

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

*Meeting of the
Environmental Quality and Operations Committee*

**Thursday, May 16, 2019
9:30 a.m.**

HQO-125 O Street SE, Washington DC 20003

- | | | | |
|-------------------|-------------|---|----------------------|
| | I. | Call to Order | Adam Ortiz
Chair |
| 9:30 a.m. | II. | AWTP Status Update | Aklile Tesfaye |
| | | 1. BPAWTP Performance | |
| 9:40 a.m. | III. | CIP Quarterly Report | Paul Guttridge |
| 9:50 a.m. | IV. | Lead Service Line Replacement Overview | Maureen Schmelling |
| 10:15 a.m. | V. | Action Item | |
| | | 1. Recommendation for Approval to Revise the Resolution for Implementing the Lead Service Line Replacement Policy | |
| 10:20 a.m. | VI. | Action Items | Dan Bae / Len Benson |

Joint Use

1. Contract No. 18-PR-DFS-38 – Dewatering Sludge Loading Facility (DSL) Building Roof Replacement, ADP Consultants, Inc.
2. Contract No. 16-PR-DWT-13A – Solids Screening Facility Hauling, Urban Service Systems Corporation
3. Contract No. 18-PR-DIT-59 – Maximo Managed Services, Infosys Public Service, Inc.
4. DCFA 380 - Filtration & Disinfection Facilities Upgrade, Arcadis District of Columbia, P.C.
5. DCFA 425 - Gravity Thickener Upgrades – Phase II, HDR Engineering, Inc.
6. Contract No. 130801 - Gravity Thickener Upgrades-Phase II, Ulliman Schutte Construction, LLC

Non-Joint Use

1. None.

- | | | | |
|-------------------|--------------|--|---------------------|
| 10:35 a.m. | VII. | Updated Water and Sewer System Risk Plots | Craig Fricke |
| 10:50 a.m. | VIII. | Other Business / Emerging Issues | |
| 10:55 a.m. | IX. | Executive Session* | |
| 11:00 a.m. | X. | Adjournment | Adam Ortiz
Chair |

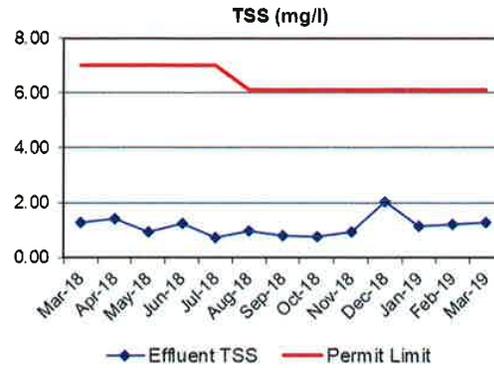
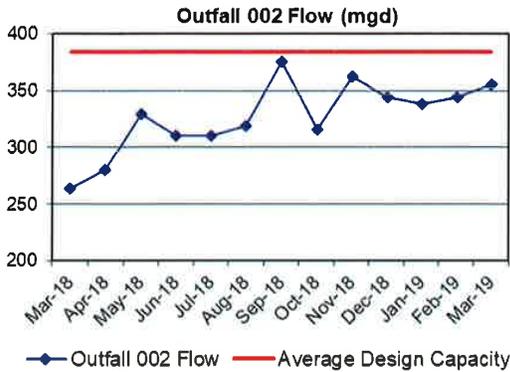
* The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); contract negotiations under D.C. Official Code § 2-575(b)(1); legal, confidential or privileged matters under D.C. Official Code § 2-575(b)(4); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security under D.C. Official Code § 2-575(b)(8); disciplinary matters under D.C. Official Code § 2-575(b)(9); personnel matters under D.C. Official Code § 2-575(b)(10); proprietary matters under D.C. Official Code § 2-575(b)(11); decision in an adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14), and other matters provided in the Act.

Follow-up Items from Prior Meetings:

1. The IMA Regional Committee (RC) brief the EQ&Ops Committee on the work of the IMA RC [**Target: June 2019**]
2. EVP, Ops & Engr, DC Water: Provide a briefing to the Committee regarding preventative and corrective maintenance programs on water, storm and sanitary sewer pump stations also including performance of DC Water’s SCADA system. [**Target: June 2019**]
3. SVP, Ops & Engr, DC Water: Update on Lead Service Line Replacement Project [**On Current Agenda**]
4. Vice President, Wastewater Operations, DC Water: Provide an overall assessment of the CHP program with respect to its operating costs versus cost savings and revenue generated and present to the Committee during a future meeting. [**Target: May 2019**]
5. Senior Vice President & Chief Engineer, DC Water: Update the graph showing consequence and likelihood of failure scores with current data. [**On Current Agenda**]
6. Vice President, Wastewater Operations, DC Water: Provide a presentation on the Advanced Wastewater Treatment Plant and Wet Weather Treatment Facility operating parameters and the flow split logic relative to the volume of CSO flow captured in the tunnels going through the AWWTP versus the WWTF. [**Target: July 2019**]
7. CEO and General Manager, DC Water: DC Water’s new smart technology helps utilities save money, prioritize repairs. [**Target: July 2019**]
8. Senior Vice President & Chief Engineer, DC Water: To discuss OIG Report on Lead. [**Target: July 2019**]
9. Director, DCCR, DC Water: Brief the Cmte on the Downspout Disconnection Program. [**Target: June 2019**]

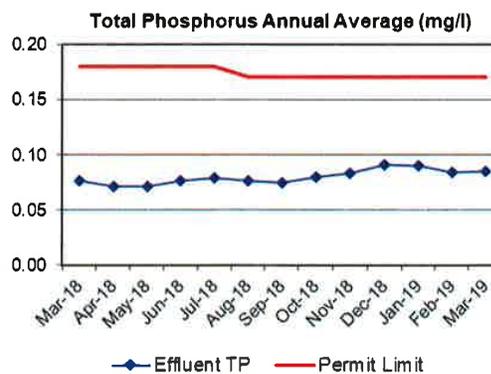
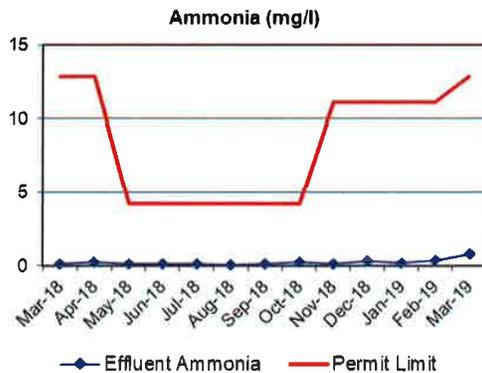
BLUE PLAINS ADVANCED WASTEWATER TREATMENT PLANT PERFORMANCE REPORT – MARCH 2019

Average plant performance for the month of March 2019 was excellent with all effluent parameters well below the seven-day and monthly NPDES permit requirements. The monthly average influent flow to complete treatment was 355 MGD. There was 189 million gallons of treated, captured combined flow directed to Outfall 001 during this period. The following figures compare the plant performance with the corresponding NPDES permit limits.



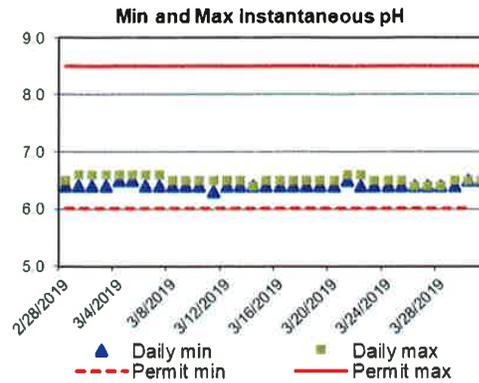
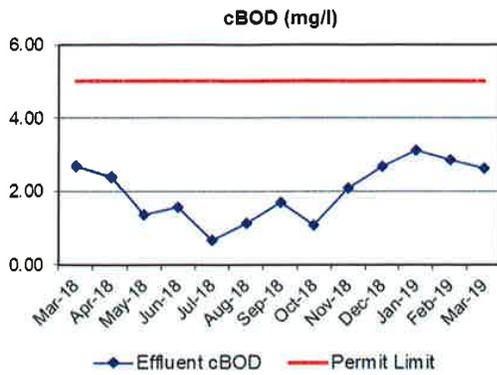
This graph illustrates the monthly average influent flow to the plant. The design average flow is 384 MGD. Blue Plains has a 4-hour peak flow capacity of 555 MGD through complete treatment and discharge through Outfall 002. Once the plant is at capacity, up to 225 MGD of additional captured combined system flow from the tunnel can be treated through the Wet Weather Treatment Facility and discharged through Outfall 001.

Effluent Total Suspended Solids (TSS) is a measurement of the amount of solid material that remains suspended after treatment. The effluent TSS concentration for the month averaged 1.29 mg/L, which is below the 6.1 mg/L permit limit.



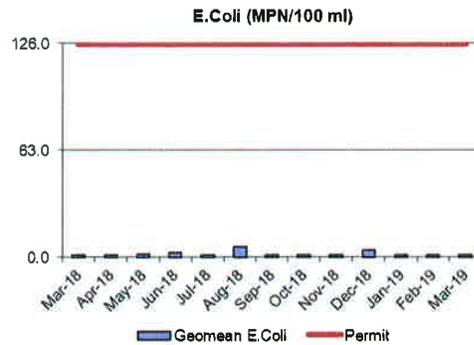
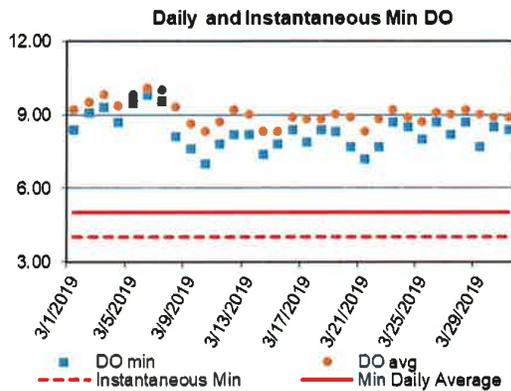
The Ammonia Nitrogen (NH₃-N) is a measurement of the nitrogen found in ammonia. For the month, effluent NH₃-N concentration averaged 0.83 mg/L and is below the average 12.8 mg/L limit.

The Total Phosphorus (TP) is a measurement of the particulate and dissolved phosphorus in the effluent. The annual average effluent TP concentration is 0.09 mg/L, which is below the 0.17 mg/L annual average limit.



Carbonaceous Biochemical Oxygen Demand (CBOD) is a measurement of the amount of oxygen required for the decomposition of organic materials. The effluent CBOD concentration averaged 2.63 mg/L (partial month), which is below the 5.0 mg/L limit.

pH is a measurement of alkalinity or acidity of the effluent. The minimum and maximum pH observed were 6.3 and 6.6 standard units, respectively. The pH was within the permit limits of 6.0 and 8.5 for minimum and maximum respectively.

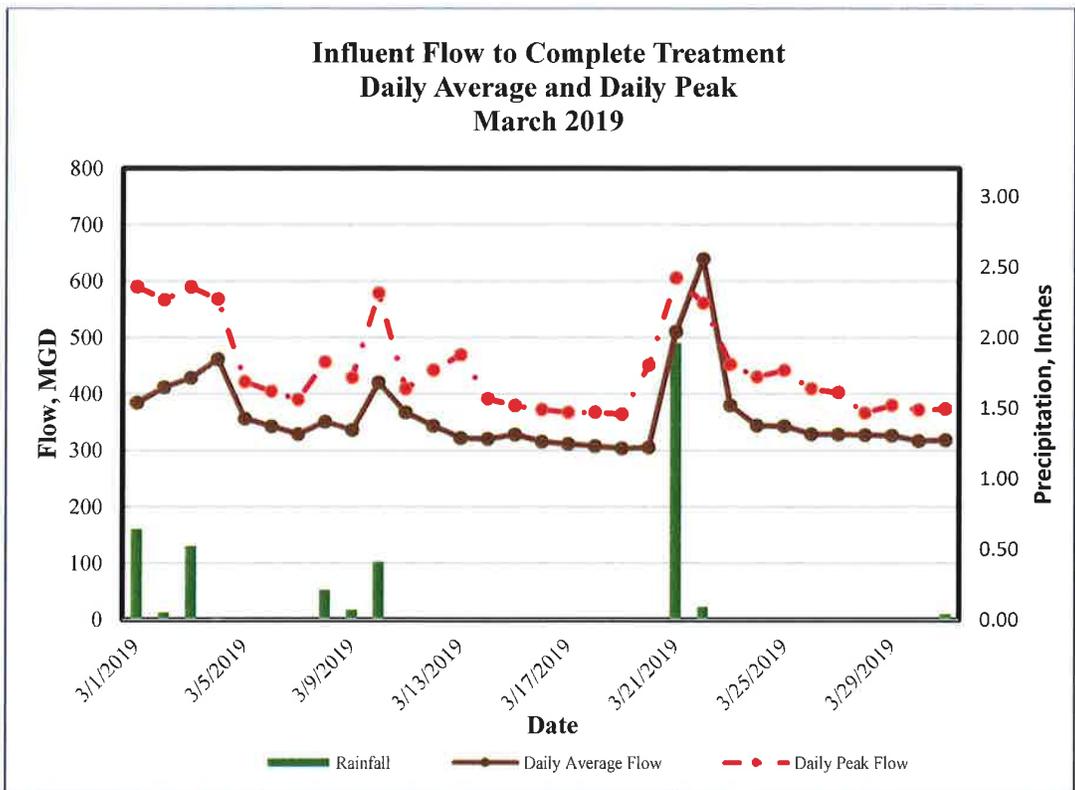


Dissolved Oxygen (DO) is a measure of the atmospheric oxygen dissolved in water. The DO readings for the month are within the permit limits. The minimum daily average is 8.3 mg/L. The minimum instantaneous DO reading is 7.0 mg/L. The minimum daily average and instantaneous permit limits are 5.0 mg/L 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.

Wet Weather Impact on Plant Performance

During the month of March 2019, the Washington Metropolitan Region received total precipitation of 4.0 inches, higher than the 3.48 inches normal for the month, as measured at National Airport. There was 189 million gallons of treated, captured combined flow directed to Outfall 001 during this period. The plant's performance was excellent and the event had minimal impact on the quality of the effluent discharged 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.



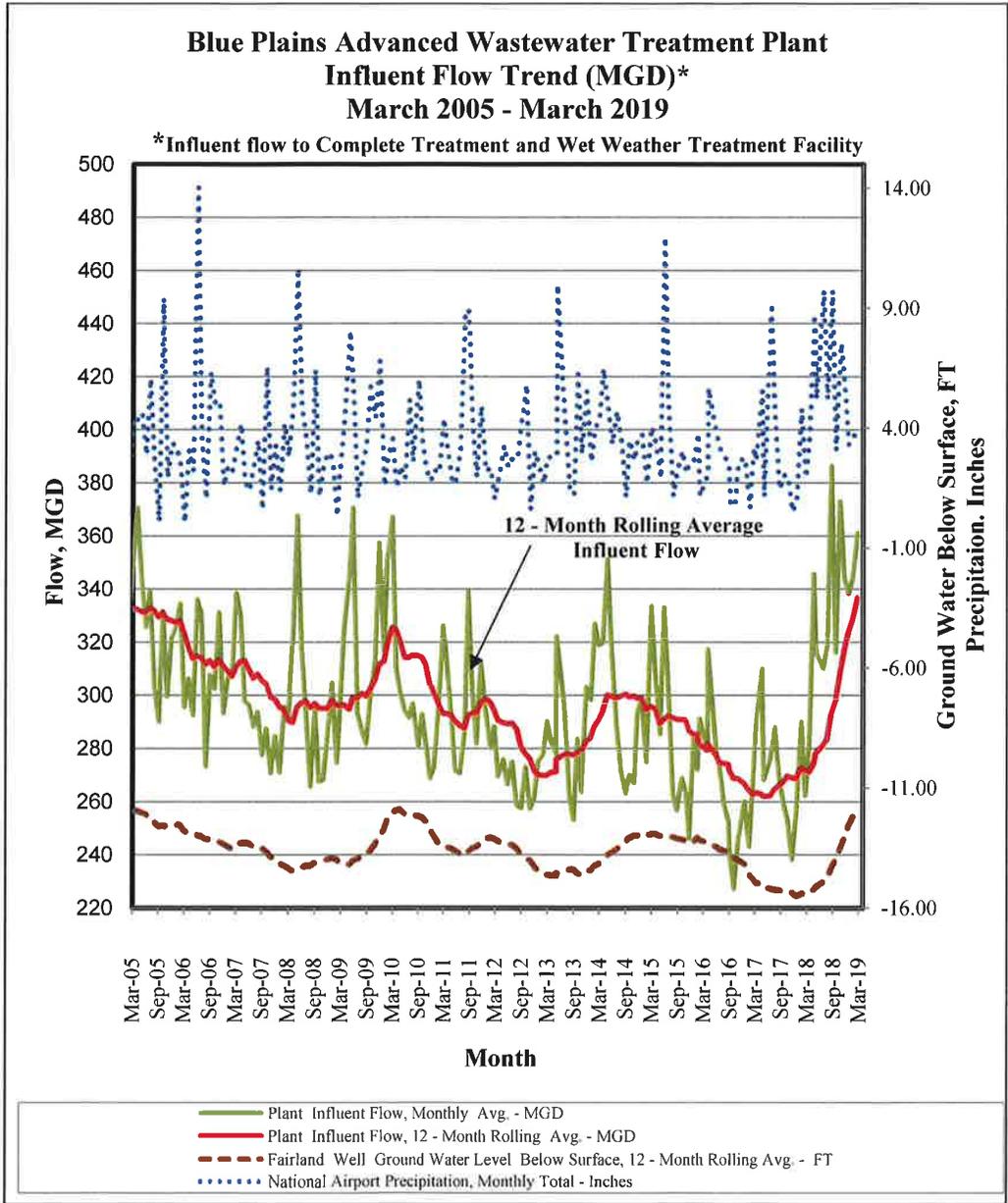
Aerial rendering of the Wet Weather Treatment Facility

Performance

During the month, a total of 336 million gallons (MG) of wet weather flow, captured in the tunnel system, was pumped, and treated using the ECF. A portion of the treated flow or 147 MG was directed to the main plant to maximize complete treatment and the remaining portion of the treated captured combined flow, or 189 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 March 2019, the total volume pumped and treated through the WWTF is 5,243 MG. During the same period, over 1,520 wet tons of screenings and grit (trash, debris, sediment) were removed, that would otherwise have been discharged into the Anacostia River.

Plant Influent Flow Trend

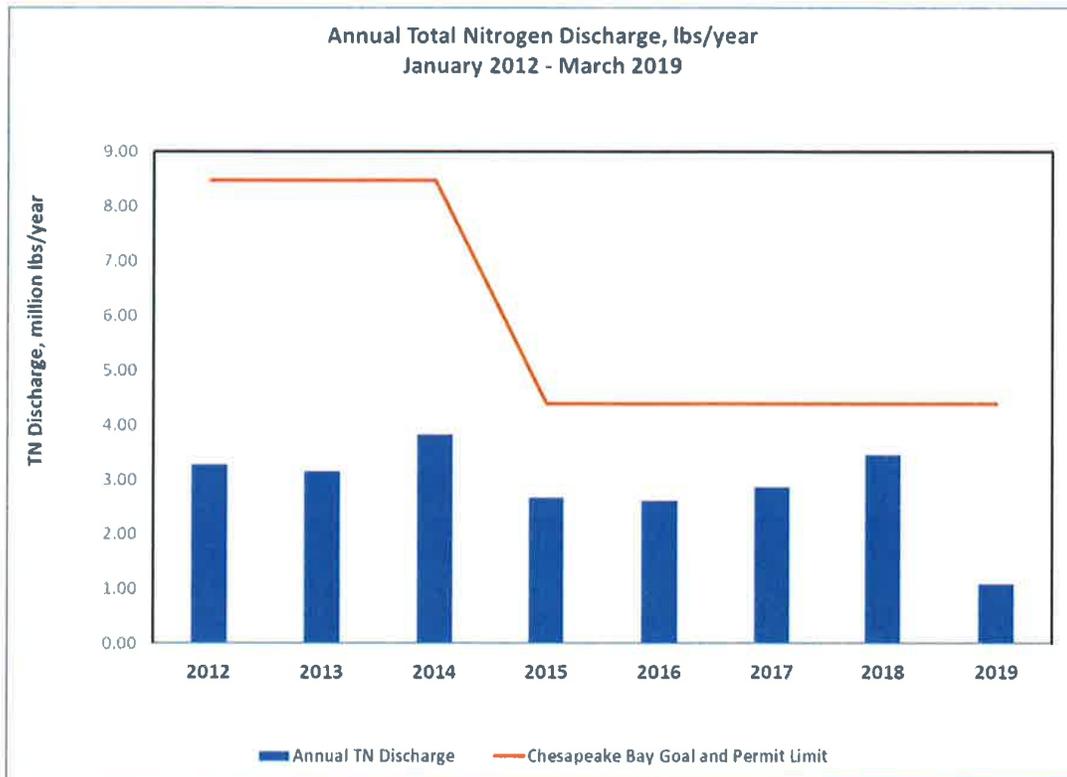
The graph below shows a long-term influent flow trend to the plant ending March 2019. While for any given month the flow is weather dependent, the 12-month rolling average influent flow exceeded 300 MGD since December 2010.



Blue Plains Total Nitrogen (TN) Removal – Performance

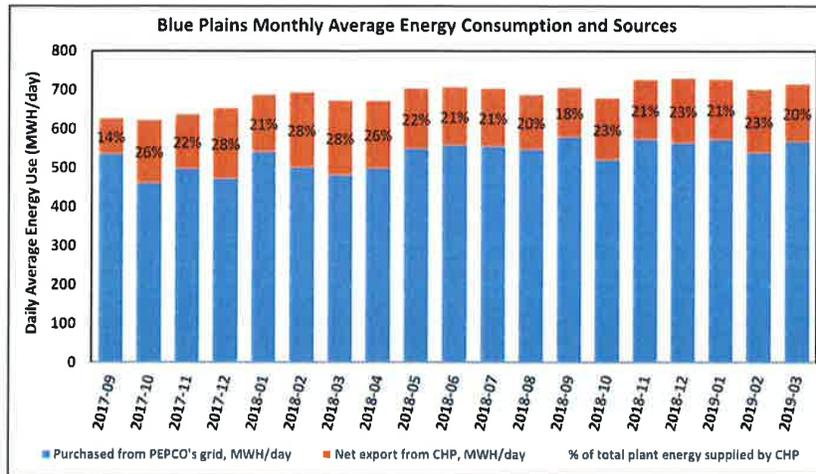
The graph below shows total annual nitrogen discharge, in million pounds per year, over a 8-year period ending March 2019. In March 2019, the monthly average TN concentration and total load in the complete treatment effluent were 4.70 mg/L and 435,932 lbs., respectively.

The total pounds of nitrogen discharged in the complete treatment effluent during the current calendar year (through March, 2019) is 1,075,651 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 345 MGD, maximum month flow of 355 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.



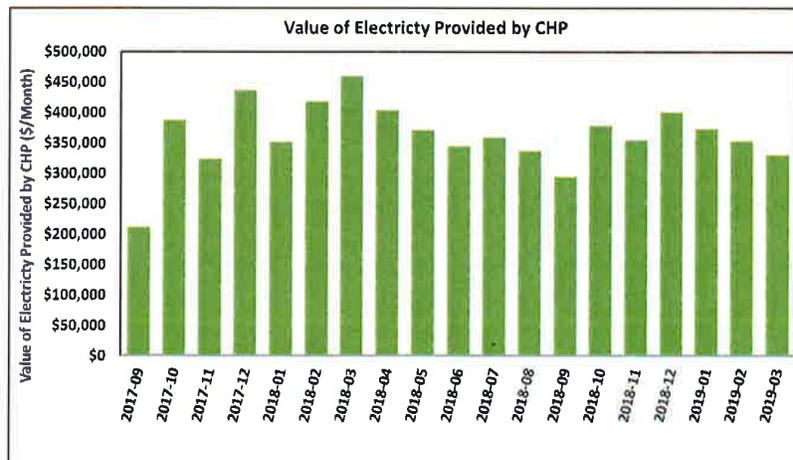
Blue Plains Electricity Generation and Usage

In March 2019, the average energy consumed at Blue Plains was 713 megawatt hours per day (MWH/day) or 2.01 MWH of electricity per million gallons of wastewater processed through complete treatment. The Combined Heat and Power (CHP) facility generated an average of 147 MWH/day, making up for 20% of total energy consumed at Blue Plains. The remaining 567 MWH/day was purchased from PEPCO. (April 2019 update: In April CHP generated an average of 157 MWH/day, making 23% of the total energy consumed during the month)



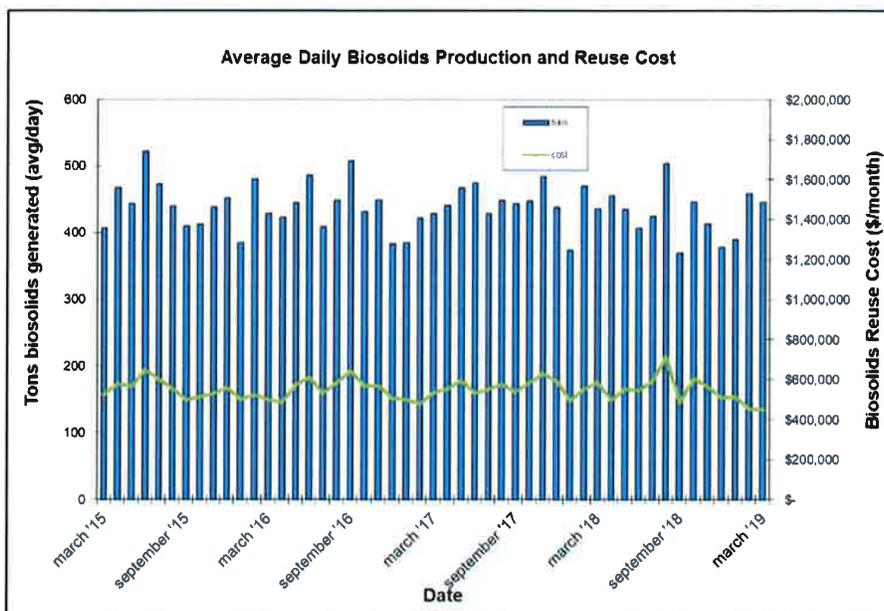
The graph above is based on power monitors installed at the Main Substation and CHP, and reflects average energy consumed at Blue Plains in MWH/day. Of the total use, the energy purchased from PEPCO and net energy supplied by CHP are indicated by the blue and orange highlights, respectively.

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

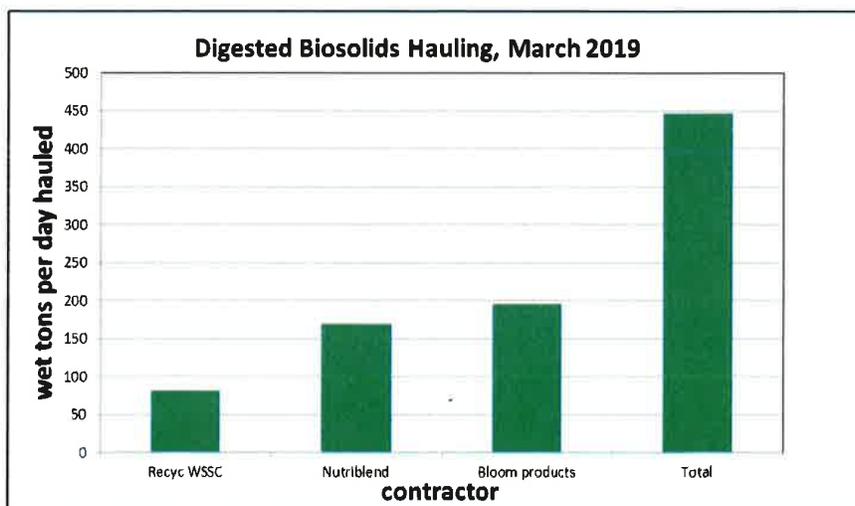


RESOURCE RECOVERY

In March, biosolids hauling averaged 446 wet tons per day (wtpd). The average percent solids for the Class A material was 27.9%. 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 March 2019. In March, diesel prices averaged \$3.31/gallon, and with the contractual fuel surcharge, the weighted average biosolids reuse cost (considering the marketed material) was \$32.43 per wet ton.



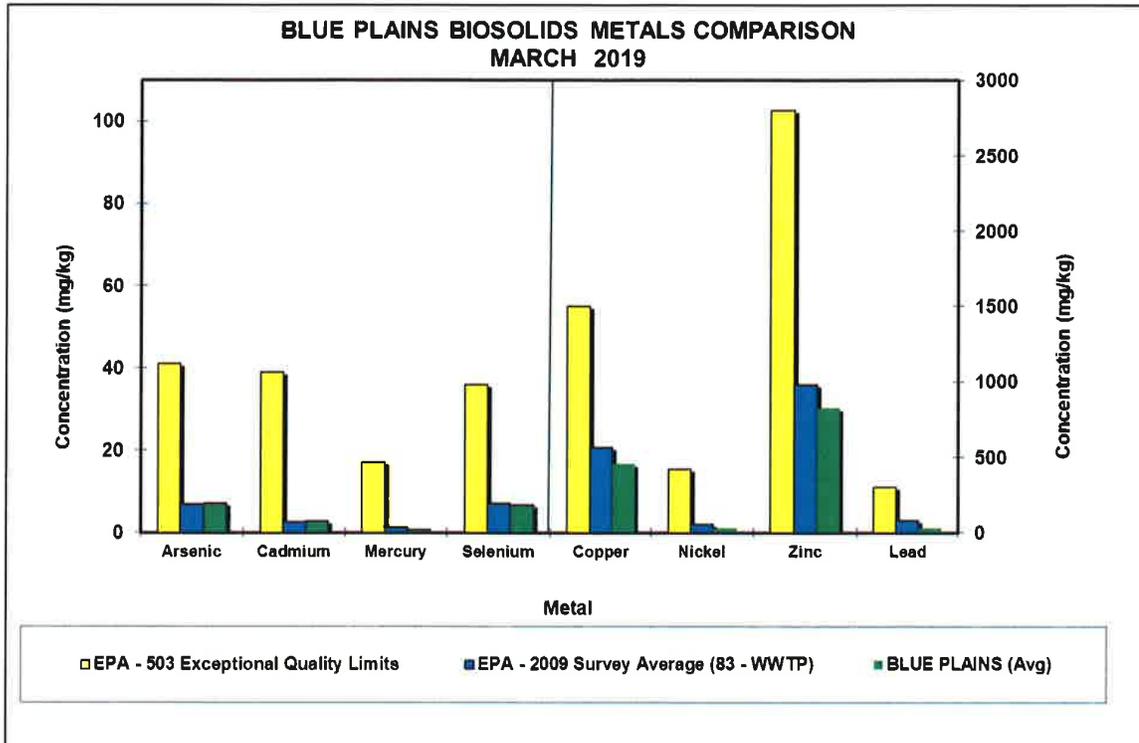
The average quantities of Class A biosolids transported and applied on farms by the two major contracts (WSSC's Recyc and DC Water's Nutriblend) and the quantities marketed as Bloom are shown on the graph below.



Product Quality

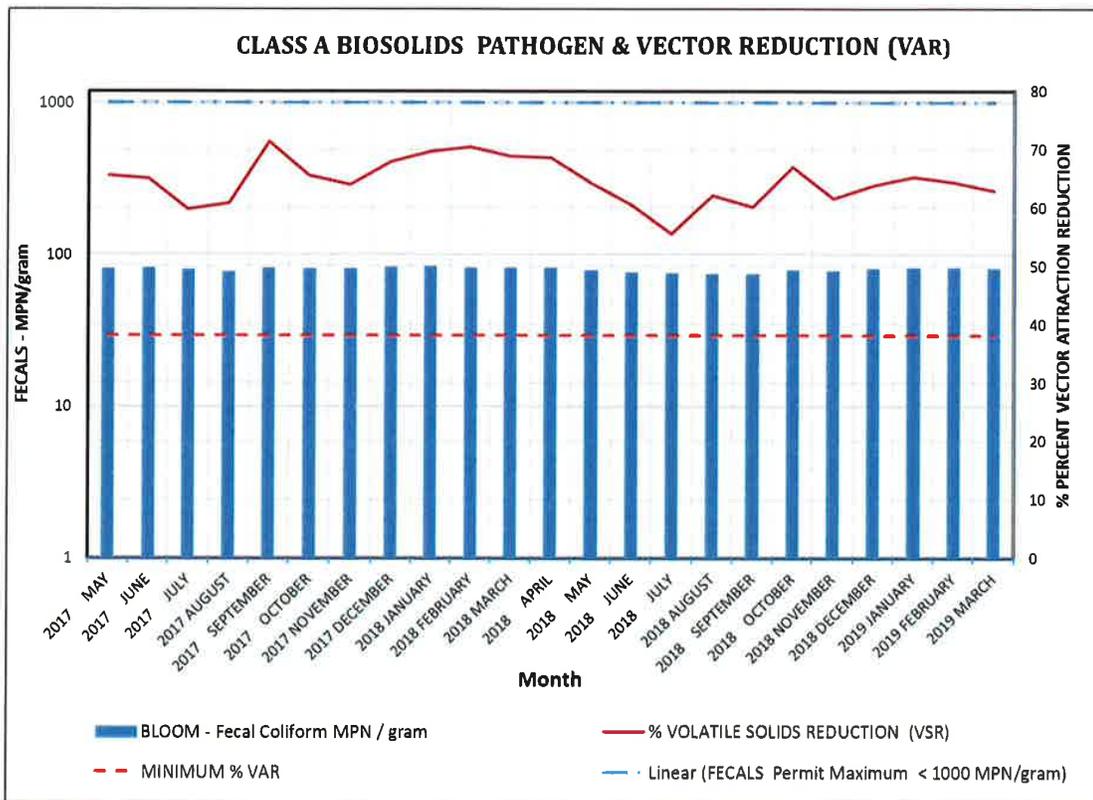
Metals

All biosolids produced during the month of March 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).



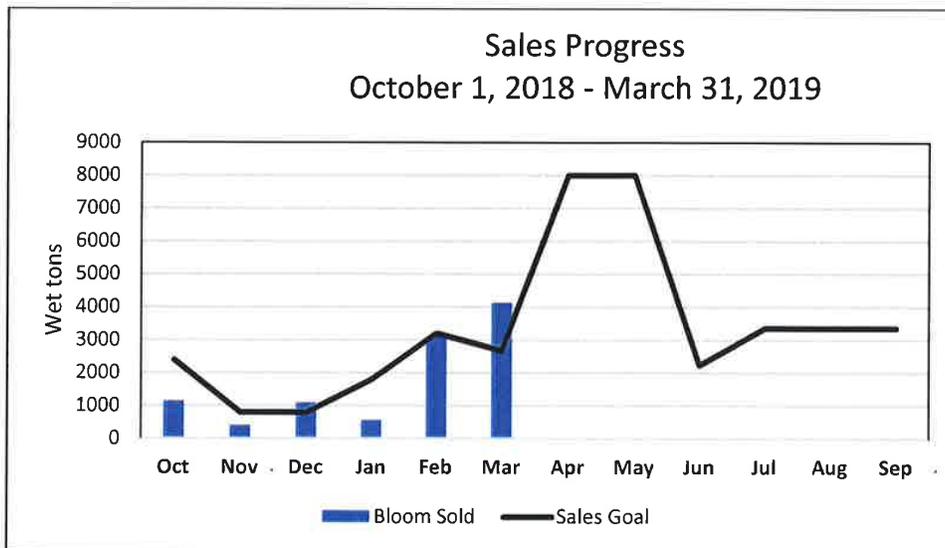
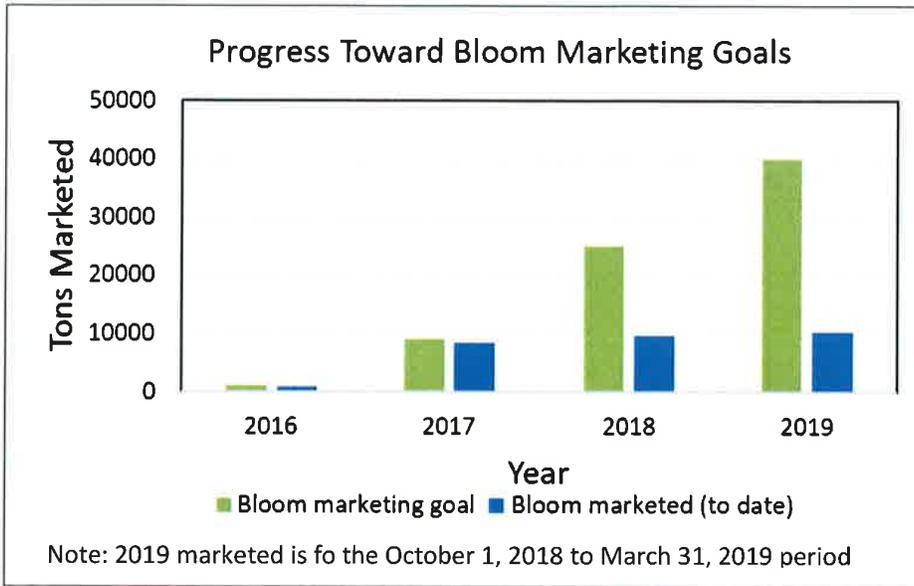
Fecal Coliform and Vector Attraction Reduction

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 highest of the seven samples for FC levels in the Class A product are an order of magnitude less than the maximum allowable level.



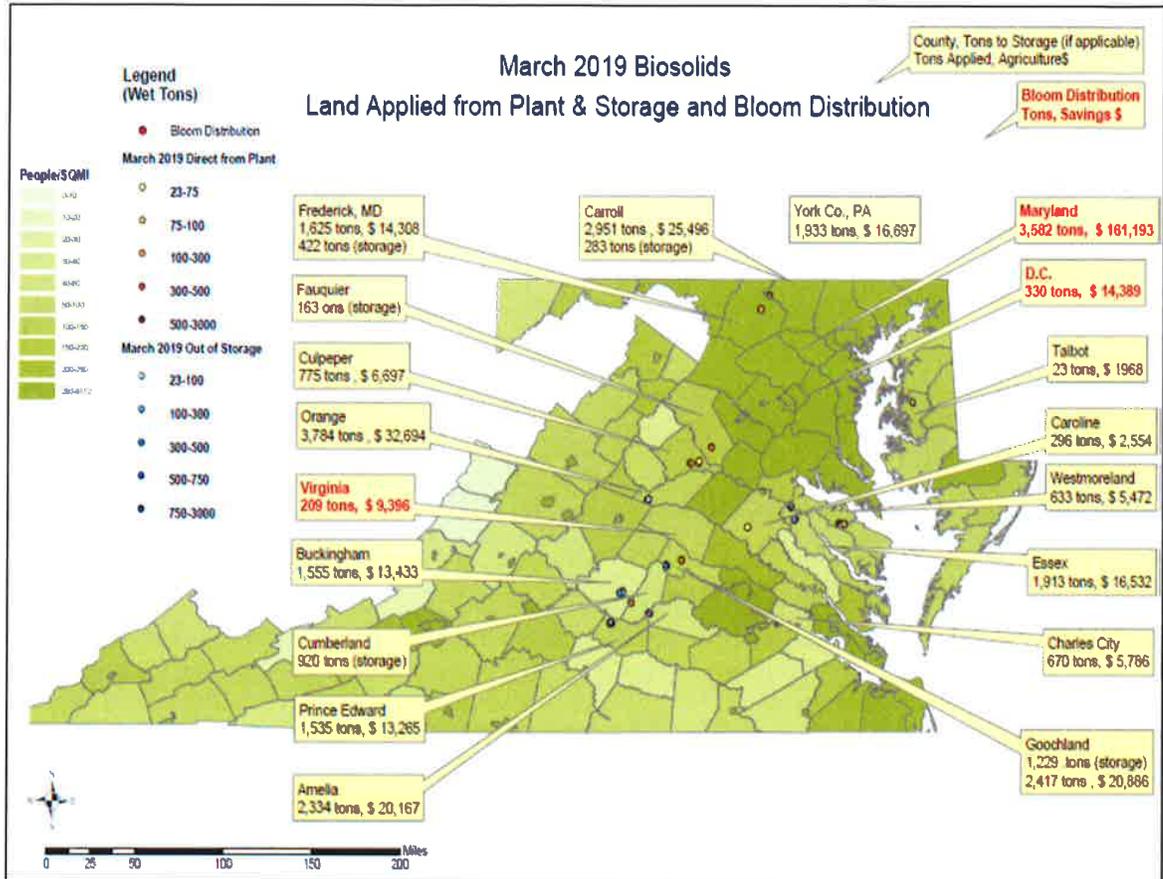
Bloom Marketing

Bloom sales as of March 31, 2019 totaled 10,355 tons for the fiscal year. This represents 26% of the 40,000 goal and exceeded the 9,700 tons marketed in FY2018. (April 2019 update: Bloom marketed through April 30, 2018 totaled 20,323 tons or 51% of the 40,000 tons goal for the 2019 fiscal year).



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.



District of Columbia Water and Sewer Authority

Capital Improvement Program Report



**FY-2019 2nd Quarter
January 1st through March 31st, 2019**

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

**David L. Gadis CEO and General Manager
Leonard R. Benson, Senior Vice President and Chief Engineer**

May 2019

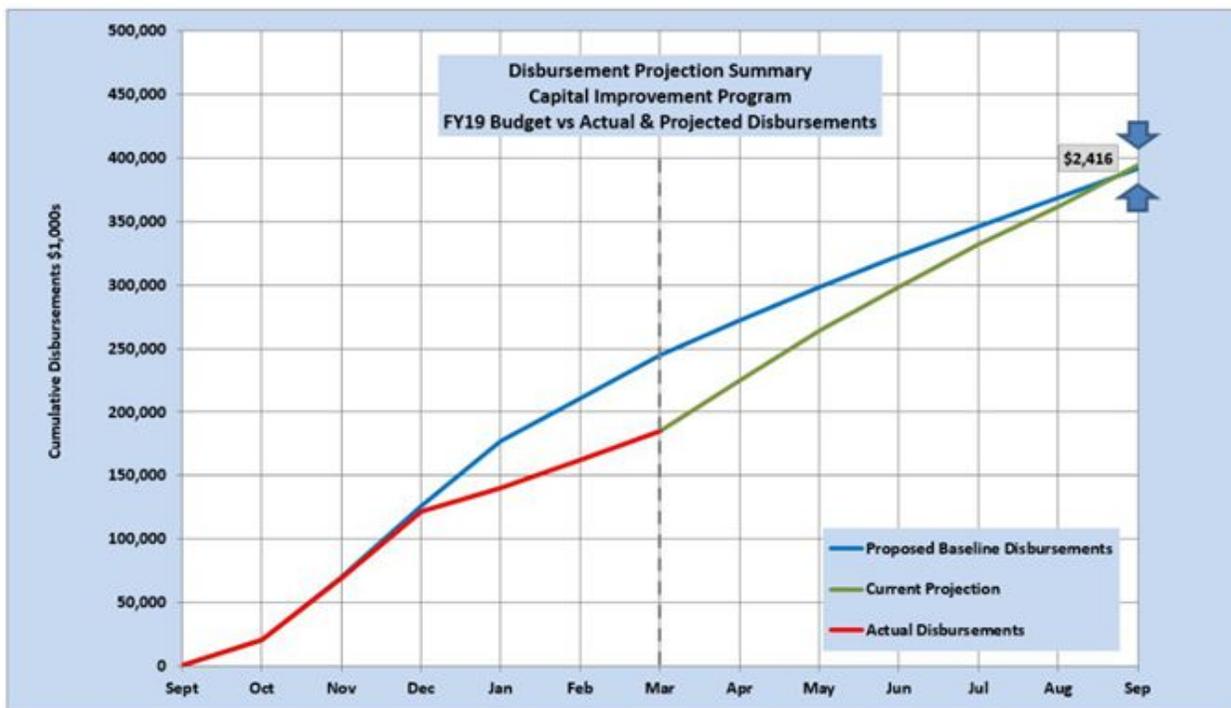


Capital Improvement Program Report 2nd Quarter FY2019

CIP Disbursement Performance

Current projected program disbursements through the end of the fiscal year compared with the FY19 baseline are shown in the chart below:

Disbursement Summary



*Note: FY19 Baseline was set in Dec, therefore Oct/Nov Actual disbursements match the Baseline disbursements.

The current projected fiscal year 2019 CIP disbursements are \$394,084,000 through the end of September 2019, which is on track to meet the baseline disbursement projection of \$391,670,000. The disbursements to date thru the mid-year are \$185,827,000 which is \$59.1M under the baseline forecasted midyear disbursements of \$244,931,000. Overall, the majority of forecast spending is on committed construction projects that are currently anticipated to be caught up within the fiscal year.

Current disbursement projections within the service areas are as follows:

Non-Process Facilities

Baseline Disbursements	\$15,309,000
Projected Disbursements	\$15,921,000 (\$0.6M above baseline projection)

There are no significant project variances for this service area currently projected over the fiscal year. The spending thru the mid-year is \$8.4M below the baseline, this underspending is mainly due to the



Capital Improvement Program Report 2nd Quarter FY2019

delay in retention release for the HQ building. It is anticipated the spending will still occur within this fiscal year

Wastewater Treatment Service Area

Baseline Disbursements	\$69,979,000
Projected Disbursements	\$67,152,000 (\$2.8M below baseline projection)

There are no significant project variances for this service area currently projected over the fiscal year.

The underspending thru the mid-year in the Enhanced Nitrogen Removal Facilities Program (\$10.1M) is mainly due to anticipated project closeouts slipping on projects E8 - Enhanced Clarification Facilities, FR - BP Tunnel Dewatering Pumping Station and FS - Div D - Bolling Overflow & Diversion, additionally the Raw Waste Water Pump Station No. 2 upgrades (RWWPS) pump rebuilds are behind schedule. It is anticipated the spending will still occur within this fiscal year.

For clarity, the Combined Sewer Overflow (CSO) Service Area comments are addressed separately by the CSO and DC Clean Rivers Program Areas:

Combined Sewer Overflow Program Area

Baseline Disbursements	\$7,491,000
Projected Disbursements	\$9,533,000 (\$2M above baseline projection)

Significant project variances are listed below:

- *Combined Sewer Outfalls (\$1.9M above baseline)*
 - The disbursements for project EJ - Potomac Pumping Station-Ph III Rehab - are projecting higher than the baseline mainly due to Change Orders.

DC Clean Rivers Program Area

Baseline Disbursements	\$187,859,000
Projected Disbursements	\$187,859,000

The DCCR team currently anticipate the spending to meet the baseline forecast by year end.

The underspending through the mid-year (\$18.2M) is mainly attributable to invoicing delays in the DC Clean Rivers projects, mainly due to compliance issues preventing processing payments to one Contractor and to untimely submittal of payment applications from another Contractor. It is currently anticipated the spending will catch up within the fiscal year.

Stormwater Service Area

Baseline Disbursements	\$4,220,000
Projected Disbursements	\$5,286,000 (\$1M above baseline projection)

Significant project variances are listed below:

- *Storm Pumping Facilities (\$1.0M above baseline)*



Capital Improvement Program Report 2nd Quarter FY2019

- The disbursements for project NG - Stormwater Pump Stations Rehabilitation are currently forecast higher than the baseline as Grant funded work was moved forward as required to be complete within the fiscal year.

Sanitary Sewer Service Area

Baseline Disbursements \$44,926,000
Projected Disbursements \$47,677,000 (\$2.8M above baseline projection)

Significant project variances are listed below:

- *Sanitary Trunk Sewer (\$4.0M above baseline projection)*
 - The disbursements for Project DR - Low Area Trunk Sewer Rehabilitation and Project J0 - B St/New Jersey Ave Trunk Sewer Rehabilitation are currently forecast higher than the baseline as the work is progressing faster than anticipated.

The mid-year underspending (\$5.8M) in the Sanitary Sewer System service area is mainly attributable to delays in the closeout of projects A4 – Watts Branch and IL - Creekbed Sewer Rehabilitation 2. It is currently anticipated these will closeout within the fiscal year.

Water Service Area

Baseline Disbursements \$61,884,000
Projected Disbursements \$60,658,000 (\$1.2M below baseline projection)

There are no significant project variances for this service area currently projected over the fiscal year.

The mid-year underspending (\$6.6M) in the Water Distribution System program area is mainly attributable to delays in closing out two Small Diameter Water Main projects, these are still anticipated to be closed in FY19.



Capital Improvement Program Report 2nd Quarter FY2019

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
Multiple	Water Program Manager	Professional Services	No	\$20M -25M	EQ & Ops Jun	Jul
FA00	Soldiers Home Reservoir Upgrade	Construction	No	\$5M - \$10M	EQ & Ops Jul	Sep
LZ00	Potomac Interceptor – Phase 5 Pipe Rehab	Construction	Yes	\$10M - \$15M	EQ & Ops Sep	Oct
F100	Small Diameter Water Main Repl. 13c	Construction	No	\$5M - \$10M	EQ & Ops Oct	Nov
F100	Small Diameter Water Main Repl. 13d	Construction	No	\$5M - \$10M	EQ & Ops Oct	Nov



Capital Improvement Program Report 2nd Quarter FY2019

Schedule - Key Performance Indicators Capital Improvement Program

Summary:

For the 2nd Quarter, all the Key Performance Indicators (KPIs) completed this period were achieved within 90 days of their target date. One will be completed outside the 90-day threshold.

#	Performance
6	KPIs completed within threshold
0	KPIs completed outside threshold
6	Total KPIs completed to date
17	Total KPIs due this year

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

The Construction Substantial Completion for IL10 has slipped due to additional roadway restoration required from National Park Services
The project OE01 project KPI has been moved to accommodate the project BX – Gravity Thickeners spending request

The table below provides a detailed breakdown of each KPI due date grouped by Quarter:

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	DZ02	Div RC-A - Rock Creek Project 1 (GI)	Construction Substantial Completion Milestone (KPI)	9-Oct-18		9-Oct-18	0	✓
Q2	J306	National Arboretum Sewer Rehab (Eastside Interceptor)	Construction Substantial Completion	22-Jan-19		24-Jan-19	-2	✓
Q2	DE02	Small Diameter Water Main Replacement 12B	Construction Substantial Completion	25-Jan-19		23-Jan-19	2	✓
Q2	O302	Small Diameter Water Main Replacement 11b	Construction Substantial Completion	1-Feb-19		27-Dec-18	36	✓
Q2	MA01	St. Elizabeth Water Tank	Construction Substantial Completion	24-Jan-19		24-Dec-18	31	✓



Capital Improvement Program Report 2nd Quarter FY2019

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	IL10	Creekbed Sewer Rehabilitation Rock Creek Oregon Avenue	Construction Substantial Completion	19-Feb-19	1-Jun-19			
Q2	DE01	Small Diameter Water Main Replacement 12A	Construction Substantial Completion	30-Apr-19		20-Dec-18	131	✓
Q3	AL05	Plantwide Projects Program Management	MFU6 - Start Milestone	1-May-19	15-May-19			
Q3	LZ09	PI Phase 6 Pipe Rehab at Clara Barton Pkwy and I495	Design Start Milestone	19-Jun-19	1-Oct-19			
Q3	FQ01	FQ01 Main & O St. PS Intermediate Upgrades	Construction Substantial Completion	30-Jun-19	30-Jun-19			
Q4	QS01	Local Sewer Rehab Project 5-1	Design Start Milestone	15-Jul-19	30-Jul-19			
Q4	C904	66" Low Service Steel Main at 8th Street NE & SE	Construction Substantial Completion	5-Jul-19	20-Apr-20			
Q4	I801	Large Valve Replacements 11R	Construction Substantial Completion	31-Jul-19	31-Jul-19			
Q4	CZ07	Potomac Project 1 (GI)	Substantial Completion Milestone	31-Jul-19	31-Jul-19			
Q4	FA03	Soldiers Home Reservoir Upgrade	Construction Start Milestone	8-Aug-19	20-Oct-19			
Q4	UC06	Upgrades to Filtration Influent Pumps 1-10	Construction Start Milestone	13-Aug-19	13-Aug-19			
Q4	OE01	FY15 - Plantwide Storm Drainage Improvements	Construction Start Milestone	17-Sep-19	17-Sep-21			

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



Lead Service Line Replacement Overview

Environmental Quality and Operations Committee

May 16, 2019

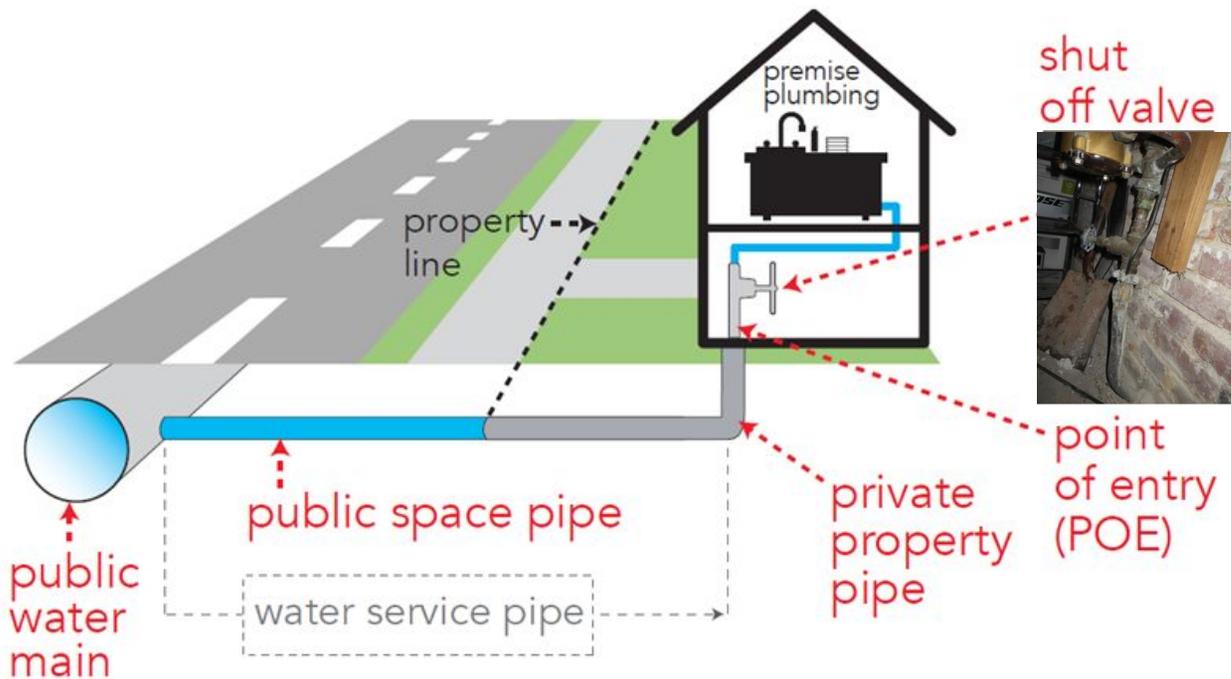


Agenda

- 1 Lead Service Line Replacement (LSR) Background
- 2 New District Law
- 3 LSR Programs and Costs
- 4 Impacts of New District Law and Next Steps
- 5 Response to Office of the Inspector General (OIG)



Background - Water Service Line



- ❖ Property owner owns the entire service line
- ❖ DC Water required to maintain portion in public space



History of Lead Service Line Replacements (LSRs)

- **1977:** DC Council enacts D.C. Law 1-98 authorizing District gov't to maintain water and sewer lines in public space
- **1986-87:** DCRA conducts lead-water sampling at tap from 2,400 homes, finds elevated levels of lead >20 ppb
- **1986-90** District replaces approximately 2,800 lead service lines, but stopped due to budget limitations
- **1990s:** EPA enacts Lead and Copper Rule (LCR), effective December 1992
 - 1992-1993 District monitors for lead and levels exceeds Lead Action Level (LAL)
 - 1992-1997 District/DC Water conducts LCR mandated 7% lead service line replacements; mandated LSR stopped after meeting LAL and budget limits
 - 1998-2002 – DC Water performed LSR in conjunction with water main replacements, DDOT road construction and emergency repairs



History of LSRs – cont'd

- **2000:** Disinfection change from free chlorine to chloramine to reduce disinfection byproducts (DBP) and comply with EPA's new Stage 1 DBP Rule.
- **2002-2008:**
 - 2002: District exceeds Lead Action Level (LAL)
 - 2002-2005: DC Water conducts LCR mandated 7% lead service line replacements;
 - 2004: Board approved LSR Policy to replace all known LSLs (23,000) block-by-block in public space by end of FY10; encourage private LSR; and replace any identified LSL within 90 days
 - Approximately 20% participation in full LSR
 - 2004: Washington Aqueduct begins orthophosphate addition for corrosion control
 - 2005: DC Water LCR monitoring meets LAL
 - 2006: EPA mandated 7% LSR lifted after meeting LAL
 - 2006: Board revised LSR Policy –replace all additional identified LSL by end of FY16; test pit all unknown LSL by end of FY15; and encourage DC Council to take action to facilitate private LSR



History of LSRs – cont'd

- **2008-2016:**
 - 2008: Research data showed varying changes in lead levels after partial LSRs
 - 2008 (Sep): Board revised LSR Policy – indefinitely suspended LSR block-by-block; continued LSR in conjunction with water main projects, DDOT road construction and emergency repairs; continue test pitting or alternative methods to identify unknown LSLs; started Voluntary Full LSR program (customer pays for private LSR and DC Water replaces in public space)
 - 2009 (Jan): Board revised LSR Policy to authorize \$2M per year for all LSRs not associated with water main replacements
 - 2009 (Sep): Board revised LSR policy to discontinue test pitting program for unknown LSLs and decreased discretionary funding for Voluntary Full LSR to \$500K
 - 2016: Board revised LSR Policy, increasing discretionary funding for voluntary LSR to \$2M per year
- **Today:** Partial LSRs conducted only as part of emergency repairs and water main projects (DC Water, DDOT road construction, or private development) when property owner declines to pay for private LSR
- **Future:** DC Council passed *Lead Pipe Replacement and Disclosure Amendment Act of 2018*
 - if funded, the District will pay for private side replacements (currently not funded in District's FY 2020 budget)



2 New District Law



Future: District LSR Law to Fund Private Portion

Lead Pipe Replacement and Disclosure Amendment Act of 2018, D.C. Law 22-0241:

- LSR regulations are effective upon initial District funding (currently no money in District's FY20 budget)
- District pays for LSRs on private property
 - LSR performed during CIP water main replacements and service line emergency repairs
 - Establishes a Voluntary Assistance Program for homes with a lead service line only on the private property
 - Income based
 - DOEE determines eligibility
 - DOEE transfers funds to DC Water
 - Contractor performs work and submits invoice to DC Water
 - DC Water certifies work and pays contractor



3

LSR Programs and Costs



Inventory of Lead Service Lines

Current Service Line Inventory

Pipe Material	Public Side	Private Side
Copper	83,240	15,455
Lead	11,010	7,973
Brass	9,459	611
Non-lead	5,206	3,413
Unknown	14,553	96,016
Total	123,468	123,468

- Sources of data
 - Historic tap cards
 - 1990 Study for EPA LCR (Weston *Lead in Water Study*)
 - Construction / Repair work

- Historically one pipe material was recorded for entire service line
 - Capture of public and private data began in early 2003
 - New database configuration created large number of “unknown” for private side
 - Data inventory change to be made in next year --extend public side material to “unknown” private side for select groups of historic records



Current DC Water LSR Programs

- 1) Water mains replaced or rehabilitated due to discolored water or structural problems (both DC Water and DDOT projects)
 - New service line must be tapped into new main and installed to meter or tree box
 - Property owner offered to replace private side at same time



- 2) Voluntary Full Replacement: property owner requests
 - Property owner pays for private side and coordinates through DC Water
 - DC Water pays for public portion replacement and restoration



Estimates of Average LSR Costs

	Public Space	Private Space
Construction (CIP, leak repair)	\$4,000 per home Street restoration cost not included (associated with water main)	\$2,500 per home* In 2004, DCW Board set rate: \$500 + \$100 per foot
Voluntary Full Replacement	\$8,600 per home 30% of cost is street restoration; Costs include permitting and mobilization	\$3,200 per home Contractors current approx rate \$700 + \$125 per foot
**DC's Assistance Fund	\$0 (public side must be non-lead)	\$2,000 - \$4,000 per home

*Requesting amendment to rates

**Not funded in District's current FY20 budget



DC Water FY Cost Estimates

- Construction- built into water main replacement budget
- Voluntary Full Replacement Program
 - New contract for only LSRs expected to lower costs
 - Estimate 800 LSRs / public side cost ~\$7M FY20 - FY21
- Private LSR Assistance Program (*pending District funding*)
 - 2 FTEs for communication, data recording, and payment processing
 - IT development needs TBD





4 Impacts of New District Law and Next Steps



Impacts of LSR Law on DC Water

Unintended Consequences

- 1) Water main projects must be *stopped* if District LSR funding is not available

Why is that?

Water main replacement on a block includes many homes. If one property owner wants the full LSR, but is not willing to pay, then DC Water cannot do any service line work to connect the home to the new main.



Impacts of LSR Law on DC Water

Unintended Consequences

- 2) Emergency repairs with lead services will have multi-day periods without water

Why is that?

The repair crew excavates, shuts the water off to stop the flow of water (avoid property damage), and sees a lead service.

With homeowner consent the private side can be done, however, contractor crews must do the work on private property.

- Time is required for permitting, mobilization, and homeowner to prepare for construction.



DC Water Asks the District

1) Fully fund the LSR Law 22-0241

- ❖ \$1.6 Million annually for DC Water's water main improvement projects and emergency repairs
- ❖ \$1-\$4 Million for the Assistance Program
- ❖ Designate as separate funds to preserve the construction needs

2) Provide escape clause to continue water main improvements with partial replacements when no District funds are available

3) Enable DC Water to provide water to homes during the emergency repair process

- Recognize residents may need to prepare to have a large hole created in their kitchen floor or basement wall



DC Water's Next Steps

- Request revision of the Board Resolution Voluntary Full Replacement funding from \$2M to \$3.5 Million per year
- Request to amend 2004 municipal regulations of private side LSR fees to reflect current day costs
- Develop a communication plan for repair activities (*pending District funding new law*)
 - Contacting property owner and documenting attempts
 - Explaining multiple day delay to restore water service
- Business Process and Database Development for Private LSR Assistance Program (*pending District funding new law*)
 - Create electronic submission for contractor to demonstrate LSR was complete
 - Financial system to transfer money
 - Customer call and communication tracking



5 Response to Office of the Inspector General (OIG)



Office of Inspector General (OIG) Audit

OIG audited DC Water’s EPA Lead and Copper Monitoring program and recommended nine activities related to lead service lines and the water testing for lead.

#	Recommendation	Response / Action Plan
1	Identify the unknown service line materials	Existing business processes capture the effort (water quality testing, documentation from all construction, request pipe material entering home from residences)
2	Correct the discrepancies in service line materials	Existing business processes capture the effort
3	Increase water testing participation in areas not regularly part of the LCR sample testing	Existing business processes capture the effort
4	Use DC Water staff to collect samples or guide customers who collect LCR water samples	Existing business processes capture the effort



Office of Inspector General (OIG) Audit

#	Recommendation	Response / Action Plan
5	Develop additional controls to periodically validate test results received from the Aqueduct.	DC Water disagreed with the recommendation. The existing EPA Drinking Water Laboratory Certification process addresses the need.
6	Accelerate the rate of lead service lines replacements.	Increase funding for small diameter water main replacement (SDWMR) program, beginning FY21. Revise SDWMR selection to give lead service lines a higher priority (next selection planned Oct 2019). Implement new DC LSR Law 22-0241 when funded.
7	Address the outstanding customer Voluntary Full Replacement requests.	Contacted waitlisted customers in Jan-Apr 2019. Advertised new LSR-dedicated contract in April 2019. Seeking to increase Board Resolution cap on LSR funding.
8	Determine a funding source to provide DC Water customers assistance with replacing their lead service lines on private property.	Pending funding of the new DC LSR Law 22-0241.
9	Conduct a feasibility study to introduce market-based opportunities to replace lead service lines when homes are sold and/or renovated, and report the results to the District.	Disagreed with recommendation as it is outside of DC Water statutory authority. However, the new DC LSR Law 22-0241 requires disclosure of service line material and water test results upon home sale.



Thank you!

Questions?

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT AWARD

**Dewatering Sludge Loading Facility (DSLFL) Building Roof Replacement
(Joint Use)**

Approval to execute a contract award for the DSLFL Building’s Roof replacement in the amount of \$1,108,322.30.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: ADP CONSULTANTS INC 4917 Ames Street, NE. Washington DC 20019 LSBE	SUBS: N/A	PARTICIPATION: N/A
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DESCRIPTION AND PURPOSE

Original Contract Value:	\$1,108,322.30
No. of Option Years:	0
Anticipated Contract Start Date:	07-01-2019
Anticipated Base Period Completion	07-01-2020
Proposals Received:	3
Proposal Price Range:	\$1,108,322.30 - \$1,830,550.00
Preference Points Received:	10

Purpose of the Contract:

The Department of Facilities Services has a need for a qualified contractor to replace the roof and remove skylights from the Dewatering Sludge Loading Facility (DSLFL) Building located at Blue-Plains. The roof’s current condition shows substantial deterioration and leakage.

Contract Scope:

The work to be performed under this contract shall include but not be limited to the following: furnish all roof work, competent and full-time supervision, experienced roof mechanics, all materials, tools, equipment and insurance necessary for the rehabilitation of the DSLFL Building roof and removal of skylights.

The original project scope included the replacement of existing skylights which is not required after further review and removed from the scope. Installation of solar panels was also considered but it was not feasible because of many roof mechanical units blocking the southern solar exposure needed for effective solar output.

Supplier Selection:

DC Water advertised a RFP and contacted 12 potential contractors during the solicitation process. 5 suppliers attended the mandatory pre-bid visit and 3 contractors responded with proposals: ADP Consultants Inc., Evergreen Unlimited, and North East Construction.

One proposal was determined non-responsive as this contractor did not submit all required documents such as safety manual, responses to some technical requirements, references, licenses, and certifications. ADP Group’s proposal was the lowest responsive proposal.

This contract resulted in total saving of \$221,314.58 from the initial proposal: \$190,764.58 from removal of skylights and \$30,550 from price negotiation.

PROCUREMENT INFORMATION

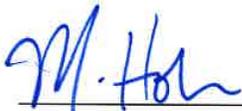
Contract Type:	Fixed Price	Award Based On:	Highest Rated Proposal
Commodity:	Goods and Services	Contract Number:	18-PR-DFS-38
Contractor Market:	Open Market with Preference Points for LBE and LSBE participation		

BUDGET INFORMATION

Funding:	Capital Project - LS44520000	Department:	Facilities
Service Area:	Wastewater Treatment	Department Head:	Brent Christ

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	41.22%	\$ 456,850.45
Washington Suburban Sanitary Commission	45.84%	\$ 508,054.94
Fairfax County	8.38%	\$ 98,877.41
Loudoun Water	3.73%	\$ 41,340.42
Other (PI)	0.83%	\$ 9,199.08
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$1,108,322.30

 / 4/25/2019
 Maureen Holman Date
 EVP of Administration

 / 4/25/19
 Dan Bae Date
 VP of Procurement and Compliance

 / 5/2/2019
 Matthew T. Brown Date
 CFO and EVP of Finance and Procurement

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

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT OPTION YEAR

**Solids Screening Facility Hauling
(Joint Use)**

Approval to exercise option year 3 for the hauling of grit and scum from the solids screening facility in the amount of \$1,002,000.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: Urban Service Systems Corporation 212 Van Buren St., NW Washington, D.C. 20012 LBE	SUBS: N/A	PARTICIPATION: N/A
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DESCRIPTION AND PURPOSE

Original Contract Value:	\$900,000.00
Original Contract Dates:	04-18-2016 – 04-17-2017
No. of Option Years in Contract:	4
Option Year 1 Value:	\$850,000.00
Option Year 1 Dates:	06-19-2017 – 06-18-2018
Option Year 2 Value:	\$1,018,000.00
Option Year 2 Dates:	06-19-2018 – 06-18-2019
Prior Modification Value:	\$560,352.06
Prior Modification Dates:	04-18-2017 – 06-18-2019
Option Year 3 Value:	\$1,002,000.00
Option Year 3 Dates:	06-19-2019 – 06-18-2020

Purpose of the Contract:

This contract provides DC Water’s Department of Wastewater Treatment (DWT) and Department of Pumping Operations (DPO) with hauling and disposal services for grit and scum collected at the Blue Plains Screenings and Grit Removal Facilities and from Screenings Removal Facilities at the Authority’s Sewer Pumping Stations.

Contract Scope:

The Contractor provides all necessary labor, supervision, equipment, materials, tools, insurance and personnel for the hauling of grit, screenings and scum from the above-mentioned areas. Urban Service Systems Corporation (Urban) staff are on site during the day and on call 24/7 to monitor trailers that are being filled. Urban drains the trailers and disposes any liquid that collects, then weighs the trailers and hauls the collected material to permitted landfills.

Spending Previous Year:

Cumulative Contract Value:	04-18-2016 to 06-18-2019: \$3,328,352.06
Cumulative Contract Spending:	04-18-2016 to 04-22-2019: \$3,008,138.06

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.

PROCUREMENT INFORMATION

Contract Type:	Fixed Price	Award Based On:	Best Value
Commodity:	Hauling	Contract Number:	16-PR-DWT-13A
Contractor Market:	Open Market with Preference Points for LBE and LSBE participation		

BUDGET INFORMATION

Funding:	Operating	Department:	DWT
Service Area:	Blue Plains	Department Head:	Aklile Tesfaye

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	45.15%	\$407,253.00
Washington Suburban Sanitary Commission	39.61%	\$357,282.20
Fairfax County	9.76%	\$88,035.20
Loudoun Water	4.74%	\$42,754.80
Other (PI)	0.74%	\$6,674.80
TOTAL ESTIMATED DOLLAR AMOUNT	100.00	\$902,000.00

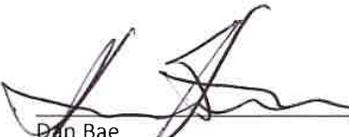
BUDGET INFORMATION

Funding:	Operating	Department:	DPO
Service Area:	District of Columbia	Department Head:	Kenrick St. Louis

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	100.00%	\$100,000.00
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%	\$100,000.00

 / 4/26/19
 Aklile Tesfaye
 VP of Wastewater Operations

 / 4/26/19
 Dan Bae
 VP of Procurement and Compliance

 / 5/2/2019
 Matthew T. Brown
 CFO and EVP of Finance and Procurement

_____/_____
 David L. Gadis
 CEO and General Manager

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT AWARD

MAXIMO MANAGED SERVICES

(Joint Use)

Approval to execute a contract award for Maximo Support Managed Services in the amount of \$434,000.00. Seeking Board approval because total potential spend over all option years exceeds \$1 million.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: Infosys Public Service, Inc (Infosys) 800 King Farm Blvd, Suite 505 Rockville, MD 20850, VA 23231	SUBS: N/A	PARTICIPATION: N/A
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DESCRIPTION AND PURPOSE

Base Year Contract Value:	\$434,000.00
Option Years:	4
Anticipated Contract Start Date:	06-15-2019
Anticipated Base Year End Date:	06-14-2020
Proposals Received:	9
Proposals Price Range:	\$591,605.00 - \$1,487,200.00
Preference Points Received:	0

Purpose of the Contract:

Maximo is DC Water’s asset management system. The proposed awardee, Infosys Public Service, would provide technical support for DC Water’s Maximo enterprise system.

Contract Scope:

The awardee will provide three people for services including, but not limited to:

- Ensuring day-to-day operations of the system are adequately maintained
- Transition DC Water’s current Maximo support model to a cloud-based solution
- Integration of Maximo with third party mobile workforce management solutions (i.e. mobile devices)
- Develop and implement application upgrades

Supplier Selection:

Nine firms submitted proposals in response to an open-market solicitation for this contract. Three firms met DC Water’s technical requirements including: guaranteeing minimum Maximo uptime; experience with Maximo in the utilities market; quality of contractor’s help ticket system, etc. Those firms entered in to price negotiations. Infosys provided the lowest price among the three firms that are technically-capable. The price of Best and Final Offer prices ranged from \$434,000 - \$556,800 for the base year.

Savings:

For the base year of the contract, Procurement negotiated a unit price reduction amounting to about \$157,605 from the original proposal.

No LBE/LSBE participation.

PROCUREMENT INFORMATION

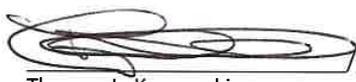
Contract Type:	Fixed Price	Award Based On:	Best Value
Commodity:	Information Technology	Contract Number:	18-PR-DIT-59
Contractor Market:	Open Market with Preference Points for Local and Small Businesses		

BUDGET INFORMATION

Funding:	Operating	Department:	IT
Service Area:	DC Water	Department Head:	Hari Kurup

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	84.61%	\$367,207.40
Washington Suburban Sanitary Commission	11.11%	\$48,217.40
Fairfax County	2.74%	\$11,891.60
Loudoun County	1.33%	\$5,772.20
Other (PI)	0.21%	\$911.40
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$434,000.00


 Thomas L. Kuczynski
 VP of Information Technology
 Date: 4/24/19


 Dan Bae
 VP of Procurement and Compliance
 Date: 4/24/19


 Matthew T. Brown
 CFO and EVP of Finance and Procurement
 Date: 5/2/2019

 David L. Gadis
 CEO and General Manager
 Date: /

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

ACTION REQUESTED

ENGINEERING SERVICES SUPPLEMENTAL AGREEMENT:

**Filtration and Disinfection Facilities Upgrade
(Joint Use)**

Approval to execute Supplemental Agreement No. 11 for \$1,395,500.00. The modification exceeds the Chief Executive Officer's approval authority.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
Arcadis District of Columbia, P.C. 2101 L Street NW Suite 200 Washington DC 20037	Milhouse Engineering Washington DC	MBE 33.3%
<u>Headquarters</u> Amsterdam, The Netherlands	Albrecht Engineering Baltimore, MD	WBE 4.5%

DESCRIPTION AND PURPOSE

Original Contract Value:	\$ 1,118,684.00
Value of this Supplemental Agreement:	\$ 1,395,500.00
Cumulative SA Value, including this SA:	\$ 9,453,930.00
Current Contract Value, Including this SA:	\$10,572,614.00
Original Contract Time:	378 Days (1 Year)
Time extension, this SA:	1177 Days (3 Year, 3 Months)
Total SA contract time extension:	6,986 Days (19 Years, 2 Months)
Contract Start Date:	08-02-2002
Contract Completion Date:	09-30-2022

NOTE: Attached supplemental material provides explanation of engineering project development.

Purpose of the Contract:

Upgrade critical elements of the Filtration and Disinfection Facility to improve reliability and assure continued compliance with NPDES permit requirements.

Original Contract Scope:

- Provide engineering services to identify upgrades to critical elements of the Filtration and Disinfection Facilities.
- Provide engineering services to upgrade the filter underdrains, filter media, and washwater system.
- Provide new air scour blowers and piping.

Previous Supplemental Agreement Scope:

- Engineering services for hydraulic modeling of the filter influent pumping system and pre-selection of filter influent pumps
- Engineering Design Services for replacement of the filter influent pumps and miscellaneous facility upgrades.

Current Supplemental Agreement Scope:

- Provide engineering support services, including technical reviews, during construction for the Filtration Influent Pumps 1-10 Replacement project.

Future Supplemental Agreement Scope:

- Future Supplemental Agreement is anticipated for final design and engineering support services for the construction phase of the Filter Influent Channel repair project.

SUPPLEMENTAL INFORMATION
Filtration and Disinfection Facility Upgrades
DCFA #380-WSA – Arcadis District of Columbia, P.C.

Summary Level Project Development

Contract Summary:

The Filtration and Disinfection Facility (FADF) is a critical unit process that serves to remove solids from the Nitrification effluent and is required to meet the phosphorus limitation of the NPDES discharge permit. Malcolm Pirnie (now Arcadis) was awarded a professional services contract in August 2002 to provide preliminary design for the Filtration and Disinfection Facility (FADF) upgrades. Based on the preliminary design, a budget of \$65MM (currently \$104MM) was added to the Capital Improvement Program with four construction phases envisioned at the time: Phase I was to replace the filter under drains, Phase II was to upgrade the backwash system, Phase III was to upgrade the electrical distribution system, and Phase IV was to upgrade the filter influent pumps. The construction contract for Phase IV upgrades is scheduled to start in August 2019. Supplemental Agreement No. 11 provides funding for Enhanced PDE Services During Construction for the Phase IV construction contract.

Malcolm Pirnie/Arcadis has been the engineer of record for each of the construction contracts that implemented the upgrades described in the Concept Finalization Report. Each phase is integral with the next, however, due to the significant cost for implementing the upgrades, the interfaces with other construction contracts in the vicinity, and the need to maintain the facility in operation during construction, construction was planned to be executed in phases over several years.

Contract Timeline

2002 – Award of DCFA#380, Concept Finalization Report/Preliminary Design for Filtration and Disinfection Facility Upgrades. The required upgrades were planned as follows:

Phase	Upgrade to:	Design	Construction
I	Filter Underdrains	2003-2004	2004-2009
II	Backwash System	2003-2007	2007-2012
III	Electrical System	2009-2011	2011-2015
IV – 2 pumps	Filter Influent Pumps 11&12		
IV – 10 pumps	Filter Influent Pumps 1-10	2014- 2019 ¹	2019-2022
	Filtration Concrete Repairs ²	2011-2012 ³ 2021-2022	2022-2023

¹Design duration was longer than typical because prior to the construction procurement, it included a procurement for pre-selection of the pumps and hydraulic modeling of the pre-selected pumps.

²Concrete repairs discovered during construction exceeded the construction design allowance and were deferred to be addressed in a stand-alone concrete repair contract to be implemented after the more critical work was complete.³Completion of final design and construction was deferred until the area was less congested with contractors.

SUPPLEMENTAL INFORMATION
Filtration and Disinfection Facilities Upgrade Project
DCFA #380 – Arcadis District of Columbia, P.C.
Detailed Project Development

The Filtration and Disinfection Facility includes 40 dual-media filters. The facility was placed into service in 1984. At the time of the original agreement with Malcolm Pirnie (August 2002), several filters were out of service due to problems with air entrainment in the filter washwater causing the filter underdrains to rupture resulting in loss of filter media. As a result, the Filtration and Disinfection Facility did not have an adequate amount of filters in service for reliable operation.

Original Agreement: The original Agreement with Malcolm Pirnie in the amount of \$1,118,684 was entered into on August 2, 2002. The scope of work included a Concept Finalization Report/Preliminary Design for upgrades to the filtration facility. The following tasks were planned as part of the concept finalization and were based on the Final Facilities Plan Liquid Side Processes dated April 2000:

- Evaluate and recommend alternatives for replacement of the filter underdrains.
- Evaluate and recommend alternatives for providing air-water backwash capabilities.
- Evaluate and recommend alternatives for headloss monitoring and control systems.
- Evaluate and recommend alternatives for a manual filter shock chlorination system.
- Evaluate and recommend motor drive types and control arrangements to be used for the filter influent pumps, washwater pumps, and spent washwater pumps.
- Evaluate the performance of Filter Influent Pumps 11 and 12, including possible structural and hydraulics problems causing high vibration.
- Evaluate the condition of all process gates and valves for long term operability and recommend replacement, rehabilitation, or routine maintenance.
- Develop recommended instrumentation and controls to allow for reliable automatic control of the filtration process.
- Evaluate the need for rehabilitation or replacement of the electrical power distribution switchgear and motor control centers.
- Evaluate the adequacy and need for replacement of the facility lighting.
- Provide technical assistance during the performance of pilot-scale testing of alternative filter media configurations to determine the preferred media configuration.

Final design services, bid phase services, and services during construction was to be included in a future supplemental agreement after the scope of the upgrades was confirmed during the preliminary design phase.

Because of the increasing number of filters that were out of service, DC Water decided to delete the elements of the project that were not critical to the filtration process, and to fast-track the design of the critical elements. It was decided that the critical elements of the project would be implemented through two design and construction phases. Non critical elements (motor drive upgrades, process mechanical elements, and general electrical, structural, HVAC, plumbing, and architectural upgrades) would be included in

future construction phases. The scope of work for the project was subsequently modified through Supplemental Agreement No. 1.

Supplemental Agreement No. 1: The original scope of work was modified under Supplemental Agreement No. 1 in order to fast-track the critical elements of the project. The critical elements were implemented through two design and construction phases. The revised scope of work under Supplemental Agreement No. 1 included design and bid phase services for both Phase I and Phase II construction contracts. Services during construction were to be included in a future supplemental agreement. Supplemental Agreement No. 1 was executed in February 2003 in the amount of \$1,380,012. Critical elements of the project were upgraded as follows:

Phase I – Filters

- Filter underdrains.
- Filter media.
- Washwater troughs installed at a higher elevation.
- Air scour piping within filter boxes.
- Repair of expansion joints in filter boxes.

Phase II – Backwash System

- New air scour blowers and piping.
- Upgrades to the filter washwater system to reduce hydraulic shock and uncontrolled air.
- Repair/replacement of valves and actuators.
- New I&C system for critical processes tied into PCS to achieve automatic operation.
- Manual shock chlorination system.
- Concrete repair to filter influent channels.

Concrete repairs to the filter influent channels was deferred when the Phase II Contractor found more cracks than the design engineers had anticipated. \$270,000 was allocated for the repair and rehabilitation of concrete and leaking expansion joints within the filter influent channels. The \$270,000 was then credited to the contract and the scope removed from the Phase II construction contract in anticipation of letting a future comprehensive concrete repair contract.

Supplemental Agreement No. 2: Additional design services were needed at the Phase II Pre-Final design stage including:

- Provide additional electrical and I&C design services to incorporate local start-stop control for all pumps.
- Modify the Pre-Final design to incorporate individual PLC for each air scour blower.
- Modify the Pre-Final design to incorporate additional miscellaneous gate, valves and instruments as required by the demolition of the Filtration Facility Master Control Panel.

Supplemental Agreement No. 2 included compensation for these additional design services and also included services during construction for Phase I and Phase II for a total amount of \$406,099. Supplemental Agreement No. 2 was executed in September 2004.

Supplemental Agreement No. 3: Supplemental Agreement No. 3 was executed in October 2005. It included additional compensation for Phase I services during construction in the amount of \$92,170. Additional compensation was needed for coordination with the PCS project which was being constructed under a separate contract.

Supplemental Agreement No. 4: The Phase II final design documents required further revisions to integrate an Interim Distributed Control Unit (DCU) into the Phase II design and to address coordination issues with the PCS work which was being constructed under a separate project. The construction staging and sequencing drawings and specifications needed to be revised to reflect the schedule for the Phase I and Phase II construction work and PCS work.

Additional compensation for services during Phase I and II construction was also included as previous funding had been depleted by requests to address numerous urgent and unforeseen issues related to washwater pump condition and performance, backwash system performance, sand and anthracite media proposals, installation and delivery problems, structural problems uncovered during construction and evaluation of contractor proposed installation and corrective measures to complete the Phase I work.

Supplemental Agreement No. 4 was executed in November 2005 for a total amount of \$437,551.

Supplemental Agreement No. 5: Supplemental Agreement No. 5 was executed in April 2008 in the amount of \$150,000. It included additional compensation for services during Phase II construction as previous funding had been depleted by performing additional tasks including:

- Verify hydraulic and air testing of filter cells.
- Provide recommendations to resolve failure of the underdrain system.
- Perform field wiring investigations related to the installation of the interim DCU.
- Review of washwater pump performance tests.
- Design of pipe supports.

Supplemental Agreement No. 6: Supplemental Agreement No. 6 included design and bid phase services for upgrades to the Filtration Facility's major electrical equipment (Phase III – Electrical Improvements) including:

- Variable Frequency Drives for new Filter Influent Pumps 11 and 12 being replaced as a part of the Phase III construction project. Coordination with others providing

- mechanical and structural design of the pumps.
- Replacement of existing medium voltage switchgear, low-voltage switchgear, step-down transformers, panelboards, lighting, HVAC, windows, and doors in Electrical Buildings 10 and 11.

Supplemental Agreement No. 6 was executed in February 2009 in the amount of \$1,432,121.

Supplemental Agreement No. 7: This supplemental agreement executed in October 2011 in the amount of \$848,500 included several tasks as follows:

- Services during construction for Phase III – Electrical Improvements project.
- O&M Manual services to prepare an overall process O&M Manual for the Filtration and Disinfection Facility.
- Final design and bid phase services for the filter influent channel concrete repairs element of the project.
- Concept Finalization Report/Preliminary Design for upgrades to the filter influent pumps, replacement of motor control centers, panelboards, and lighting throughout the filtration facility that was not included in the Phase III project.

Supplemental Agreement No. 8: This supplemental agreement executed in April 2012 in the amount of \$110,000 included additional compensation for services during Phase III construction. This supplemental agreement was necessary as sufficient funding was not available at the time of the previous supplemental agreement.

Supplemental Agreement No. 9: This supplemental executed in November of 2013 in the amount of \$1,924,526 included the following tasks to implement Phase IV - Filter Influent Pumps:

- Funding for final design services, bid phase services, and construction phase services for upgrades to the filter influent pumps, replacement of motor control centers, panelboards, and lighting throughout the filtration facility that was not included in the Phase III project.
- Additional funding to update and finalize the process O&M Manual.
- Non-destructive testing of the filter influent channels to assess the condition of the structure and reinforcing elements.

Supplemental Agreement No. 9 covers all the remaining design elements that were part of the original scope of work for this project as identified in the Final Facilities Plan Liquid Side Processes dated April 2000. At the time that Supplemental Agreement No. 9 was executed, it was anticipated that a future supplemental agreement would be required to provide additional funding for services during construction associated with the filter influent channel concrete repair construction contract.

Supplemental Agreement No. 10: This supplemental agreement executed in November of 2014 in the amount of \$1,277,451 included the following tasks:

- Preliminary design for replacement of the filter influent pumps.
- Preparation of an RFP for pre-selection of the filter influent pumps.
- Hydraulic modeling of the filter influent pumping system.
- Value Engineering study and HAZOPS workshop.
- Final Design for replacement of the filter influent pumps.
- Services During Construction for a new MBE subconsultant (scheduled to start in 2017).
- Final Design for the filter influent channel concrete repairs project.

Upon completing the Final Design of an expedited filter influent pump repair and rehabilitation bid package, DC Water requested that a Life Cycle Cost Analysis (LCCA) be performed to evaluate the option of advertising and taking bids for repair and rehabilitation of the filter influent pumps using a modified version of the Project Manual submitted in April 2014 (Rehabilitation option) or designing for replacement filter influent pumps under a new design contract (Replacement option).

Based on the LCCA, DC Water elected to proceed with the replacement option due largely to the underlying hydraulic issues with the existing filter influent pumps; namely vane tip cavitation. It was discussed that this issue might be remedied through improvements based on the results of physical hydraulic modeling, but that ultimately the existing pumps did not meet Hydraulic Institute Standards for submergence and had not achieved the expected design life in this installation.

In addition, this supplemental agreement included Final Design services to complete the Filter Influent Channel Concrete Repairs project. Due to construction congestion in the vicinity of the Filtration Facility associated with the ENRF construction project, the design and construction of the filter influent channel concrete repairs project was delayed. The contract documents were 95 percent complete. Funding under this supplemental agreement was necessary in order to:

- Update the Division 0 and Division 1 specifications with the latest version.
- Revisit the Filtration Facility shut-down constraints and update the Maintenance of Plant Operations and Sequence of Construction requirements.
- Complete the design and prepare bid ready documents.

Supplemental Agreement No. 11: This supplemental agreement in the amount of \$1,395,500 includes additional funding for Enhanced Services During Construction to assist the Construction Manager for the Filtration Influent Pump 1-10 Replacement project.

Timeline:

- Negotiations: 12/12/2018 – 04/26/2019.
- Time extension this supplemental agreement: 1177 days.
- Contract completion date: 09/30/2022 (three months beyond construction completion).

Major Scope Items:

- Estimated 760 construction submittal reviews (including resubmittals).
- Estimated 130 RFC responses.
- Estimated 6 owner requested design modifications.
- Review of contractor requested alternatives.
- Bi-weekly site visits.
- Monthly conference calls.
- Weekly progress meetings.
- Assistance with equipment start-up/commissioning.

Future Supplemental Agreement: A future supplemental agreement is anticipated to provide additional funding associated with the filter influent channel concrete repair project. Additional funding will be necessary for:

- Final design.
- Bid phase services.
- Enhanced services during construction.

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

ACTION REQUESTED

ENGINEERING SERVICES SUPPLEMENTAL AGREEMENT:

**Gravity Thickener Upgrades
(Joint Use)**

Approval to execute Supplemental Agreement No. 5 for \$4,000,000. The modification exceeds the Chief Executive Officer's approval authority.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
HDR Engineering, Inc. 2600 Park Tower Drive, Suite 100, Vienna, VA 22180	Savin Engineers, PC Baltimore, MD	MBE 42.3 %
<u>Headquarters</u> Omaha, NE 68114	PDH Associates, Inc. Potomac, MD	WBE 9.5 %
	Simpson, Gumpertz & Heger Washington, DC	1.0 %

DESCRIPTION AND PURPOSE

Original Contract Value:	\$1,100,000
Value of this Supplemental Agreement:	\$4,000,000
Cumulative SA Value, including this SA:	\$8,501,591
Current Contract Value, Including this SA:	\$9,601,591
Original Contract Time:	365 Days (1 Year)
Time extension, this SA:	1,309 Days (4 Years, 1 month)
Total SA contract time extension:	4,252 Days (11 Years, 8 Months)
Contract Start Date:	02-23-2011
Contract Completion Date:	10-15-2023

NOTE: Attached supplemental material provides explanation of engineering project development.

Purpose of the Contract:

Provide engineering services for the development of upgrades to the Gravity Thickeners (GTs) and the Primary Sludge Screening and Degritting Building.

Original Contract Scope:

- Provide a concept design report and preliminary engineering services for improvements to the Gravity Thickener Facility.

Previous Supplemental Agreement Scope:

- Provide engineering services for detailed design and bidding including, restoring GTs 5-6 to service, new equipment for GTs 7-10, covers and ventilation for GTs 1-10, new primary sludge degritting equipment and upgrades to electrical and controls systems.
- Preparation of a Commissioning Plan during design and an Operations and Maintenance (O&M) Manual.
- Provide engineering services for additional detailed design including, dilution of the degritter feed system and new pumps, new equipment for GTs 1-4, new primary sludge screening equipment, several improvements for operator safety and updates for changed site conditions.

Current Supplemental Agreement Scope:

- Provide engineering support services, including technical reviews, during construction for upgrades to the Gravity Thickeners and the Primary Sludge Screening and Degritting Building.

Future Supplemental Agreement Scope:

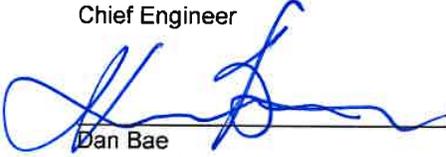
- No future supplemental agreements are anticipated.

PROCUREMENT INFORMATION			
Contract Type:	Fixed Price & Cost Plus Fixed Fee	Award Based On:	Highest Ranking Score
Commodity:	Engineering Design Services	Contract Number:	DCFA #425-WSA
Contractor Market:	Open Market		

BUDGET INFORMATION			
Funding:	Capital	Department:	Wastewater Engineering
Service Area:	Wastewater	Department Head:	Algyon Collymore
Project:	BX		

ESTIMATED USER SHARE INFORMATION		
User	Share %	Dollar Amount
District of Columbia	41.22%	\$ 1,648,800.00
Washington Suburban Sanitary Commission	45.84%	\$ 1,833,600.00
Fairfax County	8.38%	\$ 335,200.00
Loudoun County & Potomac Interceptor	4.56%	\$ 182,400.00
Total Estimated Dollar Amount	100.00%	\$ 4,000,000.00


 _____ 5/6/19
 Leonard R. Benson Date
 Senior Vice President
 Chief Engineer


 _____ 5/8/19
 Dan Bae Date
 Vice President
 Procurement & Compliance


 _____ 5/8/19
 Matthew T. Brown Date
 Executive Vice President
 Finance & Procurement

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

SUPPLEMENTAL INFORMATION
Gravity Thickener Upgrades
DCFA #425-WSA – HDR Engineering
Summary Level Project Development

Project Overview:

Project to upgrade primary sludge (solids) screening, degritting and gravity thickening facilities. Major equipment to be replaced that has reached the end of its service life is as follows:

- Currently only 4 out of 8 GTs are operational; project will restore to previous capacity of 10 GTs.
- Currently only 3 out of 4 primary sludge screens are operational; project will restore to capacity of 4 screens.
- Currently only 6 out of 8 degritter (sludge) feed pumps are operational; project will restore to capacity of 8 pumps.
- Currently no primary sludge degritting system; project will provide new equipment.

Design Contract Summary:

The design was initiated in 2011 to replace aging equipment and systems. Some scope changes extended the design period, but the most significant delay was due to anticipated construction conflicts with the adjacent TDPS/ECF project. Thus, the design schedule was extended to accommodate a delayed construction start date after 2018, when the Consent Decree required completion of the TDPS/ECF. During the ensuing time, the existing facilities further degraded and more equipment reached the end of its useful life. The scope therefore expanded again to include replacement of more components of the gravity thickener system. The final design was completed in 2018, the project has been advertised and bid, and is now ready for construction.

Design Contract Timeline:

- 2011 – 2013: Design initiated, concept report through intermediate design. Design scheduled to finish May 2014.
- 2014: Scope added because of odor control master plan included new covers, fans, and exhaust stacks for GTs. Design schedule extended 16 months.
- 2015: Constructability concerns with adjacent TDPS/ECF construction restricting access to GTs resulted in delaying construction start date initially by 15 months to shorten the overlap of the two projects. TDPS/ECF project took precedence because of Consent Decree.
- 2016 – 2017: Concerns over fine grit led to a technical advisory committee and pilot testing of alternate method of sludge degritting. Due to further deterioration of aging existing equipment, scope was changed to include replacement of sludge feed pumps, sludge screens, and full rehab of GTs 1 – 4. Additional concerns over TDPS/ECF consent decree led to delaying GT construction to avoid any overlap in the two projects. Design period extended by 16 months.
- 2018: Design completed, project advertised for bids.
- 2019 – 2023: Anticipated construction duration. Construction period is extended because of a necessary sequence of construction to maintain treatment operations while upgrading the most critical items first.

SUPPLEMENTAL INFORMATION
Gravity Thickener Upgrades
DCFA #425-WSA – HDR Engineering
Detailed Project Development

Project Overview:

Major upgrades to the existing Primary Sludge Screening and Degritting Building (PSSDB) and to the existing Gravity Thickeners (GT) Facility. The equipment in these facilities will have reached the end of their useful lives by the time construction of this project is complete if it has not already. Furthermore, the project includes upgrades to improve safety, process reliability, efficiency, and operability. The project also includes restoring Gravity Thickeners 5&6 so that the capacity is sufficient to handle solids from the new wet weather treatment facility as well as the current primary treatment process.

Original Contract Summary:

- **This included site investigations and concept finalization.**
- Timeline:
 - Contract executed: 2/2011; 365 days
 - Fact sheet's contract completion date: 2/2012
- Original contract value: \$1,100,000
- Major Scope Items:
 - Improve quality of primary sludge to be processed by CAMBI
 - Determine the cause and eliminate air entrainment in the GT influent sludge

Supplemental Agreement #1 Summary:

- **This SA was implemented to add detailed design.**
- Timeline:
 - Scope definition: 7/2012 – 9/2012
 - Negotiations: 9/2012 – 10/2012
 - Design procurement: 10/2012 – 1/2013
 - Contract executed: 1/2013; 480 days for design (5/2014), 120 days at bid phase
 - Fact sheet's contract completion date: 4/2015
- SA1 value: \$1,723,504; Cumulative contract value: \$2,823,504
- Major Scope Items:
 - Renovation of PSSDB
 - Full upgrades to GTs 7-10 (original from 1980's)
 - Restore service to GTs 5-6 (decommissioned in Phase I)
 - Minor upgrades to GTs 1-4 (upgraded in Phase I)
 - Miscellaneous electrical and I/C improvements

Supplemental Agreement #2 Summary:

- **This SA was implemented to address the Blue Plains Odor Control Master Plan and to add the Commissioning Plan and O&M Manual.**
- Timeline:
 - Scope definition: 3/2014 – 9/2014
 - Negotiations: 9/2014 – 11/2014
 - Design procurement: 11/2014 – 3/2015
 - Contract executed: 3/2015; 180 days for design (9/2015), 180 days at bid phase, 1200 days for O&M Manual
 - Fact sheet's contract completion date: 9/2018 (Final O&M Manual)
- SA2 value: \$1,115,951; Cumulative contract value: \$3,939,455
- Major Scope Items:
 - Walk-in covers over GTs 1-10
 - Exhaust system for GTs, discharge 50 feet above grade
 - Gas monitoring and alarm system in GTs

SUPPLEMENTAL INFORMATION
Gravity Thickener Upgrades
DCFA #425-WSA – HDR Engineering
Detailed Project Development

Supplemental Agreement #3 Summary:

- **This SA was implemented to address constructability concerns from DWE with the adjacent TDPS/ECF site and to address operability concerns from DWT.**
- Timeline:
 - Scope definition: 6/2015 – 9/2015 (Exhaust stack layout revisions)
 - Negotiations: 9/2015 – 10/2015
 - Design Procurement: 10/2015 – 1/2016
 - Contract executed: 1/2016; 330 days for design (12/2016)
 - Contract completion date: 3/2020 (Final O&M Manual)
- SA3 value: \$456,000; Cumulative contract value: \$4,395,455
- SA3 Major Scope items:
 - Additional geotech design for revised exhaust stacks layout
 - Mechanical and I/C design revisions
 - Design constraints and construction sequencing changes due to TDPS/ECF

Supplemental Agreement #4 Summary:

- **This SA was implemented to address process reliability/efficiency, improved operability and operator safety concerns from DWT and from the Primary Sludge Grit TAC. Project schedule extended but costly interferences with the adjacent TDPS/ECF construction are eliminated.**
- Timeline:
 - Scope definition: 3/2016 – 12/2016 (Sludge degritting: Grit TAC, Plant visits, Piloting)
 - Negotiations: 1/2017 – 2/2017
 - 270 days for design
 - Contract completion date: 3/2020 (Final O&M Manual)
- Major Scope Items:
 - Replacement of Degritter Feed Pumps
 - Dilution Water for PSSDB Wet Well
 - Replacement of GT 1-4 Collectors, Sludge Pumps and Scum Pumps
 - TDPS/ECF Changed Site Conditions

Supplemental Agreement 5 Summary:

- **This SA is needed to add Services During Construction to HDR's contract.**
- Timeline:
 - Scope definition: 10/2018 – 12/2018
 - Negotiations: 1/2019 – 4/2019
 - 1,500 days (matches construction contract Final Completion duration)
 - Contract completion date: 10/2023
- Major Scope Items:
 - ~2,400 construction submittal reviews (incl. re-submittals; 1,512 items in submittal register)
 - ~400 RFI responses
 - Weekly conference calls for majority of construction period
 - Weekly site visits during peak of construction
 - SOPs for new GT exhaust system only

SUPPLEMENTAL INFORMATION
Gravity Thickener Upgrades
DCFA #425-WSA – HDR Engineering
Detailed Project Development

MBE/WBE Participation:

- Current Overall Contract thru SA4 (**MBE low due to Diversified - HVAC/Plumbing MBE firm closing**):
 MBE: 25.7%; WBE: 11.0%; M/WBE: 36.7%
- SA5 (additional MBE participation with Savin providing document controls/admin support):
 MBE: 42.3%; WBE: 9.5%; M/WBE: 51.8%
- Overall Contract thru SA5:
 MBE: 32.6%; WBE: 10.4%; M/WBE: 43.0%

SA5 Fee Breakdown:

HDR – PM, General, Civil, Mechanical Process: \$1,889,045

Savin (MBE) – Electrical, Instrumentation, Admin: \$1,691,269

PDH (WBE) – Structural: \$380,000

SGH (non M/MBE) – Structural (stacks & headers supports): \$39,686

SA5 Team Total: \$4,000,000

Current Contract Value thru SA4: \$5,601,591

Proposed Contract Value with SA5: \$9,601,591

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

ACTION REQUESTED

**CONSTRUCTION CONTRACT:
Gravity Thickener Upgrades – Phase II
(Joint Use)**

Approval to execute a construction contract for \$60,390,000.00

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
Ulliman Schutte Construction, LLC 14420 Albermarle Point Place	Hi-Mark Construction Group, Inc. Middletown, OH MBE	28.3%
Suite 110 Chantilly, VA 20151	GE Frisco Co., Inc. Upper Marlboro, MD MBE	4.8%
<u>Headquarters</u> Miamisburg, OH 45342	Monumental Concrete, LLC Washington, DC MBE	0.3%
	Ideal Electrical Supply Corp. Washington, DC WBE	6.2%
	Elite Hauling Group, Inc. Clinton, MD WBE	0.1%

DESCRIPTION AND PURPOSE

Contract Value, Not-To-Exceed:	\$60,390,000.00
Contract Time:	1,500 Days (4 Years 1 Month)
Anticipated Contract Start Date (NTP):	09-06-2019
Anticipated Contract Completion Date:	10-15-2023
Bid Opening Date:	02-27-2019
Bids Received:	3
Other Bids Received	
CPP Construction Company	\$62,334,000.00
Balfour Beatty Infrastructure, Inc.	\$67,276,000.00

Purpose of the Contract:

Upgrades to the major equipment and systems serving the primary sludge screening, degritting and gravity thickening facilities that have reached the end of their service life and are currently operating ineffectively.

Contract Scope:

- Replacement of primary sludge screening system.
- Replacement of previously decommissioned primary sludge degritting system.
- Restoring previously decommissioned Gravity Thickeners 5-6 to service to increase the operating capacity of the facility to accommodate additional solids generated by the new Enhanced Clarification Facility.
- Full rehabilitation of Gravity Thickeners 1-4 and 7-10, several of which are currently out of service due to failed equipment.
- Installation of covers and ventilation system for Gravity Thickeners 1-10.
- Installation of associated degritter feed pumps, sludge pumps and scum pumps.
- Piping site work, concrete repairs and coatings, electrical upgrades, instrumentation upgrades and all appurtenant work.

Federal Grant Status:

- Construction Contract is eligible for Federal grant funding assistance: inclusion in grant is pending availability of grant funds.

PROCUREMENT INFORMATION

Contract Type:	Fixed Price	Award Based On:	Lowest responsive, responsible bidder
Commodity:	Construction	Contract Number:	130180
Contractor Market:	Open Market		

BUDGET INFORMATION

Funding:	Capital	Department:	Wastewater Engineering
Service Area:	Wastewater	Department Head:	Algynon A. Collymore
Project:	BX		

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	32.21%	\$19,454,544.00
Federal Funds*	9.01%	\$5,438,214.00
Washington Suburban Sanitary Commission	45.84%	\$27,682,776.00
Fairfax County	8.38%	\$5,060,682.00
Loudoun County & Potomac Interceptor	4.56%	\$2,753,784.00
Total Estimated Dollar Amount	100.00%	\$60,390,000.00

*Eligible for Federal Grant Funding at 55% of the District of Columbia share. Grant funding is insufficient to fund all eligible contracts. Federal Grant Funding may be used if additional funding becomes available or if other eligible projects are postponed.

Leonard R. Benson

_____/ May 9, 2019
 Leonard R. Benson, SVP and Chief Engineer Date

Dan Bae

_____/ May 9, 2019
 Dan Bae, VP Date
 Procurement and Compliance

Matthew T. Brown

_____/ May 9, 2019
 Matthew T. Brown, CFO and EVP Date
 Finance and Procurement

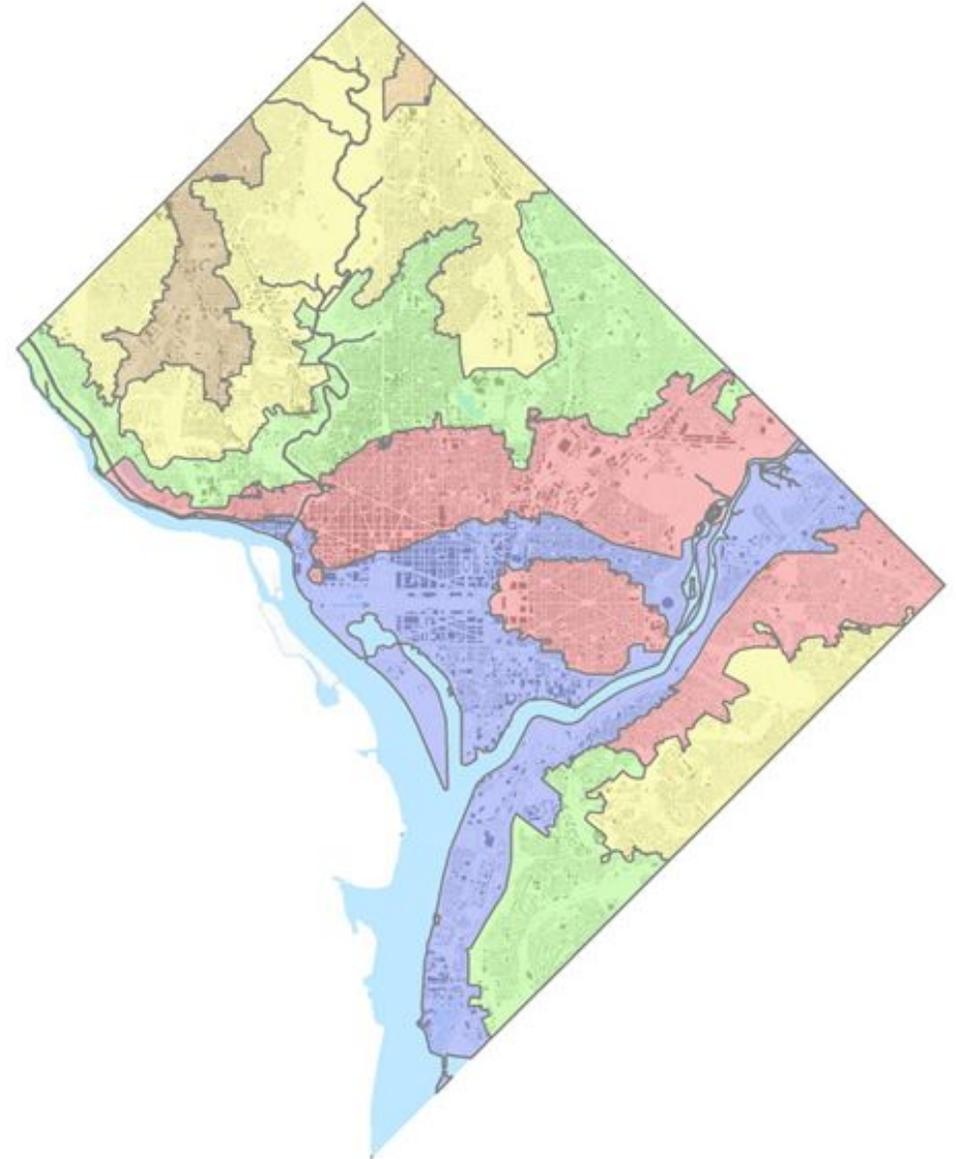
 David L. Gadis
 CEO and General Manager

_____/ Date



Water & Sewer Mains: Prioritization

InfoMaster Implementation & Utilization



*Environmental Quality and Operations
Committee Briefing*

May 16, 2019

Source: Mott MacDonald



Outline:

1. Background
2. InfoMaster
3. Updated Risk Plots
4. Summary



Background - AM Deployment





Background – COF

- Asset Management Risk Framework – Consequences of Failure :

COF Category	Weighting
Health and Safety	25%
Public Confidence	15%
System Reliability	20%
Regulatory Compliance and Environmental Impact	25%
Fiscal Impacts	15%

Health & Safety Sub Criteria
Employee Hazards
Public Hazards

Public Confidence Sub Criteria
Media Attention
Transportation
Community/ Business/ Environment
Critical Customers
Complaints

Fiscal Impact Sub Criteria
O&M
Capital



Background – LOF

- Asset Management Risk Framework – Likelihood of Failure:

LOF Category	LOF Factors	Weight
Physical Condition	<ul style="list-style-type: none"> • Condition assessment results • Main break history • Remaining useful life of pipe • Corrosive environment 	55%
Performance	<ul style="list-style-type: none"> • Mains with water quality, fire flow, or O&M issues • Sewers with hydraulic capacity issues 	35%
Maintenance History	<ul style="list-style-type: none"> • Hydrant flushing and/or valves break history • Maintenance defects identified 	10%



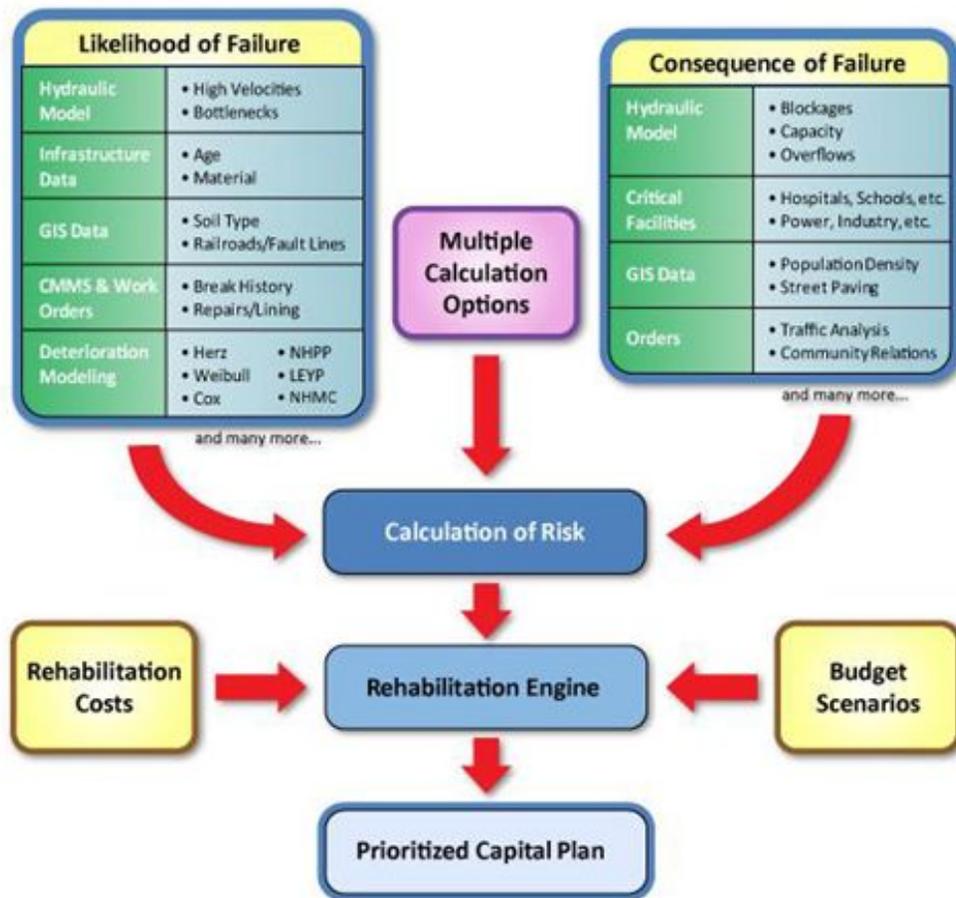
InfoMaster





Innovyze's InfoMaster

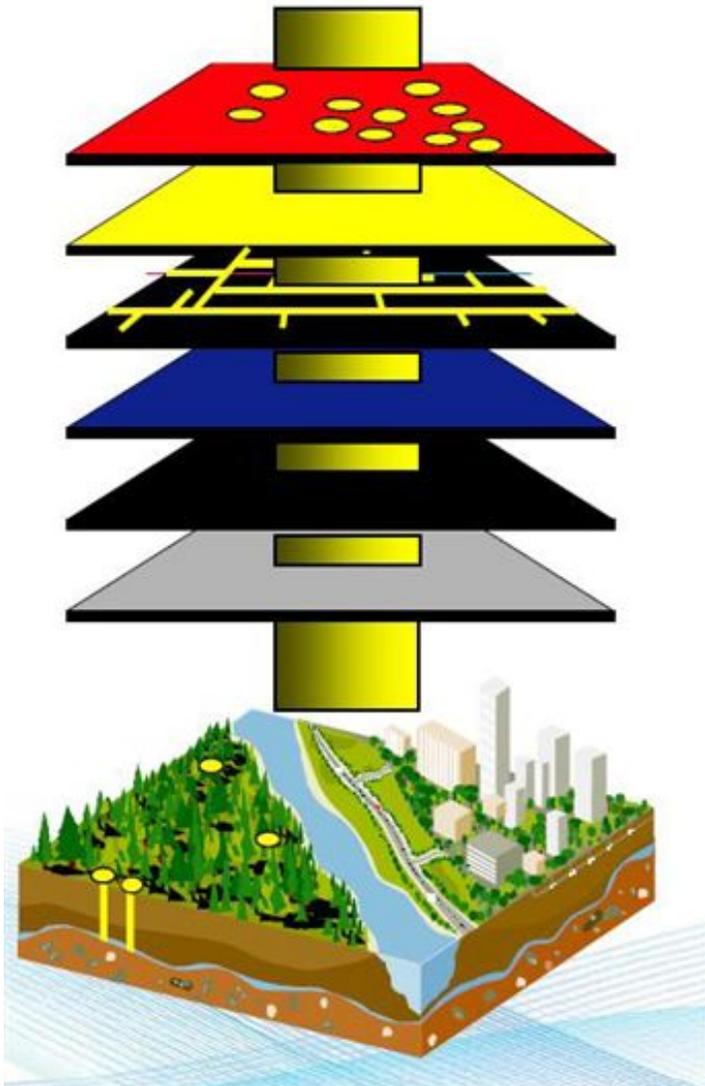
InfoMaster®



- InfoMaster integrates the prioritization of assets and capital needs
- Customizable, defensible & repeatable capital planning analysis
 - Risk based prioritization & budgeting
- Prioritize and phase spending
- Stores results from CCTV inspections and links directly to CCTV videos
- Leverages existing GIS and other databases
 - Leads to data driven decision making
- Off the shelf software utilized by many leading utilities
 - Reduce reliance on consultant and their proprietary tools
- DC Water purchased 2 floating licenses that are deployed to Citrix



InfoMaster – DC Water Set-up



- Built from the Enterprise GIS Database.
 - Easy to update with revised GIS data
- Leverages DC Water’s inspection results
 - CCTV Inspection & Defects
 - EM, Acoustic, Visual Inspections
- Supplemented with information from
 - DC OCTO GIS layers
 - Landbase
 - Critical Customers
 - Hydraulic model results
 - Maximo work orders
 - Operational information



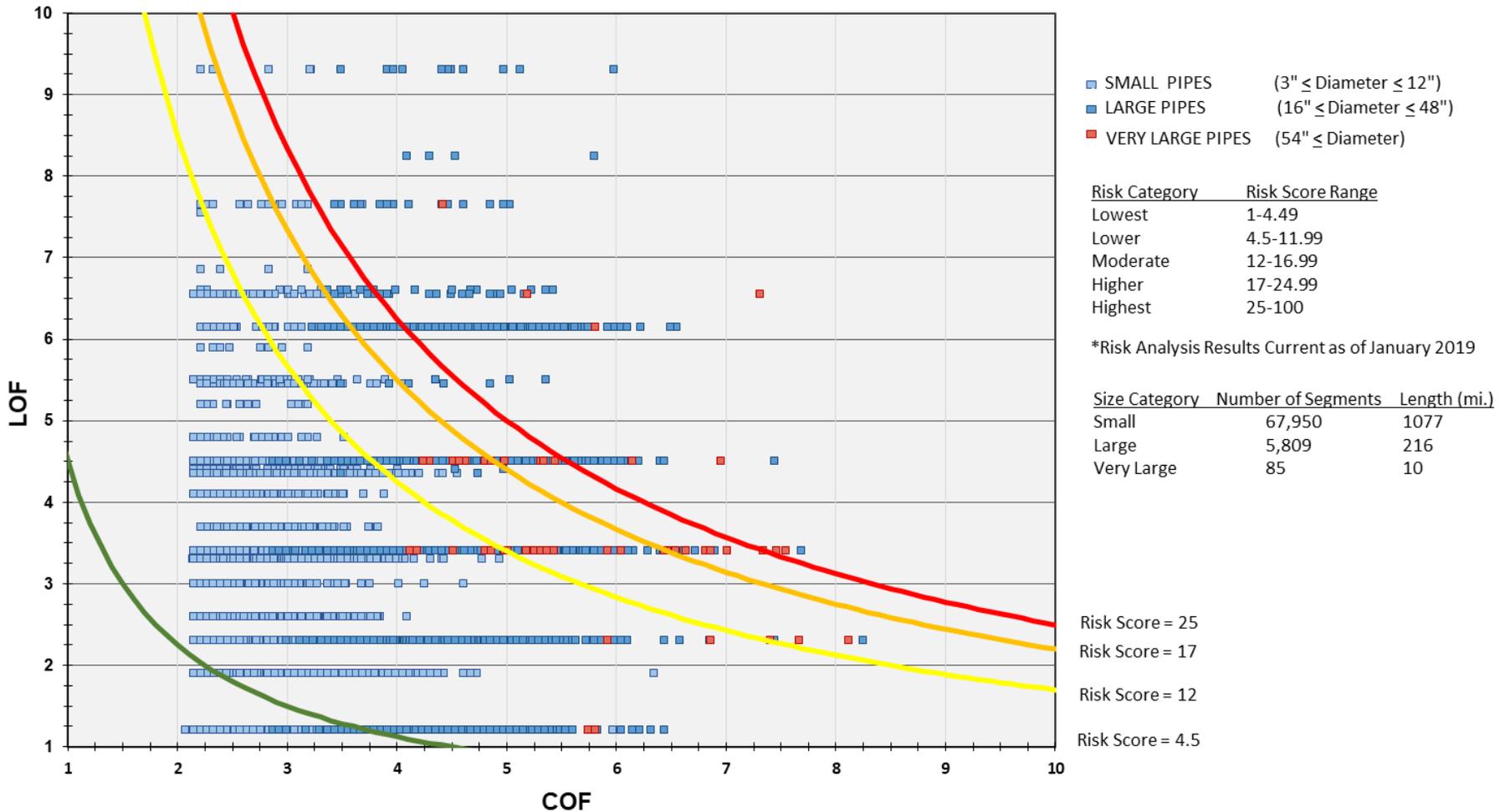
InfoMaster DC Water Set-up

- Separate risk prioritization models for the water and sewer systems
- Calculates Risk as a product of COF & LOF based on DC Water defined criteria
 - Risk criteria based on Asset Management Risk Matrix
 - Easy to update, modify or change criteria to reflect utility goals
- Generates a prioritization risk score for every water and sewer main asset in the system
- Prioritization can be re-run as needed
- Highest priority assets can be packaged into capital improvement projects



Updated Risk Plots – Water

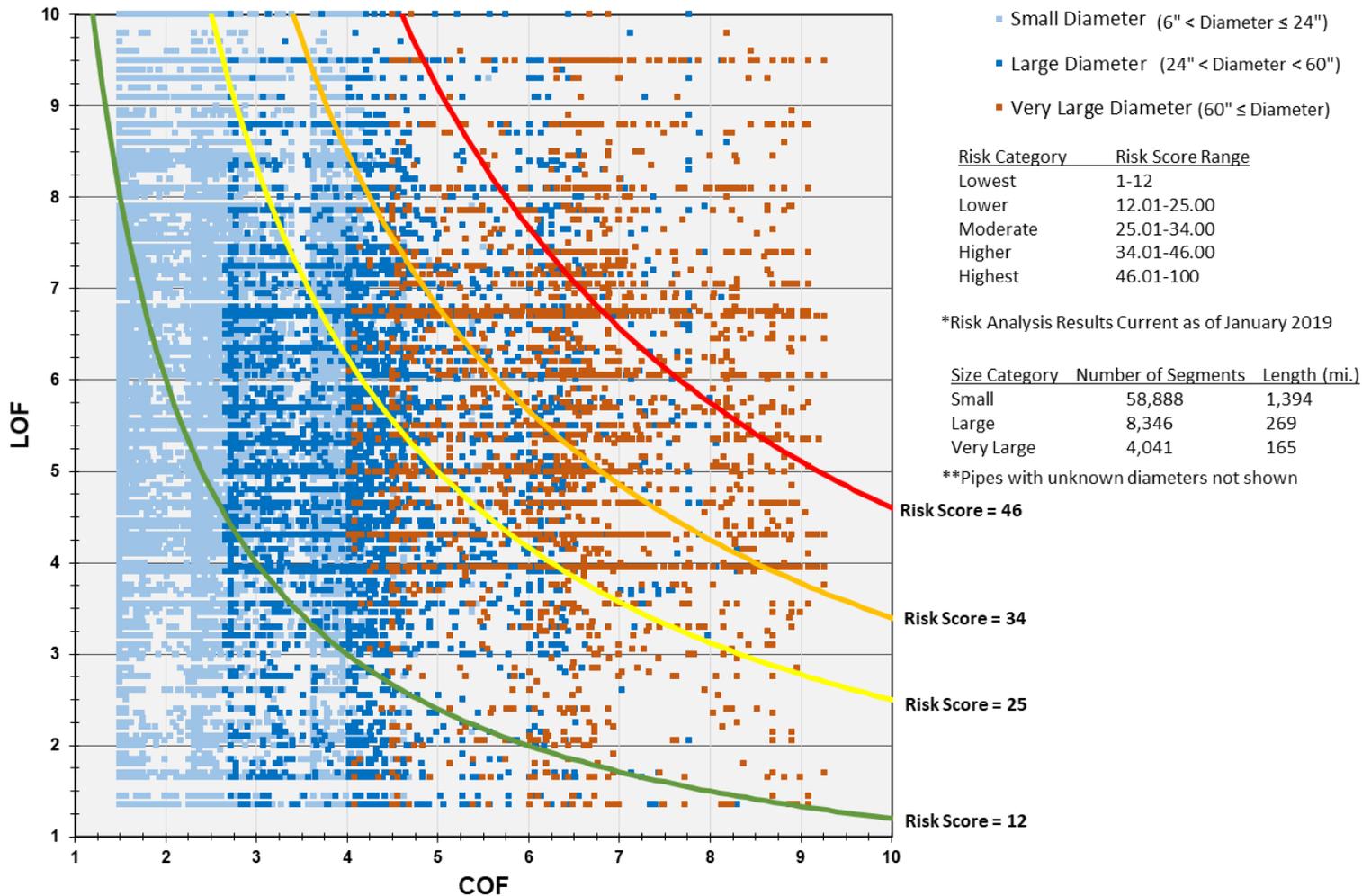
**Consequence of Failure (COF) and Likelihood of Failure (LOF)
Water System - Pipe Size Distribution**





Updated Risk Plots – Sewer System

**Consequence of Failure (COF) and Likelihood of Failure (LOF)
Sewer - Pipe Size Distribution**





Summary

- DC Water Sewer and Water models have been developed in InfoMaster
- Risk based on the Enterprise Asset Management COF and LOF matrixes
- Generates a prioritization risk score for every water and sewer linear asset in the DC Water system
- Easy to update risk scores and plots to include new data and changes to LOF and COF
- InfoMaster prioritization model and decision trees will be used to select pipes for:
 - Large diameter water mains & sewers condition assessment
 - Small diameter water main replacement and local sewer rehabilitation