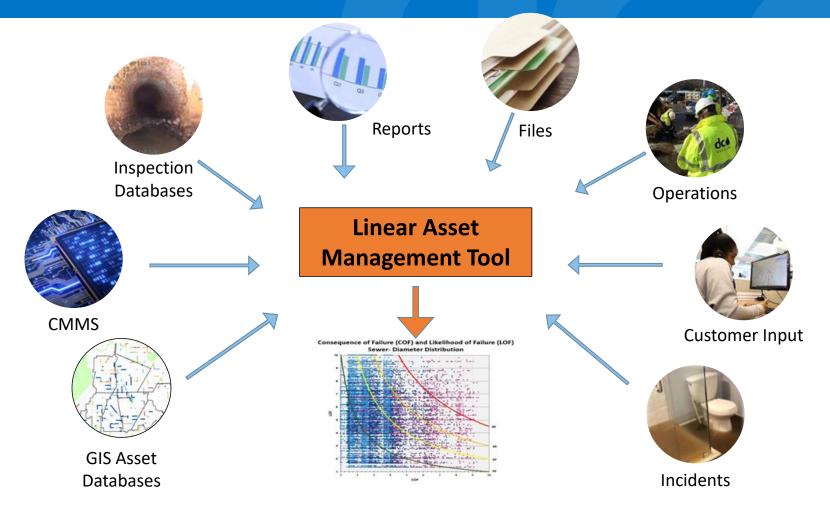
Using risk modeling, cost-benefit and equity analysis to prioritize renewal investments.



How can our risk prioritization and scoping reflect varied impacts and vulnerable communities' needs better? It's a data driven process.

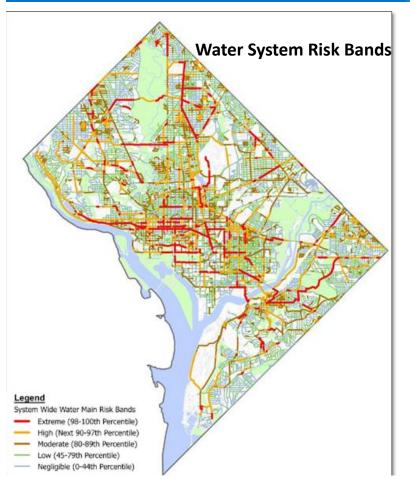
dc

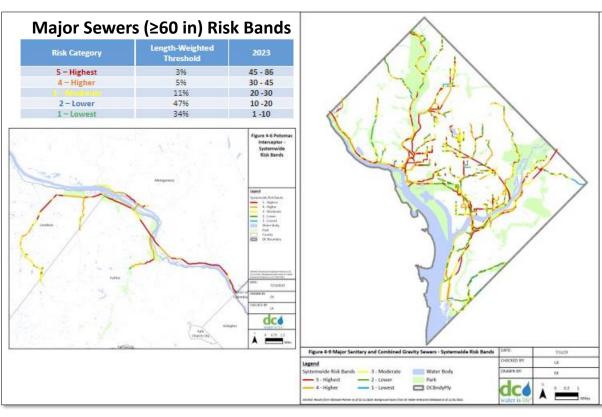
Data Driven Process





Risk Profiles of the Water and Sewer Systems



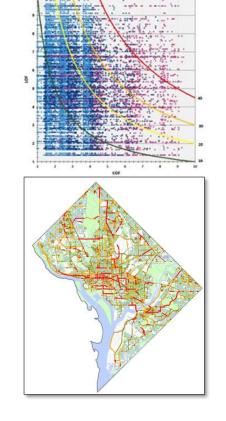




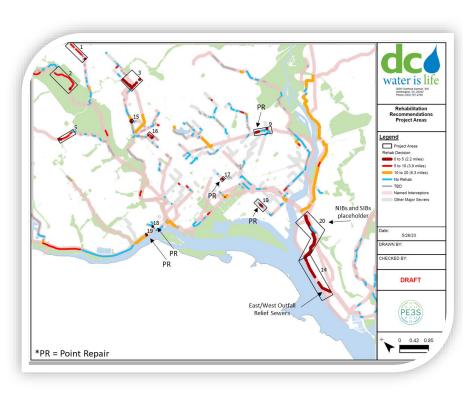
Applying Engineering Judgement to Model Results

What follows computing asset risk?

Consequence of Failure (COF) and Likelihood of Failure (LOF)

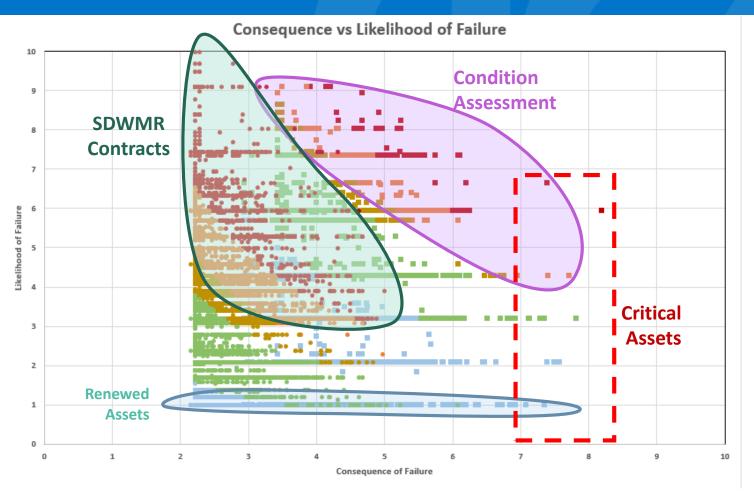








Utilizing Asset Management Tools

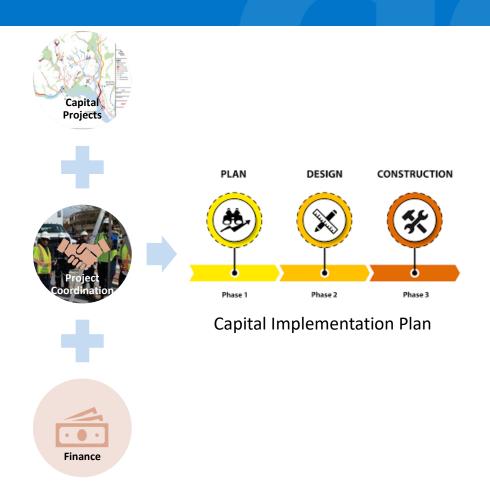


Legend

- LDWM Extreme Risk
- LDWM High Risk
- LDWM Moderate Risk
- LDWM Low Risk
- LDWM Negligible Risk
- SDWM Extreme Risk
- SDWM High Risk SDWM Moderate Risk
- SDWM Low Risk
- SDWM Negligible Risk



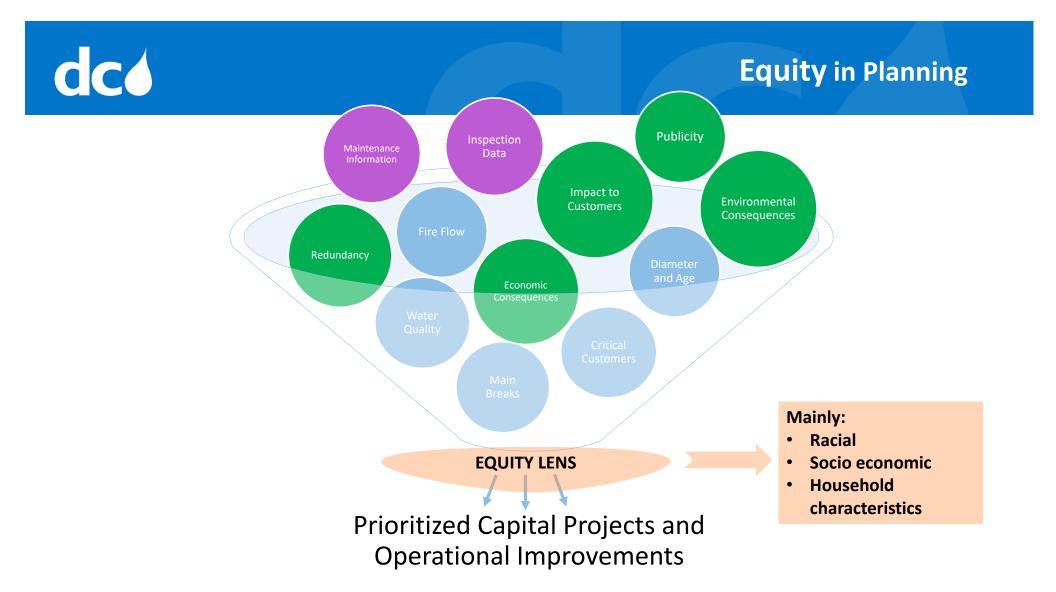
CIP Implementation Plan





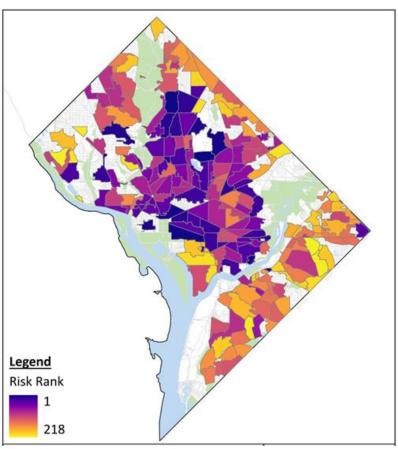
Mitigating Risk In The Future



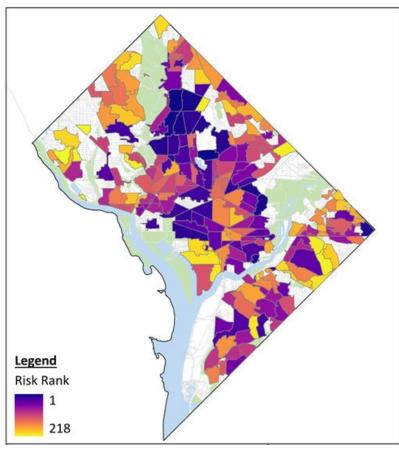




Empowering Communities through Equitable Projects



Prioritization Polygons Ranked by Risk



Prioritization Polygons Ranked by Risk and Equity



Prioritizing Equity through Effective Utility Services

Investing in both large and small pipes for our system to work as a whole



Large Pipes Program

- > Meet high-demand areas
- > Serve long distances
- > Connects communities
- > Reliability during peak hours



Small Pipes Program

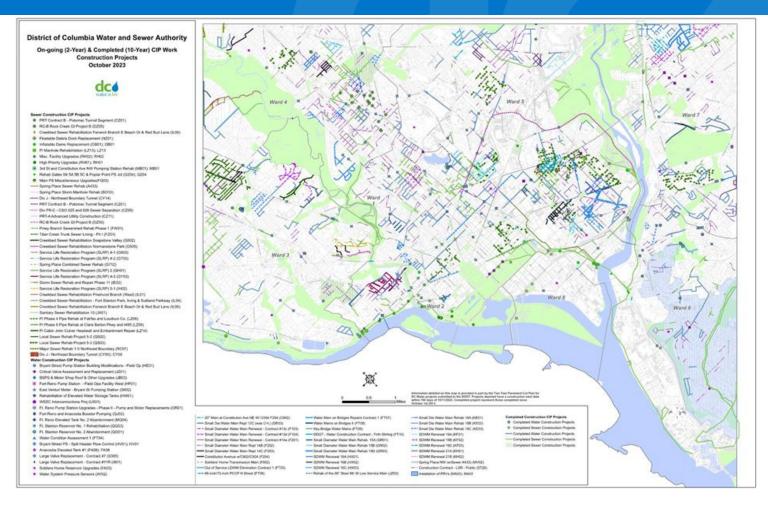
- > Serves households and small businesses
- > Ensures equitable access in underserved neighborhoods
- > Enhances resilience

Consequences (if we fail to invest equally in both programs):

- > Inequitable access for our vulnerable communities
- > Increased costs for our stakeholders
- > Decreased resilience for all our communities

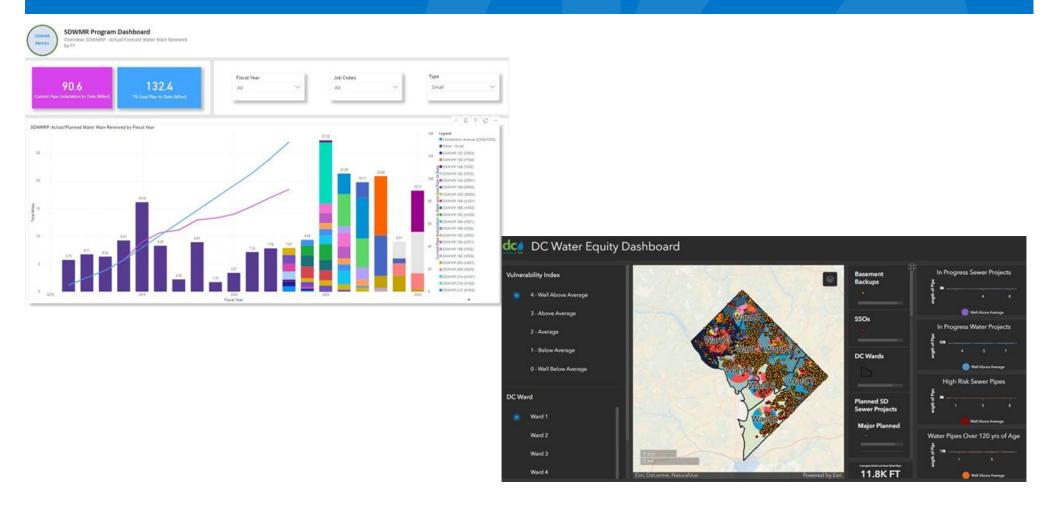


Every Year: Investing Throughout the District





Tracking Performance and Analysis Tools





A Look Ahead: The Future of Asset Management



Data Management and Dashboards



Technology and Analysis Tools



Community Engagement



Training Team members



Work with City Programs



Ongoing process with iterations



Styrene Cost Impacts to CIP





Background

Soapstone Valley Park Creek Bed Sewer Repair and Rehabilitation Project

- 6,200 Linear feet of sewer pipe rehabilitation
- Repair of impaired stormwater outfalls
- Soapstone stream restoration

- Cured in Place Pipe Lining (CIPP)
- Curing process and resin changed to minimize potential for air emissions





Cost Impacts: Soapstone







- Changed curing method
- Changed resin type
- Conducting air quality sampling (Water Research Foundation)
- Total VOCs will be measured in real-time using a PID (photoionization detector)
- Specific monitoring will be performed for concentration of cumene and acetophenone with GC-MS (gas chromatography mass spectrometry)
- Emissions testing at the terminal discharge manhole will quantify emissions released to the atmosphere during the curing process



Cost Impacts: Next Projects

Traditional	Modified	%
CIPP Cost	CIPP Cost	Increase
\$14,566,602	\$19,667,704	35%

- There is a risk this change could apply to all sewer rehabilitation projects in the CIP
- 35% cost increase could ...
 - Add \$200M-300M to 10-yr CIP -or-
 - Eliminate 70 miles of local sewers from 10-yr CIP









Next Steps

- WRF Study conducting Air Quality Monitoring and Testing
 - Assure field activities align with Air Quality Monitoring Plan (AQMP) as approved by DOEE
 - Perform laboratory testing and confirm results meet approved AQMP
 - Assure proper responses to any exceedances of detected emissions per AQMP
 - Results may impact Standards for future CIPP work in DC and beyond
- DC Water not allowing steam cure or styrene resins on CIP work
- Operations field work using UV for lateral CIPP lining
- Soapstone Impact monitor cost impact and delays to completion







DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY BOARD OF DIRECTORS CONTRACTOR FACT SHEET

ACTION REQUESTED

GOODS AND SERVICES CONTRACT OPTION YEAR

Supply and Delivery of Calcium Hydroxide (Joint Use)

Approval to add funding to option year 2 in the amount of \$1,200,000.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
W.K. Merriman, Inc.		
8038 Front River Road	N/A	WBE – 100%
Pittsburgh, PA 15225		
WBE		

DESCRIPTION AND PURPOSE

Base Period – Option Year 2 Value: \$2,285,000.00

Base Period – Option Year 2 Dates: 12-01-2021 – 11-30-2024

No. of Option Years in Contract: 2

Option Year 2 Additional Value: \$1,200,000.00

Option Year 2 Dates: 12-01-2023 – 11-30-2024

Purpose of the Contract:

To supply and deliver calcium hydroxide. The calcium hydroxide is used in the Nitrification Facility to adjust pH.

Contract Scope:

This contract is to provide calcium hydroxide to the Blue Plains Advanced Wastewater Treatment Facility for DC Water's Department of Wastewater Treatment (DWT). DWT has an ongoing need for calcium hydroxide in slurry form to feed the Nitrification Facility at the Blue Plains Wastewater Treatment Plant. The product is used in the Biological Nutrient Removal process for pH control.

The DC Water Board approved the total contract value of \$2,285,000.00 is depleted sooner than expected due to rise of unit cost during option year 1 and 2.

Spending Previous Year:

Cumulative Contract Value: 12-01-2021 to 11-30-2024: \$2,285,000.00 Cumulative Contract Spending: 12-01-2021 to 09-01-2023: \$1,840,782.00

Contractor's Past Performance:

According to the COTR, the Contractor's quality of products and services, timeliness of deliverables; conformance to DC Water's policies, procedures and contract terms; and invoicing all meet expectations and requirements.

PROCUREMENT INFORMATION

Contract Type:	Good and Services	Award Based On:	Best Value
Commodity:	Calcium Hydroxide	Contract Number:	10068
Contractor Market: Open Market with goals for DBE and WBE participation			

BUDGET INFORMATION

Funding:	Operating	Department:	Wastewater Treatment
Project Area:	Blue Plains	Department Head:	Nicholas Passarelli

ESTIMATED USER SHARE INFORMATION

User - Operating	Share %	Dollar Amount
District of Columbia	43.08%	\$516,960.00
Washington Suburban Sanitary Commission	41.90%	\$502,800.00
Fairfax County	9.60%	\$115,200.00
Loudoun Water	4.71%	\$56,520.00
Potomac Interceptor	0.71%	\$8,520.00
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$1,200,000.00

Jeffrey F. Thompson Digitally signed by Jeffrey F. Thompson Date: 2023.09.26 14:51:45 -04'00'

09/26/23 Date

Jeffrey F. Thompson

Chief Operating Officer, EVP

Digitally signed by Dan Bae
DN: C=US,
E=dan.bae@dcwater.com, O=District
of Columbia Water and Sewer
Authority, OU=VP of Procurement &
Compliance, CN=Dan Bae
Date: 2023.09.26 15/04:14-04'00'

Dan Bae VP of Procurement Date

Matthew T.

Digitally signed by Matthew T. Brown Date: 2023.10.03 12:25:11 -04'90'

Matthew T. Brown

Brown

Date

CFO and EVP of Finance, Procurement and Compliance

David L. Gadis Date

CEO and General Manager

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY BOARD OF DIRECTORS CONTRACTOR FACT SHEET

ACTION REQUESTED

ENGINEERING SERVICES:

Non-Process Facility Design Service Basic Ordering Agreement (BOA) (Joint Use)

Approval to execute an architectural and engineering services contract not to exceed \$5,000,000.00

CONTRACTOR/SUB/VENDOR INFORMATION PRIME: SUBS: PARTICIPATION: Alphatec PC Hayat Brown LLC WBE 5.0% 1525 18th Street, NW Washington, DC Washington, DC DBE - 90% 20036 SZ PM Consultants, Inc. WBE - 10% Washington, DC WBE 5.0% (DBE)

DESCRIPTION AND PURPOSE

Contract Value, Not-To-Exceed: \$5,000,000

Contract Time: 1827 Days (5 Years, 0 Months)

Anticipated Contract Start Date: 11-15-2023
Anticipated Contract Completion Date: 11-14-2028

Other firms submitting proposals/qualification statements:

Arup US, Inc.*
Bell Architects*

Remington & Vernick Engineers*

Samaha Associates, PC*

Purpose of the Contract:

This basic ordering agreement (BOA) is to provide project design services for DC Water non-process facilities program. These projects support DC Water's portfolio of non-process facilities and assets including but not limited to buildings, mechanical systems, electrical systems, solar energy systems, interior office spaces, seawall shoring systems, ground shoring systems, hardscape, and landscape. Projects design may include interfacing and coordinating with permitting agencies.

Contract Scope:

Work will be accomplished under a series of definitive Task Orders. Each Task Order will identify the scope of work, deliverables, compensation, and schedule for performing the task and may include:

- Concept and Schematic Design
- Final Design
- Permitting Services
- Construction Procurement Support
- Design Services During Construction
- As-built Drawings

Federal Grant Status:

This contract is not eligible for Federal grant funding assistance.

^{*} Asterisk indicates short listed Firms

PROCUREMENT INFORMATION

Contract Type:	Fixed Price	Award Based On:	Highest Ranking Score
Commodity:	Engineering Design Services	Contract Number:	DCFA #535
Contractor Market:	Open Market		

BUDGET INFORMATION

Funding:	Capital	Department: Facilities	
Service Area:	Non-Process Facilities	Department Head:	Brent Christ
Project:	SA, SB, RV, SD		

**ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	100.00%	\$ 5,000,000.00
Federal Funds	0.00%	\$ 0
Washington Suburban Sanitary Commission	0.00%	\$ 0
Fairfax County	0.00%	\$ 0
Loudoun County & Potomac Interceptor	0.00%	\$ 0
Total Estimated Dollar Amount	100.00%	\$ 5,000,000.00

As individual projects are developed, DC Water will determine joint-use share information for each task order. Individual joint-use organizations will be notified and billed accordingly as tasks are developed and work is assigned during the contract performance period.

Digitally signed by Wayne W. Wayne W. Griffith Carlette 2023.10.05 09:01:14 -04'00'

Date

Wayne Griffith Chief Administration Officer, EVP

Digitally signed by Dan Bae
DN: C=US, E=dan.bae@dowater.com,
Ø=District of Columbia Water and Sewer
Authority, OU=VP of Procurement &
Compliance, CN=Dan Bae
Date: 2023.10.05 09:07:51-04/00¹

Dan Bae Date

VP of Procurement

Matthew T. Brown Brown Date: 2023,10,11 13;03:40 -04'00' Digitally signed by Matthew T.

Matthew T. Brown Date CFO and EVP

Finance, Procurement and Compliance Cluster

David L. Gadis Date

CEO and General Manager