



**DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY
Board of Directors**

*Meeting of the
Environmental Quality and Operations Committee*

*HQO-125 O Street SE, Washington DC 20003
Thursday, March 21, 2019
9:30 a.m.*

- | | | |
|-------------------|---|----------------------------|
| | I. Call to Order | Howard Gibbs
Vice-Chair |
| 9:30 a.m. | II. AWTP Status Update | Aklile Tesfaye |
| | 1. BPAWTP Performance | |
| 9:40 a.m. | III. Further Discussion of Proposed CIP | Matt Brown/Craig Fricke |
| 9:55 a.m. | IV. Action Item | |
| | 1. FY 2019 – FY 2028 Proposed Capital Improvement Program (10-Year Disbursement Plan and Lifetime Budget) | Matt Brown |
| 10:05 a.m. | V. Action Items | Dan Bae |
| | Joint Use | |
| | 1. Contract No. 15-PR-DFS-05 – Document Management Services, Canon Solutions America | |
| | 2. Contract No. 18-PR-WWT-04 – High Pressure High Vacuum Cleaning Services, Mobile Dredging & Video Pipe | |
| | 3. Contract No. 18-PR-DWT-13 – Supply and Delivery of Sodium Bisulfite, PVS Chemical Solutions | |
| | 4. Contract No. 19-PR-DWT-14 – Belt Press Dewatering Polymer, Polydyne | |
| | 5. Contract No. 19-PR-DWT-15 – Centrifuge Pre-Dewatering Polymer, Polydyne | |
| | Non-Joint Use | |
| | 1. None. | |
| 10:15 a.m. | VI. Clean Rivers Project Status Update | Carlton Ray |
| 10:30 a.m. | VII. Sewage and Stormwater Pumping Stations Flood Risk Assessment | David Parker |

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

10:55 a.m. IX. Executive Session*

11:00 a.m. X. Adjournment

Howard Gibbs
Vice-Chair

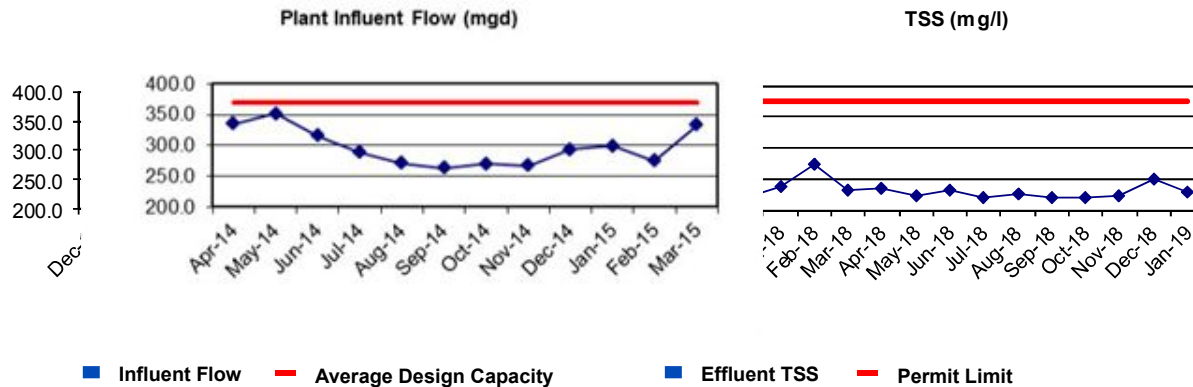
* The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); contract negotiations under D.C. Official Code § 2-575(b)(1); legal, confidential or privileged matters under D.C. Official Code § 2-575(b)(4); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security 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); proprietary matters under D.C. Official Code § 2-575(b)(11); decision in an adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14), and other matters provided in the Act.

Follow-up Items from Prior Meetings:

1. The IMA Regional Committee (RC) brief the EQ&Ops Committee on the work of the IMA RC **[Target: April 2019]**
2. SVP & Chief Engineer: Provide additional detail regarding specific impacts to sewage pumping stations for both the 100-year and 500-year flood scenarios. **[On Current Agenda]**
3. EVP, Ops & Engr, DC Water: Provide a briefing to the Committee regarding preventative and corrective maintenance programs on water, storm and sanitary sewer pump stations also including performance of DC Water's SCADA system. **[Target: May 2019]**
4. SVP, Ops & Engr, DC Water: Update on Lead Service Line Replacement Project **[Target: April 2019]**
5. Vice President, Wastewater Operations, DC Water: Provide an overall assessment of the CHP program with respect to its operating costs versus cost savings and revenue generated and present to the Committee during a future meeting. **[Target: April 2019]**
6. CEO, General Manager and Senior Vice President, Chief Engineer, DC Water:
 - a) Outline DC Water's recent and ongoing efforts at Enterprise-wide cost reductions and operational efficiency **[TBD]**
 - b) Outline additional potential revenue sources as suggested and discussed in the DC Water led Stakeholder's Alliance Group **[TBD]**
 - c) Provide how much the 'modified baseline' CIP budget would amount to for Small Diameter Water Main replacement and small diameter sewer rehabilitation/renewal goals of more than 1% per year than 1% year (i.e., for 1.5%, 2%, 2.5%) **[Forwarded to BOD Secretary, March 7, 2019]**
 - d) Define the impact to rate increases for the scenarios defined in "c" above **[Forwarded to BOD Secretary, March 7, 2019]**
 - e) For the scenarios stated in "c" above, compare the time in years to attain the "sweet spot", i.e., the point in time remaining service life of the pipe system as a whole is about 50% of the expected service life. **[Forwarded to BOD Secretary, March 7, 2019]**
7. Senior Vice President & Chief Engineer, DC Water: Update the graph showing consequence and likelihood of failure scores with current data. **[Target: May 2019]**

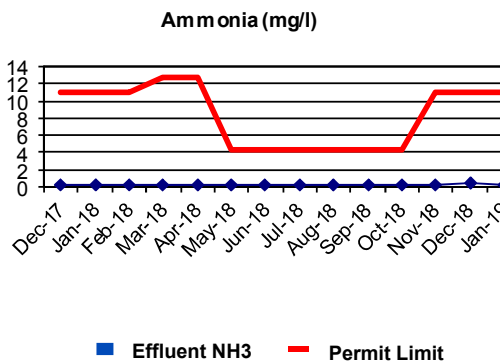
BLUE PLAINS ADVANCED WASTEWATER TREATMENT PLANT PERFORMANCE REPORT – JANUARY 2019

Average plant performance for the month of January 2019 was excellent with all effluent parameters well below the seven-day and monthly NPDES permit requirements. The monthly average influent flow to complete treatment was 338 MGD. There was 109 million gallons of treated captured combined flows directed to Outfall 001 during this period. The following figures compare the plant performance with the corresponding NPDES permit limits.

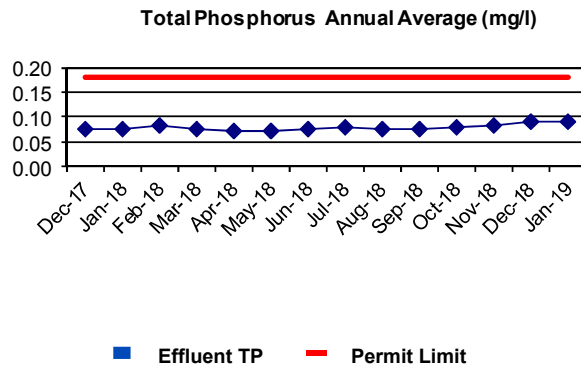


This graph illustrates the monthly average influent flow to the plant. The design average flow is 384 MGD. Blue Plains has a 4-hour peak flow capacity of 555 MGD through complete treatment. Once the plant is at capacity, additional captured combined system flows from the tunnel up to 225 MGD receive enhanced clarification, disinfection and dechlorination.

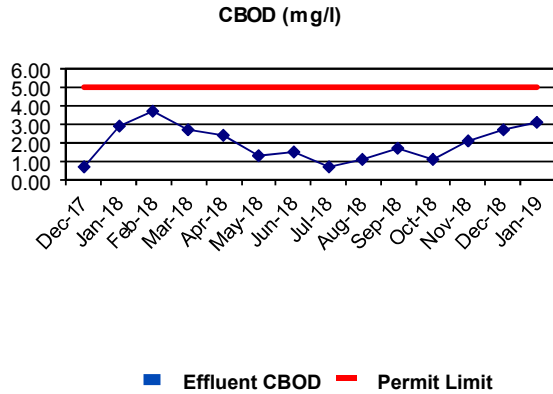
Effluent Total Suspended Solids (TSS) is a measure of the amount of solid material that remains suspended after treatment. The effluent TSS concentration for the month averaged 1.16 mg/L, which is below the 7.0 mg/L permit limit.



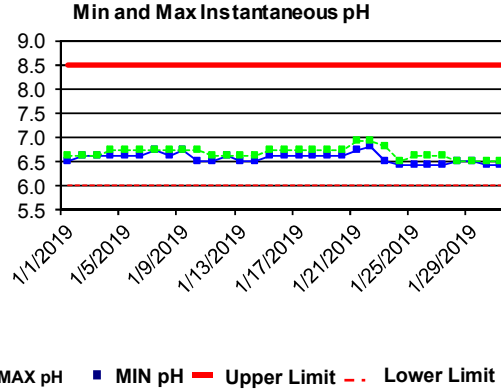
The Ammonia Nitrogen (NH₃-N) is a measure of the nitrogen found in ammonia. For the month, effluent NH₃-N concentration averaged 0.19 mg/L and is below the average 11.1 mg/L limit.



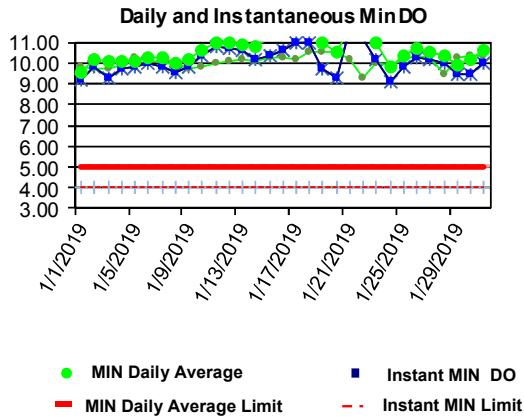
The Total Phosphorus (TP) is a measure of the particulate and dissolved phosphorus in the effluent. The annual average effluent TP concentration is 0.09 mg/L, which is below the 0.18 mg/L annual average limit.



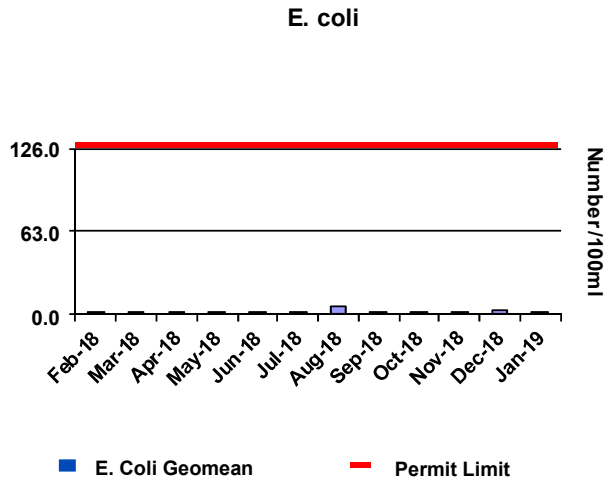
Carbonaceous Biochemical Oxygen Demand (CBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials. The effluent CBOD concentration averaged 3.13 mg/L (partial month), which is below the 5.0 mg/L limit.



pH is a measure of the intensity of the alkalinity or acidity of the effluent. The minimum and maximum pH observed were 6.4 and 6.9 standard units, respectively. The pH was within the permit limits of 6.0 and 8.5 for minimum and maximum respectively.



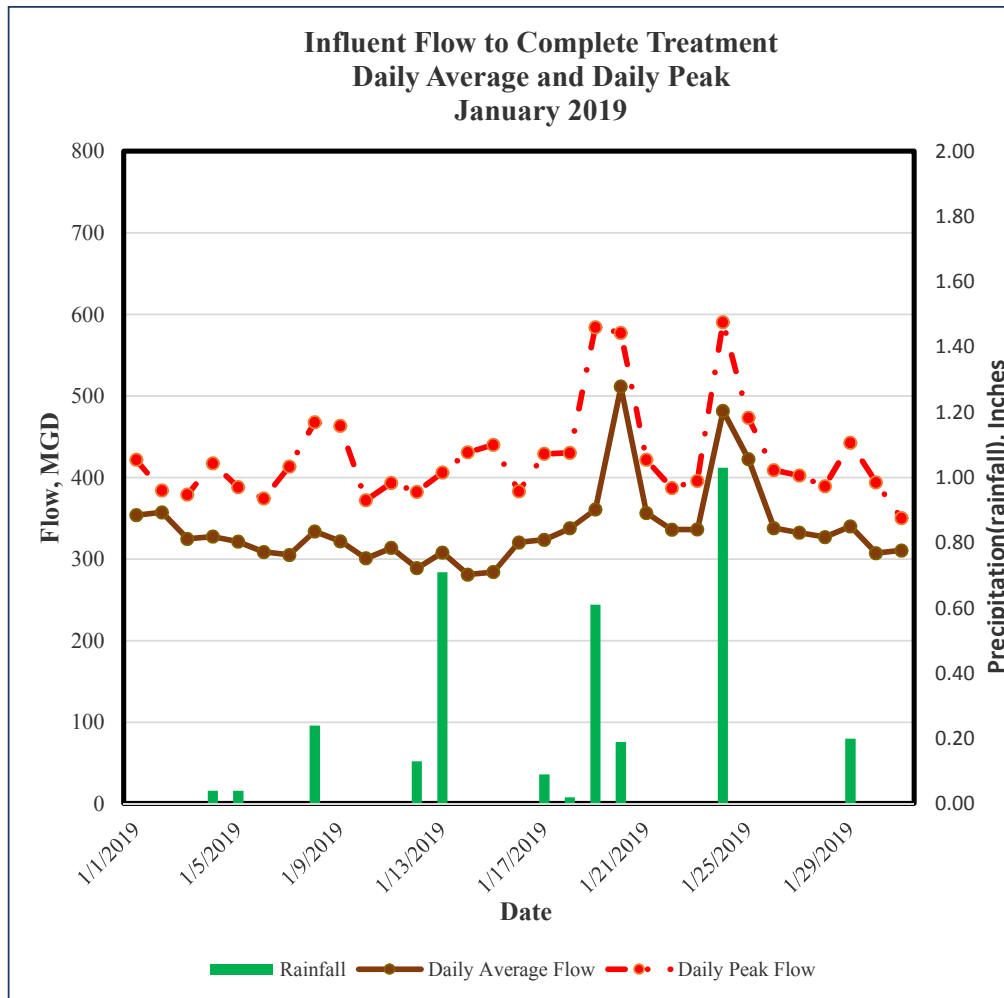
Dissolved Oxygen (DO) is a measure of the atmospheric oxygen dissolved in wastewater. The DO readings for the month are within the permit limits. The minimum daily average is 9.6 mg/L. The minimum instantaneous DO reading is 9.1 mg/L. The minimum permit limits are 5.0 mg/L and 4.0 mg/L respectively.



E.coli is an indicator of disease causing organisms (pathogens). The E.coli permit limit is 126/100mL. The E coli geometric mean is 1.2 /100mL, and well below the permit limit.

Wet Weather Impact on Plant Performance

During the month of January 2019, the Washington Metropolitan Region received above average precipitation (3.30 inches or rainfall vs normal of 3.05 inches and 11.5 inches of snow vs 5.6 inches normal) as measured at the National Airport. The wet weather events that occurred during the last week of January resulted in peak flows through complete treatment exceeding 590 MGD. The plant's performance was excellent and the events had minimal impact on the quality of the effluent discharge through the complete treatment outfall. All effluent quality parameters were below the weekly and monthly average NPDES permit limits.



Wet Weather Treatment Facility (WWTF) at Blue Plains

Brief Description

The Wet Weather Treatment Facility at Blue Plains provides treatment for Combined Sewer Overflows (CSO) conveyed through the Long Term Control Plan (LTCP) tunnel systems to Blue Plains. With a design capacity of 250 MGD, the facility consists of sub systems including- a flow surcharge wet well and coarse screens, upstream of five 3,000 Horse Power (HP) Tunnel Dewatering Pumps (TDPs). The TDPs lift the flow 156 ft to the above ground Enhanced Clarification Facility (ECF), which comprises of fine screening, grit removal, and high rate clarification (HRC). The effluent from HRC is disinfected and dechlorinated before it's discharged through Outfall 001. When flow rates to the main plant are below the permitted peak flow rates of 555 OR 511 MGD, the effluent from the HRC (or a portion of it) is directed to the main plant for complete treatment. On an average year, the facility is designed to receive approximately 2.6 billion gallons of CSOs and provide treatment with effluent total suspended solids quality comparable to that of Secondary Treatment effluent. The WWTF, along with the first section of the Anacostia Tunnel System were placed in operation, three days in advance of the March 23rd Consent Decree date.



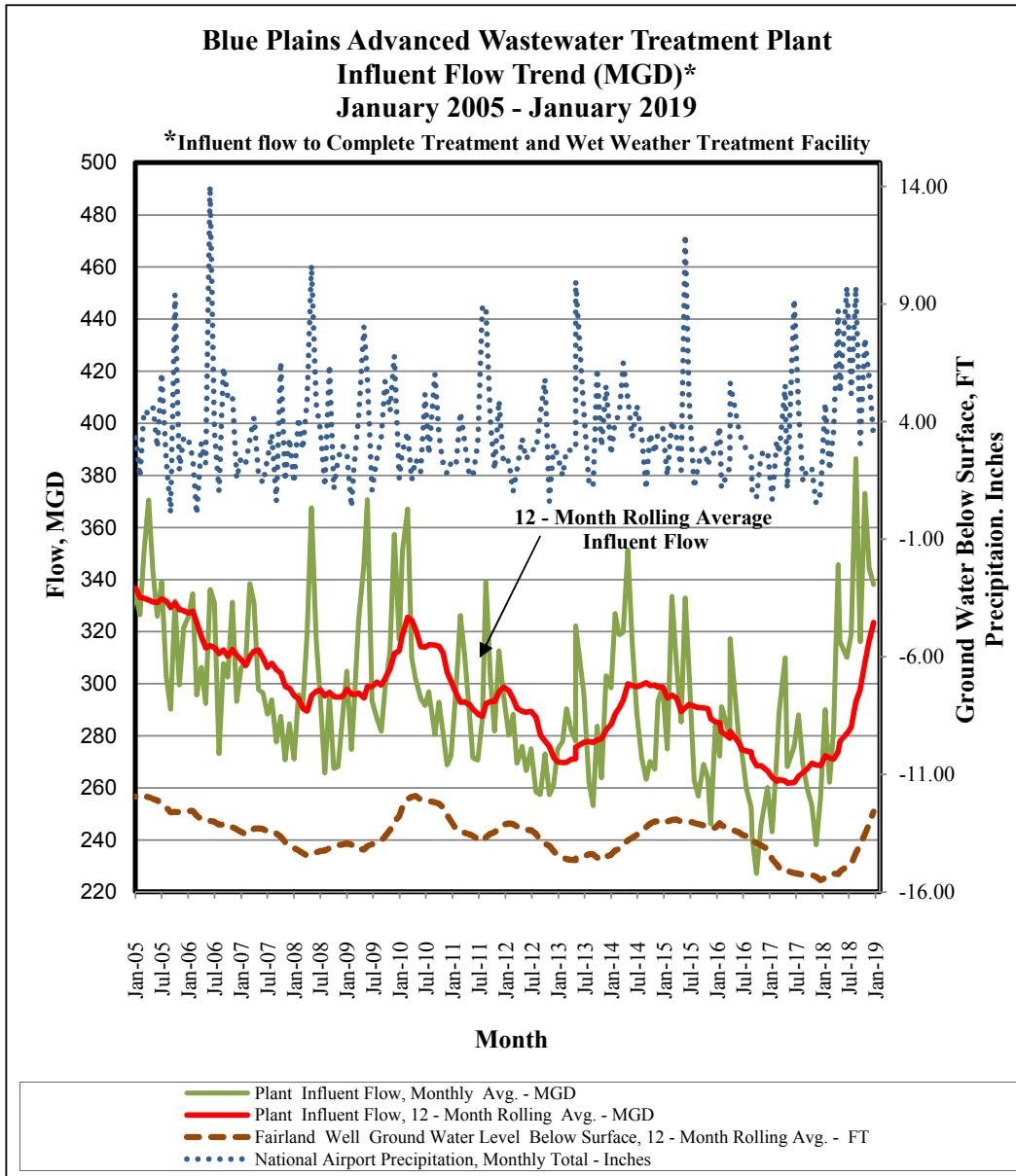
Aerial rendering of the Wet Weather Treatment Facility

Performance

During the month, a total of 270 million gallons (MG) of CSO captured in the tunnel system, was pumped, and treated using the ECF. A portion of the treated flow or 161 MG was directed to the main plant to maximize complete treatment and the remaining portion of the treated captured combined flow, or 109 MG, was disinfected, dechlorinated and discharged through Outfall 001. The quality of the effluent discharged was within anticipated ranges. Since the commissioning of the first section of the Anacostia River Tunnel Systems and the WWTF on March 20, 2018 and including the wet weather events that occurred in January 2019, the total volume pumped and treated through the WWTF is 4,848 MG. During the same period, approximately 1,072 wet tons of screenings and grit (trash, debris, sediment) were removed, that would otherwise have been discharged into the Anacostia River.

Plant Influent Flow Trend

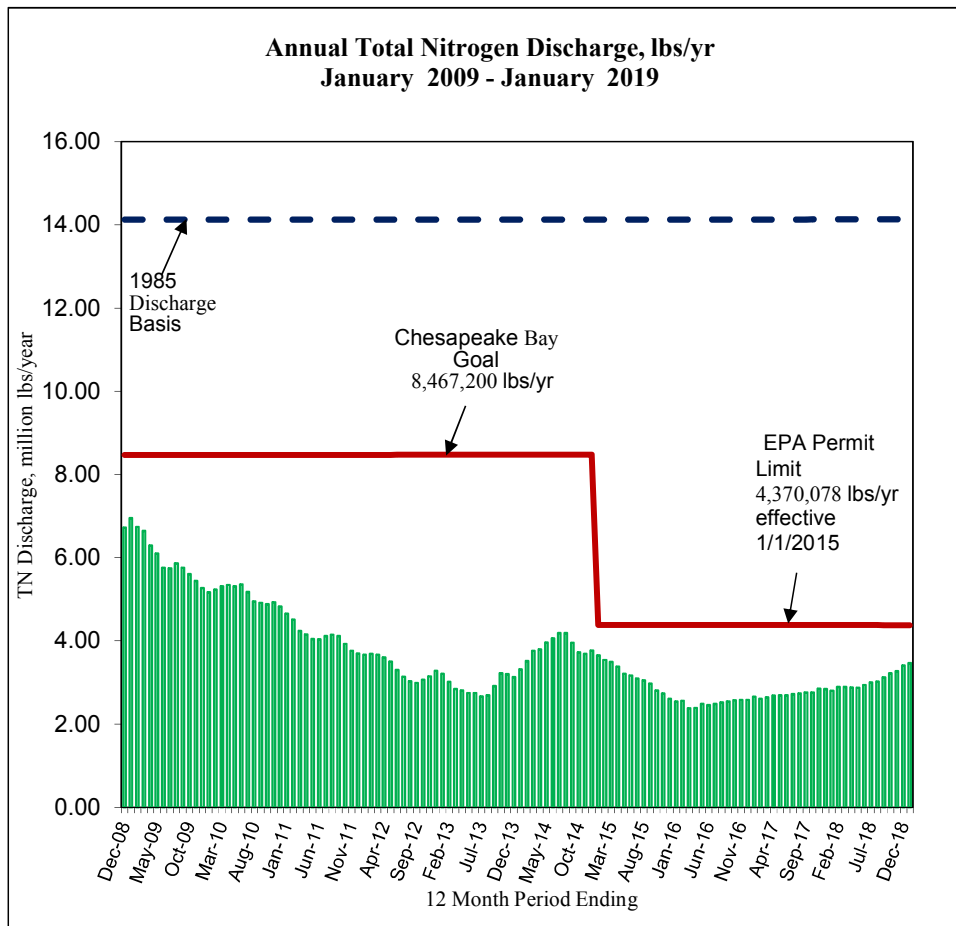
The graph below shows a long-term influent flow trend to the plant ending January 2019. While for any given month the flow is weather dependent, the 12-month rolling average influent flow has remained above 300 MGD since November 2018.



Blue Plains Total Nitrogen (TN) Removal – Performance

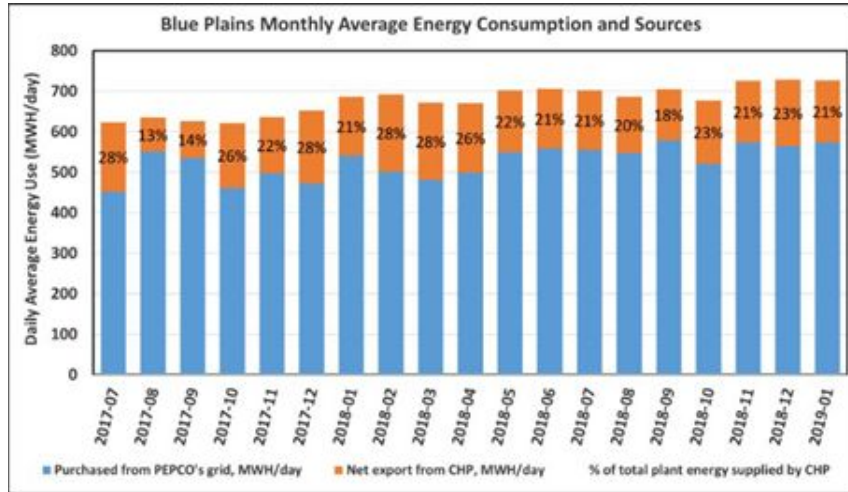
The graph below shows 12-month rolling TN discharge, in million pounds per year, over a 10-year period ending January 2019. In January 2019, the monthly average TN concentration and total load in the complete treatment effluent were 3.63 mg/L and 317,009 lbs., respectively.

The total pounds of nitrogen discharged in the complete treatment effluent during the 12-month period ending January, 2019 is 3,464,950 and below the NPDES permit discharge limit of 4,370,078 lbs. /year. The performance corresponds to average flow of 319 MGD and average wastewater temperature above 16 °C observed during the period. The Blue Plains Enhanced Nitrogen Removal Facility (ENRF) is designed to meet the TN discharge limits at influent loads corresponding to annual average flows of 370 MGD and operating wastewater temperatures below 12°C.



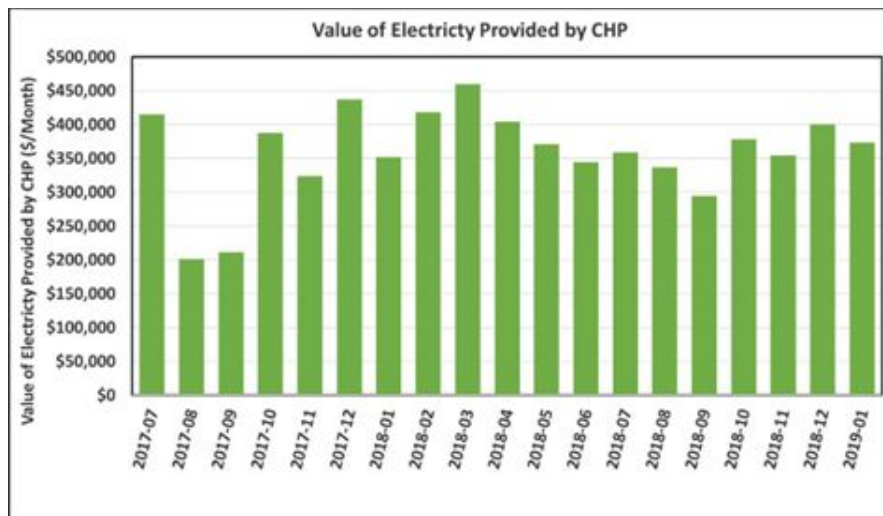
Blue Plains Electricity Generation and Usage

In January 2019, the average energy consumed at Blue Plains was 727 megawatt hours per day (MWH/day) or 2.15 MWH of electricity per million gallons of wastewater processed through complete treatment. The Combined Heat and Power (CHP) facility generated an average of 154 MWH/day, making up for 21% of total energy consumed at Blue Plains. The remaining 573 MWH/day was purchased from PEPCO.



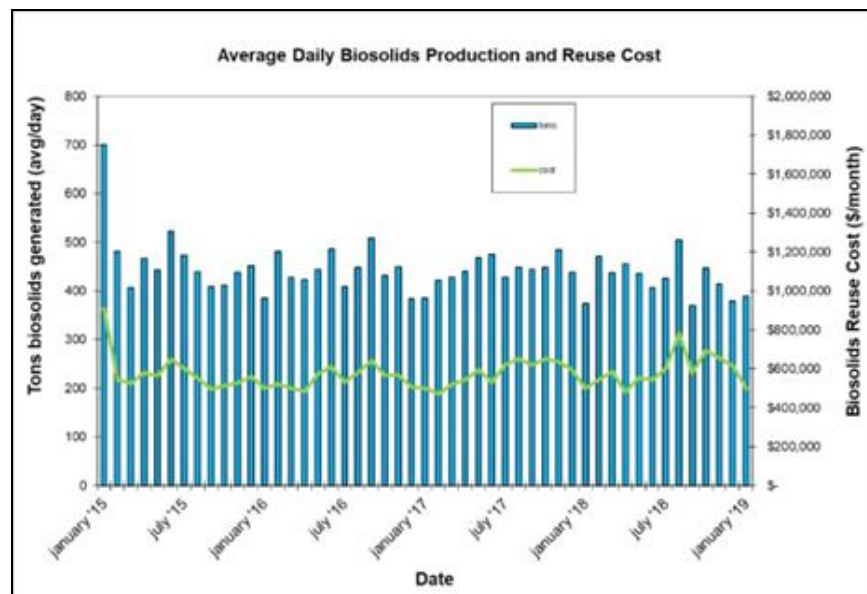
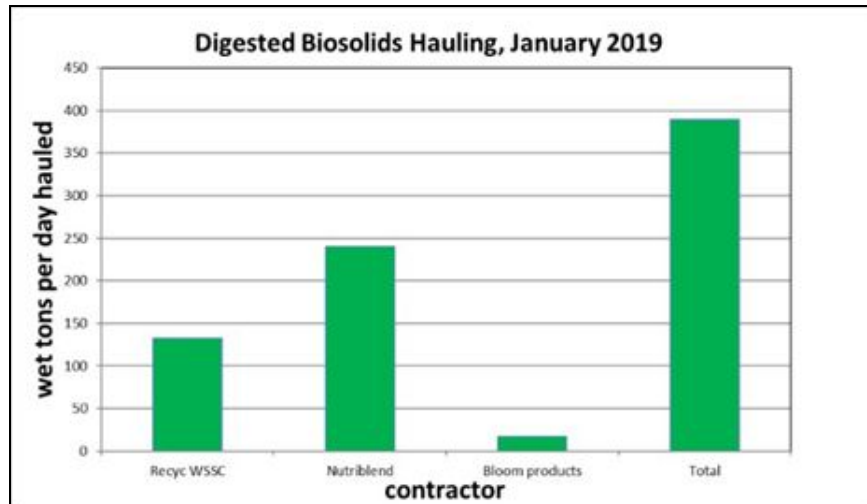
The graph above is based on power monitors installed at the Main Substation and CHP, and reflects average energy consumed at Blue Plains in MWH/day. Of the total use, the energy purchased from PEPCO and net energy supplied by CHP are indicated by the blue and orange highlights, respectively.

The graph below shows the monthly value of the net electricity exported by CHP by assuming unit price of \$78/MWH of electricity.



RESOURCE RECOVERY

In January, biosolids hauling averaged 390 wet tons per day (wtpd). The average percent solids for the Class A material was 28.7%. The graph below shows average daily biosolids produced and the associated monthly cost for reuse (transportation and application cost) for a three-year period ending January 2019. In January, diesel prices averaged \$3.23/gallon, and with the contractual fuel surcharge, the weighted average biosolids reuse cost (considering the marketed material) was \$42.44 per wet ton.

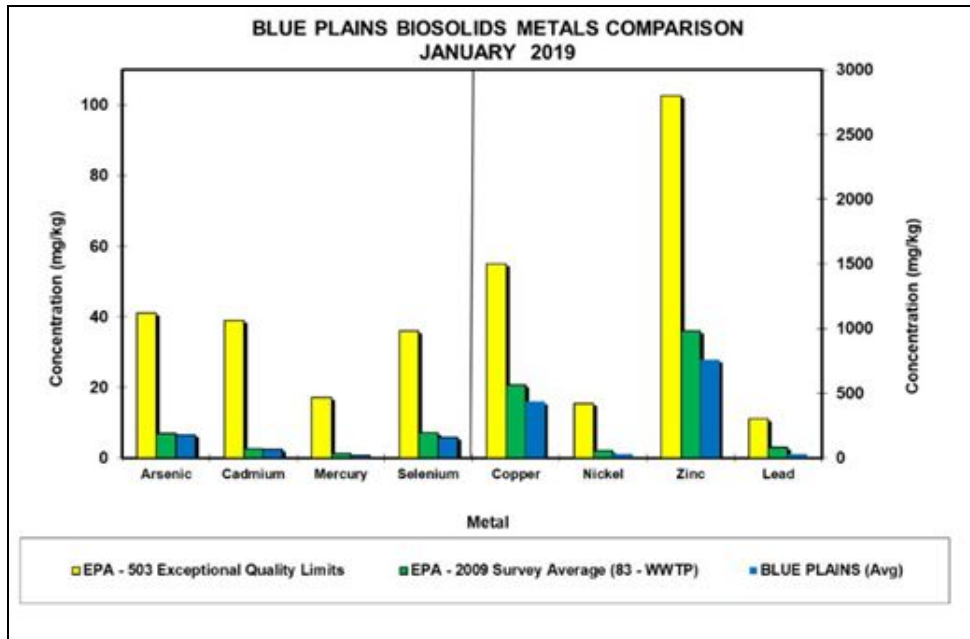


The average quantities of Class A biosolids transported and applied on farms by the two major contracts (WSSC's Recyc and DC Water's Nutriblend) and the quantities marketed as Bloom are shown on the graph above. In January, 530 wet tons of Bloom were distributed to eight customers.

Product Quality

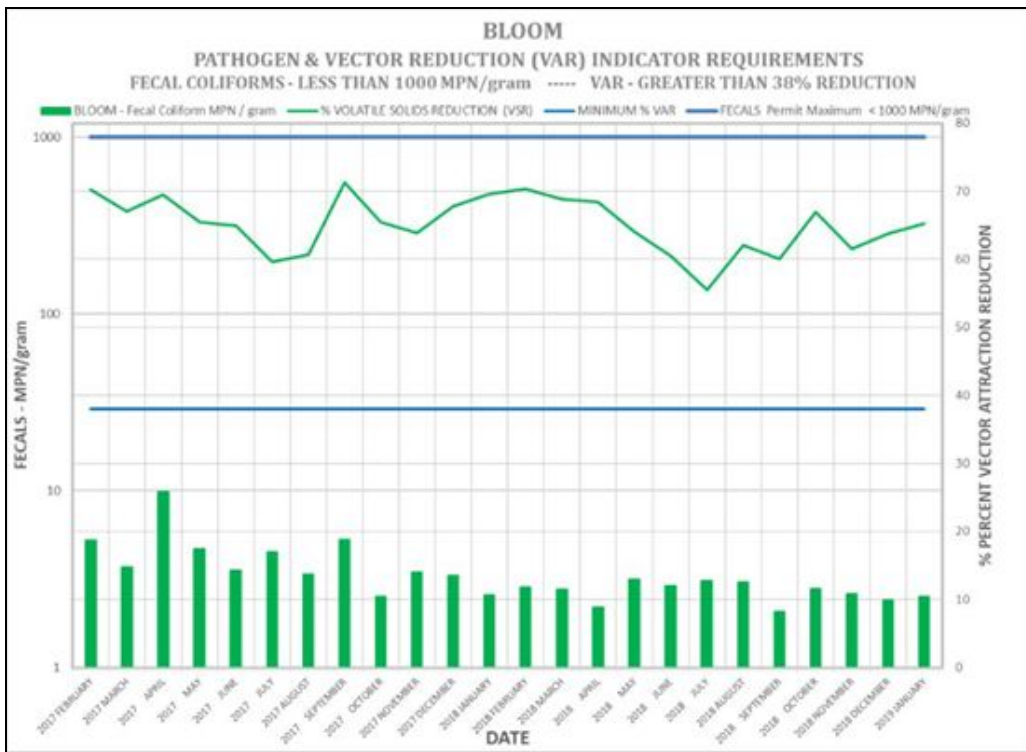
Metals

All biosolids produced during the month of January met Class A Exceptional Quality (EQ) requirements required by EPA. The graph below shows the EPA regulated heavy metals average concentrations in the Class A biosolids. The concentrations are considerably below the regulated exceptional quality limits (EPA-503 Exceptional Quality Limits) and the national average (EPA-2009 Survey Average).



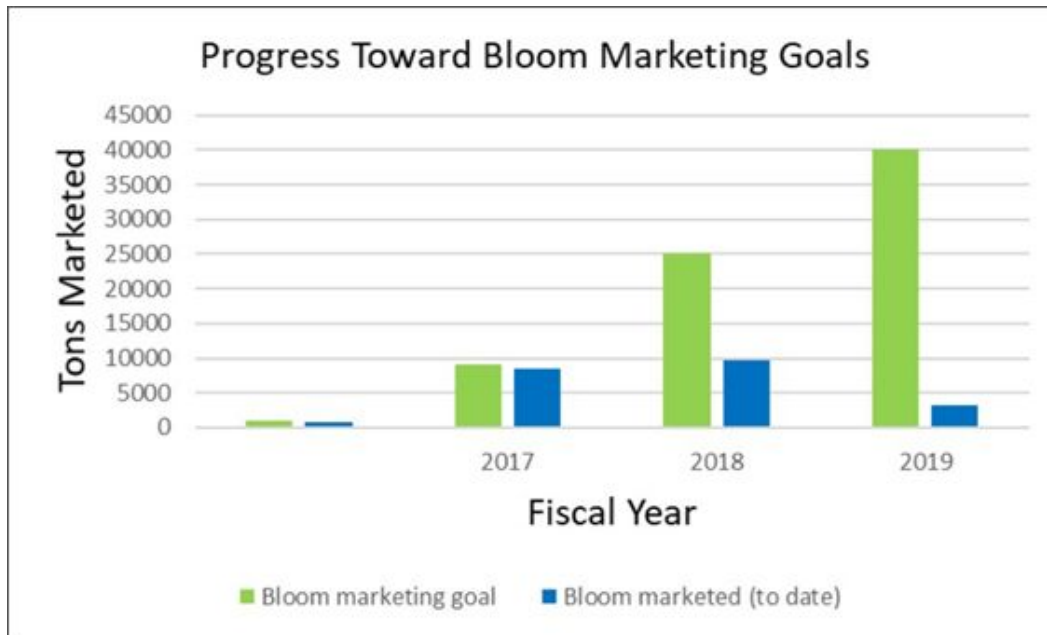
Vector Attraction Reduction (VAR) and Fecal Coliform (FC)

The graph below shows both Vector Attraction Reduction (VAR) and Fecal Coliform (FC) results in the Class A product, both of which are required to maintain the Class A Exceptional Quality (EQ) status. Vector Attraction Reduction is measured by the reduction in Volatile Solids (VS) or organic compounds that are odorous and attract nuisance vectors such as flies and rodent. DC Water anaerobic digesters reduced VS by over 65 percent, well above the required 38 percent minimum. In addition, the graph shows fecal coliforms levels in the Class A product. Fecal coliforms are indicators of disease causing organism (pathogens), and must be below 1,000 MPN/g to meet Class A standards. The FC levels in the Class A product are two orders of magnitude less than the maximum allowable level.



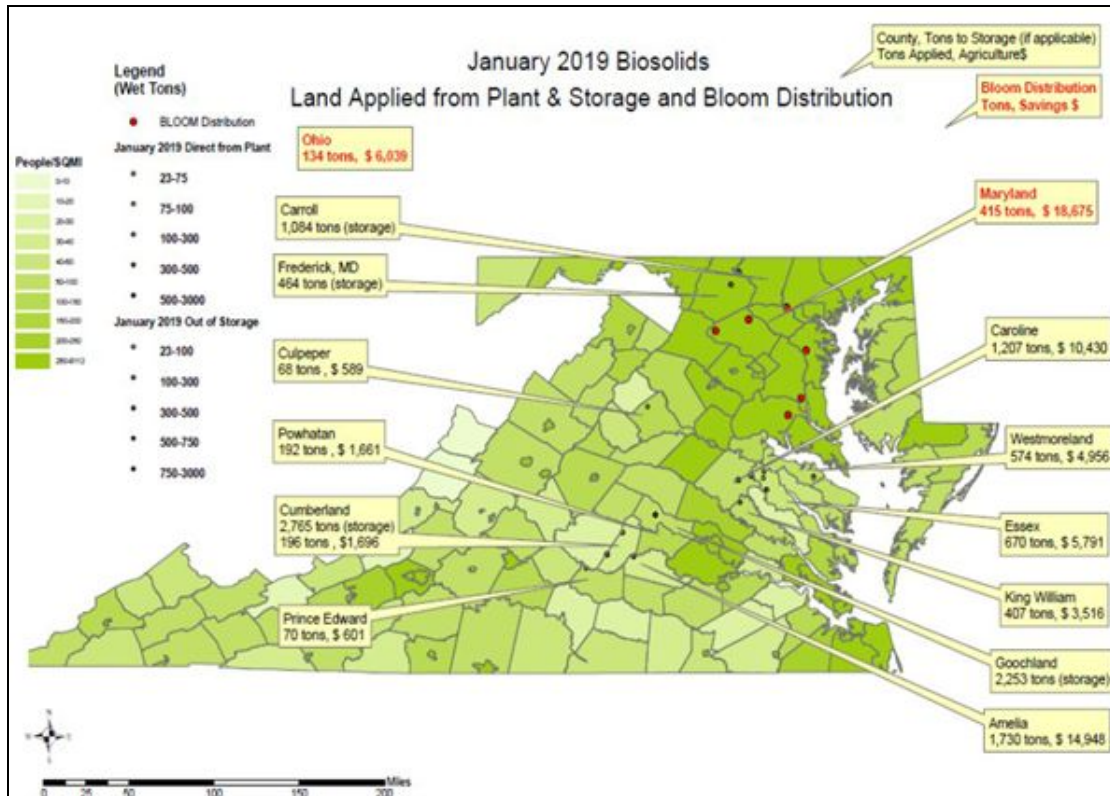
Bloom Marketing Goals

Bloom sales have totaled 3,293 tons thus far this fiscal year, representing approximately 8% of the total goal of 40,000 tons. These months are traditionally the toughest for marketing, and Bloom sales are ahead of winter time projections.



Bloom Reuse and Value Map

This map shows where Bloom was reused on agricultural land and sold into the market as a soil amendment product. The numbers represent the value of the product applied in each county, which accounts for the nitrogen value in the biosolids.



CLEAN WATER QUALITY AND TECHNOLOGY

The Department of Clean Water Quality and Technology includes the research and development, pretreatment and laboratory programs. Highlights are included below.

Research and Development

The research and development team focuses on research topics associated with the planning and operation of Blue Plains. The current focus of research is to optimize treatment process capacity and to work toward achieving energy neutral operations.

DC Water was notified in February 2019 that DC Water and Hampton Roads Sanitation District were selected as the Grand Prize Winners for the American Academy of Environmental Engineers and Scientists Research Award for the project entitled "*When the detour turns out to be a shortcut: Partial denitrification (PdN) – anammox as alternative strategy for mainstream deammonification*". The awards presentation will be made at the 2019 Excellence in Environmental Engineering & Science Awards Luncheon & Conference on April 25 at the National Press Club in Washington, DC.

Over the past eight years, DC Water, HRSD and other researchers around the world have developed a significant body of knowledge about application of deammonification processes to mainstream wastewater treatment. Much of this work involved developing strategies to provide competitive advantage for microorganisms that use ammonia, nitrite, and inorganic carbon for their respiration and growth while simultaneously creating an environment that prevents the growth of competing organisms that convert nitrite to nitrate (known as the "NOB out selection" strategy). However, technical challenges associated with managing a consortium of microorganisms to out select the nitrite oxidizers raised concerns about the operational reliability of mainstream deammonification systems at full-scale. By taking a different approach to managing the nitrogen cycle within the treatment process, and developing the underlying understanding for how to implement and control this alternative process strategy of "partial denitrification – anammox", DC Water and HRSD were able to take a major step forward toward practical application of mainstream deammonification processes. DC Water's work in this area was conducted by the Nitrogen team in the Wastewater R&D group, and was focused on how to apply short-cut nitrogen removal strategies to the mainstream nitrogen removal process at Blue Plains to reduce energy and chemical requirements.

Water Quality & Pretreatment

The Blue Plains Water Quality & Pretreatment group manages the Industrial Pretreatment Program, including temporary dewatering dischargers (construction dewatering, etc.) and dental dischargers, as well as the Hauled Waste Program. Staff also provide specialized sampling and program management support for the Blue Plains NPDES permit, including low level PCB and mercury monitoring as well as storm water management and regulatory compliance support. This month, storm water management activities (with contractor support) included continuing the 2018 annual storm water site

compliance evaluation and finalizing the Spill Prevention, Control, and Countermeasures (SPCC) Plan and training materials.

Industrial Pretreatment Program

DC Water currently manages twelve (12) Significant Industrial User (SIU) and seventeen (17) Non-Significant Industrial User (NSIU) wastewater discharge permits. Staff renewed two NSIU permits this month for Washington Gas and IBM (groundwater remediation sites). These facilities will now be billed for disposal costs for treated groundwater discharged to the sanitary sewer at the groundwater rate. Staff conducted one NSIU inspection and compliance monitoring event this month at the IBM site. DC Water reviewed monthly self-compliance monitoring reports for six (6) SIUs and one NSIU as well as semi-annual compliance reports submitted this month. All SIUs and NSIUs are in compliance with discharge standards for the current month.

DC Water currently manages 73 Temporary Discharge Authorization (TDA) permits, primarily for construction site discharges of groundwater and/or surface runoff in the combined sewer area. Eight new TDA permits were issued this month. All TDA permits are currently in compliance with discharge standards.

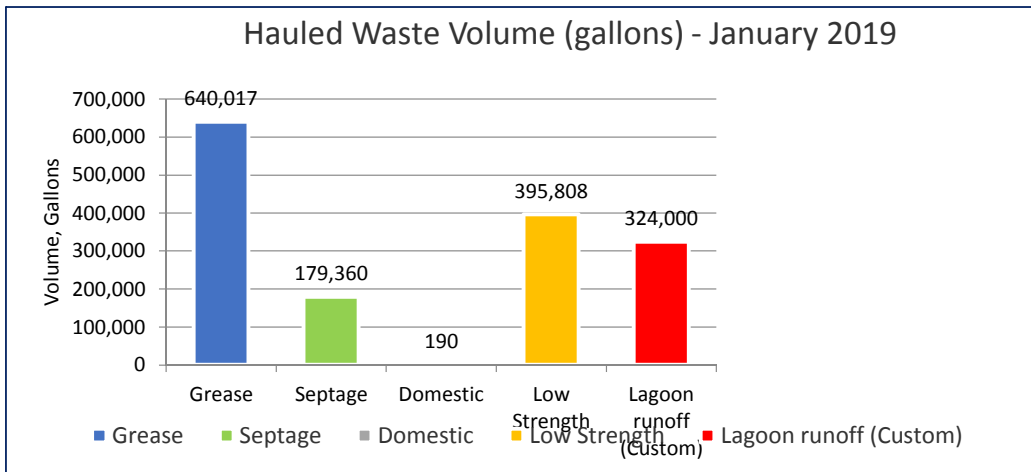
Dental Discharger questionnaires and One Time Compliance Reports are continuing to be collected from all dental facilities in DC to determine applicability to the regulation. Questionnaires were required to be submitted by July 16, 2018, by existing dental practices. Required facilities are installing amalgam separators and have until July 14, 2020 to complete this requirement and submit the One Time Compliance Report by October 12, 2020.

Hauled Waste Program

As of the end of the current month, the hauled waste program had 40 permitted haulers authorized to discharge domestic septage, portable toilet waste, grease trap waste, groundwater or surface runoff, and other types of waste, if approved in advance and have been characterized and meet pretreatment standards. Staff renewed two hauled waste permits and issued two new permits this month under the new volumetric fee structure. All permitted haulers are now on the new volumetric fee structure.

Staff conducted a facility inspection at the Pepco Benning Road Station this month to evaluate Pepco's request to establish a remote hauled waste receiving station for non-wastewater flow collected and transported from utility vaults in the separate storm sewer areas of the District. The proposed temporary set up was not acceptable to DC Water and would require a more permanent hard connection to a sewer lateral with a flow meter.

DC Water received 635 hauled waste loads (1,539,375 gallons) from permitted haulers this month. Manifest forms from each truck entering the plant are collected by the security guards and picked up daily by Pretreatment staff and information is manually entered into an access database. Two hauled waste samples were collected this month to check compliance with discharge standards.



Revenue Generation

The following billing (revenue) and receivables (cash) occurred during the current fiscal year for: Groundwater/Retail Sewer (GWRS) billing for disposal fees in accordance with TDA permits issued under the Industrial Pretreatment Program; Industrial User (IU) billing for high strength waste, permitting fees, and annual compliance fees issued under the Industrial Pretreatment Program; and Waste Hauler (WH) billing for permitting and disposal fees issued under the Hauled Waste Program:

Cat. Code	FY (Oct-Jan) Revenue Posted	FY (Oct-Jan) Cash Received
GWRS	\$195,139.27	\$9,199.95
IU	\$63,642.13	\$44,955.43
WH	\$287,104.24	\$344,932.62
Total	\$545,885.64	\$399,087.60

NPDES Permit Sampling

Staff collected one dry weather and two wet weather samples for low level PCB analysis at outfall 002 and one wet weather sample for low level PCB analysis at outfall 001 this month. Staff also collected bimonthly metals including low level mercury at outfall 002 this month. In addition, staff provided ongoing sampling support for Resource Recover for the monthly fecal coliform and PCB samples on treated biosolids from the Belt Filter Press and began collecting new samples on the biosolids blend products this month for compliance with state requirements.

FY 2019 to FY2028 Proposed CIP Budget

Further Discussion of CIP

Presentation to the Environmental Quality and Operations Committee

March 21, 2019

Howard Gibbs, Vice Chair



DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

Matt Brown, Executive Vice President , Finance & Procurement and Craig Fricke, Director of Engineering & Technical Services



Small Diameter Water Main unlined Cast Iron pipe
tuberculation



10th St at Otis St, NE (10" VCP, deformed, broken)

Budget Theme: Stewardship, Accountability & Sustainability



Customer & Fiscal Impact Analysis

Alternate (Increased) levels of Small Diameter Water
Main and Sewer Main Pipe Replacement



Alternative Small Sewer and Water Pipe Replacement/Rehab CIP Scenarios

	Modified Baseline		Alternative Scenarios					
Annual Replacement/Rehabilitation Ten-Year Capital Projects	1%		1.5%		2.0%		2.5%	
	\$4.4 Billion		\$4.70 Billion		\$4.97 Billion		\$5.24 Billion	
CIP Analysis	<u>Miles/year</u>	<u>Sweet Spot # of Years *</u>	<u>Miles/year</u>	<u>Sweet Spot # of Years *</u>	<u>Miles/year</u>	<u>Sweet Spot # of Years *</u>	<u>Miles/year</u>	<u>Sweet Spot # of Years *</u>
Small Diameter Water Mains (replacement)	11.0 mi	91	16.5 mi	45	22.0 mi	28	27.5 mi	20
Sewer Lines <60" dia. (rehabilitation)	17.5 mi	94	26.0 mi	49	34.7 mi	31	43.4 mi	23
Ten-year increase vs. Modified Baseline			\$271 million		\$542 million		\$814 million	
Ten-year increase vs. Approved Baseline	\$745 million		\$1.0 billion		\$1.3 billion		\$1.6 billion	

*The point in time remaining service life of the pipe system as a whole is about 50% of the expected service life.



Average Residential Customer Water & Sewer Lines Replacement (1.0%-1.5%-2.0%-2.5%)

Baseline: Phase-In Shift CRIAC (18%-28%-37%)

Residential - Avg. 6.2 Ccf / I ERU Mod. Baseline \$5.0B Phase-In Shift CRIAC	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	12.5%	11.5%	8.5%	7.5%	6.0%	5.5%	5.5%	4.5%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$108	\$114	\$124	\$133	\$143	\$155	\$161	\$168	\$176	\$185
Avg. Customer Bill (%)	5.9%	5.7%	8.5%	7.3%	7.4%	8.2%	3.8%	4.5%	4.5%	5.5%

Scenario: 1.5% Water & Sewer Lines Replacement

Residential – Avg. 6.2 Ccf / I ERU Mod. Baseline - \$5.2B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	12.5%	12.0%	9.5%	8.0%	7.0%	6.5%	6.0%	4.5%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$108	\$114	\$124	\$134	\$145	\$157	\$164	\$173	\$181	\$191
Avg. Customer Bill (%)	5.9%	5.7%	8.5%	7.7%	8.1%	8.6%	4.5%	5.3%	4.9%	5.4%



Average Residential Customer Water & Sewer Lines Replacement (1.0%-1.5%-2.0%-2.5%) cont.

Scenario: 2.0% Water & Sewer Lines Replacement

Residential - Avg. 6.2 Ccf / 1 ERU Mod. Baseline - \$5.5B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	13.0%	12.5%	11.0%	7.5%	8.0%	7.5%	7.0%	5.5%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$108	\$114	\$125	\$135	\$147	\$159	\$167	\$178	\$188	\$199
Avg. Customer Bill (%)	5.9%	5.7%	8.8%	8.1%	9.2%	8.2%	5.3%	6.1%	5.7%	6.2%

Scenario: 2.5% Water & Sewer Lines Replacement

Residential - Avg. 6.2 Ccf / 1 ERU Mod. Baseline - \$5.8B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	13.0%	13.0%	13.0%	8.5%	8.5%	8.0%	8.0%	5.0%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$108	\$114	\$125	\$135	\$149	\$163	\$172	\$183	\$195	\$206
Avg. Customer Bill (%)	5.9%	5.7%	8.8%	8.4%	10.6%	8.9%	5.7%	6.5%	6.5%	5.8%



Average Multi-family Customer Water & Sewer Lines Replacement (1.0%-1.5%-2.0%-2.5%)

Baseline: Phase-In Shift CRIAC (18%-28%-37%)

Multi-family - Avg. 92.6 Ccf / 6.3 ERU Mod. Baseline \$5.0B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	12.5%	11.5%	8.5%	7.5%	6.0%	5.5%	5.5%	4.5%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$1,303	\$1,413	\$1,558	\$1,704	\$1,838	\$1,981	\$2,077	\$2,180	\$2,289	\$2,403
Avg. Customer Bill (%)	9.2%	8.5%	10.3%	9.4%	7.8%	7.8%	4.8%	5.0%	5.0%	4.9%

Scenario: 1.5% Water & Sewer Lines Replacement

Multi-family - Avg. 92.6 Ccf / 6.3 ERU Mod. Baseline - \$5.2B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	12.5%	12.0%	9.5%	8.0%	7.0%	6.5%	6.0%	4.5%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$1,303	\$1,413	\$1,558	\$1,171	\$1,860	\$2,013	\$2,129	\$2,254	\$2,376	\$2,493
Avg. Customer Bill (%)	9.2%	8.5%	10.3%	9.8%	8.7%	8.3%	5.7%	5.9%	5.4%	4.9%



Average Multi-family Customer Water & Sewer Lines Replacement (1.0%-1.5%-2.0%-2.5%) cont.

Scenario: 2.0% Water & Sewer Lines Replacement

Multi-family - Avg.92.6 Ccf / 6.3 ERU Mod. Baseline - \$5.5B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	13.0%	12.5%	11.0%	7.5%	8.0%	7.5%	7.0%	5.5%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$1,303	\$1,413	\$1,565	\$1,724	\$1,897	\$2,045	\$2,180	\$2,327	\$2,475	\$2,617
Avg. Customer Bill (%)	9.2%	8.5%	10.8%	10.2%	10.0%	7.8%	6.6%	6.7%	6.4%	5.8%

Scenario: 2.5% Water & Sewer Lines Replacement

Multi-famil – Avg. 92.6 Ccf / 6.3 ERU Mod. Baseline - \$5.8B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	13.0%	13.0%	13.0%	8.5%	8.5%	8.0%	8.0%	5.0%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$1,303	\$1,413	\$1,565	\$1,731	\$1,934	\$2,101	\$2,250	\$2,412	\$2,587	\$2,725
Avg. Customer Bill (%)	9.2%	8.5%	10.8%	10.6%	11.7%	8.7%	7.1%	7.2%	7.2%	5.3%



Average Commercial Customer Water & Sewer Lines Replacement (1.0%-1.5%-2.0%-2.5%)

Baseline: Phase-In Shift CRIAC (18%-28%-37%)

Commercial - Avg. 114 Ccf / 13.1 ERU Mod. Baseline \$5.0B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	12.5%	11.5%	8.5%	7.5%	6.0%	5.5%	5.5%	4.5%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$1,850	\$1,978	\$2,164	\$2,345	\$2,527	\$2,732	\$2,852	\$2,990	\$3,134	\$3,299
Avg. Customer Bill (%)	7.7%	6.9%	9.4%	8.3%	7.7%	8.1%	4.4%	4.8%	4.8%	5.2%

Scenario: 1.5% Water & Sewer Lines Replacement

Commercial - Avg. 114 Ccf / 13.1 ERU Mod. Baseline - \$5.2B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	12.5%	12.0%	9.5%	8.0%	7.0%	6.5%	6.0%	4.5%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$1,850	\$1,978	\$2,164	\$2,353	\$2,555	\$2,773	\$2,918	\$3,083	\$3,246	\$3,415
Avg. Customer Bill (%)	7.7%	6.9%	9.4%	8.7%	8.6%	8.5%	5.2%	5.7%	5.3%	5.2%



Average Commercial Customer Water & Sewer Lines Replacement (1.0%-1.5%-2.0%-2.5%) cont.

Scenario: 2.0% Water & Sewer Lines Replacement

Commercial - Avg. 114 Ccf / 13.1 ERU Mod. Baseline - \$5.5B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	13.0%	12.5%	11.0%	7.5%	8.0%	7.5%	7.0%	5.5%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$1,850	\$1,978	\$2,172	\$2,371	\$2,603	\$2,814	\$2,984	\$3,178	\$3,373	\$3,576
Avg. Customer Bill (%)	7.7%	6.9%	9.8%	9.2%	9.8%	8.1%	6.0%	6.5%	6.1%	6.0%

Scenario: 2.5% Water & Sewer Lines Replacement

Commercial - Avg. 114 Ccf / 13.1 ERU Mod. Baseline - \$5.8B	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water & Sewer Rate (%)	13.0%	11.5%	13.0%	13.0%	13.0%	8.5%	8.5%	8.0%	8.0%	5.0%
CRIAC (\$/ERU)	\$23.00	\$20.94	\$20.95	\$19.85	\$21.45	\$25.28	\$24.35	\$25.06	\$25.73	\$29.31
Avg. Customer Bill (\$)	\$1,850	\$1,978	\$2,172	\$2,379	\$2,651	\$2,887	\$3,075	\$3,289	\$3,519	\$3,716
Avg. Customer Bill (%)	7.7%	6.9%	9.8%	9.5%	11.4%	8.9%	6.5%	6.9%	7.0%	5.6%



Appendix



10-Year CIP Recommendation (Disbursements & Lifetime)

Modified Baseline CIP

- 1) FY19 & FY20 Total spending for each year has been kept at FY18-27 board approved baseline levels to remain congruent with previously approved 5% rate increases
- 2) Ramp-up to modified Baseline CIP beginning in FY21

Service Area (\$000's)	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	10-Yr Total	Lifetime Budget
Non-Process Facilities	15,309	36,002	26,793	20,665	6,831	11,058	10,396	3,901	3,553	3,560	138,067	212,833
Wastewater Treatment	69,979	66,620	76,510	97,635	110,047	82,434	81,249	133,338	137,575	123,351	978,738	3,566,060
Clean Rivers	187,859	147,208	139,786	191,573	151,411	64,415	55,689	144,295	97,067	83,286	1,262,589	2,764,255
Combined Sewer	7,491	4,219	9,444	8,015	8,646	13,520	8,852	5,800	5,593	7,598	79,178	269,293
Stormwater	4,220	8,571	8,118	8,586	3,725	4,987	7,564	7,494	5,239	10,102	68,608	123,574
Sanitary Sewer	44,927	43,646	57,249	85,588	97,220	98,194	115,011	140,020	134,664	140,615	957,135	2,070,599
Water	61,884	71,720	96,300	101,039	84,395	96,491	103,325	106,145	105,338	118,378	945,015	2,204,622
CAPITAL PROJECTS	391,669	377,987	414,200	513,102	462,275	371,098	382,087	540,993	489,029	486,890	4,429,330	11,211,236
Capital Equipment	34,518	26,823	36,907	33,086	32,725	36,680	35,540	35,426	34,339	34,279	340,324	340,324
Washington Aqueduct	12,930	15,532	15,909	15,536	35,006	14,830	32,731	9,034	12,298	23,321	187,127	187,127
ADDITIONAL CAPITAL PROGRAMS	47,448	42,355	52,816	48,622	67,731	51,509	68,272	44,461	46,637	57,600	527,450	527,450
LABOR												389,258
TOTAL CIP	439,117	420,342	467,016	561,724	530,006	422,608	450,358	585,454	535,665	544,490	4,956,780	12,127,945
Last Years CIP (Increase)/Decrease	439,118 1	420,342 (0)	402,681 (64,335)	445,647 (116,077)	385,312 (144,694)	326,284 (96,324)	318,360 (131,998)	439,427 (146,027)	375,004 (160,661)	(544,490)	4,002,126 (954,655)	11,131,895 (996,051)



CIP Risks/Sensitivities

Regulatory/Consent Decree/Permitting:

- E. Coli Total Maximum Daily Load (TMDL) – lawsuit by environmental groups seeking more restrictive TMDL
- MS4 permit - repair of Stormwater Outfalls, total scope and cost unknown (currently \$5M approved)
- National Parks Service permitting requirements for sewer projects
- Anacostia River Sediment Clean-up
- Chesapeake Bay TMDL – Phase 3 Watershed Implementation Plans being prepared, possible TMDL reassessment in the future
- Green Infrastructure (GI) Practicability Assessment - Clean Rivers practicability assessment of GI to be performed in 2020. Currently, construction of GI in the District is more expensive than originally estimated
- SSOs – risk of SSO Consent Decree
- Blue Plains Odor Control (\$250M)



CIP Risks/Sensitivities (cont.)

Blue Plains Process Optimization & Revenue Opportunities

- Full Plant Deammonification (>\$60M)
- Resource Recovery (Hot Water Heating Loop; Sludge Drying)

Other:

- Lead Service Replacement Program
- Pepco DC Power Line Undergrounding (DC PLUG) – (\$57M, DC Water Share is 50% = \$28M)
- Condition assessment of large sewers could lead to additional CIP needs
- Washington Aqueduct –
 - FY2019-2030 Proposed CIP (\$291M, DC Water share = \$218M)
 - Federally Owned Water Main Repairs (\$86M, all DC Water)
 - Travilah Quarry Acquisition & Outfitting (\$284M, cost sharing unknown)
 - Advanced Treatment Facilities (\$540M, DC Water share = \$405M)



Presentation to the Environmental Quality and Operations Committee

March 21, 2019

Howard Gibbs, Vice Chair

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

Matt Brown, Executive Vice President, Finance and Procurement

FY 2019 – 2028 Capital Budget (Disbursements & Lifetime)

ACTIONS AND RECOMMENDATION



Budget Process Update

Timeline (2019)	Activity	Status
February 7	Budget Workshop with Board of Directors	✓
February 8	Wholesale Customer Briefing	✓
	Committee Discussions & Reviews	
February 21	Environmental Quality & Operations	✓
February 28	D.C. Retail Water & Sewer Rates	✓
February 28	Joint D.C. Retail Water & Sewer Rates and Finance & Budget	✓
March 7	Board Meeting (<i>No Board Action Required</i>)	
	Committee Reviews & Recommendations	
→ March 21	Environmental Quality & Operations	
March 26	D.C. Retail Water & Sewer Rates	
March 28	Finance & Budget	
April 4	Board Adoption	
April	Submit budget via the District to U.S. Congress	
May	Publish budget book	



Committee Actions & Recommendations

Committee	Environmental Quality & Operations	DC Retail Water & Sewer Rates	Finance & Budget
FY 2019 - FY 2028 Capital Budget (Disbursements & Lifetime)	Action Required		Action Required
FY 2020 Operating Budget			Action Required
FY 2019 – FY 2028 Financial Plan		Action Required	Action Required
FY 2020 Rates, Charges & Fees		Action Required	



**ENVIRONMENTAL QUALITY & OPERATIONS COMMITTEE
FISCAL YEAR 2019 – 2028
PROPOSED CAPITAL IMPROVEMENT PROGRAM
ACTION ITEM**

ACTION ITEM 4.1: FY 2019 – FY 2028 Proposed Capital Improvement Program (10-Year Disbursement Plan and Lifetime Budget)

DC Water presents its Capital Improvement Program (CIP) on two different bases:

- a. **10-Year Disbursement Plan** – The cash disbursement-based capital plan is utilized to forecast the timing and amount of capital financing, which is the primary basis for projected retail rate increases. As shown in Attachment A-1, the Board of Directors will be asked to approve a 10-year disbursement plan of \$4.96 billion.
- b. **Lifetime Budget** – The project lifetime budget reflects the total costs of each project active during the 10-year planning period. These costs include historical and projected spending, project contingencies, and labor (listed as separate line item). As shown in Attachment A-1, the Board of Directors will be asked to approve a lifetime budget of \$12.1 billion.



Detailed 10-year CIP

Capital Improvement Program

10-Year Disbursement Plan - projected annual cash disbursements, \$ in thousands

Attachment A-1

	FY 2019 - FY 2028 Proposed Disbursement Plan										10-Yr Total	Lifetime Budget
	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028		
NON PROCESS FACILITIES												
Facility Land Use	15,309	36,002	26,793	20,665	6,831	11,058	10,396	3,901	3,553	3,560	138,067	\$212,833
Subtotal: Facility Land Use	15,309	36,002	26,793	20,665	6,831	11,058	10,396	3,901	3,553	3,560	138,067	212,833
WASTEWATER TREATMENT												
Liquid Processing	21,488	30,915	37,087	48,495	36,646	38,979	41,124	84,082	107,253	107,354	553,422	1,166,818
Plantwide	15,777	20,223	18,885	25,882	39,576	24,810	17,052	25,410	20,726	7,341	215,681	494,048
Solids Processing	6,672	10,511	19,988	22,645	30,530	15,286	12,862	3,899	1,186	8,304	131,883	906,481
Enhanced Nitrogen Removal Facilities	26,042	4,972	549	614	3,295	3,359	10,211	19,947	8,411	351	77,751	998,714
Subtotal	69,979	66,620	76,510	97,635	110,047	82,434	81,249	133,338	137,575	123,351	978,738	3,566,060
COMBINED SEWER OVERFLOW												
DC Clean Rivers	187,859	147,208	139,786	191,573	151,411	64,415	55,689	144,295	97,067	83,286	1,262,589	2,764,255
Program Management	1,685	1,241	743	1,482	2,653	4,046	4,310	2,871	1,745	2,718	23,494	77,756
Combined Sewer	5,805	2,978	8,701	6,533	5,994	9,473	4,542	2,930	3,848	4,880	55,684	191,538
Subtotal	195,350	151,427	149,230	199,588	160,057	77,935	64,541	150,095	102,660	90,884	1,341,767	3,033,549
STORMWATER												
Local Drainage	8	17	244	822	770	768	1,410	769	156	3,084	8,048	20,225
On-Going	1,056	511	598	929	706	742	451	735	713	919	7,360	10,511
Pumping Facilities	1,996	7,877	6,966	6,429	1,909	3,218	5,492	5,792	4,100	5,773	49,553	61,204
DDOT	-	-	-	-	-	-	-	-	-	-	-	3,237
Research and Program Management	1,078	84	223	319	341	260	212	198	269	326	3,310	12,889
Trunk/Force Sewers	82	82	87	86	-	-	-	-	-	-	337	15,510
Subtotal	4,220	8,571	8,118	8,587	3,725	4,987	7,564	7,494	5,239	10,102	68,608	123,574
SANITARY SEWER												
Collection Sewers	5,434	2,476	10,012	20,547	21,664	24,747	33,310	42,591	44,337	36,594	241,712	498,192
On-Going	13,653	12,842	13,483	13,711	13,667	14,185	15,019	15,253	15,111	15,312	142,239	219,540
Pumping Facilities	2,248	1,619	4,868	6,649	6,495	4,935	9,975	10,882	12,457	29,612	89,739	270,778
Program Management	3,321	2,452	4,752	6,868	5,073	3,942	3,127	3,334	4,126	4,923	41,919	119,035
Interceptor/Trunk Force Sewers	20,270	24,257	24,133	37,813	50,321	50,384	53,579	67,961	58,633	54,174	441,526	963,054
Subtotal	44,927	43,646	57,249	85,588	97,220	98,194	115,011	140,020	134,664	140,615	957,135	2,070,599
WATER												
Distribution Systems	30,729	40,948	63,054	58,127	49,881	61,921	68,714	62,636	60,526	82,102	578,638	1,359,993
Lead Program	4,338	5,928	6,723	6,307	6,715	7,438	6,544	5,830	6,654	6,706	63,182	243,414
On-Going	10,080	10,238	10,126	12,297	13,351	15,199	16,789	18,583	20,447	22,981	150,091	215,064
Pumping Facilities	1,199	2,513	6,282	8,110	2,850	3,947	3,095	3,502	3,523	1,974	36,993	123,911
DDOT	992	76	3	5	-	-	-	-	-	-	1,076	33,933
Storage Facilities	9,384	5,223	2,549	8,940	7,526	3,913	3,770	8,779	7,098	-	57,181	137,364
Program Management	5,163	6,795	7,562	7,255	4,073	4,414	6,815	7,089	4,614	-	57,854	90,944
Subtotal	61,884	71,720	96,300	101,039	84,395	96,491	103,325	106,145	105,338	118,377	945,015	2,204,622
CAPITAL PROJECTS												
	391,669	377,987	414,200	513,102	462,275	371,098	382,087	540,993	489,029	486,890	4,429,330	11,211,236
CAPITAL EQUIPMENT												
ONGOING METER REPLACEMENT	2,618	2,618	2,930	2,930	2,930	2,930	2,930	2,930	2,930	2,930	28,676	
ERP PROJECT (Financial & HCM)	4,500	7,100	3,950	500	500	-	-	-	-	-	16,550	
SUBTOTAL - CAPITAL EQUIPMENT	34,518	26,823	36,907	33,086	32,725	36,680	35,540	35,426	34,339	34,279	340,324	340,324
WASHINGTON AQUEDUCT	12,930	15,532	15,909	15,536	35,006	14,830	32,731	9,034	12,298	23,321	187,127	187,127
ADDITIONAL CAPITAL PROGRAMS	47,448	42,355	52,816	48,622	67,731	51,509	68,272	44,461	46,637	57,600	527,450	527,450
LABOR												
												389,258
TOTAL CAPITAL BUDGETS	\$439,117	\$420,342	\$467,016	\$561,724	\$530,006	\$422,607	\$450,358	\$585,454	\$535,666	\$544,490	\$4,956,780	\$12,127,945

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT OPTION YEAR

**Document Management Services
(Joint Use)**

Approval to exercise option year four (4) for Document Management Services in the amount of \$407,500.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: Canon Solutions America One Canon Park Melville, NY 11747	SUBS: N/A	PARTICIPATION: N/A
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DESCRIPTION AND PURPOSE

Original Contract Value:	\$389,409.84
Original Contract Dates:	04-23-2015 – 04-22-2016
No. of Option Years in Contract:	4
Option Year 1 Value:	\$389,409.84
Option Year 1 Dates:	04-23-2016 – 04-22-2017
Option Year 2 Value:	\$389,409.84
Option Year 2 Dates:	04-23-2017 – 04-22-2018
Option Year 3 Value:	\$389,409.84
Option Year 3 Dates:	04-23-2018 – 04-22-2019
Option Year 4 Value:	\$407,500.00
Option Year 4 Dates:	04-23-2019 – 04-22-2020

Purpose of the Contract:

To contract for uninterrupted Document Management Services which includes managing the Reprographic Center, Mailroom Operations and Copier Maintenance services for the District of Columbia Water and Sewer Authority (DC Water) Department of Facilities Services.

Additional funds are needed for Option Year 4 to service DC Water’s New HQO building mail room as well as new software for copiers. A new Solicitation will be issued on the first quarter of FY2020.

Spending Previous Year:

Cumulative Contract Value:	04-23-2015 to 04-22-2019: \$1,540,111.65
Cumulative Contract Spending:	03-02-2016 to 02-25-2019: \$1,517,184.19

Contractor’s Past Performance:

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

No LSBE participation

PROCUREMENT INFORMATION

Contract Type:	Fixed Price	Award Based On:	Highest Rated Offeror
Commodity:	Services	Contract Number:	15-PR-DFS-05
Contractor Market:	Open Market with Preference Points for LBE and LSBE participation		

BUDGET INFORMATION

Funding:	Operating	Departments:	Facilities
Service Area:	DC Water Wide	Department Heads:	Brent Christ

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	41.90%	\$170,742.50
Washington Suburban Sanitary Commission	43.10%	\$175,632.50
Fairfax County	9.59%	\$39,079.25
Loudoun Water	4.64%	\$18,908.00
Other (PI)	0.77%	\$3,137.75
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$407,500.00

 3/15/19
 Maureen Holman Date
 EVP of Administration

 3/15/19
 Dan Bae Date
 VP of Procurement and Compliance

 3/15/19
 Matthew T. Brown Date
 CFO and EVP of Finance and Procurement

_____/_____
 David L. Gadis Date
 CEO and General Manager

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

ACTION REQUESTED

**GOODS AND SERVICES CONTRACT OPTION YEAR
High Pressure High Vacuum Cleaning Services
(Joint Use)**

Approval to exercise option year 1 for high pressure high vacuum cleaning services in the amount of \$666,250.00

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: Mobile Dredging & Video Pipe, Inc. 11420 Old Baltimore Pike Beltsville, MD 20705	SUBS: N/A	PARTICIPATION: N/A
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DESCRIPTION AND PURPOSE

Original Contract Value: \$725,000.00
 Original Contract Dates: 04-1-2018—03-31-2019
 No. of Option Years in Contract: 2
Option Year 1 Value: \$666,250.00
Option Year 1 Dates: 04-1-2019—03-31-2020

Purpose of the Contract:

This contract is to supply a professional industrial cleaning team to provide high pressure water blasting and high vacuum cleaning services for structures and equipment located at DC Water’s Blue Plains Advanced Waste Water Treatment Plant.

Contract Scope:

The services of a qualified contractor to provide the resources needed to complete high pressure water blasting and high vacuum cleaning services for structures and equipment (e.g. cleaning of large pipes and drains, grit chambers, scum pits, nitrification reactors, solids compactors and conveyance systems, Thermal Hydrolysis Process (THP) reactors, and other solids processing equipment) located at the Blue Plains Advanced Waste Water Treatment Plant. This includes the use of commercial multi-pressure water blast equipment, high vacuum wet/dry trucks, combination jet/vacuum trucks, and personnel to clean various facilities, equipment and structures at the plant.

Spending Previous Year:

Cumulative Contract Value: 04-1-2018 to 03-31-2019: \$725,000.00
 Cumulative Contract Spending: 04-1-2018 to 01-31-2019: \$573,685.00

Contractor’s Past Performance:

According to the COTR, there have been issues with the Contractor’s performance, however DC Water and the Contractor have developed a plan to resolve the outstanding issues and have agreed to move forward with Option Year 1 of the contract.

No LBE/LSBE participation.

PROCUREMENT INFORMATION


Contract Type:	Good and Services	Award Based On:	Best Value
Commodity:	Industrial Cleaning	Contract Number:	18-PR-WWT-04
Contractor Market:	Open Market with Preference Points for LBE and LSBE Participation		


BUDGET INFORMATION


Funding:	Operating	Department:	Wastewater Treatment
Project Area:	Blue Plains	Department Head:	Aklile Tesfaye

ESTIMATED USER SHARE INFORMATION

User - Operating	Share %	Dollar Amount
District of Columbia	41.90%	\$279,158.75
Washington Suburban Sanitary Commission	43.10%	\$287,153.75
Fairfax County	9.59%	\$63,893.38
Loudoun Water	4.64%	\$30,914.00
Other (PI)	0.77%	\$5,130.13
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$666,250.00

 / 3/5/19
 Aklile Tesfaye Date
 VP of Wastewater Operation

 / 3/11/19
 Dan Bae Date
 VP of Procurement and Compliance

 / 3/14/19
 Matthew T. Brown Date
 CFO and EVP of Finance and Procurement

_____/_____
 David L. Gadis Date
 CEO and General Manager

**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 Sodium Bisulfite
(Joint Use)**

Approval to exercise option year 1 for the supply and delivery of sodium bisulfite in the amount of \$757,500.00

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: PVS Chemical Solutions, Inc. 10900 Harper Avenue Detroit, MI 48213	SUBS: N/A	PARTICIPATION: N/A
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DESCRIPTION AND PURPOSE

Original Contract Value:	\$700,000.00
Original Contract Dates:	04-16-2018—04-15-2019
No. of Option Years in Contract:	2
Prior Modifications Value:	\$200,000.00
Prior Modifications Dates:	01-01-2019—04-15-2019
Option Year 1 Value:	\$757,500.00
Option Year 1 Dates:	04-16-2019—04-15-2020

Purpose of the Contract:

This contract is to supply and deliver sodium bisulfite to the Department of Wastewater Treatment (DWT) at DC Water. Sodium bisulfite removes residual chlorine from effluent water, and its use is required to meet environmental standards.

Contract Scope:

DC Water's DWT has a continuing need for the supply of sodium bisulfite. DWT adds sodium bisulfite to treated wastewater following disinfection with sodium hypochlorite and prior to discharging the effluent to the Potomac River. The hypochlorite leaves residual chlorine in the water, which is removed by sodium bisulfite. The NPDES permit from EPA regulations requires that the discharge from the plant has a non-detectable residual chlorine level. The base year sodium bisulfite consumption has increased significantly due to high wet weather flows received to Complete Treatment and Wet Weather Treatment Facility.

Spending Previous Year:

Cumulative Contract Value:	04-16-2018 to 04-15-2019: \$900,000.00
Cumulative Contract Spending:	04-16-2018 to 01-07-2019: \$699,999.00

Contractor's Past Performance:

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

No LBE/LSBE participation in the contract award.

PROCUREMENT INFORMATION

Contract Type:	Good and Services	Award Based On:	Best Value
Commodity:	Sodium Bisulfite	Contract Number:	18-PR-DWT-13
Contractor Market:	Open Market with Preference Points for LBE and LSBE Participation		

BUDGET INFORMATION

Funding:	Operating	Department:	Wastewater Treatment
Project Area:	Blue Plains	Department Head:	Aklile Tesfaye

ESTIMATED USER SHARE INFORMATION

User - Operating	Share %	Dollar Amount
District of Columbia	41.90%	\$317,392.50
Washington Suburban Sanitary Commission	43.10%	\$326,482.50
Fairfax County	9.59%	\$72,644.25
Loudoun Water	4.64%	\$35,148.00
Other (PI)	0.77%	\$5,832.75
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$757,500.00

 / 3/15/19
 Aklile Tesfaye Date
 VP of Wastewater Operation

 / 3/15/19
 Dan Bae Date
 VP of Procurement and Compliance

 / 3/15/19
 Matthew T. Brown Date
 CFO and EVP of Finance and Procurement

_____/_____
 David L. Gadis Date
 CEO and General Manager

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT AWARD YEAR

**BELT PRESS DEWATERING POLYMER
(Joint Use)**

Approval to execute a contract award for the Belt Press Dewatering Polymer in the amount of \$1,781,700.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: Polydyne, Inc. One Chemical Plant Road Riceboro, GA 31323	SUBS: N/A	PARTICIPATION: N/A
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DESCRIPTION AND PURPOSE

Base Year Contract Value:	\$1,781,700.00
Option Years in Contract:	2
Anticipated Contract Start Date:	05-01-2019
Anticipated Base Year End Date:	04-30-2020
Proposal Received:	1
Preference Price Reduction Awarded	\$0.00

Purpose of the Contract:

The purpose of this contract is to supply and deliver belt press dewatering polymer to DC Water's Blue Plains Advanced Wastewater Treatment Facility. This polymer conditions biosolids to help remove water in the Final Dewatering Facility at Blue Plains.

Contract Scope:

In the belt press dewatering operations, the polymer is used to help remove water from biosolids after the digestion process. Dewatering biosolids improves the quality of this important co-product by removing water to concentrate the solids and reduce its volume, which also reduces the cost to transport biosolids to application sites.

Supplier Selection:

DC Water periodically re-evaluates its polymers to ensure we use the best products at optimal dosing rates. Recent industry consolidation has left only two manufacturers for dry polymer that can meet DC Water's specification: Polydyne and Solenis. Both were invited for plant trials, but only Polydyne accepted DC Water's invitation. DC Water will re-invite Solenis during the base year and request to compete with Polydyne for option year 1.

No LBE/LSBE participation

PROCUREMENT INFORMATION

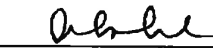
Contract Type:	Good and Services	Award Based On:	Best Value
Commodity:	Dewatering Polymer	Contract Number:	19-PR-DWT-14
Contractor Market:	Open Market with Preference Points for LBE and LSBE Participation		


BUDGET INFORMATION

Funding:	Operating	Department:	Wastewater Treatment
Project Area:	Blue Plains	Department Head:	Aklile Tesfaye

ESTIMATED USER SHARE INFORMATION

User - Operating	Share %	Dollar Amount
District of Columbia	41.90%	\$746,532.30
Washington Suburban Sanitary Commission	43.10%	\$767,912.70
Fairfax County	9.59%	\$170,865.03
Loudoun Water	4.64%	\$82,670.88
Other (PI)	0.77%	\$13,719.09
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$1,781,700.00

 / 3/15/19
 Aklile Tesfaye Date
 VP of Wastewater Operations

 / 3/15/19
 Dan Bae Date
 VP of Procurement and compliance

 / 3/15/19
 Matthew T. Brown Date
 CFO and EVP of Finance and Procurement

_____/_____
 David L. Gadis Date
 CEO and General Manager

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT AWARD YEAR

**CENTRIFUGE PRE-DEWATERING POLYMER
(Joint Use)**

Approval to execute a contract award for the Pre-Dewatering Polymer in the amount of \$1,384,900.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: Polydyne, Inc. One Chemical Plant Road Riceboro, GA 31323	SUBS: N/A	PARTICIPATION: N/A
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DESCRIPTION AND PURPOSE

Base Year Contract Value:	\$1,384,900.00
Option Years in Contract:	2
Anticipated Contract Start Date:	05-01-2019
Anticipated Base Year End Date:	04-30-2020
Proposal Received:	1
Preference Price Reduction Awarded	\$0.00

Purpose of the Contract:

The purpose of this contract is to supply and deliver dry pre-dewatering polymer to DC Water's Blue Plains Advanced Wastewater Treatment Facility. This polymer conditions biosolids to help remove water in the centrifuge process.

Contract Scope:

DC Water uses dry cationic polymer at Blue Plains to help reduce water content and increase the solids content in the feed to Thermal Hydrolysis (THP). This conditioning improves the performance of the THP and digestion processes, leading to exceptional-quality Bloom that can be applied for beneficial use.

Supplier Selection:

DC Water periodically re-evaluates its polymers to ensure we use the best products at optimal dosing rates. Recent industry consolidation has left only two manufacturers for dry polymer that can meet DC Water's specification: Polydyne and Solenis. Both were invited for plant trials, but only Polydyne accepted DC Water's invitation. DC Water will re-invite Solenis during the base year and request to compete with Polydyne for option year 1.

No LBE/LSBE participation

PROCUREMENT INFORMATION


Contract Type:	Good and Services	Award Based On:	Best Value
Commodity:	Pre-Dewatering Polymer	Contract Number:	19-PR-DWT-15
Contractor Market:	Open Market with Preference Points for LBE and LSBE Participation		


BUDGET INFORMATION


Funding:	Operating	Department:	Wastewater Treatment
Project Area:	Blue Plains	Department Head:	Aklile Tesfaye

ESTIMATED USER SHARE INFORMATION

User - Operating	Share %	Dollar Amount
District of Columbia	41.90%	\$580,273.10
Washington Suburban Sanitary Commission	43.10%	\$596,891.90
Fairfax County	9.59%	\$132,811.91
Loudoun Water	4.64%	\$64,259.36
Other (PI)	0.77%	\$10,663.73
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$1,384,900.00

 / 3/15/19
 Aklile Tesfaye Date
 VP of Wastewater Operation

 / 3/15/19
 Dan Bae Date
 VP of Procurement and Compliance

 / 3/15/19
 Matthew T. Brown Date
 CFO and EVP of Finance and Procurement

_____/_____
 David L. Gadis Date
 CEO and General Manager



District of Columbia Water and Sewer Authority
David L. Gadis, CEO and General Manger

Briefing on:

DC Clean Rivers Project Quarterly Update

Briefing for:

Environmental Quality & Operations Committee Meeting

March 21, 2019



DCWATER.COM

Agenda

- Overview
- Progress Summary – March 2018 Consent Decree
- Progress Summary – Remaining Projects



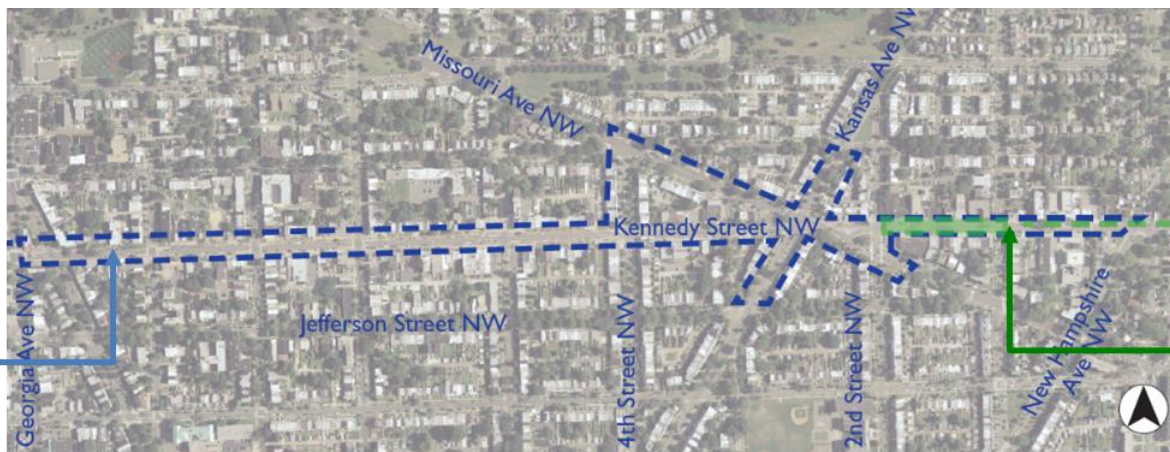
HONORS AND AWARDS



American Council of Engineering Companies honors Clean Rivers



American Council of Engineering Companies (ACEC) of Metropolitan Washington Honor Award for Kennedy Street Green Infrastructure Streetscape Project.



DDOT – Kennedy Street NW Improvement
(Georgia Avenue – New Hampshire Avenue NW)

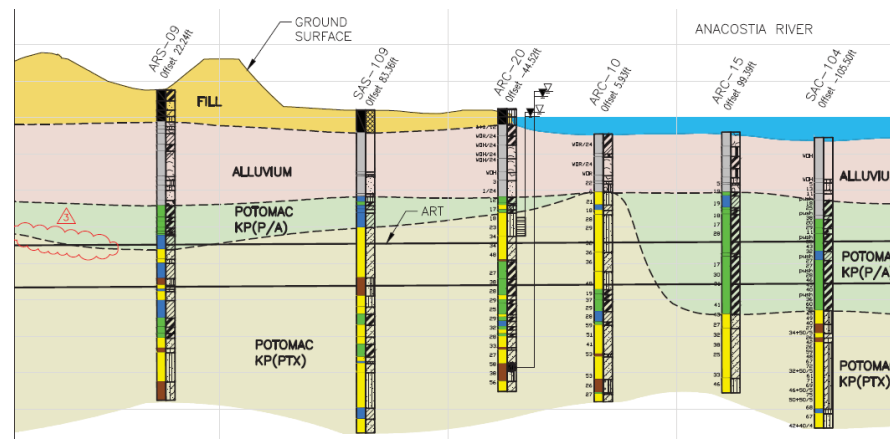
DC Water GI Challenge Streetscape
(100 Block Kennedy Street NW)



American Council of Engineering Companies honors Clean Rivers



American Council of Engineering Companies (ACEC) of Metropolitan Washington Honor Award for the Anacostia River Tunnel (Geotechnical Monitoring).



Anacostia River Tunnel System Receives Awards



Tiber Creek Sewer Rehabilitation won the **American Shotcrete Association 2018 Outstanding Project of The Year** in the **Underground** category



TIBER CREEK SEWER CRACKS



TIBER CREEK SEWER CRACKS



REMOVING STEEL BENTS



REMOVING STEEL BENTS



PHASE-II SHOTCRETE IN PROGRESS



PHASE-II SHOTCRETE IN PROGRESS



SINGLE BARREL: PHASE-II REBAR



SINGLE BARREL: PHASE-II REBAR



SHOTCRETE COMPLETED

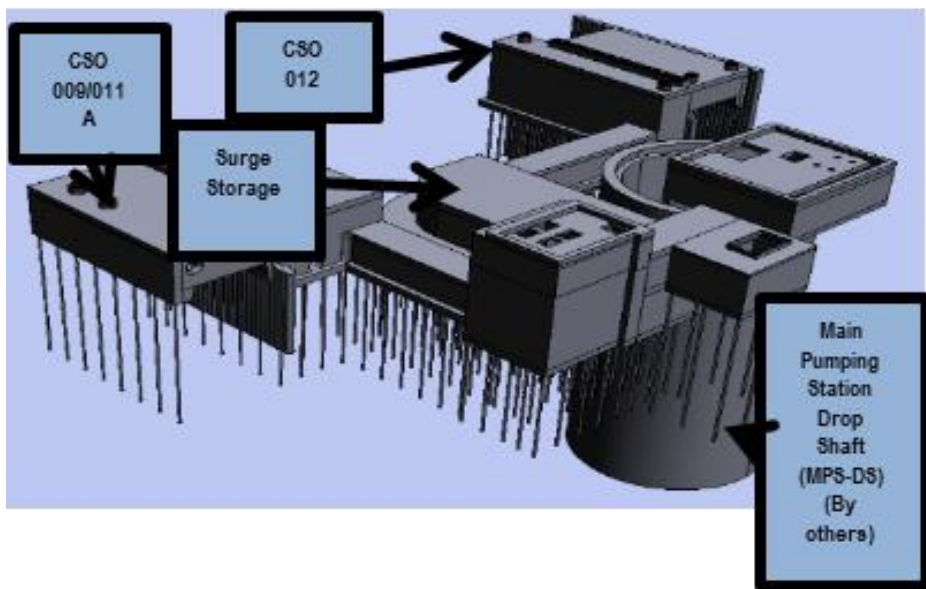


SHOTCRETE COMPLETED

National Utility Contractors Association Honors Clean Rivers



Div. I Main Pumping Station Diversions and Div. D – Joint Base Anacostia Bolling (JBAB) Overflow and Diversion Structures **are finalists** for the **National Utility Contractors Association (NUCA) Top Flight Award**



DC Clean Rivers Project Overview

Controls Combined Sewer Overflows



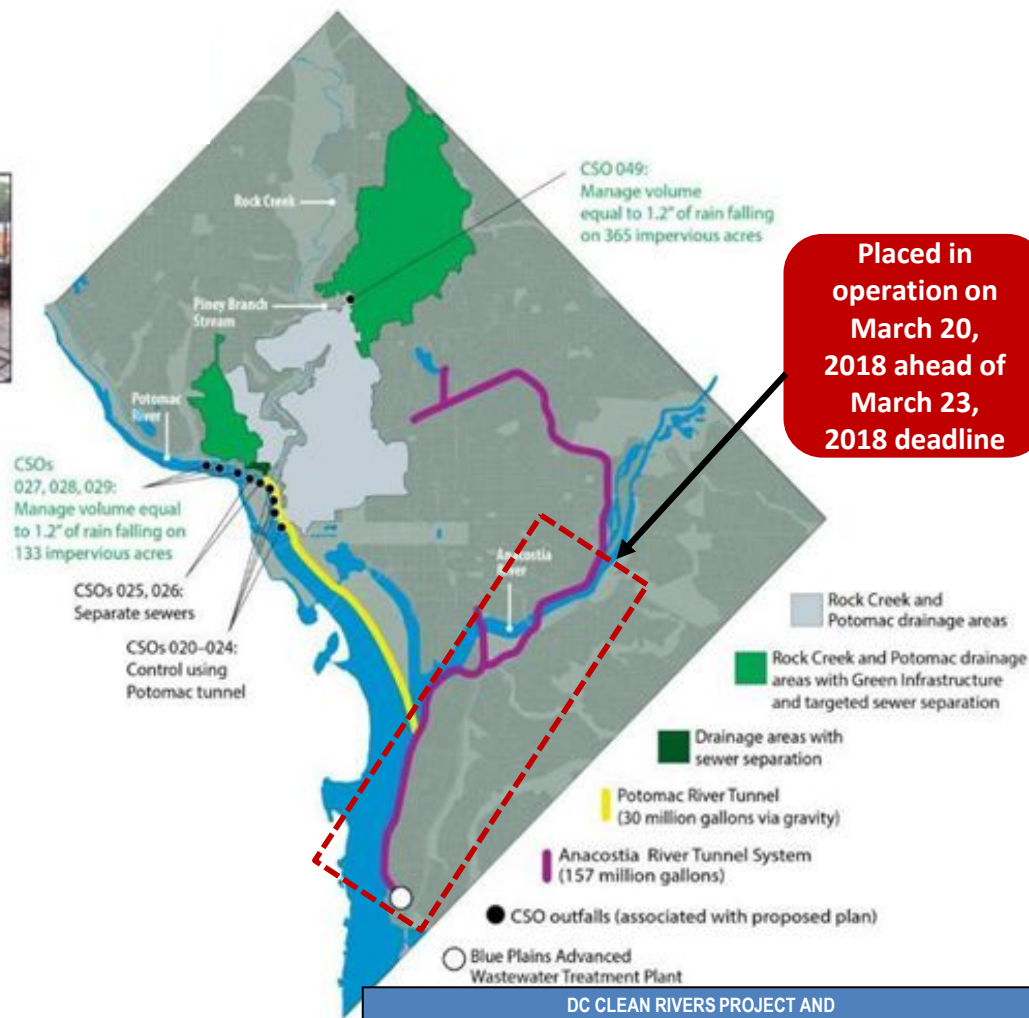
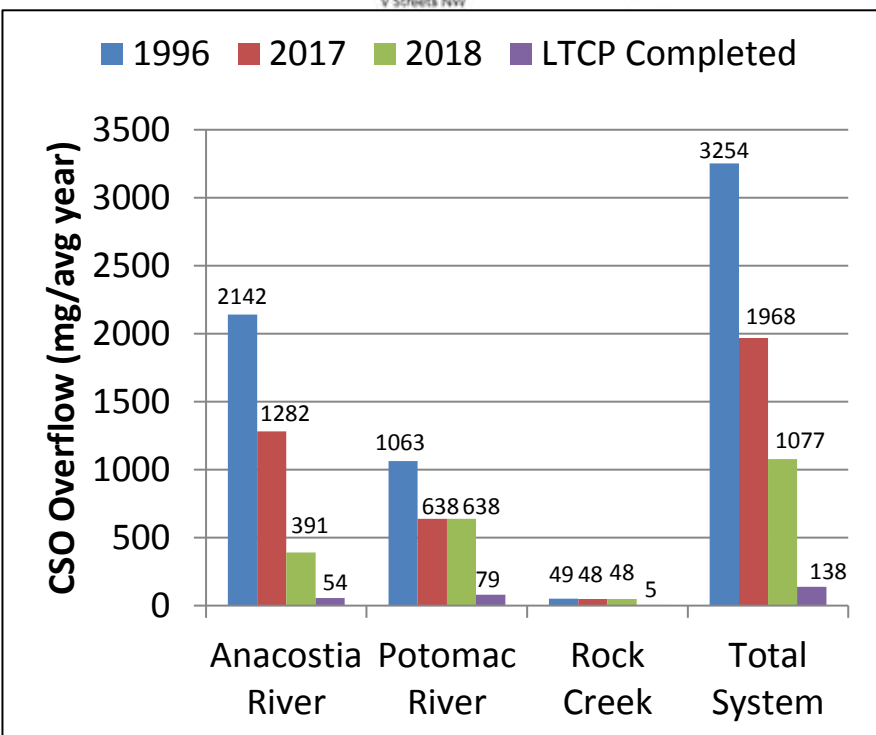
Addresses Chronic Sewer Flooding



▲ Flooding at 1st and V Streets NW



▲ Flooding at 1st and Rhode Island Ave NW

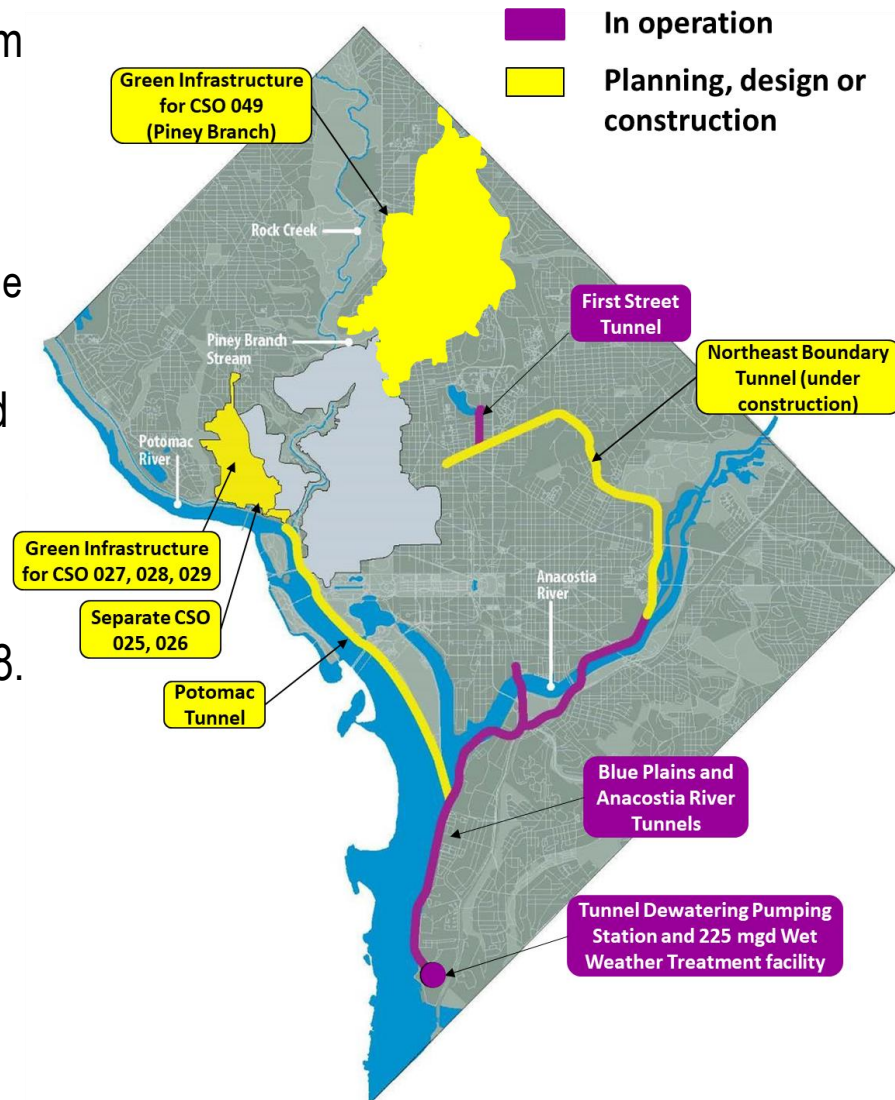


Placed in operation on March 20, 2018 ahead of March 23, 2018 deadline

DC CLEAN RIVERS PROJECT AND NITROGEN REMOVAL PROGRAMS	
• DC Clean Rivers Project: \$2.7 Billion	8
• Nitrogen Removal: \$950 Million	
• Total > \$ 3.5 Billion	
• 25 yr implementation (2005 – 2030)	
• 96% reduction in CSOs & flood relief in Northeast Boundary	
• Approx 1 million lbs/yr nitrogen reduction predicted	

Project Status

- First phase of Anacostia River tunnel system commissioned on March 20, 2018
 - Provides control for all CSOs along the Anacostia River
 - Provides about 100 million gallons of storage
- Northeast Boundary Tunnel, under construction, will increase CSO storage and flood risk mitigation
 - Adds about 90 million gallons of storage
- Green infrastructure (GI) project in Rock Creek Substantially Complete October 2018. Potomac River project Substantially Complete early March 2019.
- CSO 025/026 Sewer Separation Project currently in design
- Potomac River Tunnel Facility Plan submitted to EPA by end of 2018



Anacostia Tunnel System Performance Since March 20, 2018

No.	Month	Rainfall, DCA Gauge (in)	Volume Captured by Tunnel (MG)	Measured Overflow (MG)	Total (captured + OF) (MG)	% captured
1	March 20 -31 2018	1.48	20	0	20	100%
2	April 2018	3.59	249	10	259	96%
3	May 2018	8.73	865	13	878	99%
4	June 2018	5.21	271	49	320	85%
5	July 2018	9.73	678	236	914	74%
6	August 2018	5.19	334	15	349	96%
7	September 2018	9.73	775	109	884	88%
8	October 2018	3.06	150	0	150	100%
9	November 2018	7.56	780	6	786	99%
10	December 2018	5.82	455	102	557	82%
11	January 2019	3.30	227	0	227	100%
12	February 2019	3.52	69	0	69	100%
13	March 2019 (thru 3/11)	1.64	108	0	108	100%
Total		68.56	4981	540	5521	90%

- Nearly 5 billion gallons captured to date
- Exceeding predicted capture rate (90%>80%)
- First year in operation was the wettest year on record for the District of Columbia
 - 66” compared to average ~40”
 - Broke previous record from 1889 by 5”



April 2018



November 2018

Trash and Debris Removed from CSO Captured by Tunnel at ECF Fine Screens








PROGRESS SUMMARY MARCH 2018 CONSENT DECREE

MAJOR ACCOMPLISHMENTS FY 2019 1ST QUARTER UPDATE



Progress Summary – Nearly Completed Projects

March 2018 Consent Decree

Contract Division	Title	Description	Substantially Complete	Substantial Completion Date	Remaining Work	Picture
D	JBAB Overflow and Diversion Structures	JBAB Overflow and Diversion Structures will capture flow from the Potomac Outfall Sewers and convey it to the Blue Plains AWWTP through the Blue Plain Tunnel	Yes	2/15/2018	Grass & turf stabilization	
I	Main Pumping Station Diversions	Division I consists of two major side-wier style diversion chambers (CSOs 009/011A and CSO 012). CSO 009/011A intercepts the Canal St. Sewer / New Jersey Ave Trunk Sewer while CSO 012 intercepts Tiber Creek and receives flows from Tingey St. Diversion Sewer. Flows are conveyed to the Blue Plains AWWTP through the Blue Plains Tunnel.	Yes	2/15/2018	Administrative Closeout	
H	Anacostia River Tunnel (ART)	ART is a 2.4 miles tunnel starting from CSO 019 and connecting with the Blue Plains tunnel at Poplar Point. The tunnel receives flows intercepted by diversion chambers located at CSOs 005/007, CSO 017, CSO 018 and CSO 019 through drop shafts to convey to the Blue Plains AWWTP	Yes	3/9/2018	Administrative Closeout	
Z	Poplar Point Pumping Station Replacement	Division Z consists of design and construction of a new Poplar Point Pumping Station. Additionally, it includes design and construction of Anacostia Main Interceptor Diversion Structure and Diversion Sewer, Force Main for the Main Outfall Sewers and Overflow, Approach Channel & Diversion and Main Outfall Sewers to the Poplar Point Junction Shaft.	Yes	12/21/2018	Punch list	
PR-B	CSO 021 Diversions	The CSO 021 Outfall Sewer relieves excess flows from the East Rock Creek Diversion Sewer and will divert 230 MGD to the future Potomac River Tunnel	Yes	5/16/2018	Administrative Closeout	

PROGRESS SUMMARY REMAINING PROJECTS

MAJOR ACCOMPLISHMENTS FY 2019 1ST QUARTER UPDATE



Division J – Northeast Boundary Tunnel Flyover Video

Division J – Northeast Boundary Tunnel



Design-Build: Salini Impregilo Healy JV
 Contract Price: \$580M - Percent Complete: 21%
 Financials as of February 1, 2019

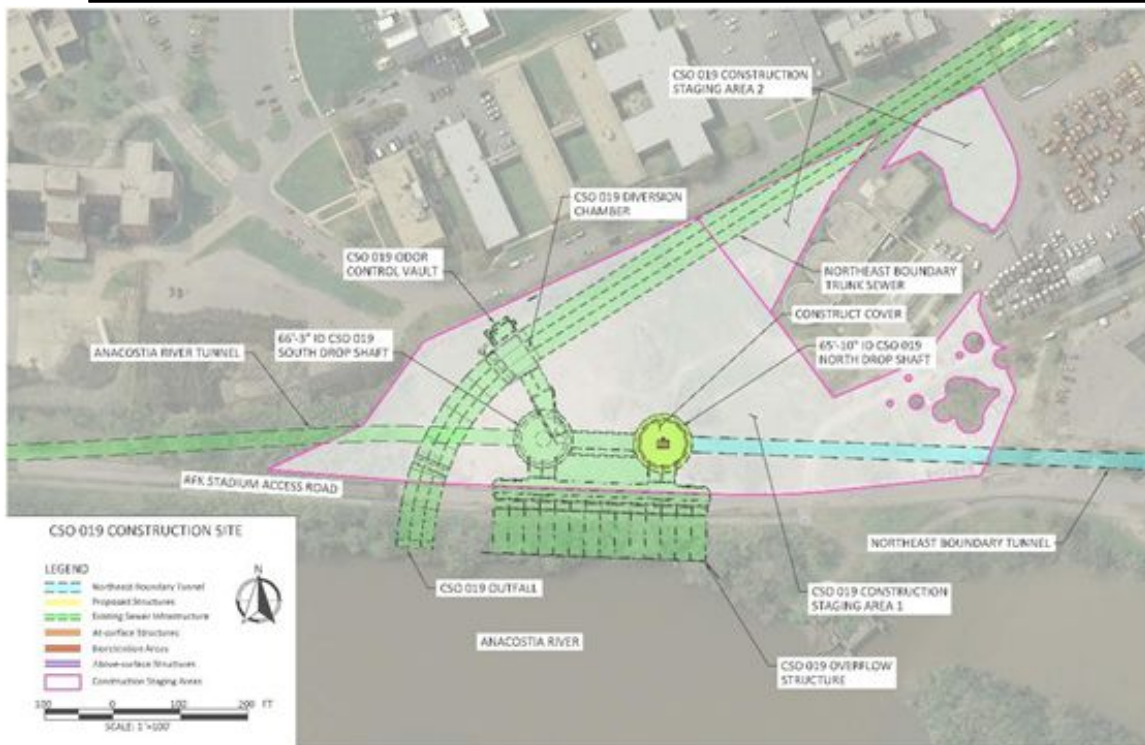
- Approved major Design Packages including Florida Avenue Maintenance of Traffic (MOT) and Temp Site Work RFC; Pumping Station MOT and Temp Site Work RFC; and Rhode Island Avenue Support of Excavation (SO) RFC.

Milestone	Date
NTP	September 15, 2017
Construction Start	March 2018
Construction Complete	August 2023

- Tunneling is risky compared to other types of construction projects
 - Underground conditions
 - Safety
- Clean Rivers continuously works to manage risks to minimize impacts



Division J – Northeast Boundary Tunnel CSO 019 Site



Tunnel View

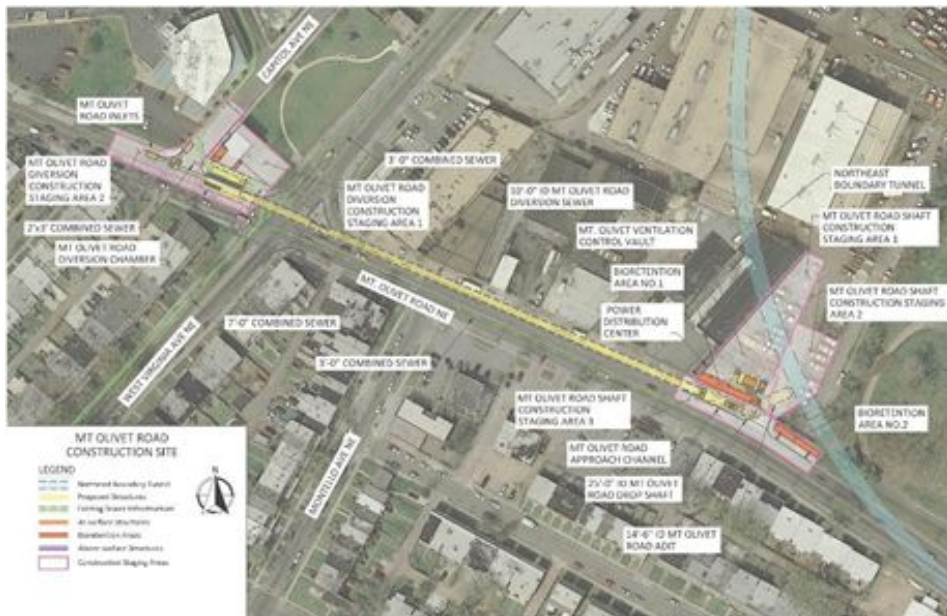


CSO-019 Eastside Force Main

- TBM *Chris* mined 1,110 feet.
- Eastside Force Main backfill and sheet pile removal ongoing.



Division J – Northeast Boundary Tunnel Mount Olivet Road Site



Mount Olivet Road Site View

- Jet grout columns for future tunnel adit connection on-going, 50% completed.
- 8-inch water main by-pass completed.



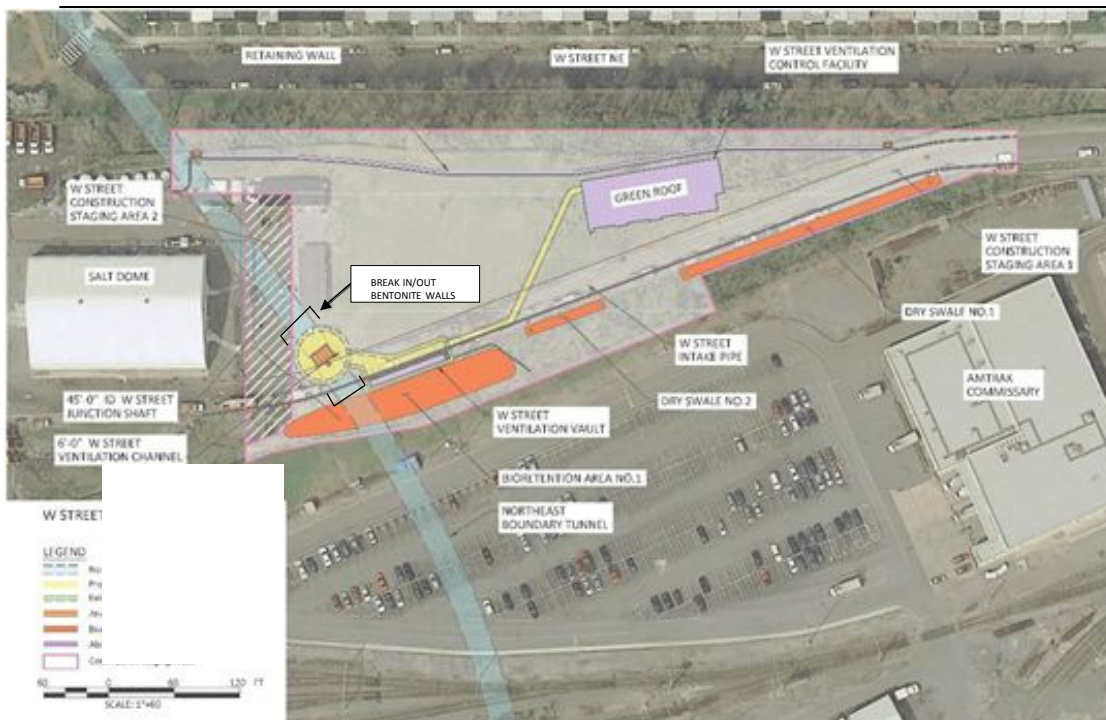
Mount Olivet Road Jet Grouting



8-Inch Water Main By-Pass



Division J – Northeast Boundary Tunnel W Street Site



Retaining Wall

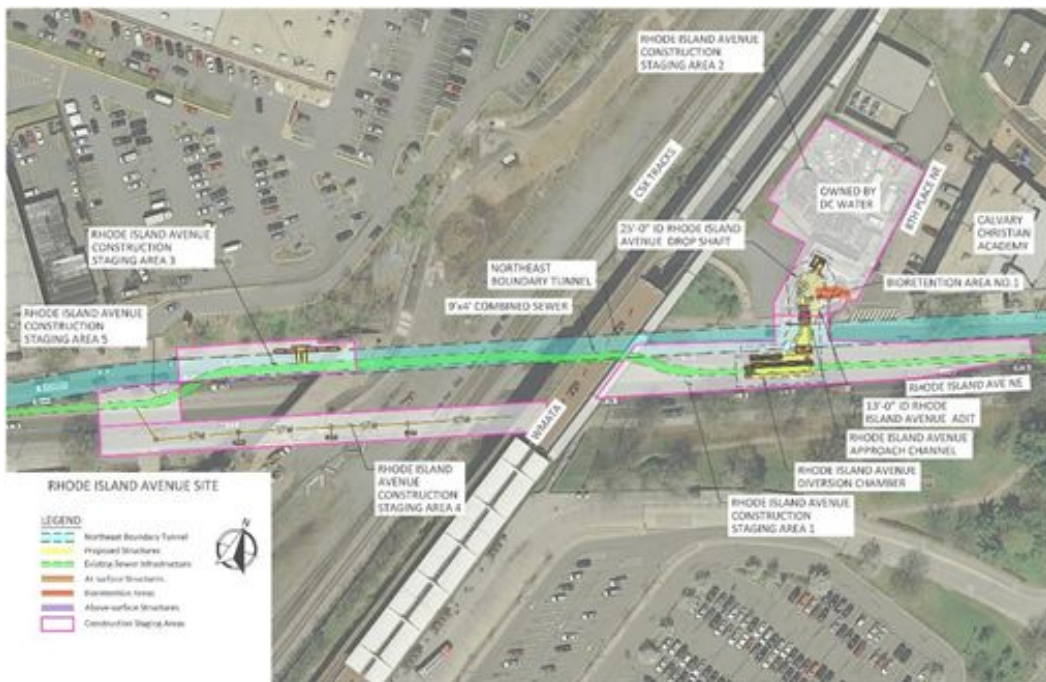


Break-In and Break-Out Panels Completed

- VCF Excavation: Intake pipe and foundation piles completed.
- Break-in and break-out bentonite walls installed.
- Retaining wall construction work ongoing.
- 10-inch sanitary and 8-inch water main work ongoing.



Division J – Northeast Boundary Tunnel Rhode Island Ave Site



RIA Site View

- Tire Shop building demolished.
- Continued setup of site, field offices, slurry plant and hydromill.
- Slurry panel guide walls construction work ongoing.
- Instrumentation installation work ongoing

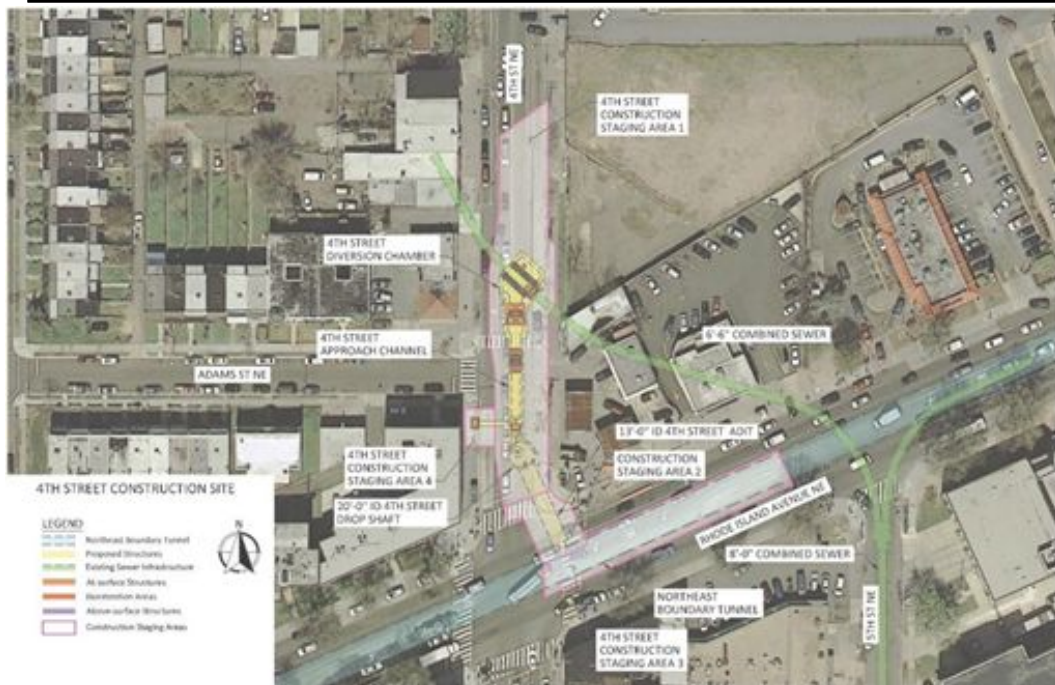


Slurry Panel Guide Wall



Tire Shop Building Demolished

Division J – Northeast Boundary Tunnel 4th Street Site



4th Street Site

- Completed shaft slurry wall panel installation.
- Demobilized slurry plant.
- Mobilized and started test jet grout columns within shaft slurry walls.

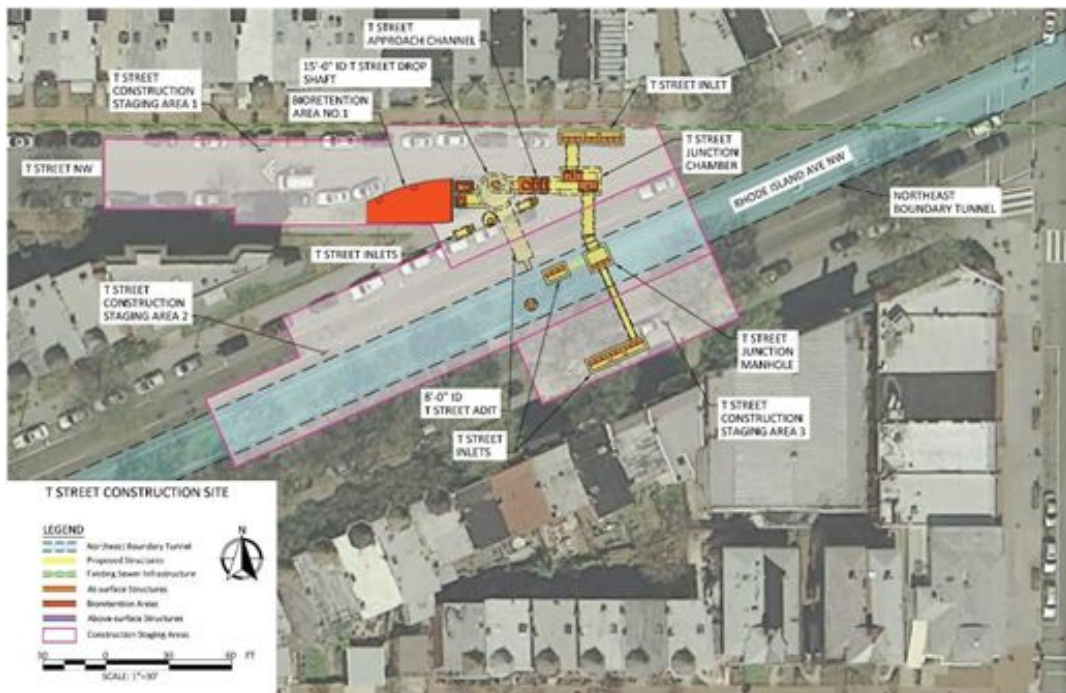


Started Jet Grout Columns



Completed Slurry Panels

Division J – Northeast Boundary Tunnel T Street Site



Utility Potholing

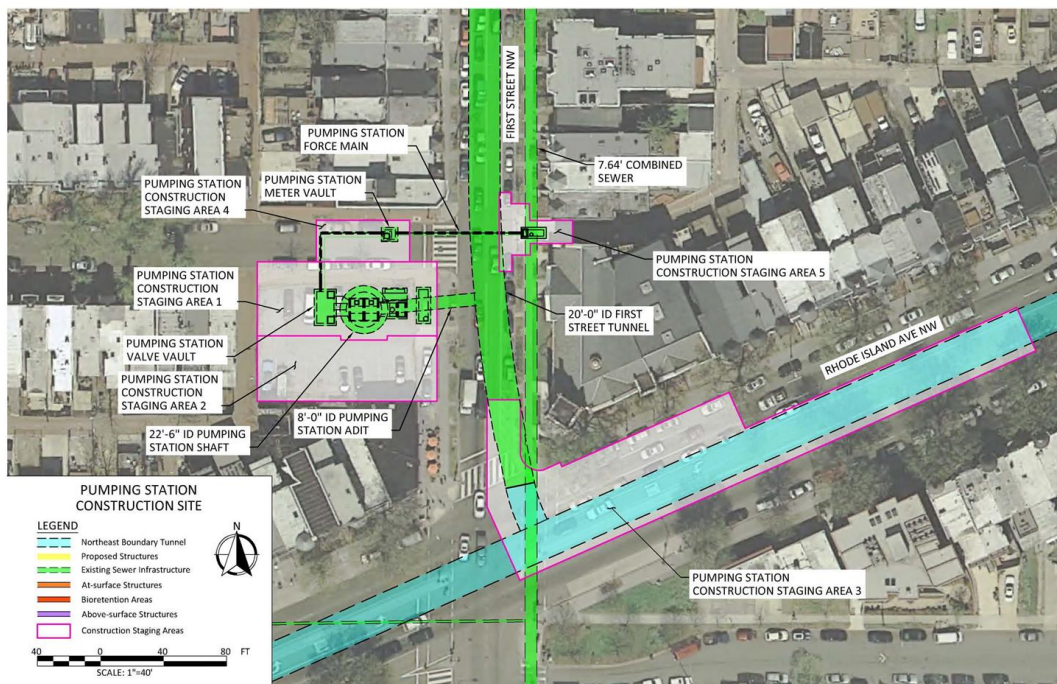
- Performed utility potholing investigation.



Utility Potholing



Division J – Northeast Boundary Tunnel Pumping Station Site



- Performed utility potholing investigation.



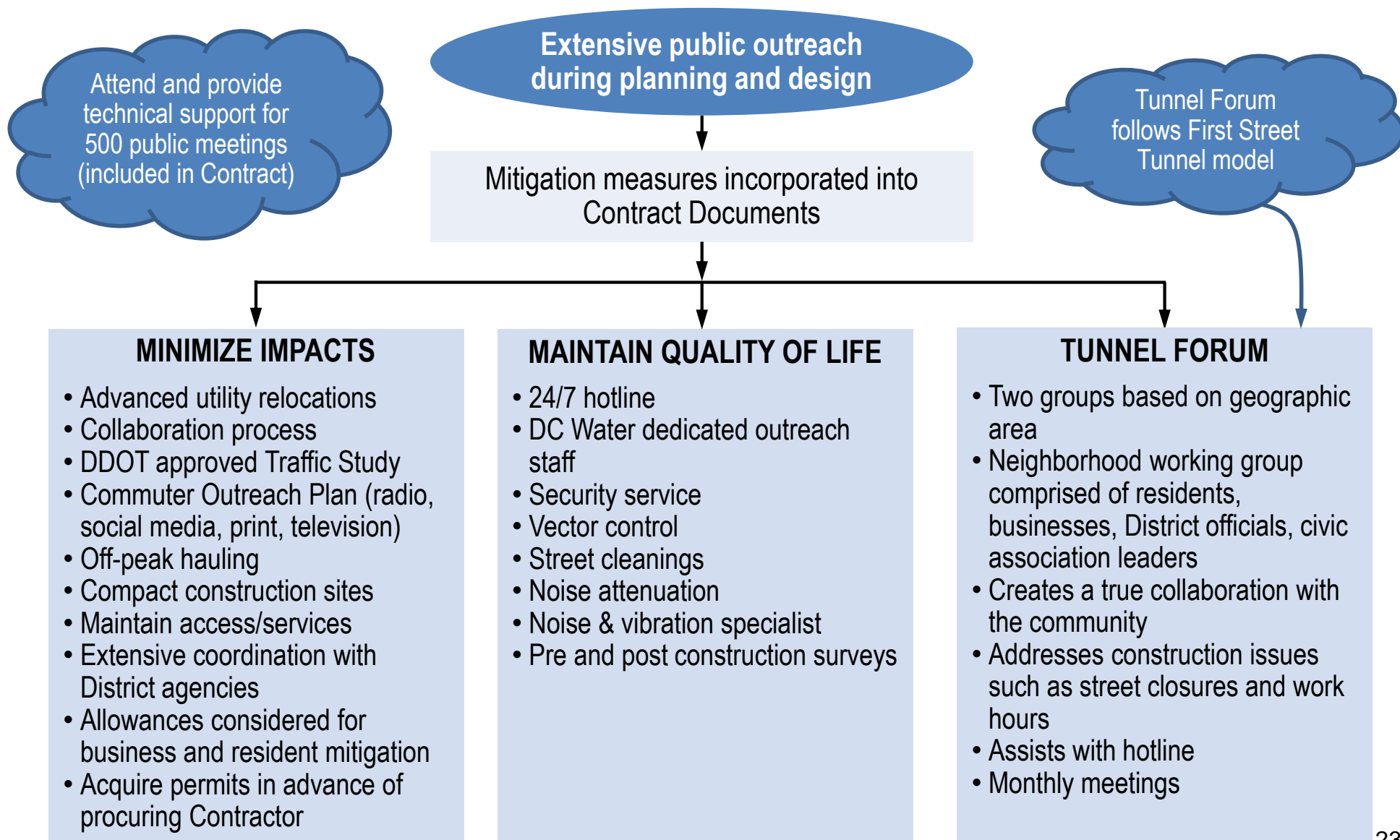
Utility Potholing



Utility Potholing



Community Impact Mitigation



DC Water Partnering with 3 Main Street Organization to Enhance Patronage of Local Businesses during Construction

Main Street Organizations

- 510(c)(3) non profits
- Goal is to support patronage of local business during construction



Example Activities

- Direct compensation of individual or aggregate business losses would not be provided. Example activities:
 - Advertising, including radio campaigns, space in local magazines and media events to highlight area businesses
 - Business promotion efforts
 - Coupons, discount cards or reward programs that may be used by customers to receive discounts from businesses in the construction zone
 - Hosting “community day” or similar events to highlight and encourage patronage of business in construction zones
 - Providing free consultations to business owners in the construction corridor
 - Improved signage to direct the public to affected businesses in the construction zone
 - Information on alternative parking or other transportation alternates to access businesses in the construction zone

DC Water Partnering Activities with Main Street Organizations

- **Main Street Success:** RIAMS negotiated a rent reduction for Edgewood Liquor Store for duration of project. The store's revenue loss increased when construction began
- **Speaking Opportunities:** RIAMS and SMS have presented at NEBT Tunnel Forums and Kickoff Meeting. NEBT Outreach Team invited as speakers to NCMS Annual Report Celebration in April 2019.
- **Podcast:** in November 2018, members of the Outreach Team were guests on the RIAMS podcast to highlight the NEBT project and the unique partnership.
- Worked closely with the Loving Care Day Care on pickup and drop-off access and schedule and noise mitigation
- Moved the Project Description poster from in front of the BP station.
- Erected plywood noise barriers in select locations around the site perimeter to mitigate noise
- Placed improved lighting and CCTV near the Edgewood Liquor store and around the fencing.
- Negotiated an agreement to allow customer parking in the Forman Mills lot
- Cleaned slurry splatter off the BP sign
- Coordinated during construction
- Erected plywood noise barriers in select locations around the site perimeter to mitigate noise

Division RC-A – Rock Creek GI Project A

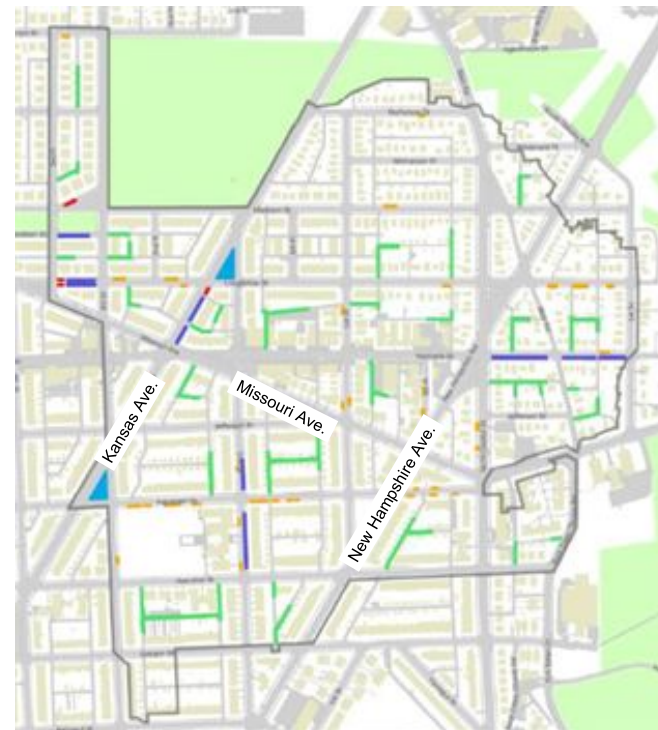


Key Map

Design-Builder: Anchor Construction
Contract Price: \$27M - Percent Complete: 85%
Financials as of March 1, 2019

- Project facilities were designed, permitted, and constructed in three phases:
- Construction started in September 2017
- Substantial Completion achieved October 9, 2018
- One year maintenance period underway; Final Completion (includes maintenance) expected December 2019.

Project Boundary:



- Curb Extension Bioretention
- Alley Permeable Pavement
- Parking Lane Permeable Pavement
- Planter Bioretention
- GI Challenge Park
- RC-A Boundary



Division PR-A – Potomac River Project A



Contractor: Ft Myer Construction
 Contract Price: \$6M - Percent Complete: 58%
 Financials as of March 1, 2018

Item	Status
Contract Award	April 9, 2018
Construction NTP	April 30, 2018
Place in Operation	CD Deadline June 23, 2019

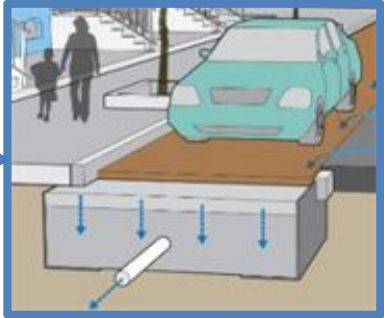
Project Boundary:



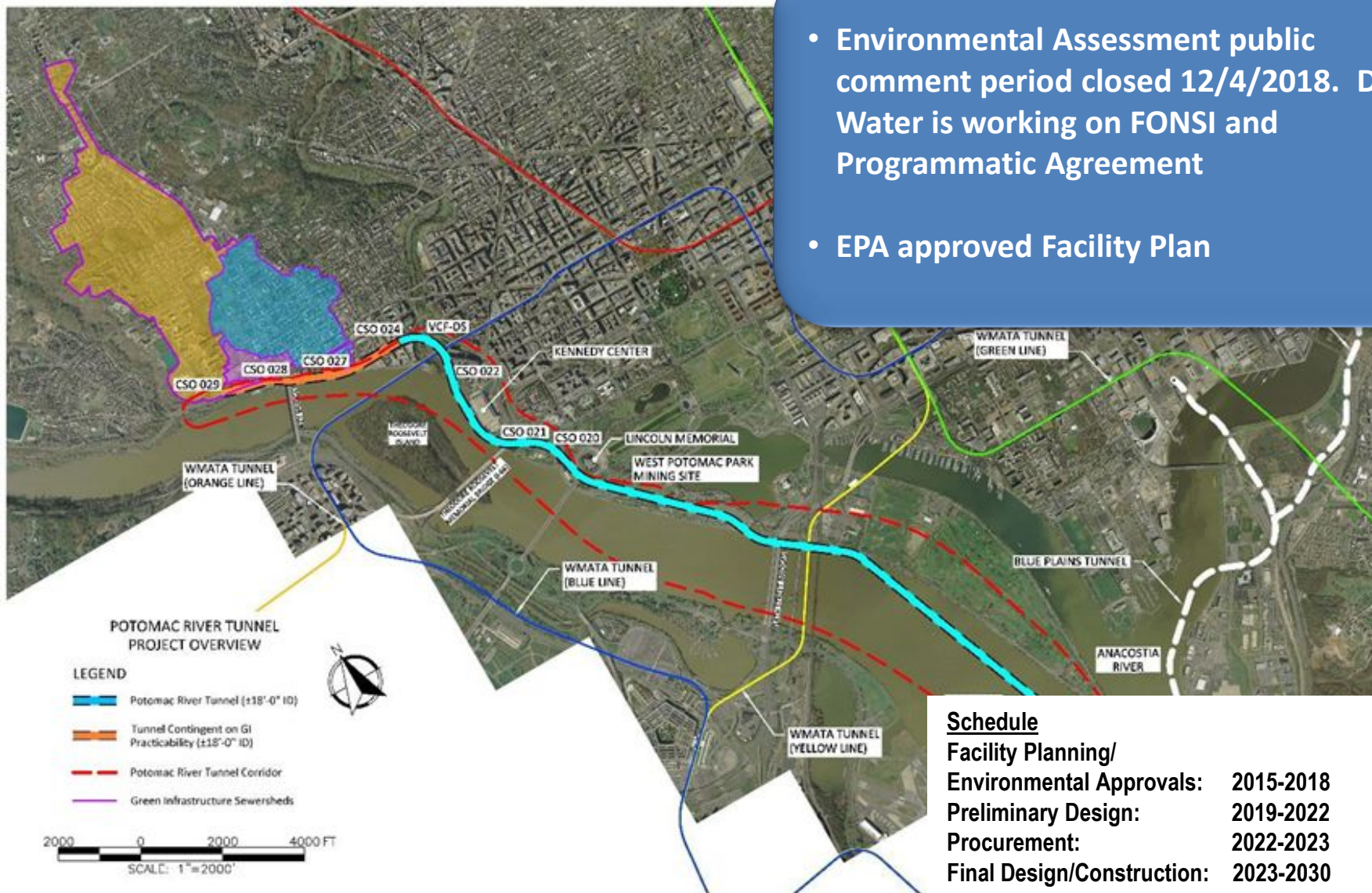
- Substantial Completion March 8, 2019.

- Project included:

- Planter Bioretention
- Alley Permeable Pavement
- Parking Lane Permeable Pavement



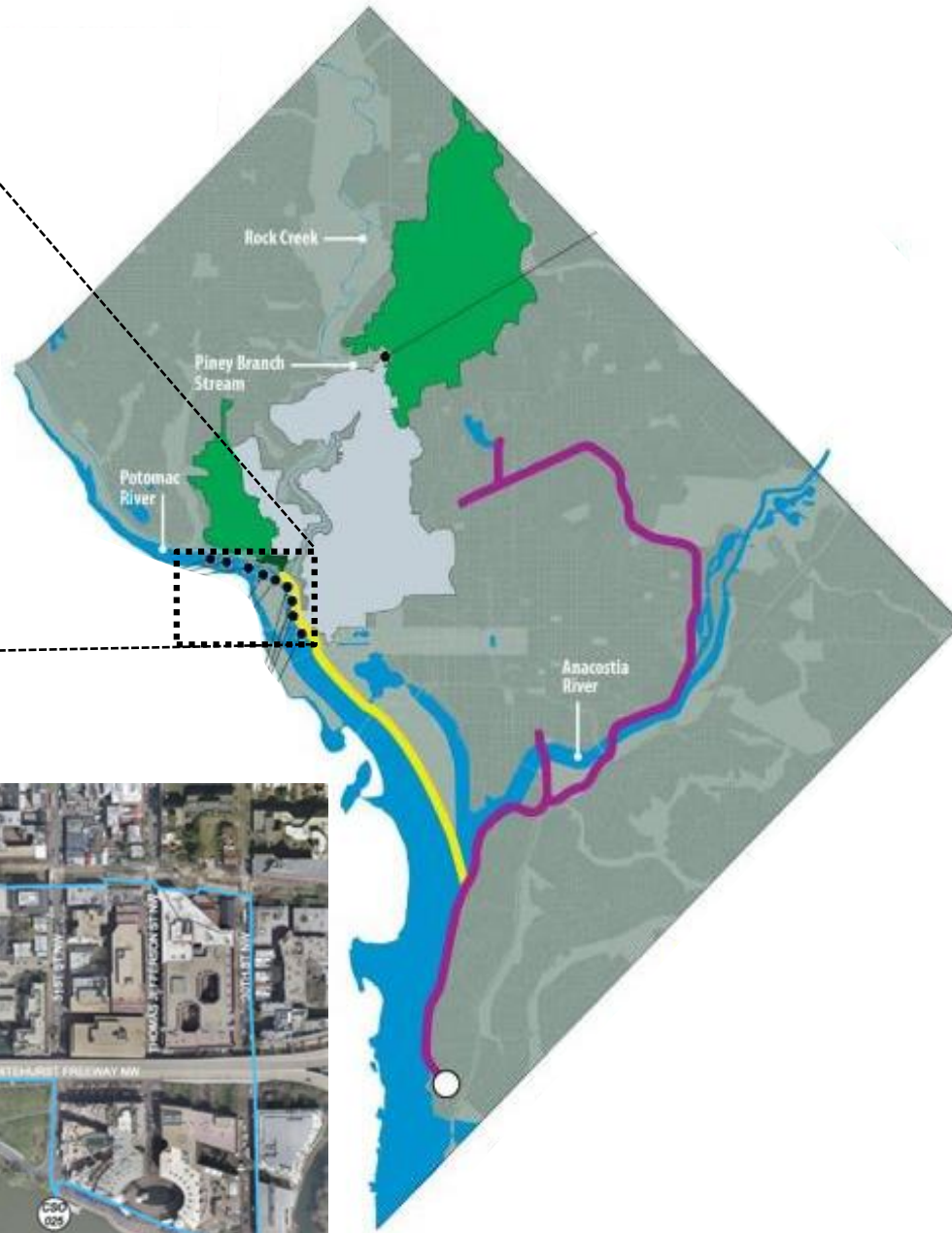
Potomac River Tunnel Facility Plan and Environmental Assessment



- Environmental Assessment public comment period closed 12/4/2018. DC Water is working on FONSI and Programmatic Agreement
- EPA approved Facility Plan

Schedule	
Facility Planning/ Environmental Approvals:	2015-2018
Preliminary Design:	2019-2022
Procurement:	2022-2023
Final Design/Construction:	2023-2030

CSO 025/026 Sewer Separation Project



Consent Decree Schedule

AWARD FOR DETAILED DESIGN:
MARCH 23, 2019
(Completed November 2018)

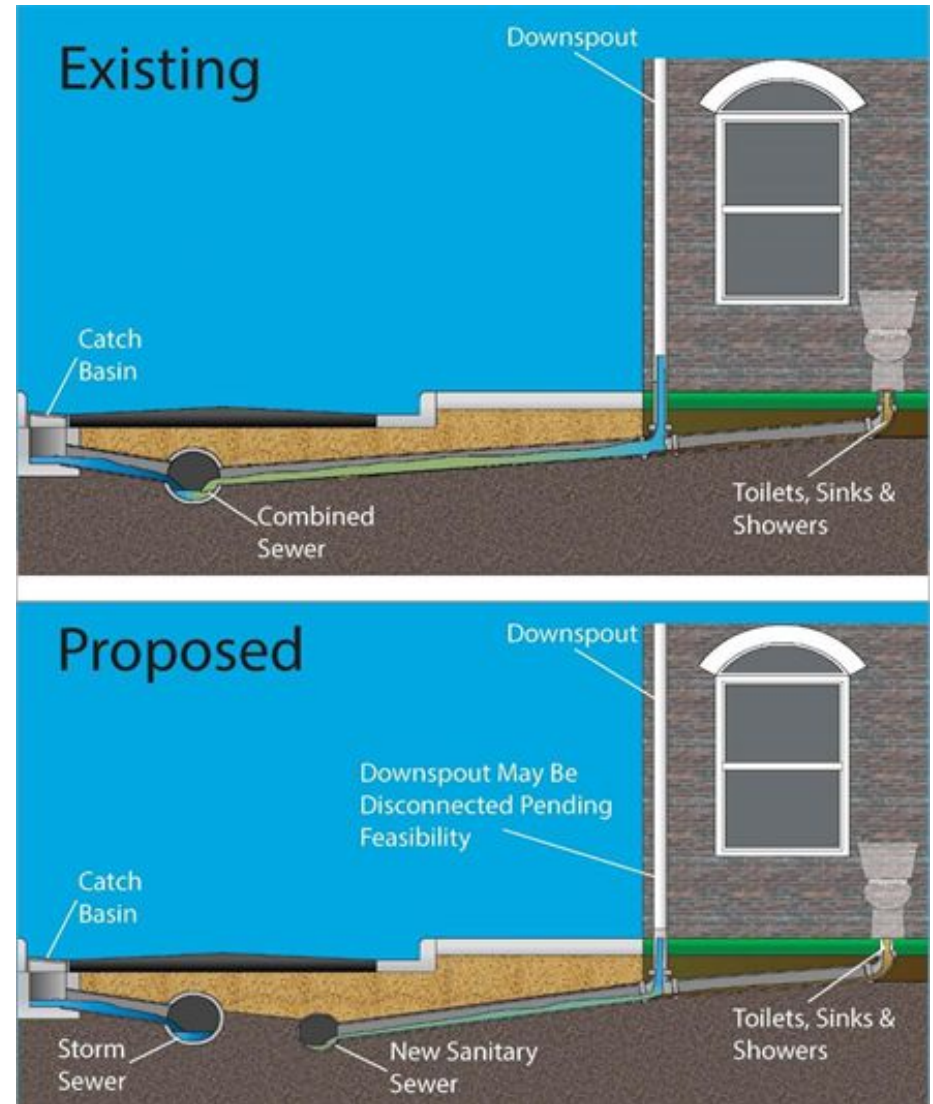
AWARD FOR CONSTRUCTION:
MARCH 23, 2021

PLACE IN OPERATION:
MARCH 23, 2023

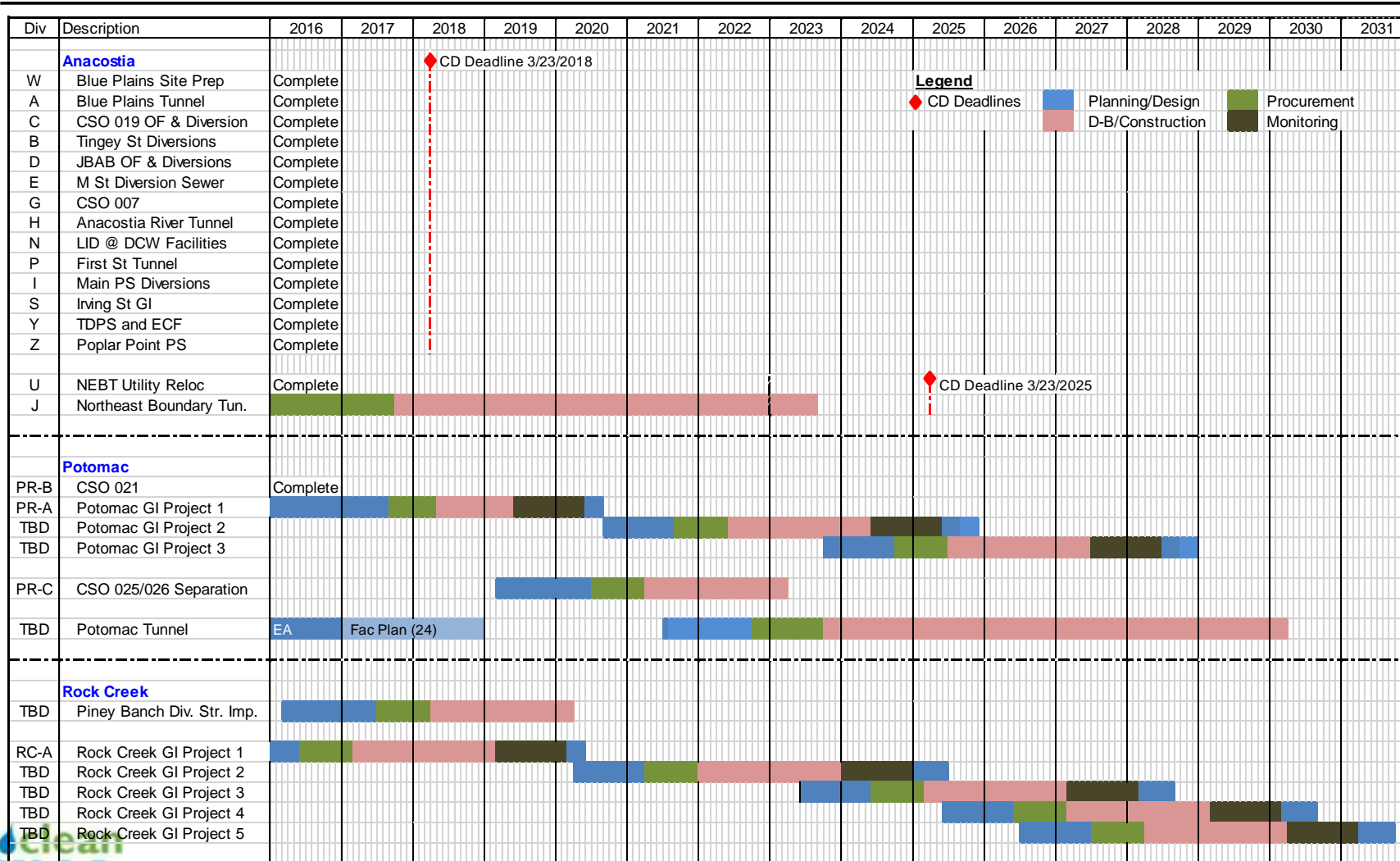


CSO 025/026 Sewer Separation Project

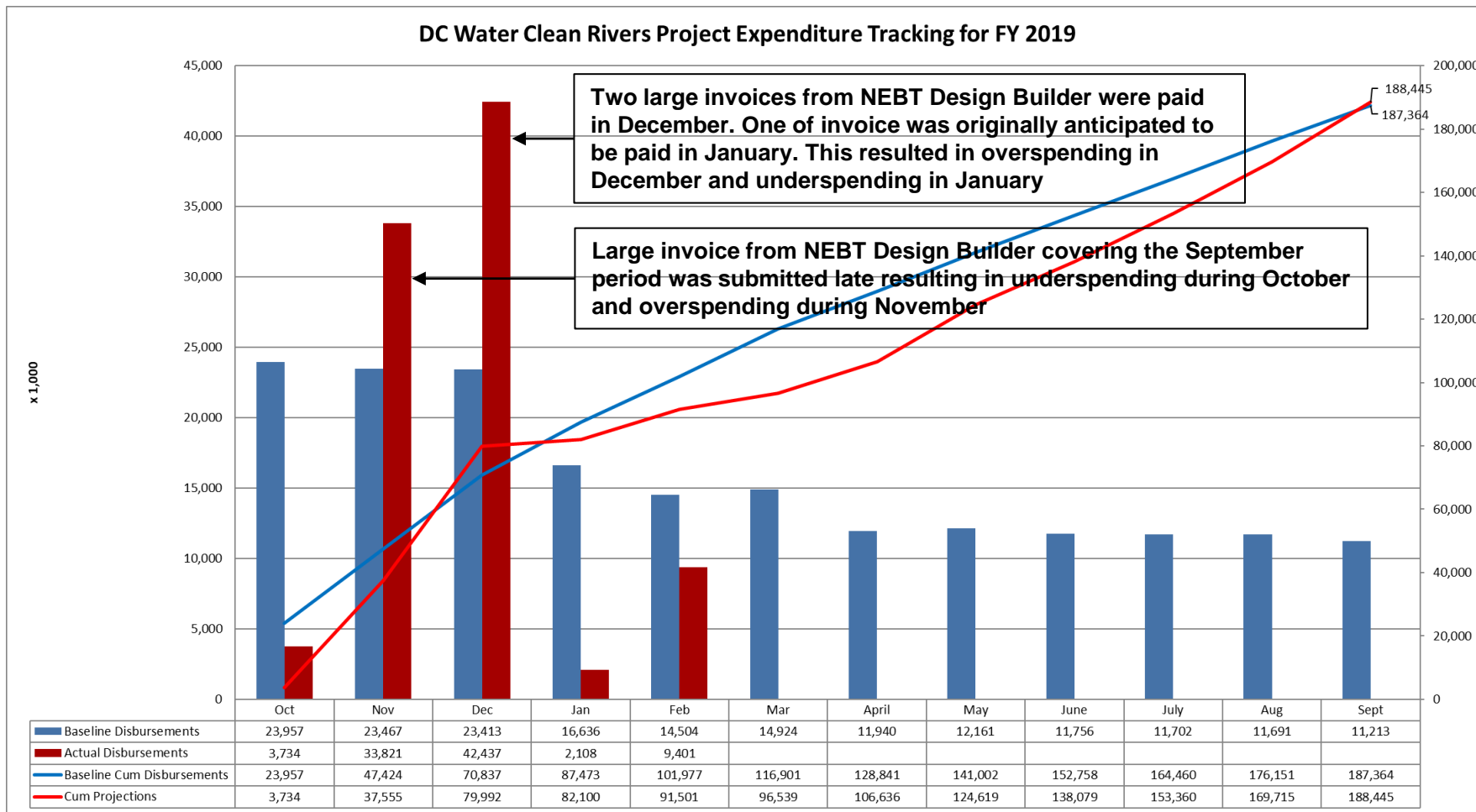
- Presented outreach approach for the project to DC Water's Environmental Quality and Operation Committee (February 21, 2019)
- Performed initial meeting with ANC 2E Chair Mr. Rick Murphy and Vice-Chair Ms. Lisa Palmer to discuss project and proposed investigations (March 5, 2019)
- Performed initial meeting with Georgetown BID to discuss project and proposed investigations (March 7, 2019)
- Commenced utility survey and investigation (March)
- Ongoing coordination with DDOT on 31st St Bridge Replacement Project
- Attend DDOT utility coordination meetings



DC Clean Rivers Schedule

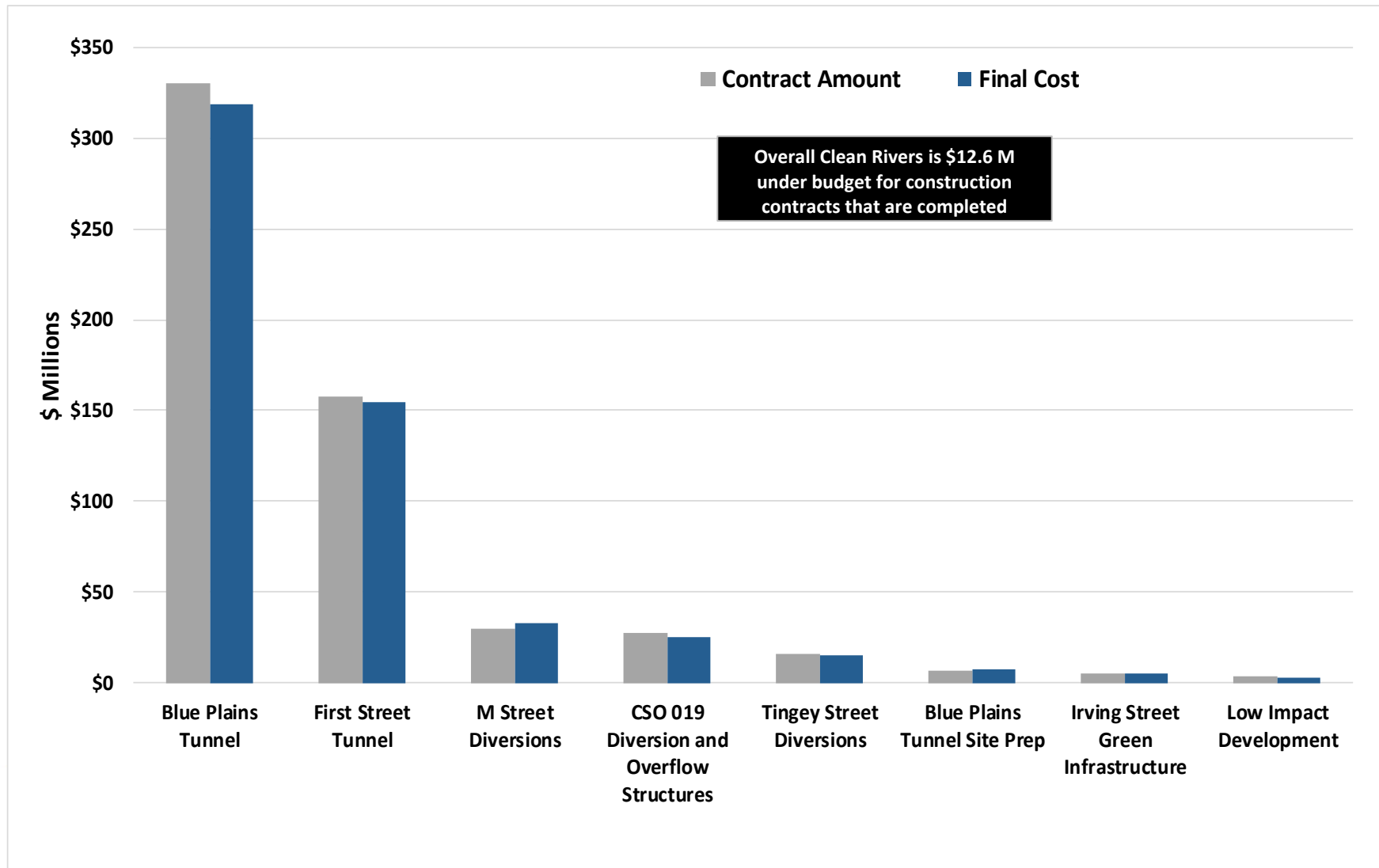


FY2019 Spending Status

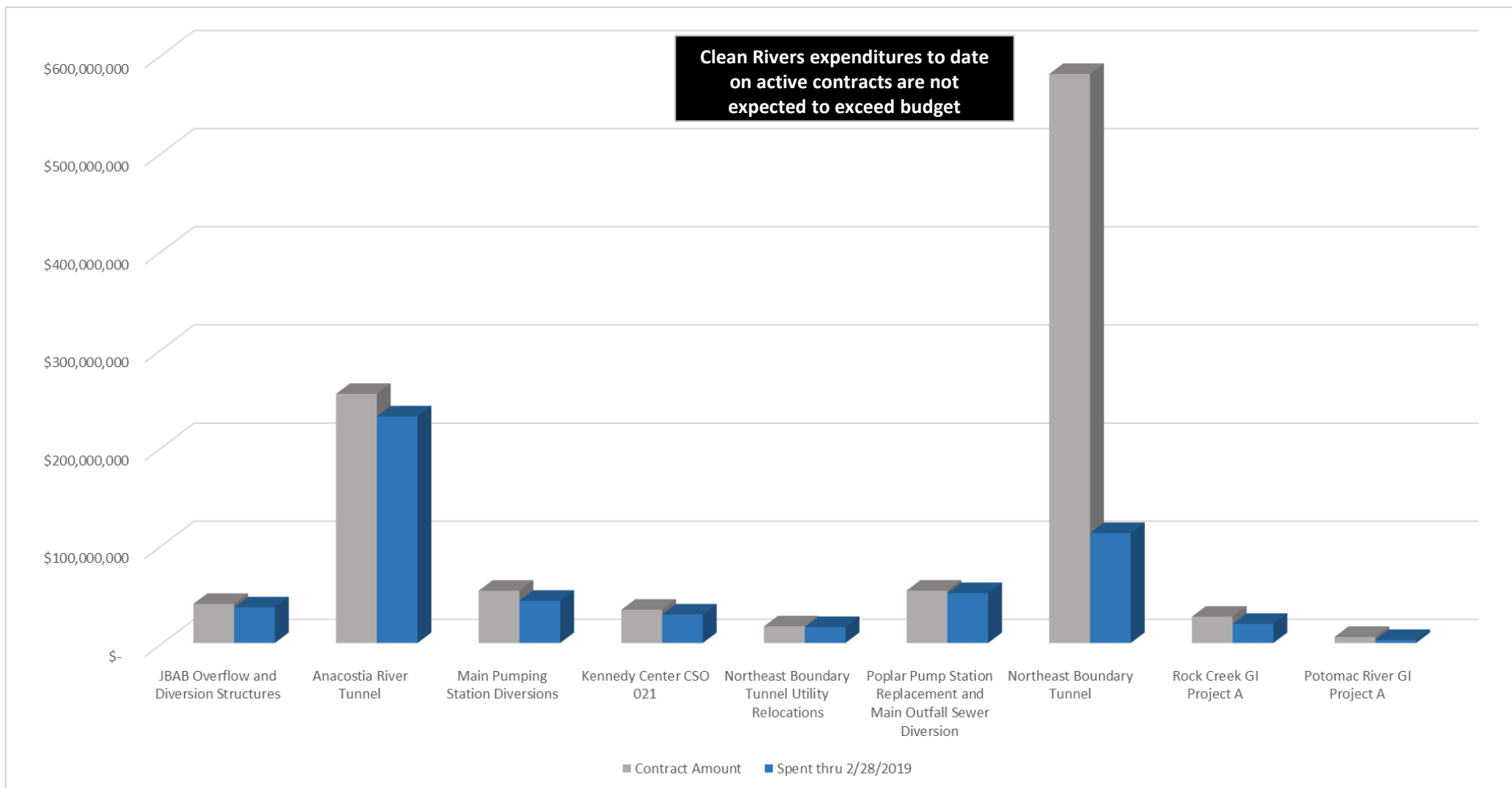


Clean Rivers expects to meet its FY2019 spending goal

Clean Rivers Budget for Completed Contracts

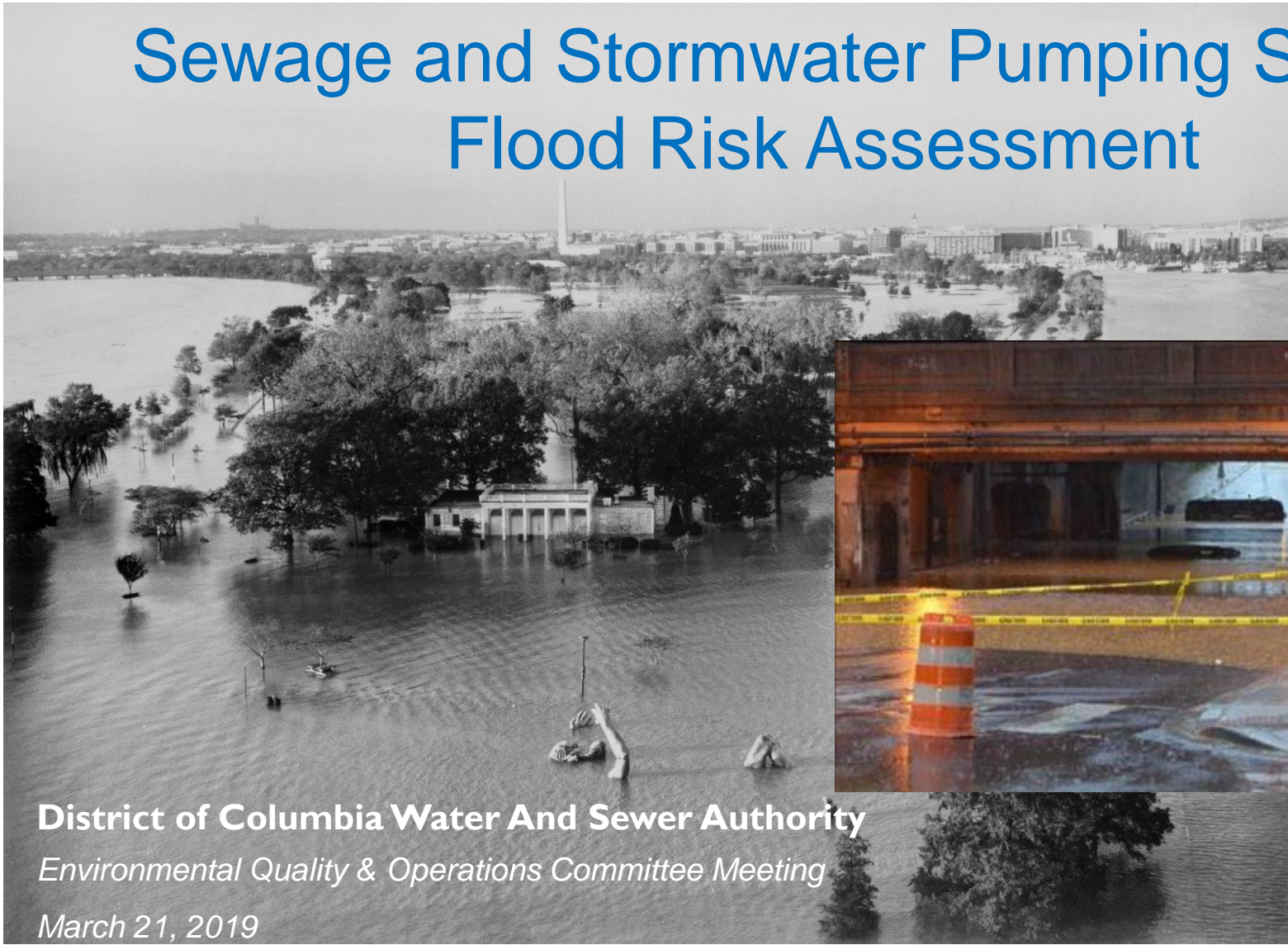


Clean Rivers Budget for Active Contracts





Sewage and Stormwater Pumping Stations Flood Risk Assessment



District of Columbia Water And Sewer Authority
Environmental Quality & Operations Committee Meeting
March 21, 2019





Agenda

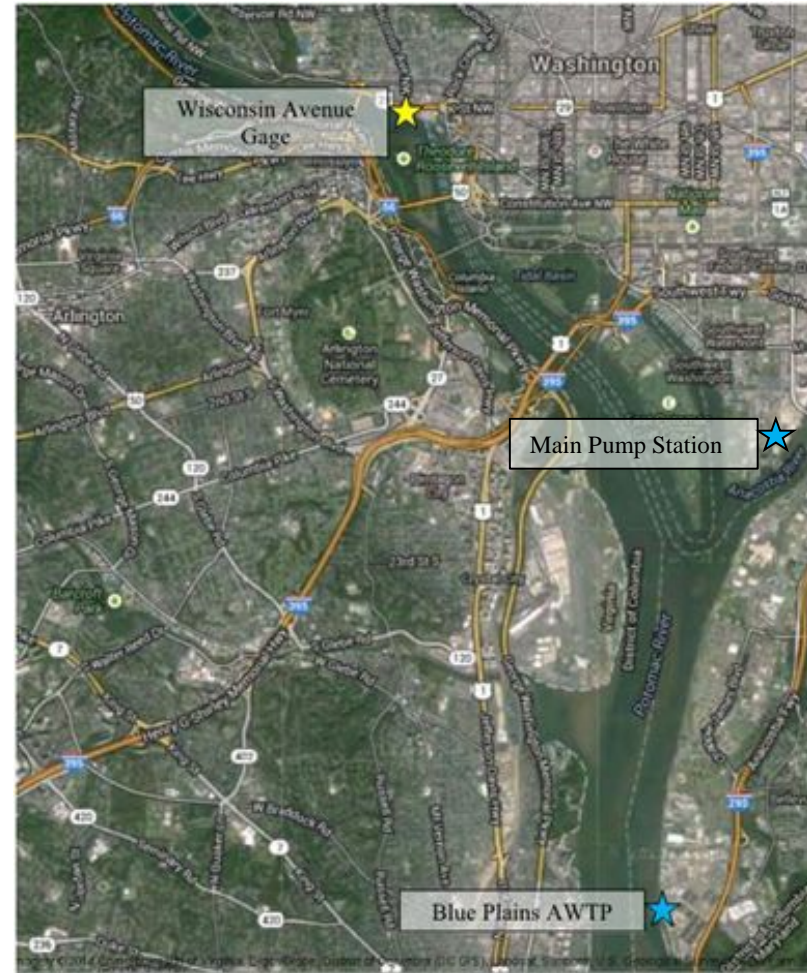
- Flood Risk Identification
- Pumping Station Risk Categorization
- DC Water Emergency Action Plan
- Pumping Station Risk Abatement Measures
- FEMA Grants
- Summary/Conclusions



Flood Risk Identification

- Flood stages may be predicted based on hydraulic modeling relative to level at the Wisconsin Avenue Gage¹
- DC Water provides response actions based on Gage levels

¹USGS GAGE 01647600
POTOMAC RIVER AT WISCONSIN AVE





Flood Risk Elevations

RECORD FLOODS AT WASHINGTON DC

Source: USACE Flood Emergency Manual for Washington, DC and Vicinity
 (Mean low water (MLW) datum is 2.26' higher than NAVD88)

Date	Flow (cfs)	Max Stage at Wisconsin Ave. Gage	
		(ft, MLW)	(ft, NAVD88)
Oct 1942	446,000	17.7	15.4
Mar 1936	484,000	17.3	15.0
June 1889	unknown	16.9	14.6
Jun 1972	359,000	15.4	13.1
Apr 1937	347,000	14.3	12.0
Nov 1877	325,000	14.1	11.8
Feb 1881	275,000	13.6	11.3
Jan 1996	347,000	13.9	11.6
Sep 1996	314,000	13.8	11.5
May 1924	295,000	12.8	10.5
Nov 1985	317,000	11.8	9.5
Sep 2003	176,000	11.3	9.0
Aug 1955	216,000	8.5	6.2



Flood Risk Elevations

FEMA Flood Levels (2010 Flood Insurance Study and Mapping) (Mean low water (MLW) datum is 2.26' higher than NAVD88)

Location	100-yr Elevation ¹ (FEMA BFE) ²	500-Yr Elevation ¹
Wisconsin Ave Gage	15.3	20.0
Confluence with Anacostia River	10.6	14.0
Blue Plains AWWTP	9.8	13.0

¹FEMA flood elevations are set to the North American Vertical Datum of 1988 (NAVD88)

²BFE is Base Flood Elevation, FEMA's designation for the 100-year flood



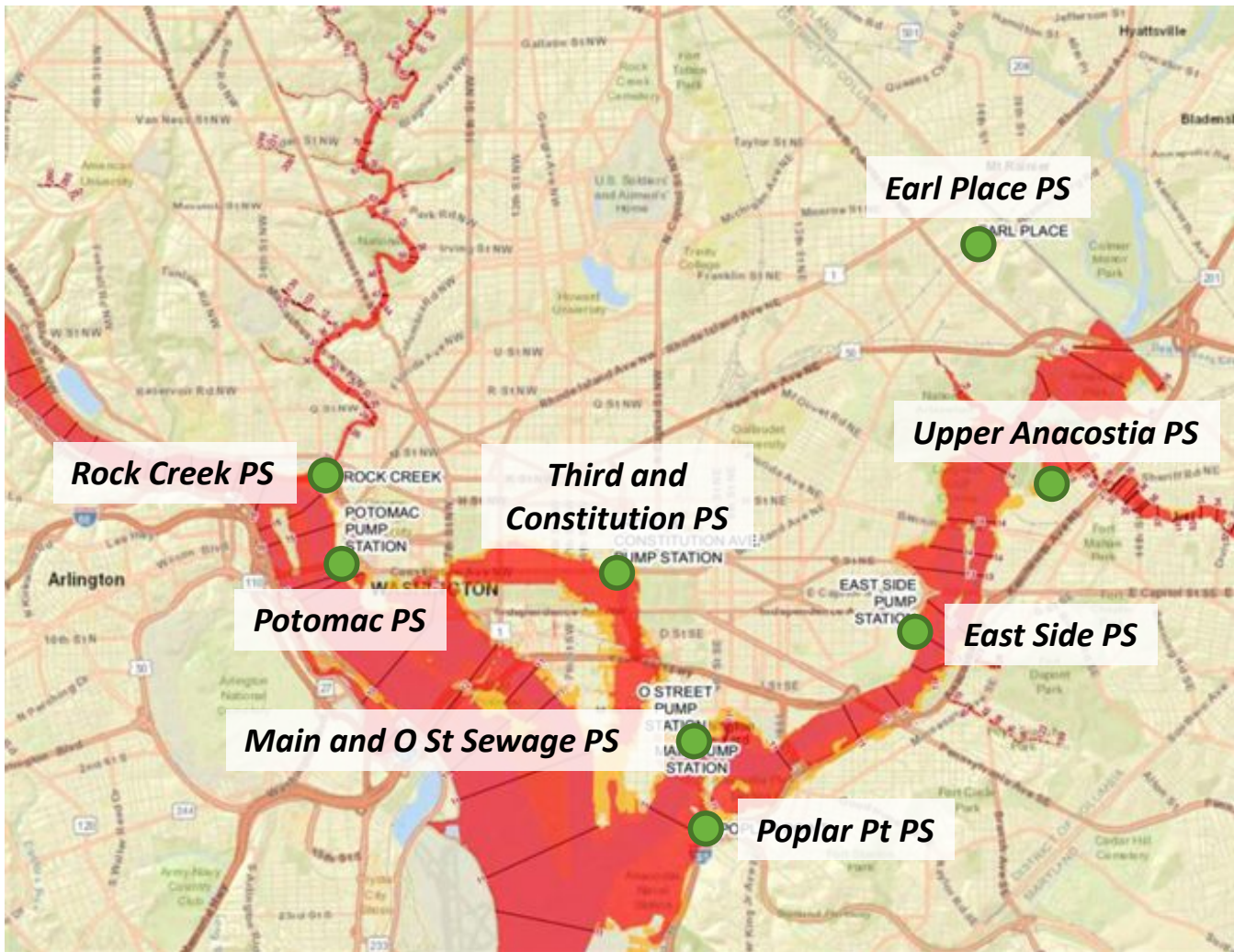
SEWAGE PUMPING STATIONS


Flood Risk Maps



Sewage Pumping Stations

FEMA Flood Risks



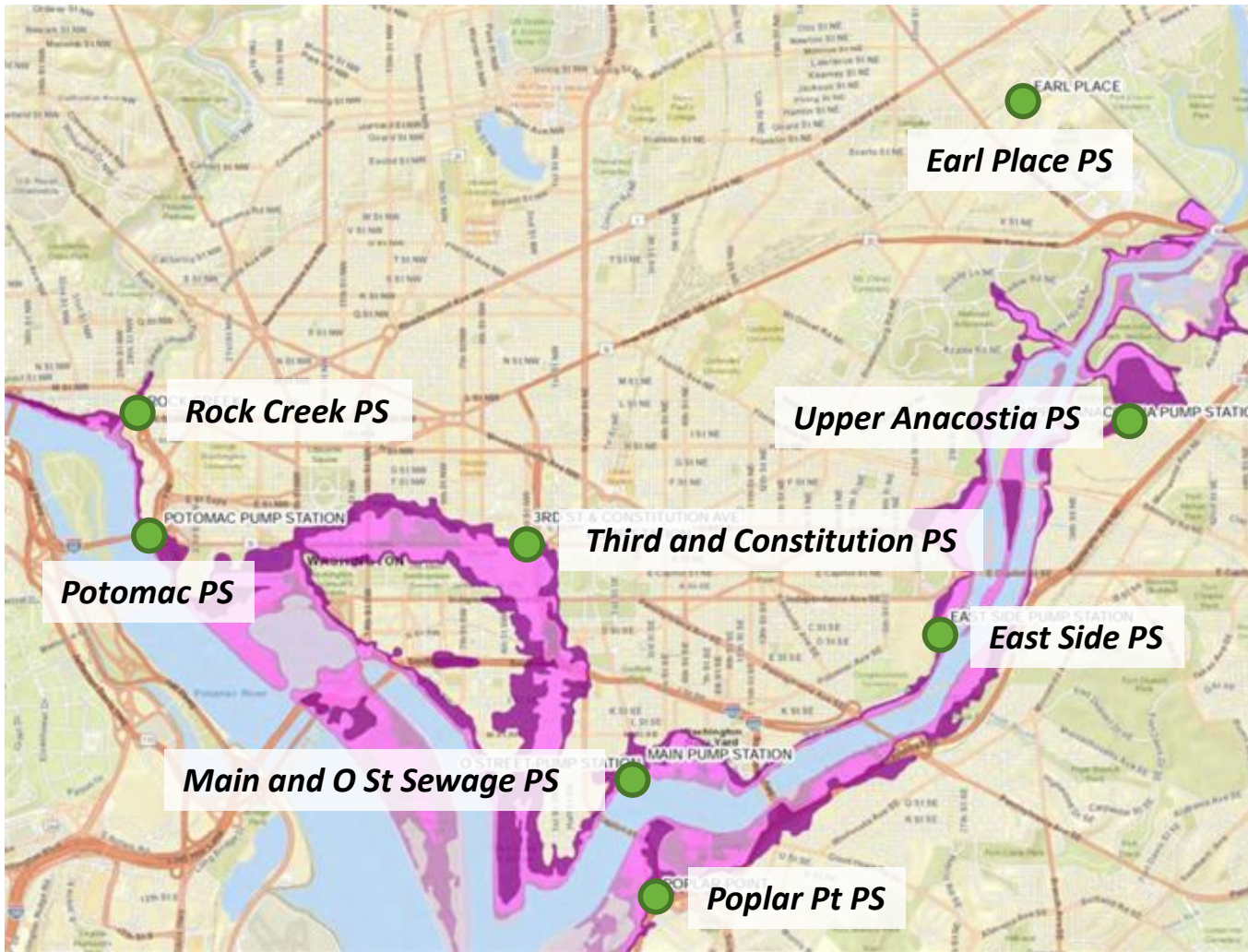
-  **HIGH RISK**
(1% annual chance, or 100-year floodplain)
-  **MODERATE RISK**
(0.2% annual chance, or 500-year floodplain)

Source: FEMA Map Center Service Center (<http://msc.fema.gov/portal>), accessed 9/17.



Sewage Pumping Stations

NOAA Modeled Hurricane Surge



STORM SURGE RISK

- CATEGORY 1 HURRICANE
- CATEGORY 2 HURRICANE
- CATEGORY 3 HURRICANE
- CATEGORY 4 HURRICANE

Note:

This map does not reflect the expected storm tide flooding for every hurricane, or for any one particular type of hurricane. This map shows the overall footprint of the area that has some risk of storm tide flooding from hurricanes. The purpose of this data is to support hurricane emergency management planning activities. For more information, please visit <http://www.nhc.noaa.gov/surge/slosh.php>



Sewage Pumping Stations

Pump Station Flood Risk Elevations

Facility	Site Elevation (feet, NAVD 88)	FEMA BFE (feet, NAVD 88)	BFE	BFE + 3-foot Sea Level Rise
			Vulnerable to Flooding?	
East Side	13.0	13.0	Yes	Yes
Main	10.4	11.0	Yes	Yes
3rd and Constitution	12.8	11.0	No	Yes
Potomac	14.7	14.0	No	Yes
Poplar Point	25.0	11.0	No	No
O Street	14.9	11.0	No	No
Upper Anacostia	16.0	15.0	No	Yes
Earl Place	87.5	15.0	No	No
Rock Creek	19.8	15.0	No	No

FEMA flood elevations are set to the North American Vertical Datum of 1988 (NAVD88)

BFE is Base Flood Elevation, FEMA’s designation for the 100-year flood



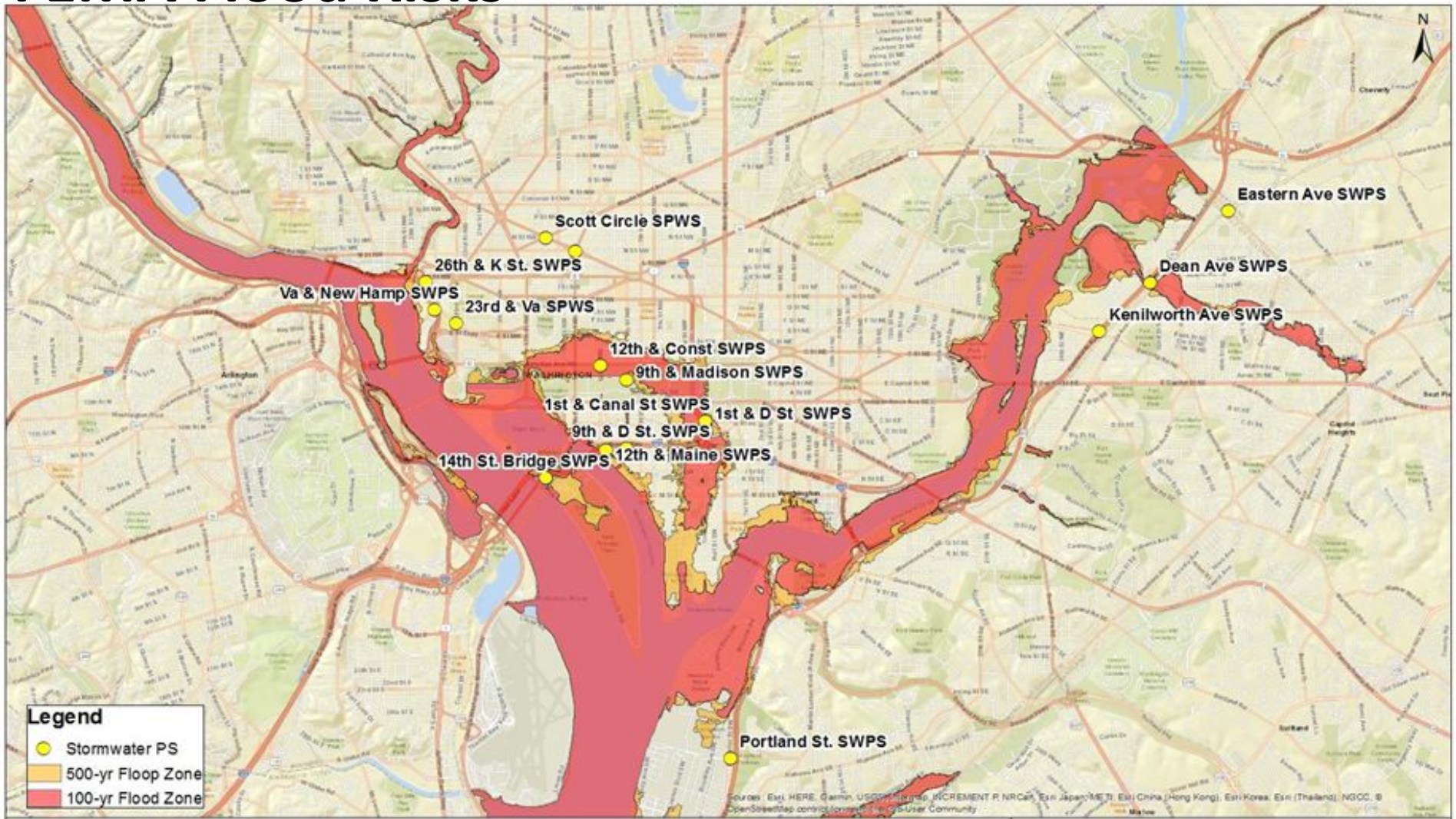
STORMWATER PUMPING STATIONS

Flood Risk Maps



Stormwater Pumping Stations

FEMA Flood Risks

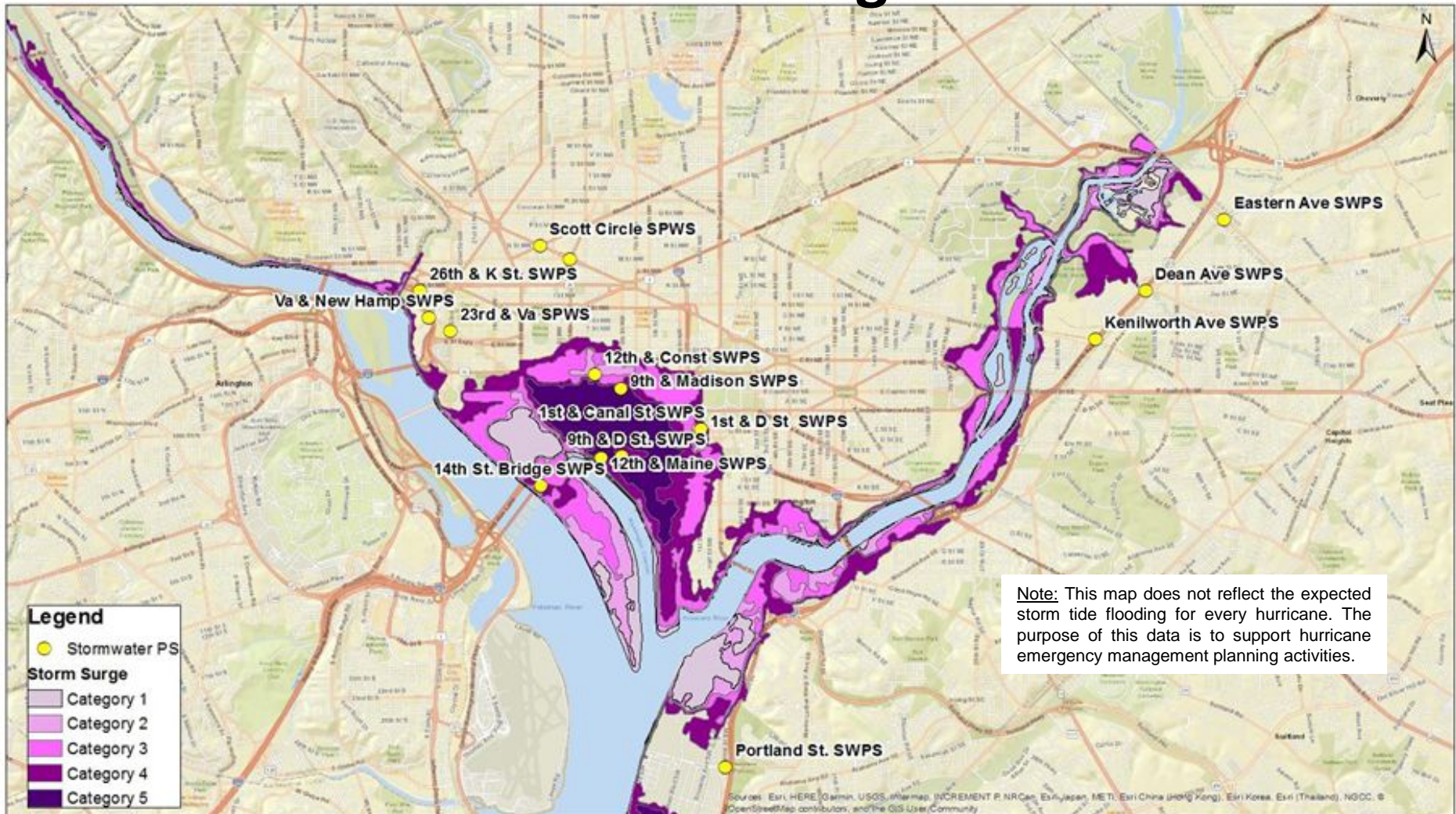


Source: FEMA Map Center Service Center
[://msc.fema.gov/portal](https://msc.fema.gov/portal)), accessed 9/17.



Stormwater Pumping Stations

NOAA Modeled Hurricane Surge



Source: NOAA Sea, Lake, and Overland Surges from Hurricanes (SLOSH) <http://www.nhc.noaa.gov/surge/slosh.php>, accessed 9/17.



Stormwater Pumping Stations

Pump Station Flood Risk Elevations

Facility	Site Elevation (feet, NAVD 88)	FEMA BFE (feet, NAVD 88)	BFE	BFE + 3-foot Sea Level Rise
			Vulnerable to Flooding?	
1st & Canal Street, SW	11	11	Yes	Yes
Portland Street, SE	30	10	No	No
9th and D Street, SW	8	11	Yes	Yes
1st & D Street, SW	11	11	Yes	Yes
Scott Circle, NW	54	15	No	No
Thomas Circle, NW	62	15	No	No
14th Street Bridge, SW	14	11	No	Yes
Deane Avenue, NE	22	29	Yes	Yes

FEMA flood elevations are set to the North American Vertical Datum of 1988 (NAVD88)

BFE is Base Flood Elevation, FEMA’s designation for the 100-year flood



Stormwater Pumping Stations

Pump Station Flood Risk Elevations

Facility	Site Elevation (feet, NAVD 88)	FEMA BFE (feet, NAVD 88)	BFE	BFE + 3-foot Sea Level Rise
			Vulnerable to Flooding?	
Kenilworth Ave, NE	26	14	No	No
12th Street & Maine Avenue, SW	16	11	No	No
23rd Street & Virginia Avenue, NW	46	15	No	No
Virginia & New Hampshire Ave, NW	40	15	No	No
26th & K Street, NW	35	15	No	No
9th & Madison Drive, NW	18	13	No	No
Eastern Avenue, NW	26	16	No	No
12th Street & Constitution Ave, NW	12	13	Yes	Yes

FEMA flood elevations are set to the North American Vertical Datum of 1988 (NAVD88)

BFE is Base Flood Elevation, FEMA’s designation for the 100-year flood



GREELEY AND HANSEN

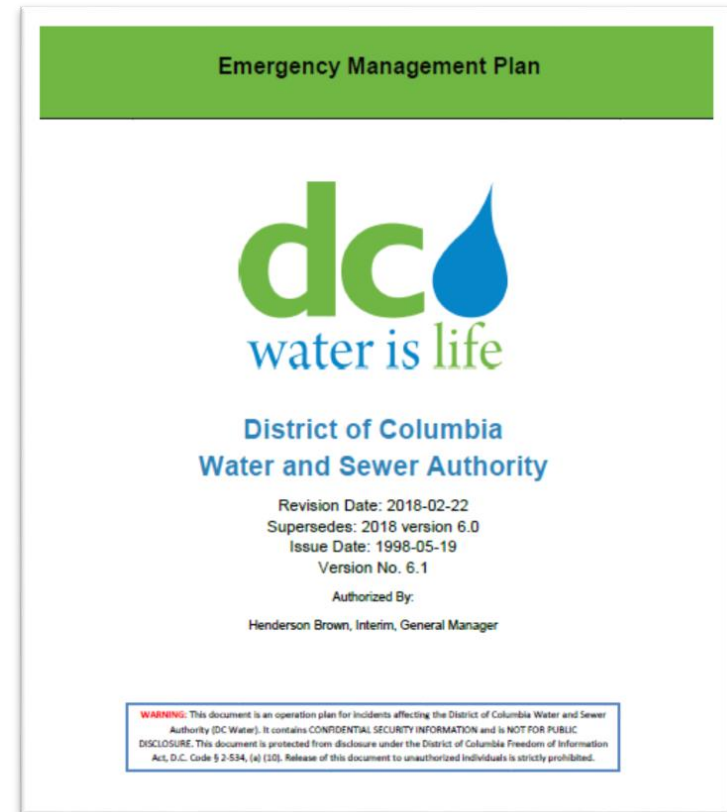




DC WATER EMERGENCY MANAGEMENT PLAN

DC Water Emergency Management Plan

- Documentation maintained on DC Water Sharepoint site
- 2.4 Severe Weather Planning and Readiness
- 2.5 Flood Management Plan
- Section 5 Incident Specific Procedures (includes Severe Weather and Floods)
- Appendix K – District and Regional Emergency Response Plans





Emergency Management Plan

Partial excerpt of DC Water Actions per USACE Flood Emergency Manual for Washington, D.C. and Vicinity

Predicted Stage at Wisconsin Ave. Gage Min - Max (ft, MLW)	Location	Action
7.00 – 11.00	Main Pumping Station	Confirm Str 14, 15, 15a, and 16 inflatable dams are operational.
7.00 – 11.00	23 rd Street, North of Constitution, NW	Confirm Str 34 inflatable dam is operational. If dam is not operational, then inspect Easby Point trunk sewer outlet tide gate and install stop planks in slots located between tide gate and outfall to river.
7.00 – 11.00	Kennedy Center Lot	Confirm Str 35 inflatable dam is operational.
7.00 – 11.00	W Street and Railroad Avenue, SE	Confirm tide gate is functioning at CSO 005. If not, block diversion at Str 7 to prevent river intrusion to Anacostia Main Interceptor.
7.00 – 11.00	Good Hope Road, West of Nichols Avenue, SE	Confirm tide gate is functioning at CSO 006. If not, block diversion at Str 8 to prevent river intrusion to Anacostia Main Interceptor.
7.00 – 11.00	31 st and K Streets, NW	Confirm tide gate is functioning at CSO 025. If not, block diversion at Str 41b and 41c to prevent river intrusion to Upper Potomac Interceptor Relief Sewer.
7.00 – 11.00	Hayes Street and Anacostia Avenue, NE	Confirm tide gate is functioning at NPDES 061. If not, block overflow pipe at Str 1A to prevent river intrusion to Upper Anacostia Pumping Station.
7.00 – 11.00	Rock Creek, Poplar Point, East Side and Upper Anacostia Pumping Stations	Dispatch operator to monitor unmanned stations.



Emergency Management Plan

Partial excerpt of DC Water Actions per USACE Flood Emergency Manual for Washington, D.C. and Vicinity

Predicted Stage at Wisconsin Ave. Gage Min - Max (ft, MLW)	Location	Action
13.00 – 18.00	First Street Yard, SE (Main and O Pumping Station Site)	Move equipment to higher ground and anchor floatable equipment.
13.00 – 18.00	Potomac Sewage Pumping Station	Sandbag doorways and openings.
18.00	26th and D Streets	Install stop planks in the B Street and New Jersey Avenue interceptor.
18.00	Kennedy Center Garage (formerly 26th and D Streets)	Lower slide gate #1 at Str 35a to prevent Potomac River water from being transferred to low-lying areas along Constitution Ave via B St/New Jersey Avenue Sewer.
18.00	Main Pumping Station	Place stop planks in north wing of station and sandbag two hatchways in lawn on north side of station. Monitor and report any unusual leakage in Main Station basement.
18.00	First Street Yard, SE (Main and O Pumping Station Site)	Remove all automotive equipment from garage and First Street yard moving items to public streets and/or procured storage area.
18.00	30th, South of K Streets, NW	Remove stop planks between West Side Diversion and the Upper Potomac Interceptor Relief Sewer at structure 38a.
19.00	Lincoln Memorial Reflecting Pool	Close storm drains and Easby Point sewer automatic cutoff as shown on National Park Service Drawing NCP 76-476 (Figure 12).



Emergency Management Plan

Severe Weather Generator Locations

The following are the sewer and storm stations where DC Water uses portable generators.

Location	Address
Deane Ave.	981 Kenilworth Ave. NE Washington, DC 20019
Upper Anacostia	708 Anacostia Drive SE Washington, DC 20019
Eastern Ave.	501 Eastern Ave. NE Washington, DC 20019
Earl Place	3000 Earl Place NE Washington, DC
Rock Creek	2700 Block of K St. cross street 27 th St. NW
Virginia & New Hampshire	700 Block of 25 th St. cross street Virginia Ave. NW
26 th & K	940 26 th St. NW Washington, DC 20037
Scott Circle	1200 Block 16 th St. cross street M St. NW
Thomas Circle	1400 Block Massachusetts Ave. cross street 15 th St. NW
9 th & Madison	700 Block of Madison St. cross street 9 th St. NW
Virginia Ave.	2400 Block of Virginia Ave. cross street 23 rd St. NW



PUMPING STATION RISK ABATEMENT MEASURES

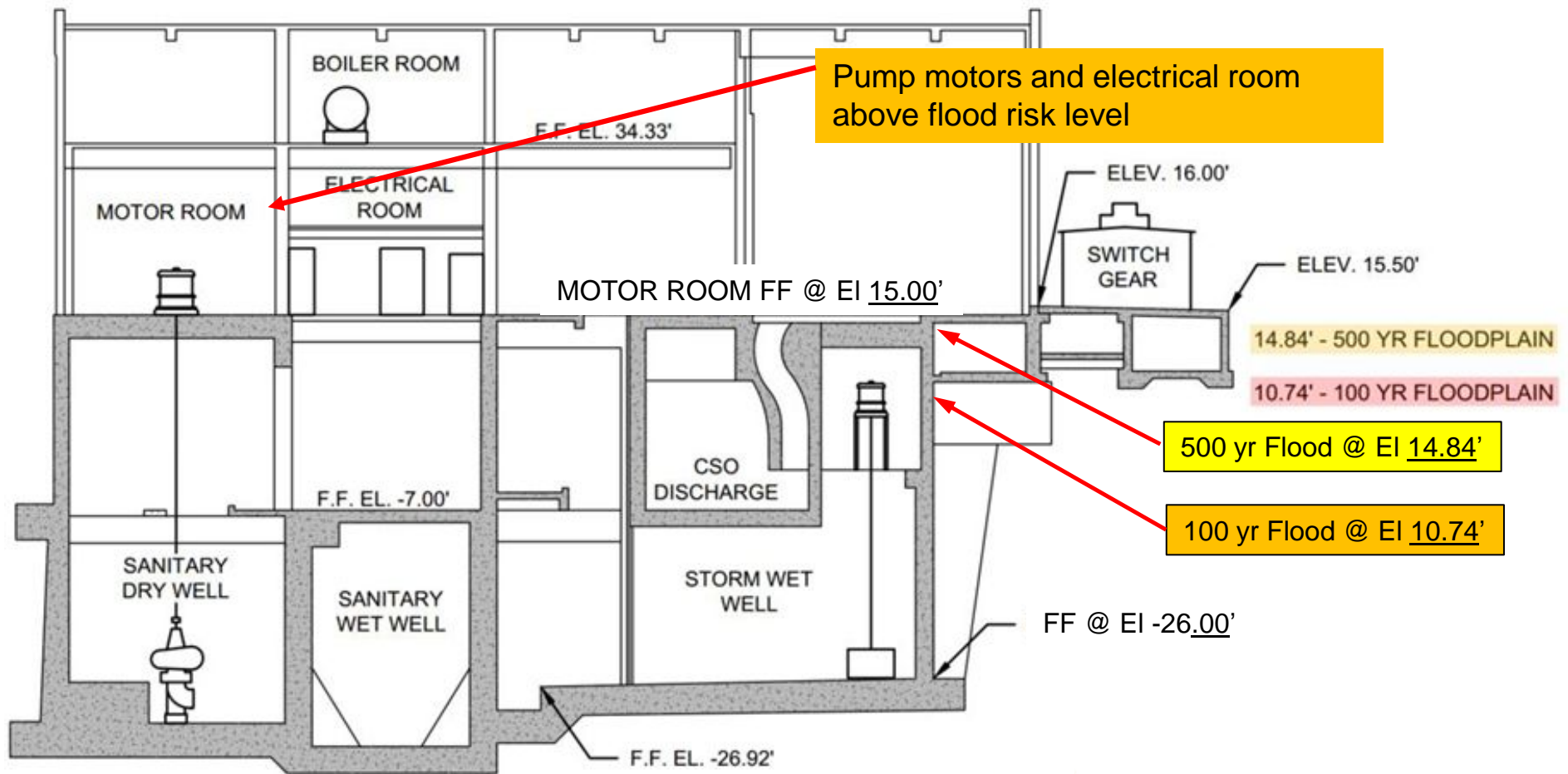


Pumping Station Risk Abatement Measures

- Pumps have extended shafts with motor at higher level or submersible pumps
- Some stations have overflow relief options to CSO discharges (inflatable dams) or to CSO tunnels to Blue Plains
- Emergency Action Plans are in place
 - Stage emergency generators or pumps at vulnerable sites
 - Plans for installing stop logs, sand bags, etc.



Pumping Station Risk Abatement Measures



O Street Sewage PS



Pumping Station Risk Abatement Measures



Submersible Pumps installed in pump dry well to allow continued operation if pump room is flooded

East Side Sewage PS



Pumping Station Risk Abatement Measures

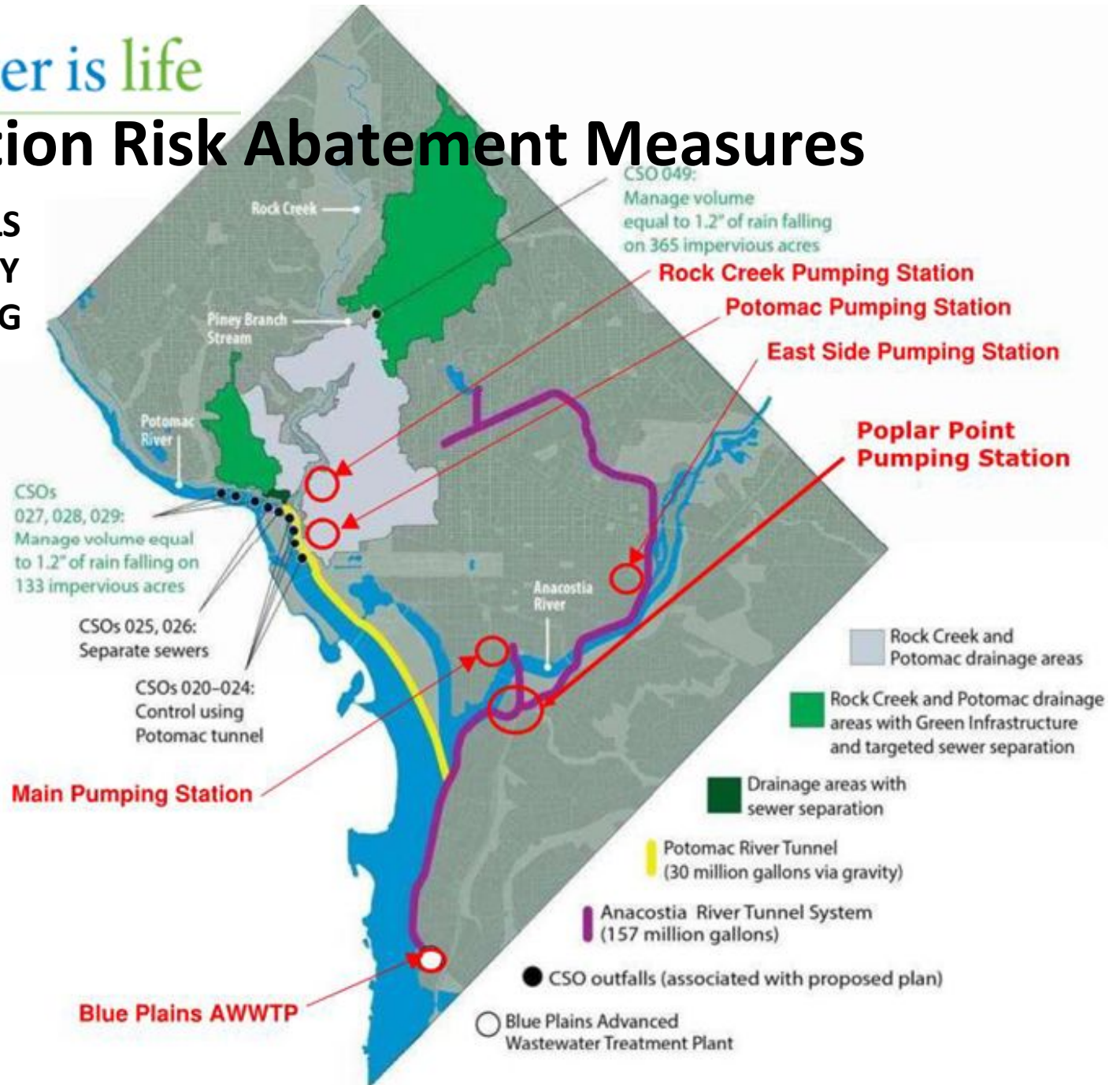
Clean Rivers Tunnels Provide Redundancy for Critical Pumping Stations and Force Mains

Facility	Redundancy Provided by Clean Rivers Tunnel?	Dry Weather Flow (MGD)	Tunnel Volume (Anacostia + Potomac) (MG)	Hours of Tunnel Storage Assuming No Pumpage at Blue Plains
Blue Plains WWTP	Yes - Anacostia Tunnel in 2018	280	242	20 hrs
Main PS		50	242	4.8 days
Poplar Point PS		15	242	16 days
Eastside PS		5	242	48 days
O Street PS	No	5	-	-
Potomac PS	Yes – Future Potomac Tunnel in 2030	130	242	1.8 days
Rock Creek PS		8	242	30 days
Upper Anacostia	No			
Earl Place	No			



Pumping Station Risk Abatement Measures

**CLEAN RIVERS TUNNELS
PROVIDE REDUNDANCY
FOR CRITICAL PUMPING
STATIONS AND FORCE
MAINS**





FEMA GRANTS FOR FLOOD PROTECTION MEASURES

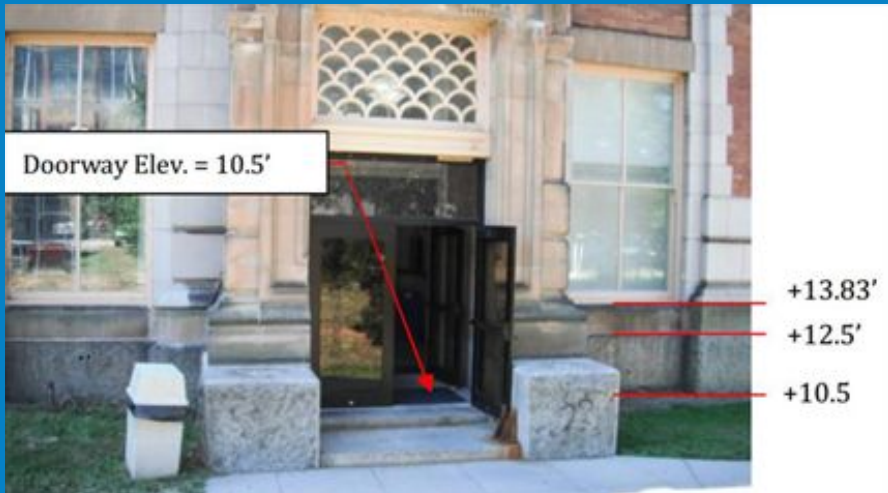


FEMA Grants for Flood Protection

- FEMA grants applied for and granted for Flood Protection Measures
 - Blue Plains AWWTP Floodwall – Underway
 - \$2.4M Federal share, 75% funding
 - Main PS Flood Mitigation – Underway
 - \$1.3M Federal share, 75% funding
 - 14th Street Bridge Stormwater PS Rehabilitation – Underway
 - \$1.2M Federal share, 75% funding
 - 12th & Maine Stormwater PS Rehabilitation – Award Pending
 - SCADA Implementation at Stormwater Pumping Stations – Award Pending



FEMA Grant Funding for Main PS Flood Mitigation



Main Pumping Station, Front Entrance

Project budget: \$1,598,569
Grant support: 75%
Completion date: 09/30/2019

FEMA Grant, subaward from DC HSEMA
PDMCPJ-03-DC-2014-002

Flood Mitigation to Elev. +13.8 ft.
(i.e.. above FEMA 100-year event; ~equiv. to Cat 2 Hurricane surge)

Scope of Grant

- Interior watertight doors
- Disconnect floor drains
- Link sealing of conduits
- Exterior doorway protection
- Modification of elevator shaft
- Parging of ventilation shaft
- Modifications to inflatable dam structures
- Exterior equipment protection



Summary/Conclusions

- Sewage and Stormwater Pumping Stations are located in flood prone areas – by design!
- Facilities are engineered and constructed with flood mitigation measures
- Emergency Management Plans are in place to respond to flood events and address risks of failures or inundation
- The DC Water system has built in provisions for diverting flows to CSO tunnels and discharges
- Measures are being implemented including grant funding from FEMA (through HSEMA) to further mitigate flood risks



- Questions?