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, February 15, 2018
9:30 a.m.

	I.	**Call to Order**	James Patteson Chairperson
9:30 a.m.	II.	**Action Items**	John Bosley/Leonard Benson

Joint Use

1. Contract No. 17-PR-DET-48 – Accurate Conceptions, Technical Information Center (TIC) Document Management
2. Contract No. 15-PR-WWT-52 – W.K. Merriman, Supply and Delivery of Calcium Hydroxide
3. Contract No. 160190 – IPR Northeast LLC, B St./ New Jersey Ave Trunk Sewer Rehabilitation & Cleaning Phase 1

Non Joint Use

1. WAS-12-002-AA-SH – Aclara Technologies, Meter Transmitter Units
2. Contract No. 170170 – Capital Paving of DC, Inc., Public Space Restoration

9:45 a.m.	III.	**Recommendation Regarding CIP Budget & 10-Yr Financial Plan**	Matt Brown
10:10 a.m.	IV.	**Action Item**	

1. **FY 2018 – FY 2027 Proposed Capital Improvement Program (10 –Year Disbursement Plan and Lifetime Budget)** Matt Brown

10:15 a.m.	V.	**AWTP Status Updates**	
		1. BPAWTP Performance	Aklile Tesfaye
10:25 a.m.	VI.	**CIP Quarterly Update**	Paul Guttridge
10:35 a.m.	VII.	**Blue Plains Flood Mitigation Plan**	Diala Dandach
10:50 a.m.	VIII.	**Other Business/Emerging Issues**	

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

11:00 a.m. **X.** **Adjournment** James Patteson
Chairperson

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

Follow-up Items from Prior Meetings:

1. Manager, Program Services: Provide updates regarding change order rates and general contract management performance as part of the next CIP quarterly update. **[To be included in the CIP Quarterly Update, May 2018]**
2. AGM, Wastewater Treatment, DC Water: Provide update of research activities regarding trends and technologies that optimize treatment process capacity and facilitate energy neutral operations**. [Target: April 2018 EQ & Ops Cmte Mtg]**
3. General Counsel, DC Water: Provide update to the Committee regarding what the regulatory and reporting requirements would be in a scenario where unpermitted CSOs (due to completion & commissioning of the tunnel project) took place because of lack of operational readiness. **[Forwarded to BOD, Feb 5, 2018]**
4. General Manager, DC Water: Arrange a tour of security facilities and command center for Committee members. **[Tour scheduled for Feb 15, 2018, prior to EQ & Ops Mtg]**
5. The IMA Regional Committee (RC) brief the EQ & Ops Cmte on the work of the IMA RC **[Target: June 2018 EQ & Ops Cmte Mtg**]
6. Chief Engineer, DC Water: Provide update on flood vulnerability and protection of other critical DC Water facilities. **[Target: April 2018 EQ & Ops Cmte Mtg]**
7. Chief Engineer, DC Water: Provide update on flood vulnerability and protection of Blue Plains facilities. **[On current Agenda]**
8. Chief Engineer, DC Water: Provide a presentation on the prioritization criteria for selection of water mains to be replaced each year. **[Target: March 2018 EQ & Ops Cmte Mtg]**
9. Assistant General Manager, Customer Service: Provide water main break data over the past 10 years. **[On current Agenda]**
10. Assistant General Manager, Customer Service: Provide data over the previous five years to see if increased O&M costs and incidences of emergency repairs have been increasing over that time. **[On current Agenda]**
11. Chief Financial Officer, DC Water: Provide information on debt servicing for the Chicago, Philadelphia and New York water utility organizations for comparison with DC Water. **[Forwarded to BOD, Feb 5, 2018]**

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT AWARD
TECHNICAL INFORMATION CENTER (TIC) DOCUMENT MANAGEMENT
(Joint Use)

Approval to execute a new contract award for document management services in the amount of $1,189,011.38.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
Accurate Conceptions, LLC 19 O Street, SW Washington, DC 20024 LSBE	N/A	100%

DESCRIPTION AND PURPOSE

Base Period Contract Value:	$1,189,011.38
Base Contract Period:	2 Years
No. of Option Years:	3
Contract Start Date:	March 1, 2018
Base Period End Date:	February 29, 2020
Proposal Closing Date:	10-27-2017
Proposals Received:	8
Proposal (Bid) Price Range:	$1,189,011.38 - $4,695,311.96
Preference Points Received:	10

Purpose of the Contract:

The Technical Information Center (TIC) is the document repository of all Engineering information and is in the process of moving the 30-year-old paper based document repository to a digital service center and enhancing its ability to provide document services to Engineering and its consultants in a more agile, cost effective manner. The documents are collections of planning, design, and construction material of the water, sewer, pumping stations and the Blue Plains WWTP. They include a wide variety of physical documents of differing types, sizes, conditions and sensitivity collected over more than one hundred years. This contract is an effort to modernize the availability, management, control, and security of these documents.

Contract Scope:

This contract will scan, digitize, attribute, inventory, and upload approximately 8 million records into modern document management systems and optimize the existing physical content in TIC. The Contractor will also develop and implement processes that provide more effective records management within the TIC.

Supplier Selection:

Procurement advertised and issued a Request for Proposal for the services. Eight (8) firms responded to the solicitation. The award recommendation is based on the overall highest rated offeror, Accurate Conceptions, LLC whom also offered the lowest price.

Rank	Firm	Rank	Firm
1	Accurate Conceptions, LLC (LSBE)	5	TAB Products Co. LLC
2	Scanning America, Inc.	6	National Office Systems, Inc.
3	Canon Solutions America, Inc.	7	GRM Document Management
4	Sourcecorp BPS, Inc.	8	Premier Reprographics, Inc. (LSBE)

PROCUREMENT INFORMATION

Contract Type:	Fixed Price	**Award Based On:**	Highest Rating
Commodity:	Goods and Services	**Contract Number:**	17-PR-DET-48
Contractor Market:	Open Market with Preference Points for LBE and LSBE Participation		

BUDGET INFORMATION

Funding:	Capital	**Department:**	Department of Engineering and Technical Services
Service Area:	Blue Plains	**Department Head:**	Craig Fricke
Project:	YD – Miscellaneous Projects		

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	41.22%	$490,110.49
Washington Suburban Sanitary Commission	45.84%	$545,042.82
Fairfax County	8.38%	$99,639.15
Loudoun Water	3.73%	$44,350.12
Other (PI)	.83%	$9,868.80
TOTAL ESTIMATED DOLLAR AMOUNT	**100.00%**	**$1,189,011.38**

Benson / 2-8-18
Leonard Benson Date
Chief Engineer

/ 2/8/18
Dan Bae Date
Director of Procurement

Matthew Brown / 2/8/18
Matthew T. Brown Date
Chief Financial Officer

/
Henderson J. Brown, IV Date
Interim General Manager

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT OPTION YEAR

Supply and Delivery of Calcium Hydroxide
(Joint Use)

Approval to exercise option year 2 for the calcium hydroxide (also called "lime slurry") supply and delivery contract in the amount of $350,000.

CONTRACTOR/SUB/VENDOR INFORMATION

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

DESCRIPTION AND PURPOSE

Original Contract Value:	$1,334,400.00
Original Contract Dates:	03-07-2016 – 03-06-2017
No. of Option Years in Contract:	4
Option Year 1 Value:	$0.00
Option Year 1 Dates:	03-07-2017 – 03-06-2018
Option Year 2 Value:	**$350,000.00**
Option Year 2 Dates:	03-07-2018 – 03-06-2019

Purpose of the Contract:

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

Contract Scope:

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

Compared to what was projected from the base year, the consumption of calcium hydroxide has significantly reduced due to process and use optimization. This resulted in unused funds from the base year, so only $350,000 is needed for option year 2. W.K. Merriman was selected from the solicitation bid that was issued on September 8, 2015. They manufacture calcium hydroxide, and specialize in wastewater treatment technology.

Spending Previous Year:

Cumulative Contract Value:	03-07-2016 to 03-06-2018: $1,334,400.00
Cumulative Contract Spending:	03-07-2016 to 01-16-2018: $984,850.00

Contractor's Past Performance:

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

No LSB/LSBE participation

PROCUREMENT INFORMATION

Contract Type:	Fixed Price	**Award Based On:**	Lowest Responsive
Commodity:	Good and Services	**Contract Number:**	15-PR-WWT-52
Contractor Market:	Open Market with Preference Points for LBE and LSBE Participation		

BUDGET INFORMATION

Funding:	Operating	**Department:**	Wastewater Treatment
Project Area:	Blue Plains AWTP	**Department Head:**	Salil Kharkar

ESTIMATED USER SHARE INFORMATION

User - Operating	Share %	Dollar Amount
District of Columbia	41.92%	$146,720.00
Washington Suburban Sanitary Commission	43.33%	$151,655.00
Fairfax County	9.81%	$34,335.00
Loudoun Water	4.29%	$15,015.00
Potomac Interceptor	0.65%	$2,275.00
TOTAL ESTIMATED DOLLAR AMOUNT	**100.00%**	**$350,000.00**

01/29/18
Aklile Tesfaye Date
Assistant General Manager,
Blue Plains

1/29/18
Dan Bae Date
Director of Procurement

1/2/2018
Matthew T. Brown Date
Chief Financial Officer

Henderson J. Brown IV Date
Interim General Manager

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

ACTION REQUESTED

CONSTRUCTION CONTRACT:

B Street/New Jersey Avenue Trunk Sewer Rehabilitation & Cleaning Phase 1 (Joint Use)

Approval to execute a construction contract for $6,065,069.00

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:		PARTICIPATION:
IPR Northeast LLC 10555 Tucker St Beltsville, MD 20705 Headquarters Conyers, GA	Savin Engineers Landover, MD	MBE	3.2%
	Reviera Enterprises Forestville, MD	MBE	3.9%
	JD Bellfield Enterprises Jessup, MD	MBE	1.8%
	CADED Consulting Gaithersburg, MD	MBE	0.4%
	Advantage Manhole & Concrete Services Inc. Houston, TX	WBE	2.1%

DESCRIPTION AND PURPOSE

Contract Value, Not-To-Exceed:	$ 6,065,069.00	
Contract Time:	730 Days	(2 Years, 0 Months)
Anticipated Contract Start Date (NTP):	04-02-2018	
Anticipated Contract Completion Date:	04-01-2020	
Bid Opening Date:	01-17-2018	
Bids Received:	5	
Other Bids Received		
Coastal Gunite Construction Co.	$ 8,849,745.00	
Spinello Companies	$ 9,833,000.00	
Northeast Remsco Construction	$14,884,580.00	
Sak Construction	$16,980,375.00	

Purpose of the Contract:

The B Street/New Jersey Avenue Trunk Sewer has a deteriorated tunnel lining with several areas at risk of structural failures if not addressed. In addition 15 manholes are in need of rehabilitation and at least 1,800 Cubic Yards of debris built up inside the sewer must be removed.

Contract Scope:

- Rehabilitating (using structural geopolymer) approximately 4,350 linear feet of 10-foot span through 18-foot span arch sewer tunnel (arch only).
- Rehabilitating approximately 15 sewer manholes and heavy cleaning.

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:**	160190
Contractor Market:	Open Market		

BUDGET INFORMATION

Funding:	Capital	**Department:**	Engineering and Technical Services
Service Area:	Sanitary	**Department Head:**	Craig Fricke
Project:	J0, DN		

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	85.20%	$ 5,167,438.79
Federal Funds*	0.00%	$
Washington Suburban Sanitary Commission	14.80%	$ 897,630.21
Fairfax County	0.00%	$
Loudoun County & Potomac Interceptor	0.00%	$
Total Estimated Dollar Amount	**100.00%**	**$ 6,065,069.00**

*Eligible for Federal Grant Funding at 45% 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.

Matthew T. Brown / 2/8/18
Chief Financial Officer — Date

Dan Bae / 2/8/18
Director of Procurement — Date

Leonard R. Benson / 2-6-18
Chief Engineer — Date

Henderson J. Brown IV / _____
Interim CEO and General Manager — Date

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

ACTION REQUESTED

GOODS AND SERVICES CONTRACT FUNDING
Meter Transmitter Units
(Non-Joint Use)

Approval to add funding to contract #WAS-12-002-AA-SH for the purchase and disposal of Meter Transmitter Units in the amount of $1,037,000.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
Aclara Technologies 9900 A Clayton Road Saint Louis, MO 63124	N/A	N/A

DESCRIPTION AND PURPOSE

Base Year Contract Value:	$490,000.00
Original Contract Dates:	12-16-2011—12-15-2012
No. of Option Years:	4
Prior Modification Values:	$8,981,000.00
Prior Modification Dates:	12-16-2012 to 09-30-2018
This Modification Value:	**$1,037,000.00**
This Modification Dates:	**03-01-2018 to 09-30-2018**

Purpose of the Contract:

This contract is to provide for the purchase and disposal of Meter Transmitter Units (MTUs) for the Department of Customer Care and Operations (CCO).

Contract Scope:

To provide 3400 Series MTUs for the purpose of replacing inoperable and aging equipment with new units to ensure correct measurements and meter readings on customer water consumption for billing. This contract also provides the safe disposal of MTUs removed as part of the Automated Meter Reading (AMR) Replacement Program.

This request includes $847,000 for MTU purchases for both the AMR Program ($716,000 worth, which have already been delivered) and ongoing meter program replacement requirements ($131,000); and $190,000 for MTU disposal for the AMR Replacement Program only.

Spending Previous Year:

Cumulative Contract Value:	12-16-2011 to 9-30-2018: $9,471,000.00
Cumulative Contract Spending:	12-16-2011 to 12-31-2017: $10,126,793.00

Contractor's Past Performance:

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

No LBE/LSBE participation.

PROCUREMENT INFORMATION			
Contract Type:	Firm Fixed	**Award Based On:**	Sole Source
Commodity:	Goods and Services	**Contract Number:**	WAS-12-002-AA-SH-1
Contractor Market:	n/a		

BUDGET INFORMATION			
Funding:	Capital	**Department:**	Customer Service
Service Area:	Capital Equipment	**Department Head:**	Carolyn Mackool
Project:	EQP2340STU & EQP2350STU	**Use**	AMR & Ongoing Meter Program

ESTIMATED USER SHARE INFORMATION		
User	Share %	Dollar Amount
District of Columbia	100.00%	$1,037,000.00
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%**	**$1,037,000.00**

2/1/18

Charles Kiely Date
Assistant General Manager,
Customer Care and Operations

2/1/2018

Matthew T. Brown Date
Chief Financial Officer

2/1/18

Dan Bae Date
Director of Procurement

Henderson J. Brown IV Date
Interim General Manager

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

ACTION REQUESTED

CONSTRUCTION CONTRACT:

Public Space Restoration Contract FY18 – FY21 (Joint Use)

Approval to execute a construction contract for $ 21,584,324.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:		PARTICIPATION:
Capitol Paving of DC Inc. 2211 Channing St. NE Washington, DC 20018	Aves Construction Corporation Temple Hills, MD	MBE	20.0%
	Myles Trucking, LLC Clinton MD	MBE	12.0%
	Acorn Supply and Distribution, Inc. White March, MD	WBE	6.0%

DESCRIPTION AND PURPOSE

Contract Value, Not-To-Exceed:	$21,584,324.00	
Contract Time:	1096 Days	(3 Years, 0 Months)
Anticipated Contract Start Date (NTP):	04-09-2018	
Anticipated Contract Completion Date:	04-08-2021	
Bid Opening Date:	01-17-2018	
Bids Received:	3	
Other Bids Received:		
Fort Myer Construction Corp	$21,932,517.00	
Civil Construction, LLC	$24,806,200.00	

Purpose of the Contract:

Permanent restoration of paved and non-paved surfaces in public space after the completion of repair and replacement activities by the Department of Water Services and the Department of Sewer Services.

Contract Scope:

- Restore and/or replacement of asphalt and concrete roadways, brick and concrete sidewalks, landscaped areas, and other miscellaneous repairs that result from excavations performed in public space.

PROCUREMENT INFORMATION			
Contract Type:	Fixed Price	**Award Based On:**	Lowest responsive, responsible bidder
Commodity:	Construction	**Contract Number:**	170170
Contractor Market:	Open Market		

BUDGET INFORMATION			
Funding:	Capital	**Department:**	Water Services & Sewer Services
Service Area:	Water, Sanitary	**Department Head:**	Jason Hughes
Project:	BW, H5, HM, JH, LO, H6, HN, JI, LN, HY, JA, GQ, KW, 1300900		

ESTIMATED USER SHARE INFORMATION		
User	Share %	Dollar Amount
District of Columbia	100.00%	$ 21,584,324.00
Federal Funds	0.00%	$
Washington Suburban Sanitary Commission	0.00%	$
Fairfax County	0.00%	$
Loudoun County & Potomac Interceptor	0.00%	$
Total Estimated Dollar Amount	**100.00%**	**$ 21,584,324.00**

* Work under this contract will be assigned as needed under specific task orders. It is anticipated that Joint Use work may be assigned during the contract period. As tasks are developed for work associated with specific facilities and costs are developed, the individual users will be notified and billed according to agreed cost sharing.

Matthew T. Brown / 2/8/2018
Chief Financial Office — Date

Dan Bae / 2/8/18
Director of Procurement — Date

Charles Kiely / 2/5/18
Assistant General Manager
Customer Care & Operations — Date

Henderson J. Brown IV / _____
Interim CEO and General Manager — Date

water is life

FY 2019 Proposed Budget Review

Presentation to the Environmental Quality & Operations Committee
on February 15, 2018

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

Enhanced Clarification Facility

"Lucy" Tunnel Boring Machine – First Street Tunnel Project

Optimization, Accountability, and Transparency

Agenda

Budget Adoption Calendar

Timeline (2018)	Activity	Status
January 4	**Budget Workshop with Board of Directors**	✓
January 5	Wholesale Customer Briefing	✓
	Committee Discussions & Reviews	
January 18	Environmental Quality & Operations	✓
January 23	Joint D.C. Retail Water & Sewer Rates and Finance & Budget	✓
February 1	Board Meeting *(No Board Action Required)*	
	Committee Reviews & Recommendations to Full Board	
February 15	Environmental Quality & Operations	
February 20	DC Retail Water & Sewer Rates	
February 22	Finance & Budget	
March 1	**Board Adoption**	

Budget Update

- **Board Briefing**: Management budget proposals (Baseline)
  - FY 2019 total operating budget of $582.8M
  - 10-year (FY 2018 – FY 2027) CIP of $4.0B, an increase of $250M over previously approved 10 year CIP
  - Two-year (FY 2019 and FY 2020) rate proposal
- **Committee Discussions**: Management presented alternative scenarios for the CIP including major project funding levels, associated risks and related customer impacts
  - Constrained – $4.6 Billion
  - Asset Management Ramp-up – $5.1 Billion
  - Consideration of other options
- **Management Recommendation**:
  - Approve proposed baseline 10-year CIP proposal of $4.0B
  - Advance asset management principles while addressing customer affordability

Path to Achieve Asset Management

- Collaborative effort by Residents and Ratepayers, the Board of Directors, and the Executive Team
  - Explore investment in infrastructure
    - What is needed to fully meet asset management principles?
    - What are our peer utilities doing?
    - What is the cost of pro-active investment, as compared with addressing issues as they arise?
  - Exploration of alternative revenue sources
    - What funds could be available, other than from ratepayers?
  - Community outreach and education
    - Explain infrastructure investment, and consequences of investment
    - Gather ideas about addressing affordability
  - Impact on the financial plan
    - What is the impact on the operating budget, and what is the impact of pro-active investment as compared with addressing issues as they arise?
    - What could be financed through debt?
    - What are appropriate levels of PAYGO?
  - Customer affordability
    - What ways can we help ensure affordability?
    - What are our peer utilities doing to meet this challenge?

Path to Achieve Asset Management

- Management will propose work plans for each Board committee in March
  - Committees will have the opportunity to review and finalize plans
- Work will be coordinated with the budget process
  - Board to consider the next budget in November

10-Year CIP: Disbursements & Lifetime

- Proposed ten-year capital disbursement is $4.0B
- Proposed lifetime budget of $11.1B is for active projects prior to, during, and beyond the ten-year window

Service Area ($000`s)	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	10-Yr Disbursement	Lifetime Budget
Non Process Facilities	$ 32,194	$ 33,107	$ 18,907	$ 7,860	$ 1,551	$ 25	$ 6,615	$ 7,773	-	-	$ 108,032	$ 169,147
Wastewater Treatment	95,485	74,617	77,853	87,960	89,820	69,560	51,607	62,172	117,623	129,252	855,948	3,551,799
Combined Sewer Overflow	13,502	10,951	12,511	9,831	10,227	13,397	20,124	15,593	7,393	5,622	119,151	387,665
DC Clean Rivers	168,314	189,392	148,042	138,289	192,859	151,111	59,569	50,018	128,404	87,197	1,313,196	2,764,255
Stormwater	945	4,909	2,400	2,312	5,839	1,212	1,784	1,642	1,276	2,133	24,452	81,392
Sanitary Sewer	29,802	32,947	34,045	53,050	74,492	73,917	75,912	58,882	60,769	38,672	532,490	1,530,036
Water	58,044	45,747	84,256	62,341	48,241	53,471	88,055	99,661	101,344	89,510	730,672	1,939,272
Capital Projects	**398,285**	**391,670**	**378,015**	**361,644**	**423,029**	**362,694**	**303,665**	**295,742**	**416,809**	**352,386**	**3,683,941**	**10,423,566**
Capital Equipment	39,898	34,518	29,383	27,998	9,579	10,306	10,850	11,177	12,122	12,303	198,133	198,133
Washington Aqueduct	11,768	12,930	12,944	13,039	13,039	12,312	11,768	11,441	10,496	10,315	120,052	120,052
Additional Capital Programs	**51,665**	**47,448**	**42,327**	**41,037**	**22,618**	**22,618**	**22,618**	**22,618**	**22,618**	**22,618**	**318,185**	**318,185**
Labor												390,145
Total CIP	**$449,950**	**$439,118**	**$420,342**	**$402,681**	**$445,647**	**$385,312**	**$326,284**	**$318,360**	**$439,427**	**$375,004**	**$4,002,125**	**11,131,895**
Last Year's CIP	387,306	394,843	427,208	378,542	335,725	321,367	315,467	302,588	381,579		3,751,623	
(Increase) / Decrease	(62,644)	(44,274)	6,865	(24,139)	(109,923)	(63,945)	(10,817)	(15,772)	(57,849)	(375,004)	(250,503)	

Comparative Ten-Year CIP Budget

- **Capital Projects** – Projected increase of $237.6M to meet the Consent decree requirements, National Pollutant Discharge Elimination System (NPDES) Permit requirements and other service levels to maintain the water and sewer systems
- **Additional Capital Programs** – Projected increase of $12.9M mainly for Capital Equipment and Washington Aqueduct. This proposal excludes the WAD Advanced Treatment Project (Total estimated cost of $359.8M; DCW - $265M)

Service Area ($000's)	FY 2017 - FY 2026 Disbursement Approved	FY 2018 - FY 2027 Disbursement Proposed	(Increase)/ Decrease
Non Process Facilities	$ 85,486	$ 108,032	$ (22,546)
Wastewater Treatment	844,706	855,948	(11,242)
Combined Sewer Overflow	117,826	119,151	(1,325)
DC Clean Rivers	1,222,320	1,313,196	(90,876)
Stormwater	23,055	24,452	(1,397)
Sanitary Sewer	513,517	532,490	(18,973)
Water	639,387	730,672	(91,285)
Capital Projects	**3,446,297**	**3,683,941**	**(237,644)**
Capital Equipment	193,119	198,133	(5,014)
Washington Aqueduct	112,207	120,052	(7,845)
Additional Capital Programs	**305,326**	**318,185**	**(12,859)**
Total CIP	**$ 3,751,623**	**$ 4,002,125**	**$ (250,503)**

FY 2018 CIP: Proposed Adjustments

- The FY 2018 revised budget of $450M reflects an increase of $62.6M above the approved FY 2018 budget

Service Area ($000's)	Actual FY 2017	Approved FY 2018	Revised FY 2018	(Increase) Decrease	Proposed FY 2019
Non Process Facilities	$25,189	$20,030	$32,194	($12,165)	$33,107
Wastewater Treatment	148,104	98,423	95,485	2,938	74,617
Combined Sewer Overflow	13,127	13,762	13,502	260	10,951
DC Clean Rivers	216,298	116,713	168,314	(51,601)	189,392
Stormwater	1,384	2,682	945	1,738	4,909
Sanitary Sewer	40,059	39,294	29,802	9,493	32,947
Water	47,309	51,738	58,044	(6,306)	45,747
Capital Projects	**491,470**	**342,642**	**398,285**	**(55,643)**	**391,670**
Capital Equipment	38,362	32,897	39,898	(7,001)	34,518
Washington Aqueduct	15,483	11,768	11,768	0	12,930
Additional Capital Programs	**53,845**	**44,665**	**51,665**	**(7,001)**	**47,448**
Total CIP	**$545,315**	**$387,306**	**$449,950**	**($62,644)**	**$439,118**

Recommendation

- Recommend approval of the management proposed FY 2018 – FY 2027 Capital Disbursements and Lifetime Project budgets
- Review of detailed management plan in committees in March 2018 to address asset management principles

Next Steps

Committee Recommendations & Actions

	Environmental Quality & Operations	DC Retail Water & Sewer Rates	Finance & Budget
Capital Budget - FY 2018 – FY 2027 Disbursements - Lifetime Project	Action Required		Action Required
FY 2019 Operating Budget			Action Required
Intent to Reimburse Capital Expenditures with Proceeds of a Borrowing			Action Required
- FY 2019 & FY 2020 Rates, Fees and Revenues - FY 2018 – FY 2027 Financial Plan		Action Required	Action Required

Appendix

Rolling 10 year CIP Options Compared

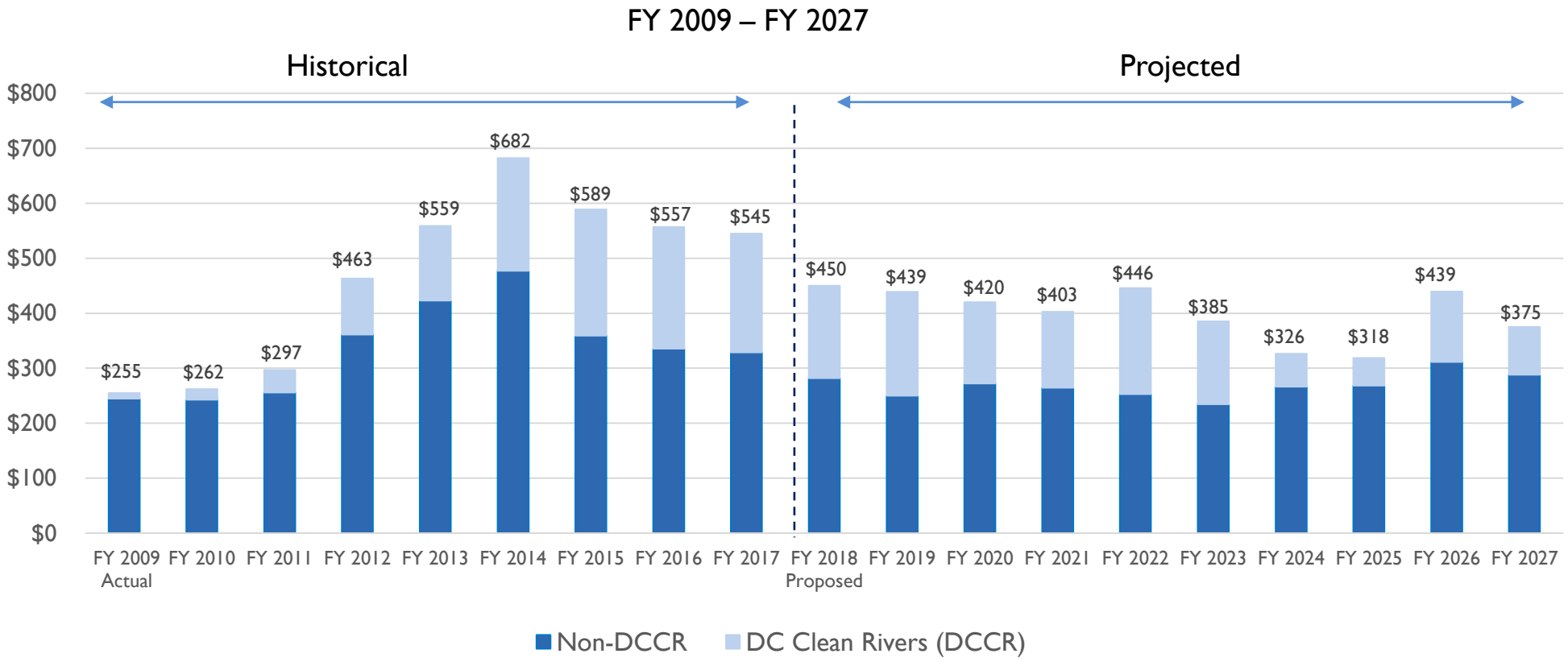
Summary of EQ and Ops Discussion 1-18-18

Service Area	Current Baseline	Constrained Plan	Asset Management Plan
DCCR	**Fully funded** to meet Consent Decree	**Fully funded** to meet Consent Decree	**Fully funded** to meet Consent Decree
Wastewater	**Generally funded** to reduce the risk of critical infrastructure failure	**Fully funded**	**Fully funded**
Water			
Pump Stations & Storage Facilities	**Generally funded** to current service levels	**Fully funded**	**Fully funded**
Small Diameter WMs ≤ 12" dia.	**Generally funded to meet 1%** replacement/rehab goal **[11 mi/year]**	**Funded to ramp up to 1.5%** per year replacement level **[17 mi/year]**	**Fully funded to ramp up to 2%** replacement level **[22 mi/year]**
Large Diameter WMs > 12" dia.	**Generally funded**	**Generally funded**	**Generally funded**
Sewer			
Pump Stations	**Underfunded**	**Fully funded**	**Fully funded**
Sewer Lines < 60" dia.	**Substantially underfunded [6.2 mi/year]**	**Funded to ramp up to 1.0%** per year rehabilitation level **[17.5 mi/year]**	**Fully funded to ramp up to 2.7%** rehabilitation level **[40 mi/year]**
Sewer Lines ≥ 60" dia.	**Generally Funded**	**Generally Funded**	**Generally Funded**
Non Process	**Fully funded** for HQ, Fleet and Sewer Operations Facilities	**Fully funded** for HQ, Fleet and Sewer Operations Facilities	**Fully funded** for HQ, Fleet and Sewer Operations Facilities

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

CIP: Historical & Projected Disbursements

- DC Clean Rivers is a major driver of the total CIP
  - Historical (FY 2009 – FY 2017) CIP totals $4.2B / DC Clean Rivers' portion - $1.2B or 28.1%
  - Proposed (FY 2018 – FY 2027) CIP totals $4.0B / DC Clean Rivers' portion - $1.3B or 32.8%



CIP: Proposed & Alternative Scenarios

$ in thousands

Baseline (Proposed) $4 Billion	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	10-Yr Total
Non Process Facilities	$ 32,194	$ 33,107	$ 18,907	$ 7,860	$ 1,551	$ 25	$ 6,615	$ 7,773	$ -	$ -	$ 108,032
Wastewater Treatment	95,485	74,617	77,853	87,960	89,820	69,560	51,607	62,172	117,623	129,252	855,948
Combined Sewer Overflow	181,816	200,343	160,554	148,121	203,086	164,508	79,692	65,611	135,797	92,819	1,432,348
Stormwater	945	4,909	2,400	2,312	5,839	1,212	1,784	1,642	1,276	2,133	24,452
Sanitary Sewer	29,802	32,947	34,046	53,050	74,492	73,917	75,912	58,882	60,769	38,672	532,490
Water	58,044	45,747	84,256	62,341	48,241	53,471	88,055	99,661	101,344	89,510	730,672
Additional Capital Programs	51,665	47,448	42,327	41,037	22,618	22,618	22,618	22,618	22,618	22,618	318,185
Proposed - Total CIP	**$ 449,950**	**$ 439,118**	**$ 420,342**	**$ 402,681**	**$ 445,647**	**$385,312**	**$ 326,284**	**$ 318,360**	**$ 439,427**	**$375,004**	**$ 4,002,125**

Constrained $4.6 Billion	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	10-Yr Total
Non Process Facilities	32,194	33,107	18,907	7,860	1,551	25	6,615	7,773	-	-	108,032
Wastewater Treatment	95,485	74,617	77,853	94,301	104,728	90,636	86,767	117,352	157,870	145,528	1,045,135
Combined Sewer Overflow	181,816	200,343	160,554	158,551	219,449	178,924	93,022	80,838	168,524	120,865	1,562,887
Stormwater	945	4,909	2,400	6,858	9,546	11,489	11,816	11,721	12,006	12,210	83,898
Sanitary Sewer	29,802	32,947	34,046	60,123	64,397	69,072	67,420	66,553	63,214	62,139	549,711
Water	58,044	45,747	84,256	87,555	97,791	103,823	115,717	100,622	99,841	100,023	893,419
Additional Capital Programs	51,665	47,448	42,327	41,037	22,618	22,618	22,618	22,618	22,618	22,618	318,185
Total CIP	**$ 449,950**	**$ 439,118**	**$ 420,343**	**$ 456,285**	**$ 520,079**	**$476,587**	**$ 403,974**	**$ 407,477**	**$ 524,073**	**$463,382**	**$ 4,561,268**
Increases vs. Proposed CIP	-	-	-	(53,604)	(74,432)	(91,276)	(77,690)	(89,118)	(84,645)	(88,378)	(559,142)

Asset Management Ramp-up $5.1 Billion	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	10-Yr Total
Non Process Facilities	32,194	33,107	18,907	7,860	1,551	25	6,615	7,773	-	-	108,032
Wastewater Treatment	95,485	74,617	77,853	94,301	104,728	90,636	86,767	117,352	157,870	145,528	1,045,136
Combined Sewer Overflow	181,816	200,343	160,554	158,551	219,449	178,924	93,022	80,838	168,524	120,865	1,562,887
Stormwater	945	4,909	2,400	6,858	9,546	11,489	11,816	11,721	12,006	12,210	83,898
Sanitary Sewer	29,802	32,947	34,046	85,811	116,478	142,718	145,436	115,238	110,489	99,957	912,921
Water	58,044	45,747	84,256	92,392	110,939	121,149	150,640	140,445	141,230	141,003	1,085,845
Additional Capital Programs	51,665	47,448	42,327	41,037	22,618	22,618	22,618	22,618	22,618	22,618	318,185
Total CIP	**$ 449,950**	**$ 439,118**	**$ 420,342**	**$ 486,809**	**$ 585,309**	**$567,559**	**$ 516,914**	**$ 495,985**	**$ 612,737**	**$542,182**	**$ 5,116,904**
Increases vs. Proposed CIP	-	-	-	(84,128)	(139,661)	(182,247)	(190,630)	(177,625)	(173,310)	(167,178)	(1,114,779)

Comparative Scenarios & Customer Impacts

Baseline (Proposed) $4.0 Billion	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Water & Sewer Rate (%)	5.0%	13.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
CRIAC ($/ERU)	$25.18	$23.00	$25.58	$29.07	$31.33	$33.62	$34.66	$34.75	$35.45	$36.46
Avg. Customer Bill ($)	$102	$108	$114	$121	$127	$134	$139	$143	$149	$154
Avg. Customer Bill (%)	6.2%	5.6%	5.6%	6.3%	5.0%	4.9%	3.9%	3.2%	3.7%	4.0%

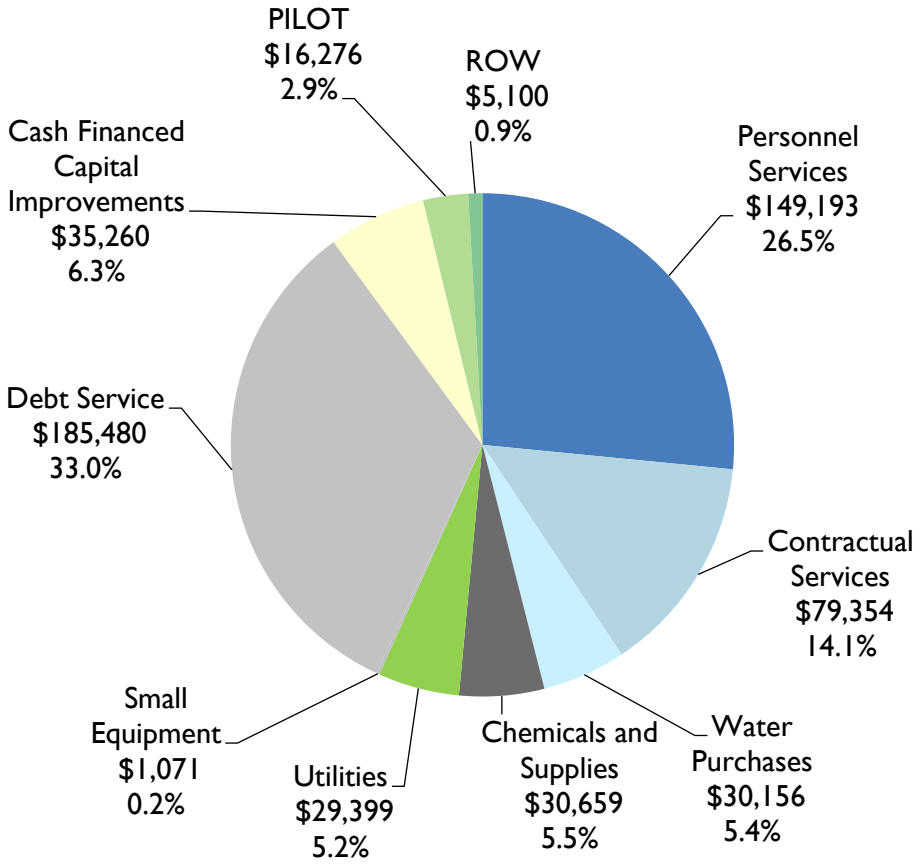
Constrained $4.6 Billion	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Water & Sewer Rate (%)	5.0%	13.0%	5.0%	5.5%	7.0%	6.5%	6.5%	6.5%	6.0%	5.5%
CRIAC ($/ERU)	$25.18	$23.00	$25.58	$29.07	$31.33	$33.62	$34.72	$34.93	$35.84	$37.11
Avg. Customer Bill ($)	$102	$108	$114	$122	$129	$137	$144	$150	$157	$164
Avg. Customer Bill (%)	6.2%	5.6%	5.6%	6.6%	6.3%	5.9%	5.0%	4.3%	4.5%	4.5%

Asset Mgt. Ramp-up $5.1 Billion	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Water & Sewer Rate (%)	5.0%	13.0%	5.0%	6.0%	8.0%	8.0%	8.5%	8.0%	7.0%	6.5%
CRIAC ($/ERU)	$25.18	$23.00	$25.58	$29.07	$31.33	$33.62	$34.72	$34.93	$35.84	$37.11
Avg. Customer Bill ($)	$102	$108	$114	$122	$130	$139	$148	$156	$164	$172
Avg. Customer Bill (%)	6.2%	5.6%	5.6%	6.9%	6.9%	6.8%	6.3%	5.3%	5.3%	5.2%

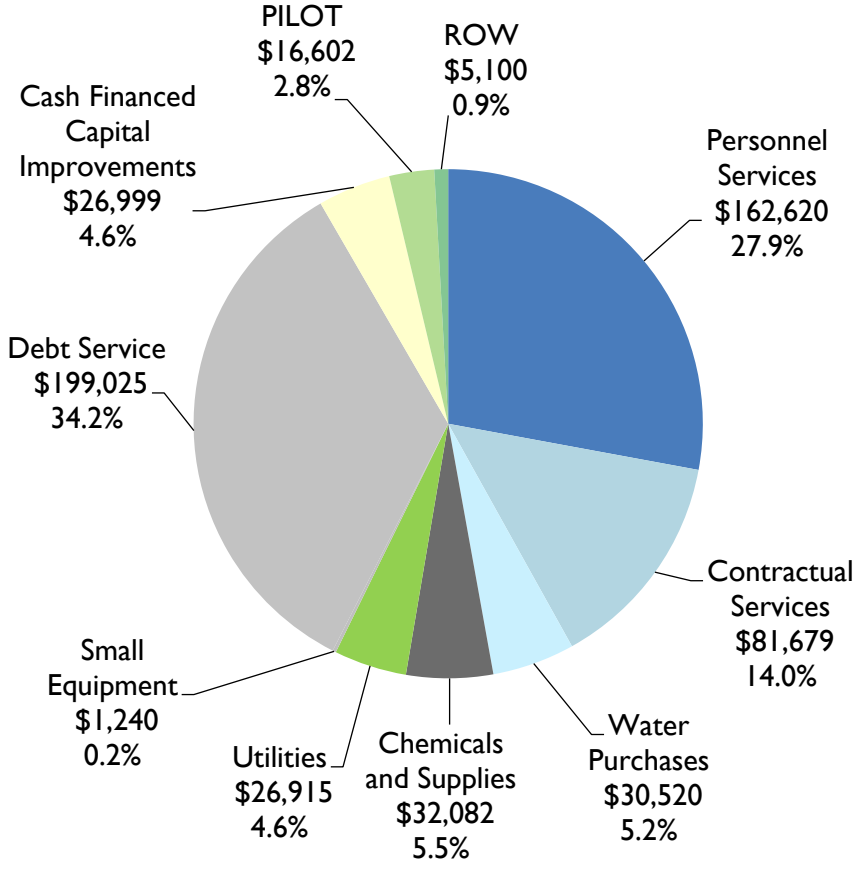
FY 2018 vs. FY 2019 Expenditure Budgets

Approved FY 2018 $561,947

($000's)



Proposed FY 2019 $582,781



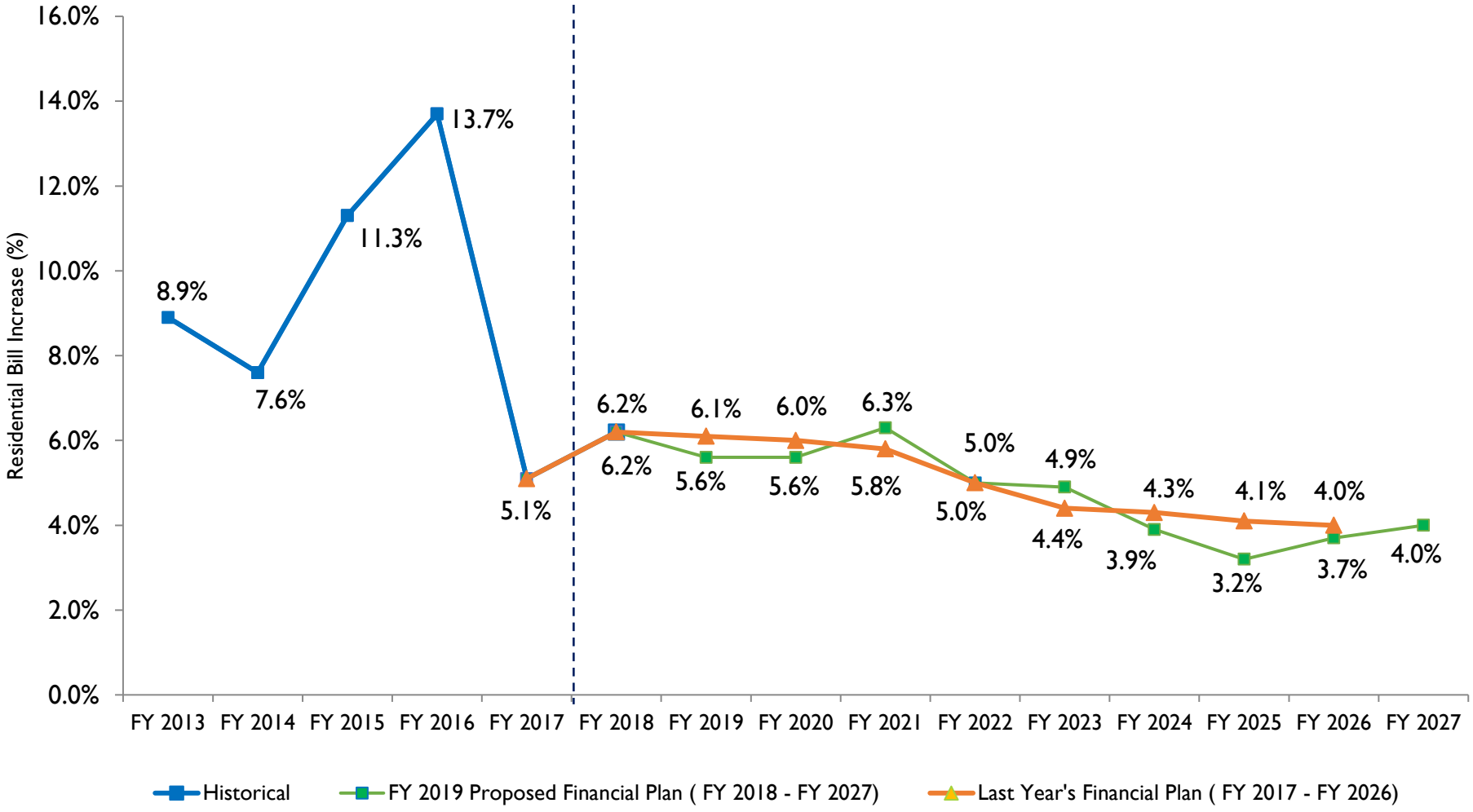
Comparison by Cost Category

- Total Operating expenditure is projected to increase by $20.8M or 3.7%
- Total O&M expenditure is projected to increase by $15.2M or 4.8%

($000's)	FY 2017 Approved	FY 2017 Actual	FY 2017 Variance	FY 2018 Approved	FY 2019 Proposed	(Increase)/ Decrease
Authorized Headcount	*1260*	*1260*	*0*	*1260*	*1274*	(14)
Regular Pay	$ 103,910	$ 108,676	$ (4,766)	$ 107,618	$ 118,909	$ (11,291)
Benefits	34,096	32,466	1,630	35,397	36,137	(740)
Overtime	6,755	8,150	(1,395)	6,178	7,575	(1,397)
Total Personnel Services	144,761	149,293	(4,532)	149,193	162,620	(13,427)
Chemicals & Supplies	34,709	31,373	3,336	30,659	32,082	(1,423)
Utilities	28,670	24,260	4,410	29,399	26,915	2,484
Contractual Services	82,760	72,951	9,809	79,354	81,679	(2,325)
Water Purchases	29,278	26,796	2,482	30,156	30,520	(364)
Small Equipment	1,230	1,178	52	1,071	1,240	(169)
Total Non-Personnel Services	176,647	156,557	20,090	170,638	172,435	(1,797)
Total Operations & Maintenance	$ 321,408	$ 305,850	$ 15,558	$ 319,831	$ 335,055	$ (15,224)
Debt Service	169,346	161,208	8,138	185,480	199,025	(13,545)
PILOT & ROW	21,057	21,057	-	21,376	21,702	(326)
Cash Financed Capital Improvement	24,014	24,199	(185)	35,260	26,999	8,261
Total Non-O&M	214,417	206,464	7,953	242,116	247,726	(5,610)
Total Operating Expenditure	$ 535,825	$ 512,314	$ 23,511	$ 561,947	$ 582,781	$ (20,834)
Capital Labor Charges	(21,934)	(17,231)	(4,703)	(21,061)	(18,259)	(2,802)
Net Operating Expenditure	$ 513,891	$ 495,083	$ 18,808	$ 540,886	$ 564,522	$ (23,636)

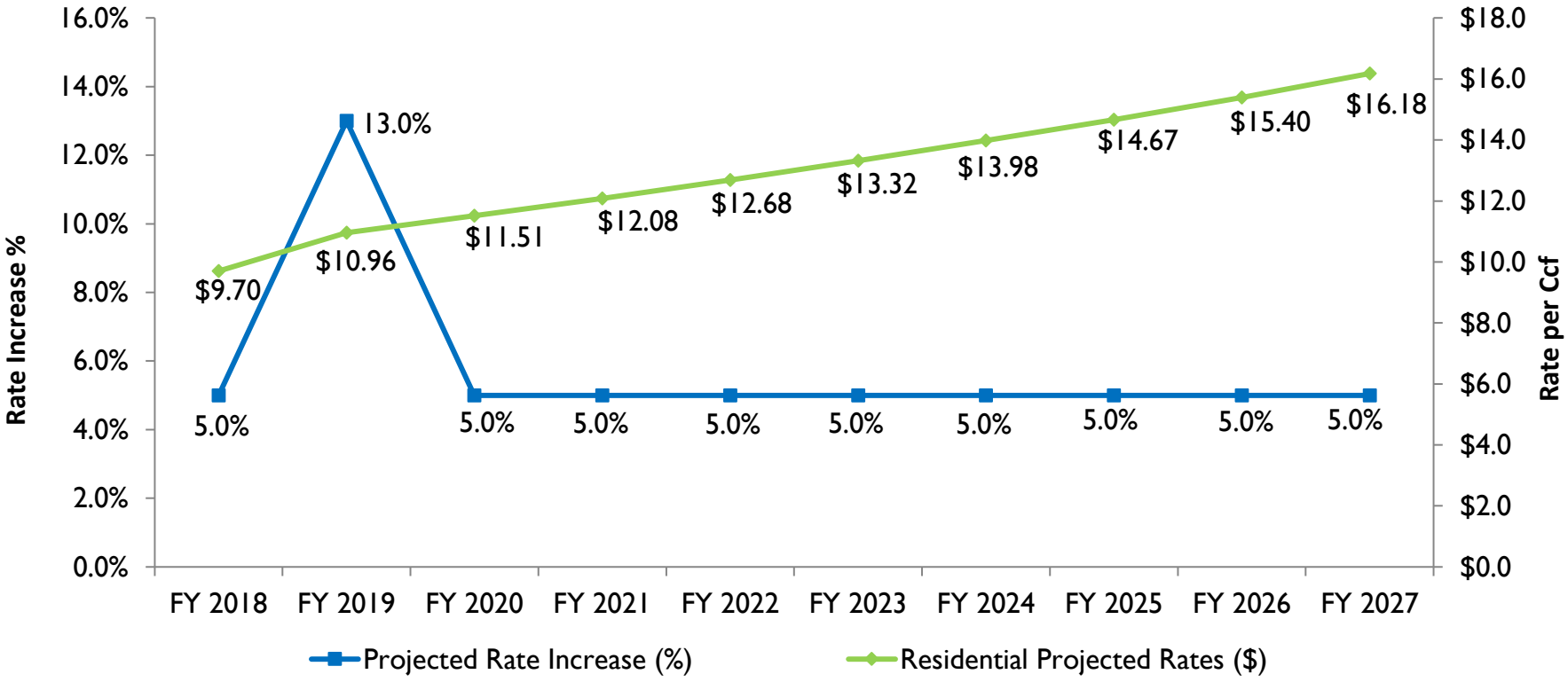
* *FY 2017 actual has been updated to reflect the audited financial statement and is consistent with previously reported total operating budget projections of $512.8M*

Historical and Projected Combined Rate Increases



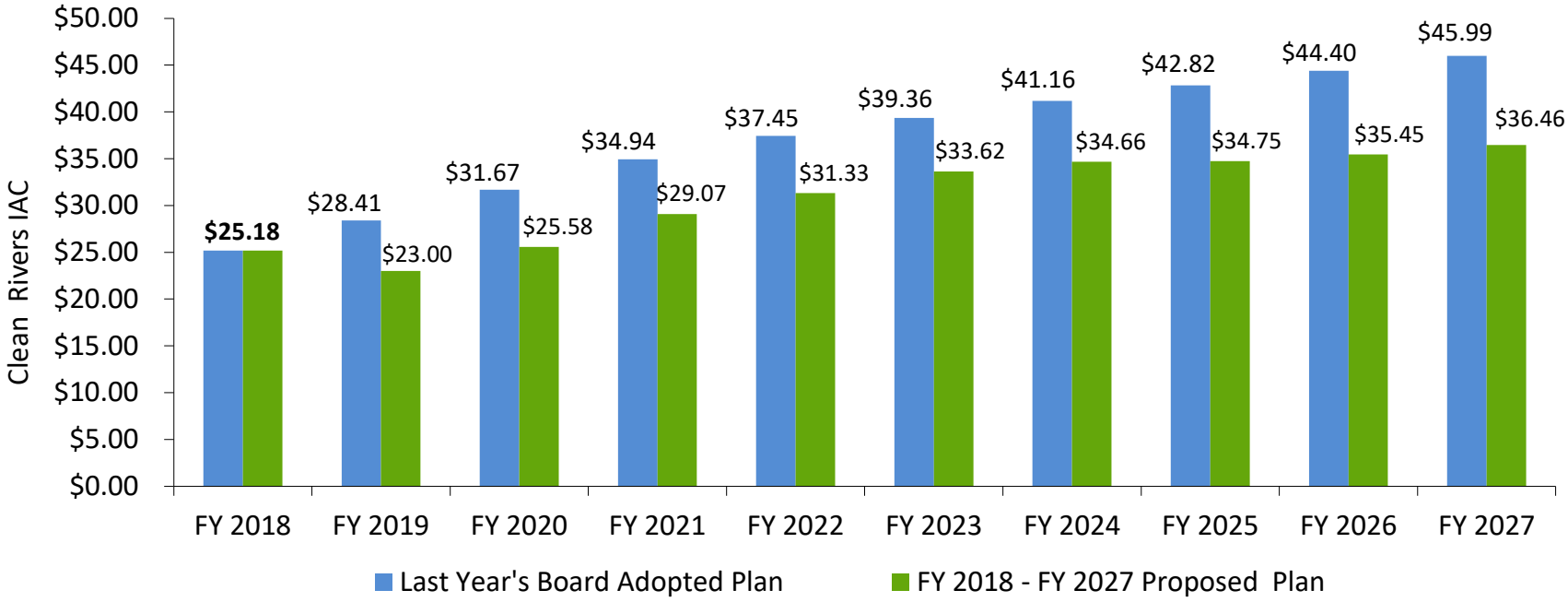
Projected Retail Water & Sewer Rates

- Projected annual rate increase of 13% in FY 2019 and 5% from FY 2020 to FY 2027
- Projected water and sewer rate increase from $9.70 to $16.18/Ccf



* Rates shown above reflect weighted water and sewer rates for the Residential customer category

Projected Clean Rivers Impervious Area Charge



- The projected charges displayed in the chart above are primarily driven by anticipated debt service costs necessary to support the $2.6 billion Clean Rivers Project, which includes the federally mandated CSO-LTCP and the nine minimum controls program
- The annual Clean Rivers Project costs for the average Tier 2 residential customer (700 – 2,000 sq. ft. of impervious area) is projected to increase from $276.00 in FY 2019 to $437.52 in FY 2027

FINANCE AND BUDGET COMMITTEE
FISCAL YEAR 2018 – FY 2027 PROPOSED CAPITAL IMPROVEMENT PROGRAM
ACTION ITEM

ACTION ITEM 4.1: FY 2018 – FY 2027 Proposed Capital Improvement Program (10-Year Disbursement Plan and Lifetime Budget)

DC Water presents its capital improvement program on two different bases:

a. **10-Year Disbursement Plan** – The cash disbursement-based capital plan is utilized to forecast the timing and amount of capital financing, which is the primary basis for projected retail rate increases. As shown in Attachment A-1, the Board of Directors will be asked to approve a 10-year disbursement plan of $4.00 billion.

b. **Lifetime Budget** – The project lifetime budget reflects the total costs of each project active during the 10-year planning period. These costs include historical and projected spending, project contingencies, and labor (listed as separate line item). As shown in Attachment A-1, the Board of Directors will be asked to approve a lifetime budget of $11.1 billion.

Capital Improvement Program

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

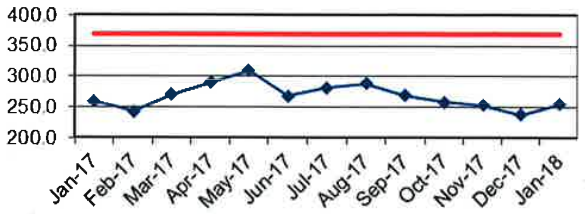
Attachment A-1

	FY 2018 - FY 2027 Proposed Disbursement Plan											Lifetime
	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY2027	10-Yr Total	Budget
NON PROCESS FACILITIES												
Facility Land Use	$32,194	$33,107	$18,907	$7,860	$1,551	$25	$6,615	$7,773	$0	$0	$108,032	$169,147
Subtotal	32,194	33,107	18,907	7,860	1,551	25	6,615	7,773	0	0	108,032	169,147
WASTEWATER TREATMENT												
Liquid Processing	18,554	30,869	37,604	38,228	44,507	35,458	29,607	31,846	74,033	109,131	449,838	1,224,582
Plantwide	12,099	15,060	19,331	32,895	35,204	30,100	18,795	17,671	20,384	10,534	212,072	488,216
Solids Processing	11,229	13,942	18,154	15,302	8,770	1,953	1,288	723	533	555	72,448	802,911
Enhanced Nitrogen Removal Facilities	53,603	14,746	2,763	1,535	1,339	2,049	1,918	11,932	22,673	9,032	121,590	1,036,089
Subtotal	95,485	74,617	77,853	87,960	89,820	69,560	51,607	62,172	117,623	129,252	855,948	3,551,799
COMBINED SEWER OVERFLOW												
DC Clean Rivers	168,314	189,392	148,042	138,289	192,859	151,111	59,569	50,018	128,404	87,197	1,313,196	2,764,255
Program Management	1,934	1,969	2,518	3,495	4,373	4,339	3,012	1,821	0	0	23,460	64,663
Combined Sewer	11,568	8,982	9,993	6,337	5,853	9,058	17,112	13,772	7,393	5,622	95,691	323,002
Subtotal	181,816	200,343	160,554	148,121	203,086	164,508	79,692	65,611	135,797	92,819	1,432,348	3,151,920
STORMWATER												
Local Drainage	92	75	354	69	629	267	861	1,050	219	0	3,617	14,230
On-Going	375	1,074	668	617	744	722	760	464	752	736	6,912	11,315
Pumping Facilities	69	3,410	375	1,134	4,065	19	0	0	305	1,397	10,774	25,232
DDOT	0	0	0	0	0	0	0	0	0	0	0	3,237
Research and Program Management	314	156	36	115	402	204	163	128	0	0	1,517	12,013
Trunk/Force Sewers	95	194	966	377	0	0	0	0	0	0	1,632	15,365
Subtotal	945	4,909	2,400	2,312	5,839	1,212	1,784	1,642	1,276	2,133	24,452	81,392
SANITARY SEWER												
Collection Sewers	4,488	1,244	1,088	7,929	19,594	9,139	11,139	25,253	31,888	18,343	130,105	407,999
On-Going	10,001	9,618	9,475	10,399	9,982	10,535	11,079	11,402	11,589	12,023	106,103	206,045
Pumping Facilities	1,294	428	842	2,332	1,005	1,559	214	0	0	0	7,674	36,151
Program Management	2,999	3,075	7,205	5,032	6,410	6,977	6,128	5,151	1,624	115	44,716	124,972
Interceptor/Trunk Force Sewers	11,019	18,583	15,436	27,358	37,501	45,706	47,353	17,076	15,667	8,191	243,890	754,870
Subtotal	29,802	32,947	34,046	53,050	74,492	73,917	75,912	58,882	60,769	38,672	532,490	1,530,036
WATER												
Distribution Systems	28,353	22,924	56,015	35,946	23,051	29,648	52,339	79,039	81,503	69,487	478,306	1,235,949
Lead Program	3,422	1,487	1,252	1,422	1,528	1,658	1,718	903	235	75	13,700	209,245
On-Going	11,079	11,044	7,569	9,982	9,930	10,183	10,793	11,157	12,429	12,636	106,802	143,288
Pumping Facilities	3,286	1,857	4,561	4,248	4,193	1,840	8,023	1,668	211	0	29,887	118,394
DDOT	904	486	208	2	2	0	0	0	0	0	1,604	33,933
Storage Facilities	7,560	4,967	8,088	3,488	2,099	5,106	9,371	2,343	0	0	43,021	107,520
Program Management	3,441	2,982	6,563	7,252	7,438	5,035	5,812	4,551	6,966	7,312	57,352	90,944
Subtotal	58,044	45,747	84,256	62,341	48,241	53,471	88,055	99,661	101,344	89,510	730,672	1,939,272
CAPITAL PROJECTS	**398,285**	**391,670**	**378,015**	**361,644**	**423,029**	**362,694**	**303,666**	**295,742**	**416,809**	**352,386**	**3,683,941**	**10,423,566**
CAPITAL EQUIPMENT	39,898	34,518	29,383	27,998	9,579	10,306	10,850	11,177	12,122	12,303	198,133	198,133
WASHINGTON AQUEDUCT	11,768	12,930	12,944	13,039	13,039	12,312	11,768	11,441	10,496	10,315	120,052	120,052
ADDITIONAL CAPITAL PROGRAMS	**51,665**	**47,448**	**42,327**	**41,037**	**22,618**	**22,618**	**22,618**	**22,618**	**22,618**	**22,618**	**318,185**	**318,185**
LABOR												390,145
TOTAL CAPITAL BUDGETS	**$449,950**	**$439,118**	**$420,342**	**$402,681**	**$445,647**	**$385,312**	**$326,284**	**$318,360**	**$439,427**	**$375,004**	**$4,002,125**	**11,131,895**

BLUE PLAINS ADVANCED WASTEWATER TREATMENT PLANT
PERFORMANCE REPORT – JANUARY 2018

Average plant performance for the month was excellent with all effluent parameters well below the seven-day and monthly NPDES permit requirements. The monthly average influent flow was 256 MGD. There was no Excess Flow during this reporting period. The following Figures compare the plant performance with the corresponding NPDES permit limits.

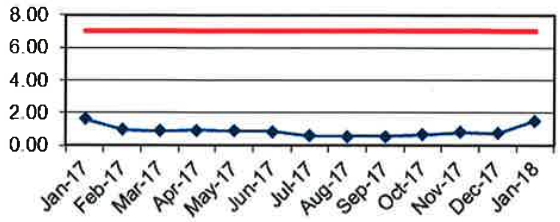
Plant Influent Flow (mgd)



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.

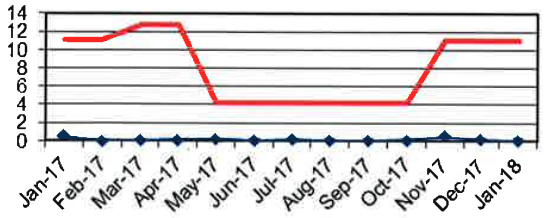
TSS (mg/l)



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

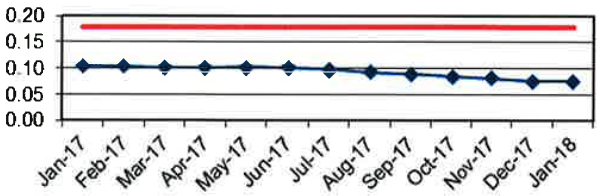
Ammonia (mg/l)



Effluent NH3 — Permit Limit

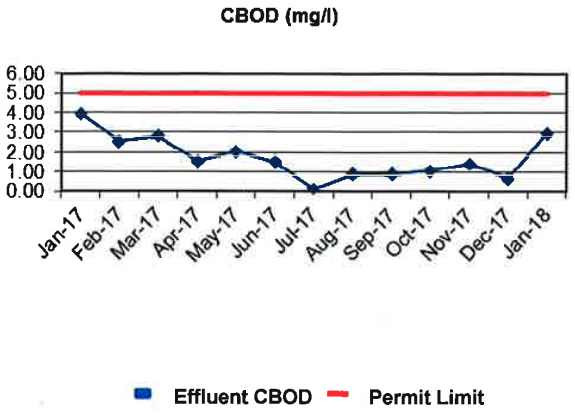
The Ammonia Nitrogen (NH3-N) is a measure of the nitrogen found in ammonia. For the month, effluent NH3-N concentration averaged 0.10 mg/L and is below the average 11.1 mg/L limit.

Total Phosphorus Annual Average (mg/l)

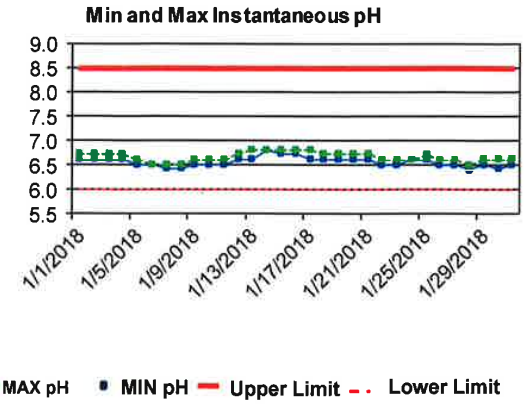


Effluent TP — Permit Limit

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

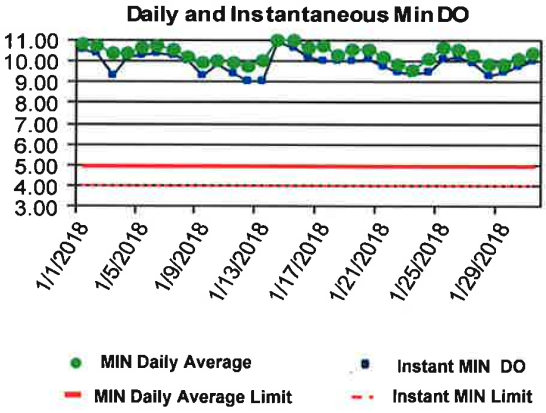


Carbonaceous Biochemical Oxygen Demand (CBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials. The effluent CBOD concentration averaged 2.97 mg/L (partial month), which is below the 5.0 mg/L limit.

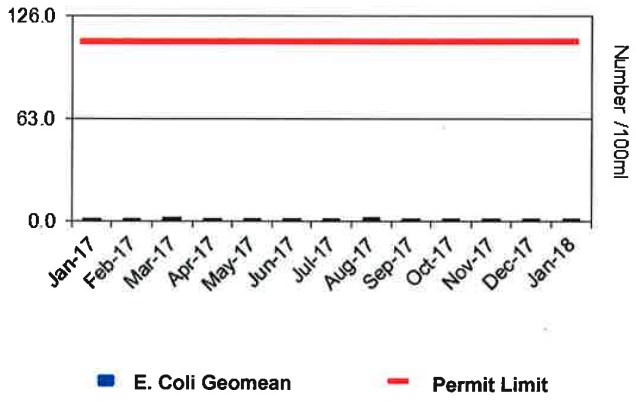


pH is a measure of the intensity of the alkalinity or acidity of the effluent. The minimum and maximum pH observed were 6.4 and 6.8 standard units, respectively. The pH was within the permit limits of 6.0 and 8.5 for minimum and

E. coli



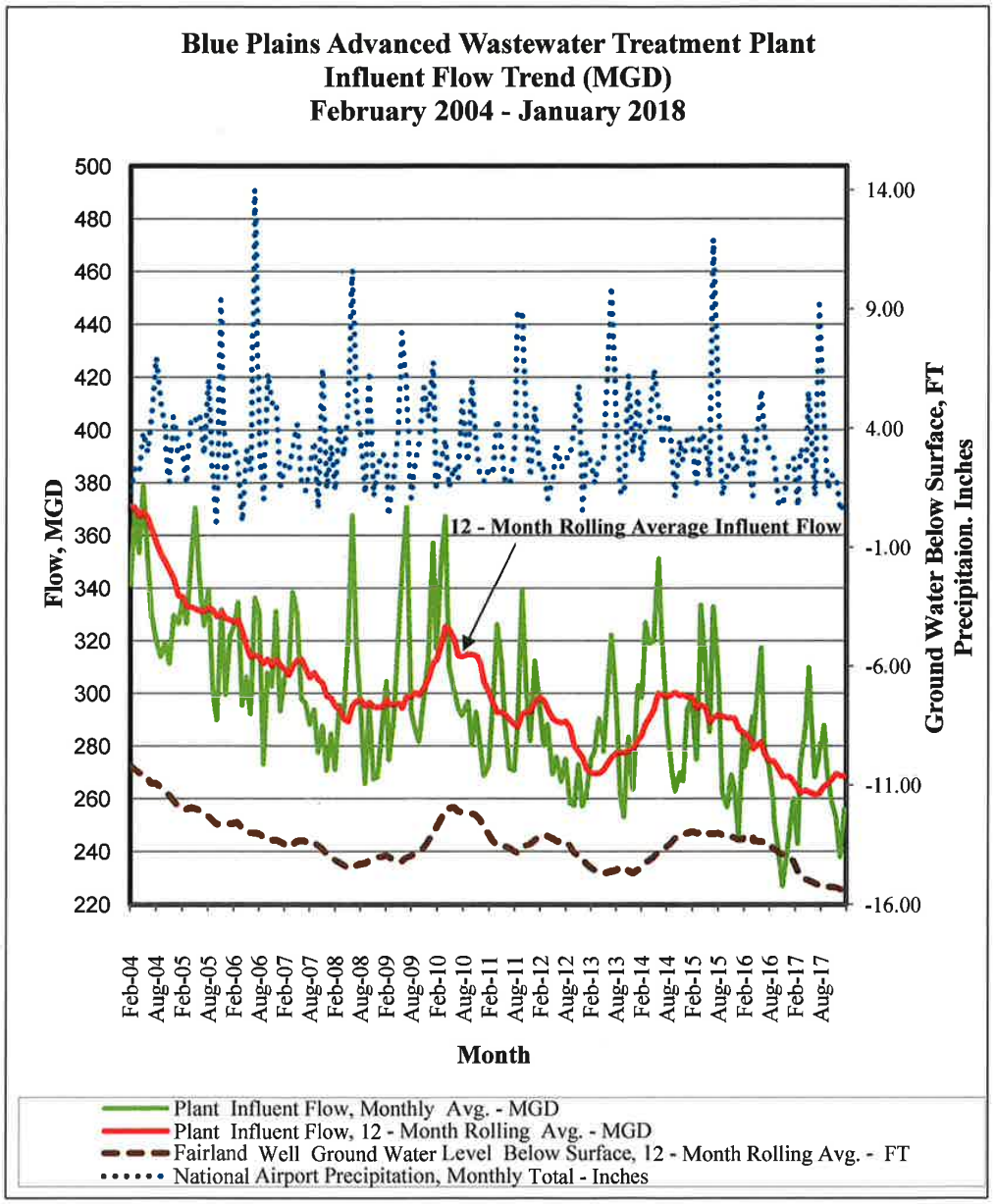
Dissolved Oxygen (DO) is a measure of the atmospheric oxygen dissolved in wastewater. The DO readings for the month are within the permit limits. The minimum daily average is 9.6 mg/L. The minimum instantaneous DO reading is 9.0 mg/L. The minimum permit limits are 5.0 mg/L and 4.0 mg/L respectively.



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

Plant Influent Flow Trend

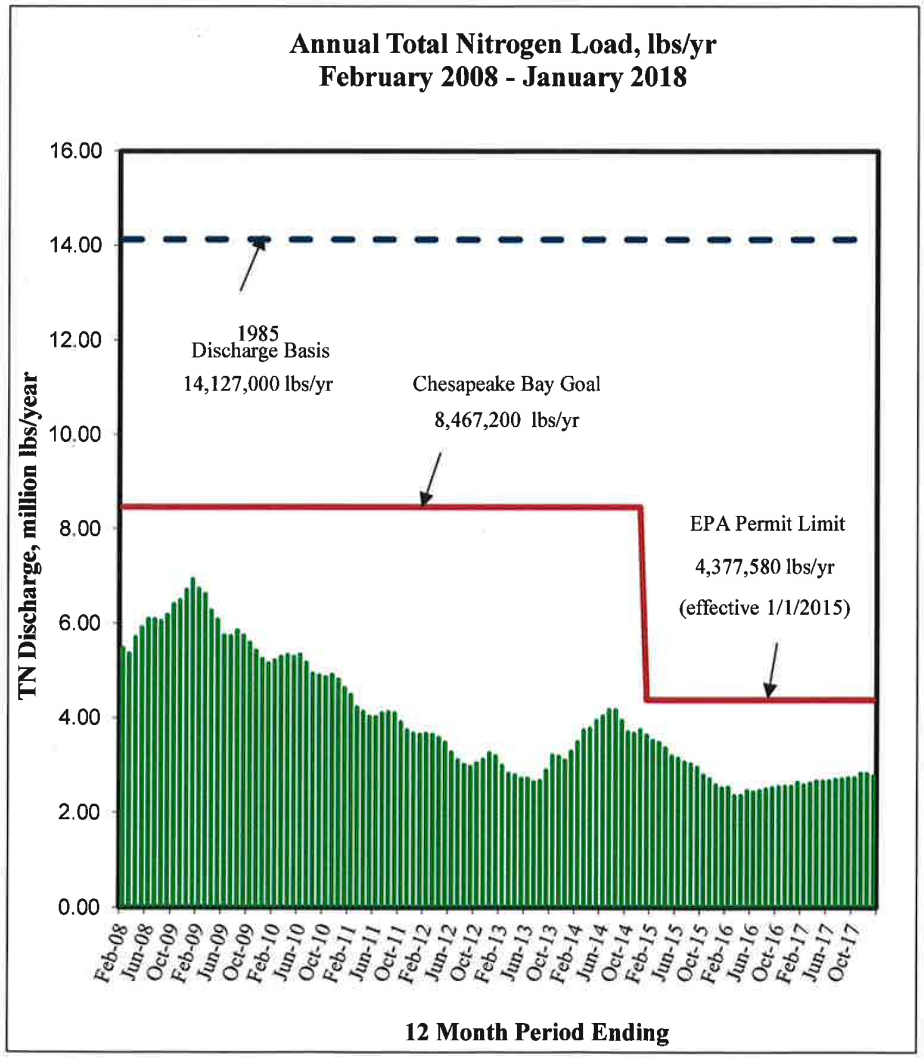
The graph below shows a long-term influent flow trend to the plant ending January 2018. While for any given month the flow is weather dependent, the 12-month rolling average influent flow has remained at or below 300 MGD since February 2011.



Blue Plains Total Nitrogen (TN) Removal – Performance

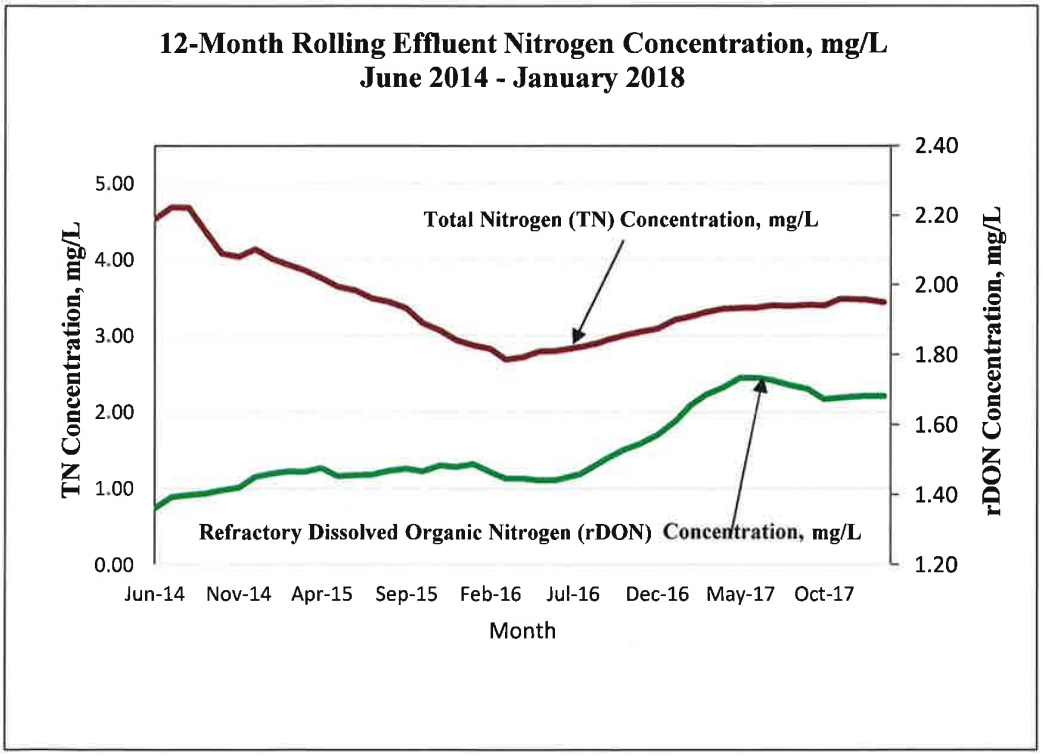
The graph below shows 12-month rolling TN discharge, in million pounds per year, over a 10-year period ending January 2018. In January 2018, the monthly average TN concentration and total load in the effluent were 3.94 mg/L and 260,900 lbs respectively.

During the 2017 calender year, the total pounds of nitrogen discharged in the effluent was 2,835,177 and is below the NPDES permit discharge limit of 4,377,580 lbs/year. The performance corresponds to annual average influent flow of 269 MGD, maximum month flow of 308 MGD, and average monthly wastewater tempratures above 17 °C observed during the calendar year. 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.



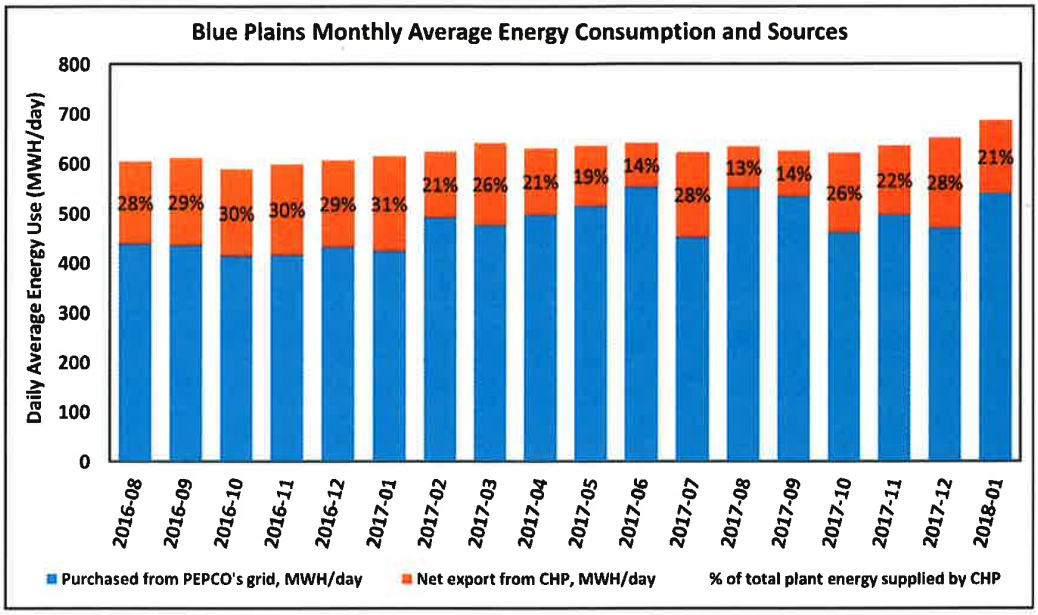
Note: Since the commissioning of ENRF, the 12-month rolling average TN concentration and load in the effluent continued to decline and reached the lowest level in March of 2016. Although the TN load in the effluent remained well below the permit limit, the slight but steady increase since March of 2016 was mostly caused by higer concentrations of refractory dissolved organic nitrogen (rDON) in the filterate (liquid removed from dewatering class A biosolids) returned for treatment in the plant's secondary and enhanced nitrogen removal processes. The rDON concentrations are within anticipated levels and have stabilized as shown on the chart below (green line).

The monthly average TN concentrations in recent months (November and December 2017) were slightly elevated due to scheduled major outages of Nitrification Reactors. In November 2017, half of the 12 Nitrification Reactors were removed from service for six consecutive days to replace 20 inch discharge valves on 21 return sludge pumps associated with the reactors. Replacement work on the remaining six reactors was completed in December 2017. Both sutdowns and the subsequent start ups were sucessfuly completed with full compliance of all NPDES permit requiremnts.



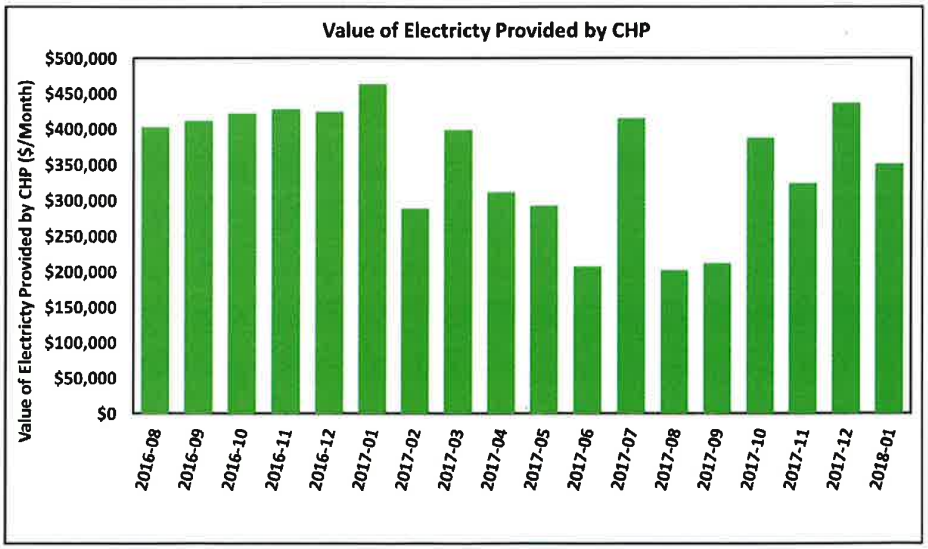
Blue Plains Electricity Generation and Usage

In January 2018, the average energy consumed at Blue Plains was 686 megawatt hours per day (MWH/day) or 2.7 MWH of electricity per million gallon of wastewater processed through complete treatment. The Combined Heat and Power (CHP) facility generated an average of 146 MWH/day, making up for 21% of total energy consumed at Blue Plains. The remaining 540 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 by assuming unit price of $78/MWH of electricity



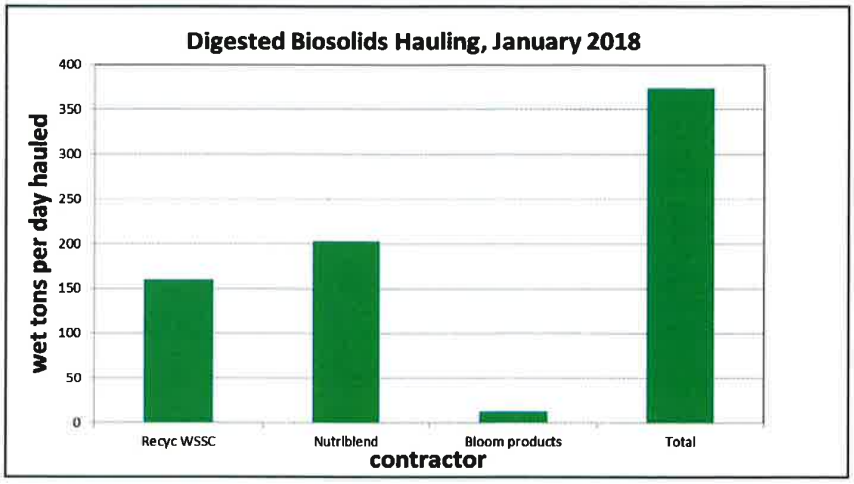
CHP Operation and Maintenance Status

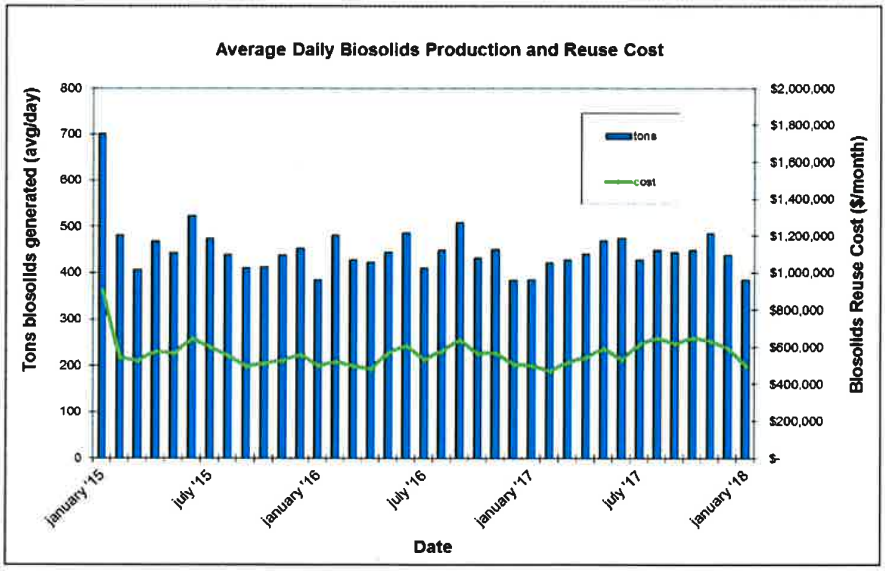
Repair work to restore the second of the three Heat Recovery Steam Generators (HRSG) to the original factory condition was completed on January 18, 2018. The repair work, which included modifications to the duct burner and digester gas flow controls, was executed by the original equipment manufacturers 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 inspection will continue through February and March, to further verify effectiveness of the repair. Completion of this repair has enhanced the reliability of the CHP Facility to supply adequate high pressure steam using waste heat and maximize digester gas use for the generation electricity.

Reconciliation of costs for the contact operation period that ended on September 30, 2017 is still in progress. The settlement will include reimbursements associated with failure to comply with Digester Gas Electrical Power Production Guarantee, as required by the terms of contract.

RESOURCE RECOVERY

In January, biosolids hauling averaged 374 wet tons per day (wtpd). The average percent solids for the Class A material was 31.6%. The graph below shows average daily biosolids produced and the associated monthly cost for reuse (transportation and application cost) for a three-year period ending January 2018. In January, diesel prices averaged $3.24/gallon, and with the contractual fuel surcharge, the weighted average biosolids reuse cost (taking into account the marketed material) was $42.73 per wet ton.

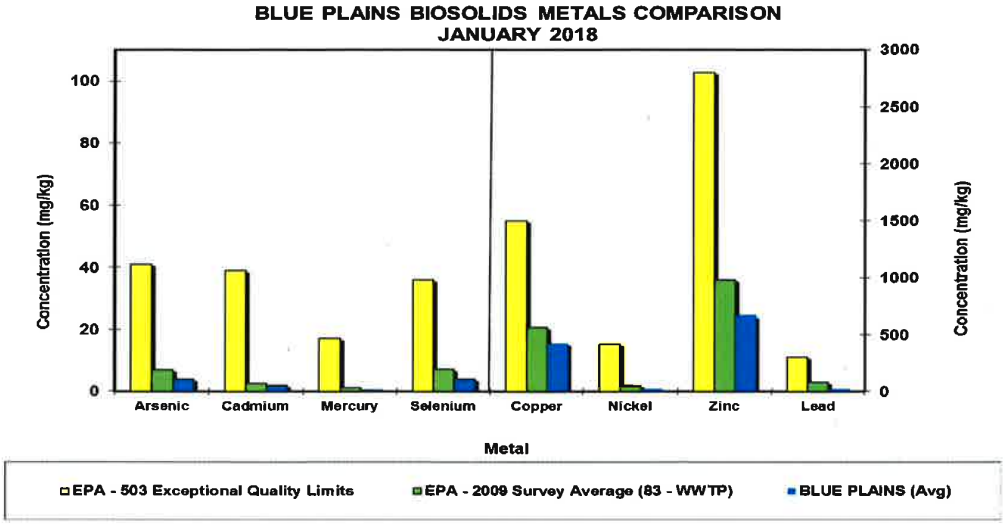




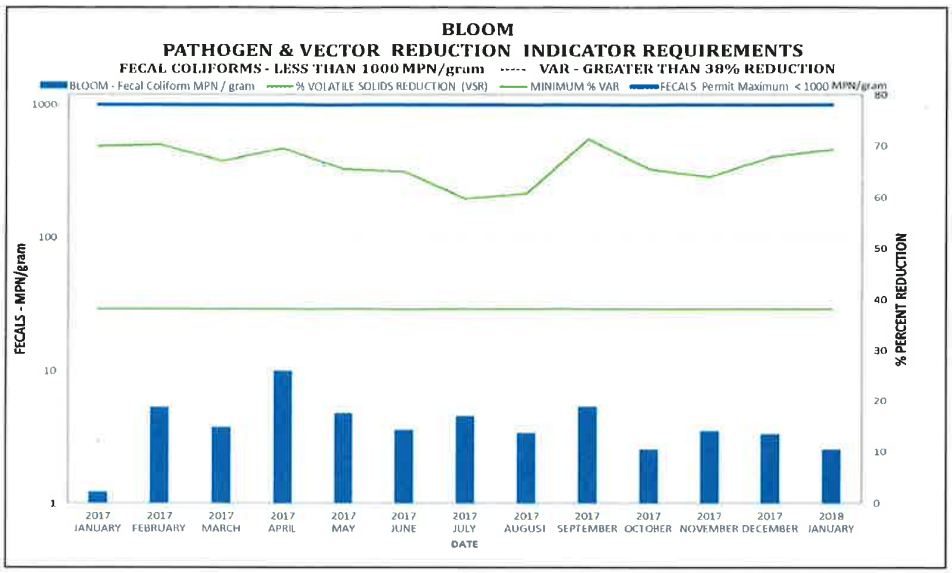
The average quanities of Class A biosolids transported and applied on farms by the two major contracts (WSSC's Recyc and DC Water's Nutriblend) and the quantites marketed as Bloom are shown on the graph above. In January, 380 wet tons of Bloom were distributed to 2 customers.

Product Quality

All biosolids produced during the month of January met EPA's Class A Exceptional Quality (EQ) requirements. 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).

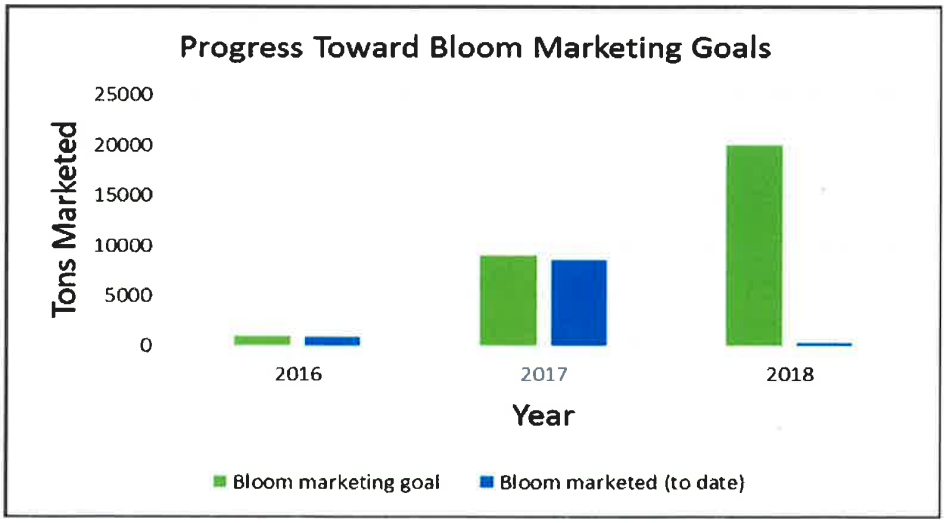


The graph below (next page) shows both Vector Attraction Reduction (VAR) and Fecal Coliform (FC) results in the Class A product, both of which are required to maintain the Class A Exceptional Quality (EQ) status. Vector Attrraction Reduction is measured by the reduction in Volatile Solids (VS) or organic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



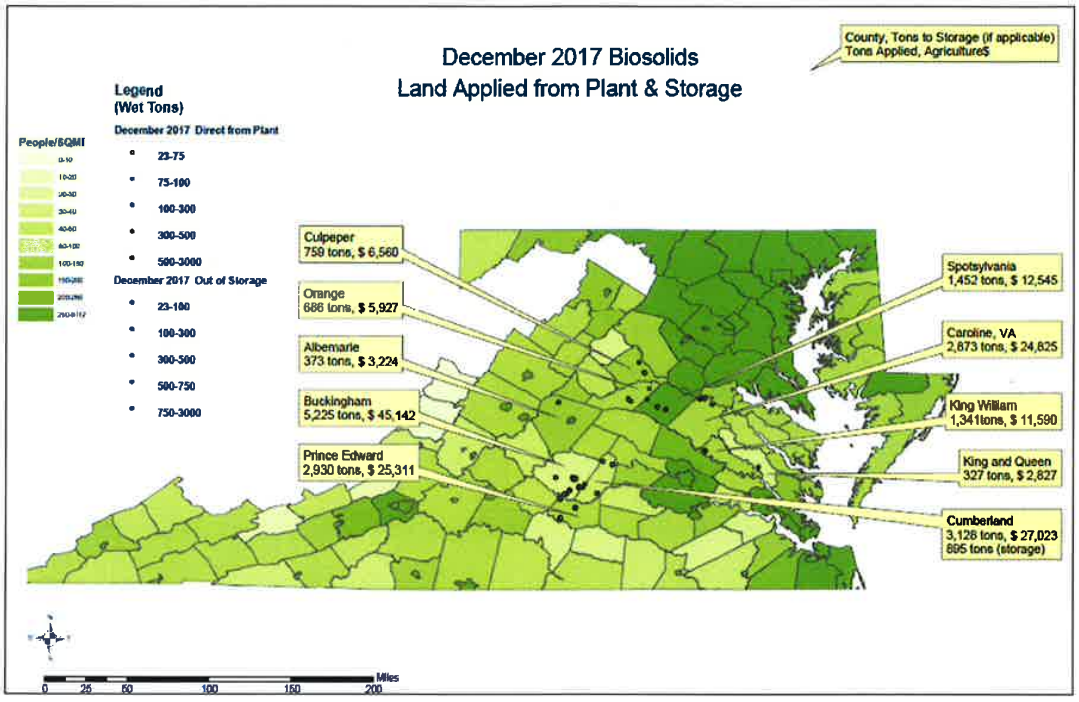
Bloom Marketing

Bloom sales during the 2017 calendar year totaled 8,525 tons or 95% of the 9,000 tons goal. The goal for the current calendar year was significantly increased to 20,000 tons or 12.2 percent of annual Class A Biosolids production.



Bloom Reuse and Value Map

This map shows where Class A Biosolids were reused on agricultural land and sold as Bloom into the market as a soil amendment product during the month of December 2017. Marketing activates occurred exclusively in MD and DC, since this is where we have permits to do so. We just received our Distribution and Marketing permit for the state of VA, and are beginning to make sales calls in the state.



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 December and January 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.

Mainstream Shortcut Nitrogen Removal Studies – Nitrogen Post Polishing

In areas with stringent effluent nitrogen discharge limits such as the Chesapeake Bay region, treatment plants are often designed to include a final nitrogen polishing step. The polishing step can be integrated within the activated sludge nitrogen removal process such as the one at Blue Plains AWTP, or can be provided as a separate post anoxic process stage.

In these conventional nitrogen removal process, the first step involves conversion ammonia to nitrate [full nitrification] in the presence of sufficient oxygen in aerated reactors followed by reducing nitrate to nitrogen gas [full denitrification] in the absence of oxygen in anoxic reactors. The denitrification phase requires a readily biodegradable organic carbon substrate, which can be added if the wastewater does not contain enough carbon to achieve the required level of denitrification. The full nitrification phase can be broken down to two steps where ammonia is first oxidized to nitrite and then nitrate. Similarly, the full denitrification step can be broken down to two steps where nitrate is converted to nitrite and then to nitrogen gas.

Recently, many research groups are working to design and develop concepts for more efficient nitrogen removal systems to reduce energy, chemical and capital requirements. These concepts focus on shortcutting the nitrogen removal reactions by converting ammonia to nitrite [aka partial nitrification] while preventing the full conversion to nitrate. To achieve partial nitrification, the process is controlled to selectively (or preferentially) repress the nitrite oxidizing bacteria (NOB) to prevent, or limit, nitrate formation. Consequently, our research group has evaluated a concept combining partial nitrification and anammox to further maximize capital and operational savings. The anammox organisms are able to oxidize ammonia using nitrite (in the absence of oxygen) to produce nitrogen gas. Hence, if some ammonia is converted to nitrite via partial nitrification, anammox can use the nitrite to remove the remaining ammonia. Several viable concepts for mainstream short-cut nitrogen removal options [including partial

nitritation and anammox] have been presented recently (WEF/WERF, 2015). In general, to achieve partial nitrification, and therefore, NOB "out-selection", the strategy requires operating the process to maintain a residual ammonia concentration greater than 2 mg N/L. However, to meet Chesapeake Bay discharge limits for total nitrogen, an additional nitrogen polishing phase is needed.

To further examine the applicability of short-cut nitrogen removal processes at Blue Plains, the research team has evaluated a post polishing process integrated into the activated sludge nitrogen removal system [see **Figure 1**]. Generally, the partial nitrification zone is controlled using DC Water's proprietary AvN control strategy to maintain a certain ammonia to oxidized nitrogen (nitrate + nitrite) ratio, which results in most efficient removal of nitrogen. This results in some ammonia and nitrate leaving that zone and entering the post polishing zone. In the post polishing zone we are adding relatively small amounts of carbon to convert a portion of the nitrate to nitrite [partial denitrification] so that this nitrite and the residual ammonia can be converted to nitrogen gas by the anammox bacteria.

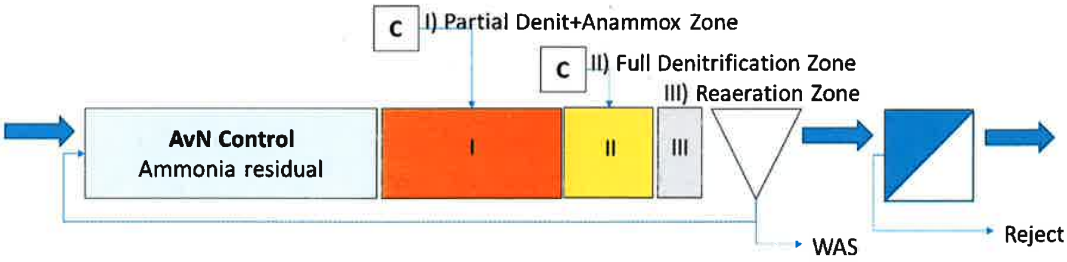


Figure 1. Shortcut nitrogen removal process with integrated post-polishing zones. Treatment phases include an aeration stage using AvN control followed by 3 post polishing cells. A similar concept could potentially be applied at Blue Plains AWTP in the existing nitrogen removal process.

Thus far, our research has proven the concept of partial denitrification using several carbon sources including acetate, glycerol, methanol and ethanol. However, acetate and glycerol are preferred sources. We are able to control partial denitrification by controlling the carbon dosing based on target nitrate concentration in the anoxic zone [See **Figure 2**]. The mainstream nitrogen removal pilot has been operating successfully with an integrated post polishing step. **Figure 3** shows a profile along the pilot reactors (cells 1 through 18). Acetate was added to cell 12 to maintain a target NO3-N concentration of 5 mg N/L. **Figure 4** shows daily performance data, which demonstrate the ability to meet low TN concentrations. These encouraging results will be used to develop a plan for potential future implementation of shortcut nitrogen removal at Blue Plains. In the future, a larger scale pilot demonstration may be required to further refine the basis of design and ensure scalability to maintain effluent quality. In the meantime, the current pilot will continue to be used to further refine the process control strategies.

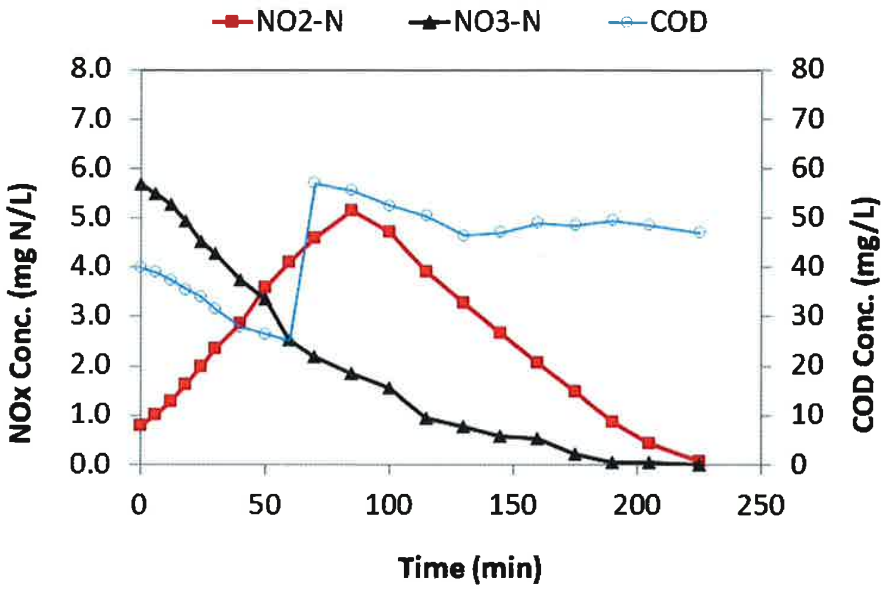


Figure 2. Batch bioassay test with nitrate [NO3-N] and acetate [COD] added under anaerobic conditions. Nitrite increases during the first half of the test indicating partial denitrification [NO3-N → NO2-N] is occurring.

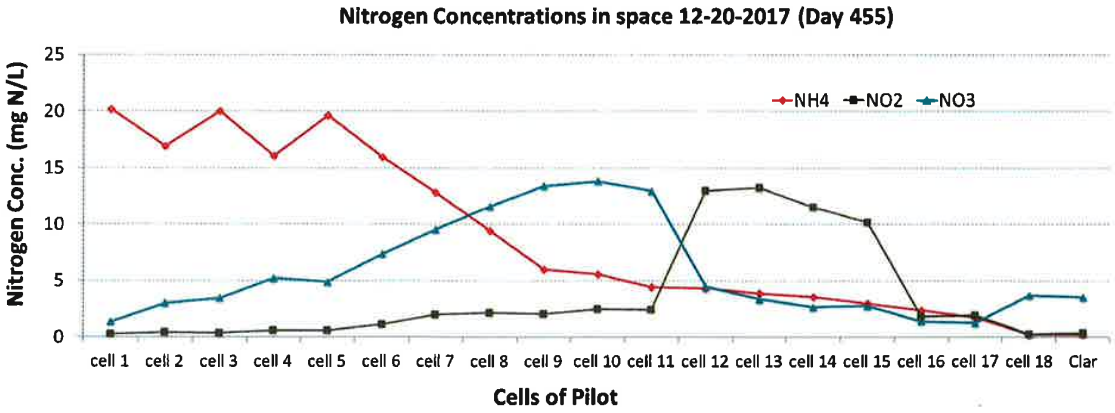


Figure 3. Nitrogen species concentration profile along the pilot process. Cells 1 through 10 are aerated and air is controlled using the AvN strategy, while Cells 11 through 17 are mixed [no aeration]. Acetate is dosed in cells 12, 14 and 16. Cell18 is aerated to mimic the full scale plant's operation for reaeration. Profile shows total nitrogen less than 5 mg N/L was achieved.

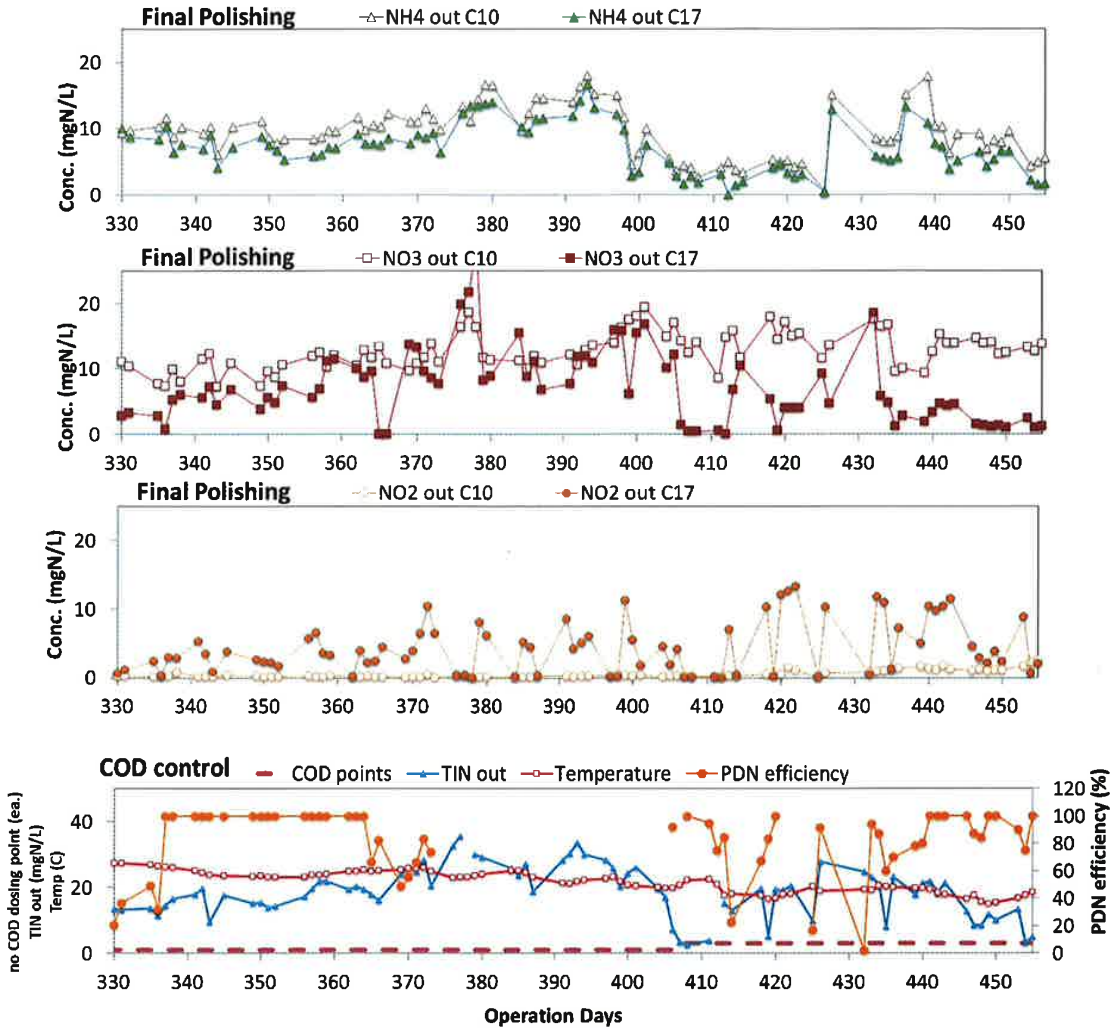


Figure 4. The shortcut nitrogen removal pilot data for Cells 10 and 17. Cell 10 is the last cell before the polishing zone which is comprised of Cells 11 through 17. Cell17 is the last cell in nitrogen polishing before reaeration and is representative of the post-polishing zone effluent.

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

Water Quality and Pretreatment

The Blue Plains Water Quality & Pretreatment group 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 also participated in the MWCOG Water Resources Technical Committee webinar presentation this month on Fate and Transport of Nutrients in the Potomac River.

The Final Rulemaking regulations for the new hauled waste fee structure and new fees for industrial high strength waste as well as the dental amalgam pretreatment standards, were approved by the Board this month and published in the DC Register.

Industrial Pretreatment Program

DC Water currently manages twelve (12) Significant Industrial User (SIU) and eighteen (18) Non-Significant Industrial User (NSIU) wastewater discharge permits. The following activities were conducted this month:

- Naval Research Laboratory - Administrative Order for PCB violation. DC Water received additional follow-up monitoring and a monthly progress report. No violations reported.

- WMATA – Western Bus Division – routine compliance monitoring for NSIU.

DC Water received semi-annual monitoring reports for all SIUs this month as well as monthly self-compliance monitoring reports for six (6) SIUs and one NSIU. All SIUs and NSIUs are in compliance with discharge standards for the current month.

DC Water currently manages 72 Temporary Discharge Authorization (TDA) permits, primarily for construction site discharges of groundwater and/or surface runoff in the combined sewer area. One new TDA permit was 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 32 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 one hauled waste permit this month and terminated one waste hauler permit.

DC Water received 1,057 hauled waste loads (2,273,674 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. A new access database is being developed by Process Engineering to facilitate ease of data entry and allow greater flexibility to sort and analyze data and prepare reports for billing based on the new fee structure. Two hauled waste samples were collected this month.

NPDES Permit Sampling

No NPDES sampling was conducted this month.

District of Columbia Water and Sewer Authority

Capital Improvement Program Report

FY-2018 1st Quarter
October 1st through December 31st, 2017

Board of Directors
Environmental Quality and Operations Committee

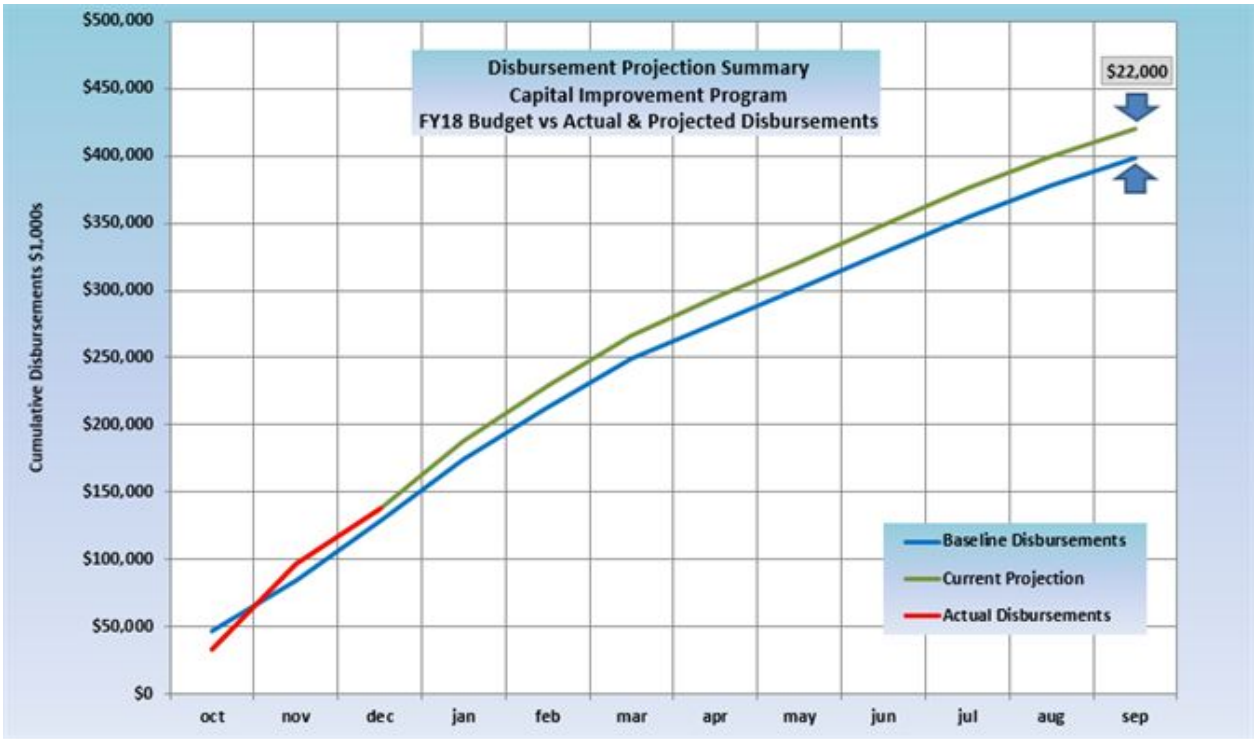
Henderson J. Brown IV, Interim CEO & General Manager
Leonard R. Benson, Chief Engineer

February 2018

CIP Disbursement Performance

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

Disbursement Summary



Current projected fiscal year 2018 CIP disbursements are $420,284,000 through the end of December 2016, which is 5.5% above the baseline disbursement projection of $398,285,000.

Current disbursement projections within the service areas are as follows:

Non Process Facilities
Baseline Disbursements $31,678,000
Projected Disbursements $30,341 ($1.3M below baseline projection)
There are no significant project variances for this service area.

Wastewater Treatment Service Area
Baseline Disbursements $95,520,000
Projected Disbursements $107,292,000 ($11.8M above baseline projection)
Significant project variances are listed below:

- *Solids Processing Program Area – ($3.4M above baseline)*
  - The disbursements for project XA - New Digestion Facilities are projected to be $3.8M above the baseline due to a retention release executed in FY17 but disbursed in FY18, and supplemental agreements issued for the close out stages of the project that were not included in the baseline spending projections.
- *ENR Facilities Program Area – ($5.5M above baseline)*
  - The disbursements for project E8 - Enhanced Clarification Facilities are projected to be above the baseline due to an early retention release and a payment accounted for in FY17 that were disbursed in FY18.

CSO Service Area
Baseline Disbursements $181,897,000
Projected Disbursements $179,801,000 ($2.1M below baseline projection)
There are no significant project variances for this service area.

Stormwater Service Area
Baseline Disbursements $944,000
Projected Disbursements $1,034,000 ($90k above baseline projection)
There are no significant project variances for this service area.

Sanitary Sewer Service Area
Baseline Disbursements $30,191,000
Projected Disbursements $36,601,000 ($6.4M above baseline projection)
Significant project variances are listed below:

- *Sanitary Collection Sewers Program Area – ($3.7M above baseline)*
  - The disbursements for project J3 – Sewer Upgrade City Wide are projected to be greater than anticipated in the baseline. This is mainly due to the work progressing at a faster pace than anticipated.

Water Service Area
Baseline Disbursements $58,054,000
Projected Disbursements $65,215,000 ($7.1M above baseline projection)
Significant project variances are listed below:

- *Water Storage Facilities Program Area – ($5.2M above baseline)*

- The projected disbursements for project MA - St. Elizabeth Water Tank are greater than anticipated in the baseline. This is mainly due to an incorrect entry into the database, we have since improved the process and procedure.

Capital Improvement Program Report
1st Quarter FY2018

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

All priority 1 projects are on schedule and within budget.

Significant Contract Actions Anticipated – 6 Month Look-Ahead

Project	Name	Contract Type	Joint Use?	Cost Range	Committee	BOD
DR	Low Area Trunk Sewer Rehab	Construction	No	$15M - $20M	EQ & Ops Mar	Apr
CZ	Potomac Project 1(GI) PR-A	Design-Build	No	$5M - $10M	EQ & Ops Mar	Apr
UC	Upgrades to FIPS 1-10	Construction	Yes	$15M - $20M	EQ & Ops Jun	Jul
C9	66" Steel Main at 8th St., NE	Construction	No	$5M - $10M	EQ & Ops May	Jun

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Schedule - Key Performance Indicators
Capital Improvement Program

Summary:
For the 1st Quarter, both of the Key Performance Indicators (KPIs) completed this period were achieved within 90 days of their target date.

#	Performance
2	KPIs completed within threshold
0	KPIs completed outside threshold
2	Total KPIs completed to date
28	Total KPIs due this year

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

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	**F203**	**Small Diameter Water Main Repl 14C C&L**	**Design Start**	**30-Oct-17**		**20-Oct-17**	**10**	✓
Q1	**DE02**	**Small Diameter Water Main Repl 12B**	**Construction Start**	**5-Nov-17**		**3-Nov-17**	**2**	✓
Q2	EE01	Biosolids Filtrate Treatment Facilities	Construction Substantial Completion	4-Jan-18	4-Jan-18		0	
Q2	IY03	High & Low PSW Pumps Evaluation and Replacement	Design Start	15-Jan-18	15-Jan-18		0	
Q2	GA01	Small Local Sewer Rehab 4	Construction Substantial Completion	31-Jan-18	31-Jan-18		0	
Q2	GR01	Small Diameter Water Main Rehab. 15A	Design Start	1-Feb-18	1-Feb-18		0	
Q2	LZ03	PI Phase 1 Pipe Rehab at Clara Barton Pkwy	Design Start	2-Feb-18	2-Feb-18		0	
Q2	BI01	Enhanced Nitrogen Removal (ENR) North	Construction Substantial Completion	8-Mar-18	8-Mar-18		0	
Q2	CY12	Div H - Anacostia River Tunnel	Project Consent Decree Place in Operation	23-Mar-18	23-Mar-18		0	

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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	CY13	Div I - Main Pumping Sta. Diversions and Outfall Sewer Diversion	Project Consent Decree Place in Operation	23-Mar-18	23-Mar-18		0	
Q2	CY18	Div Y - BP Tunnel Dewatering Pump Station	Project Consent Decree Place in Operation	23-Mar-18	23-Mar-18		0	
Q2	CY21	Div Z - Poplar Point Pumping Sta. Replacement	Project Consent Decree Place in Operation	23-Mar-18	23-Mar-18		0	
Q2	FS01	Div D - JBAB Overflow and Diversion Structures	Project Consent Decree Place in Operation	23-Mar-18	23-Mar-18		0	
Q2	E801	Enhanced Clarification Facilities	Project Consent Decree Place in Operation	23-Mar-18	23-Mar-18		0	
Q2	CY12	Div H - Anacostia River Tunnel	Project Consent Decree Place in Operation	23-Mar-18	23-Mar-18		0	
Q2	CY04	Div E - CSO 015-017 Structures/Diversions	Project Consent Decree Place In Operation	23-Mar-18	23-Mar-18		0	
Q2	CY06	Div G - CSO 005/007 Structures and Diversions	Project Consent Decree Place in Operation	23-Mar-18	23-Mar-18		0	
Q2	CY31	Div U - Advance Utility Relocations for NEBT	Design Build Substantial Completion	23-Mar-18	23-Mar-18		0	
Q3	J001	B Street/New Jersey Ave. Trunk Sewer Rehab and Cleaning Phase 1	Construction Start	4-Apr-18	4-Apr-18		0	
Q3	MA01	St. Elizabeth Water Tank	Construction Substantial Completion	10-Apr-18	10-Apr-18		0	
Q3	G100	Lining & Repair of Local Sewers	Construction Substantial Completion	31-May-18	31-May-18		0	
Q3	GR02	Small Diameter Water Main Rehab 15B	Design Start	1-Jun-18	01-Jun-18		0	
Q3	I801	Large Valve Replacements 11R	Construction Substantial Completion	30-Jun-18	30-Jun-18		0	
Q4	C904	66" Low Service Steel Main at 8th Street NE & SE	Construction Start	3-Jul-18	3-Jul-18		0	
Q4	LZ04	PI Phase 2 Pipe Rehab at Potomac Crossing	Design Start	5-Jul-18	5-Jul-18		0	
Q4	DR02	Low Area Trunk Sewer - Rehabilitation	Construction Start	12-Jul-18	9-May-18		64	
Q4	O302	Small Dia Watermain Repl 11b	Construction Substantial Completion	27-Jul-18	27-Jul-18		0	
Q4	UC06	Upgrades to FIPS 1-10	Construction Start	29-Sep-18	29-Sep-18		0	

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

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Blue Plains AWTP
Flood Protection Status

February 2018

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Agenda

- Flood Elevations and Floodwalls at Blue Plains
- Current Protection levels and measures
- 500 year Inundation Map
- Planned Flood mitigation
- Floodwall CIP Funding Plan

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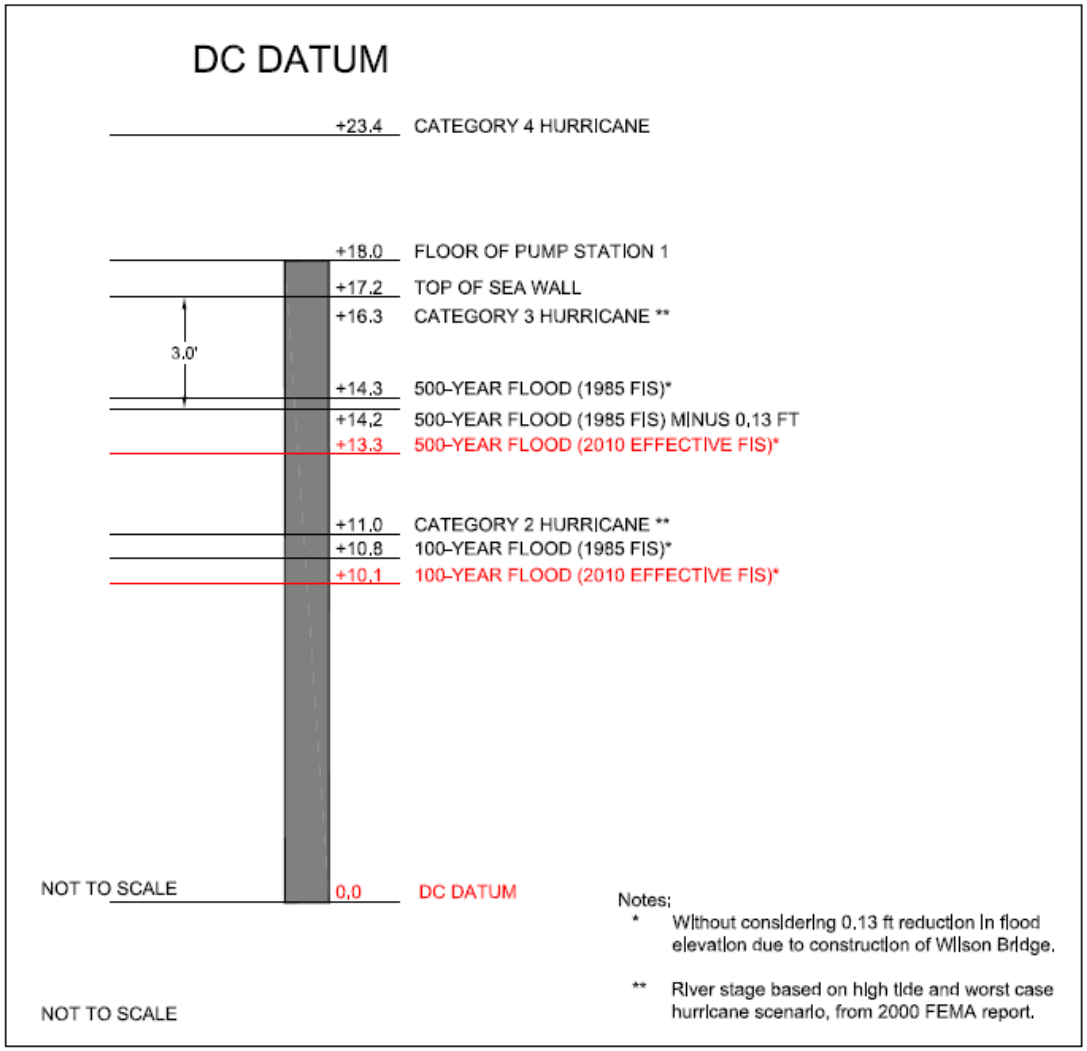
Flood Risk Elevations and Mitigation

100 Year Flood

- 100 Year Flood Elevation is 10.1 feet, based on 2010 Effective Flood Insurance Survey
- Current Floodwall protects to Elev. 13.1 feet (10.1 feet + 3.0 feet freeboard)
- Back-flooding of plant outfalls - locations to be addressed by Emergency Management Plan

500 Year Flood

- Elevation 14.2 feet, based on 1985 Effective FIS, adjusted for rebuilt Woodrow Wilson Bridge
- Permanent Floodwall built to Elev.17.2 feet (14.2 feet + 3.0 foot freeboard).



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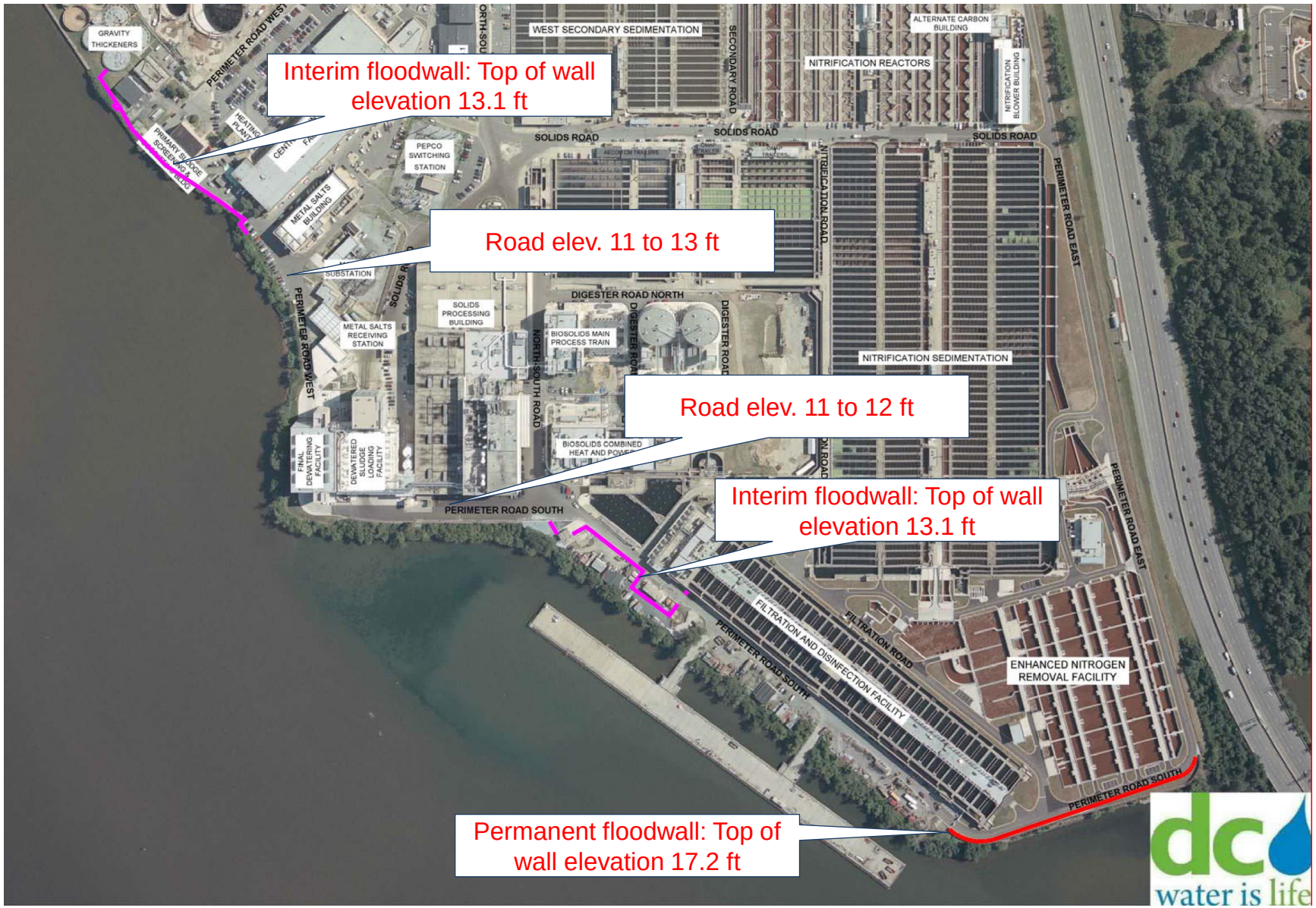
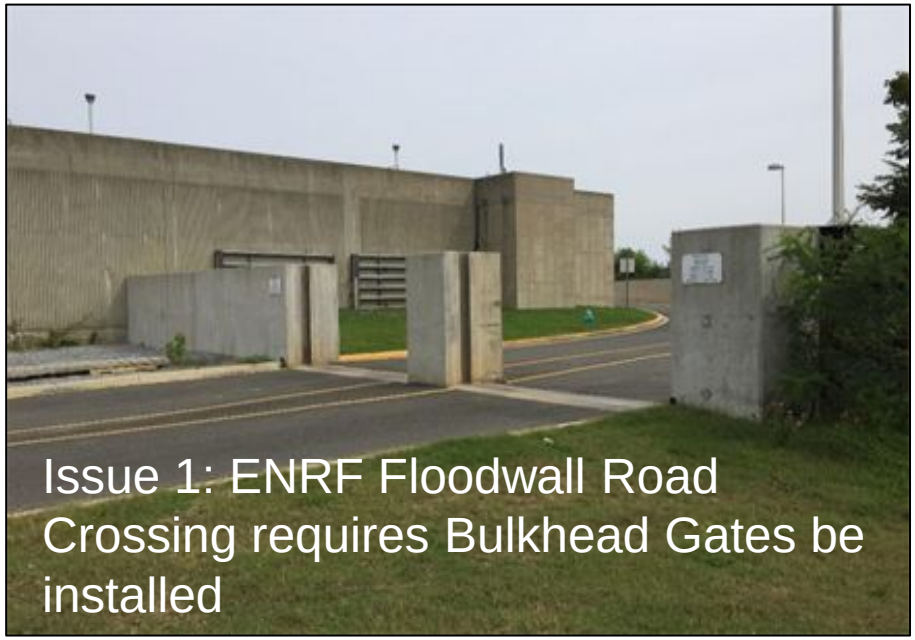
Current Protection Levels and Measures



Current Protection Levels and Measures

Emergency Management Plan

- Engineering is working with Office of Emergency Management to update the plan for flood protection issue
- Several locations need to be sandbagged, have bin blocks installed or have bulkhead gates installed prior to a major storm event.
- Sandbag locations will be remediated with permanent fixes over next two years



Issue 1: ENRF Floodwall Road Crossing requires Bulkhead Gates be installed

Issue 2: Interim Floodwall requires bin blocks be installed at Road Crossing and laydown area access

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Inundation Map – 500 Year Event

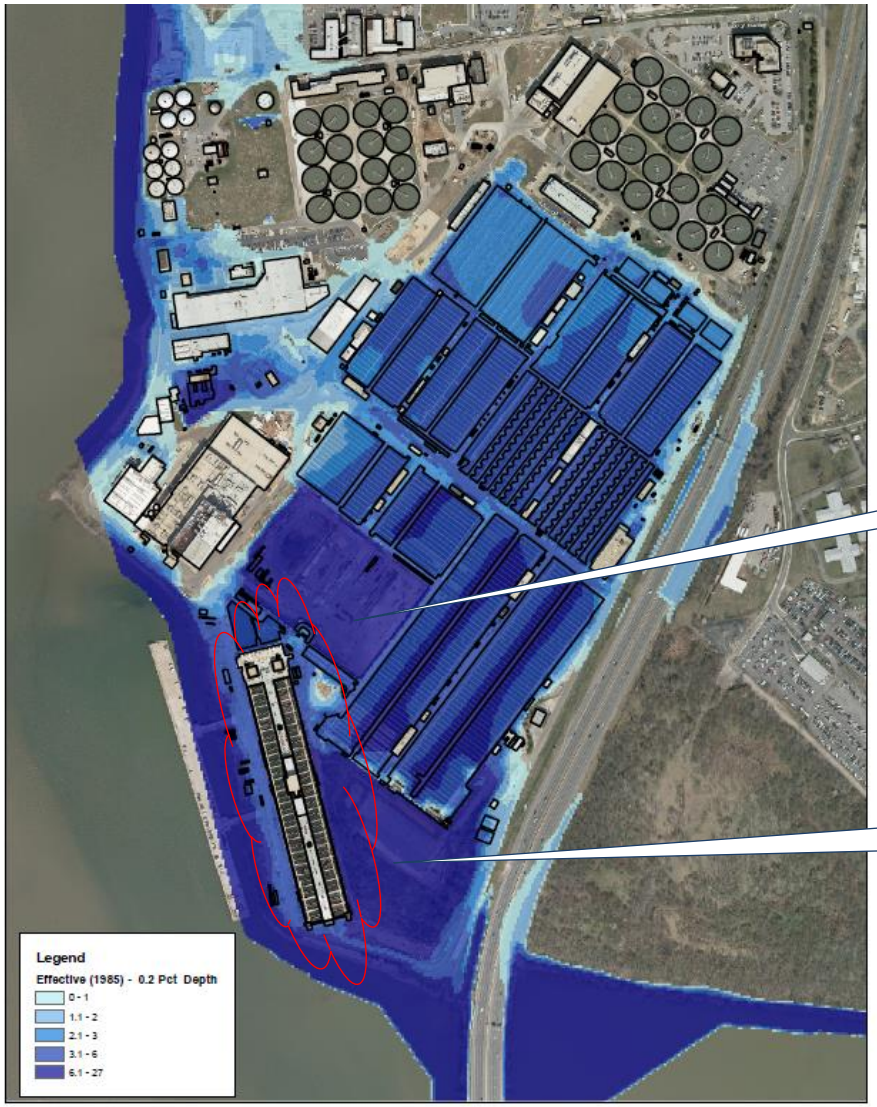

Figure B-5: Digital Flood Insurance Rate Map, FIS 1985 Data
500-year Flood Depth Grid without Seawall

- Interim Floodwall minimum top Elevation is 13.1 feet
- 500 Year Flood Elevation is 14.2 feet

Taken from 2011 Flood Risk Mitigation report

Currently occupied by CHP and MPT

Currently occupied by ENRF

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Planned Flood Mitigation

- Plan to Construct Floodwall developed in 2011 Flood Mitigation Report
- ENRF contract constructed first segment – Floodwall and Bulkhead Gate (Elevation 17.2 feet)
- DC Water awarded a FEMA grant for Segment C. Design is underway, construction to be completed by December 2020.

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FEMA Funding

FEMA Funding

- Grant obtained for Segment C
  - Protects Filter Forebay and Secondary Treatment
  - Approximately $4M project cost, including design
  - Federal funding: $2.4m
  - Construction must be complete within 36 months of formal grant award

- Apply for grant for Segment B next
- Future applications for Segment A and then Segment D

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Floodwall CIP Funding Plan

CIP Flood Protection Plan

- Design & construction of floodwall segments are currently contingent upon receipt of grant funding
- Grants can be submitted annually and in order of priority (C,B,A,D) from lowest to highest risk
- Assuming grants are received for all segments annually, current plan is for floodwall construction completion by August of 2023

Segment	Grant Application Start Date	Design Start Date	Construction Start Date
C	Completed; Grant Received	March 2018	August 2019
B	January 2018	January 2019	July 2020
A	January 2019	January 2020	July 2021
D	January 2020	January 2021	July 2022

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CIP Flood Protection Budgets

CIP Overall Flood Protection Budgets

- Design (Incl. PDE Services During Construction)
  - Floodwall Segment C: $ 502,505
  - Floodwall Segments A, B, and D: $ 962,495 (contingent upon grant funding)
  - **Total Design Budget: $1,465,000**

- Construction (Incl. CM, OMAP, Asset Int., OCIP)
  - Segment C: $3,751,495
  - Segments A, B, and D: $8,533,005 (contingent upon grant funding)
  - **Total Construction Budget: $12,284,500**

- Total Floodwall CIP Budget
  - Segment C: $3,751,495
  - Segments A, B, and D: $8,533,005 (contingent upon grant funding)
  - **Total (All Segments): $13,749,500**