



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

*Meeting of the
Environmental Quality and Operations Committee*

*5000 Overlook Avenue, SW, Room 407
Thursday, October 18, 2018
9:30 a.m.*

- | | | |
|-------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | I. Call to Order | James Patteson
Chairperson |
| 9:30 a.m. | II. AWTP Status Update | Aklile Tesfaye |
| | 1. BPAWTP Performance | |
| 9:40 a.m. | III. Action Items | John Bosley |
| | <i>Joint Use</i> | |
| | 1. Contract No. 18-PR-DMS-49 – M. C. Dean, Inc., Annual Maintenance and Repair of Electrical Power Distribution Equipment | |
| | 2. Contract No. 16-PR-HCM-44AC – MB Staffing Services, LLC, Temporary Staffing Services | |
| | <i>Non-Joint Use</i> | |
| | 3. None | |
| 9:50 a.m. | IV. Capital Improvement Program (CIP) Recommendation | Leonard Benson and Matt Brown |
| 10:35 a.m. | V. CIP Quarterly Report (By Exception) | Paul Guttridge |
| 10:40 a.m. | VI. Clean Rivers Quarterly Report (By Exception) | Carlton Ray |
| 10:45 a.m. | VII. Water Quality Monitoring (By Exception) | Maureen Schmelling |
| | 1. Coliform Testing | |
| | 2. LCR Compliance Testing | |
| 10:50 a.m. | VIII. Fire Hydrant Upgrade Program (By Exception) | Jason Hughes |
| | 1. Status Report of Public Fire Hydrants | |
| | 2. Out of Service Fire Hydrant Map | |

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

11:00 a.m. X. Adjournment

James Patteson
Chairperson

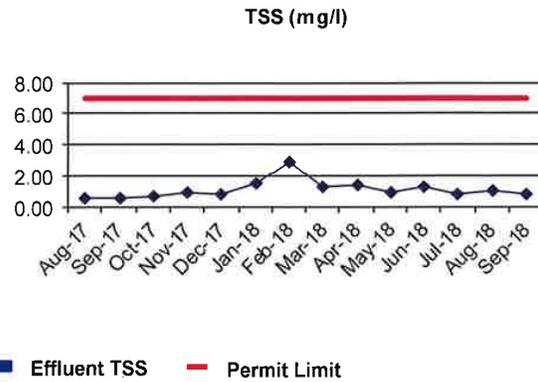
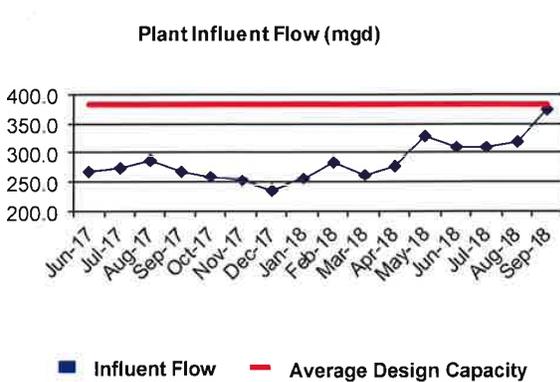
* The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss: matters prohibited from public disclosure pursuant to 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: February 2019 EQ&Ops Cmte Mtg**]
2. Chief Engineer, DC Water: Provide a presentation on the prioritization criteria for selection of water mains to be replaced each year [**Target: November 2018 EQ&Ops Cmte Mtg**]
3. Director, DETS: Provide additional detail regarding specific impacts to sewage pumping stations for both the 100-year and 500-year flood scenarios. [**Target: January 2019 EQ&Ops Cmte Mtg**]
4. Director, Clean Water & Technology: Reschedule presentation on Blue Plains Research & Development Overview and Update for EQ&Ops Committee meeting. [**Target: December 2018 EQ&Ops Cmte Mtg**]
5. Chief Engineer, DC Water: Brief the Committee in detail concerning the risk assessment tool, specifically concerning the criteria and scoring used for both likelihood of failure (LOF) and consequence of failure (COF). [**Target: November 2018 EQ&Ops Cmte Mtg**]
6. AGM CC&O, 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: November 2018 EQ&Ops Cmte Mtg**]

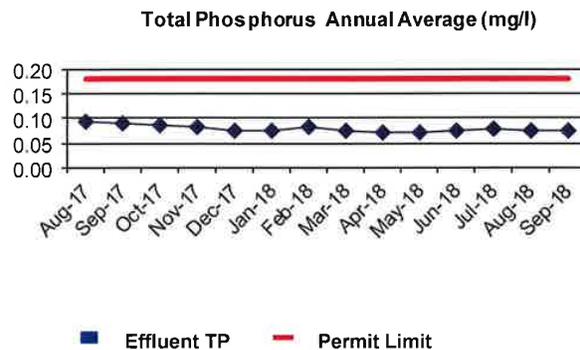
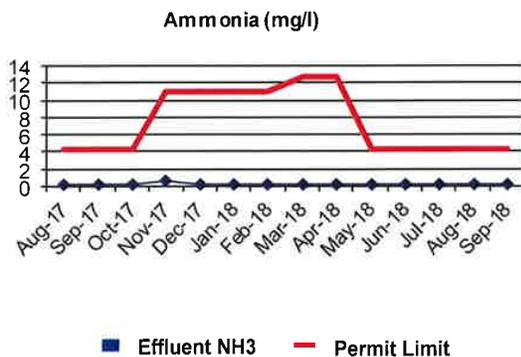
BLUE PLAINS ADVANCED WASTEWATER TREATMENT PLANT PERFORMANCE REPORT – SEPTEMBER 2018

Average plant performance for the month 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 375 MGD. There was 338 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.



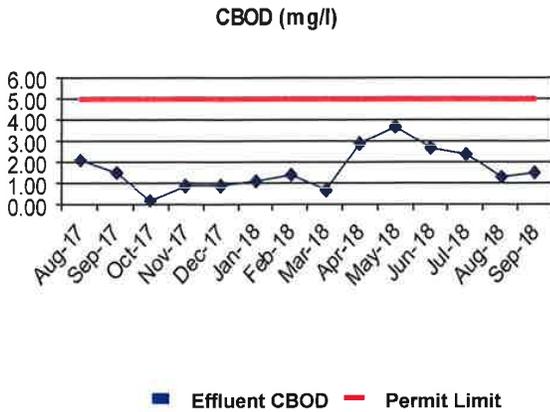
This graph illustrates the monthly average influent flow to the plant. The design average flow is 384 MGD. Blue Plains has a 4-hour peak flow capacity of 555 MGD through complete treatment. Once the plant is at capacity, additional captured combined system flows from the tunnel up to 225 MGD receive 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 0.80 mg/L, which is below the 7.0 mg/L permit limit.

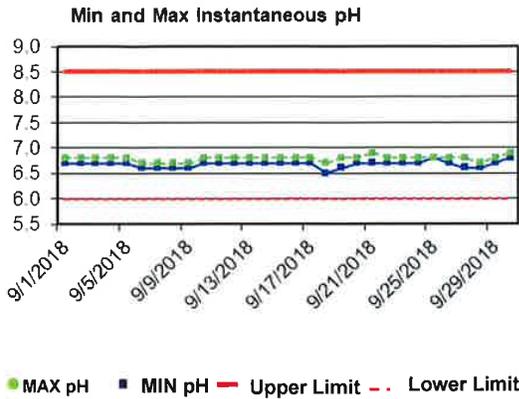


The Ammonia Nitrogen (NH₃-N) is a measure of the nitrogen found in ammonia. For the month, effluent NH₃-N concentration averaged 0.09 mg/L and is below the average 12.8 mg/L limit.

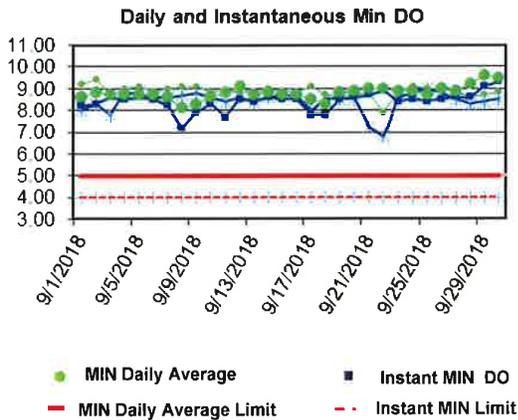
The Total Phosphorus (TP) is a measure of the particulate and dissolved phosphorus in the effluent. The annual average effluent TP concentration is 0.08 mg/L, which is below the 0.18 mg/L annual average limit.



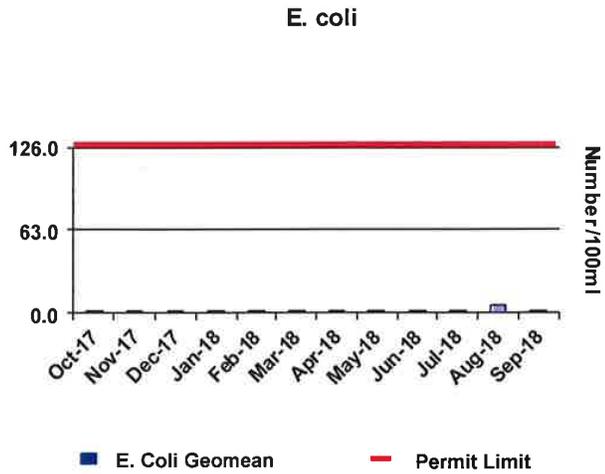
Carbonaceous Biochemical Oxygen Demand (CBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials. The effluent CBOD concentration averaged 1.69 mg/L (partial month), which is below the 5.0 mg/L limit.



pH is a measure of the intensity of the alkalinity or acidity of the effluent. The minimum and maximum pH observed were 6.5 and 6.9 standard units, respectively. The pH was within the permit limits of 6.0 and 8.5 for minimum and maximum respectively.



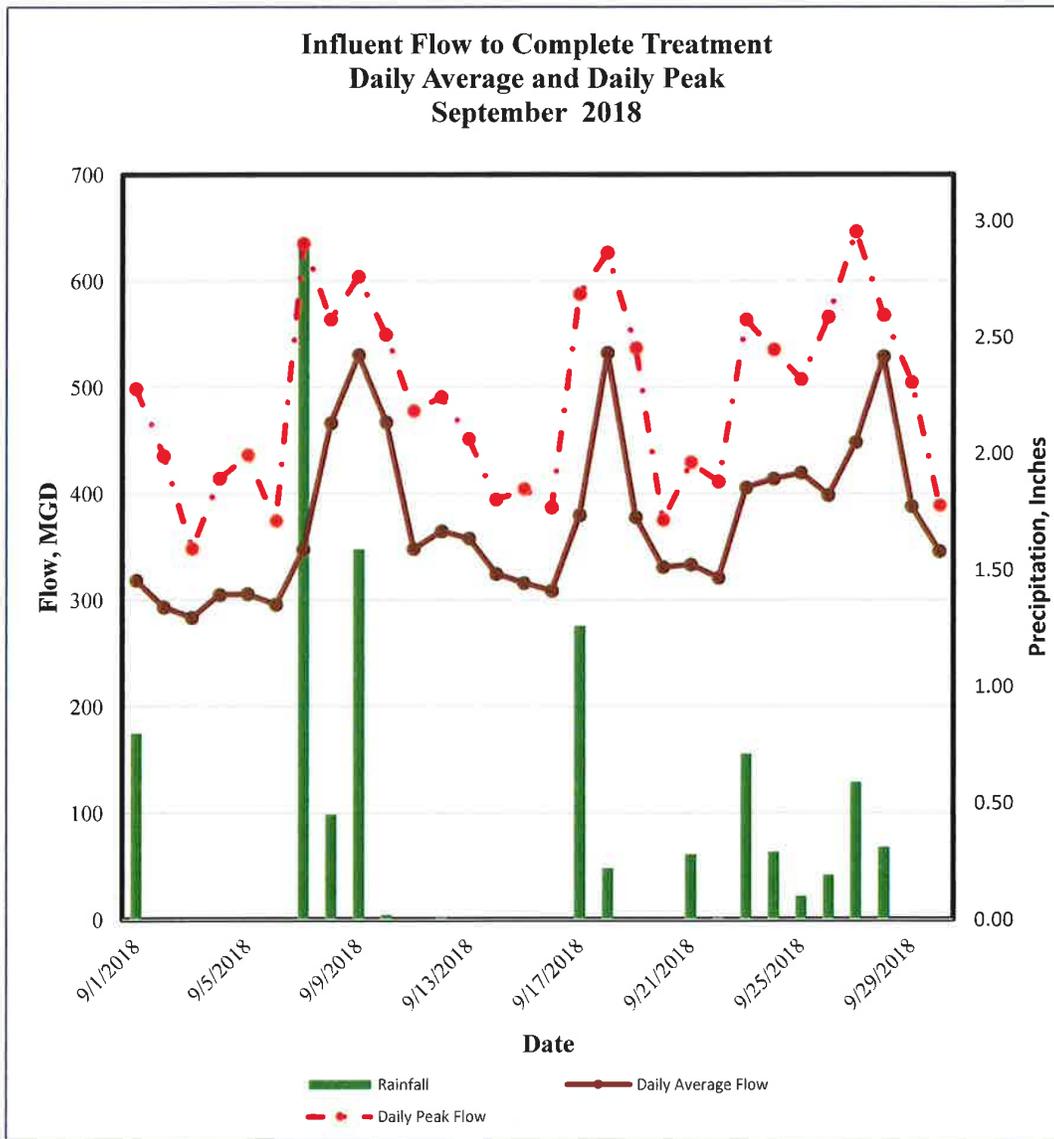
Dissolved Oxygen (DO) is a measure of the atmospheric oxygen dissolved in wastewater. The DO readings for the month are within the permit limits. The minimum daily average is 8.1 mg/L. The minimum instantaneous DO reading is 7.2 mg/L. The minimum permit limits are 5.0 mg/L and 4.0 mg/L respectively.



E.coli is an indicator of disease causing organisms (pathogens). The E.coli permit limit is 126/100mL. The E coli geometric mean is 1.1 /100mL, and well below the permit limit.

Wet Weather Impact on Plant Performance

During the months of September 2018, the Washington Metropolitan Region received above normal total rainfall (9.73 inches vs normal of 3.72 inches) as measured at the National Airport. The wet weather resulted in peak flows through complete treatment exceeding 647_MGD. The plant's performance was excellent and the event 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

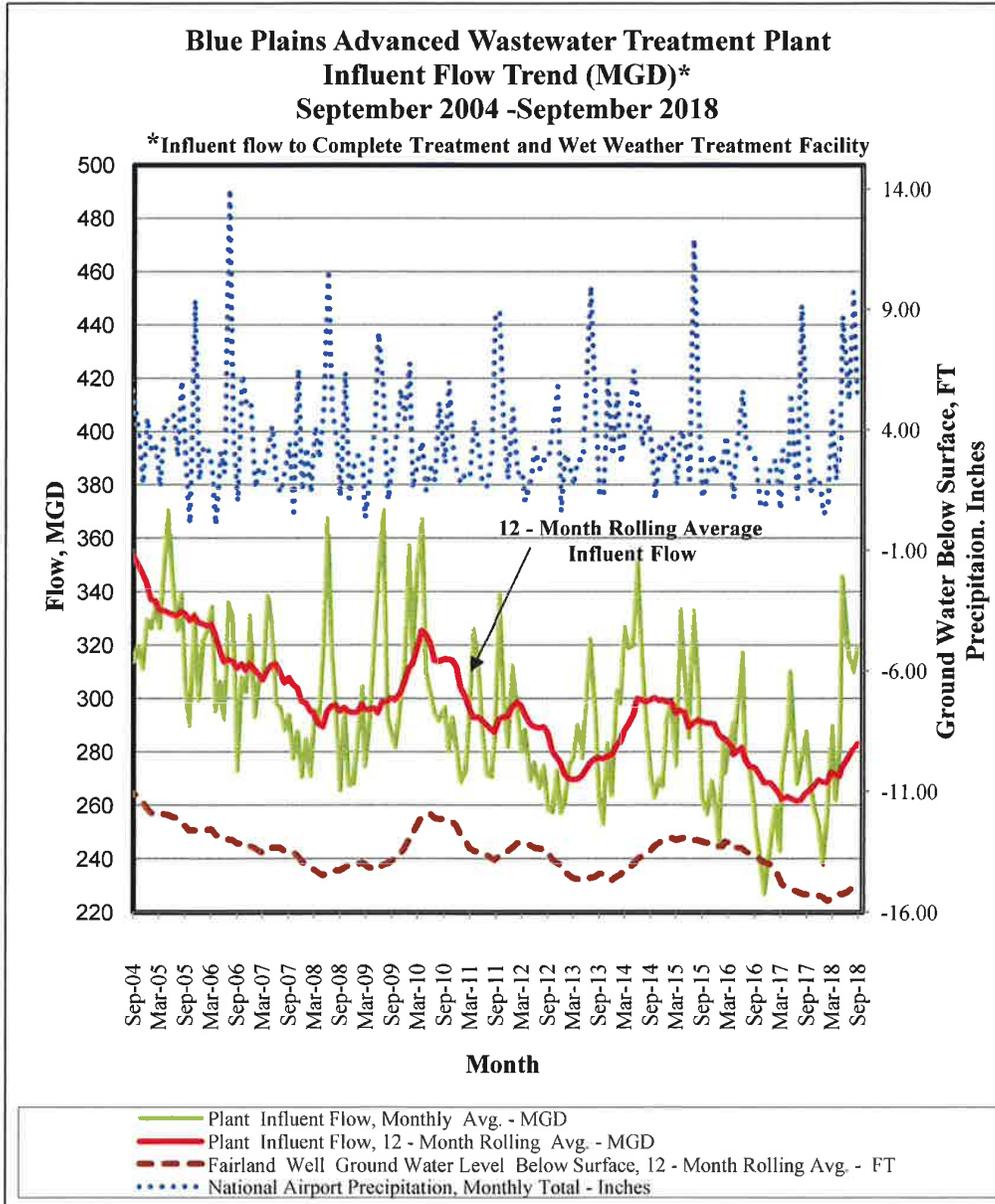
Performance

During the month, a total of 764 million gallons (MG) of CSO captured in the tunnel system, was pumped, and treated using the ECF. A portion of the treated flow or 426 MG was directed to the main plant to maximize complete treatment and the remaining portion of the treated captured combined flow, or 338 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 September 2018, the total volume pumped and treated through the WWTF is 3,300 MG. Since commissioning of the systems, over 500

wet tons of screenings and grit (trash, debris, sediment) were removed, that would have been discharge in the Ancostia River.

Plant Influent Flow Trend

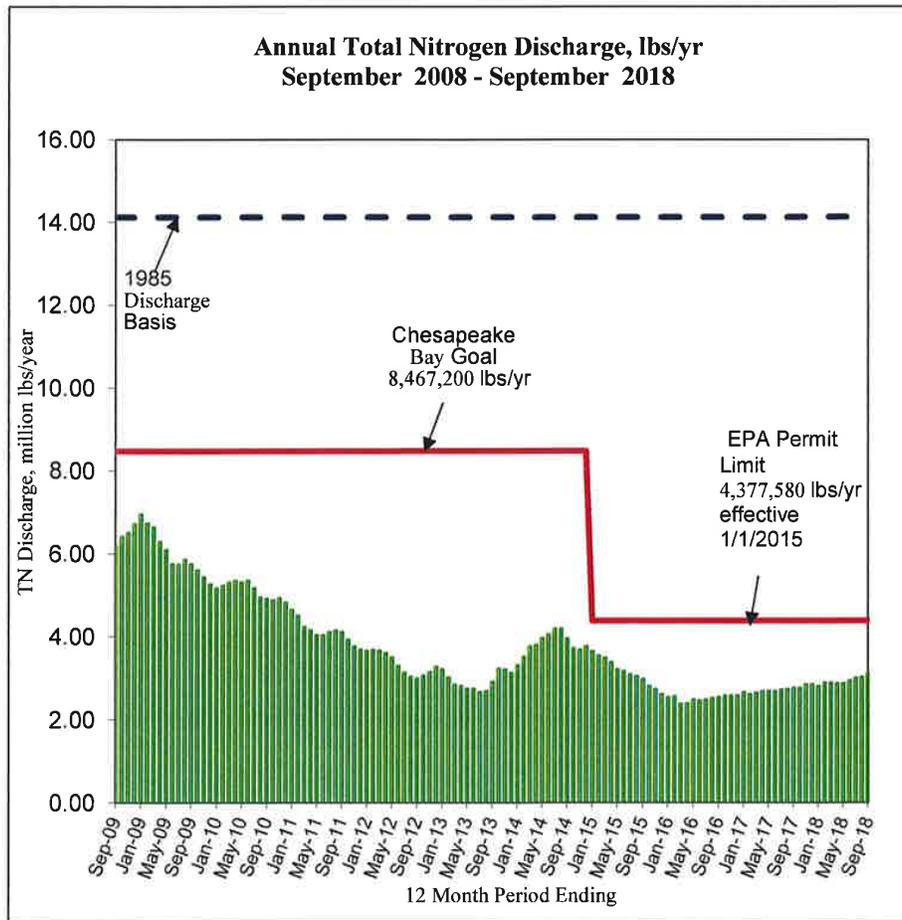
The graph below shows a long-term influent flow trend to the plant ending September 2018. While for any given month the flow is weather dependent, the 12-month rolling average influent flow has remained at or below 300 MGD since February 2011.



Blue Plains Total Nitrogen (TN) Removal – Performance

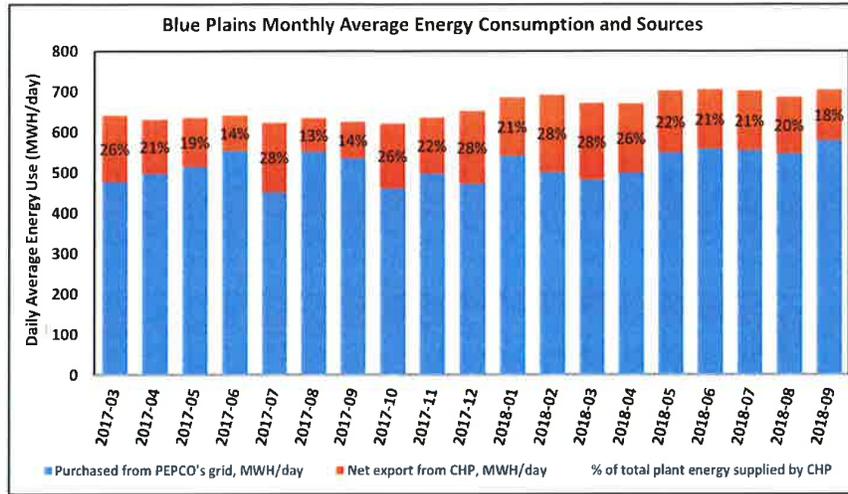
The graph below shows 12-month rolling TN discharge, in million pounds per year, over a 10-year period ending September 2018. In September 2018, the monthly average TN concentration and total load in the complete treatment effluent were 3.23 mg/L and 303,900 lbs., respectively.

The total pounds of nitrogen discharged in the complete treatment effluent during the current calendar year (through September 30, 2018, 2018) is 2,440,064 lbs and on track to remain below the NPDES permit discharge limit of 4,377,580 lbs. /year. The performance corresponds to average flow of 303 MGD, maximum month flow of 375 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, maximum month flows of 485 MGD, and operating wastewater temperatures below 12°C.



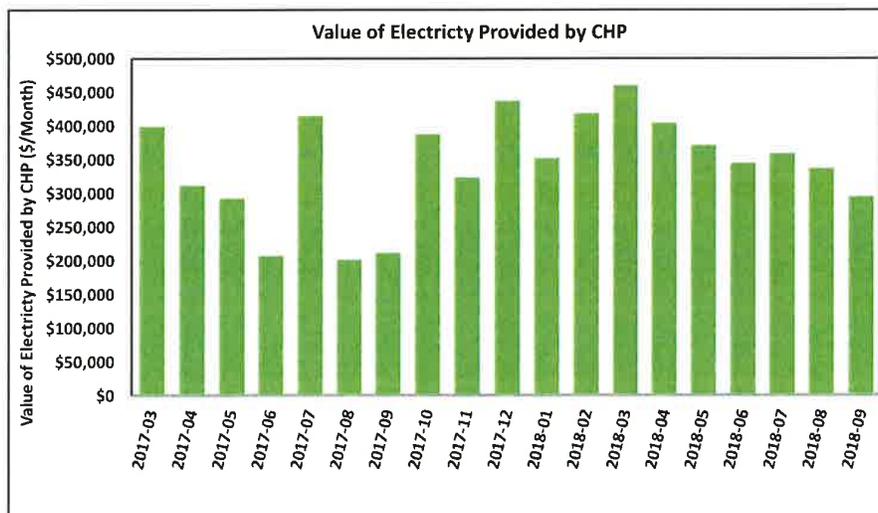
Blue Plains Electricity Generation and Usage

In September 2018, the average energy consumed at Blue Plains was 705 megawatt hours per day (MWH/day) or 1.88 MWH of electricity per million gallons of wastewater processed through complete treatment. The Combined Heat and Power (CHP) facility generated an average of 139 MWH/day, making up for 18% of total energy consumed at Blue Plains. The remaining 579 MWH/day was purchased from PEPCO.



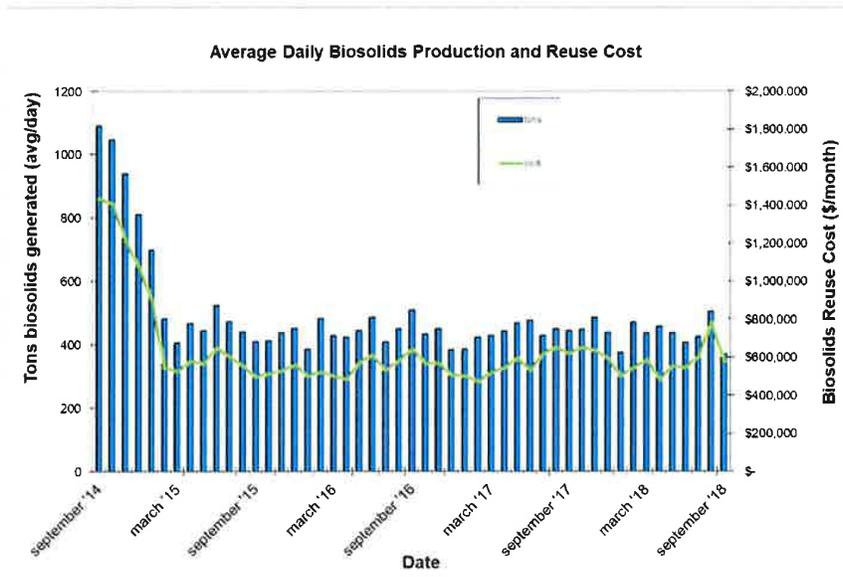
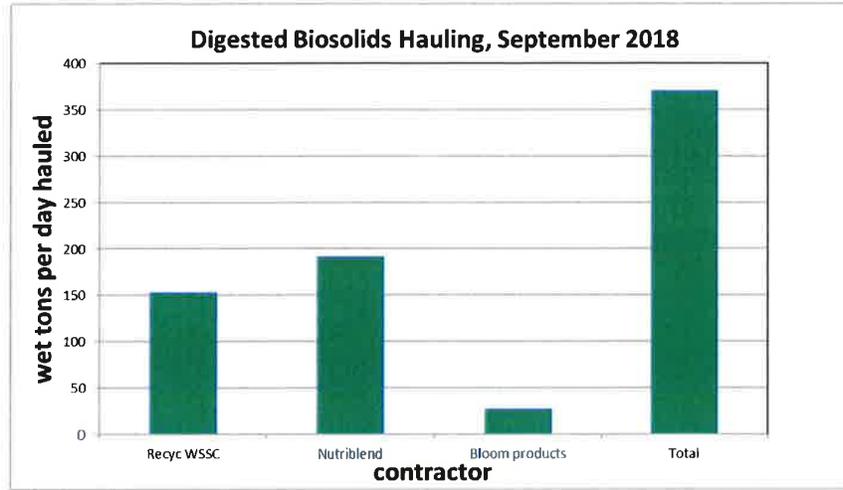
The graph above is based on power monitors installed at the Main Substation and CHP, and reflects average energy consumed at Blue Plains in MWH/day. Of the total use, the energy purchased from PEPCO and net energy supplied by CHP are indicated by the blue and orange highlights, respectively.

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

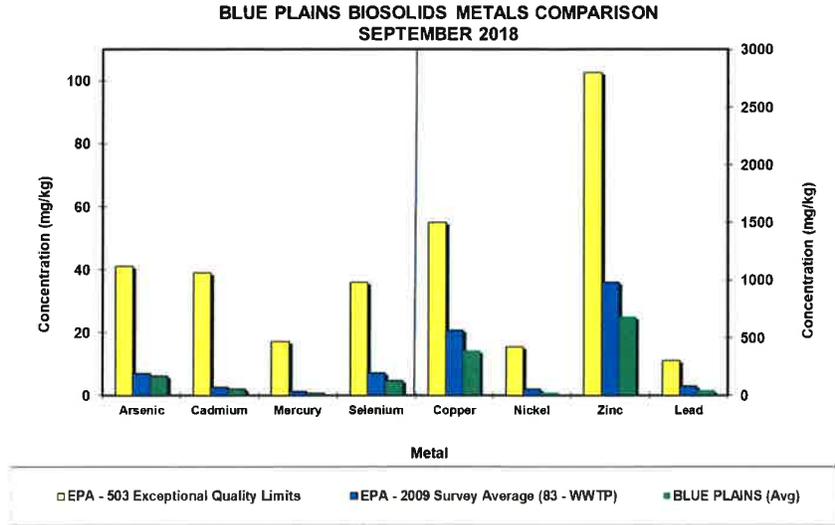
In September, biosolids hauling averaged 370 wet tons per day (wtpd). The average percent solids for the Class A material was 35.0%. The graph below shows average daily biosolids produced and the associated monthly cost for reuse (transportation and application cost) for a three-year period ending September 2017. In September, diesel prices averaged \$3.41/gallon, and with the contractual fuel surcharge, the weighted average biosolids reuse cost (considering the marketed material) was \$44.05 per wet ton.



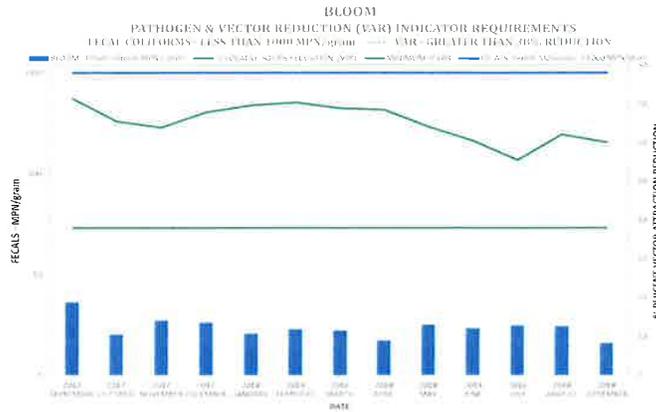
The average quantities of Class A biosolids transported and applied on farms by the two major contracts (WSSC's Recyc and DC Water's Nutriblend) and the quantities marketed as Bloom are shown on the graph above. In September, 798 wet tons of Bloom were distributed to 12 customers.

Product Quality

All biosolids produced during the month of September 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).

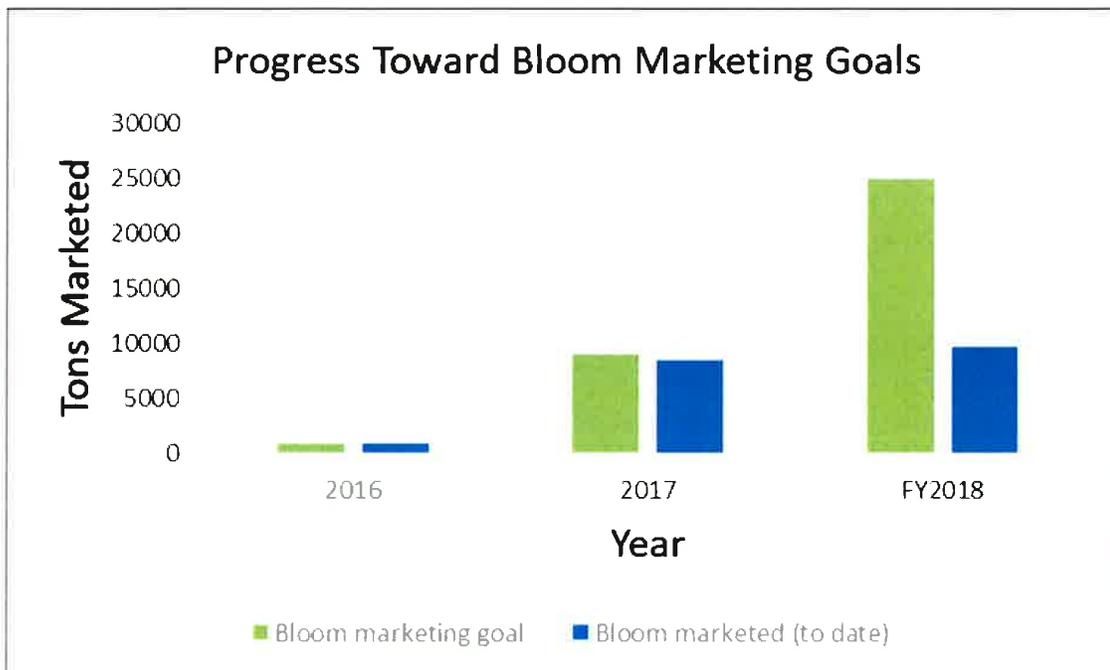


The graph below shows both Vector Attraction Reduction (VAR) and Fecal Coliform (FC) results in the Class A product, both of which are required to maintain the Class A Exceptional Quality (EQ) status. Vector Attraction Reduction is measured by the reduction in Volatile Solids (VS) or organic compounds 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

Bloom sales as of October 1st total 9678 tons for the fiscal year. This represents 39% of the goal 25,000 tons. Goals were set last year for this year, and we and our marketing partner Blue Drop strove to meet this aggressive goal, but fell short. As of October 1st, Blue Drop hired a soil amendment sales specialist, Doug Miller, who knows the market in the region. In addition, we have an agreement for commission based sales in Virginia and are working on an agreement with another firm that specializes in soil amendment marketing.



Resource Recovery Highlights

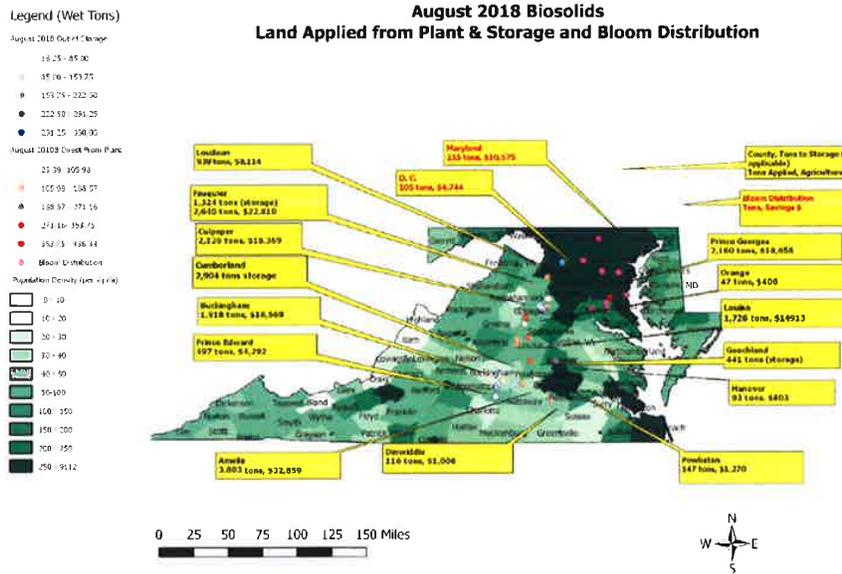
Staff succeeded in obtaining an interconnection agreement for the (relatively) small solar panel system on top of the guard shack near the visitor center at Blue Plains. These panels had gone in with the visitor center, but the interconnection agreement (ICA) with Pepco (our power company at the time) required to operate the panels stalled and was never completed. The Pepco ICA approval system was cumbersome, and as part of the recent merger agreement with Constellation, our new provider promised to streamline the process. Staff resubmitted the application and gained approval in a few short weeks. With the approved ICA in hand, staff invited Steve Caldwell to ceremoniously throw the switch and start generating solar power. Staff will now register the panels in the GATS system for REC recovery and sales. Con Schwartz, Maureen McGowan, Steve Caldwell, James Fotouhi all are to be congratulated for making this facility a reality.

Guard Shack Solar Power



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. A summary of activities for each group is provided 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. Activities include continued work by our research team in the carbon removal/redirection, nitrogen removal, and solids treatment focus areas. In addition, DC Water encourages collaborative research with national and international entities including academic institutions and similar large municipal utilities. Activities during August and September include the following:

FTF Support

Our R&D group continues to provide support to the startup and commissioning of the filtrate treatment facility (FTF).

- Maximum activity tests of the anaerobic ammonium oxidizers (anammox) are collected to evaluate the health and stability of the process.
- Evaluating the need for micronutrients addition.

Aug 10th – Aug 11, 2018 – DCWATER/HRSD collaborative research annual meeting and SWIFT tour

In August, a meeting was organized at HRSD headquarters to discuss the research progress and define the future collaboration projects between DC Water and HRSD. The meeting was attended by all the student researchers from each group and the utilities research partners and collaborators. The following topics related to DC Water's research and goals were discussed:

- High rate carbon capture technologies
 - o AAA technology – first full-scale implementation in Germany and Italy. The results showed improvements in sludge dewaterability and carbon and nitrogen diversion.
 - o High rate processes model development. The carbon removal model in Sumo modeling software was modified to add the ability to mechanistically simulate flocculation and de-flocculation of colloidal material [i.e. organics less than 1 micron in size]. During flocculation, the colloids are adsorbed into the biological floc and removed from the water stream in the sludge line. The model was calibrated using pilot and full scale data from several A-stage and contact stabilizer activated sludge processes including the Blue Plains pilot. Further model development is needed to simulate the settler behavior, which is dependent on the floc characteristics and chemicals addition.

- Data analytics controls – there was a discussion about applying process controls using data analytics techniques to improve controller accuracy and stability from the Nansemond plant at HRSD.
- Mainstream shortcut nitrogen removal
 - o Integration of Partial denitrification/anammox controls with AvN. DCW developed an approach to stably control nitrogen post polishing via partial denitrification pathway (PdN controller). The controller optimizes chemical addition (carbon source such as acetate) to ensure nitrite is produced for anammox bacteria. Currently, DCW and HRSD are working on similar approaches to link the AVN controller with PdN control to achieve low TN discharge very efficiently. In addition, current efforts are focused on looking at alternative carbon sources from within the wastewater to make it more economical to remove nitrogen.

On Aug 11th, the team visited the Sustainable Water Initiative for Tomorrow (SWIFT) research center at the Nansemond plant, Suffolk, VA. The center houses the advanced treatment carbon-based technology to be used for treating the wastewater treatment discharged effluent to drinking water quality standards to recharge the underground water table beneath Hampton Roads. By 2030, all constructed facilities to treat all wastewater treatment discharges from HRSD plants will be finished with nearly 120 MGD treatment capacity. The goal would be to replenish the shrinking groundwater supply, reduce the rate of land subsidence causing sea levels to rise, and to reduce saltwater intrusion into the aquifer.

Aug 14th, 2018 - Dewatering Modeling Workshop

This workshop was initiated by Ahmed Al-Omari (Manager, R&D) and was organized with our close collaborator Dr. Matthew Higgins from Bucknell University. The goal of the workshop was to discuss modeling approaches to simulate the impact of chemical, physical and biological processes on sludge dewaterability. The dewaterability is defined by three parameters; % cake solids, polymer demand, and solids % capture. The workshop was linked to a current WRF project evaluating the impact of bio-p processes on sludge dewaterability. The workshop was attended by DCW research team working on carbon capture and biosolids. External attendees were group members working on the WERF project including Metropolitan Council, Minnesota, and consultant engineers from Hazen and Sawyer, Jacobs, and ARA consult. The modeling will be conducted using Sumo simulator developed by Dynamita.

Blue Plains Main Laboratory

The Main Laboratory staff conducts analyses on Blue Plains AWTP effluent for NPDES Permit requirements, as well as on biosolids, pretreatment samples, storm water runoff, and process samples, on a daily basis, 365 days a year. The laboratory currently analyzes approximately 2,800 samples each month and conducts approximately 8,000 analyses, including Total Suspended Solids; Volatile Suspended Solids; Total and

Volatile Solids; Ammonia Nitrogen; Nitrite and Nitrate Nitrogen; Total, Soluble, and Ortho Phosphorus; Total and Soluble Kjeldahl Nitrogen; Carbonaceous Biochemical Oxygen Demand; Chemical Oxygen Demand; Total Alkalinity and Hardness; and Fecal Coliform and E. Coli microbiological testing.

In addition to comprehensive testing to support operation of liquid stream processes, the laboratory analyzes Belt Filter Press cake samples for fecal coliform bacteria for DC Water's Class A Biosolids reporting, as well as digester samples from the new Cambi Thermal Hydrolysis and Anaerobic Digestion facility, including Total and Volatile Solids, Total and Volatile Suspended Solids, Ammonia Nitrogen, alkalinity and pH. Fecal coliforms in the BFP dewatered cake and TS and VS upstream and downstream of the digestion process are monitored to show compliance with 40 CFR 503 Pathogen and Vector Attraction Reduction requirements.

This month the laboratory continued analysis of samples from the new Filtrate Treatment Facility which removes nitrogen from the belt press dewatering filtrate. Parameters analyzed include ammonia, nitrate, and nitrite nitrogen; ortho-phosphorus; COD; TSS; VSS and alkalinity.

The laboratory also assisted the Department of Sewer Services conducting microbiological analysis of water samples for E. coli bacteria, as well as monitoring the Northeast Boundary Swirl Facility Effluent for NPDES compliance. Laboratory staff also participated in the WWOA Executive Board.

The lab also received samples for analysis from the new Enhanced Clarification Facility (ECF). Parameters analyzed included CBOD, Total Suspended Solids, pH, E. Coli, Total Nitrogen, and Total Phosphorus.

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 and storm water management. This month, storm water management activities (with contractor support) included continued development of a Spill Prevention and Countermeasures Control (SPCC) Plan, inspections of storm water structures and facilitation of cleaning and repairs, coordination of storm drain marking, and construction site (TDPS/ECF) inspections.

Industrial Pretreatment Program

DC Water currently manages twelve (12) Significant Industrial User (SIU) and eighteen (18) Non-Significant Industrial User (NSIU) wastewater discharge permits. Staff conducted one SIU inspection this month at Naval Research Lab (NRL) and two SIU

compliance monitoring events at Dulles Airport and NRL. No significant issues were identified. DC Water reviewed monthly self-compliance monitoring reports for six (6) SIUs and one NSIU. All SIUs and NSIUs are in compliance with discharge standards for the current month.

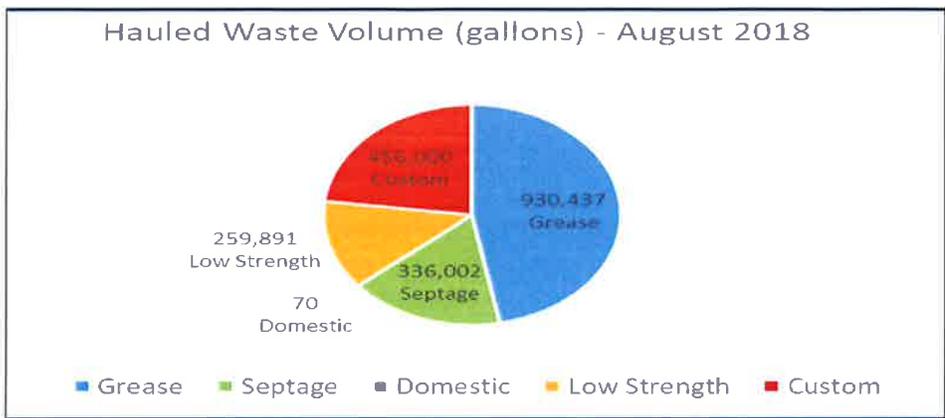
DC Water currently manages 82 Temporary Discharge Authorization (TDA) permits, primarily for construction site discharges of groundwater and/or surface runoff in the combined sewer area. Three new TDA permits were issued this month. All TDA permits are currently in compliance with discharge standards.

Dental Discharger questionnaires are currently being collected from all dental facilities in DC to determine applicability to the regulation. These questionnaires were required to be submitted by July 16, 2018, by existing dental practices. Of the 1,166 mailings to DC licensed dentists sent out in May 2018, 740 had DC addresses. Of the questionnaires received, 174 dentists do not have offices in DC or are not required to complete the paperwork, 48 dentists are exempt from the regulation based on their specialty or other circumstances, 97 dentists are non-exempt but not required to install an amalgam separator, and 113 dentists are required to install an amalgam separator or have already installed an amalgam separator. To date, 46 forms for dentists with DC addresses have been returned requiring follow-up resolution. Staff will compile a new mailing list and send a follow-up mailing to the remaining dentists with addresses in DC that have not provided a completed questionnaire and/or contact their office for clarification if a questionnaire has already been received by another dentist for the same location.

Hauled Waste Program

As of the end of the current month, the hauled waste program had 38 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 three hauled waste permits this month and issued one new hauled waste permit under the new volumetric fee structure. Of the 38 permitted haulers, 30 are now on the new volumetric fee structure.

DC Water received 849 hauled waste loads (1,982,400 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 this month 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	Total Revenue	No. of Accts	Total Cash	No. of Accts
GWRS	\$417,056.12	5	\$2,157.75	1
IU	\$24,539.23	5	\$600	1
WH	\$54,089.14	25	\$69,740.21	20
Total	\$495,684.49	35	\$72,497.96	22

NPDES Permit Sampling

Staff collected the quarterly influent, effluent, and biosolids samples this month, including the annual priority pollutant samples for the influent and biosolids as well as low level mercury on the influent waste streams. Staff also collected dry weather influent (east and west) and effluent (outfall 002) 24-hour composite samples for low level PCB this month.

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT AWARD

**Annual Maintenance and Repair of Electrical Power Distribution Equipment
(Joint Use)**

Approval to execute a contract with base year value of \$2,117,000.00.

CONTRACTOR/SUB/VENDOR INFORMATION		
PRIME: M.C. Dean Inc. 1765 Greensboro Station Place Tysons, VA 22102	SUBS: N/A	PARTICIPATION: N/A

DESCRIPTION AND PURPOSE

Base Year Contract Value:	\$2,117,000.00
Option Years:	2
Anticipated Contract Start Date:	11-10-2018
Anticipated Base Year End Date:	11-09-2019
Bid Opening Date:	07-17-2018
Bids Received:	2
Bid Range:	\$2,392,800 - \$4,693,200

Purpose of the Contract:

DC Water's Department of Maintenance Services (DMS) and Department of Distribution and Conveyance Systems (DDCS) have a continuing need for annual maintenance of high voltage switchgear (power distribution) equipment throughout DC Water facilities. Switchgear is the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is used both to de-energize equipment to allow work to be done and to clear faults downstream.

Contract Scope:

DMS and DDCS require a qualified contractor to provide up to eleven (11) experienced power distribution test technicians and one (1) supervisor, along with replacement parts for repair, calibration and annual maintenance of high voltage switchgear equipment and other associated devices at various DC Water facilities under the direction of DC Water's Contracting Officer's Technical Representative (COTR). Two (2) of the test technicians provided shall be capable of making modifications to the switchgear prints using CAD technology at various DC Water facilities. The current contract requires thirteen (13) technicians and one (1) supervisor.

The requested contract amount, \$2,117,000.00 is for the base year; the contract will be executed one year at a time with 2 option years and available funds will be released on an annual basis.

Supplier Selection:

DC Water received 2 proposals during the solicitation and M.C.Dean, Inc. met the acceptable technical score. M.C.Dean's pricing was the lower of the 2 proposals.

No LBE/LSBE participation.

PROCUREMENT INFORMATION

Contract Type:	Fixed Price	Award Based On:	Best Value
Commodity:	Services	Contract Number:	18-PR-DMS-49
Contractor Market:	Open Market with Preference Points		

BUDGET INFORMATION

Funding:	Operating	Department:	DMS
Service Area:	Blue Plains	Department Head:	Salil Kharkar

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	41.90	\$677,523.00
Washington Suburban Sanitary Commission	43.10	\$696,927.00
Fairfax County	9.59	\$155,070.30
Loudoun Water	4.64	\$75,028.80
Other (PI)	0.77	\$12,450.90
TOTAL ESTIMATED DOLLAR AMOUNT	100.00	\$1,617,000.00

BUDGET INFORMATION

Funding:	Operating	Department:	DACS
Service Area:	Other	Department Head:	Charles Sweeney

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	100.00	\$500,000.00
Washington Suburban Sanitary Commission	0.00	\$0.00
Fairfax County	0.00	\$0.00
Loudoun Water	0.00	\$0.00
Other (PI)	0.00	\$0.00
TOTAL ESTIMATED DOLLAR AMOUNT	100.00	\$500,000.00



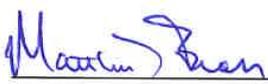
 Akile Tesfaye
 Assistant General Manager,
 Blue Plains
 Date 1/10/18



 Charles Kiely
 Assistant General Manager
 Customer Care & Operations
 Date 1/10/18



 Dan Bae
 Director of Procurement
 Date 1/10/18



 Matthew T. Brown
 Chief Financial Officer
 Date 1/10/18

 David L. Gadis
 CEO and General Manager
 Date

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

ACTION REQUESTED

**GOODS AND SERVICES CONTRACT EXERCISE OPTION YEAR
For Temporary Staffing Services
(Joint Use)**

Approval to execute option year 2 for Temporary Staffing Services in the amount of \$1,267,300.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: MB Staffing Services LLC 819 7 th St. Suite 311 Washington, DC 20001 LSBE	SUBS: N/A	PARTICIPATION: N/A
-------------------------------------------------------------------------------------------------------------	---------------------	------------------------------

DESCRIPTION AND PURPOSE

Original Contract Value: \$200,000.00
 Original Contract Dates: 11/01/2016 – 10/31/2017
 No. of Option Years in the contract: 2
 Contract Modifications, Base Year’s Value: \$319,912.91
 Contract Modifications, Base Year’s Dates: 04/01/2017 – 10/31/2017
 Option Year No.1 Value: \$400,000.00
 Option Year No.1 Dates: 11/01/2017 – 10/31/2018
 Contract Modifications, OY1 Value: \$899,689.00
 Contract Modifications, OY1 Dates: 02/15/2018 – 10/31/2018
This Option Year No. 2 Value: \$1,267,300.00
This Option Year No. 2 Dates: 11/01/2018 – 10/31/2019

Purpose of the Contract:

To supply Temporary Staffing Services for DC Water Department of Human Capital Management. Various departments submit individual requests for temporary staffing services as their need arises.

Contract Modification:

This action modifies the current Temporary Staffing contract by exercising Option Year 2. This option will incur an additional cost of \$1,117,300.00 for Operations and \$150,000.00 for Capital expense, for a total of \$1,267,300.00.

The Option Year 2 amount currently exceeds the budget available for this contract. If the full amount of the contract is needed, budget reductions will be made in other line items.

Total amount of \$1,267,300.00 breakdown is in the next page:

Department- Unit	Operating Budget
Resource Recovery	\$ 287,500.00
Clean Water Quality & Technology	246,500.00
Fleet	176,000.00
Procurement	119,000.00
Secretary of the Board	25,000.00
OGC	16,300.00
Permit Ops.	220,000.00
Marketing & Communications	15,000.00
Occupational Health & Safety	12,000.00
Subtotal	\$ 1,117,300.00
	Capital Budget
Engineering	150,000.00
Subtotal	\$ 150,000.00
TOTAL	\$ 1,267,300.00

Spending Previous Year:

Cumulative Contract Value:	11-01-2016 to 10-31-2018:	\$ 1,819,601.91
Cumulative Contract Spending:	11-01-2016 to 08-30-2018:	\$ 1,736,310.35

Contractor's Past Performance:

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

PROCUREMENT INFORMATION

Contract Type:	Fixed Hourly Rate	Award Based On:	Highest Ratings
Commodity:	Good and Services	Contract Number:	16PRHCM44AC
Contractor Market:	Open Market with Preference Points for LBE and LSBE Participation		

BUDGET INFORMATION

Funding:	Operating	Department:	HCM
Project Area:	DC Water Wide	Department Head:	Roger Brown

ESTIMATED USER SHARE INFORMATION

User – Operating	Share %	Dollar Amount
District of Columbia	41.90	\$ 468,148.70
Washington Suburban Sanitary Commission	43.10	\$ 481,556.30
Fairfax County	9.59	\$ 107,149.07
Loudoun Water	4.64	\$ 51,842.72
Other (PI)	0.77	\$ 8,603.21
TOTAL ESTIMATED DOLLAR AMOUNT	100.00	\$1,117,300.00

BUDGET INFORMATION

Funding:	Capital	Department:	Waste Water Engineering
Project Area:	Waste Water Engineering	Department Head:	Diala Dandach

User – Capital (FQ44011000)	Share %	Dollar Amount
District of Columbia	41.22	\$61,830.00
Washington Suburban Sanitary Commission	45.84	\$68,760.00
Fairfax County	8.38	\$12,570.00
Loudoun Water	3.73	\$5,595.00
Other (PI)	0.83	\$1,245.00
TOTAL ESTIMATED DOLLAR AMOUNT	100.00	\$150,000.00


_____/ 10/5/18
Mustaafa Dozier Date
Chief of Staff


_____/ 10/5/18
Dan Bae Date
Director of Procurement


_____/ 10/5/18
Matthew T. Brown Date
Chief Financial Officer

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



MEETING OF THE
ENVIRONMENTAL QUALITY AND OPERATIONS COMMITTEE
COMMITTEE CHAIR – JAMES PATTESON

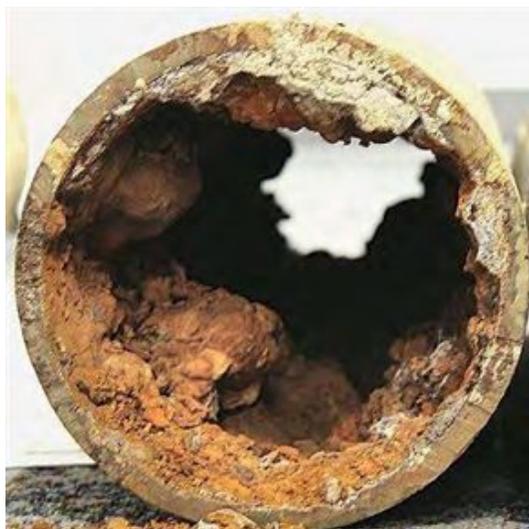
FY19-28 CAPITAL IMPROVEMENT PROGRAM
PATH TO ASSET MANAGEMENT

October 18th 2018

District of Columbia Water and Sewer Authority



Grit Chamber Effluent Sluice Gate



SDWM unlined Cast Iron pipe tuberculation



Vitrified Clay Pipe collapsed Small Dia. sewer

Identifying Asset Risks & Capital Investment Needs



Agenda

- I. Review Path to Asset Management Presentations
- II. Overview of CIP Options
 - I. Current Approved Funding (FY18-27 Baseline)
 - II. FY19-28 Modified Baseline CIP (Run3e)
 - III. Asset Management CIP
- III. Challenges of Baseline Program CIP
- IV. Modified Baseline Program & Risks
- V. Conclusions
- VI. Additional Background Slides



Path to Asset Management Presentations

Committee	Meeting Date	Topic Title
EQ & Ops	15-Mar-18	Path to Asset Management Work Plan
Finance & Budget	22-Mar-18	Proposed Workplan - Path to Asset Management CIP
EQ & Ops	19-Apr-18	Path to Asset Management - Benchmarking with PEER Utilities
EQ & Ops	17-May-18	Site visit to Blue Plains
Finance & Budget	24-May-18	Update on Pathway to Asset Management
EQ & Ops	21-Jun-18	Path to Asset Management - Cost of Proactive Action vs Reactive Action
EQ & Ops	19-Jul-18	Path to Asset Management Work Plan - Sewer & Storm Water Pump Stations
EQ & Ops	20-Sep-18	Site visits to Sewer and Stormwater Pump Stations
EQ & Ops	18-Oct-18	FY19-28 CIP Path to Asset Management



Rolling 10 year CIP Options Compared

Service Area	Current Baseline	Modified Baseline	Asset Management
DCCR	Fully funded to meet Consent Decree	Fully funded to meet Consent Decree	Fully funded to meet Consent Decree
Wastewater	Generally funded to meet NPDES Permit and established levels of service	Fully funded to meet NPDES Permit and established levels of service	Fully funded to meet NPDES Permit and established levels of service
Stormwater	Underfunded	Fully funded	Fully funded
Water			
Pump Stations & Storage Facilities	Generally funded to current service levels	Generally funded	Fully funded
Small Diameter WMs	Generally funded to meet 1% replacement/rehab goal [11 mi/year]	Funded to meet 1% per year replacement level (increased cost is due to switch to full replacement)	Fully funded to ramp up to 2% replacement level [22 mi/year]
Large Diameter WMs	Generally funded	Generally funded	Generally funded
Sewer			
Pump Stations	Underfunded	Fully funded	Fully funded
Sewer Lines < 60" dia.	Substantially underfunded [0.35%; 6.2 mi/year]	Funded to ramp up to 1.0% per year rehabilitation level [17.5 mi/year] by FY23 and onwards	Fully funded to ramp up to 2.3% rehabilitation level [40 mi/year]
Sewer Lines ≥ 60"	Generally Funded	Generally Funded	Generally Funded
Non Process	Fully funded for HQ, Fleet and Sewer Operations Facilities	Fully funded for HQ, Fleet and Sewer Operations Facilities	Fully funded for HQ, Fleet and Sewer Operations Facilities

DC Water

'Generally Funded' = What we know or expect to find can be repaired 'Underfunded' = What we know or expect to find is not all funded 'Fully Funded' = All needs known or expected are met



Rolling 10 year CIP Options

x1000's	Current Baseline \$4.1 Billion	Modified Baseline \$5.0 Billion	Asset Management \$6.5 Billion
Engineering CIP Total	<u>\$3,764,107</u>	<u>\$4,435,378</u>	<u>\$ 5,417,230</u>
<u>Risks:</u>			
Capital Equipment	Underfunded	Generally Funded	Fully Funded
	\$170,539	\$347,529	\$370,434
Washington Aqueduct	Generally Funded	Fully Funded except Federally Owned Water Main (FOWM) and Advanced Treatment	Fully Funded
	\$118,600	\$187,303	\$670,827
Additional Capital Programs Total	<u>\$289,139</u>	<u>\$534,832</u>	<u>\$1,041,261</u>
TOTAL	<u>\$4,053,246</u>	<u>\$4,970,211</u>	<u>\$ 6,458,490</u>

DC Water

'Generally Funded' = What we know or expect to find can be repaired 'Underfunded' = What we know or expect to find is not all funded 'Fully Funded' = All needs known or expected are met



Summary of CIP Options by Program

\$ in thousands

Approved Baseline (+FY28) \$4.1 Billion	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	10 yr Total
Non Process Facilities	33,107	18,907	7,860	1,551	25	6,615	7,773	-	-	4,000	79,838
Wastewater Treatment	74,617	77,853	87,960	89,820	69,560	51,607	62,172	117,623	129,252	117,551	878,014
Combined Sewer Overflow	200,343	160,554	148,121	203,086	164,508	79,692	65,611	135,797	92,819	91,453	1,341,984
Stormwater	4,909	2,400	2,312	5,839	1,212	1,784	1,642	1,276	2,133	9,845	33,353
Sanitary Sewer	32,947	34,046	53,050	74,492	73,917	75,912	58,882	60,769	38,672	137,088	639,776
Water	45,747	84,256	62,341	48,241	53,471	88,055	99,661	101,344	89,510	118,514	791,143
Engineering CIP Total	391,670	378,015	361,644	423,029	362,694	303,666	295,742	416,809	352,386	478,452	3,764,107
Additional Capital Programs	47,448	42,327	41,037	22,618	22,618	22,618	22,618	22,618	22,618	22,619	289,139
Approved Total CIP	439,118	420,342	402,681	445,647	385,312	326,284	318,360	439,427	375,004	501,071	4,053,246

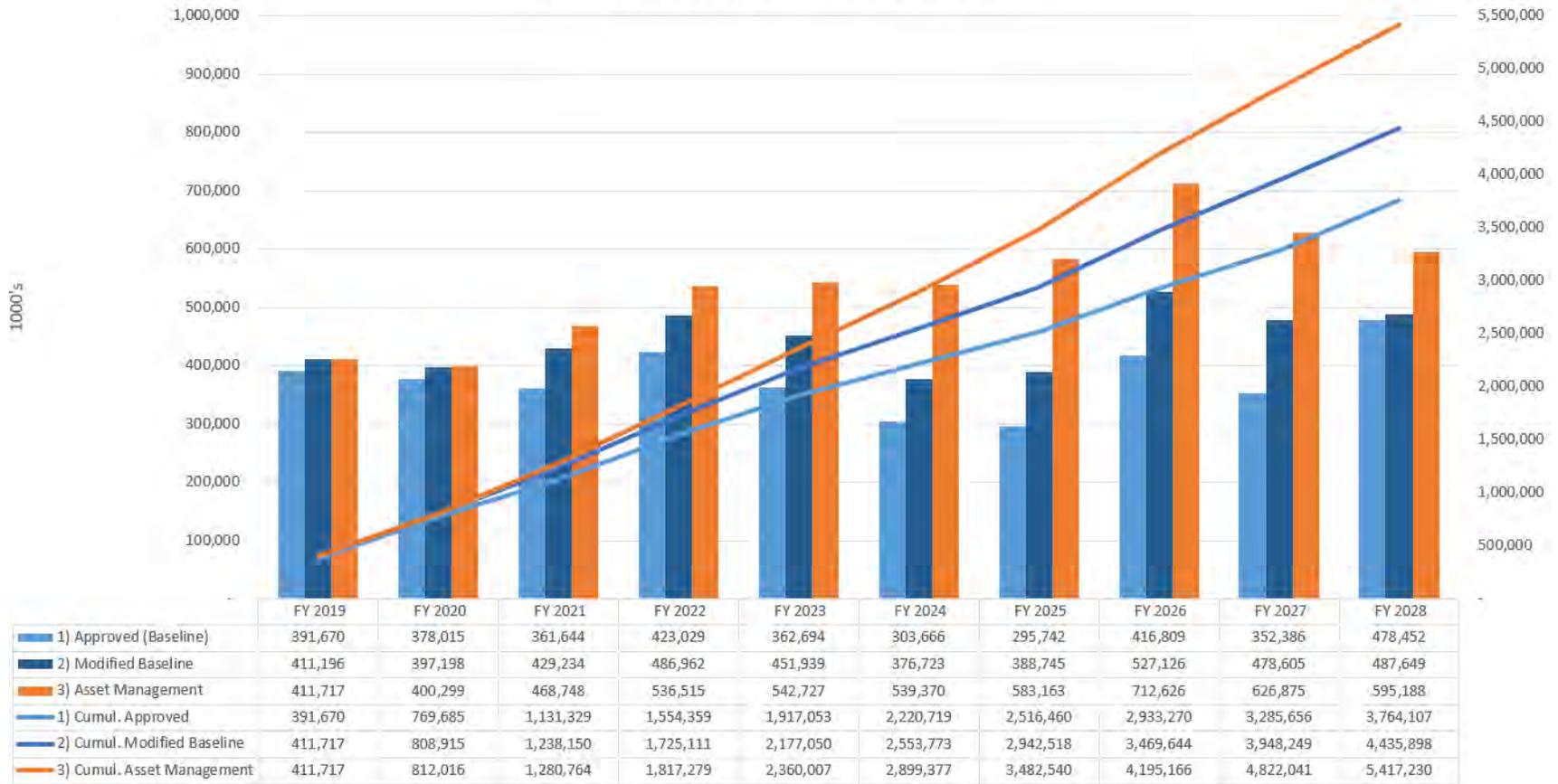
Modified Baseline Program \$5.0 Billion	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	10 yr Total
Non Process Facilities	16,199	42,778	25,341	13,765	7,379	12,159	11,181	4,618	4,201	-	137,621
Wastewater Treatment	82,299	68,754	91,798	95,749	97,391	74,295	82,081	132,586	136,626	122,192	983,771
Combined Sewer Overflow	196,349	153,703	147,502	198,384	157,582	76,745	64,354	150,798	102,978	90,974	1,339,369
Stormwater	7,513	8,495	2,741	7,865	3,679	4,935	7,485	7,452	5,204	10,020	65,390
Sanitary Sewer	41,926	41,324	46,858	74,412	103,622	105,173	114,705	124,868	126,915	145,502	925,305
Water	66,911	82,143	114,995	96,786	82,287	103,415	108,939	106,804	102,681	118,961	983,923
Engineering CIP Total	411,196	397,198	429,234	486,962	451,939	376,723	388,745	527,126	478,605	487,649	4,435,378
Additional Capital Programs	47,624	52,740	50,165	48,408	67,416	51,509	68,272	44,461	46,637	57,600	534,832
Total Modified Baseline CIP	458,821	449,939	479,400	535,369	519,355	428,232	457,017	571,587	525,242	545,250	4,970,211
Increases vs Approved CIP	19,703	29,596	76,718	89,722	134,043	101,948	138,657	132,159	150,237	44,179	916,964

Asset Management \$6.5 Billion	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	10 yr Total
Non Process Facilities	29,858	25,023	24,844	13,827	7,368	14,819	8,474	4,699	4,203	4,209	137,324
Wastewater Treatment	79,332	61,577	90,835	95,631	98,586	101,248	128,046	165,588	138,019	117,551	1,076,413
Combined Sewer Overflow	194,678	156,246	151,227	202,584	159,117	73,113	61,239	151,243	102,210	91,453	1,343,109
Stormwater	6,076	10,216	5,957	12,393	10,502	11,957	14,056	14,873	13,625	9,845	109,502
Sanitary Sewer	39,661	65,672	73,524	106,648	141,754	169,990	189,267	196,194	192,779	192,746	1,368,234
Water	62,113	81,566	122,361	105,433	125,400	168,242	182,081	180,030	176,039	179,383	1,382,647
Engineering CIP Total	411,717	400,299	468,748	536,515	542,727	539,370	583,163	712,626	626,875	595,188	5,417,230
Additional Capital Programs	51,996	53,202	56,493	76,500	89,975	121,266	81,928	58,231	395,774	55,895	1,041,261
Total AM CIP	463,712	453,501	525,241	613,015	632,703	660,636	665,091	770,857	1,022,650	651,083	6,458,490
Increases vs Approved CIP	24,595	33,159	122,560	167,367	247,391	334,353	346,732	331,430	647,646	150,013	2,405,244



Summary of CIP Plan Options

Summary of 10-yr CIP Plans Options (FY19-28)





Challenges of Baseline Program CIP

- Project & Program needs defined by the Asset Management process are essential and do not go away
 - Projects are deferred, delayed or phased to meet fiscal constraints

- When capital improvements are deferred, delayed or phased
 - Risk exposure increases
 - Permit Compliance
 - Health and Safety
 - System Reliability
 - Public Confidence/DC Water Reputation (“Priceless”)
 - Boiled Water

 - Cost increases
 - Likelihood of emergency repairs (x10 increase compared to planned work)
 - Operations & Maintenance
 - Escalation over time



Modified Baseline Program

- Restores funding for several projects currently being deferred due to budget and/or spending concerns
- Increased funding for wastewater and stormwater pumping stations based on recent assessments
- Includes funding for accelerated work on the Potomac Interceptor and Anacostia Force Main based on recent assessments
- Increased funding for 1%, 11 miles/year water main replacement to cover increased costs, in particular the increased cost due to elimination cleaning and lining rehabilitation
- Includes funding to ramp up to 1%, 17.5 miles/year rehabilitation for sewers
- Increased funding for Non-Process facilities in out years



Modified Baseline Program - Risks/Vulnerabilities

💧 Linear

- Small Diameter Water Mains replacement underfunded compared to asset management needs (11 miles/year vs 22 miles/year)
- Sewer Rehabilitation underfunded compared to asset management needs (17 miles/year vs 40 miles/year)

💧 Vertical:

- Complete Blue Plains Odor control master plan recommendations not included
- Mainstream Deammonification
- Water pumping – variable speed pressure management



Conclusions



Conclusions

- Investments made by DC Water are driven by environmental impact and reliability—excellent results (Clean Rivers and Blue Plains)
- However, due to funding, the sewer collection and water distribution systems have become less reliable, jeopardize the environment and public health & safety
- Band aid solutions and emergency response are growing and will only accelerate causing more service issues and frustration with both our customers and internally with our operations and engineering team
 - Public confidence liability
 - Employee morale
- Asset management provides the framework for identifying Asset Risk and True Capital Investment Needs
- At this time, the Modified Baseline CIP balances infrastructure risks and impacts on the financial plan
- Rate impacts will be further analyzed and presented at the November Board meeting



Budget Adoption Calendar

- 💧 Financial Plan Impacts - **November**
- 💧 CEO & Executive Team Recommendations – **January**
- 💧 Committee Reviews, Recommendations – **January/February**
- 💧 Wholesale Customer Briefing – **February/March**
- 💧 Budget Adoption – **March**



Additional Background Slides



CIP – Asset Management (Preferred)

- AM Includes the Modified Baseline Program, Plus;
 - Linear
 - Funding to ramp up to 2%, 22 miles/year for water main replacement (vs 11 miles/year)
 - Funding to ramp up to 2.3%, 40 miles/year for sewer rehabilitation on recent assessments (vs 17 miles/year)
 - Vertical
 - Water pumping facilities: addresses variable speed pressure management (\$17M starting 2023)

Asset Management FY 19-28



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



CIP Risks/Sensitivities (cont.)

Regulatory/Consent Decree/Permitting, cont.:

- 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 higher 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:**
 - 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)
unknown



Challenges of Fiscal Constraints - Sewer Linear



Sewer sinkhole , 14th Street blocked between New York and Pennsylvania Avenues NW



Montana Ave 18" VCP, deformed, blocked



10" VCP Sewer pipe, installed in 1914, near Morrow Dr NW, located in Rock Creek Park.



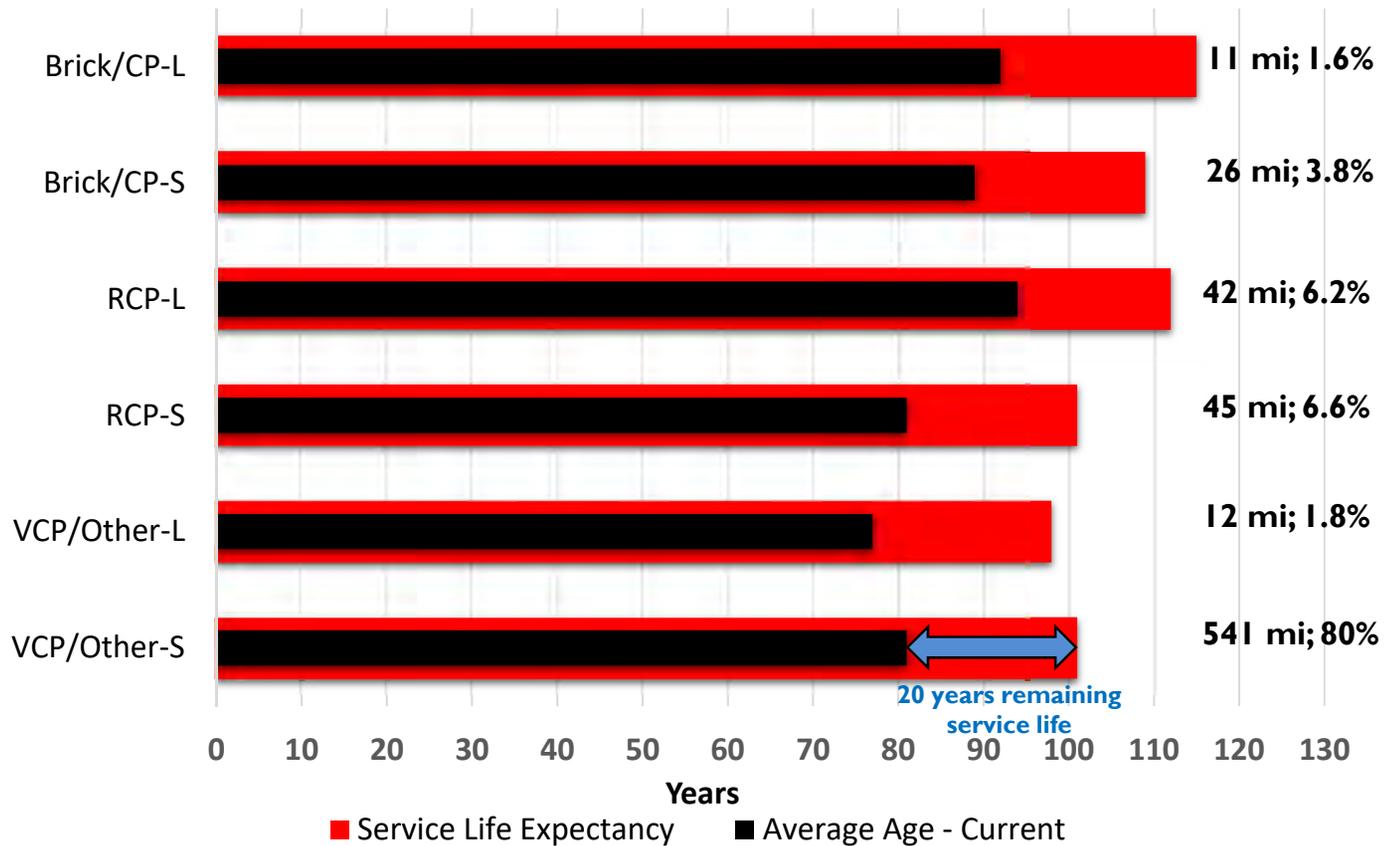
10th St at Otis St, NE (10" VCP, deformed, broken



Service Life Expectancies & Projected Renewal Requirements for the District Sewers

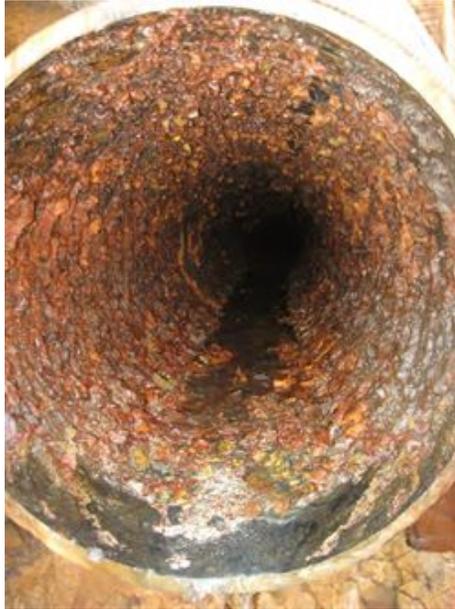
Average Age and Service Life Expectancies by Sanitary Sewer Material Type - FY2018

Average Age: 82 years





Challenges of Fiscal Constraints - Water Linear



30-inch Tuberculated cast iron pipe (Rhode Island Ave)



Q St. NW Rupture of 30" cast iron pipe c1860,

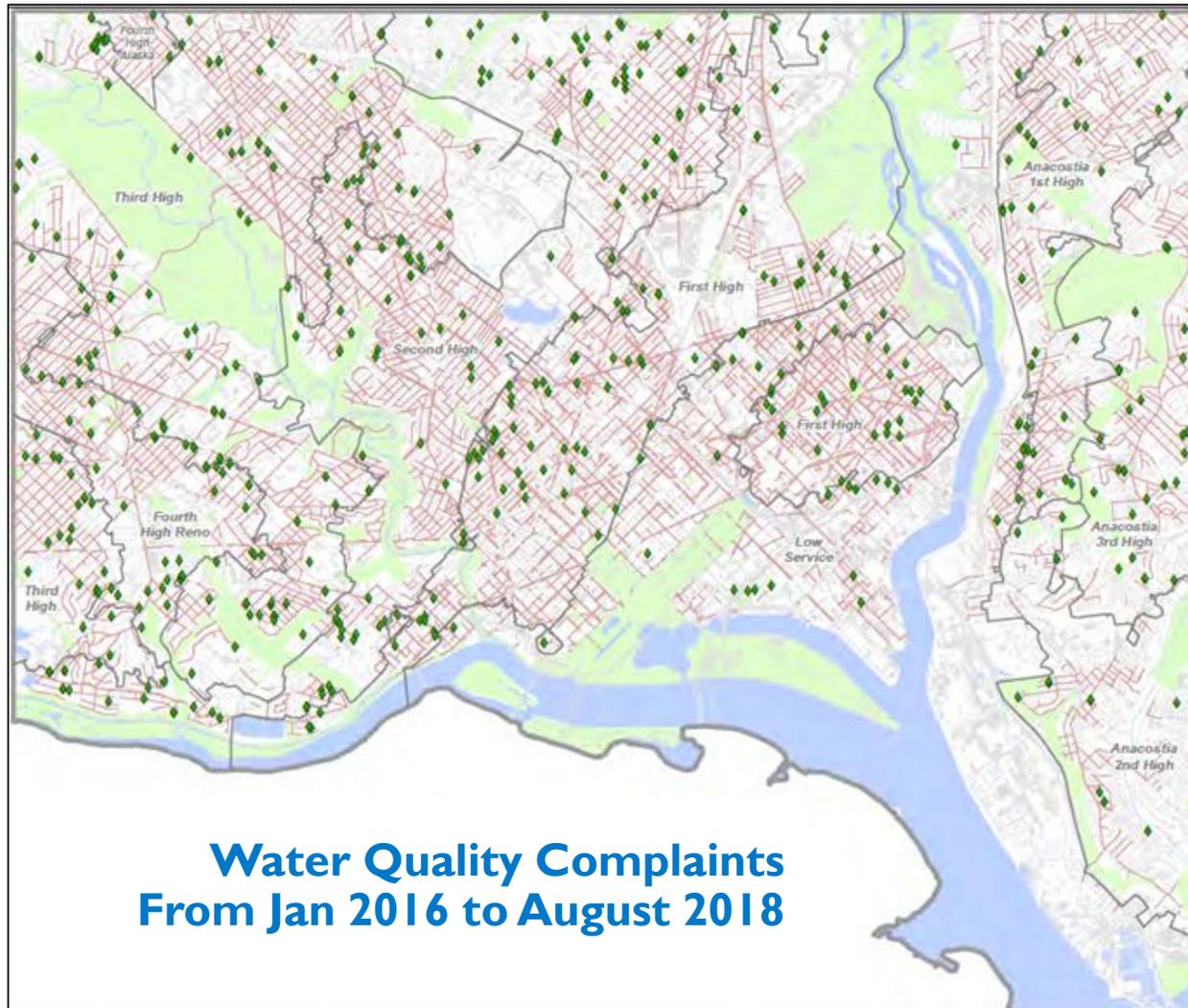


Pipe break, 8-inch tuberculated cast iron pipe Colonial Village



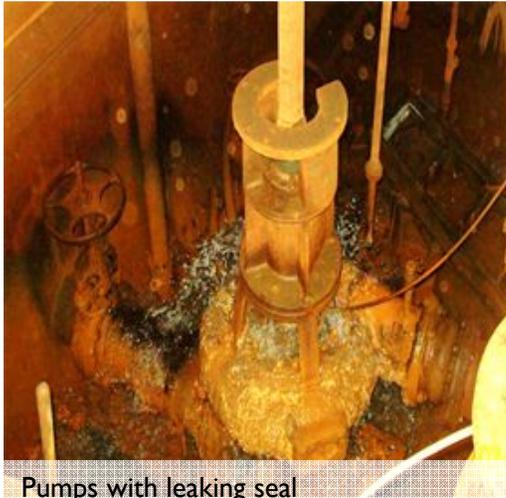


Water Quality Complaints





Challenges of Fiscal Constraints - Pump Stations



Pumps with leaking seal



Stormwater Discharge Conduit



Failed Stormwater Pumps



Lack of conveyance, washing and compacting



Influent Pumping Stations and Headworks



RWWPS 1 1930s Original Motor



RWWPS 1 Worn out Pump



Influent Structures Corrosion



Grit Chamber Building 1 Concrete Corrosion



Grit Chamber 1, Effluent Sluice Gate Corrosion



Influent Structures Corrosion

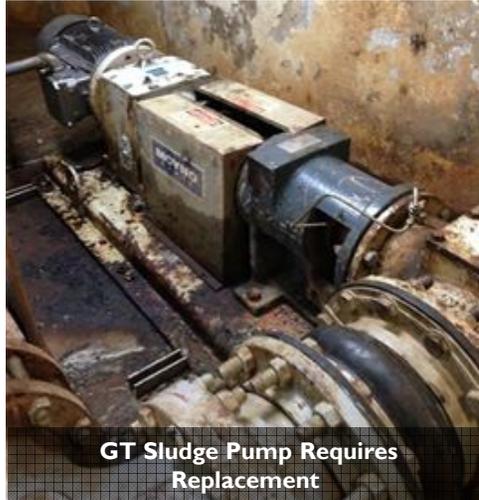
Influent structures gather and equalize plant influent before RWWPS 1 & 2 wet wells
 Headworks remove debris and grit, protecting and improving downstream equipment and performance

Influent Structures	
Brick Lined Sewer	1,500 SF
Box Conduit	68,000 SF
Access Slabs	82,000 lb
RWWPS 1/Grit Chamber Building 1	
Pumps	3 @ 400 hp (80mgd) 2 @ 300 hp (60 mgd) 1 @ 200 hp (40 mgd)
Fine Bar Screens	4 total; 3 duty
Aerated Grit Tanks	4 total; 3 duty
RWWPS 2/Grit Chamber Building 2	
Pumps	4 @ 560 hp (100 mgd) 5 @ 500 hp (100 mgd)
Fine Bar Screens	9 total
Aerated Grit Tanks	12 total; 10 duty

Risk Level - HIGH



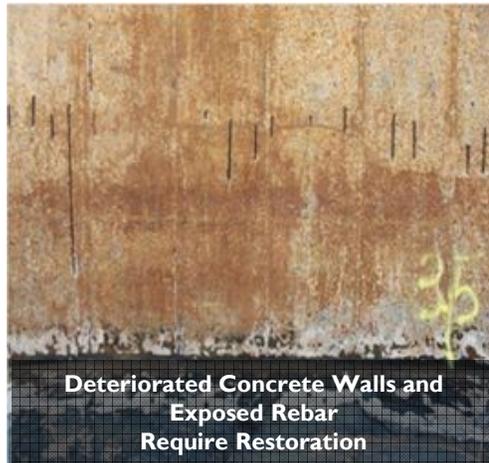
Gravity Thickening



GT Sludge Pump Requires Replacement



Rusted Weir Plate, Scum Baffle, and Embedded Connection Angle Require Replacement



Deteriorated Concrete Walls and Exposed Rebar Require Restoration



Unsettled Sludge Buildup on Surface Damaging Collector Mechanisms

Gravity Thickening reduces the volume and increases the solids concentration in the sludge that requires further treatment for beneficial reuse

Gravity Thickening	
Gravity Thickeners	10 Originally installed 6 Operable 4 Inoperable
Degritter Feed Pumps	6 @ 75 hp EA
GT Sludge Pumps	12 Total 8 @ 30 hp EA 4 @ 25 hp EA
GT Scum Pumps	8 @ 40 hp EA
Primary Sludge Screens	4 @ 1,200 gpm EA
Primary Sludge Degritting	8 Hydrocyclones originally installed 4 Classifiers originally installed

Risk Level - HIGH



Discussion

District of Columbia Water and Sewer Authority

Capital Improvement Program Report



**FY-2018 3rd Quarter
April 1st through June 30th, 2018**

**Board of Directors
Environmental Quality and Operations Committee**

**David Gadis CEO & General Manager
Leonard R. Benson, Chief Engineer**

September 2018

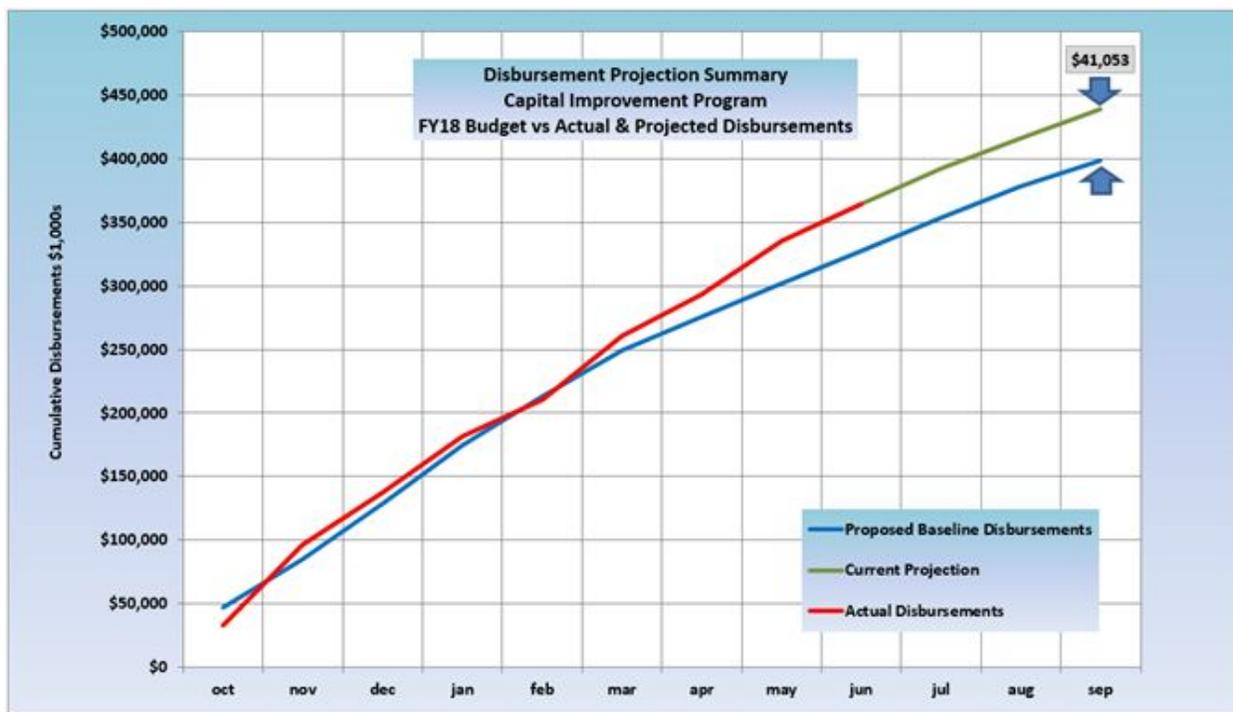


Capital Improvement Program Report 3rd Quarter FY2018

CIP Disbursement Performance

Current projected program disbursements through the end of the fiscal year compared with the FY18 baseline are shown in the chart below:

Disbursement Summary



The approved capital disbursement plan as agreed by the DC Water Board of Directors on March 1 2018, included an FY18 disbursements projection of \$398,285,000.

The current projected fiscal year 2018 CIP disbursements are \$439,338,000 through the end of September 2018, which is 10.3% above the baseline disbursement projection of \$398,285,000.

Current disbursement projections within the service areas are as follows:

Non Process Facilities

Baseline Disbursements \$31,678,000
 Projected Disbursements \$32,527,000 (\$849k above baseline projection)

There are no significant project variances for this service area.



Capital Improvement Program Report 3rd Quarter FY2018

Wastewater Treatment Service Area

Baseline Disbursements \$95,520,000

Projected Disbursements \$107,951,000 (\$12.4M above baseline projection)

Significant project variances are listed below:

- *Plantwide Projects Program Area – (\$4.9M above baseline)*
 - The disbursements for various projects were higher than the baseline due to expedited equipment purchases, faster than expected execution and payments accounted for in FY17 that were disbursed in FY18
- *ENR Facilities Program Area – (\$6.5M above baseline)*
 - The disbursements for project E8 - Enhanced Clarification Facilities are projected to be above the baseline due to an early retention release and a payment accounted for in FY17 that were disbursed in FY18.
 - The disbursements for project EE – Filtrate Treatment Facilities are projected to be above the baseline due to underestimation in the retainage release projection for FY18.

CSO Service Area

Baseline Disbursements \$181,897,000

Projected Disbursements \$180,974,000 (\$923k below baseline projection)

There are no significant project variances for this service area.

Stormwater Service Area

Baseline Disbursements \$944,000

Projected Disbursements \$1,883,000 (\$939k above baseline projection)

There are no significant project variances for this service area.

Sanitary Sewer Service Area

Baseline Disbursements \$30,191,000

Projected Disbursements \$46,225,000 (\$16.0M above baseline projection)

Significant project variances are listed below:

- *Sanitary Collection Sewers Program Area – (\$7.7M above baseline)*
 - The disbursements for project J3 – Sewer Upgrade City Wide are projected to be greater than anticipated in the baseline, this is mainly due to underestimating the pace of work.
 - The disbursements for project G1 – Small Local Sewer Rehab are projected to be greater than anticipated in the baseline, due to underestimating the pace of work.
- *Sewer Ongoing Program Area (\$2.3M above baseline projection)*
 - The disbursements for SOG are projected to be greater than anticipated in the baseline. This is mainly due to the higher than anticipated repair work.
- *Sanitary Trunk Sewers Program Area – (\$4.8M above baseline)*



Capital Improvement Program Report 3rd Quarter FY2018

The disbursements for project IL - Creekbed Sewer Rehabilitation 2 are projected to be greater than anticipated in the baseline. This is mainly due to the work progressing faster than anticipated.

Water Service Area

Baseline Disbursements \$58,054,000
Projected Disbursements \$69,778,000 (\$11.7M above baseline projection)

Significant project variances are listed below:

- *Water Storage Facilities Program Area – (\$4.7M above baseline)*
 - The projected disbursements for project MA - St. Elizabeth Water Tank are greater than anticipated in the baseline. This is mainly due to an incorrect entry into the database, we have since improved the process and procedure.
- *Water Distribution Systems Program Area – (3.2M above baseline)*
 - The projected disbursements for project DE - Small Diameter Water Main Rehab 12 are greater than anticipated in the baseline, this is mainly due to the work progressing at a faster pace than anticipated.
- *Water Ongoing Program Area – (2.3M above baseline)*
 - The disbursements for WOG are projected to be greater than anticipated in the baseline. This is mainly due to the higher than anticipated repair work.



Capital Improvement Program Report 3rd Quarter FY2018

Priority 1 Projects (Court Ordered, Stipulated Agreements, etc.)

All priority 1 projects are on schedule and within budget.

Significant Contract Actions Anticipated – 6 Month Look-Ahead

Project	Name	Contract Type	Joint Use?	Cost Range	Committee	BOD
UC	Upgrades to FIPS 1-10	Construction	Yes	\$15M - \$20M	EQ & Ops Oct	Nov
Multiple	OMAP V	Professional Services	Yes	\$5M - \$10M	EQ & Ops Nov	Dec
Multiple	Misc. Facilities Upgrades (MFU) 6	Construction	Yes	\$25M - \$30M	EQ & Ops Dec	Jan
BX	Gravity Thickener Upgrades Phase II	Construction	Yes	\$40M - \$45M	EQ & Ops Jan	Feb



Capital Improvement Program Report 3rd Quarter FY2018

Schedule - Key Performance Indicators Capital Improvement Program

Summary:

Through the 3rd Quarter, all the Key Performance Indicators (KPIs) completed this period were achieved within 90 days of their target date.

#	Performance
19	KPIs completed within threshold
0	KPIs completed outside threshold
19	Total KPIs completed to date
27	Total KPIs due this year

Reasons for any KPIs not meeting the 90-day threshold this period:

All 19 completed KPIs are within the 90-days or better, with 1 incomplete KPI currently anticipated to be completed outside the 90-day window.

The table below provides a detailed breakdown of each KPI due date grouped by Quarter as of June 30th 2018:

Quarter	Job Code	Job Name	Activity Name	Due Date (Baseline)	Estimated Complete Date	Actual Complete Date	Variance (positive is early)	Met within 90 days
Q1	F203	Small Diameter Water Main Repl 14C C&L	Design Start	30-Oct-17		20-Oct-17	10	✓
Q1	DE02	Small Diameter Water Main Repl 12B	Construction Start	5-Nov-17		03-Nov-17	2	✓
Q2	EE01	Biosolids Filtrate Treatment Facilities	Construction Substantial Completion	4-Jan-18		19-Dec-17	16	✓
Q2	IY03	High & Low PSW Pumps Evaluation and Replacement	Design Start	15-Jan-18		09-Jan-18	6	✓
Q2	GR01	Small Diameter Water Main Rehab. 15A	Design Start	1-Feb-18		07-Feb-18	-6	✓
Q2	LZ03	PI Phase 1 Pipe Rehab at Clara Barton Pkwy	Design Start	2-Feb-18		06-Feb-18	-4	✓
Q2	BI01	Enhanced Nitrogen Removal (ENR) North	Construction Substantial Completion	8-Mar-18		09-Feb-18	27	✓
Q2	CY04	Div E - CSO 015-017 Structures/Diversions	Project Consent Decree Place In Operation (PIO)	23-Mar-18		20-Mar-18	3	✓



Capital Improvement Program Report 3rd Quarter FY2018

Quarter	Job Code	Job Name	Activity Name	Due Date (Baseline)	Estimated Complete Date	Actual Complete Date	Variance (positive is early)	Met within 90 days
Q2	CY06	Div G - CSO 005/007 Structures and Diversions	Project Consent Decree PIO	23-Mar-18		20-Mar-18	3	✓
Q2	CY12	Div H - Anacostia River Tunnel	Project Consent Decree PIO	23-Mar-18		20-Mar-18	3	✓
Q2	CY12	Div H - Anacostia River Tunnel	Construction Substantial Completion	23-Mar-18		08-Mar-18	15	✓
Q2	CY13	Div I - Main Pumping Sta. Diversions and Outfall Sewer Diversion	Project Consent Decree PIO	23-Mar-18		15-Feb-18	36	✓
Q2	CY18	Div Y - BP Tunnel Dewatering Pump Station	Project Consent Decree PIO	23-Mar-18		20-Mar-18	3	✓
Q2	CY21	Div Z - Poplar Point Pumping Sta. Replacement	Project Consent Decree PIO	23-Mar-18		20-Mar-18	3	✓
Q2	CY31	Div U - Advance Utility Relocations for NEBT	Design Build Substantial Completion	23-Mar-18		27-Nov-17	116	✓
Q2	E801	Enhanced Clarification Facilities	Project Consent Decree PIO	23-Mar-18		20-Mar-18	3	✓
Q2	FS01	Div D - JBAB Overflow and Diversion Structures	Project Consent Decree PIO	23-Mar-18		15-Feb-18	36	✓
Q3	J001	B Street/New Jersey Ave. Trunk Sewer Rehab and Cleaning Phase 1	Construction Start	4-Apr-18		21-May-18	-47	✓
Q3	MA01	St. Elizabeth Water Tank	Construction Substantial Completion	10-Apr-18	21-Sep-18		-164	
Q3	G100	Lining & Repair of Local Sewers	Construction Substantial Completion	31-May-18	26-Jul-18		-56	
Q3	GR02	Small Diameter Water Main Rehab 15B	Design Start	1-Jun-18		14-May-18	18	✓
Q3	I801	Large Valve Replacements 11R	Construction Substantial Completion	30-Jun-18	27-Sep-18		-89	
Q4	C904	66" Low Service Steel Main at 8th Street NE & SE	Construction Start	3-Jul-18	03-Jul-18		0	
Q4	LZ04	PI Phase 2 Pipe Rehab at Potomac Crossing	Design Start	5-Jul-18	05-Jul-18		0	
Q4	DR02	Low Area Trunk Sewer - Rehabilitation	Construction Start	12-Jul-18	12-Jul-18		0	
Q4	O302	Small Diameter Watermain Repl 11b	Construction Substantial Completion	27-Jul-18	27-Jul-18		0	
Q4	UC06	Upgrades to FIPS 1-10	Construction Start	29-Sep-18	29-Sep-18		0	

Table Key: Positive variance = Finishing earlier than baseline plan Bold = Actual Date achieved



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

Briefing on:

*DC Clean Rivers Project
Quarterly Update*

Briefing for:

Environmental Quality & Operations Committee Meeting



October 25, 2018

DCWATER.COM

Agenda

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



Anacostia River Tunnel Receives Awards



The team of DC Water / Salini Impregilo won the **Engineering News Records Award of Merit in the Water/Wastewater category** for the Anacostia River Tunnel project

The team of DC Water / Salini Impregilo will receive the **Excellence in Dispute Avoidance and Resolution Award** for the Anacostia River Tunnel Project from the Dispute Resolution Board Foundation on October 18, 2018 at the 22nd annual Conference and Workshops in Charlotte, North Carolina.

The team of DC Water / Salini Impregilo won the **ITA Sustainability Initiative of the Year (2017) Award** for the Anacostia River Tunnel Project in Paris, France from the International Tunneling and Underground Space Association



INTERNATIONAL TUNNELLING
AND UNDERGROUND SPACE
ASSOCIATION

ITA



AITES

ASSOCIATION INTERNATIONALE
DES TUNNELS ET DE L'ESPACE
SOUTERRAIN

DC Clean Rivers Project Overview

Controls Combined Sewer Overflows



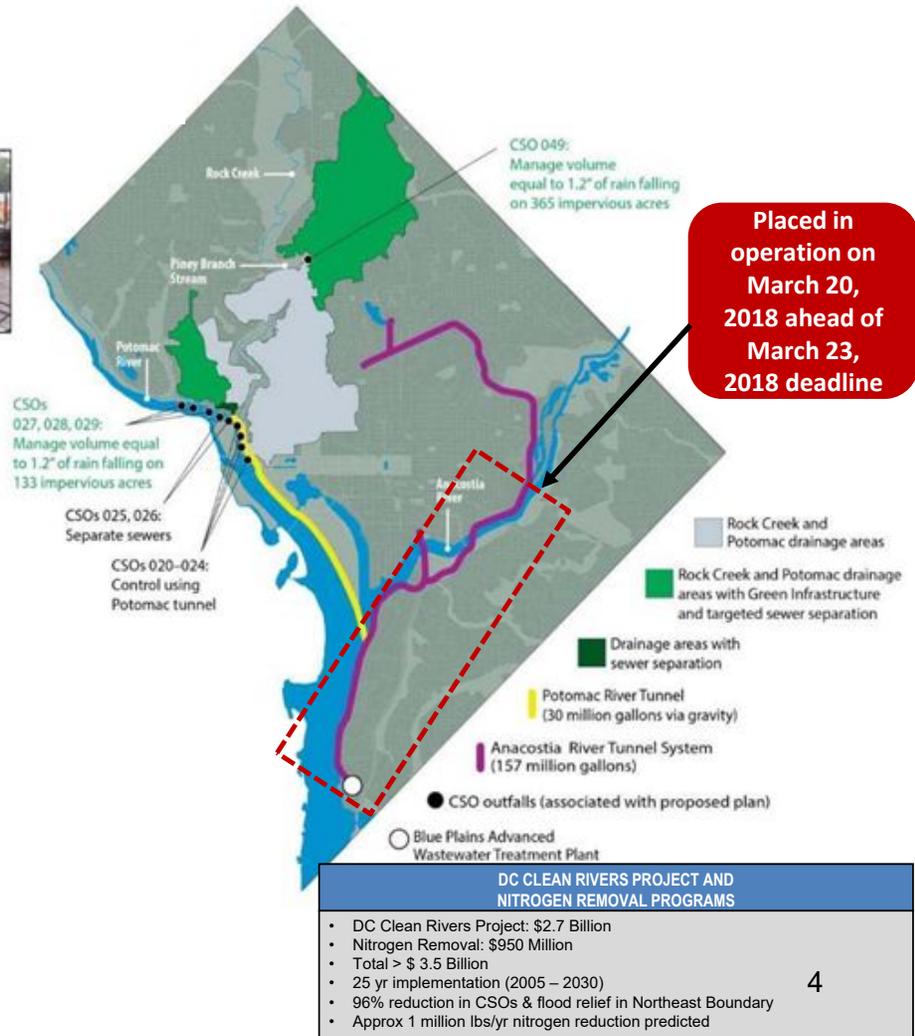
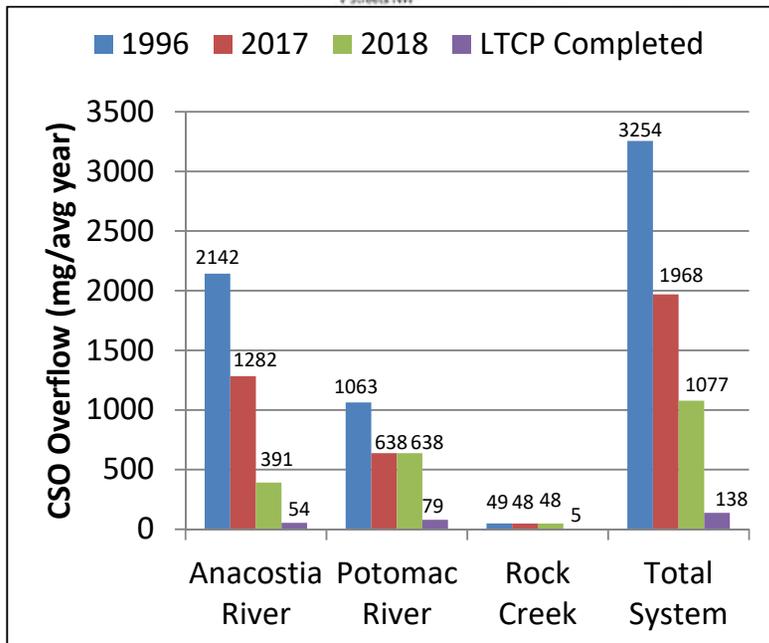
Addresses Chronic Sewer Flooding



▲ Flooding at 1st and V Streets NW

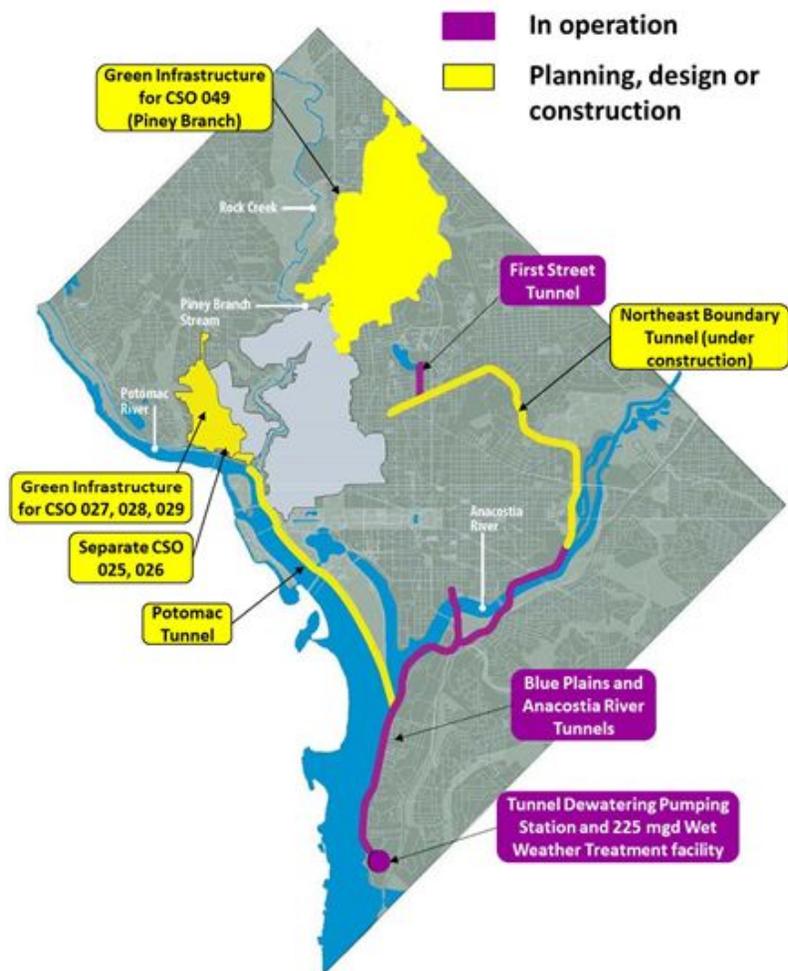


▲ Flooding at 1st and Rhode Island Ave NW



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 is nearing completion while GI project in Potomac River will be completed in spring 2019.
- Potomac River Tunnel Facility Plan to be submitted to EPA by end of 2018



Anacostia Tunnel System Performance

No.	Month	Rainfall, Avg of 4 Gages (IN)	Volume Captured by Tunnel (MG)	Volume Discharged to 001 (MG)	% of Captured Volume Discharged to 001	Measured Overflow (MG)	Total (Captured + OF)	% Captured	MG Generated/Inch	Solids Removed (Tons)
1	March 20 to 31, 2018	0.59	20	0	0%	0	20	100%	34	0
2	April 2018	3.21	249	54	22%	10	259	96%	81	8
3	May 2018	7.65	865	508	59%	13	878	99%	115	73
4	June 2018	2.41	271	150	55%	49	320	85%	133	55
5	July 2018	8.19	678	326	48%	236	914	74%	112	11
6	August 2018	3.60	334	62	19%	15	349	96%	97	226
7	September 2018	6.67	775	338	44%	109	884	88%	133	TBD
	Total	32.32	3192	1438	45%	432	3624	88%	112	371.9

- September 20 marked 6 months in service
- Exceeding predicted capture rate (88%>80%)
- Volumes are high due to extremely rainy weather
 - 6th wettest May on record
 - 4th wettest July on record (all rain in second half of month)
 - 5th wettest September on record



PROGRESS SUMMARY (MARCH 2018 CONSENT DECREE)

MAJOR ACCOMPLISHMENTS FY 2018 3ND QUARTER UPDATE

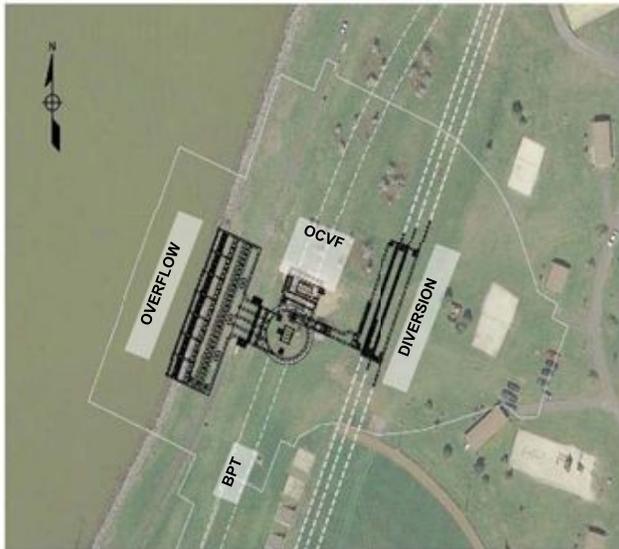


Anacostia River Tunnel System placed in Operation on March 20, 2018



Division D – JBAB Overflow and Diversion Structures Status

Substantially Completed in February 2018

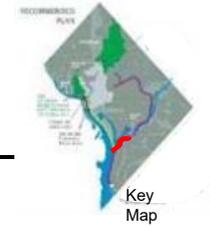


Remaining:

- Completing the Operational Availability Demonstration Testing
- Grass and turf stabilization
- Punch list items

Division H – Anacostia River Tunnel Project Status

Substantially Completed in March 2018

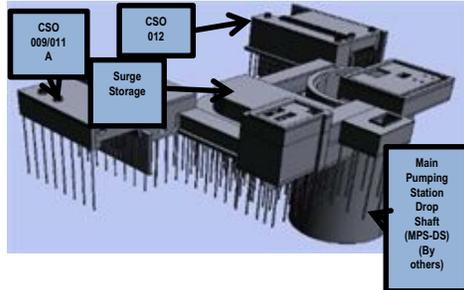
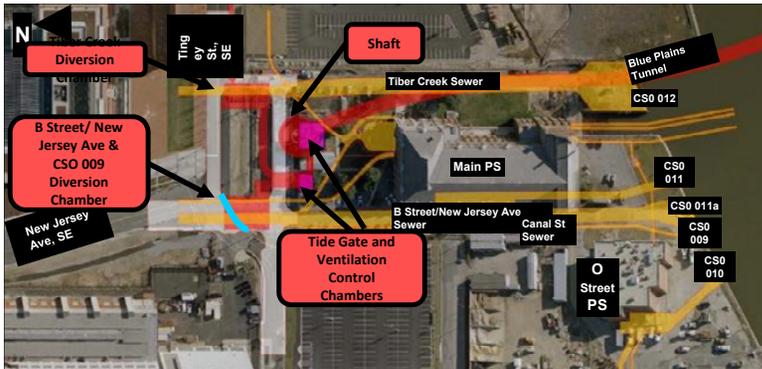
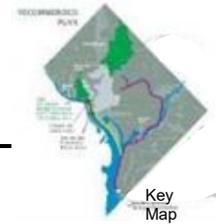


Remaining:

- Punch list items

Division I – Main Pumping Station Diversions Project Status

Substantially Completed in February 2018



Remaining:

- None

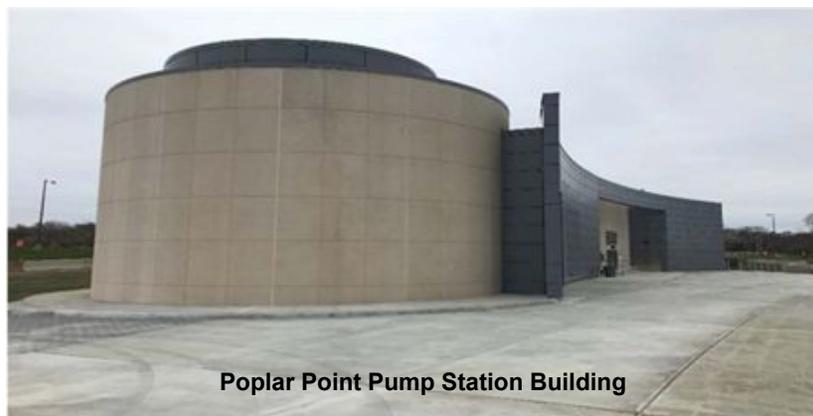




Division Z – Poplar Point Pumping Station Status



- Pump station has been operating successfully since February 2018
- Outstanding items include handrail, gratings, bridge crane testing and punch list items
- Will need to resolve outstanding claims from EE Cruz



PROGRESS SUMMARY (REMAINING PROJECTS)

MAJOR ACCOMPLISHMENTS FY 2018 3ND QUARTER UPDATE



Division PR B – Kennedy Center CSO 021 Project Status



Substantially Completed in May 2018



Kennedy Center continues to progress their REACH project

Remaining:

- None



Northeast Boundary TBM Naming Ceremony



Division J – Northeast Boundary Tunnel



Design-Builder: Salini Impregilo Healy JV
 Contract Price: \$580M - Percent Complete: 7%
 Financials as of July 25, 2018

- Approved major Design Packages including CSO 019 TBM Breakout RFC, Mt. Olivet SOE, MOT and Temp Site Work RFC, W Street SOE, MOT and Temp Site Work RFC, RIA Temp Site Work, W Street MOT and Temp Site Work 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



- Mining started August 30, 2018
- CSO 019 Force Main Relocation work 50% complete.



Division J – Northeast Boundary Tunnel W Street Site



- W St. Site: Retaining wall pile work 50% complete; 24-inch storm pipe ongoing. Four primary slurry panels completed.



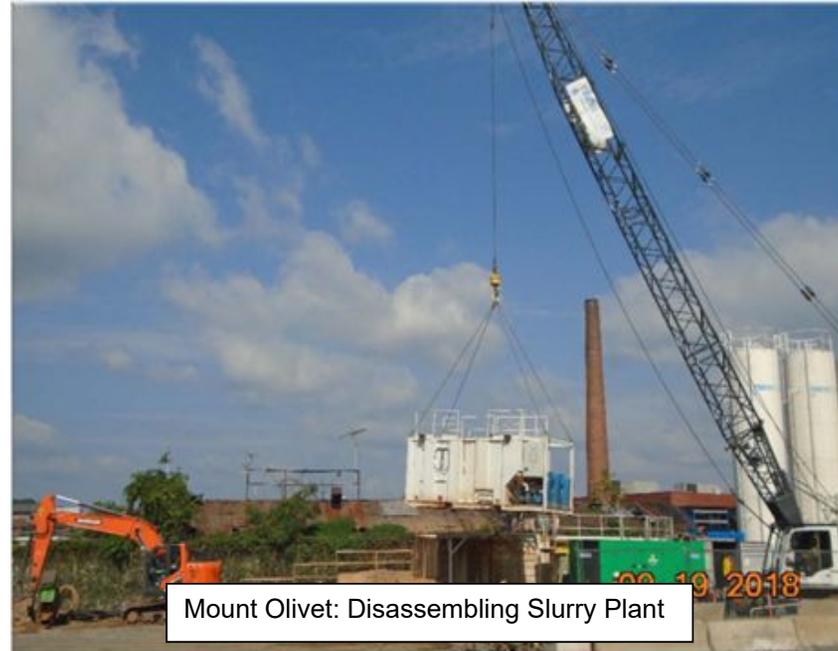
Division J – Northeast Boundary Tunnel 4th Street Site



- Mobilized to 4th Street Site on 8/22/2018



Division J – Northeast Boundary Tunnel Mt. Olivet Road Site



- Mt Olivet Site: Completed slurry panels on 9/5/18, mobilizing jet grouting.



Division RC-A – Rock Creek GI Project A

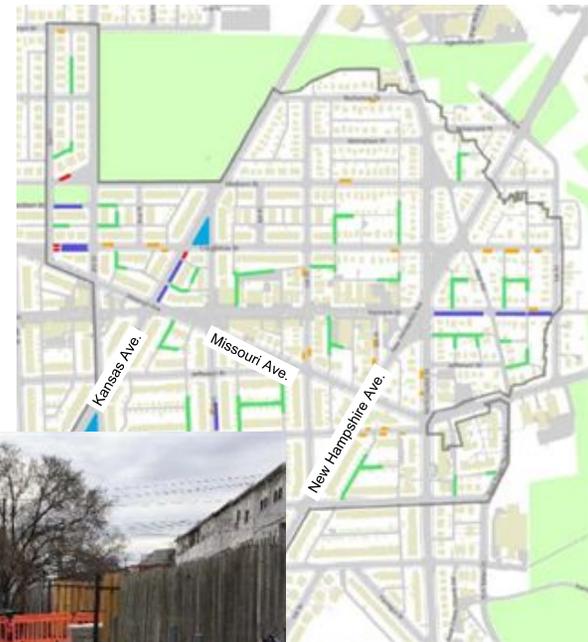


Key Map

Design-Builder: Anchor Construction
Contract Price: \$27M - Percent Complete: 63%
Financials as of August 1, 2018

- Project facilities were designed, permitted, and constructed in three phases:
- Construction started in September 2017
- Construction progress
 - Phase 1 – 100% complete
 - Phase 1A – 100% complete
 - Phase 2 – 100% complete
 - Phase 3 – 95% complete
- Substantial Completion expected on October 9, 2018

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: 16%
 Financials as of September 1, 2018

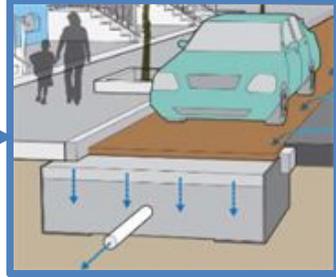
Item	Status
Contract Award	April 9, 2018
Construction NTP	April 30, 2018
Place in Operation	CD Deadline June 23, 2019

Project Boundary:



- Construction underway with project approximately 16% complete.

- Project includes:
 - Planter Bioretention
 - Alley Permeable Pavement
 - Parking Lane Permeable Pavement

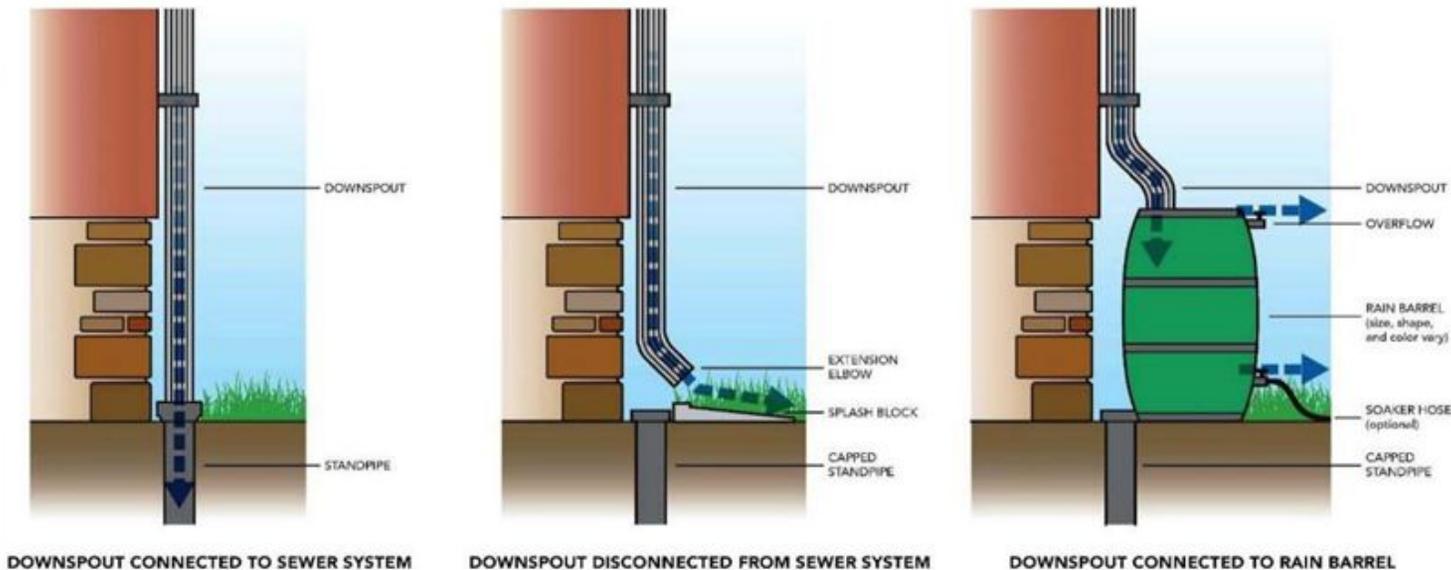


Drain the Rain! Rock Creek and Potomac Green Infrastructure Project Areas



Voluntary, Free Downspout Disconnection Program with Rain Barrels

- Contracted with Rock Creek Conservancy
- Pilot implementation finished with 128 downspout disconnections completed.
- Canvassing and installations began in additional neighborhoods in Spring 2018 with an additional 113 downspouts completed to-date.



Kennedy Street GI Challenge Streetscape Project



Substantially Completed in August 2018

- **Kennedy Street Green Infrastructure Streetscape Project**
 - Was constructed and managed with District Department of Transportation's (DDOT) Kennedy Street Improvements Project
 - Project close-out pending final project accounting (approx. \$2.2M) and cost MOU finalization.



Groundbreaking – October 21, 2016



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

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



Green Jobs MOA: GI Certification Program

- Status:
 - Training:
 - Four rounds of training completed Fall 2016, Spring 2017, Fall 2017, and Spring 2018
 - Next DC training to be held beginning in Fall 2018.
 - Exam:
 - Fourth National GI Certification Program (NGICP) exam held May 23, 2018
 - 13 Partner jurisdictions, in addition to DC Water, formalized to date (commitments totaling over \$500K)
 - Fourth Train-the-Trainer workshop was held in Nashville in August 2018
 - Website: www.ngicp.org



Green Alley Partnership with DDOT



- DC Water has partnered with DDOT to construct permeable pavement with alley work
 - Standard green alley approach to facilitate construction and permitting
 - Blanket permit via Department of Energy and Environment secured to allow for fast implementation
 - AlleyPalooza 5 launched April 20, 2017
 - DC Water funded construction of an initial seven alleys (six in Rock Creek and one in Potomac River) under Green Alley Partnership. Construction of all 7 alleys is complete. Additional alley(s) will be selected and constructed with original funding (\$2.7M).



AlleyPalooza 5 Kickoff – April 20, 2017



Benefits:

- Reduces costs for DC Water’s GI Program for CSO control
- Advances District’s *Sustainable DC Plan*
- Reduces disruption for residents



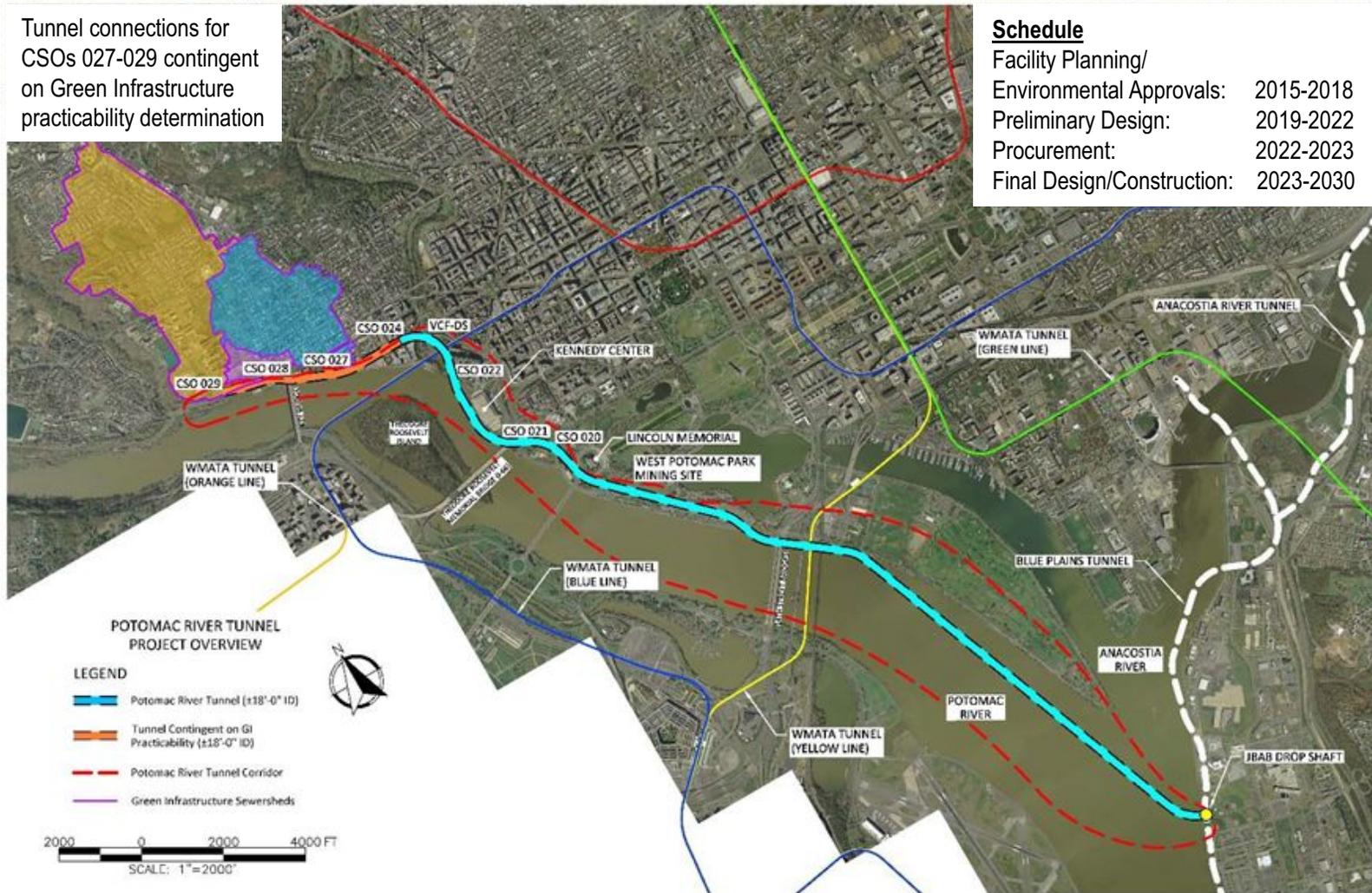
Potomac River Tunnel



Tunnel connections for CSOs 027-029 contingent on Green Infrastructure practicability determination

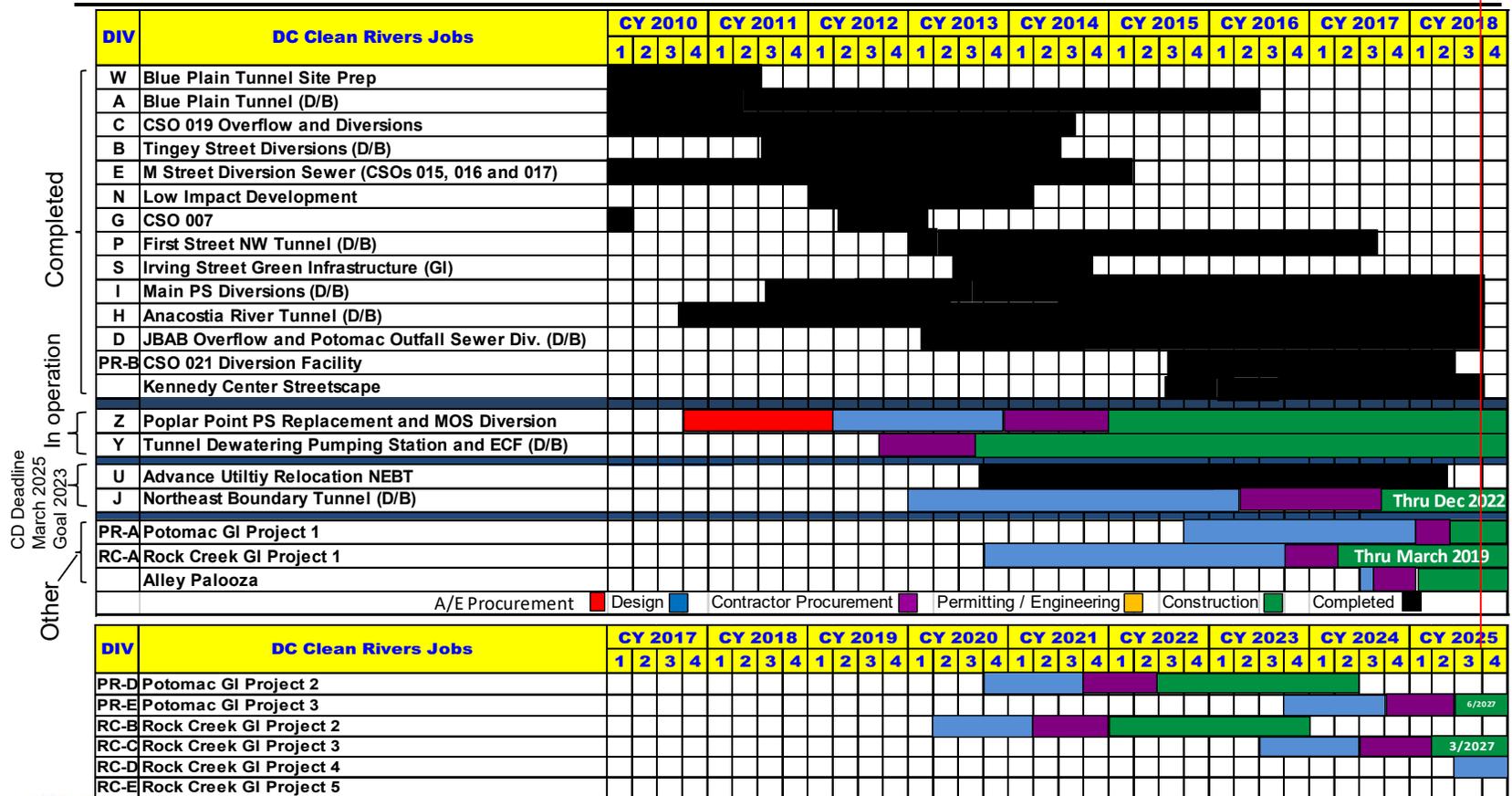
Schedule

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

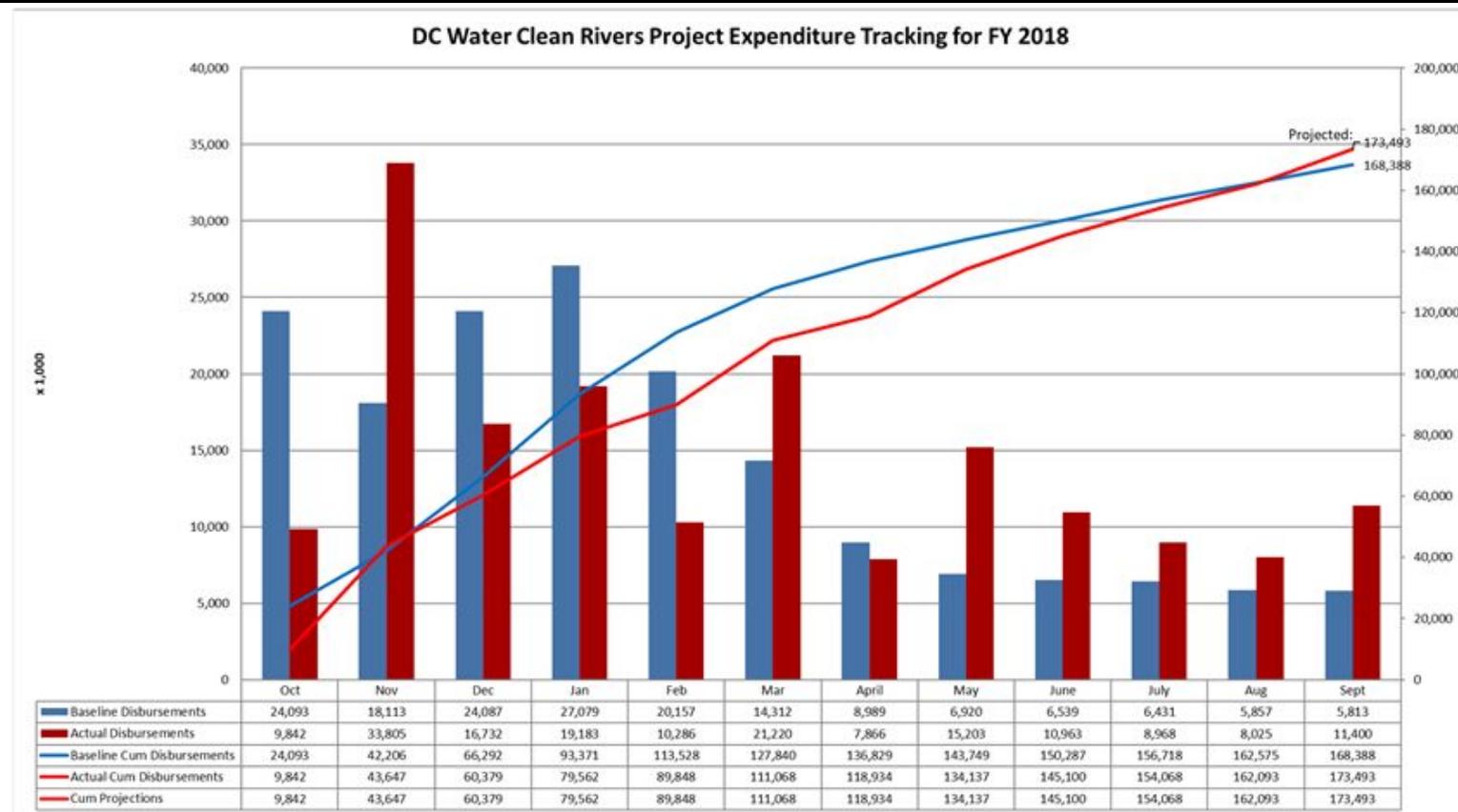


DC Clean Rivers Schedule

Time now

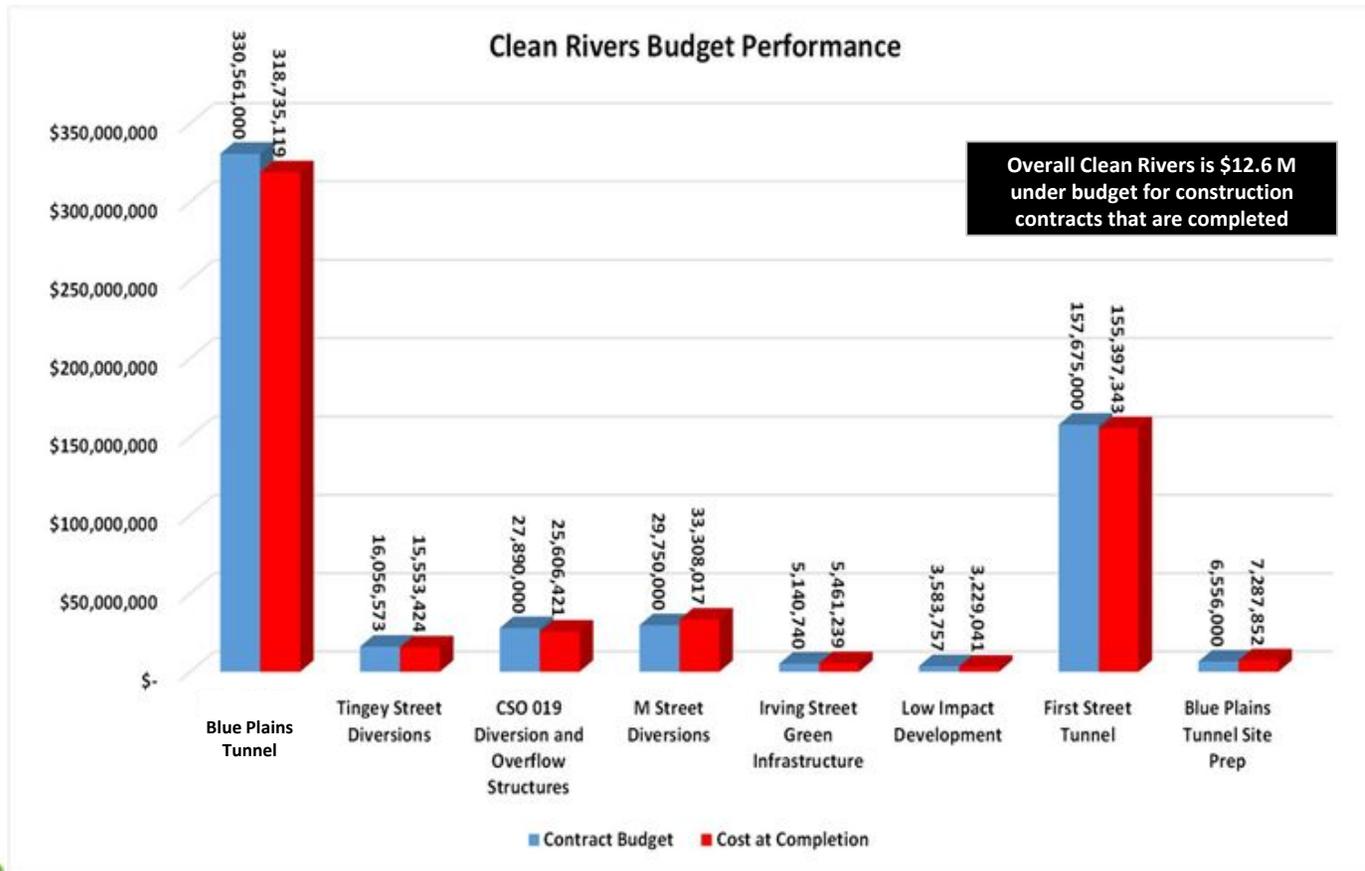


FY2018 Spending Status

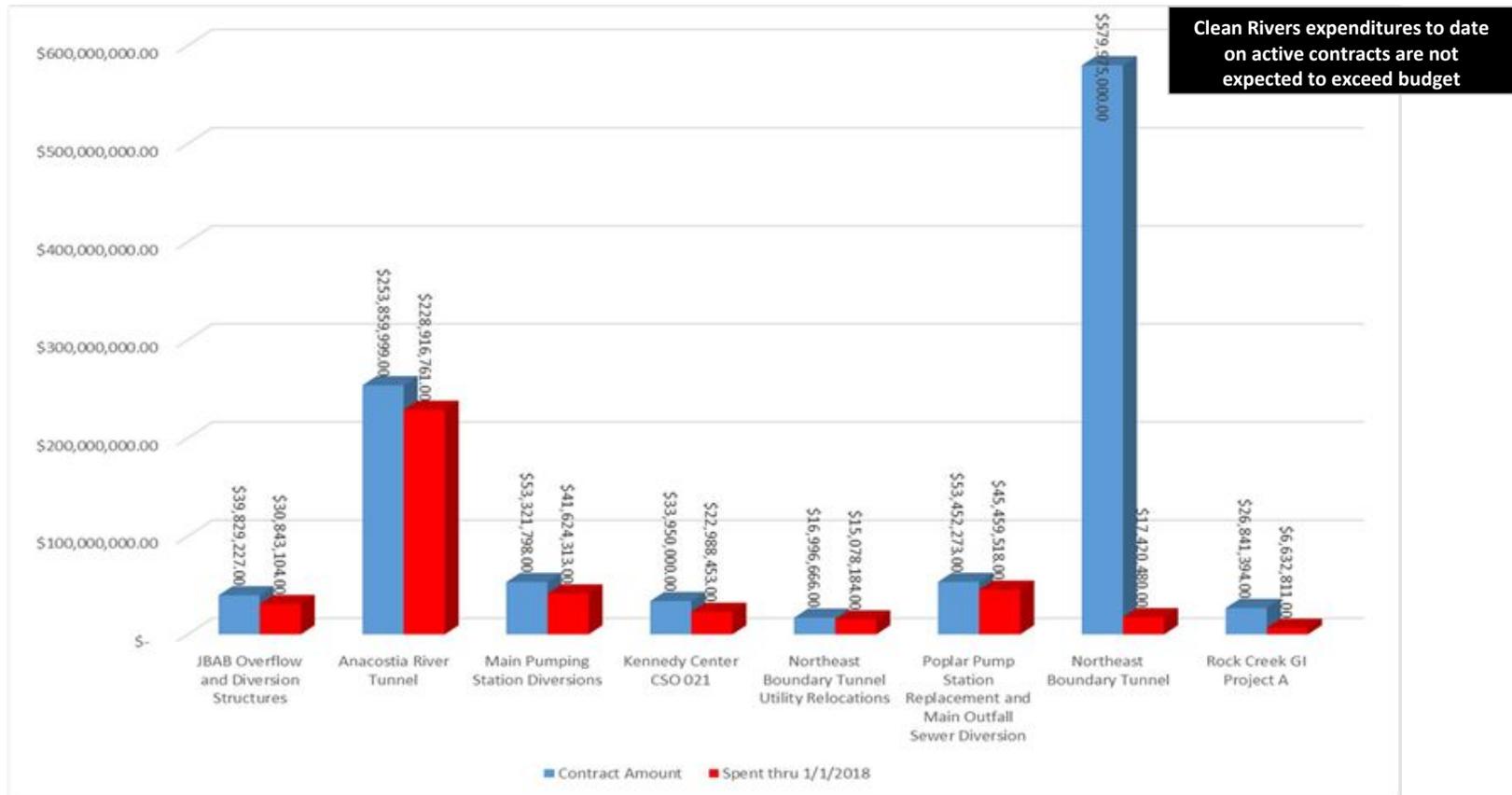


Clean Rivers expects to end FY2019 within a close range of its spending target

Clean Rivers Budget for Completed Contracts



Clean Rivers Budget for Active Contracts



Status Report of Public Fire Hydrants for DC Water Services Committee - October 1, 2018

	July Cmte. Report (Jul 02, 2018)	August Cmte. Report (Aug 13, 2018)	September Cmte. Report (Sep 04, 2018)	October Cmte. Report (Oct 01, 2018)
Public Fire Hydrants:	9,866	9,882	9,883	9,881
In Service:	9,815	9,820	9,838	9,833
Marked Out-of-Service (OOS)	51	62	45	48
OOS - defective requiring repair/replacement	32	33	28	34
% OOS requiring repair or replacement (DC Water goal is 1% or less OOS)	0.32%	0.33%	0.28%	0.34%
OOS - due to inaccessibility or temp construction work	19	29	17	14

Note: The number of public hydrants in the DC Water system fluctuates; this number fluctuates as hydrants are added and removed during development or construction activities as well as at the request of the Fire Dept.

Breakdown of Public Fire Hydrants Out-of-Service (OOS) as of October 1, 2018 48

Breakdown of Defective	0-7	8-14	15-30	31-60	61-90	91-120	> 120	Total
	Days	Days	Days	Days	Days	Days	Days	
Hydrant Needs Repair/Investigation	3	1	3	2	0	0	0	9
Needs Valve Investigation for Low Flow/Pressure or Shut Test for Replacement	0	0	0	0	3	0	1	4
Needs Replacement	2	0	1	3	5	1	9	21
Defective								34

Breakdown of Others	0-7	8-14	15-30	31-60	61-90	91-120	> 120	Total
	Days	Days	Days	Days	Days	Days	Days	
Temporarily OOS as part of operations such as a main repair	0	0	0	0	1	1	3	5
Construction* - OOS	0	0	0	0	0	0	4	4
Obstructed Hydrant – OOS hydrant due to operation impeded by an obstruction.	0	0	1	0	2	0	2	5
Others								14

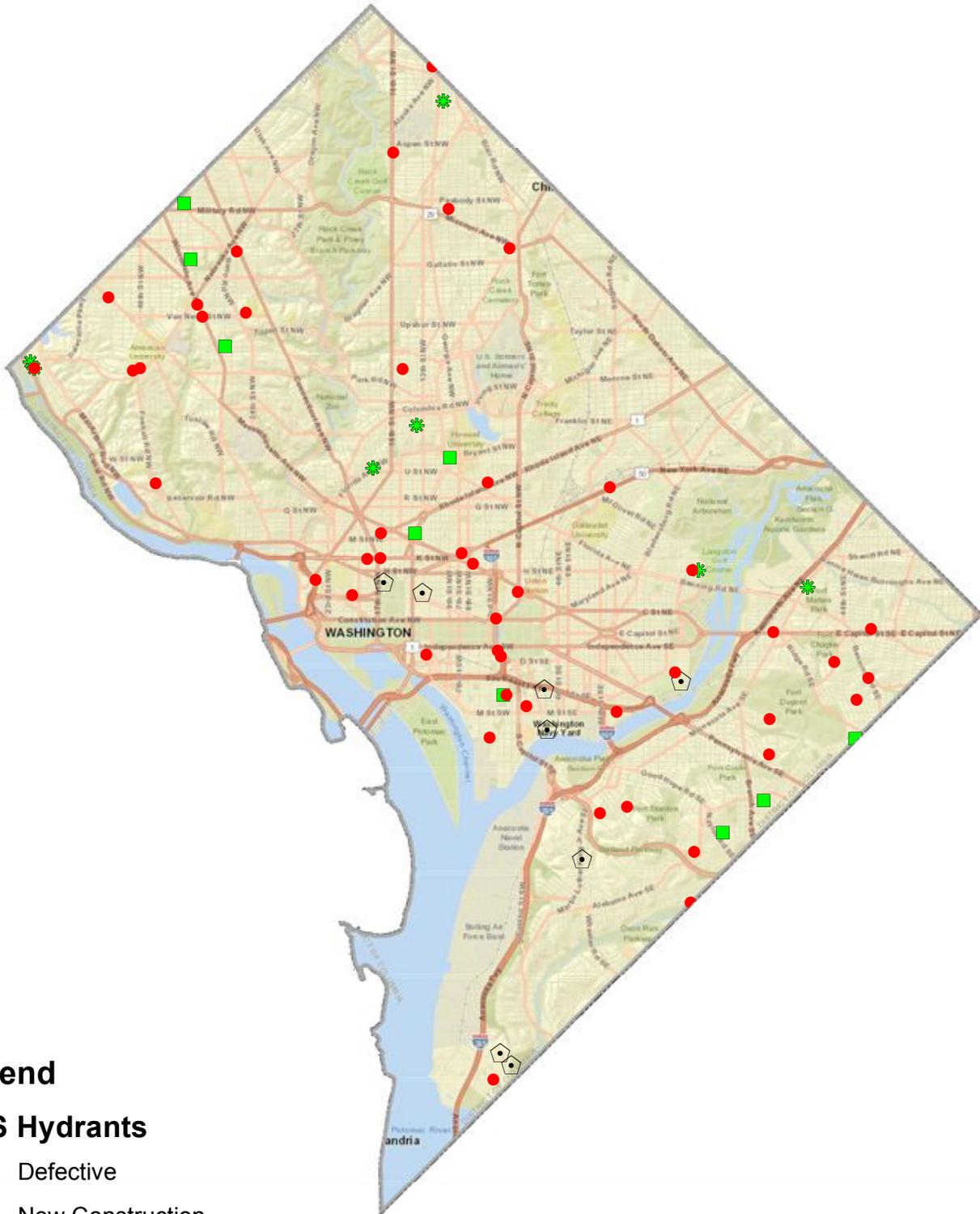
*Fire hydrants not accessible due to construction activities. Also includes new hydrants which have not yet been commissioned or old hydrants which will be abandoned as part of ongoing construction projects.

Status of Private Fire Hydrants-Based on FEMS Inspection Reporting

Private Hydrants:	1,308
• In Service:	1,175
• Out-of-Service (OOS):	133

Map of Public Out-of-Service Hydrants

October 01, 2018



Legend

OOS Hydrants

- Defective
- * New Construction
- ⬠ Obstructed
- Temporary