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 19, 2017
9:30 a.m.

	I.	**Call to Order**	James Patteson Chairperson
9:30 a.m.	II.	**AWTP Status Updates** **1.** BPAWTP Performance	Aklile Tesfaye
9:40 a.m.	III.	**Clean Rivers Project Status Update**	Carlton Ray
10:00 a.m.	IV.	**Action Items**	John Bosley
		Joint Use	
		1. Contract No. 17-PR-DIT-51 - PCM-G, Inc, Microsoft Software Renewal	
		Non Joint Use	
		1. Contract No. 15-PR-CCO-50 - Fasteners Rx, Compound Water Meters	
10:15 a.m.	V.	**Environmental Working Group (EWG) Report**	Charles Kiely
10:25 a.m.	VI.	**Water Quality Monitoring** **1.** Coliform Testing **2.** LCR Compliance Testing	Charles Kiely
10:30 a.m.	VII.	**Fire Hydrant Upgrade Program** **1.** Status Report of Public Fire Hydrants **2.** Out of Service Fire Hydrant Map	Jason Hughes
10:40 a.m.	VIII.	**Other Business/Emerging Issues**	
10:50 a.m.	IX.	**Executive Session***	
10:55 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.

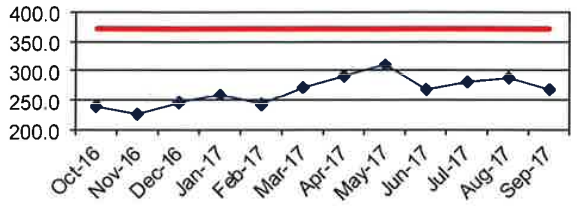
Follow-up Items from Prior Meetings:

1. Chief Engineer, DC Water: Provide update on flood vulnerability and protection of Blue Plains and other critical DC Water facilities. **[Will present at a future EQ&OPs Cmte Mtg]**
2. General Manager, DC Water: Provide update on Washington Aqueduct, Tom Jacobus **[Target Nov 16th EQ&OPs Cmte Mtg]**
3. Assistant General Manager, Customer Care & Operations, DC Water: Provide update on Environmental Working Group (EWG) report. **[On current Agenda]**
4. Chief Engineer, DC Water: Provide a presentation on the prioritization criteria for selection of water mains to be replaced each year **[Target Dec 21st EQ&OPs Cmte Mtg]**
5. Board Secretary, DC Water: Arrange a tour of security facilities and command center for committee members. **[Target Dec 21st EQ&OPs Cmte Mtg]**

BLUE PLAINS ADVANCED WASTEWATER TREATMENT PLANT
PERFORMANCE REPORT – SEPTEMBER 2017

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 was 269 MGD. There was no Excess Flow during this reporting period. The following Figures compare the plant performance with the corresponding NPDES permit limits.

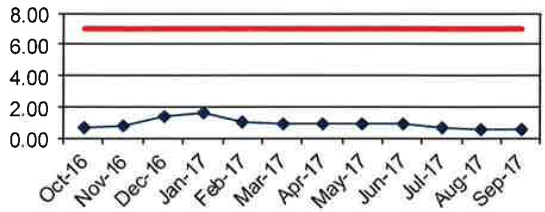
Plant Influent Flow (mgd)



Influent Flow — Average Design Capacity

This graph illustrates the monthly average influent flow to the plant. The design average flow is 370 MGD. Blue Plains has a revised 4-hour peak flow capacity of 511 MGD through complete treatment. Flows up to 336 MGD in excess of the 511 MGD peak capacity receive primary treatment, disinfection and dechlorination.

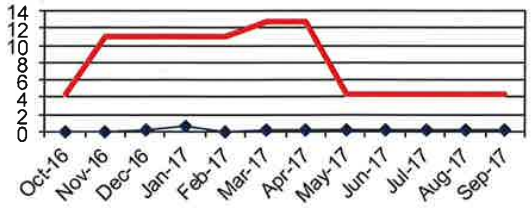
TSS (mg/l)



Effluent TSS — Permit Limit

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 0.76 mg/L, which is below the 7.0 mg/L permit limit.

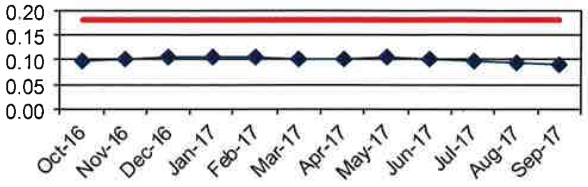
Ammonia (mg/l)



Effluent NH3 — Permit Limit

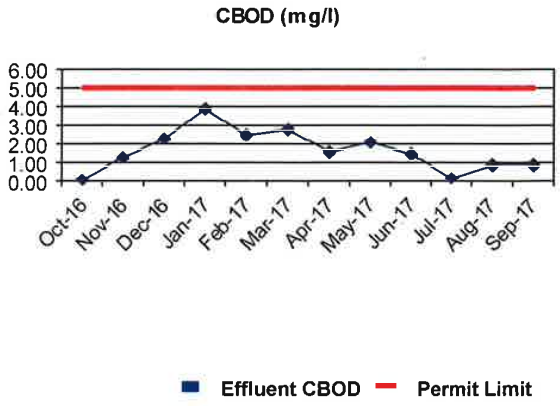
The Ammonia Nitrogen (NH3-N) is a measure of the nitrogen found in ammonia. For the month, effluent NH3-N concentration averaged 0.11 mg/L and is below the average 4.2 mg/L limit.

Total Phosphorus Annual Average (mg/l)

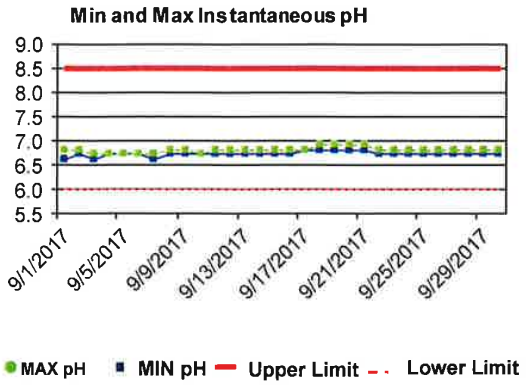


Effluent TP — Permit Limit

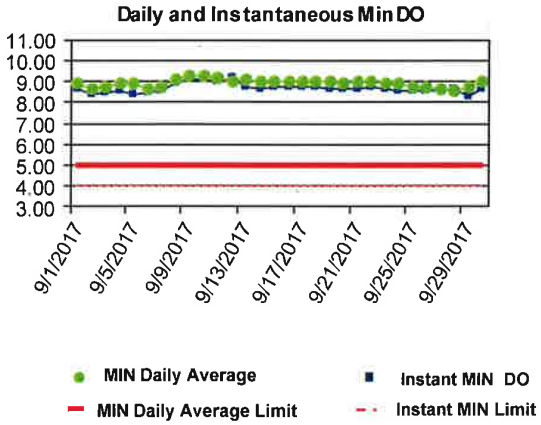
The Total Phosphorus (TP) is a measure of the particulate and dissolved phosphorus in the effluent. The annual average effluent TP concentration is 0.10 mg/L, which is below the 0.18 mg/L annual average limit.



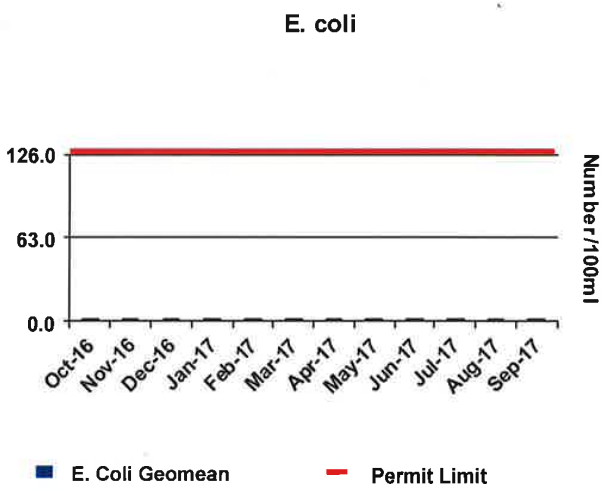
Carbonaceous Biochemical Oxygen Demand (CBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials. The effluent CBOD concentration averaged 1.06 mg/L (partial month), which is below the 5.0 mg/L limit.



pH is a measure of the intensity of the alkalinity or acidity of the effluent. The minimum and maximum pH observed were 6.6 and 6.9 standard units, respectively. The pH was within the permit limits of 6.0 and 8.5 for minimum and maximum respectively.



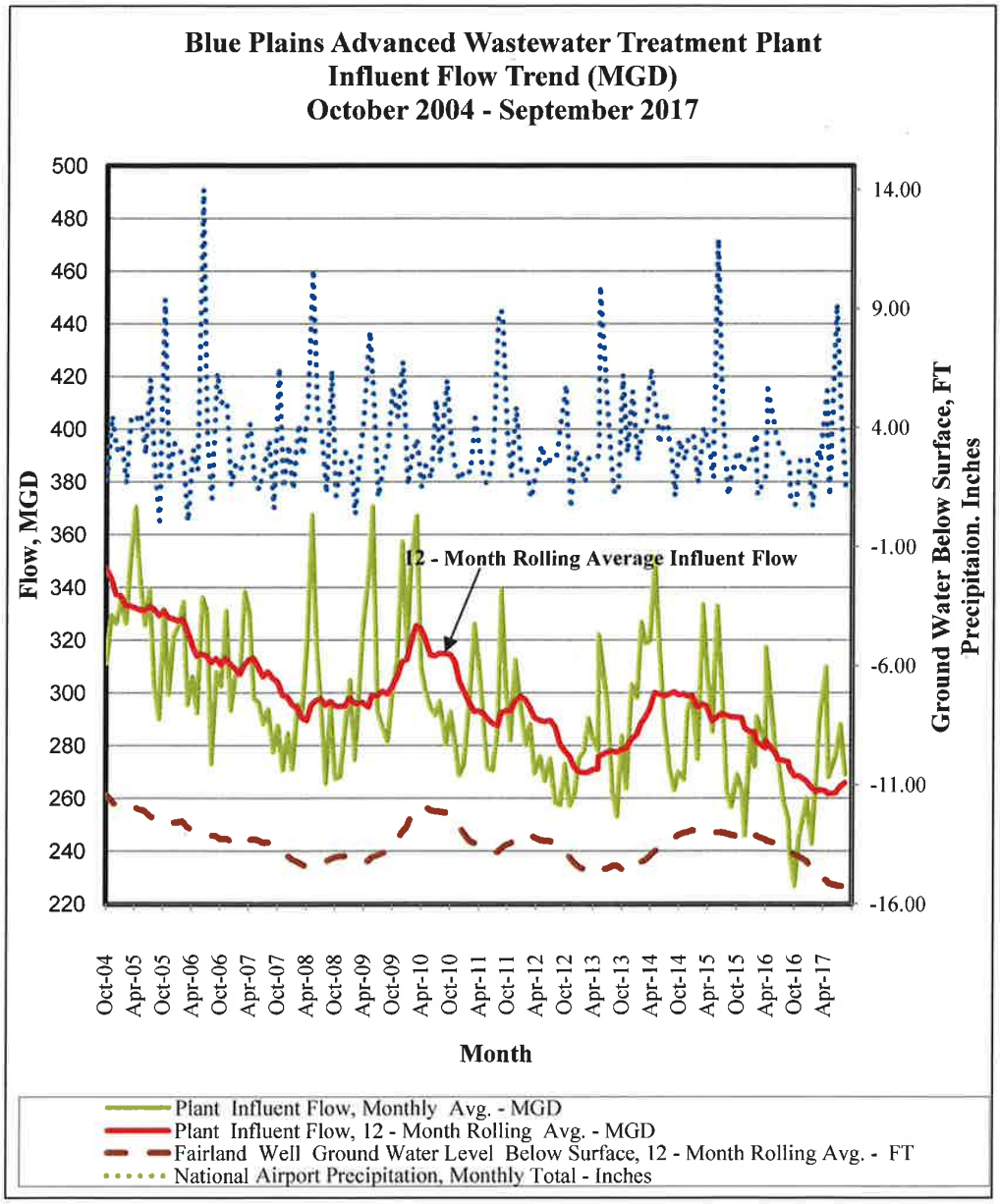
Dissolved Oxygen (DO) is a measure of the atmospheric oxygen dissolved in wastewater. The DO readings for the month are within the permit limits. The minimum daily average is 8.6 mg/L. The minimum instantaneous DO reading is 8.3 mg/L. The minimum permit limits are 5.0 mg/L and 4.0 mg/L respectively.



E.coli is an indicator of disease causing organisms (pathogens). The E.coli permit limit is 126/100mL. The E coli geometric mean is 1.0 /100mL, and well below the permit limit.

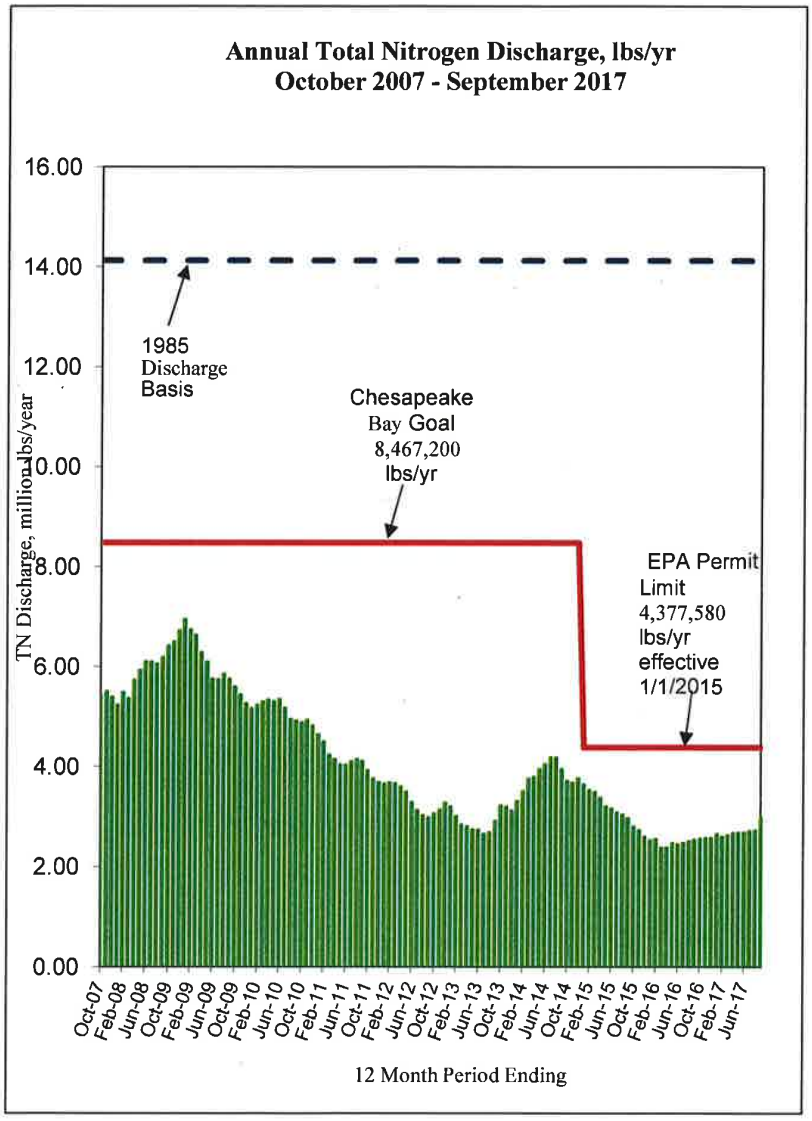
Plant Influent Flow Trend

The graph below shows a long-term influent flow trend to the plant ending September 2017. 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.



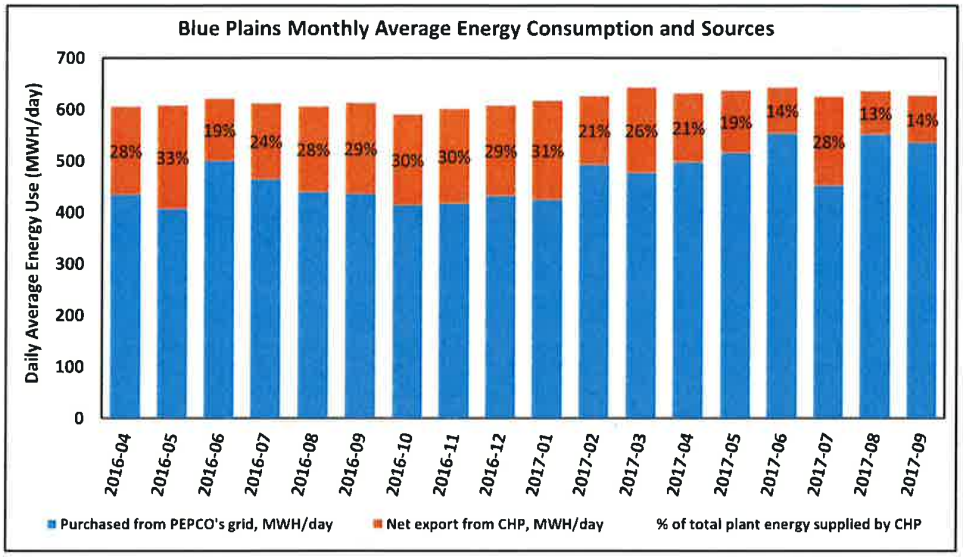
Blue Plains Total Nitrogen (TN) Removal – Performance

The graph below shows a rolling 12-month total effluent TN discharge, in pounds per year, over a 10-year period ending September 2017. During the month, the TN average concentration and total load in the effluent were 2.99 mg/L and 201,500 lbs respectively. The effluent quality is on track to remain below the NPDES permit annual load limit of 4,377,580 lbs/year.

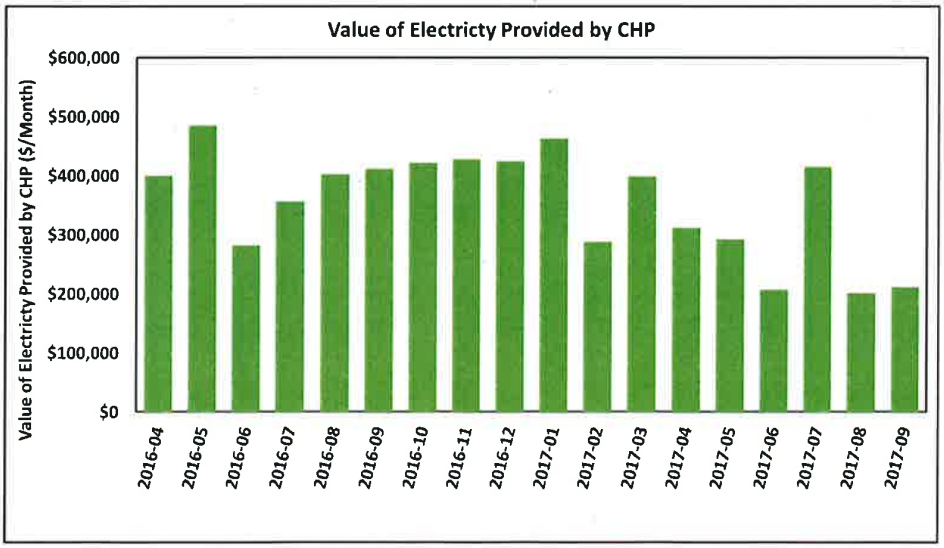


Blue Plains Electricity Generation and Usage

In September 2017, the average energy consumed at Blue Plains was 625 megawatt hours per day (MWH/day) or 2.3 MWH of electricity per million gallon of wastewater processed through treatment. The Combined Heat and Power (CHP) facility generated an average of 92 MWH/day, making up for 14% of total energy consumed at Blue Plains. The remaining 533 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 produced by CHP.

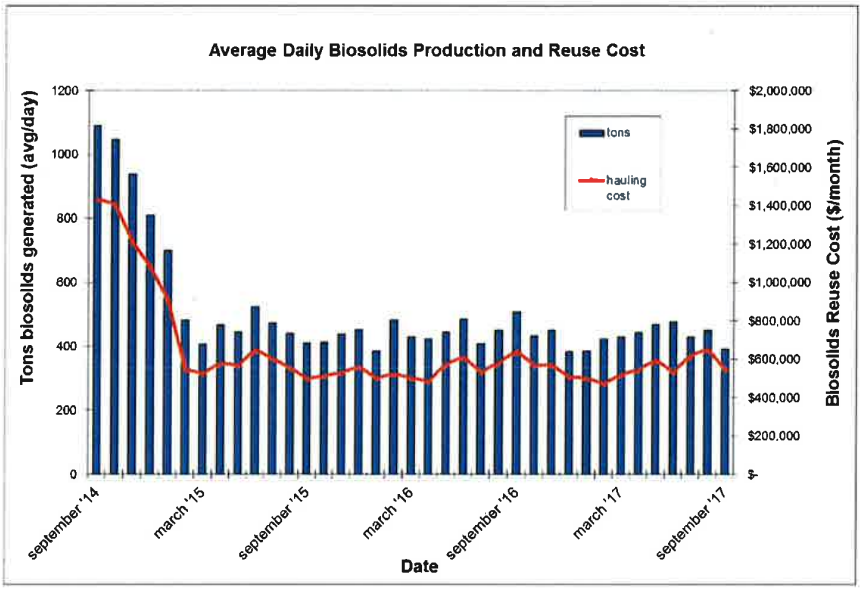


In September the capacity of the CHP waste heat boilers or Heat Recovery Steam Generators (HRSG) to supply adequate high pressure steam was limited. This was both as a result of the damage to the duct burners in the HRSGs as well as reduced heating capacity of the HRSGs due to scaling on their interior walls. As a result, significant amounts of digester gas, typically used to operate the Combustion Turbines (CT), was diverted to continuously operate an auxiliary boiler and supply adequate steam required to process solids through thermal hydrolysis and digestion. In addition, the air permit stipulates that only one pair of CT/HRSG can remain in operation when the auxiliary boiler is in use. As a result, CHP generated a net average of 92 MWH of electricity per day or 14% of the energy use at Blue Plains.

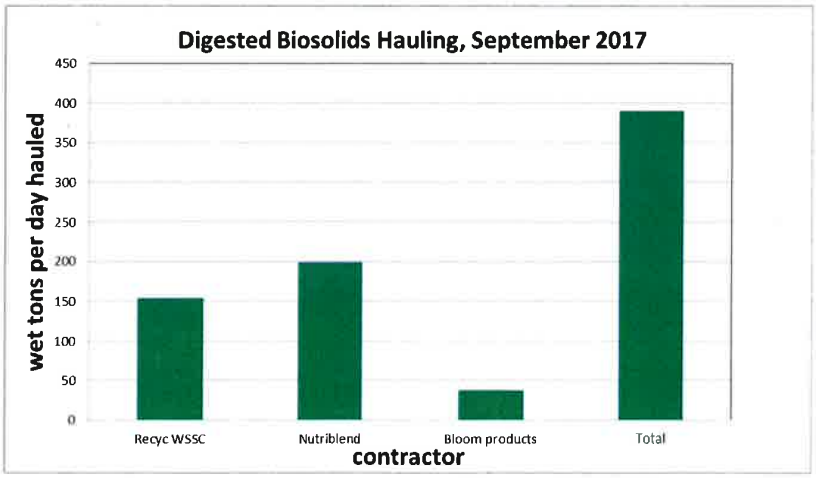
Repair work to restore one of the three HRSGs to the original factory conditions was completed on September 28, 2017. The repair work, which included modifications to the duct burner and digester gas flow controls, was executed by the original equipment manufacturers under a contract with Potomac Energy Services (PES); the contract operator of the CHP facility. After one full week of operations, PES completed a full inspection of this unit and verified that the restoration was effective. Additional monitoring and full inspections will continue through October and November to further verify effectiveness of the repair, before it is applied to restore the remaining two units. During the 14-day period since the completion of the repair, the net energy production has averaged at approximately 25% of the energy use at Blue Plains.

RESOURCE RECOVERY

In September, biosolids hauling averaged 444 wet tons per day (wtpd). The average percent solids for the Class A material was 31.4%. 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 $2.91/gallon, and with the contractual fuel surcharge, the weighted average biosolids reuse cost (taking into account the marketed material) was $39.86 per wet ton.



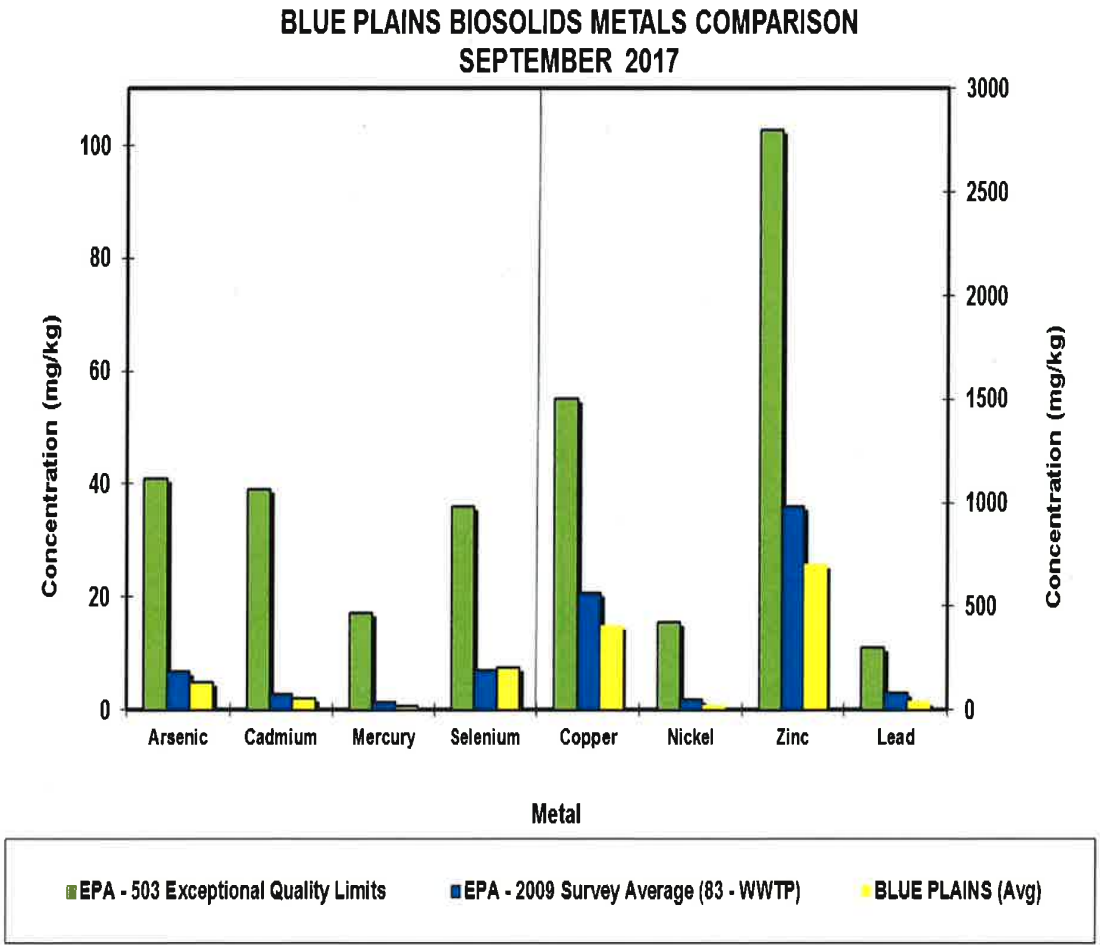
The average quanities of Class A biosolids transported and applied on farms by the two major contracts (WSSC's Recyc and DC Water's Nutriblend) and the quantites marketed as Bloom are shown on the graph bleow. In September, 1113 wet tons of Bloom were distributed to 6 different customers.



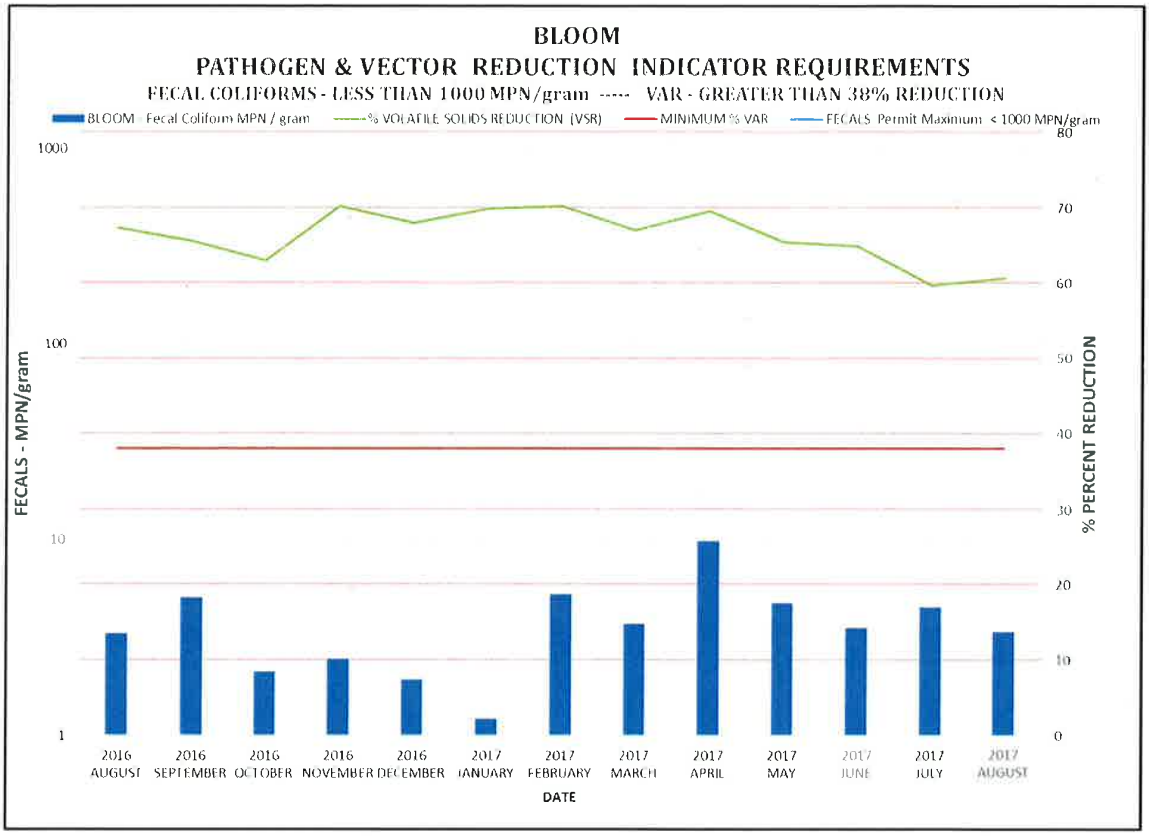
Product Quality

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).

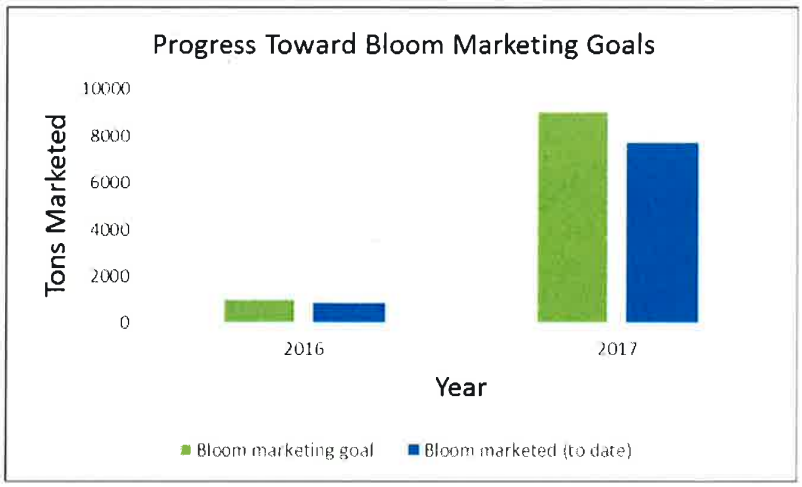


The graph below shows both Vector Attraction Reduction (VAR) and Fecal Coliform (FC) results in the Class A product, both of which are required to maintain the Class A Exceptional Quality (EQ) status. Vector Attrraction Reduction is measured by the reduction in Volatile Solids (VS) or organic compounds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

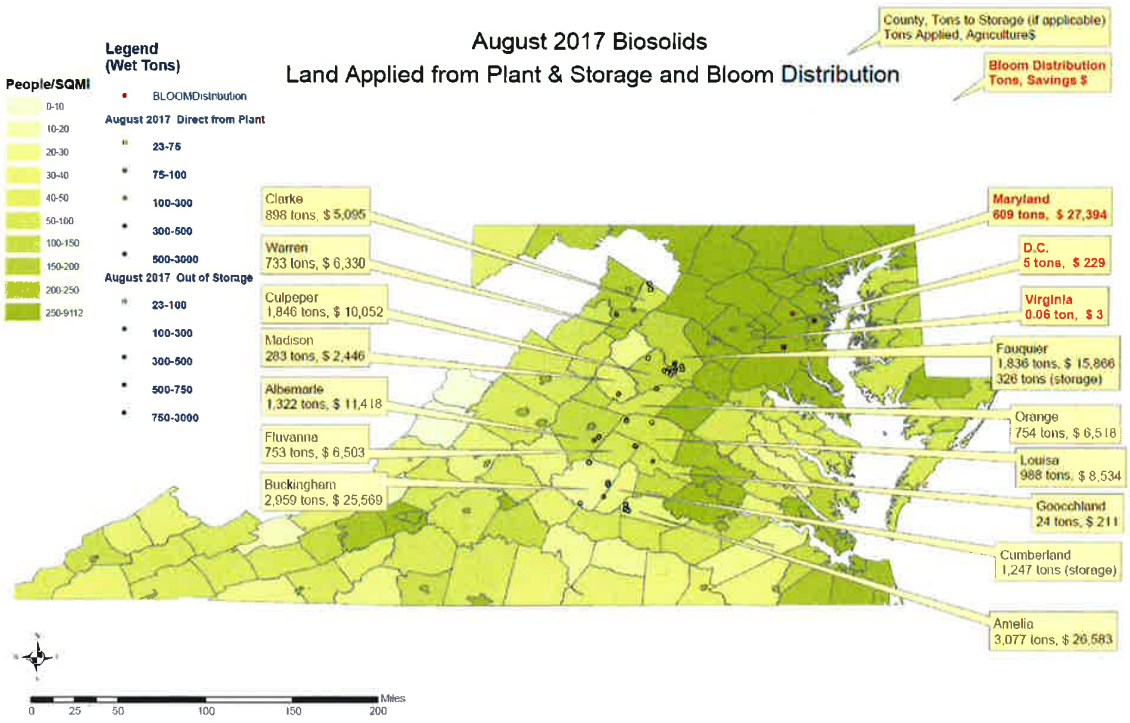


Bloom Marketing

Bloom sales as of September 1st total 7670 tons for the calendar year. This represents 85% of the goal, 75% of the way through the year.



Bloom Reuse and Value Map



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 during August and September included continued work by our research team in the carbon removal/redirection, nitrogen removal, and solids treatment focus areas. In addition, members of the R&D team were involved with the activities below.

Process energy model development progress meeting - Aug 7th, 2017

The research and development team met with Dr. Bernhard Wett (ARAconsult) to review the progress for developing an energy balance model for Blue Plains using the Sumo process simulator (by Dynamita, France). The meeting was focused on understanding and setting up the mass and energy balances around the thermal hydrolysis, anaerobic digestion and the combined heat and power facility. The team reviewed plant data along with the detailed configuration and schematics of these processes to help establish the mass and energy balances. Once development and calibration are complete, the model will serve as a tool to help identify and evaluate opportunities for optimizing energy use.

Process modeling workshops - August 8th and 9th, 2017

The research and development team arranged several working meetings with Dr. Imre Takacs (Dynamita) to review the progress and development of process models associated with DC Water research activities. The following development topics were discussed:

Anaerobic Digestion model: This work includes further development of the model for simulating the hydrolysis step as well as impact of digester ammonia concentration on biogas production. The model will be used to simulate the performance of digester pilots operated in Dr. Matthew Higgins' lab at Bucknell University where the impact of solids retention time on gas production was studied.

Flocculent Settling model: This work was focused on using a model to predict effluent quality of a clarifier based on settling characterization parameters that were developed by DC Water and collaborators. The research team has established preliminary mechanistic correlations between the sludge settling characteristics parameters and effluent quality. The team is working to identify whether these correlations can be applied globally (to any plant or process) or whether they are specific to conditions at Blue Plains.

Carbon capture model: The model development is focused on simulating carbon oxidation and sequestration in high rate processes such as the Blue Plains secondary treatment process. The model must simulate the various processes to remove soluble, colloidal and particulate organics including oxidation, storage, adsorption and flocculation [transferring dissolved organics from the bulk liquid to the solids matrix]. The team has developed the mathematical model structure and will be testing the model using data from the literature and recent data associated with work at Blue Plains and Hampton Roads Sanitation District.

Odor and sulfur balance: In this effort, we are working to establish mass balances on sulfur around Blue Plains to identify sources and conversion mechanisms that relate to generation of odors. During the summer internship program, a sampling campaign was carried out to establish the mass balances. The data can be used to calibrate the sulfur model in the Sumo simulator. The calibrated model will eventually be used to identify problem areas with respect to odor release and to evaluate mitigation strategies.

Process modeling training - August 10th, 2017.

The research and development team coordinated a training session led by Dr. Imre Takacs for all DC Water research associates on the use of the Sumo process simulator. Sumo is an open source model for wastewater process modeling. It can be used to simulate various physical, chemical and biological processes used in wastewater treatment. Process modeling is an essential component for technology transfer from development stage to full-scale implementation.

Advancing Research and Technology (ART)

Joint development of Heme measurement kit for anammox activity monitoring: The research and development team initiated a conversation with HACH and ARAconsult to evaluate the opportunity to jointly develop a new testing kit to monitor anammox activity. The kit will provide an easy and fast tool to evaluate process performance of anammox based technologies, such as DEMON process. The testing protocol was developed at the University of Innsbruck, Austria in a collaboration between DC Water and ARAconsult. DC Water, ARA consult and HACH are working together to establish an NDA to further discuss the details and assess feasibility.

Kunming Plant 7: As part of the ART program, DC Water was hired by HKF Technology to evaluate options for optimizing nitrogen removal at Plant 7 in Kunming, China. An interim report was submitted which presents process modeling results and alternatives for upgrading. Additional work was requested to assess low cost options for increasing plant capacity.

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.

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.

This month the laboratory began 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.

Blue Plains Pretreatment Program

The Blue Plains Pretreatment Program manages the Industrial Pretreatment Program, including temporary dewatering dischargers from construction and other activities, as well as the Hauled Waste Program. Additional responsibilities include providing specialized sampling and program management support for the Blue Plains NPDES permit and facilitating the quarterly Blue Plains Storm Water Committee meetings and other SWPPP compliance activities. Staff is also currently working on updating regulations to incorporate EPA's new Dental Amalgam Rule, as well as a new proposed hauled waste fee structure (volume-based instead of annual flat fee), and fees for industrial high strength waste.

Industrial Pretreatment Program

DC Water currently manages twelve (12) Significant Industrial User (SIU) permits and eighteen (18) Non-Significant Industrial User (NSIU) wastewater discharge permits. Inspections and compliance monitoring were conducted at two SIUs this month: Dulles Airport and Naval Research Laboratory (NRL). EPA Region III staff conducted a field audit of the DC Water pretreatment program during the Dulles Airport inspection and compliance monitoring event in addition to a records review of office files at Blue Plains.

DC Water received 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 issued an administrative order to NRL this month for a PCB violation that occurred in May 2017 and resulted in Significant Noncompliance. Five follow-up monitoring events indicated that NRL was consistently back in compliance with discharge standards.

DC Water currently manages 90 Temporary Discharge Authorization (TDA) permits, primarily for construction site discharges of groundwater and/or surface runoff in the combined sewer area. Five new TDA permits were issued this month. All TDA discharges are currently in compliance with pretreatment standards.

Hauled Waste Program

As of the end of the current month, the hauled waste program had 31 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.

DC Water received 849 hauled waste loads (2,242,416 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. Data is entered into an Excel spreadsheet to track the volume and type of loads being discharged daily and the results of sampling. Two hauled waste samples were collected this month.

NPDES Permit Sampling

Pretreatment staff collected the quarterly influent, effluent, and biosolids monitoring required for the NPDES permit, including low-level mercury sampling of the influent and effluent.

District of Columbia Water and Sewer Authority
George S. Hawkins, CEO and General Manager

Briefing on:

DC Clean Rivers Project Quarterly Update

Briefing for:

Environmental Quality & Operations Committee Meeting

October 19, 2017

DCWATER.COM

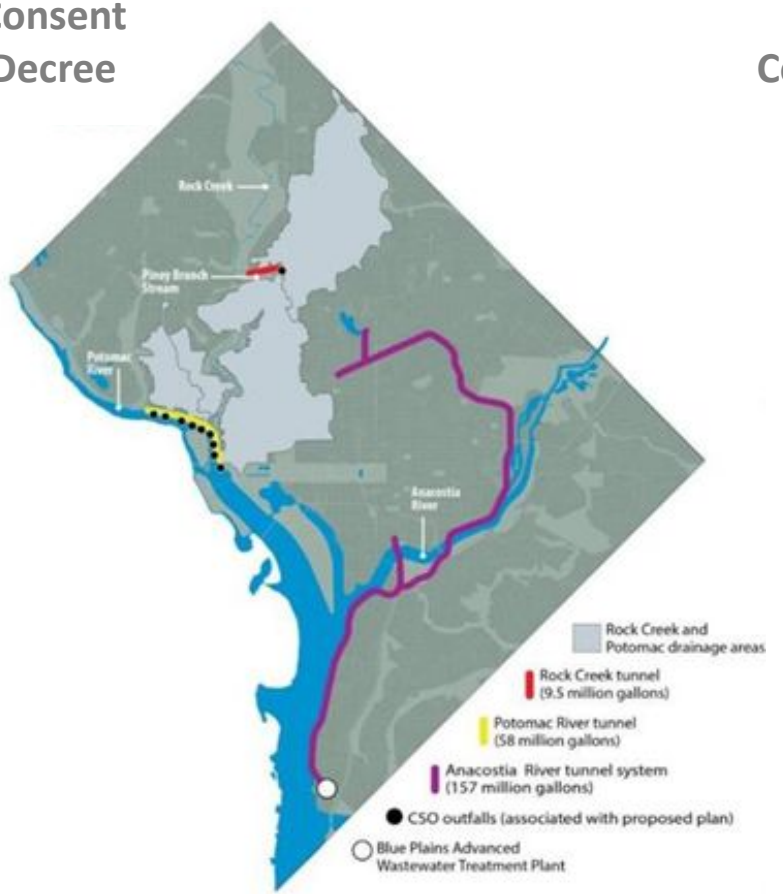
Agenda

- Overview
- Progress Summary
- Spending Status
- Schedule Status

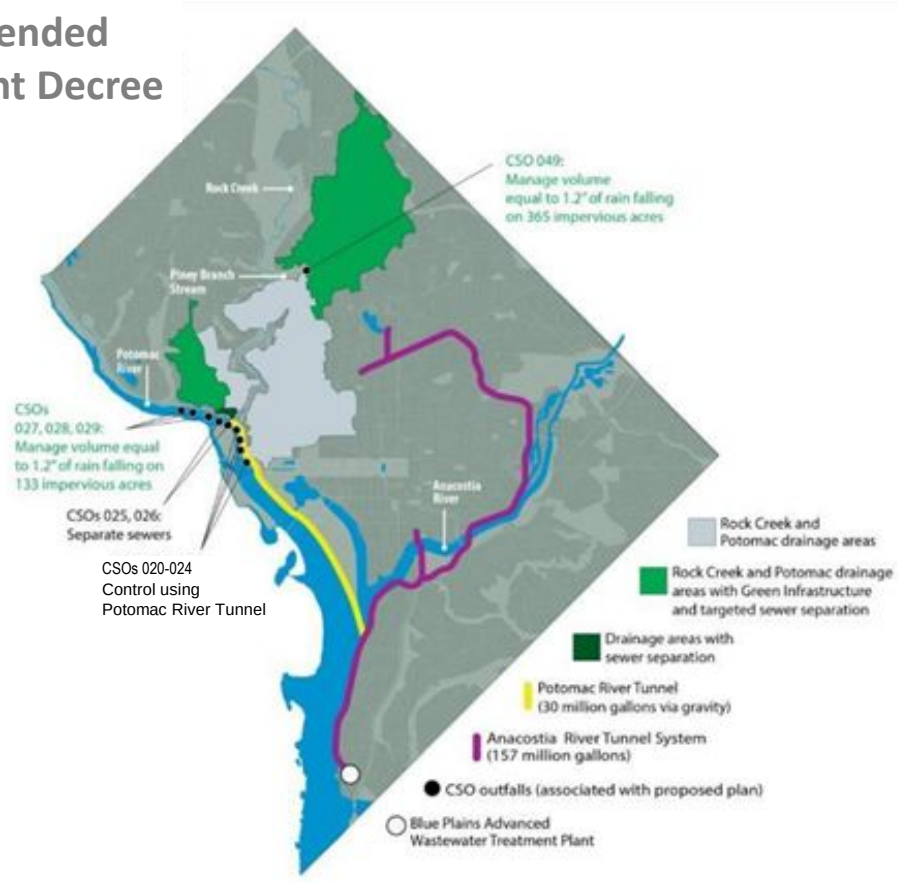
dc clean RIVERS PROJECT

Amended Consent Decree (Jan 14, 2016)

Consent Decree



Amended Consent Decree

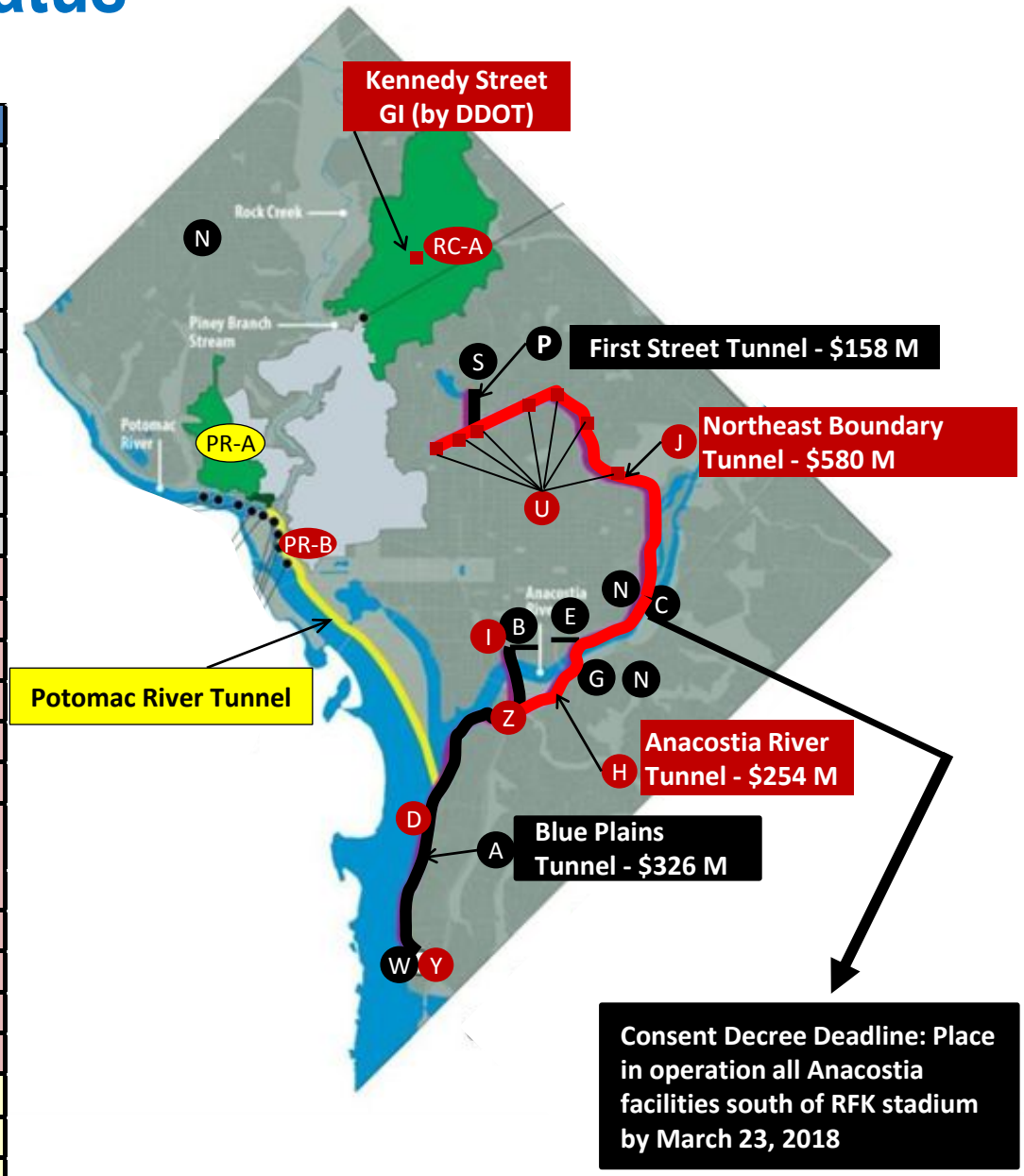


- Gave us an additional 5 years
- Deferred $400 M± in spending for Potomac River Tunnel

3

Clean Rivers Project Status

Division	Name
Completed Projects	
W	Blue Plains Tunnel Site Prep
A	Blue Plains Tunnel
C	CSO 019 Overflow and Diversions
B	Tingey Street Diversions
E	M Street Diversion Sewer
G	CSO 007 Diversion Facilities
N	Low Impact Development @ DC Water Facilities
P	First Street Tunnel
S	Irving Street Green Infrastructure
Projects in Construction	
H	Anacostia River Tunnel
D	JBAB Overflow & Diversion Facilities
I	Main Pumping Station Diversions
U	Northeast Boundary Utility Relocations
Z	Poplar Point Pumping Station & MOS Diversion
Y	Blue Plains Tunnel Dewatering Pumping Station and Enhanced Clarification Facility (Managed by DWE)
PR-B	CSO 021 Diversions at Kennedy Center
RC-A	Rock Creek Green Infrastructure Project A
RC-B	Kennedy Street Green Infrastructure (by DDOT)
J	Notheast Boundary Tunnel
Projects in Planning or Design	
PR-A	Potomac River GI Project A
--	Potomac Tunnel EA



PROGRESS SUMMARY

APPENDIX – MAJOR ACCOMPLISHMENTS FY 2017 2ND AND 3RD QUARTER UPDATE

dc clean RIVERS PROJECT

Division H – Anacostia River Tunnel

Key Map

Design-Builder: Impregilo Healy Parsons Joint Venture
Contract Price: $253.9M - Percent Complete: 87%

Financials as of September 25, 2017

CSO 019 CSA South Shaft/Diversion Chamber/Approach Channel/ISCT

- *Approach Channel concrete was placed for the walls (8/2/17), transition roof slab (9/14/17) and the roof slab (9/21/17).*
- *Vent Facility concrete was placed for the base slab (8/5/17), the interior and exterior walls (8/31/17) and swale (9/16/17).*
- *Ventilation Control Vault concrete was placed for the exterior walls (8/3/17) and the roof slab (9/14/17).*
- *Diversion Chamber concrete was placed for the exterior walls/upper base slab (8/17/17), and the roof slab (9/9/17).*
- *IHPJV wire sawed the south shaft /overflow slurry wall interface.*

$ 32.44M completed to date
$ 3.59M remaining

CSO 018 CSA Approach Channel/NSS/Adit

- *In the shaft, concrete was placed for internal hydraulics lift #3 (9/1/17), lift #4 (9/13/17) and lift #5 (9/21/17).*
- *Approach Channel curbs were placed on August 3, 2017.*
- *In the Ventilation Control Vault, IHPJV started mechanical pipe installation.*

$ 12.17M completed to date
$ 1.59M remaining

Poplar Point (PPJS) Shaft

- *Shaft internals all completed, IHPJV preparing to form for cast in place shaft cover.*

$ 1.81M completed to date
$ 0.05M remaining

CSO 005 CSA Shaft/NSS/Adit

- *In the Diversion Chamber, concrete was placed for the exterior walls, upper base slab (8/17/17), manhole sewer connection (8/24/17) and the topping slab (9/25/17).*
- *Concrete for the Ventilation Control Vault stairs was placed (9/1/17).*
- *In the Approach Channel, concrete was placed for the roof curbs (8/18/17) and the tide gates slope filler (9/25/17).*

$ 5.00M completed to date
$ 1.19M remaining

CSO 007 CSA Shaft/NSS/Adit

- *In the Approach Channel, concrete was placed for the interior wall (8/25/17), roof slab (9/21/17) and the manhole invert (9/25/17).*
- *In the Ventilation Control Vault, concrete was placed for the roof slab (9/21/17).*

$ 4.68M completed to-date
$ 0.57M remaining

M Street CSA Approach Channel/ ART

- *In the Ventilation Control Vault, concrete was placed for the vent chamber (8/9/17), exterior walls (8/24/17), internal vent walls (9/11/17), odor control unit pad and the vent topping slab (9/19/17)*
- *In the Approach Channel, concrete was placed for the manhole lift #1 (8/21/17).*

$ 9.82M completed to date
$ 0.98M remain

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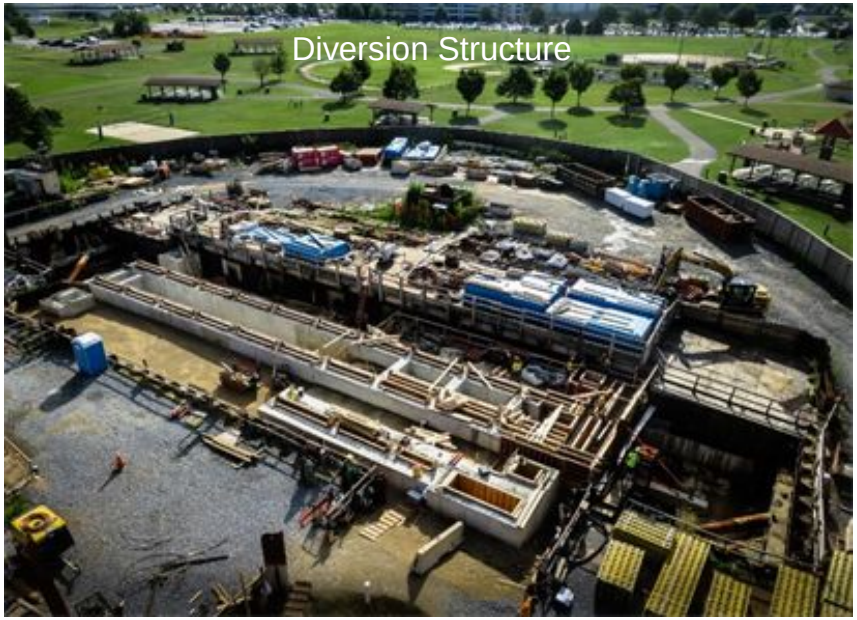
Division D – JBAB Overflow and Diversion Structures

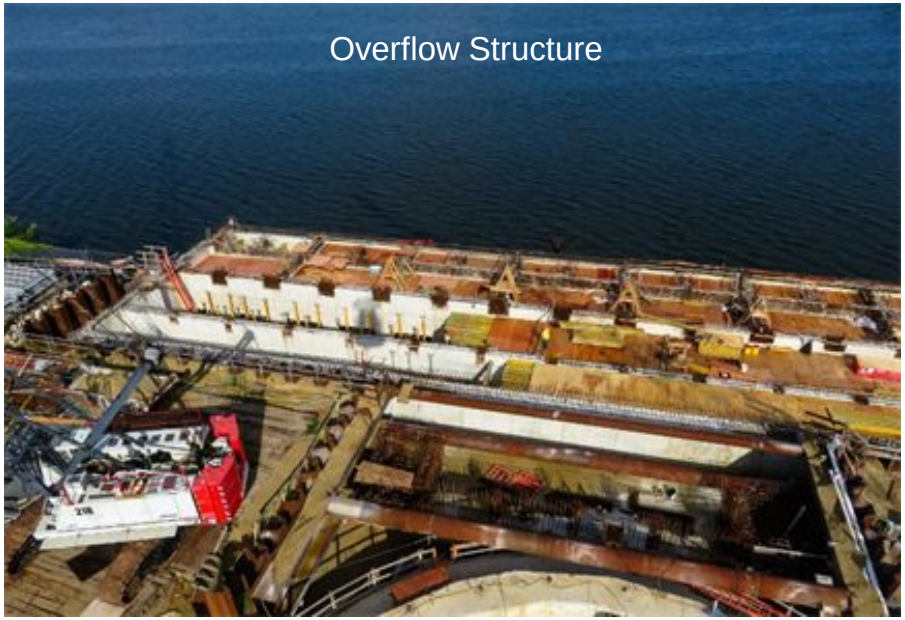

Key Map

Design-Builder: Corman Construction Contract Price: $40M - Percent Complete: 72%
Financials as of September 1, 2017

JBAB Diversion Structure is designed to capture flow from the Potomac Outfall Sewers (POS) to convey it to Blue Plains via the Blue Plains Tunnel (BPT). JBAB Overflow Structure will allow overflow to the Anacostia when BPT is at capacity.

- Diversion Structure concrete is approximately 100% complete
- Approach Channel concrete is approximately 100% complete
- Overflow Structure concrete is approximately 84% complete
- Ventilation Facility concrete is approximately 100% complete
- Drop Shaft concrete is approximately 84% complete


Diversion Structure


Overflow Structure

7

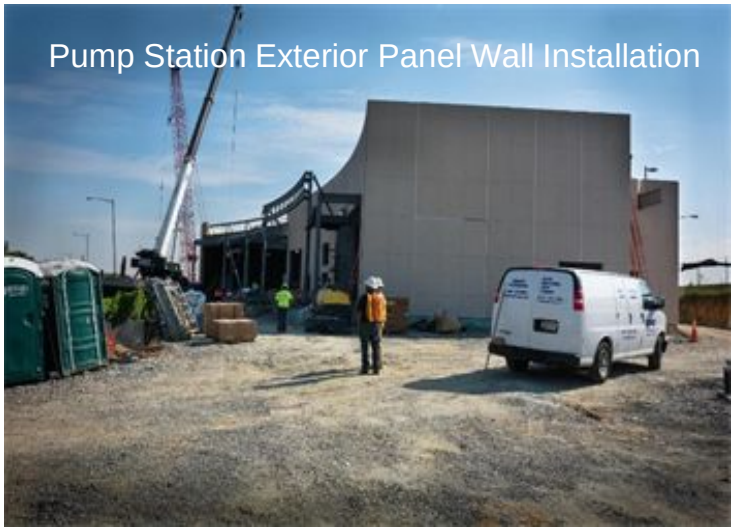
Division Z – Poplar Point Pumping Station Replacement and Main Outfall Sewers Diversion


Key Map

Contractor: EE Cruz Contract Price: $53.4M - Percent Complete 75%
Financials as of September 1, 2017

The Poplar Point Pumping Station serves the sewer system on the east side of the Anacostia. It lifts sewage from the Anacostia Main Interceptor (AMI) up into the outfall sewers for conveyance to Blue Plains.

- Pump Station concrete is approximately 100% complete
- Main Outfall Sewer concrete is approximately 98% complete
- Installed 95% of ductile iron Force Main for Pumping Station
- AMI Sewer – Tunneling is approximately 100% complete and pipe installation is 0% complete.
- AMI Diversion Chamber is approximately 25% complete


Pump Station Exterior Panel Wall Installation

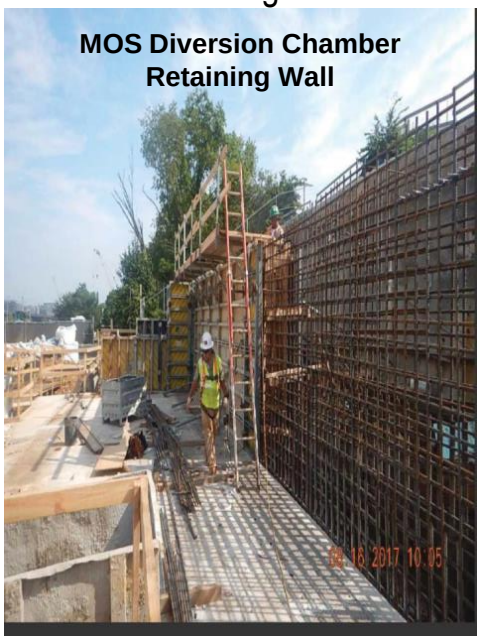

Pump Installation

8

Division Z – Poplar Point Pumping Station Replacement and Main Outfall Sewers Diversion


Key Map

- Project was procured based on <u>low bid, not best value</u>
- E.E. Cruz bid $5M lower than the next bidder on the project
- This has potentially led to construction challenges as the Contractor tries to complete project within the low bid amount
  - Additional construction management and engineering services have been required due to schedule delays
  - Liquidated Damages are in contract to offset DC Water costs; DC Water may not be able to recoup all costs due to differing site condition claims


MOS Diversion Chamber Retaining Wall

Header Piping in Pump Room


Installing Pump Station Exterior Precast Panels

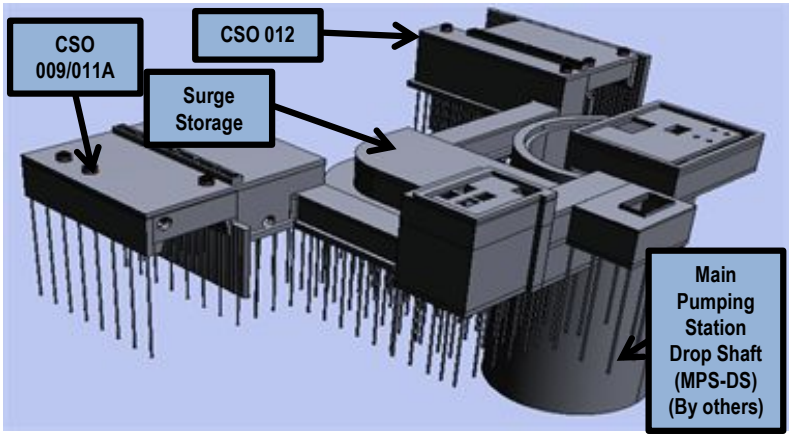
Division I – Main Pumping Station (MPS) Diversions


Key Map

Design-Builder: Corman Construction Contract Price: $53M - Percent Complete: 92%
Financials as of September 1, 2017

MPS Diversions intercept flows from Tiber Creek Sewer, Canal Street Sewer and New Jersey Ave Trunk Sewer and redirect them to BPT during wet weather.

- Completed approximately 90% of CSO 009/011 Diversion Chamber
- Completed approximately 95% of CSO 012 Diversion Chamber
- Completed approximately 90% of Surge Tank/Junction Chamber
- Completed approximately 65% of Venting Facility
- Completed approximately 95% of Channel from CSO 009 to CSO 012




CSO 009/011 Diversion Chamber Roof Deck


Surge Tank

Mayor's Task Force Report on the Prevention of Flooding in Bloomingdale and LeDroit Park

Project Complete

Project Underway

1. SHORT-TERM (COMPLETED)

- Installation of storm drains and a five foot-wide storm sewer
- Backwater valve and rain barrel program

2. MEDIUM-TERM (COMPLETED)

IRVING STREET GREEN INFRASTRUCTURE PROJECT
- 0.4 million gallons of bioretention facilities

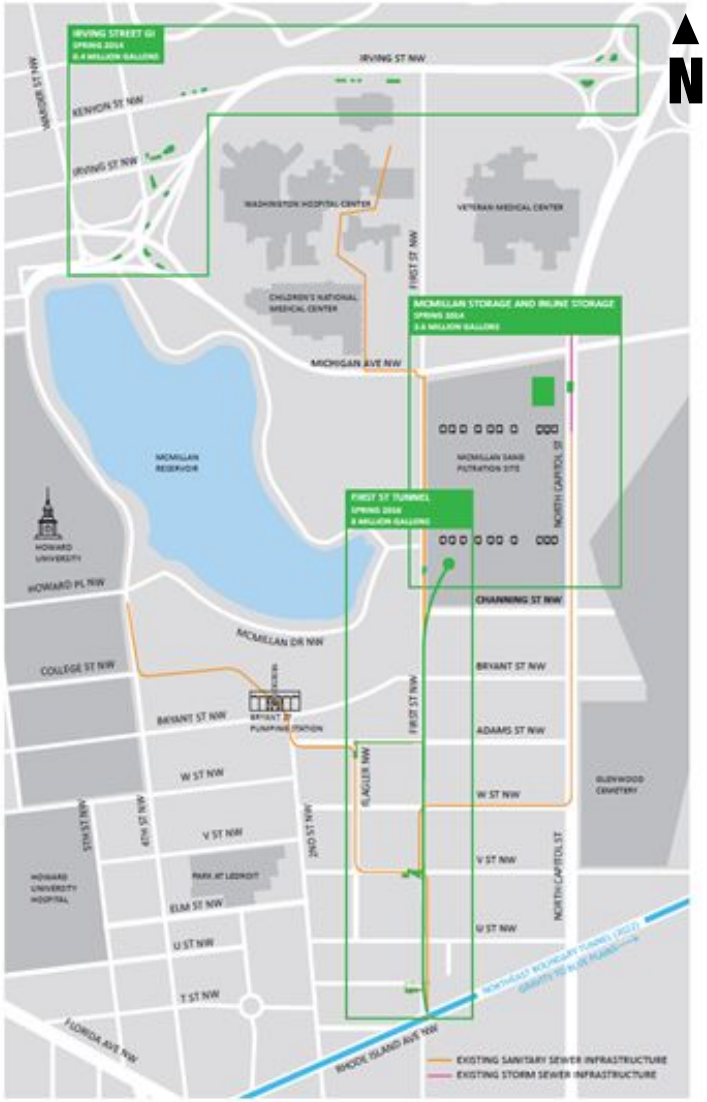
MCMILLAN STORMWATER STORAGE PROJECT
- Repurpose Sand Filtration cells as stormwater storage, in-line sewer storage
- 3.6 million gallons

FIRST STREET TUNNEL PROJECT
- New 9 million gallon tunnel

SMALL DIAMETER WATER MAIN PROJECT (DETS PROJECT)

3. LONG-TERM (2023)

NORTHEAST BOUNDARY TUNNEL PROJECT
- A large, deep sewer tunnel that will increase the capacity of the sewer system and control CSO discharges; completion in 2023



dc clean RIVERS PROJECT

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Division U – Northeast Boundary Tunnel Utility Relocations


Key Map

Contractor: Fort Myer Construction Corporation
Contract Price: $16.99M - Percent Complete: 88%
Financials as of September 1, 2017

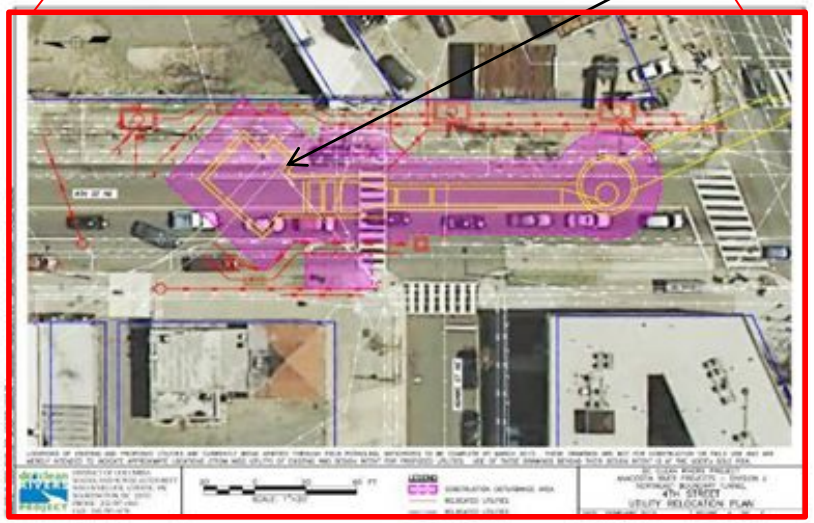
Purpose: Clear surface work sites to make way for NEBT Tunnel Contractor

- Completed 90% of R Street Water Main Relocations
- Completed 100% of R Street Sewer Relocations
- Completed 100% of 4th Street Water Main Relocations
- Completed 100% of 4th Street Sewer Relocations
- Completed 100% of Mt. Olivet Drop Shaft Water Main Relocations
- Completed 100% of Mt. Olivet Drop Shaft Sewer Relocations
- Completed 100% of Mt. Olivet Diversion Chamber Water Relocations
- Completed 100% of Florida Avenue Water Relocations
- Completed 80% of T St. Water Main Relocations

Zone to be cleared of utilities


R Street – 8-Way Verizon Ductbank


Rhode Island Ave – Pepco Manhole



Example: 4th & Rhode Island Ave NE

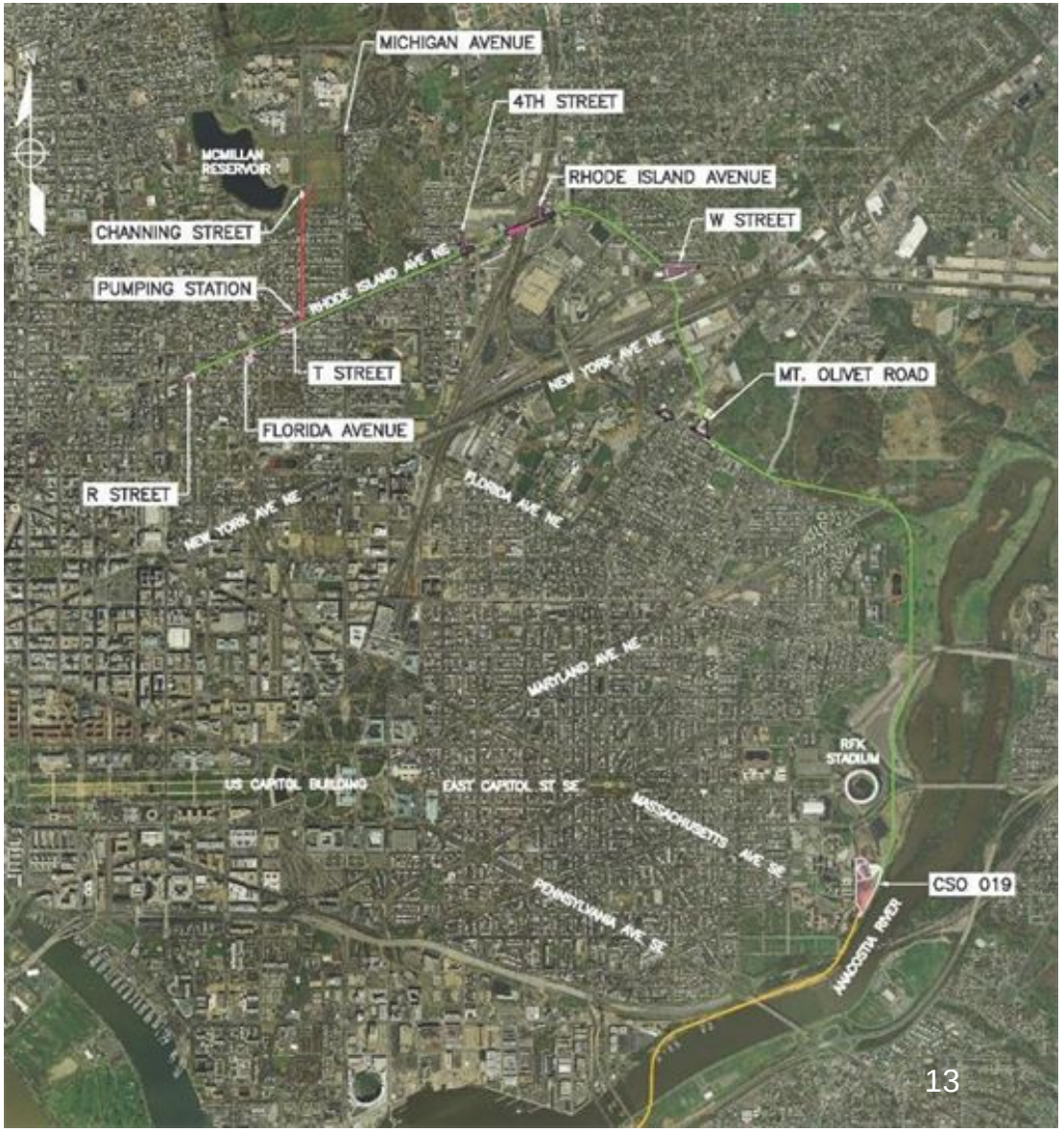
Division J – Northeast Boundary Tunnel


Key Map

Design-Builder: Salini Impregilo Healy JV
Contract Price: $580M - Percent Complete: 0%

- 23-foot diameter tunnel
- 60 to 140 feet deep
- 27,000 feet long
- 7 shafts and 5 diversion chambers, stormwater inlets
- Design-Build Contract: $580 million

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

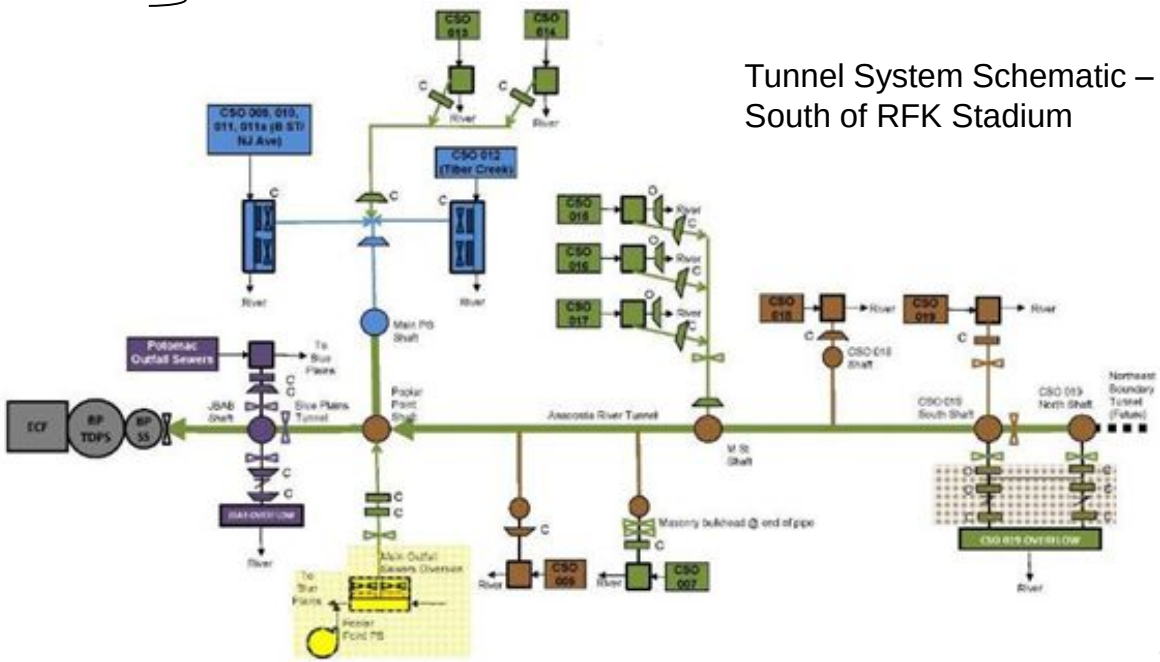


Anacostia River Tunnel Commissioning Awareness

- Consent Decree: system south of RFK must be placed in operation by March 23, 2018
- Plan for how to accomplish is included in each of the existing the contractor's work requirements (all Divisions)
- Follow up global commissioning awareness meeting held October 12, 2017, with quarterly update meetings between now and the Consent Decree deadline
- Monthly coordination meetings between contractors with interfaces
- Important because of interconnections in system

- **Attended by multiple DC Water Departments, contractors, CMs and engineers**
- **Make sure plan is coordinated – get everyone on the same page**
- **Address safety**
- **Address contractor interfaces and scheduling**
- **Identify issues, areas for improvements**

Be ready to receive flow March 23, 2018



Tunnel System Schematic – South of RFK Stadium

Division PR-B – CSO 021 Diversion Facilities (Kennedy Center)


Key Map

Design-Builder: Davis Construction
Contract Price: $33.95M - Percent Complete: 59%
Financials as of September 1, 2017

Clean Rivers - CSO 021 Diversion

DC Water under contract with Davis Construction

Facilities intercept flows from CSO 021 and redirect them to future Potomac River Tunnel during wet weather

- Commenced concrete work on Diversion Chamber
- Completed drill and shoot on Drop Shaft

Regular coordination on a tight construction site

Kennedy Center for the Performing Arts (KCPA) Expansion

Kennedy Center terminated contract with Davis Construction for convenience and signed up Whiting Turner to complete the project

Rehearsal space, parking garage, pavilions, reflecting pool and other enhancements constructed by KCPA

Division RC-A – Rock Creek GI Project A

Key Map

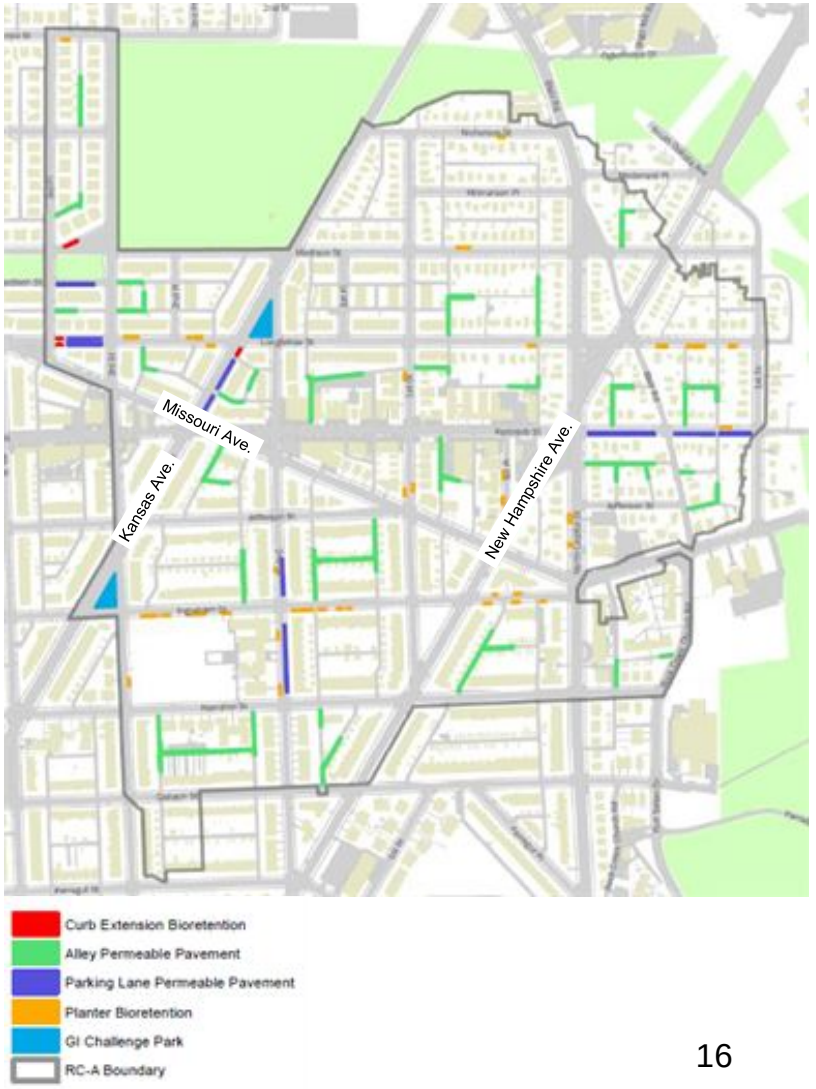
Design-Builder: Anchor Construction Contract Price: $27M - Percent Complete: 10%
Financials as of September 1, 2017

Project Schedule:

Item	Status
Request For Proposal (RFP) Development	Complete
Procurement	Complete
Design-Build Notice to Proceed	Complete - February 2017 (CD deadline Mar 30, 2017)
Place in Operation	CD Deadline Mar 30, 2019

- Project facilities to be designed, permitted, and constructed in three phases:
  - Phase 1: Design and permitting complete
  - Phase 2: Design complete; permitting underway
  - Phase 3: Design underway
- Construction started in September 2017, currently constructing 5 alley permeable pavements
- Reviewing 3rd phase design packages
- Kick off meeting to celebrate construction will be held on October 23, 2017 at 10 am (green space between Madison St. NW/Madison Pl NW/3rd St. NW/3rd Pl NW)

Project Boundary:



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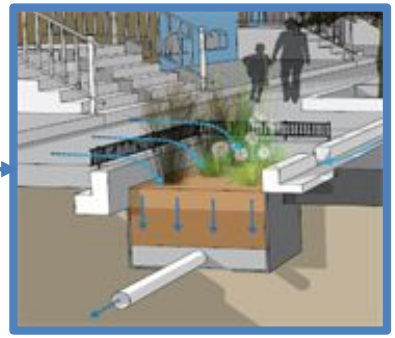
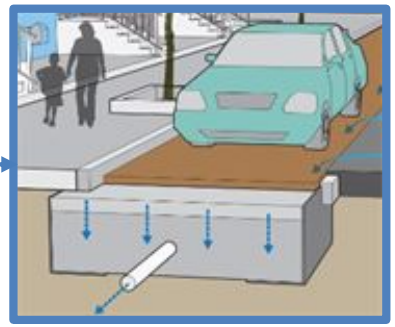
Division PR-A – Potomac River Project A


Key Map

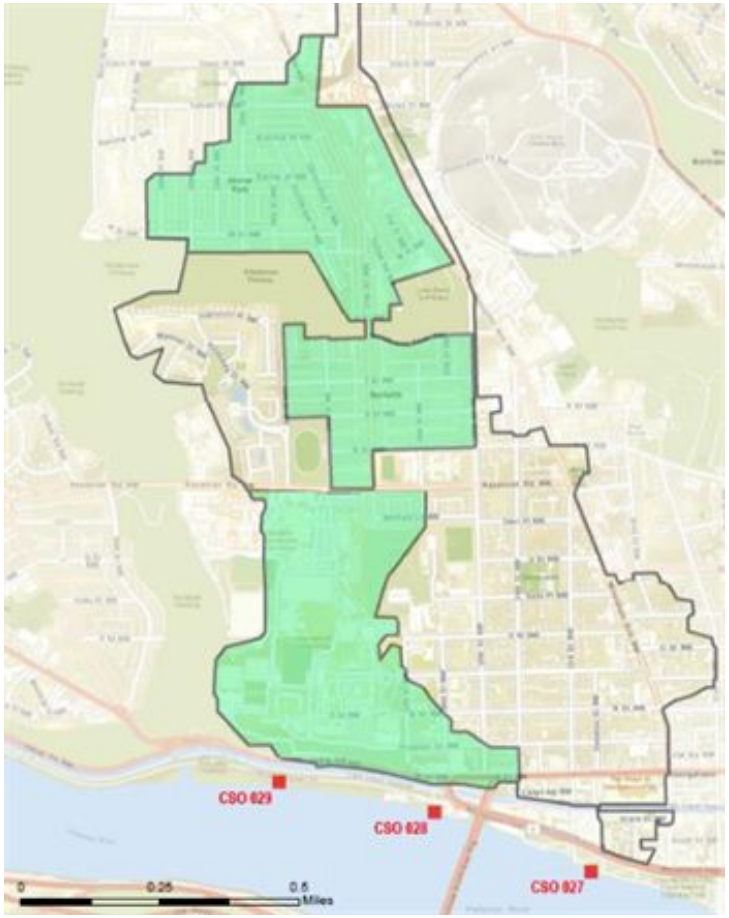
Item	Status
Bid Advertisement	December 19, 2017
Bid Opening	February 8, 2018
Construction NTP	April 30, 2018
Place in Operation	CD Deadline June 23, 2019

- **Contract Documents Development underway to include:**
  - Planter Bioretention
  - Curb Extension Bioretention
  - Alley Permeable Pavement
  - Parking Lane Permeable Pavement





Project Boundary:



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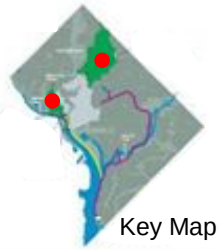
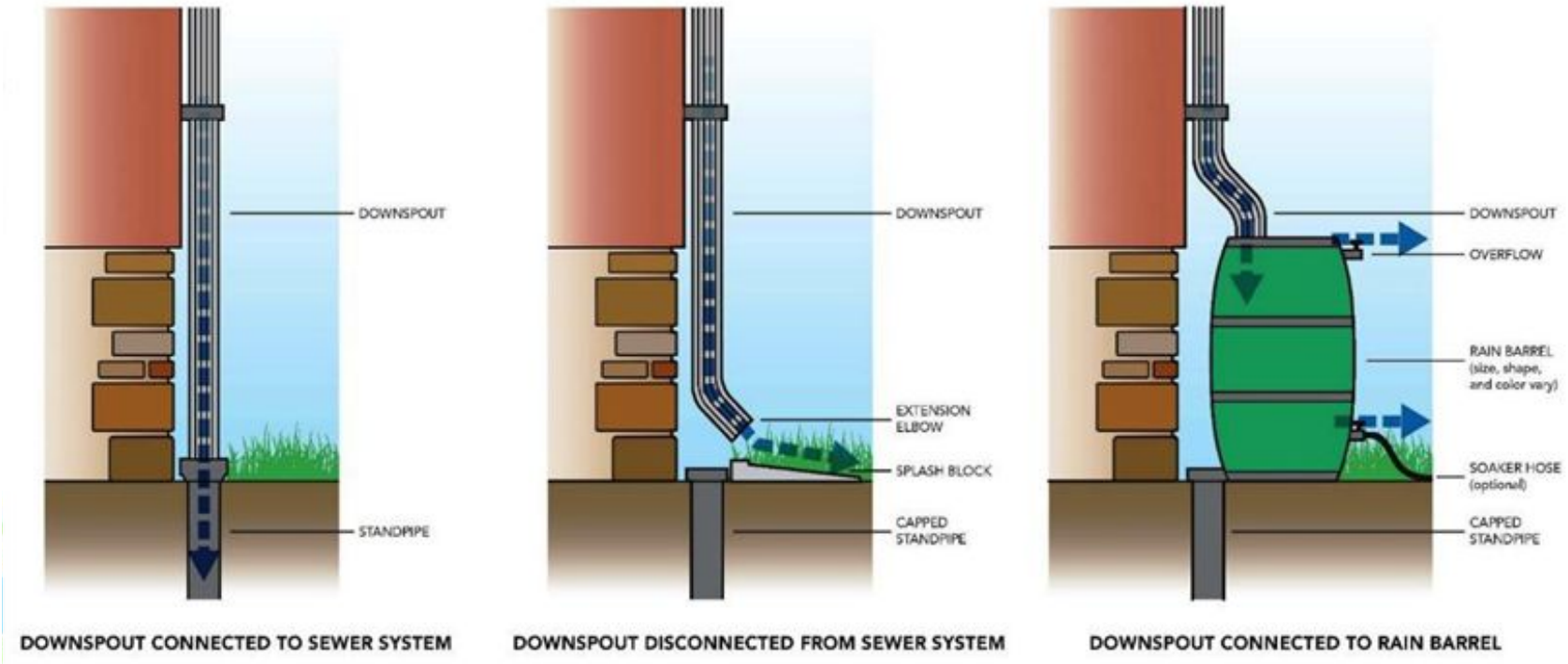
Drain the Rain! Rock Creek and Potomac Green Infrastructure Project Areas


Key Map

- **Voluntary, Free Downspout Disconnection Program with Rain Barrels**
  - Canvassing started in pilot program areas in May to audit properties and enroll residents
  - Over 120 downspout disconnections completed



DOWNSPOUT CONNECTED TO SEWER SYSTEM | DOWNSPOUT DISCONNECTED FROM SEWER SYSTEM | DOWNSPOUT CONNECTED TO RAIN BARREL

Kennedy Street GI Challenge Streetscape Project


Key Map

- **Kennedy Street Green Infrastructure Streetscape Project**
  - Being constructed with District Department of Transportation's (DDOT) Kennedy Street Improvements Project
  - Construction of GI is underway and DDOT anticipates completion in January 2018.

Groundbreaking – October 21, 2016

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

GI Challenge Streetscape
(100 Block Kennedy Street NW)

dc clean RIVERS PROJECT

Green Jobs MOA: GI Certification Program

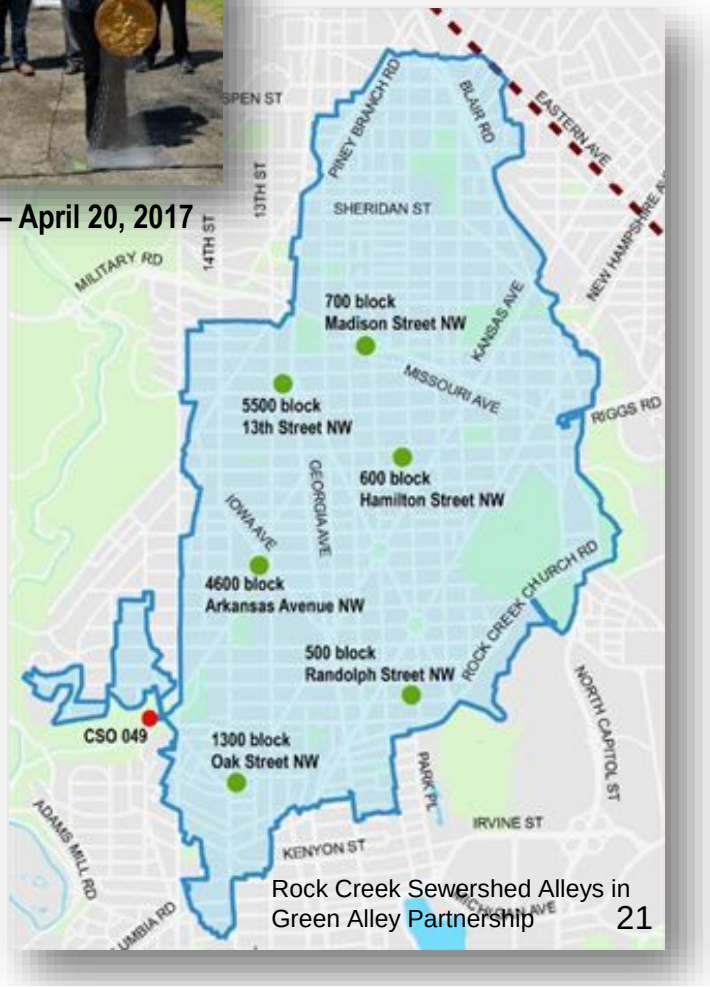
- Status:
  - Training:
    - Two rounds of training completed Fall 2016 and Spring 2017
    - Third training in process September/October 2017
  - Exam:
    - Third National GI Certification Program (NGICP) exam to be held November 14, 2017
  - 15 Partner jurisdictions, in addition to DC Water, formalized to date (commitments totaling over $500K)
  - First Train-the-Trainer workshop held at WEFTEC between September 29 and October 1, 2017
  - Website: www.ngicp.org
  - Governing Body, Strategic Advisory Group, and Technical Advisory Group meet regularly

Green Alley Partnership with DDOT


Key Map

- 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 funding construction of seven alleys (six in Rock Creek and one in Potomac River) under Green Alley Partnership


AlleyPalooza 5 Kickoff – April 20, 2017

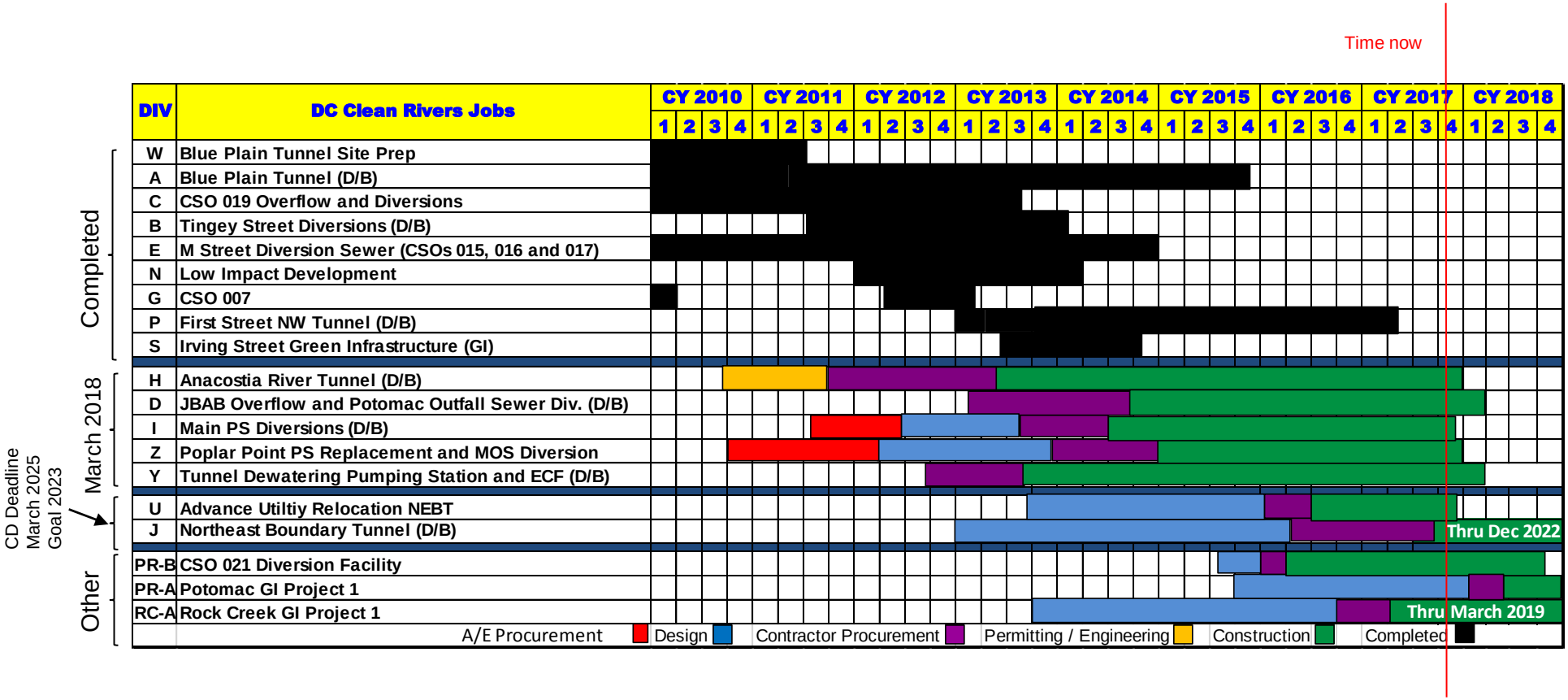


Rock Creek Sewershed Alleys in Green Alley Partnership

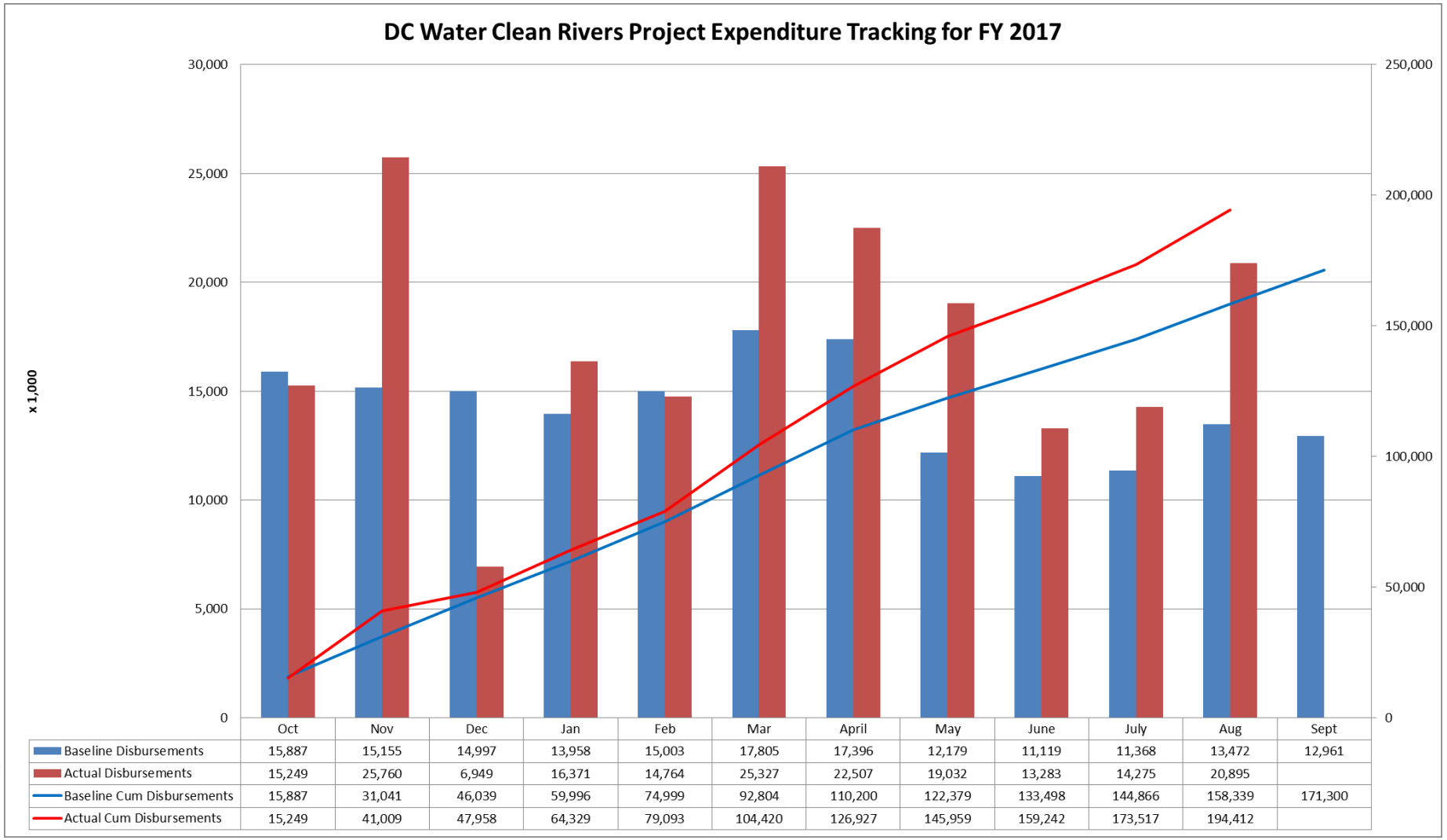
Benefits:

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

DC Clean Rivers Schedule

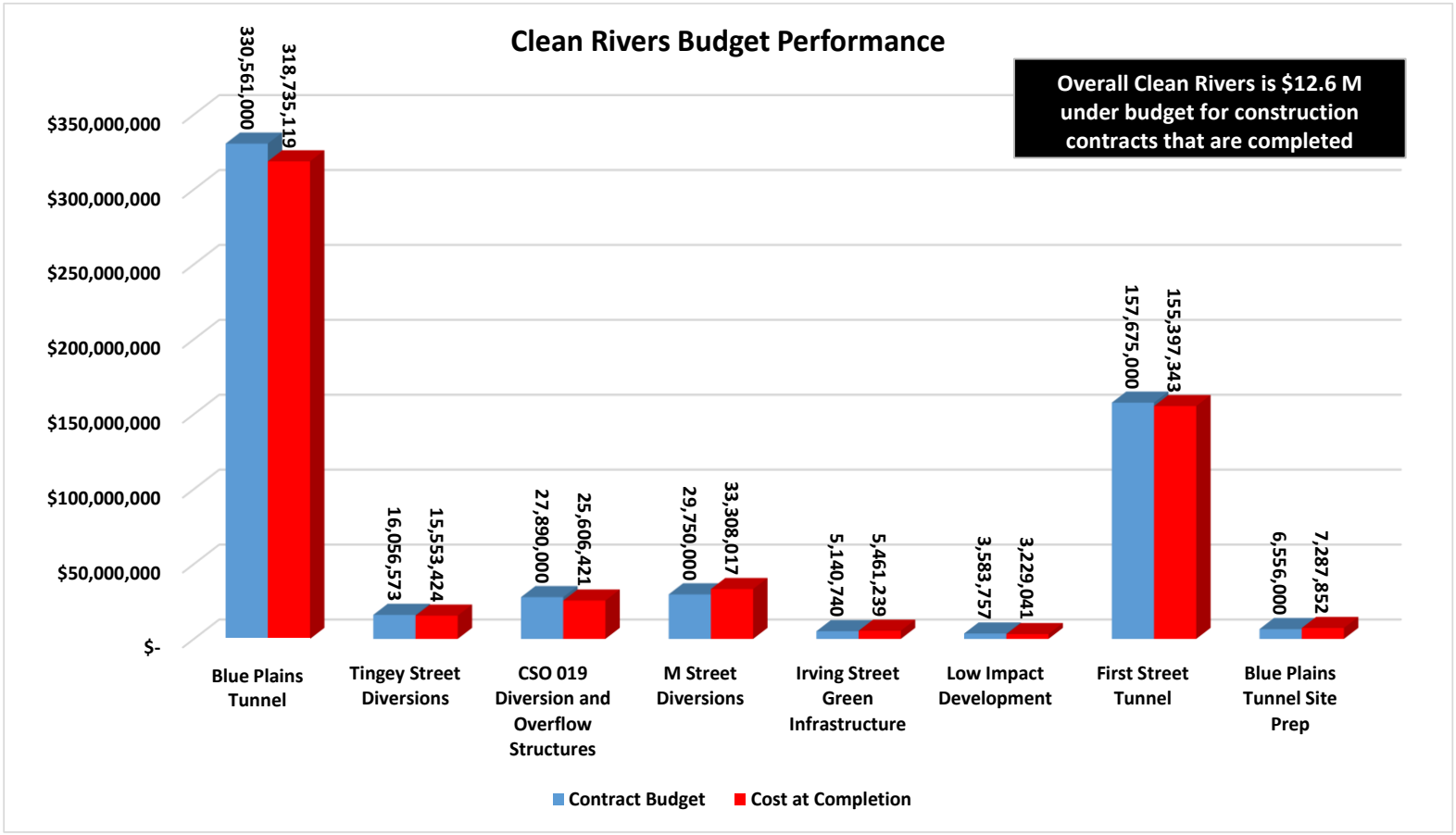


FY2017 Spending Status



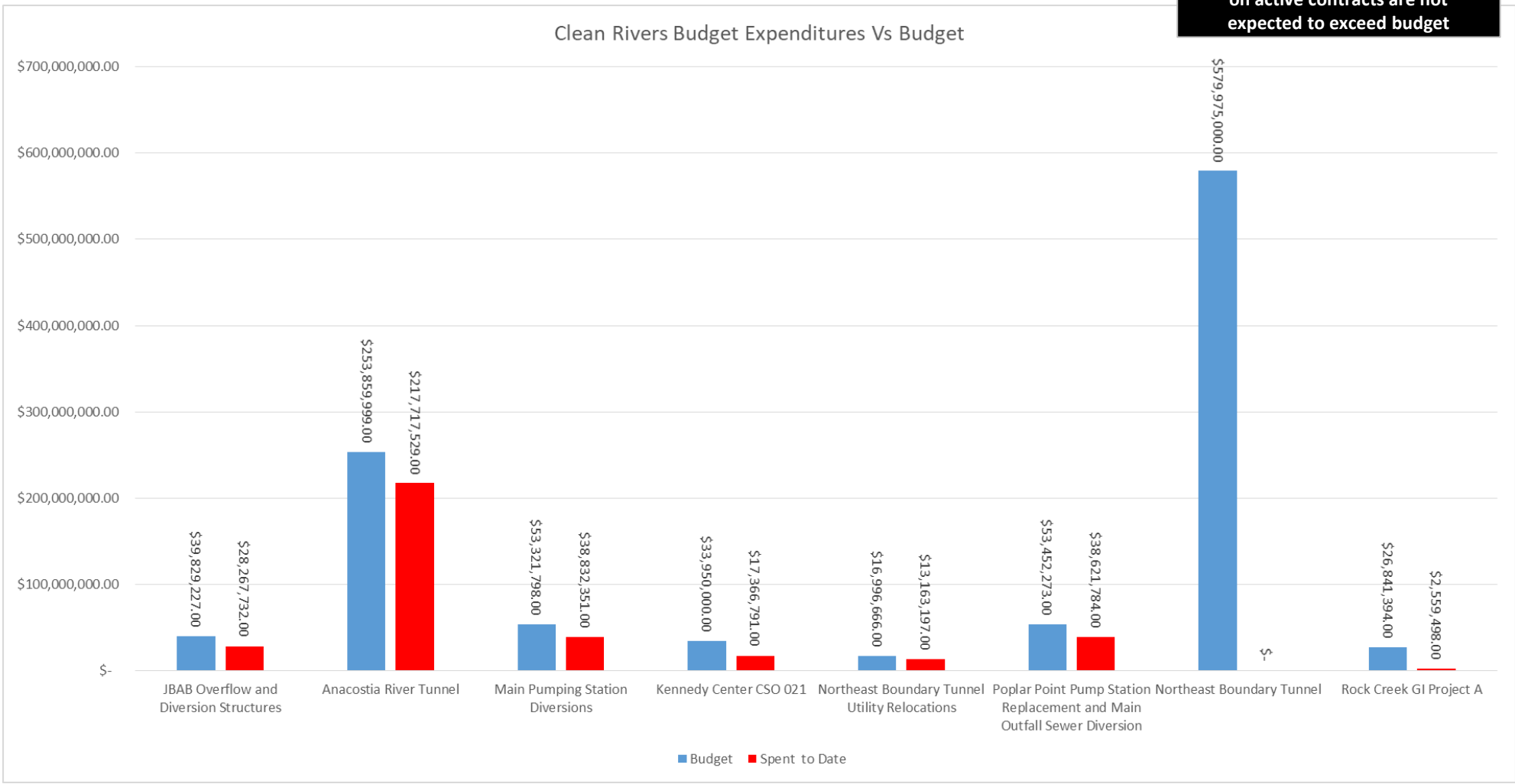
	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept
Baseline Disbursements	15,887	15,155	14,997	13,958	15,003	17,805	17,396	12,179	11,119	11,368	13,472	12,961
Actual Disbursements	15,249	25,760	6,949	16,371	14,764	25,327	22,507	19,032	13,283	14,275	20,895	
Baseline Cum Disbursements	15,887	31,041	46,039	59,996	74,999	92,804	110,200	122,379	133,498	144,866	158,339	171,300
Actual Cum Disbursements	15,249	41,009	47,958	64,329	79,093	104,420	126,927	145,959	159,242	173,517	194,412	

Clean Rivers Budget for Completed Contracts



Clean Rivers Budget for Active Contracts

Clean Rivers expenditures to date on active contracts are not expected to exceed budget



DC WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS CONTRACTOR FACT SHEET

ACTION REQUESTED

GOODS AND SERVICES CONTRACT AWARD

(JOINT-USE)
MICROSOFT SOFTWARE RENEWAL

Approval to execute a new contract for Microsoft purchases and software maintenance renewal for 3 years in the amount of $3,500,000.00. The actual contract will be awarded annually.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
PCM-G 14120 Newbrook Drive Suite 100 Chantilly, Virginia 20151	N/A	N/A

DESCRIPTION AND PURPOSE

Base Years Contract Value:	$1,100,000.00
Contract Base Period:	One (1) Year
Number of Option Years:	2
Contract Start Date:	11-03-2017
Contract Completion Date:	11-02-2020
Proposal Closing Date:	08-11-2017
Proposals Received:	4
Total Contract Value: (Base + 2 option years)	$3,500,000.00 (Forecasted Amount)
First Year Amount:	$1,062,951.92
Proposal Range:	$1,062,951.92 - $1,078,636.21
Preference Points Received:	0

Purpose of the Contract:
To contract for the purchase of new Microsoft licenses and annual software maintenance renewal. Various Microsoft Suite and products are used throughout the District of Columbia Water and Sewer Authority (DC Water).

The forecasted amount of $3,500,000.00 allows for additional software licenses to be purchased if needed for the three year period. The actual contract amount will be awarded annually via issuance of the purchase order.

The procurement method utilized was the Simplified purchase method in accordance with Procurement Regulations Section 5331.6 for commercial items. Four proposals were received. Award is based on the lowest price and minimally acceptable Microsoft partnership level (Gold Partner). The names of all firms who submitted response are listed below.

Proposals were received from:

Gov Connection 732 Milford Road Merrimack, New Hampshire 03054	Insight 6820 S. Harl Avenue Tempe, Arizona 85283
PCM-G 14120 Newbrook Drive Suite 100 Chantilly, Virginia 20151	SHI 1501 South Mopac Expressway Suite 400 Austin, Texas 78704

No LBE/LSBE participation

PROCUREMENT INFORMATION

Contract Type:	Lump Sum	**Award Based On:**	Best Value
Commodity:	Software Renewal	**Contract Number:**	17-PR-DIT-51
Contractor Market:	Open Market with Preference Points for LBE and LSBE		

BUDGET INFORMATION

Funding:	Capital Equipment	**Department:**	Information Technology
Project Area:	DC Water Wide	**Department Head:**	Thomas Kuczynski
Project:	EQP2110		

ESTIMATED USER SHARE INFORMATION

User – Capital Equipment	Share %	Dollar Amount
District of Columbia	68.91%	$126,840.02
Washington Suburban Sanitary Commission	24.14%	$44,433.58
Fairfax County	4.51%	$8,301.39
Loudoun Water	2.01%	$3,699.73
Other (PI)	0.43%	$791.48
TOTAL ESTIMATED DOLLAR AMOUNT	**100.00%**	**$184,066.20**

BUDGET INFORMATION

Funding:	Operating	**Department:**	Information Technology
Project Area:	DC Water Wide	**Department Head:**	Thomas Kuczynski

User – Operating	Share %	Dollar Amount
District of Columbia	83.65%	$ 766,178.62
Washington Suburban Sanitary Commission	12.07%	$110,553.21
Fairfax County	2.84%	$26,012.52
Loudoun Water	1.25%	$11,449.17
Other (PI)	0.19%	$1,740.27
TOTAL ESTIMATED DOLLAR AMOUNT	**100.00%**	**$915,933.80**

User – Combined	Share %	Dollar Amount
District of Columbia	81.18%	$ 893,021.64
Washington Suburban Sanitary Commission	14.09%	$154,986.79
Fairfax County	3.12%	$34,313.91
Loudoun Water	1.38%	$15,148.90
Other (PI)	0.23%	$2,531.75
TOTAL ESTIMATED DOLLAR AMOUNT	**100.00%**	**$1,100,000.00**

*Capital Fund will be used for new license purchases and Operating Fund will be used for the annual maintenance.

Joseph M. Edwards (acting) / 10/4/17
Thomas Kuczynski Date
Chief Information Officer

for Teresa L. Scott / 10/11/17
Dan Bae Date
Director of Procurement

Matthew Brown / 10/12/17
Matthew T. Brown Date
Chief Financial Officer

_____ / _____
George S. Hawkins Date
CEO/General Manager

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

ACTION REQUESTED

GOODS AND SERVICES OPTION YEAR

Compound Water Meters
(Non-Joint Use)

Approval to exercise Option Year 2 and add funding in the amount of $600,000.00 to the contract

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
Fasteners Rx, Inc 9203 Black Dog Alley, Easton, MD 21601	N/A	N/A

DESCRIPTION AND PURPOSE

Original Contract Value:	$559,956.75
Original Contract Dates:	11-19-2015 – 11-18-2016
No. of Option Years in Contract:	2
Option Year 1 Value:	$980,000.00
Option Year 1 Dates:	11-19-2016 – 11-18-2017
Prior Modifications Value:	$440,000.00
Prior Modifications Dates:	11-19-2015 – 11-18-2016
Option Year 2 Value:	**$600,000.00**
Option Year 2 Dates:	**11-19-2017 – 11-18-2018**

Purpose of the Contract:

This contract provides for Compound Water Meters of various sizes to the Department of Customer Services. New meters are purchased to replace existing meters that are at the end of their useful life.

Reason for the Change:

DC Water has an ongoing need for OMNI C2 compound water meters as provided by Fasteners Rx, Inc. under contract 15-PR-CCO-50. These compound meters are used where high flow rates are necessary, but where at times there are also lower rates of flow that need to be accurately measured.

This modification is to exercise Option Year 2 of the contract and add funds. The requested funding of $600,000.00 is sufficient to purchase forecasted meter demand during the option year and is consistent with yearly spending.

Spending Previous Year:

Cumulative Contract Value:	11-19-2015 to 09-05-2017: $1,979,956.75
Cumulative Contract Spending:	11-19-2015 to 08-17-2017: $1,377,601.80

Contractor's Past Performance:

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

No LBE/LSBE participation

PROCUREMENT INFORMATION

Contract Type:	Firm Fixed	**Award Based On:**	Single Proposer
Commodity:	Goods and Services	**Contract Number:**	15-PR-CCO-50
Contractor Market:	Open Market with Preference Points for LBE and LSBE Participation		

BUDGET INFORMATION

Funding:	Capital	**Department:**	Customer Services
Service Area:	Customer Service	**Department Head:**	Tsedale Berhanu
Project:	EQP2340		

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	100.00%	$600,000.00
Washington Suburban Sanitary Commission	0.00%	$0.00
Fairfax County	0.00%	$0.00
Loudoun County	0.00%	$0.00
Other (PI)	0.00%	$0.00
TOTAL ESTIMATED DOLLAR AMOUNT	**100.00%**	**$600,000.00**

Charles Kiely / 10/13/17
Assistant General Manager, Date
Customer Care and Operations

Dan Bae / 10/13/17
Director of Procurement Date

Matthew T. Brown / 10/13/17
Chief Financial Officer Date

George S. Hawkins / _____
General Manager Date

Environmental Working Group Report
Drinking Water Quality & Technology Overview

Environmental Quality & Operations Committee

Jessica Edwards-Brandt, Director
October 19, 2017

Agenda

- Environmental Working Group Tap Water Database
- DC Water's Drinking Water Quality Monitoring Programs
- DC Water's Drinking Water Quality & Technology Programs

Environmental Working Group (EWG)

- The Environmental Working Group (EWG) is a non-profit environmental organization that specializes in research and advocacy in the areas of toxic chemicals, agricultural subsidies, public lands, and corporate accountability.
- In August 2017, EWG released a tap water database.
- EWG's reporting is built on the premise that legal standards in the United States do not adequately protect public health.

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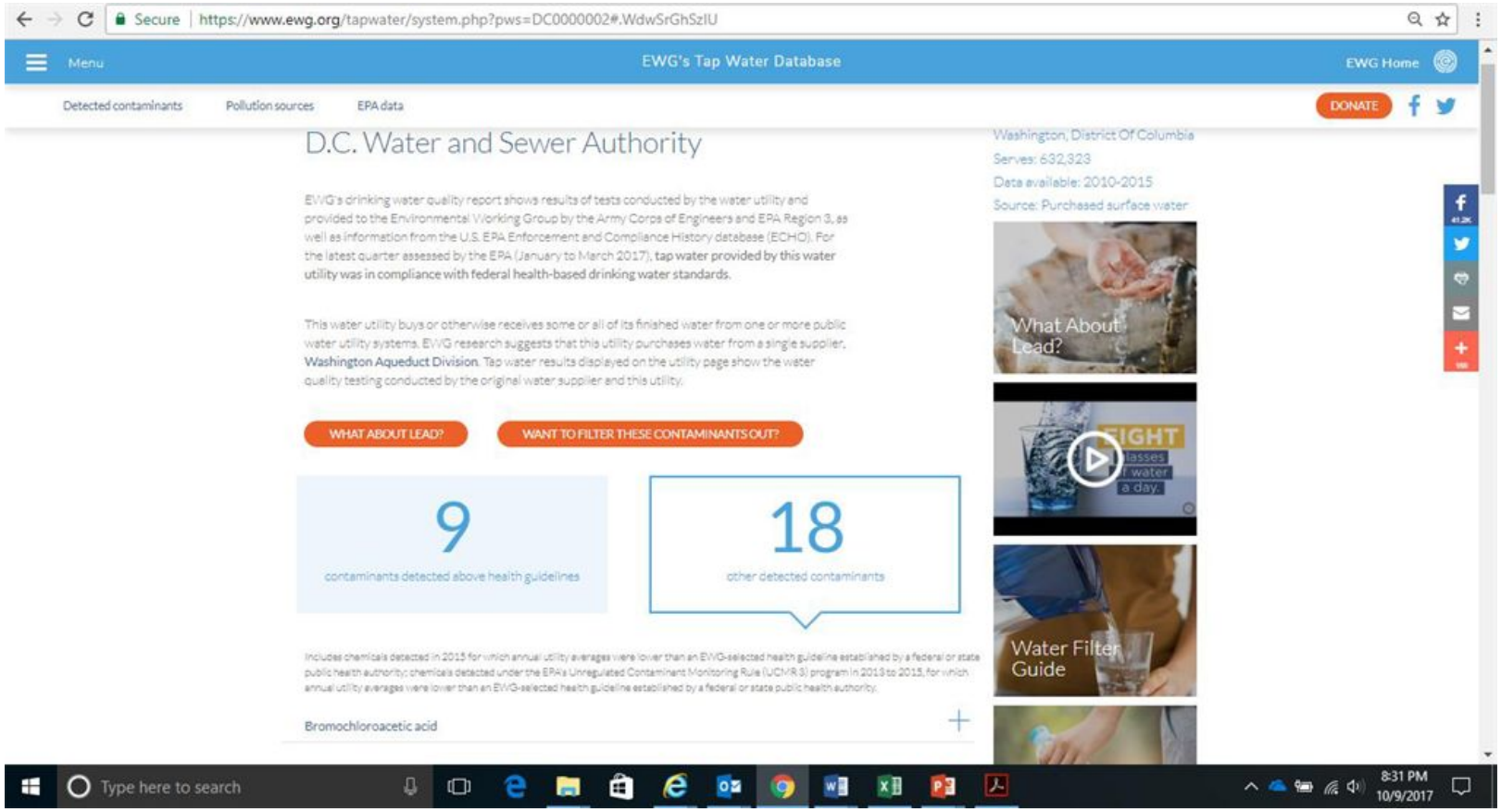
https://www.ewg.org/tapwater/system.php?pws=DC0000002



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EWG Database Results

- Contaminants detected *above EWG's health guidelines*
  - Includes both individual and groups (double count) of disinfection byproducts which are monitored and reported on dcwater.com
  - Arsenic likely naturally occurring
- Other detected contaminants *BELOW STANDARDS*
  - Remaining disinfection byproducts including N-nitroso-dimethylamine (NDMA)
  - UCMR3 monitoring (there is no federal standard for these chemical) and reported on dcwater.com
    - Chlorate
    - Molybdenum
    - Vanadium
    - Strontium
  - Chromium likely naturally occurring
  - Aluminum, Atrazine, Barium, Fluoride, Lithium, Nitrate, Perchlorate, DCPA mono- and di-acid degradates

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EWG Monitoring and Reporting

- DC Water (and Washington Aqueduct) disclosed these contaminants and corresponding values openly on the website with references to either federal levels or other studies prior to report
- DC Water (and Washington Aqueduct) meets or exceeds all federal Safe Drinking Water Act standards
- Unregulated Contaminants populated the lists (there are no federal standards)
- EWG shares same recommendations about lead as DC Water
  - Run your faucet in the mornings to flush out all the water has accumulated lead overnight.
  - Use only cold water for cooking
  - Use a water filter that is certified to remove lead
  - Remove lead lines and disclosure of information

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Who is monitoring the tap water?

- the **Department of Water Quality & Technology**

Branch	Responsibilities
Drinking Water Division	Regulatory & Voluntary Water Quality Monitoring Programs
Compliance	Cross Connection, Illegal Hydrant Usage, FOG
Drinking Water Research and Development	Research, Development, Innovation

- all working to provide outstanding drinking water

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DC Water Drinking Water Division (Water Quality)

- Washington Aqueduct treats the water at Dalecarlia and McMillan Treatment Plan
- Once the water leaves the treatment plants, DC Water monitors all across the District
- Safe Drinking Water Act requires monitoring of **water quality**
  - **Lead & Copper Rule (LCR)**
    - **Minimum 100 samples from homes, every 6 months, stagnant water**
    - **OCCT (Optimal Corrosion Control Treatment) monitoring**
  - **Total Coliform Rule (RTCR)**
    - **240 samples collected per month across District**
  - **Disinfection Byproduct Rule**
    - **Quarterly monitoring at 12 sites across District**
  - **Unregulated Contaminant Monitoring Rule (UCMR4)**

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Tap Water Monitoring

- **Customer Complaints and investigations**
- **Main breaks**
- **Water main testing**
- **Hydrant testing**
- **Total Coliform Monitoring**
- **Schools & Daycare testing**
- **Online Monitoring**

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Flushing

- **Background on flushing programs**
  - Unidirectional Flushing (UDF) program – close valves to direct flow in one direction, increasing flow rate to scour pipe
  - Water Quality Flushing Program - mixture of UDF and Spot flushing
    - Response to discolored water complaints (typically low chlorine residual, high iron and discolored water)
    - Multi-step process includes flushing, valve investigation, and water quality testing during flush
    - In 2014, Water Quality changed to focus on spot flushing in problem areas – significantly reduced complaints for these areas

- **Revised Flushing Program in development**
  - Reduce water age to improve chlorine residual
  - Flush all dead-ends
  - Minimize softening of scales and remove "loose scale"

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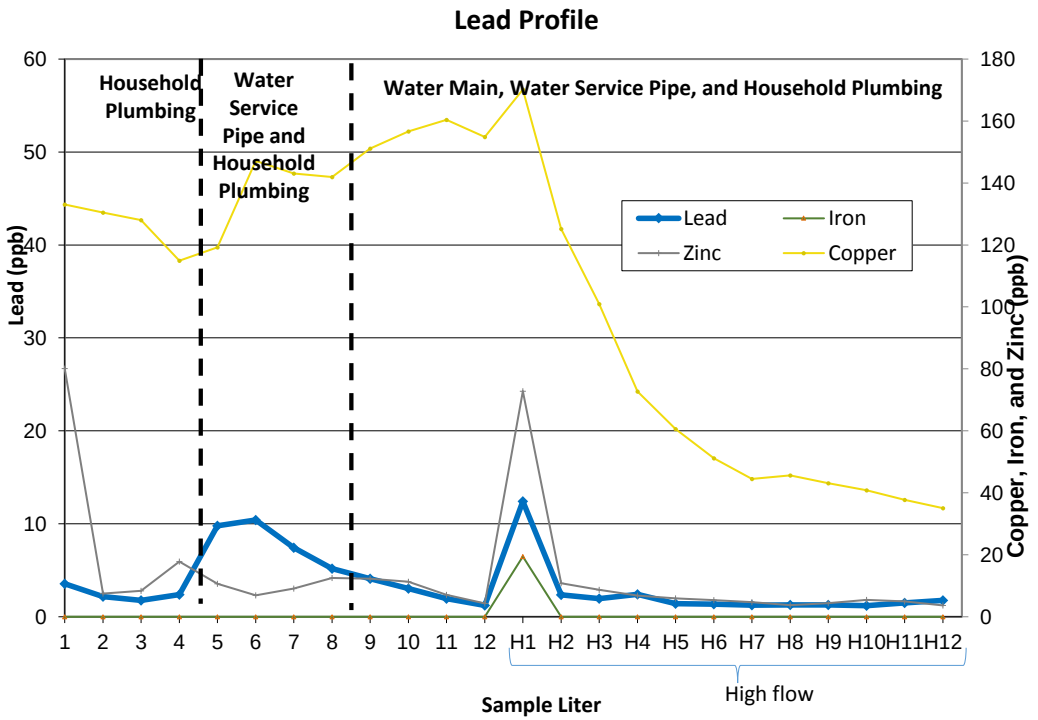
Lead Programs

- Lead and Copper Rule – many requirements and details = excessive review
  - OCCT
- Customer Demand Lead Test Kit
- Lead service line replacement
  - Test kit
- Lead service line identification
  - 10 sample test kit
- Lead profiles and investigations
  - Onsite sample collection
- Sharing information with DOEE
- Lead pipe loop research
- Outreach



Compliance Programs

- DC Municipal Regulations require code enforcement to protect **water quality**
  - **Cross Connection Control Program**
    - **60 surveys/month goal**
    - **Update regulations to include Enforcement Fines**
  - **Illegal Fire Hydrant Usage**
  - **Fats, Oils and Grease investigation**
  - **Water Quality Investigations**

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Research & Development

- Advance drinking water industry research and develop innovative technologies to benefit customers
  - **Distribution system research**
    - **Discolored water**
    - **Biostability/microbial growth**
    - **Flushing**
    - **WQ sensors**
    - **Pipe liner testing**
  - **Premise plumbing research**
    - **Lead and flushing strategies**
    - **SMART fountain**
  - **Washington Aqueduct**
    - **Advanced treatment, biofiltration, distribution system evaluations**

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the stats…

- Over 5000 water samples collected annually
- Approximately 100 water quality related calls answered per month (half are lead related calls)
- Over 800 flushing jobs annually
- Over 500 voluntary lead test kits sent to customers in 2016
- At least 3 recent national and regional presentations related to lead service lines (The Expert, Maureen Schmelling!)
- Approximately 15 enforcement letters related to cross connections and backflow preventers sent per month
- At least 48 illegal fire hydrant connection investigations in 2016
- Between $130 and $5000 billed for each illegal meter use
- 13 water quality related studies since 2014 (industry wide and internal)

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questions

Status Report of Public Fire Hydrants for DC Water Services Committee - October 2, 2017

	July Cmte. Report (Jul 03, 2017)	August Cmte. Report (Aug 16, 2017)	September Cmte. Report (Sep 05, 2017)	October Cmte. Report (Oct 02, 2017)
Public Fire Hydrants:	9,550	9,554	9,554	9,551
In Service:	9,501	9,480	9,479	9,491
Marked Out-of-Service (OOS)	49	74	75	60
OOS - defective requiring repair/replacement	31	37	36	29
% OOS requiring repair or replacement (DC Water goal is 1% or less OOS)	**0.32%**	**0.39%**	**0.38%**	**0.30%**
OOS - due to inaccessibility or temp construction work	26	37	39	31

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 2, 2017 60

Breakdown of Defective

	0-7 Days	8-14 Days	15-30 Days	31-60 Days	61-90 Days	91-120 Days	> 120 Days	Total
Hydrant Needs Repair/Investigation	4	0	0	0	0	0	3	7
Needs Valve Investigation for Low Flow/Pressure or Shut Test for Replacement	0	1	0	1	1	0	0	3
Needs Replacement	0	1	0	2	2	4	10	19
Defective								**29**

Breakdown of Others

	0-7 Days	8-14 Days	15-30 Days	31-60 Days	61-90 Days	91-120 Days	> 120 Days	Total
Temporarily OOS as part of operations such as a main repair	0	0	14	1	8	1	0	24
Construction* - OOS	0	0	1	0	1	0	1	3
Obstructed Hydrant – OOS hydrant due to operation impeded by an obstruction.	0	0	0	0	0	0	4	4
Others								**31**

**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.*

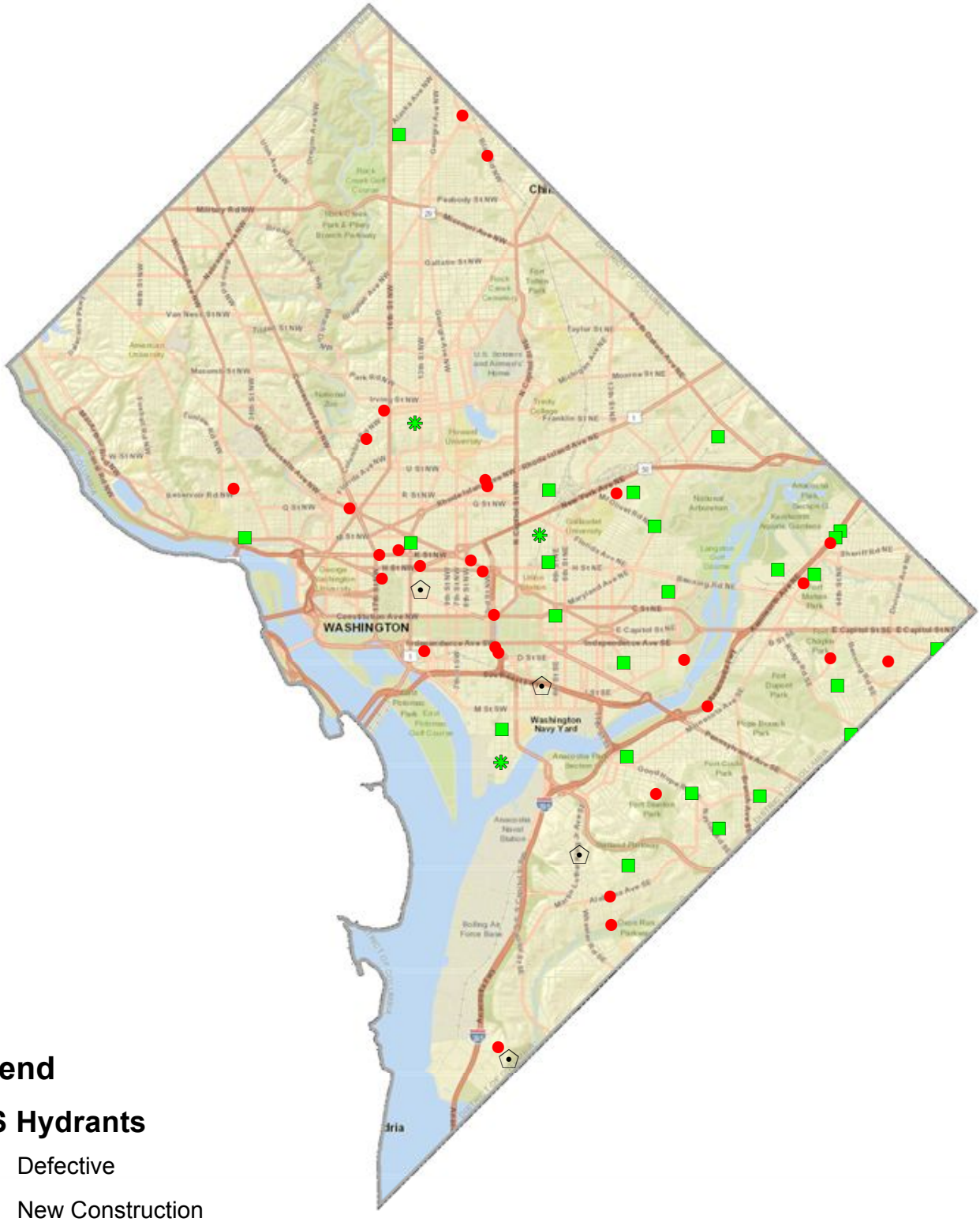
Status of Private Fire Hydrants-Based on FEMS Inspection Reporting

Private Hydrants: 1,318

- **In Service: 1,179**
- **Out-of-Service (OOS): 139**

Map of Public Out-of-Service Hydrants

October 2, 2017



Legend

OOS Hydrants

- Defective
- New Construction
- Obstructed
- Temporary