AGENDA ITEM #4
March 12, 2019

Worksession

MEMORANDUM

March 8, 2019

TO: County Council

FROM: Keith Levchenko, Senior Legislative Analyst

SUBJECT: **Worksession: FY20-25 Capital Improvements Program: Washington Suburban Sanitary Commission (WSSC)**[1]

PURPOSE: To review the WSSC FY20-25 CIP and the Transportation & Environment Committee Recommendations

Budget Summary

- Six-Year Proposed CIP Total: $1.87 billion
  - Decrease of $146.3 million (-7.2 percent) from the Approved CIP
- Six-Year Proposed CIP Total plus "Information Only" projects = $3.23 billion
  - Decrease of $110.1 million (-3.3 percent) from the Approved CIP+Information Only
  - Proposed Bond-Funded expenditures are down $46.9 million from the Approved
- Four new projects (Six-Year Total = $36.2 million)
- Major Six-Year Increases in Projects:
  - Water Reconstruction Program (+$60.6 million, +9.6 percent)
  - Sewer Reconstruction Program (+$10.8 million, +2.6 percent)
  - Large Diameter Water Pipe Rehabilitation Program (+$10.4 million, +2.7 percent)
  - Blue Plains Projects (+$7.9 million) (WSSC currently reviewing DCWater #s)
  - Potomac Consent Decree Program (+$TBD)
- Major Six-Year Decreases in Projects
  - Potomac WFP Submerged Channel Intake (-$78.3 million)
  - Water Storage Facility Rehabilitation (-$30 million)
  - Miscellaneous Project Costs Moving Through Construction (-$52.9 million)
- Other Projects Discussed in Committee
  - Piscataway Bio-Energy Project
  - Advanced Metering Infrastructure

T&E Committee Recommendation: Approve WSSC's Proposed FY20-25 CIP

[1] Key words: #WSSCCapitalBudget, Capital projects, utilities, WSSC.

Attachments to this memorandum include:

- County Executive's Recommended FY20-25 Capital Improvements Program (WSSC) (©1-4)
- Excerpts from WSSC's Proposed FY20-25 CIP (©5-51b)
- Potomac WFP Consent Decree Short & Long-Term Projects: Commissioners Status Briefing, 11/28/2019 (©52-59)
- Piscataway WRRF Bio-Energy Project: Calculation of Payback Period (©60)
- Sanitary Sewer Overflow (SSO) Consent Decree Update: Commission Meeting, 7/18/2018 (©61-71)
- Advanced Metering Infrastructure (AMI) Frequently Asked Questions (©72-73)
- WSSC Memo to the Metropolitan Washington Committee of the Montgomery County Delegation dated February 5, 2019 – Responses to Concerns Surrounding AMI (MC/PG 101-19). (©74-84)

The following officials and staff from WSSC are expected to attend this meeting:

- Eloise Foster, Commission Chair
- Fausto Bayonet, Commissioner
- Howie Denis, Commissioner
- Carla Reid, General Manager/CEO
- Jaclyn Vincent, Chief of Staff
- Amanda Conn, General Counsel
- Joe Beach, Deputy General Manager for Administration
- James Price, Deputy General Manager for Operations
- Monica Johnson, Deputy General Manager for Strategic Partnerships
- Patti Colihan, Chief Financial Officer
- Letitia Carolina-Powell, Budget Division Manager
- Mark Brackett, Capital Budget Section Manager

BACKGROUND/TIMELINE

Under Md. Public Utilities Code Ann. §23-304, WSSC must prepare and submit a six-year CIP proposal to the County Executives and County Councils of Montgomery and Prince George's Counties by October 1 of each year.

Unlike other County agency CIP proposals that are reviewed biennially, Montgomery County reviews the WSSC CIP every year.[2] Also, unlike other agencies, WSSC's CIP and Operating budgets are not included within the County's Spending Affordability processes. Instead, WSSC is subject to a separate affordability process, with both Montgomery and Prince George's County Council review and approval in the fall of each year.

The FY20-25 WSSC CIP and Operating Budget Review Timeline

- October 1, 2018: WSSC transmitted its Proposed FY20-25 CIP
- October 16, 2018: Council approval of WSSC's FY20 Spending Control Limits
- January 15, 2019: County Executive's recommendations transmitted (©1-4)

[2] WSSC's full FY20-25 Proposed CIP and Approved FY19-24 CIP publications are available for download at: https://www.wsscwater.com/financial#currentbudget

- February 5, 2019: Council public hearing on the FY20 Capital Budget and amendments to the FY19-24 CIP and WSSC's FY20-25 CIP
- February 7, 2019: T&E Committee review of the WSSC CIP
- March 1, 2019: WSSC transmittal of its Proposed FY20 Budget
- **March 12, 2019: Council review of the WSSC CIP**
- April, 2019: T&E Committee review of the WSSC Proposed FY20 Budget
- Early May 2019: Council review of the WSSC Proposed FY20 Budget
- May 9, 2019: Bi-County meeting between Montgomery County and Prince George's County Councils on the WSSC CIP and Operating Budget, as well as any other Bi-County budget issues

Spending Control Limits/Affordability

During last year's FY19-24 CIP review, to reduce debt service impacts on the WSSC Operating Budget, both Councils agreed to several of WSSC's proposed cost reductions. These reductions totaled $136.7 million over the six-year period, with $50 million in bond-funded savings in FY19 and approximately $20 million per year in FYs20-24 out of the Water Reconstruction program. WSSC's Proposed FY20-25 CIP continues a reduction in six-year total bond-funded expenditures (down $46.9 million, -1.6 percent) from the Approved CIP.

Last fall, the two Councils came to agreement on FY20 spending control limits. Both Councils supported a rate increase limit of 5.0 percent, along with agreed-upon ceilings for New Water and Sewer Debt, Total Water and Sewer Debt Service, and Total Water/Sewer Operating Expenses.

WSSC's FY20 Proposed Operating Budget was transmitted on March 1 and assumes a 5.0 percent equivalent[3] rate increase (consistent with the Councils' spending control limits actions last fall). New Water and Sewer Debt and Debt Service are also within the ceilings supported by the two Councils and are based on the expenditure and funding assumptions included within WSSC's Proposed FY20-25 CIP.

Total Water/Sewer Operating Expenses in WSSC's FY20 Proposed Operating Budget are slightly higher than the approved ceiling ($802.6 million versus $799.0 million).

COUNTY EXECUTIVE RECOMMENDATIONS

(See ©1-4)

The County Executive's recommendations for the FY20-25 WSSC CIP were transmitted on January 15. He does not recommend any changes to WSSC's Proposed CIP.

FISCAL OVERVIEW

The following chart presents WSSC's proposed versus approved expenditures for its CIP, as well as for its "Information Only" projects.

[3] WSSC's rate structure is scheduled to change effective July 1 (FY20). The current 16-tier structure is being replaced by a 4-tier structure. Customers will continue to pay a rate based on their average daily consumption. However, the new rate structure will bill "through the tiers" rather than bill at the highest actual usage rate.

Table 1:
Total WSSC Capital Expenditures (CIP+Information Only)
Proposed FY20-25 CIP versus Approved FY19-24 CIP
($s in 000s)

Grand Total	Approved FY19	Six-Year Total	FY20	FY21	FY22	FY23	FY24	FY25
CIP Total								
Approved FY19-24	401,455	**2,018,850**	414,897	415,206	324,035	256,853	206,404	
Proposed FY20-25		**1,872,520**	383,320	405,291	364,006	266,933	244,881	208,089
Difference		**(146,330)**	**(31,577)**	**(9,915)**	**39,971**	**10,080**	**38,477**	
% Change		**-7.2%**	**-7.6%**	**-2.4%**	**12.3%**	**3.9%**	**18.6%**	
Information Only*								
Approved FY19-24	226,136	**1,320,281**	232,051	229,128	208,061	210,798	214,107	
Proposed FY20-25		**1,356,542**	186,344	211,112	238,241	246,102	234,135	240,608
Difference		**36,261**	(45,707)	(18,016)	30,180	35,304	20,028	
% Change		**2.7%**	**-19.7%**	**-7.9%**	**14.5%**	**16.7%**	**9.4%**	
CIP + Information Only								
Approved FY19-24	627,591	**3,339,131**	646,948	644,334	532,096	467,651	420,511	
Proposed FY20-25		**3,229,062**	569,664	616,403	602,247	513,035	479,016	448,697
Difference		**(110,069)**	(77,284)	(27,931)	70,151	45,384	58,505	
% Change		**-3.3%**	**-11.9%**	**-4.3%**	**13.2%**	**9.7%**	**13.9%**	

*Information Only projects are multi-year projects which do not meet the State definition for inclusion in the CIP.

Fiscal Highlights

- WSSC's Proposed FY20-25 CIP is $1.873 billion (a decrease of $146.3 million or -7.2 percent). The largest decreases involve: The Potomac WFP Submerged Channel Intake project proposed to be deferred beyond six years (-$78.3 million) and the impact of numerous projects moving through construction and having costs no longer in the six-year program (-$52.9 million). The largest six-year increase is from four new projects (+$36.2 million) as well as an increase in the Large Diameter Water Pipe Rehabilitation Program project (+$10.4 million, although this is only a 2.7 percent increase). The major changes by project are presented later.

- "Information Only" projects (which are presented in the CIP but are not formally part of the CIP) continue to represent a large portion of WSSC's infrastructure-related work.[4] FY20-25 CIP expenditures for these projects are proposed to be $1.36 billion (an increase of $36.3 million or 2.7 percent). The largest six-year increases are in the Water Reconstruction ($60.6 million) and Sewer Reconstruction ($10.8 million) projects. The Water Storage Facility Rehabilitation Program project is down $30 million.

- When factoring in WSSC's "Information Only" projects, overall capital expenditures are down $110.1 million (-3.3 percent).

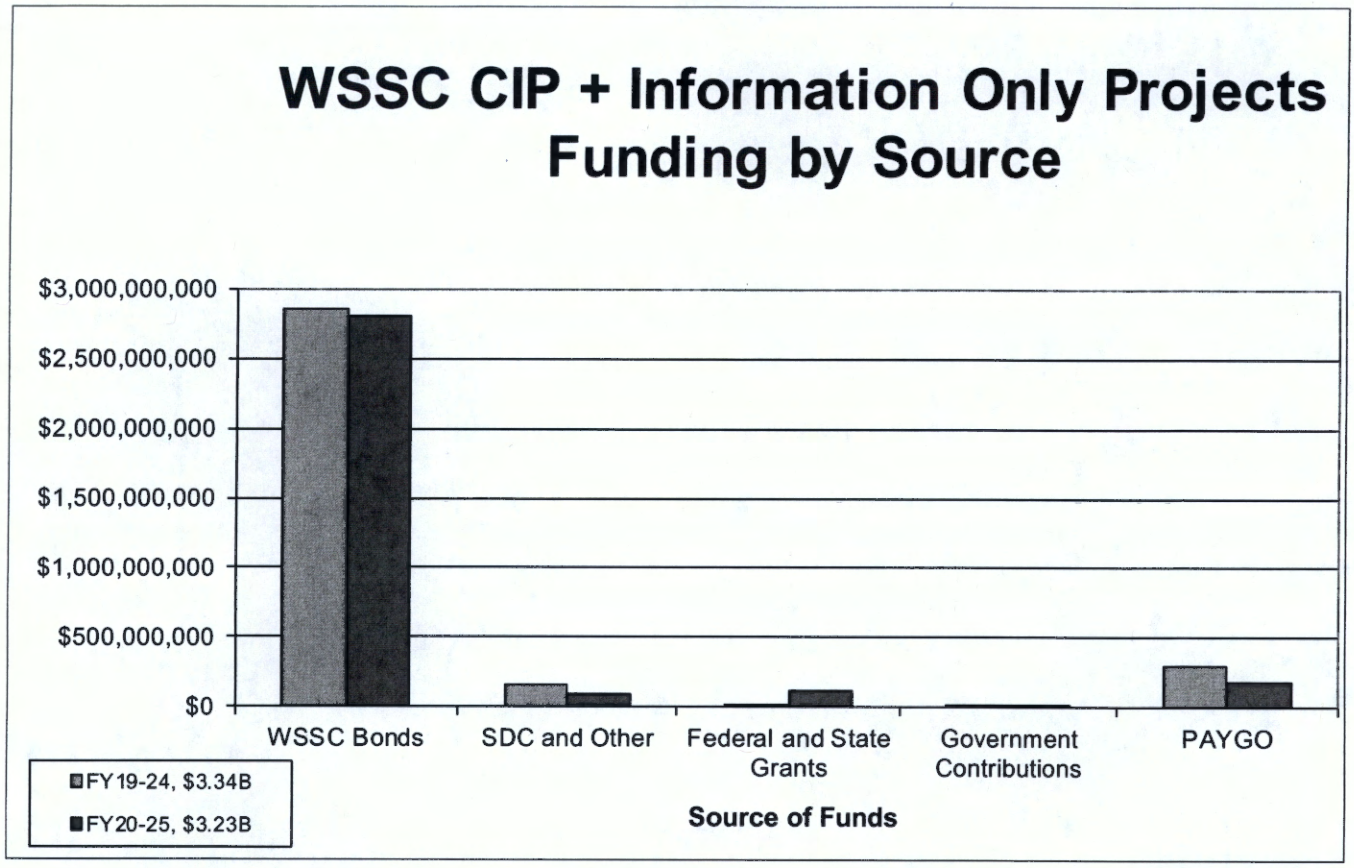
- Removing Prince George's County projects results in an FY20-25 total of $1.95 billion (a decrease of $45.9 million, or -2.3 percent, from the FY19-24 CIP).

[4] Over 80 percent of the "Information Only" project total is for water and sewer main reconstruction. WSSC has had to ramp up work in both projects in recent years to catch up on its aging infrastructure inventory, as well as to meet Consent Decree requirements (in the case of sewer reconstruction).

- Blue Plains projects total $368.2 million for FY20-25 (an increase of $7.9 million or 2.2 percent from the FY19-24 CIP). *NOTE: WSSC staff are currently reviewing DCWater's latest cost estimates for these projects, and revisions (if needed) will be forwarded to the Council later this spring.*

Funding Sources

The following chart compares funding sources for the Approved FY19-24 CIP and the Proposed FY20-25 CIP (not including "Information Only" projects).



Each of these funding sources, and how they relate to WSSC projects, is described on ©10 and presented in pie chart form on ©14. Bond funding has long been the dominant funding source (over 87 percent of funding in the Proposed CIP).[5] As noted earlier, The FY20-25 Proposed CIP + Information Only projects assumes bond funding will decrease by $46.9 million. SDC, PAYGO, and federal/state grants make up the other major sources of funding. Funding via state grants is increasing substantially in the Proposed CIP because of newly assumed state aid from Bay Restoration Funds within the Sewer Reconstruction Program.

GROWTH FUNDING

WSSC's capital expenditures can be divided into three categories: growth, environmental regulations, and system improvements. The pie charts on ©15 show the proportions of these categories

[5] The resulting debt service from WSSC's bond funding in the CIP makes up more than one-third of WSSC's annual Water and Sewer Operating Expenses.

in the CIP and in FY20 capital spending. System improvements is the dominant category (91 percent and 90 percent, respectively).

WSSC estimates that approximately $90.9 million (or 3.0 percent) of total proposed expenditures in the six-year period are needed to accommodate growth.[6] This number has dropped substantially over the past two years as a number of large growth-related projects have been completed.

The major sources used to fund growth are:

- System Development Charge (SDC);
- Direct Developer Contributions; and
- Payments by Applicants.

Many of the projects in the WSSC CIP are funded with the above-mentioned sources. For instance, water and sewer projects needed to accommodate growth in Clarksburg are funded with these sources.

The SDC is a major source of funding for much of the new water/sewer infrastructure built in the County. WSSC estimates approximately $175.62 million in revenue over the six-year period. Developer credits and SDC exemptions[7] reduce the net revenue to about $153 million. For more background on the SDC, please see ©11.

Overall, WSSC estimates a surplus in growth funding versus expenditures over the six-year period of $84.2 million, as shown on ©12. Deficits in this funding stream had shown up until two years ago. However, surpluses are now shown because of the recent completion of several major growth-related projects and the lack of major growth-related projects expected over the next six years.

The SDC Fund has a balance of approximately $9.5 million (as of December 31, 2018).

WSSC's Preliminary Proposed Operating Budget (i.e., public hearing draft) for FY20 assumes no change in SDC rates.[8]

WSSC FY20-25 PROJECT HIGHLIGHTS

For a full list of WSSC's projects included in the FY20-25 Proposed CIP, please see:

- Montgomery County Water Projects (©19)
- Montgomery County Sewer Projects (©21)
- Bi-County Water Projects (©26)
- Bi-County Sewer Projects (©33)

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[6] Environmental regulations and system improvements (6 percent and 91 percent of requested FY20-25 CIP expenditures, respectively) are the two other major categories of spending (see ©15).

[7] For purposes of projecting future SDC balances, WSSC assumes Montgomery and Prince George's counties utilize the full $1.0 million in exemptions each fiscal year. Any amounts within each county's $500,000 share not used in each year carry over to the next fiscal year. As of July 1, 2018, Montgomery County had $7.0 million in exemption capacity. Prince George's County had $3.9 million in exemption capacity.

[8] NOTE: For many years (and as proposed for FY20), WSSC has increased the maximum allowable charge (as permitted under State law) but has left the actual rate charged unchanged.

- Information Only Projects (©44)
- Prince George's County Water and Sewer Projects (©51a-51b)

New Projects

There are four new projects proposed (see ©16), three of which are in Montgomery County:

- White Oak Water Mains Augmentation (PDF on ©20) (funded with SDC): Six-year total = $4.8 million. This project provides for the replacement of 7,650 feet of water main along Cherry Hill Road, Gracefield Road and Powder Mill Road/Perimeter Road to serve three planned projects in the White Oak Area: Washington Adventist Hospital, VIVA Global LifeSci Village, and the Food and Drug Administration White Oak Master Plan.

- Damascus Town Center WWPS Replacement (PDF on ©24) (funded with WSSC Bonds and SDC): Six-year total = $9.2 million. This project provides for the construction of a wastewater pumping station, along with 2,100 linear feet of force main to serve the existing and future Damascus Town Center service area.

- Spring Gardens WWPS Replacement (PDF on ©25) (funded with WSSC Bonds and SDC): Six-year total = $9.2 million. This project provides for the construction of a wastewater pumping station, 7,500 linear feet of force main, and 900 linear feet of gravity sewer to provide service to the existing and future Spring Gardens service area.

- Western Branch WRRF Process Train Improvements (PDF on ©25a) (Prince George's County Sewer project) (funded with WSSC Bonds): Six-year total = 12.9 million. This project provides for the rehabilitation of aging infrastructure at the Western Branch Water Resource Recovery Facility.

Council Staff does not have any issues with these projects. WSSC staff will be available to discuss these projects with the Committee if needed.

Montgomery County and Bi-County Projects

Each Council generally focuses on the projects within its county as well on as the Bi-County projects. The following chart summarizes six-year program information for Montgomery County and Bi-County projects only.

Table 2:
Total WSSC Capital Expenditures (CIP+Information Only)
Proposed FY20-25 CIP versus Approved FY19-24 CIP
($s in 000s)

Grand Total	Approved FY19	Six-Year Total	FY20	FY21	FY22	FY23	FY24	FY25
CIP Total								
Approved FY19-24	291,650	**1,623,655**	316,330	346,883	270,623	216,390	181,779	
Proposed FY20-25		**1,536,866**	300,035	318,950	285,341	229,735	209,261	193,544
Difference		**(86,789)**	**(16,295)**	**(27,933)**	**14,718**	**13,345**	**27,482**	
% Change		**-5.3%**	**-5.2%**	**-8.1%**	**5.4%**	**6.2%**	**15.1%**	
Information Only*								
Approved FY19-24	226,136	**1,320,281**	232,051	229,128	208,061	210,798	214,107	
Proposed FY20-25		**1,356,542**	186,344	211,112	238,241	246,102	234,135	240,608
Difference		**36,261**	(45,707)	(18,016)	30,180	35,304	20,028	
% Change		**2.7%**	**-19.7%**	**-7.9%**	**14.5%**	**16.7%**	**9.4%**	
CIP + Information Only								
Approved FY19-24	517,786	**2,943,936**	548,381	576,011	478,684	427,188	395,886	
Proposed FY20-25		**2,893,408**	486,379	530,062	523,582	475,837	443,396	434,152
Difference		**(50,528)**	(62,002)	(45,949)	44,898	48,649	47,510	
% Change		**-1.7%**	**-11.3%**	**-8.0%**	**9.4%**	**11.4%**	**12.0%**	

*Information Only projects are multi-year projects which do not meet the State definition for inclusion in the CIP.

Montgomery County and Bi-County expenditures are down 1.7 percent for similar reasons noted for the overall WSSC CIP.

Montgomery County and Bi-County Projects (Major Changes Summary)

The following table presents the major six-year cost changes (both increases and decreases) for the Montgomery County and Bi-County projects.

Table 3:
FY20-25 Major Changes in 6 Year Costs (MC and Bi-County Only + Information Only)

Six-Year Cost Change (in 000s)	Project	Comment
60,589	Water Reconstruction Program	Increases in per unit costs assumed based on recent expenditure history.
10,819	Sewer Reconstruction Program	Includes completion of Phase 2 Consent Decree work.
10,410	Large Diameter Water Pipe Rehabilitation Program	Six-year cost is up 2.7 percent.
9,216	Spring Gardens WWPS Replacement	New Project, SDC and WSSC bond funded
9,170	Damascus Town Center WWPS Replacement	New Project, SDC and WSSC bond funded
7,921	Blue Plains Projects	WSSC is reviewing DCWater's assumptions
6,000	Engineering Support Program	cost increase to reflect additional work related to facilities requiring rehabilitation
4,800	White Oak Water Mains Augmentation	New Project, SDC funded
(1,005)	Brighton Dam Operations and Maintenance Facility Site Improvements	Project moved to Pending Closeout
(1,076)	Patuxent WFP Phase II Expansion	Project moved to Pending Closeout
(1,412)	Energy Performance Program	
(1,569)	Clarksburg Wastewater Pumping Station	Total project cost has increased 12.7% due to addition of land cost and an increase in design costs based on actual design contract. Six-year cost down as project moves through construction.
(1,708)	Ducket and Brighton Dam Upgrades	Total Project Cost increased by $9.5m due to conditions identified during the Brighton Dam work. Six-year cost is down as construction progresses.
(1,738)	Trunk Sewer Reconstruction Program	Total project cost is down $68.4 million based on latest estimates. SSO Consent Degree Schedule completion deadline of 2022.
(1,765)	Potomac WFP Pre-Filter Chlorination & Air Scour Improvements	Six-year cost down as project moves through construction with completion in FY20.
(1,852)	Clarksburg Elevated Water Storage Facility	Six-year cost down as project moves through construction with completion in FY19.
(3,025)	Potomac WFP Consent Decree Program	Total project costs increased 4.0% for inflation. Scope TBD. Six-year drop reflects increases in short-term project spending through FY18
(3,528)	Rocky Gorge Pump Station Upgrade	Six-year cost down as project moves through construction with completion in FY20.
(3,846)	Shady Grove Standpipe Replacement	Six-year cost down as project moves to completion during FY19.
(9,266)	Advanced Metering Infrastructure	Total project cost increased for inflation. 6 year cost down as project moves through implementation.
(12,158)	Piscataway WWTP Bio-Energy Project	Total Costs increased by $13.3m to reflect recent market trends in construction costs for labor, steel, diesel, misc. metals, concrete, electrical, and other materials. 6 year costs down as project moves through design.
(13,710)	Cabin John Trunk Sewer Relief	Developer-funded project. Six-year cost down as project moves through construction.
(30,000)	Water Storage Facility Rehabilitation Program	costs reduced to reflect updated schedule for the remaining tanks in the program
(78,257)	Potomac Submerged Channel Intake	Project deferred beyond six-years

Many projects are seeing cost drops as they move through construction, and others are receiving inflationary increases. However, there are some other large fluctuations (up and down) in several major

projects. The biggest dollar increases are in the Water Reconstruction Program (significant unit cost increases) and Sewer Reconstruction Program (although only a 2.2 percent increase) based on current plans to address Phase 2 Consent Decree work. Three new projects are also reflected in this chart with six-year costs totaling $25.2 million.

The biggest dollar decreases are in the Submerged Channel Intake project (which is being deferred beyond six years) and the Water Storage Facility Rehabilitation Program (which has had its schedule revised).

The Blue Plains projects are also seeing modest increases overall ($7.9 million or 2.2 percent). The Blue Plains projects and several other major projects are discussed below.

REVIEW OF SELECTED PROJECTS

Blue Plains Project Costs (PDFs on ©35-39)

Table 4: Blue Plains Projects: Expenditures (in $000s)

	Approved FY19	Six-Year Total	FY20	FY21	FY22	FY23	FY24	FY25
Total Blue Plains Project Costs								
Approved FY19-24	65,305	**360,275**	57,342	71,798	66,984	55,057	43,789	
Proposed FY20-25		**368,196**	62,106	74,101	76,159	55,788	49,428	50,614
Difference		**7,921**	4,764	2,303	9,175	731	5,639	
% Change		**2.2%**	**8.3%**	**3.2%**	**13.7%**	**1.3%**	**12.9%**	
CE Recommended FY20-25		**368,196**	**62,106**	**74,101**	**76,159**	**55,788**	**49,428**	**50,614**
$ Change from Proposed		-	-	-	-	-	-	-
% Change from Proposed		**0.0%**	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

The Blue Plains projects make up a sizable portion of WSSC's Sewer CIP (19.7 percent of WSSC's Proposed CIP and 11.4 percent of the Proposed CIP when including WSSC's Information Only projects). WSSC's Proposed CIP assumes $368.2 million over the FY20-25 period. This is an increase of $7.9 million (or 2.2 percent) from the FY19-24 CIP. There are modest increases in several projects such as the Liquid Train and Plantwide projects.

DC Water's latest capital expenditure totals were approved by the DC Water Board of Directors after WSSC transmitted its CIP last fall. WSSC is still reviewing the DCWater budget and will transmit revised proposed PDFs for the Blue Plains projects (if necessary) later this spring.

Potomac WFP Consent Decree Program (PDF on ©29, Briefing Slides on ©52-59)

This project was created three years ago to provide for the short- and long-term work required as a result of the Potomac Water Filtration Plant Consent Decree entered by the U.S. District Court on April 15, 2016. The Consent Decree requires WSSC to pursue both short-term operational and capital improvements to significantly reduce the pounds per day of solids discharged to the Potomac River and long-term improvements to meet future MDE permit requirements.

The Consent Decree required WSSC to submit a final audit report and draft long-term upgrade plan to MDE by January 1, 2017. The audit report identified current conditions and recommended short-term operational and capital improvements (capped at $8.5 million in the Consent Decree) to significantly reduce solids discharged by April 1, 2020. The recommended short-term projects would result in a treatment capacity of approximately 144,000 dry pounds per day. This would still leave an

estimated 15 days per year when this capacity is exceeded (based on 2003 to 2015 data). The short-term improvements were developed in the context of the future long-term strategies (with the short-term measures being either necessary or complementary to the long-term efforts). According to WSSC, the short-term projects are at the "Bid Ready" phase. The construction work will start in spring 2019 with a 14-month construction schedule.

The Long-Term Upgrade Plan identified capital costs ranging from $165 million to $461 million to meet the Consent Decree requirements by the deadline of January 1, 2026. The consultant did a detailed analysis of three options (after screening out numerous others), all of which involve various improvements and new facilities at the current plant. Each of the three options was costed out at treatment capacities of 301,000 dry pounds per day (addressing the 99th percentile of solids) and 688,000 dry pounds per day (which would address the peak solids volumes experienced in all storms in the historical record since 2003). At the 99th percentile, one could expect one or two basin-wide storms per year that may exceed this capacity. Ultimately, WSSC chose the option with the lowest net present cost (looking at total estimated operating and maintenance costs and capital costs) at both treatment levels.

In late 2017, the Maryland Department of the Environment (MDE) approved WSSC's short-term plan but rejected the long-term plan, noting that treating to the 99th percentile would still result in an estimated three days per year of unauthorized discharges. MDE noted that it would approve a plan that addressed solids to the 99.9th percentile, since that would result in no expected unauthorized discharges during the year. However, the additional capital cost to get from the 99th to the 99.9th percentile would cost an additional $35 to $40 million. In September 2018, WSSC transmitted its revised Long-Term Upgrade Plan that expanded the work to get to the 99.9th percentile. **The additional costs for this expended effort are expected to occur beyond FY20 and WSSC will include these costs to the project (perhaps in the FY21-26 Proposed CIP this fall) once the scope of work is approved by MDE and the costs are better defined.**

Potomac WFP Submerged Channel Intake (PDF on ©28)

Planning work on the Potomac WFP Submerged Channel Intake project has been ongoing for many years (the project was first included in the CIP in FY04[9]).

Potential benefits of the project include improved and more consistent source water quality[10] (thereby reducing water collection and treatment costs), as well as increased operational flexibility and system security of having two available intakes at different river locations.

According to WSSC staff, based on some initial coordination work with the Potomac Consent Decree planning effort, the submerged channel intake project would have little impact on peak solids or the sizing of the facilities required as part of the Consent Decree since the new intake would not address the larger and longer duration/regional storm events, when most of the sediment loading increase comes from upstream sources. However, the upgrades to be done under the Consent Decree can help address the impacts from Watts Branch.

[9]When this project was first added to the FY04-09 CIP, the project was assumed to cost $15.1 million and save about $800,000 per year in reduced treatment and solids handling costs (about a 19-year payback). At its current total project cost of $85.6 million, the potential payback is now much longer.

[10]During smaller storm events, a sediment plume from Watts Branch temporarily increases sediment loading to existing Potomac WFP intake. The new intake would seek to address the temporary sediment spike that is experienced at the Potomac WFP.

WSSC is proposing to defer the project beyond six years for fiscal reasons (the deferral will reduce six-year costs by $78.3 million) and since the Consent Decree work will help address some of the impacts from Watts Branch.

Council Staff concurs with the proposed deferral of the project beyond six years. The T&E Committee concurs.

Large Diameter Water Pipe & Large Valve Rehabilitation Program ($392.8 million over six years, PDF on ©31-32)

This project, added to the CIP nine years ago, funds the rehabilitation of transmission mains (pipes greater than 16 inches in diameter) in lengths of 100 feet or greater. WSSC's transmission system (like the smaller water distribution lines) is aging, and WSSC moved to a more systematic inspection, repair, and replacement approach as a result. The inspections, fiber optic monitoring, and repairs on shorter sections of pipe remain in the Operating Budget.

WSSC has approximately 1,061 miles of large diameter water main (mains ranging in size from 16 inches to 96 inches in diameter), of which 350 miles are pre-cast concrete cylinder pipe (PCCP), 350 miles are cast iron, 326 miles are ductile iron, and 35 miles are steel. PCCP pipe is the highest priority for inspection, monitoring, repair, and replacement because PCCP pipe can fail in a more catastrophic manner than pipes made out of other materials, such as iron or steel. Both counties have experienced large PCCP pipe failures. Montgomery County experienced large pipe failures in June 2008 (Derwood), December 2008 (River Road), and March 2013 (Chevy Chase Lake).

This project also includes WSSC's large valve inspection and repair program (added four years ago). WSSC estimates that it has nearly 1,500 large diameter (greater than 16 inch diameter) valves.

The proposed six-year cost for this project is $392.8 million (an increase of $10.4 million or 2.7 percent). After accelerated work in past years, the project moved into a "steady state" over the past few years. A minor cost increase is assumed this year. Further detail from WSSC regarding progress on specific work in this project is provided below.

Large Diameter Water Pipe (≥ 16")			
Project Name	Project Number	Design Status	Mileage
Quimby Ave 16" WMR	BT6346A17	Design Completed	0.78
Gracefield Rd 16" WMR	BT6351A17	Design Completed	0.67
Veirs Mill Rd 30" WMR	BT6069A16	Design Completed	0.22
Marlboro Pike 16" WMR	BT6243A17	90% Design	1.03
Edmonston Rd 16" WMR	BT6433A18	90% Design	1.56
Total Mileage			4.26
Large Valve Vault			
Project Name	Project Number	Design Status	
66" valve vault replacement (VV10D07052)	TBD	Cost Proposal Phase	
36" valve vault replacement (VV14D11015)	TBD	Cost Proposal Phase	

WSSC's Large Diameter Water Pipe Rehabilitation Program is a very high priority for Montgomery County (and for Prince George's County), given the potential impacts when these large pipes fail (especially PCCP).

Trunk Sewer Reconstruction Program (PDF on ©43)

Proposed FY20-25 expenditures for this project are $296.8 million (a small decrease from the Approved $298.5 million).

This project was added nine years ago (funded partially by bond-funded dollars removed from the Sewer Reconstruction Program "Information Only" project) to address Consent Decree requirements to eliminate sanitary sewer overflows (SSOs). Under the terms of the Consent Decree (signed in December 2005 with the United States Environmental Protection Agency (EPA), the State of Maryland, and four conservation groups), WSSC will spend an estimated $1.7 billion across 24 sewer-shed basins with 7,000 assets over a 1,000 square mile area. Rehabilitation work was supposed to be completed within 10 years (2015). Because of delays in acquiring environmental permits, WSSC received a deadline extension to 2022 for program completion. All basins had work either completed or underway by the 2015 deadline.

For additional information on the status of the Consent Decree work, please see the presentation provided to WSSC Commissioners in July 2018 (©61-71).

Piscataway WRRF Bio-Energy Project (PDF on ©40-41)

This project represents WSSC's long-term solution to address its biosolids disposal. This project provides for a comprehensive design, construction, maintenance, monitoring, and verification effort to generate approximately 2.0 MW of electricity and reduce biosolids by 50 to 55 percent of current output through an anaerobic digestion/Combined Heat & Power process. This project is expected to provide energy savings, reduced biosolids disposal costs, and reduced chemical costs totaling about $3.7 million in savings per year. The project will also avoid the need for capital work at other facilities estimated at

$67.4 million. With these benefits, WSSC estimates a project payback of approximately 26.6 years (see ©60 for more details on the assumed payback).

Proposed FY20-25 expenditures for this project are $220.8 million (a decrease of $12.2 million). The decrease is a result of about $30 million in costs expected to be incurred through FY19 (and therefore coming out of the six-year period). The total project cost has increased by $13.3 million (5.4 percent), based on construction industry escalations for labor and materials.

Below is a summary of the project status provided by WSSC:

The Bio-Energy project is at 30 percent design. Bids for the Early Work Package are being evaluated and we will start work on demolition and utility relocation in early May. We expect to have the design for the remainder of the project sufficiently complete to arrive at a Guaranteed Maximum Price by late Fall with project Substantial Completion Summer 2023.

Project is sized for WSSC biosolids with future accommodation of FOG. Food Wastes are not anticipated.

"Information Only" Projects (see ©44-51)

Table 5: Information-Only Projects

Project	Six-Year Total	FY20	FY21	FY22	FY23	FY24	FY25
Information Only Projects							
Water Reconstruction	**693,272**	75,784	96,382	121,439	127,512	132,982	139,173
Sewer Reconstruction	**433,871**	64,684	69,538	71,624	73,772	75,987	78,266
Engineering Support Program	**114,000**	18,000	18,000	18,000	20,000	20,000	20,000
Energy Performance	**13,797**	5,898	3,636	2,888	1,375	-	-
Water Storage Facility Rehab Program	**18,000**	3,000	3,000	3,000	3,000	3,000	3,000
Speciality Valve Vault Rehab Program	**6,343**	1,119	1,104	2,115	1,268	568	169
Advanced Metering Infrastructure	**76,700**	17,577	19,175	19,175	19,175	1,598	-
D'Arcy Park North Relief Sewer	**559**	282	277	-	-	-	-
Information Only Projects Total	**1,356,542**	**186,344**	**211,112**	**238,241**	**246,102**	**234,135**	**240,608**

Water Reconstruction Program (PDF on ©45)

This "Information Only" project funds small water main replacement throughout the WSSC service area. The project does not include any funding for "major capital projects" as defined in state law. The estimated six-year cost is $693.3 million, which reflects a 9.6 percent increase from the FY19-24 six-year total of $632.7 million.

Over the past nine years, WSSC had ramped up the annual number of miles of pipe to be replaced. Beginning with the Approved FY10-15 CIP, budgeted and actual replacement miles began to increase steadily. The budget level for FY10 was 27 miles per year. The following years saw increases, with 55 miles of replacement budgeted in FY18 (although 48 miles were completed). For FY19, WSSC has 45 miles budgeted. As discussed earlier, cuts in this program were approved for FY19 (and projected in FY20 through FY24) to help reduce debt service impacts on the WSSC Operating Budget. In WSSC's Proposed CIP, some of the outyear cuts are assumed to be restored. Costs have also been increased to reflect higher unit construction costs.

However, for FY20, WSSC has recommended a reduced amount of 25 miles. WSSC is exploring a number of leak detection and construction strategies that it will use to prioritize work going forward. Given that WSSC has done a substantial amount of catch-up in this project over the past nine years, a one-year reduction in mileage should not have a significant impact overall.

Sewer Reconstruction Program (PDF on ©46)

This "Information Only" project funds comprehensive sewer system evaluations and rehabilitation programs. WSSC has approximately 5,500 miles of sewer pipe.

The six-year cost is $433.9 million, which is up $10.8 million (2.6 percent) from the FY19-24 level of $423.1 million. The proposed costs reflect the current plan for the completion of Phase 2 Consent Decree work. As with the Water Reconstruction Program above, the sewer reconstruction project does not include funding for "major capital projects" as defined in state law. Capital-size projects that are identified in this project become stand-alone projects or are dealt with in the Trunk Sewer Rehabilitation project.

Advanced Metering Infrastructure (PDF on ©51)

This project provides for the implementation of a system-wide automated meter reading infrastructure system to maximize customer service and operational efficiency. The proposed six-year cost is $76.7 million, which is down $9.3 million (-10.8 percent) from the approved six-year total of $86 million. The six-year cost reduction is the result of project costs incurred through FY19. The total project cost has been increased for inflation (3.0 percent) and is now estimated at $96.8 million.

The customer benefits of such a system include: monthly billings based on actual water usage, more rapid identification of leaks, and the ability of the customer to better monitor water usage. For WSSC, the elimination of the need for manual reading of all customer meters presents significant cost savings. WSSC would also gain the capability to do more and better analysis of actual water usage and potential future billing structures.

A study completed in March 2011 identified about $11.4 to $15.4 million in annual savings that could be achieved upon full implementation, which would provide for a six- to eight-year payback.

Funding in FY14 and FY15 provided for the upgrade of the remaining monthly meters to the AMR standard. Further work had been postponed pending the upgrade of WSSC's Customer Service Information System (CSIS). The system upgrade was later changed to a replacement project with a new Customer 2 Meter (C2M) system now under development. A new system is needed to accommodate the volume of data that will come from AMR meters. C2M is scheduled for implementation this spring. WSSC has awarded a contract for an AMI Project Manager to provide program and project management, oversight of the overall execution of the AMI initiative, and support of the customer billing system implementation.

According to WSSC, installation of AMI technology is scheduled to begin in late 2019. The entire project should be complete by late 2023/early 2024.

The Council has received some correspondence from WSSC customers concerned about the potential health effects of the smart meter technology (specifically radio frequency exposure) as well as privacy issues (since AMI provides WSSC with a property's daily water usage).

WSSC also has information on its AMI project and responses to concerns on its website (https://www.wsscwater.com/AMI) and will be available at the Council worksession to discuss this issue further. A Frequently Asked Questions document from WSSC is attached on ©72-73.

State legislation (MC/PG 101-19) was introduced that would prevent WSSC from implementing AMI and called for the Department of Legislative Services to do a study comparing the costs and benefits of implementing AMI versus automatic meter reading (AMR). This legislation was later withdrawn after the Metro Washington Committee of the Montgomery County Delegation recommended an "unfavorable" vote. The information WSSC submitted to the Metro Washington Committee is attached on ©74-84.

At the T&E Committee worksession, Councilmember Hucker asked WSSC to consider an opt-out provision for its customers. WSSC notes in its Metro Washington Committee memorandum that an opt-out provision would dilute the cost savings expected from early leak detections and non-revenue water mitigation as well as result in costs for a dual metering infrastructure and dual billing structure. WSSC also notes the differences between op-out provisions for electric utilities versus opt-outs for water utilities and provides information on other water utilities. No water utilities in the Washington DC area or Maryland who have AMI or AMR have opt-out provisions. Some utilities in other parts of the country offer opt-out provisions but with significant monthly charges (and one-time charges in some cases).

T&E Committee Recommendation

Council Staff recommends approval of WSSC's Proposed FY20-25 Capital Improvements Program (CIP). The T&E Committee concurs. *As noted earlier, WSSC is currently reviewing DCWater's latest expenditure assumptions for the Blue Plains Wastewater Treatment Plant projects and may forward revised PDFs (if necessary) later this spring.*

Attachments
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OFFICE OF THE COUNTY EXECUTIVE
ROCKVILLE, MARYLAND 20850

Marc Elrich
County Executive

MEMORANDUM

January 15, 2019

TO: Nancy Navarro, President, Montgomery County Council

FROM: Marc Elrich, County Executive

SUBJECT: Washington Suburban Sanitary Commission (WSSC)
FY20-25 Capital Improvements Program (CIP) and FY20 CIP Expenditures

I am pleased to transmit to you, in accordance with State law, my recommended FY20-25 Capital Improvements Program (CIP) and FY20 CIP expenditures for the Washington Suburban Sanitary Commission (WSSC).

WSSC's Proposed FY20-25 CIP totals $1.873 billion, of which $1.537 billion is for Montgomery County and bi-county projects. The latter figure represents a $87 million (5.3%) decrease from the six-year total for Montgomery County and bi-county projects in the Commission's approved FY19-24 CIP. The majority of this net decrease ($81 million) is due to the deferral of the Potomac Submerged Channel Intake project beyond the six-year period.

Spending Control Limits

The previous County Executive recommended, and the Council adopted FY20 Spending Control Limits for WSSC that include a maximum average water and sewer rate increase of 5.0 percent, which is 0.5 percentage points higher than the 4.5 percent average rate increase approved for FY19.

Under the 5.0 percent rate increase allowed by the Council adopted Spending Control Limits, WSSC will have to make $10.8 million of unspecified reductions to its operating budget. Such reductions could potentially impact capital spending. I strongly urge the Commission to ensure that the following essential programs are preserved when deciding on reductions:

- The reconstruction and rehabilitation of WSSC's aging small diameter water and sewer mains;
- The continuation of the large valve replacement program; and
- Other critical infrastructure repairs associated with our aging water and sewer system.

These initiatives, which are critical to the rehabilitation and renewal of WSSC's aging infrastructure, must proceed as planned.

Reconstruction of Small Water and Sewer Mains

The Commission continues to uphold a responsible and robust infrastructure repair program in the FY20-25 CIP. WSSC is proposing to temporarily decrease the number of miles of water main replacement from 45 to 25 in order to pilot better technologies for leak detection. I feel this temporary reduction can be accommodated and will allow future replacement efforts to be better targeted. WSSC will maintain its sewer main replacement level of effort at 20 miles in FY20.

New Projects

I support the three new CIP projects entering the Montgomery and bi-county program this year:

- Two sewer projects, Damascus Town Center WWPS Replacement and Spring Gardens WWPS Replacement, which will replace and increase the capacity of wastewater pumping stations servicing the Damascus and Spring Gardens areas.
- One water project, White Oak Water Mains Augmentation, which will upsize an existing water main to serve planned development in the White Oak area. This project is developer funded through the System Development Charge.

Potomac Water Filtration Plant Consent Decree

While I am not recommending adjustments to proposed CIP projects at this time, I wanted to note my concern with the high cost of the Potomac Water Filtration Plant Consent Decree project. I encourage WSSC to work with the County's Department of Environmental Protection, and Maryland-National Capital Park and Planning Commission, and environmental advocates to ensure that long-term capital upgrades to meet the consent decree's requirements are environmentally beneficial and fiscally prudent.

Blue Plains Projects

I am not proposing any changes to the Blue Plains projects since DC Water has not issued revised project estimates. If and when new project estimates become available, I will communicate a recommendation later in the budget process.

I understand that WSSC may continue to examine adjustments to the CIP program as the operating budget is developed. I encourage the Commission to continue to prioritize critical infrastructure projects and to strike a balance between making the investments to ensure the long-term stability of our utility infrastructure and the impact on ratepayers.

As always, Executive Branch staff are available to assist you in your deliberations. I look forward to discussing with you any policy matters or major resource allocation issues that arise this spring.

ME:trl

cc: County Councilmembers
Andrew Kleine, Chief Administrative Officer
Carla A. Reid, General Manager/CEO, Washington Suburban Sanitary Commission
Patricia Colihan, Chief Financial Officer, Washington Suburban Sanitary Commission
Marlene Michaelson, Executive Director, Montgomery County Council
Patty Bubar, Acting Director, Department of Environmental Protection
Richard Madaleno, Director, Office of Management and Budget
Stan Edwards, Department of Environmental Protection

Attachments: Agency Request Compared to Executive Recommended

FY 20-25 EXECUTIVE RECOMMENDED CIP
Agency Request Compared to Executive Recommended
WSSC

Project Name (Project Number)	Agency Request	Executive Recommended
Sewerage Bi-County		
Blue Plains WWTP: Biosolids Mgmt PT2 (P954812)	10,164	10,164
Blue Plains WWTP: Enhanced Nutrient Removal (P083800)	1,507	1,507
Blue Plains WWTP: Liquid Train PT 2 (P954811)	22,831	22,831
Blue Plains WWTP:Plant Wide Projects (P023805)	10,487	10,487
Blue Plains: Pipelines and Appurtenances (P113804)	17,117	17,117
Land & Rights-of-Way Acquisition - Bi-County (S) (P163800)	50	50
Piscataway WRRF Bio-Energy Project (P063808)	58,118	58,118
Septage Discharge Facility Planning & Implement. (P103802)	12,276	12,276
Trunk Sewer Reconstruction Program (P113805)	75,326	75,326
Sewerage Montgomery County		
Cabin Branch WWPS (P023807)	1,402	1,402
Cabin Branch WWPS Force Main (P023808)	209	209
Cabin John Trunk Sewer Relief (P063807)	1,720	1,720
Clarksburg Wastewater Pumping Station (P173802)	1,335	1,335
Clarksburg WWPS Force Main (P173803)	22	22
Damascus Town Center WWPS Replacement (P382002)	520	520
Milestone Center Sewer Main (P173804)	507	507
Shady Grove Station Sewer Augmentation (P063806)	1,245	1,245
Spring Gardens WWPS Replacement (P382003)	921	921
Water Bi-County		
Duckett and Brighton Dam Upgrades (P073802)	6,838	6,838
Land & Rights-of-Way Acquisition - Bi-County (P983857)	1,720	1,720
Large Diameter Water Pipe Rehabilitation Program (P113803)	40,385	40,385
Patuxent Raw Water Pipeline (P063804)	8,580	8,580
Potomac WFP Consent Decree Program (P173801)	9,975	9,975
Potomac WFP Main Zone Pipeline (P133800)	460	460
Potomac WFP Pre-Filter Chlorination & Air Scour Improvements (P143803)	8,000	8,000
Potomac WFP Submerged Channel Intake (P033812)	-	-
Rocky Gorge Pump Station Upgrade (P063805)	1,025	1,025
Water Montgomery County		
Brink Zone Reliability Improvements (P143800)	6,085	6,085
Clarksburg Area Stage 3 Water Main, Part 4 (P113800)	271	271
Clarksburg Area Stage 3 Water Main, Part 5 (P163801)	397	397
Clarksburg Elevated Water Storage Facility (P973819)	12	12
Olney Standpipe Replacement (P063801)	174	174
Shady Grove Standpipe Replacement (P093801)	11	11
White Oak Water Mains Augmentation (P382001)	345	345

Washington Suburban Sanitary Commission

Proposed
Six-Year Capital Improvements Program
Fiscal Years 2020 - 2025

October 1, 2018

Established 100 years ago in 1918, WSSC is currently among the largest water and wastewater utilities in the nation with a network of over 5,700 miles of fresh water pipeline and over 5,500 miles of sewer pipeline. Our service area spans nearly 1,000 square miles in Prince George's and Montgomery counties, providing service to 1.8 million residents. WSSC drinking water has always met or surpassed federal standards.

VT

WASHINGTON SUBURBAN SANITARY COMMISSION
PROPOSED CAPITAL IMPROVEMENTS PROGRAM
FISCAL YEARS 2020-2025

LEGAL AUTHORITY AND RESPONSIBILITY

Statutory Basis

Under Section 23-301 of the Public Utilities Article, WSSD Laws, Annotated Code of Maryland, the Washington Suburban Sanitary Commission (WSSC) is responsible for annually preparing a Six-Year Capital Improvements Program (CIP) for major water and sanitary sewerage facilities and transmitting it to the County Council and the County Executive of Montgomery County and the County Executive of Prince George's County by October 1 each year. The Commission, where required by the two County Councils' final action on the program, must revise the same and then, prior to the commencement of the first fiscal year of the six-year program, adopt the Capital Improvements Program.

Section 23-301 defines major projects for inclusion in the CIP as water mains at least 16 inches in diameter, sewer mains at least 15 inches in diameter, water or sewage pumping stations, force mains, storage facilities, and other major facilities. Project information presented in this document complies with all legal requirements of the ten-year water and sewerage plans and is in direct support of the two counties' approved land use plans and policies for orderly growth and development. By WSSC Resolution No. 2018-2190 dated June 20, 2018, the Commission adopted the FYs 2019-2024 CIP as amended.

WSSC's Role

The Commission is a bi-county agency established 100 years ago, in 1918, by an act of the Maryland General Assembly. The WSSC is responsible for planning, designing, constructing, operating, and maintaining water and sewerage systems, and acquiring facility sites and rights-of-way in order to provide potable water and sanitary sewer services to residents, businesses, and federal, state, and local municipalities within the Washington Suburban Sanitary District (WSSD). The WSSD encompasses nearly all of Montgomery and Prince George's Counties and provides water and sewer service to approximately 1.8 million customers in an area of nearly 1,000 square miles. A board of six commissioners directs the WSSC, three appointed by the County Executive of Prince George's County and confirmed by the Prince George's County Council, and three appointed by the Montgomery County Executive and confirmed by the Montgomery County Council. Commissioners serve four-year staggered terms.

WSSC's Mission

We are entrusted by our community to provide safe and reliable water, life's most precious resource, and return clean water to our environment, all in an ethical, sustainable, and financially responsible manner.

WSSC's Responsibilities

The WSSC's primary responsibilities include:

- protecting the health and safety of the residents of both counties by providing an adequate supply of safe drinking water;
- meeting fire-fighting requirements;
- collecting and adequately treating wastewater before it is returned to the waters of the State of Maryland;
- managing and safeguarding the watershed and the water supply by implementing sound forestation and land use practices, and by discouraging development within the watershed buffer;
- monitoring the collection and treatment of wastewater;
- discharging an effluent cleansed of nutrients, pollutants, and hazardous materials;
- managing treated wastewater biosolids responsibly and cost effectively;
- maintaining the existing water and wastewater infrastructures;
- planning for the orderly growth of the Sanitary District and WSSC services to meet the needs of the communities we serve;
- monitoring adherence to all plumbing and gasfitting standards and ensuring proper coordination with other public utilities; and
- managing operations to provide efficient service to its customers while keeping costs as low as possible.

The projects contained in this Capital Improvements Program represent the WSSC's plan to successfully meet its responsibilities. The WSSC strives to maintain a balance between the use of valuable resources and the public's demand for clean water. In carrying out these activities that will help ensure that we fulfill our core mission, we are energized by the opportunity to strengthen our local economies by assuring that we maintain fair, ethical and equitable contracting practices. This will allow us to secure high quality and competitively priced goods and services from our diverse and talented local businesses in Prince George's and Montgomery Counties.

PROGRAM OVERVIEW

Objective

The principal objective of the Capital Improvements Program (CIP) is the six-year programming of planning, design, land acquisition, and construction activities on a yearly basis for major water and sewerage infrastructure projects and programs. These projects and programs may be necessary for system improvements for service to existing customers, to comply with federal and/or state environmental mandates, or to support new development in accordance with the counties' approved plans and policies for orderly growth and development.

Spending Affordability and Fiscal Implications

Projects in this CIP are primarily financed with funds from the Water Supply and Sewage Disposal Bond Funds. The Commission largely finances these projects with the proceeds from the sale of long-term debt. Water supply bonds are issued to finance the planning, design, and construction of major water treatment, storage, and transmission facilities. Sewage disposal bonds are issued to finance the planning, design, and construction of major sewage collection, treatment, and disposal facilities.

The water supply and sewage disposal bonds are repaid to bond holders over a 30-year period by annual principal and interest payments or, debt service. In this manner, the initial high cost of capital improvements is spread over time and paid for by future customers who will benefit from the facilities, as well as by current customers. The annual debt service on outstanding bonds is paid from the Commission's operating funds. The primary funding source for the repayment of debt is the revenue generated by water consumption and sewer use charges. Water and sewer charges are set on an annual basis to cover both operational and debt service costs (associated with the water supply and sewage disposal bonds) of the Commission. It is through this capital project financing process that the size of the CIP impacts the size of water and sewer bond issues, the associated debt service costs, and, ultimately, our customers' water and sewer bills.

Several capital spending and funding practices are noteworthy. The Commission:

- continues an aggressive program to rehabilitate or replace the older portions of the Commission's 5,700 miles of water main and 5,600 miles of sewer main infrastructure;
- funds capital facilities needed to accommodate growth with the System Development Charge (SDC). This charge is reviewed annually by the County Councils. (Refer to Appendices A and B for details. A comparison of SDC revenues and estimated growth spending for the six-year program period is displayed on the table titled "Growth Funding Gap" in the Funding Growth section of this document.);

- uses PAYGO (Pay-As-You-Go): the practice of using current revenues, when budgeted, to the extent practical to help fund the capital program, thereby reducing the need for debt financing;
- maximizes and manages the collection of funding from alternative sources including state and federal grants, and payments from other jurisdictions for projects which specifically benefit them. The amount of these collections varies from year to year. The WSSC's reliance on rate-supported debt to build the capital program is reduced to the extent that these sources are available to help fund capital projects; and
- does not allow the use of rate-supported debt to fund CIP-sized water and sewer projects requested by Applicants in support of new development. These projects, identified as Development Services Process (DSP) projects, may only proceed if built at the Applicant's expense. (An explanation of the DSP process is included in the Development Services Process section of this document.) However, since these projects are eligible for SDC credits (to the extent that SDC funds are available), the Applicants should eventually recoup their costs. (Refer to Appendix B for definitions and details.)

In May 1993, the Montgomery and Prince George's County Councils created the Bi-County Working Group on WSSC Spending Controls (Working Group) to review WSSC finances and recommend spending control limits. The Working Group's January 1994 report recommended "the creation of a spending affordability process that requires the Counties to set annual ceilings on the WSSC's rates and debt (debt in this context means both bonded indebtedness and debt service), and then place corresponding limits on the size of the capital and operating budgets of the Commission." The objective of this process is to create a framework for controlling costs and achieving low or moderate water/sewer bill increases, as well as slowing the rate at which the WSSC is incurring debt, thus reducing the portion of WSSC water/sewer bills dedicated to paying off debt. This valuable, annual process focuses debate on the need to balance affordability considerations against providing the resources necessary to serve existing customers, meet environmental mandates, and provide the facilities needed for growth.

The Commission has submitted a CIP and budget, which generally conforms to the Spending Affordability Guidelines (SAG) established by both county governments every year since 1994. Through FY'19, projects were reduced or deferred by nearly $226 million. For FY'20, CIP and Information Only combined spending was reduced or deferred by $46 million.

The FY'20 combined expenditures (CIP & Information Only projects) are estimated at $569.7 million, which represents a decrease of approximately $57.9 million from the approved funding level for FY'19. The decrease is primarily due to the construction progress on the Clinton Zone water main projects and a planned decrease in the Water Reconstruction Program.

Funding Sources

The projects included in this combined program are funded primarily by issuance of water and sewer rate-supported debt (WSSC Bonds). To a lesser degree, projects may also be funded by the following:

- State Grants – a share of the support provided on a local level . The State of Maryland provides funding under a separate grants program for enhanced nutrient removal at existing wastewater treatment plants and for the rehabilitation of sewer mains as part of the Chesapeake Bay Program;
- Federal Grants - Department of Energy grants related to WSSC's Energy Performance Program and Piscataway WWTP Bio-Energy projects to promote and develop green energy sources;
- Local Government Contributions – payments to the WSSC for co-use of regional facilities, or funding provided by county governments for projects they are sponsoring;
- PAYGO – when budgeted, the practice of using current revenues to the extent practical to help fund the capital program, thereby reducing the need for debt financing;
- SDC – anticipated revenue from the System Development Charge (SDC); and
- Contribution/Other – projects funded by Applicants for growth projects where the County Councils have directed that no WSSC rate-supported debt be used to pay for the project.

(Please refer to Figure 3 near the end of this section, which displays the funding allocations for the major funding sources.)

Funding Growth

The portion of the combined program needed to accommodate growth is approximately $91 million, which equals 3% of all expenditures in the combined six-year program. The major funding sources for this part of the program are System Development Charge (SDC) revenues and payments by Applicants. In the event that growth costs are greater than the income generated by growth funding sources, either SDC supported or rate-supported water/sewer bonds may be used to close any gap.

The Maryland General Assembly, in 1993, first approved legislation authorizing the Montgomery and Prince George's County Councils to establish, and the WSSC to impose, a System Development Charge. This is a charge on new development to pay for that part of the Commission's Capital Improvements Program needed to accommodate growth in the WSSC's customer base. In accordance with the enabling legislation, the Councils approved, and the Commission began to phase in, this charge beginning in FY'94. The SDC charge was eventually approved at the maximum rate of $160 per fixture unit by Commission Resolution No. 95-1457, adopted May 24, 1995, and became effective July 1, 1995. In the 1998 legislative session, the General Assembly modified the charge by passage of House Bill 832 setting the fee at $200 per fixture unit with a provision for annual inflation adjustments. Subsequent resolutions have established a process for approving partial and full exemptions for elderly housing and biotechnology properties, as well as exemptions for properties in designated economic revitalization areas and properties used primarily for recreational and educational programs and services to youth. For FY'19, the Montgomery County and Prince George's Councils increased the maximum allowable charge by the 1.6% increase in the CPI-U, but maintained the current rate of $203 per fixture unit. The Commission adopted the Councils' actions by Resolution Number 2018-2187 dated June 20, 2018. Policies and other information associated with the System Development Charge are included in this document in Appendices A through D.

It is estimated that there will be an overall growth funding surplus of $84.2 million over the six-year program period. The gap or surplus between growth funding sources (SDC, developer contributions, and Applicant payments under System Extension Permits) and the estimated growth-related expenditures vary over the six-year period. If growth-related expenditures were to exceed the available SDC account balance in any given fiscal year, it is anticipated that WSSC would issue new SDC supported debt to cover this temporary gap. The debt will be repaid through future SDC collections, as allowed by State Law. Further, it is currently anticipated that no significant additional growth projects will evolve in the later years of the six-year period. (A listing of SDC-eligible projects is included in Appendix D.)

An estimate of the gap or surplus for each fiscal year is presented in the table that follows. To estimate the gap/surplus for an individual fiscal year, it is assumed that 80% of the eligible expenditures will actually be incurred in a given year due to scheduling and other delays. The projected gap/surplus is the difference between the eligible expenditures adjusted for completion and the sum of the various funding sources.

GROWTH FUNDING GAP
(In Millions)

	FY'20	FY'21	FY'22	FY'23	FY'24	FY'25	6 YEAR TOTAL
CIP GROWTH EXPENDITURES	$32.1	$18.0	$18.6	$12.0	$9.2	$0.5	$90.4
Expenditures Adjusted for Completion	25.7	20.8	18.5	13.3	9.8	2.2	90.3
FUNDING SOURCES							
Privately Funded Projects	8.3	7.9	2.9	0.8	0.5	0.5	20.9
Estimated SDC Revenue	27.6	28.6	29.6	29.6	29.9	30.6	175.6
Less SDC Developer Credits	(4.0)	(3.0)	(3.0)	(2.0)	(2.0)	(2.0)	(16.0)
Less SDC Exemptions [1]	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(6.0)
TOTAL FUNDING SOURCES	$30.9	$32.5	$28.5	$27.4	$27.1	$28.1	$174.5
FUNDING GAP/(SURPLUS) ADJUSTED FOR COMPLETION	**($5.2)**	**($11.7)**	**($10.0)**	**($14.1)**	**($17.3)**	**($25.9)**	**($84.2)**

[1] Each County may grant SDC exemptions, as identified in Appendix A, totaling up to $500,000 per fiscal year as provided for in Maryland State Law (Public Utilities Article, Section 25-403(b)). Unused exemption amounts are available for use in future fiscal years. Cumulative unused SDC exemptions totaled approximately $6.5 million for Montgomery County and $3.4 million for Prince George's County through June 30, 2018.

Expenditures

The Proposed FYs 2020-2025 combined program includes 70 CIP and 8 Information Only projects for a grand total of $5.1 billion dollars. The grand total is $89 million less than the Adopted FYs 2019-2024 combined program primarily due to the completion and close-out of the Bi-County Water Tunnel project in the last CIP. Expenditures for the combined six-year program period are estimated at $3.2 billion. FY'20 expenditures are estimated at $569.7 million, which is $57.9 million less than the funding level approved for FY'19. Of the $569.7 million, $111.9 million is for the Water Program, $271.4 million is for the Sewerage Program, and $186.3 million is for the Information Only Projects. System Extension Process (SEP) growth projects are estimated at $21 million in the six-year program with approximately $10.4 million programmed in FY'20. There are four new projects this cycle. New projects are shown on the New Projects Listing near the end of this section.

A table comparing the Adopted FYs 2019-2024 CIP to the Proposed FYs 2020-2025 CIP follows:

WSSC CIP - COMPARISON

(In Thousands)

	COMBINED PROGRAM	TOTAL SIX YEARS	BUDGET YEARS COMPARISON
Adopted FYs 2019-2024	$5,147,809	$3,339,131	$627,591
Proposed FYs 2020-2025	5,059,114	3,229,062	569,664
Change	($88,695)	($110,069)	($57,927)

Combined six-year program expenditures are estimated at approximately $3.2 billion, $775.2 million for the Water Program, $1.1 billion for the Sewerage Program, and $1.4 billion for the Information Only Projects. This is a $110.1 million decrease from the combined six-year total in the Adopted FYs 2019-2024 CIP. The overall decrease is primarily due to the projected construction progress on the Clinton Zone water main projects, and deferring the Potomac Submerged Channel Intake project to beyond six years due to spending affordability considerations.

Expenditure Categories

Expenditures are divided into three main categories: projects needed for growth, projects needed to implement environmental regulations, and projects needed for system improvements. The categories are defined as follows:

Growth – any project, or part of a project, that increases the demand for treatment and delivery of potable water and/or increases system requirements to collect and treat more sewage in response to new, first time, service hookups to the WSSC's existing customer base.

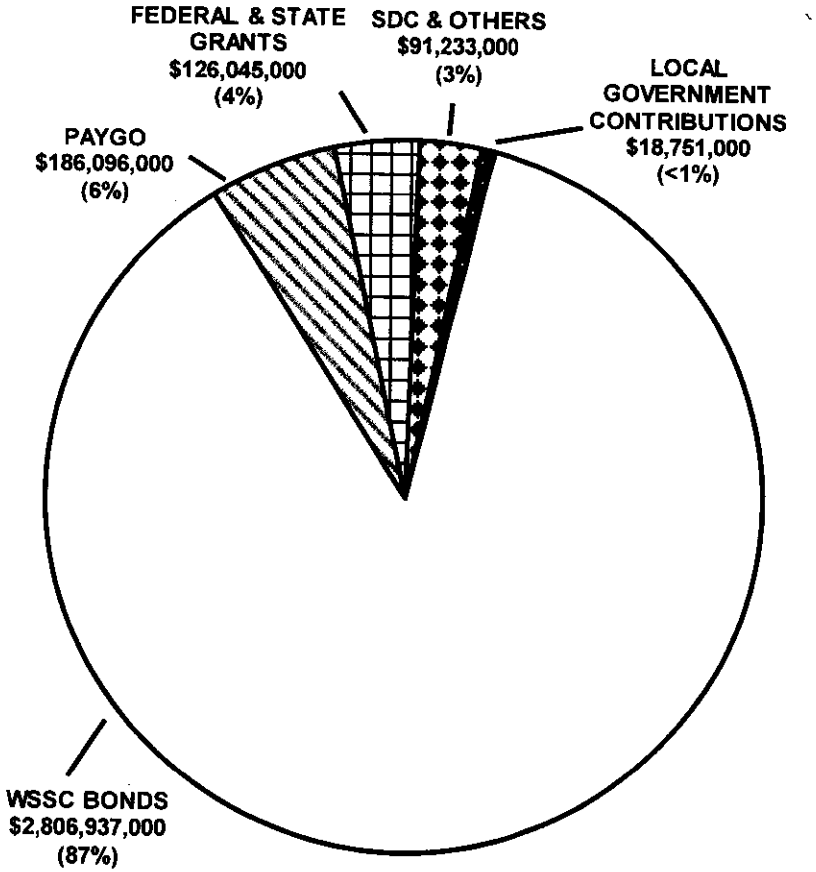
Environmental Regulations – any project which is required to meet changes in federal regulations, such as the Clean Water Act, or in response to more stringent state operating permit requirements, but does not increase system capacity. Any part of this type of a project that provides for additional capacity is for growth.

System Improvements – any project which improves or replaces components of existing water and sewerage systems or provides for mainline relocations required in response to county or state transportation department road projects where the intended purpose is not to increase the capacity of any system components. This category also includes program-sized water main extensions for which the primary function is to provide water supply redundancy to pressure zones or smaller areas in the Sanitary District or for system loops to improve maintainability and reliability. Any part of this type of a project not dictated by maintenance or rehabilitation needs and that provides for additional capacity is for growth. (Please refer to Figure 4 near the end of this section, which displays funding allocations for all three categories.)

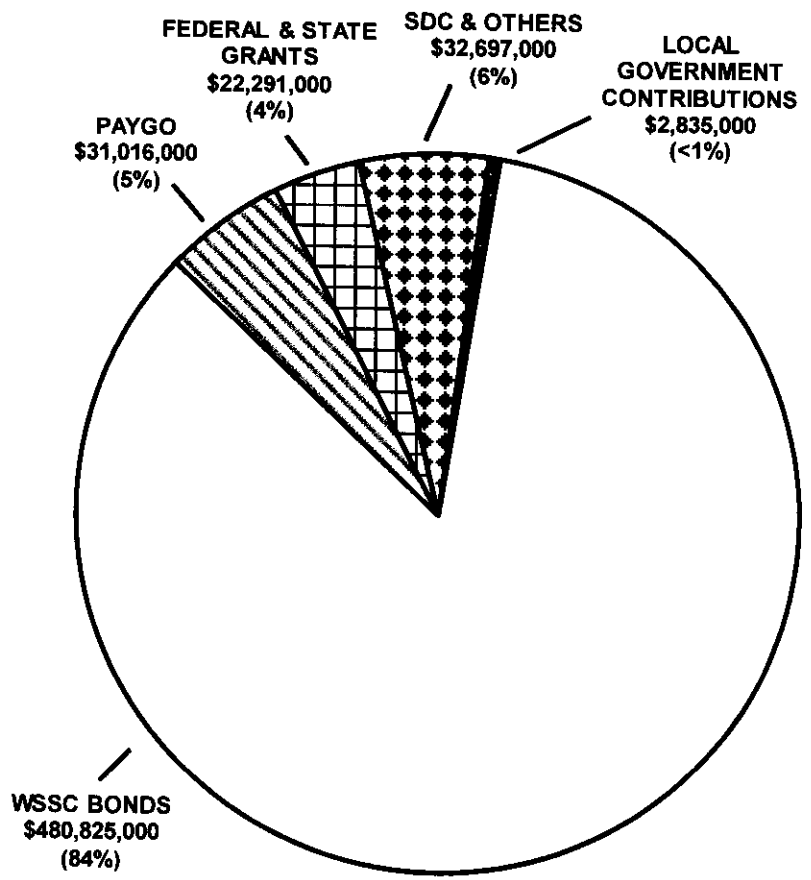
FIGURE 3

WSSC PROPOSED FYS 2020-25 CIP

COMBINED PROGRAM FUNDING BY SOURCE



SIX-YEAR PROGRAM TOTAL
$3,229,062,000

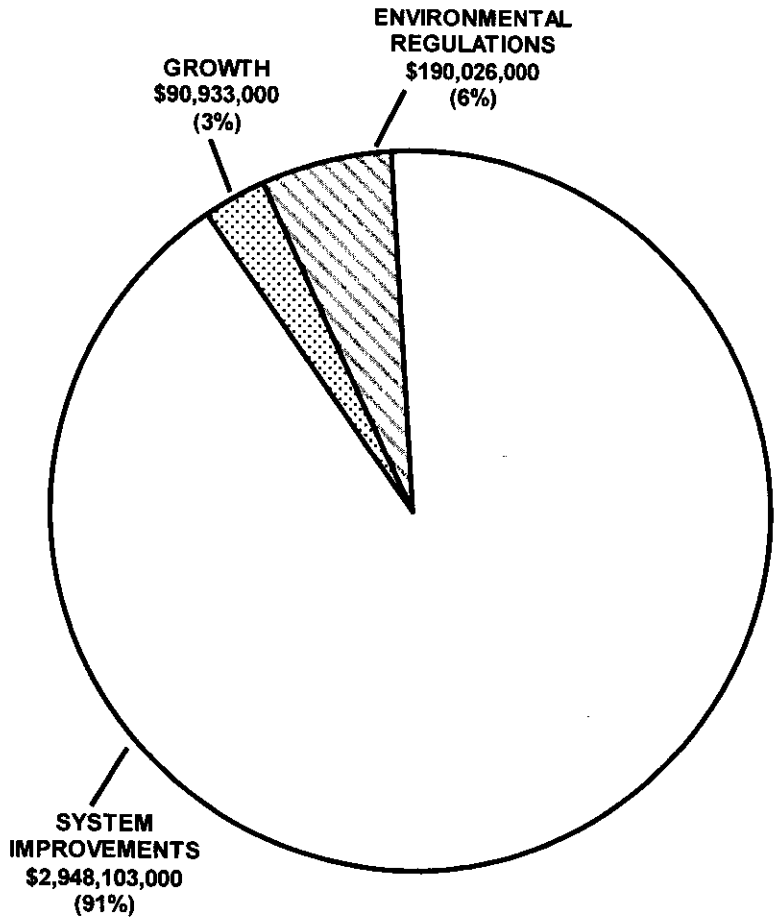


FY'20 BUDGET YEAR TOTAL
$569,664,000

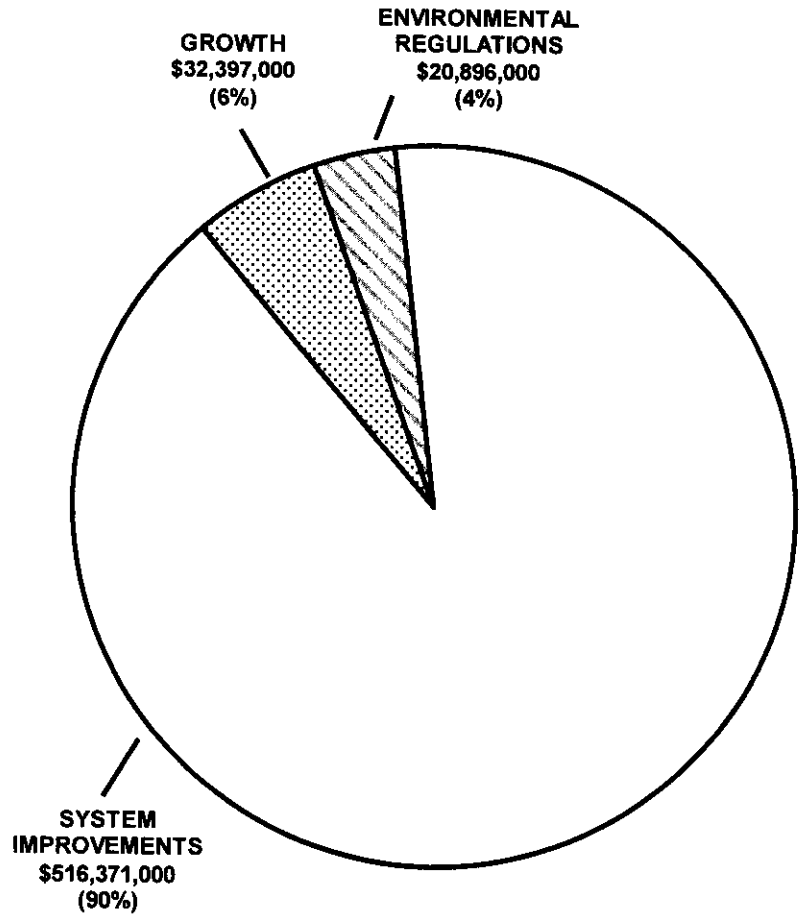
FIGURE 4

WSSC PROPOSED FYS 2020-25 CIP

COMBINED PROGRAM EXPENDITURES BY MAJOR CATEGORY



SIX-YEAR PROGRAM TOTAL
$3,229,062,000



FY'20 BUDGET YEAR TOTAL
$569,664,000

WSSC FYS 2020 - 2025 CIP
NEW PROJECTS LISTING
(costs in thousands)

Agency Number	Project Name		Total Project Cost	6 Year Program Cost	Budget Year Cost	% of Growth
Montgomery County Water Projects						
W-113.20	White Oak Water Mains Augmentation		$4,830	$4,830	$345	100%
Montgomery County Sewer Projects						
S-94.13	Damascus Town Center WWPS Replacement		9,460	9,170	520	30%
S-94.14	Spring Gardens WWPS Replacement		10,320	9,216	921	67%
Prince George's County Sewer Projects						
S-157.02	Western Branch WRRF Process Train Improvements		14,859	12,936	3,520	0%
		TOTALS	**$39,469**	**$36,152**	**$5,306**	

WSSC FYS 2020 - 2025 CIP
ALL PROJECTS PENDING CLOSE-OUT
(costs in thousands)

Agency Number	Project Name	Estimated Total Cost	Expenditures Thru FY'18	Estimated Expenditures FY'19	Remarks
Montgomery County Sewer Projects					
S-84.47	Clarksburg Triangle Outfall Sewer, Part 2	$2,002	$1,263	$739	Project completion expected in FY'19.
Bi-County Water Projects					
W-73.19	Potomac WFP Outdoor Substation No. 2 Replacement	15,537	15,476	61	Project completion expected in FY'19.
W-73.21	Potomac WFP Corrosion Mitigation	17,278	17,278	-	Project completed.
W-172.05	Patuxent WFP Phase II Expansion	65,135	62,961	2,174	Project completion expected in FY'19.
Prince George's County Water Projects					
W-119.01	John Hanson Highway Water Main, Part 1	12,602	11,711	891	Project completion expected in FY'19.
W-120.15	Villages of Timothy Water Main, Part 2	-	-	-	Project combined with W-120.14.
W-123.14	Old Marlboro Pike Water Main	1,545	1,427	118	Project completion expected in FY'19.
W-123.20	Oak Grove/Leeland Roads Water Main, Part 2	13,014	13,002	12	Project completion expected in FY'19.
W-147.00	Collington Elevated Water Storage Facility	16,876	16,818	58	Project completion expected in FY'19.
Information Only Projects					
A-145.01	Brighton Dam Operations & Maintenance Facility and Site Improvements	6,394	4,135	2,259	Project completion expected in FY'19.
	TOTALS	**$150,383**	**$144,071**	**$6,312**	

10 Projects Pending Close-Out

DATE: October 1, 2018

FINANCIAL SUMMARY

(ALL FIGURES IN THOUSANDS)

EXPENDITURE PROJECTIONS

	EST. TOTAL COST	EXPEND THRU 18	EST. EXPEND 19	TOTAL SIX YEARS	EXPENDITURE SCHEDULE YR 1 20	YR 2 21	YR 3 22	YR 4 23	YR 5 24	YR 6 25	BEYOND SIX YEARS	PAGE NUM
Montgomery County Water Projects	55,523	23,527	18,859	13,137	7,295	1,702	316	2,214	1,610	0	0	1-1
Prince George's County Water Projects	322,839	85,669	36,004	177,028	27,636	24,217	43,271	34,325	34,327	13,252	24,138	5-1
Bi-County Water Projects	945,378	165,580	83,013	585,014	76,983	81,006	89,952	113,274	114,753	109,046	111,771	3-1
TOTAL WATER PROJECTS	**1,323,740**	**274,776**	**137,876**	**775,179**	**111,914**	**106,925**	**133,539**	**149,813**	**150,690**	**122,298**	**135,909**	
Montgomery County Sewerage Projects	50,823	3,323	20,775	26,725	7,881	4,026	8,355	6,233	230	0	0	2-1
Prince George's County Sewerage Projects	438,729	237,067	42,257	158,626	55,649	62,124	35,394	2,873	1,293	1,293	779	6-1
Bi-County Sewerage Projects	1,620,074	372,494	171,764	911,990	207,876	232,216	186,718	108,014	92,668	84,498	163,826	4-1
TOTAL SEWERAGE PROJECTS	**2,109,626**	**612,884**	**234,796**	**1,097,341**	**271,406**	**298,366**	**230,467**	**117,120**	**94,191**	**85,791**	**164,605**	
TOTAL CIP PROGRAM	**3,433,366**	**887,660**	**372,672**	**1,872,520**	**383,320**	**405,291**	**364,006**	**266,933**	**244,881**	**208,089**	**300,514**	
Total Information Only Projects	1,625,748	34,703	232,921	1,356,542	186,344	211,112	238,241	246,102	234,135	240,608	1,582	7-1
COMBINED PROGRAM	**5,059,114**	**922,363**	**605,593**	**3,229,062**	**569,664**	**616,403**	**602,247**	**513,035**	**479,016**	**448,697**	**302,096**	

FUNDING SOURCES

WSSC Bonds	4,065,082	496,905	476,732	2,806,937	480,825	541,321	528,705	446,670	415,502	393,914	284,508
PAYGO	217,112	0	31,016	186,096	31,016	31,016	31,016	31,016	31,016	31,016	0
State Grants	353,684	205,712	21,622	126,045	22,291	22,340	20,559	20,248	20,324	20,283	305
System Development Charge	324,539	198,367	49,455	69,402	21,716	10,657	16,753	11,571	8,705	0	7,315
Contribution/Other	59,969	14,264	23,874	21,831	10,981	7,588	1,800	486	488	488	0
Government Contributions	38,158	6,545	2,894	18,751	2,835	3,481	3,414	3,044	2,981	2,996	9,968
Federal Grants	570	570	0	0	0	0	0	0	0	0	0
COMBINED PROGRAM	**5,059,114**	**922,363**	**605,593**	**3,229,062**	**569,664**	**616,403**	**602,247**	**513,035**	**479,016**	**448,697**	**302,096**

DATE: October 1, 2018

FINANCIAL SUMMARY

(ALL FIGURES IN THOUSANDS)

MONTGOMERY COUNTY WATER PROJECTS

AGENCY NUMBER	PROJECT NAME	EST. TOTAL COST	EXPEND THRU 18	EST. EXPEND 19	TOTAL SIX YEARS	EXPENDITURE SCHEDULE						BEYOND SIX YEARS	PAGE NUM
						YR 1 20	YR 2 21	YR 3 22	YR 4 23	YR 5 24	YR 6 25		
W-3.02	Olney Standpipe Replacement	7,940	6,539	1,227	174	174	0	0	0	0	0	0	1-3
W-46.15	Clarksburg Elevated Water Storage Facility	7,332	4,118	3,202	12	12	0	0	0	0	0	0	1-5
W-46.24	Clarksburg Area Stage 3 Water Main, Part 4	4,088	2,939	451	698	271	427	0	0	0	0	0	1-6
W-46.25	Clarksburg Area Stage 3 Water Main, Part 5	2,712	140	2,175	397	397	0	0	0	0	0	0	1-7
W-90.04	Brink Zone Reliability Improvements	16,700	2,058	7,627	7,015	6,085	930	0	0	0	0	0	1-8
W-113.20	White Oak Water Mains Augmentation	4,830	0	0	4,830	345	345	316	2,214	1,610	0	0	1-9
W-138.02	Shady Grove Standpipe Replacement	11,921	7,733	4,177	11	11	0	0	0	0	0	0	1-10
	TOTALS	55,523	23,527	18,859	13,137	7,295	1,702	316	2,214	1,610	0	0	

19

White Oak Water Mains Augmentation

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W-113.20	382001	Add

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	Montgomery Main 495A;
Drainage Basins	
Planning Areas	Fairland-Beltsville (PG) PA 61; Langley

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**800**			**800**	300	300	100	50	50		
Land											
Site Improvements & Utilities											
Construction	**3,400**			**3,400**			175	1,875	1,350		
Other	**630**			**630**	45	45	41	289	210		
Total	**4,830**			**4,830**	**345**	**345**	**316**	**2,214**	**1,610**		

C. Funding Schedule (000's)

SDC	**4,830**			**4,830**	345	345	316	2,214	1,610		

D. Description & Justification

DESCRIPTION

This project provides for the planning, design and construction required for the replacement of 7,650 feet of 4-inch to 20-inch diameter water main along Cherry Hill Road, Gracefield Road and Powder Mill Road / Perimeter Road to serve three planned projects in the White Oak area: Washington Adventist Hospital, VIVA Global LifeSci Village, and Food & Drug Administration White Oak Master Plan.

JUSTIFICATION

The existing mains in these areas will be upsized to provide adequate capacity to serve domestic and fire flow needs for the three new developments. The mains will also provide additional looping and redundancy to the 495A Pressure Zone. MWCOG Round 8.0 growth forecasts; WSSC memorandum dated November 21, 2017; Capital Needs Process Validation #122 submitted December 4, 2017.

COST CHANGE

Not applicable.

OTHER

The project scope was developed for the FY 2020 CIP and has an estimated total cost of $4,830,000. The schedule and expenditures show in Block B above are preliminary planning level estimates and are expected to change once the project moves into design.

COORDINATION

Coordinating Agencies: Maryland State Highway Administration; Maryland-National Capital Park & Planning Commission; Maryland Department of the Environment; Prince George's County Government; Montgomery County Government;
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance	$198	25
Other Project Costs		
Debt Service		
Total Cost	$198	25
Impact on Water and Sewer Rate		

F. Approval and Expenditure Data (000's)

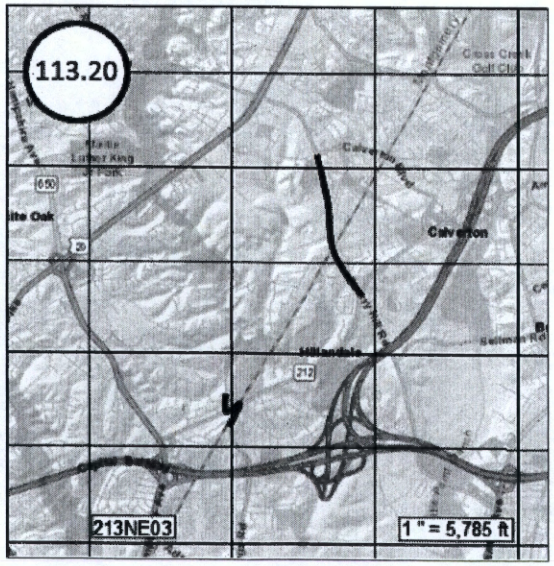
Date First in Program	FY20
Date First Approved	FY20
Intial Cost Estimate	4,380
Cost Estimate Last FY	
Present Cost Estimate	4,830
Approved Request Last FY	
Total Expense & Encumbrances	
Approval Request Year 1	345

G. Status Information

Land Status	Not Applicable
Project Phase	Planning
Percent Complete	10%
Est Completion Date	April 2024

Growth	100%
System Improvement	
Environmental Regulation	
Population Served	
Capacity	

H. Map



20

DATE: October 1, 2018

FINANCIAL SUMMARY

(ALL FIGURES IN THOUSANDS)

MONTGOMERY COUNTY SEWER PROJECTS

AGENCY NUMBER	PROJECT NAME	EST. TOTAL COST	EXPEND THRU 18	EST. EXPEND 19	TOTAL SIX YEARS	EXPENDITURE SCHEDULE						BEYOND SIX YEARS	PAGE NUM
						YR 1 20	YR 2 21	YR 3 22	YR 4 23	YR 5 24	YR 6 25		
S-84.60	Cabin Branch Wastewater Pumping Station	3,181	99	853	2,229	1,402	827	0	0	0	0	0	2-4
S-84.61	Cabin Branch WWPS Force Main	488	98	153	237	209	28	0	0	0	0	0	2-5
S-84.67	Milestone Center Sewer Main	657	127	0	530	507	23	0	0	0	0	0	2-6
S-84.68	Clarksburg Wastewater Pumping Station	3,888	367	1,998	1,523	1,335	188	0	0	0	0	0	2-7
S-84.69	Clarksburg WWPS Force Main	1,936	140	1,774	22	22	0	0	0	0	0	0	2-8
S-85.21	Shady Grove Station Sewer Augmentation	2,538	125	335	2,078	1,245	833	0	0	0	0	0	2-9
S-94.13	Damascus Town Center WWPS Replacement	9,460	120	170	9,170	520	630	2,820	4,970	230	0	0	2-10
S-94.14	Spring Gardens WWPS Replacement	10,320	420	684	9,216	921	1,497	5,535	1,263	0	0	0	2-11
S-103.16	Cabin John Trunk Sewer Relief	16,353	564	14,069	1,720	1,720	0	0	0	0	0	0	2-12
	Projects Pending Close-Out	2,002	1,263	739	0	0	0	0	0	0	0	0	2-13
	TOTALS	50,823	3,323	20,775	26,725	7,881	4,026	8,355	6,233	230	0	0	

Clarksburg Wastewater Pumping Station

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
S-84.68	173802	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Seneca Creek 15;
Planning Areas	Clarksburg & Vicinity PA 13;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**654**	206	248	**200**	160	40					
Land	**161**	161									
Site Improvements & Utilities											
Construction	**2,614**		1,500	**1,114**	1,000	114					
Other	**459**		250	**209**	175	34					
Total	**3,888**	**367**	**1,998**	**1,523**	**1,335**	**188**					

C. Funding Schedule (000's)

SDC	**3,888**	367	1,998	**1,523**	1,335	188					

D. Description & Justification

DESCRIPTION

This project provides for the planning, design, and construction of a 0.94 MGD wastewater pumping station. The new wastewater pumping station and force main will provide service to the Miles property and the Clarksburg Historic District.

JUSTIFICATION

Clarksburg Master Plan & Hyattstown Special Study Area (Approved and Adopted, June 1994). Ten Mile Creek Area Limited Amendment to Clarksburg Master Plan and Hyattstown Special Study Area (Approved July 2014). Clarksburg - Ten Mile Creek Area Sewer Facility Study Business Case, CDM Smith (March 2015).

COST CHANGE

The total project cost has increased due to the addition of land cost and an increase in the design cost based on actual design contract.

OTHER

The project scope has remained the same. The schedule and expenditure projections shown in Block B above are planning level estimates and may change based upon site conditions and design constraints. Planning work began in FY'17 under ESP project S-602.61, Clarksburg - Ten Mile Creek Area Study. The Montgomery County Planning Board endorsed the Study recommendation Alternative 12 on May 26, 2016. The Montgomery County Council adopted a resolution supporting the Study recommendation on July 12, 2016. No WSSC rate supported debt will be used for this project.

COORDINATION

Coordinating Agencies: Montgomery County Government; Montgomery County Department of Environmental Protection; Maryland-National Capital Park & Planning Commission;
Coordinating Projects: S-84.69-Clarksburg WWPS Force Main

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service		
Total Cost		
Impact on Water and Sewer Rate		

F. Approval and Expenditure Data (000's)

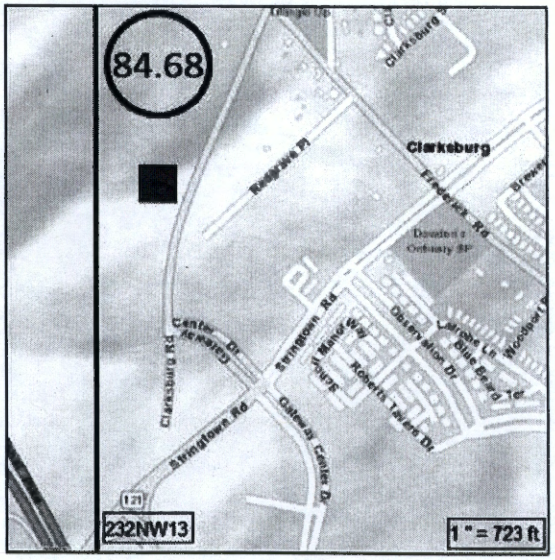
Date First in Program	FY 18
Date First Approved	FY 18
Intial Cost Estimate	3,393
Cost Estimate Last FY	3,450
Present Cost Estimate	3,888
Approved Request Last FY	1,311
Total Expense & Encumbrances	367
Approval Request Year 1	1,335

G. Status Information

Land Status	Land acquired
Project Phase	Design
Percent Complete	70%
Est Completion Date	FY 2021

Growth	100%
System Improvement	
Environmental Regulation	
Population Served	
Capacity	0.94 MGD

H. Map



12

Clarksburg WWPS Force Main

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
S-84.69	173803	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Seneca Creek 15;
Planning Areas	Clarksburg & Vicinity PA 13;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**184**	140	43	**1**	1						
Land											
Site Improvements & Utilities											
Construction	**1,520**		1,500	**20**	20						
Other	**232**		231	**1**	1						
Total	**1,936**	**140**	**1,774**	**22**	**22**						

C. Funding Schedule (000's)

SDC	**1,936**	140	1,774	**22**	22						

D. Description & Justification

DESCRIPTION

This project provides for the planning, design, and construction of 1,270 feet of force main downstream of the Clarksburg Wastewater Pumping Station. The new wastewater pumping station and force main will provide service to the Miles property and the Clarksburg Historic District.

JUSTIFICATION

Clarksburg Master Plan & Hyattstown Special Study Area (Approved and Adopted, June 1994). Ten Mile Creek Area Limited Amendment to Clarksburg Master Plan and Hyattstown Special Study Area (Approved July 2014). Clarksburg - Ten Mile Creek Area Sewer Facility Study Business Case, CDM Smith (March 2015).

COST CHANGE

Not applicable.

OTHER

The project scope has remained the same. The schedule and expenditure projections shown in Block B above are preliminary design level estimates and may change based upon site conditions and design constraints. Planning work began in FY'17 under ESP project S-602.61, Clarksburg - Ten Mile Creek Area Study. The Montgomery County Planning Board endorsed the Study recommendation Alternative 12 on May 26, 2016. The Montgomery County Council adopted a resolution supporting the Study recommendation on July 12, 2016. No WSSC rate supported debt will be used for this project.

COORDINATION

Coordinating Agencies: Montgomery County Government; Montgomery County Department of Environmental Protection; Maryland State Highway Administration; Maryland State Department of Transportation; Maryland-National Capital Park & Planning Commission;
Coordinating Projects: S-84.68-Clarksburg Wastewater Pumping Station

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance	$38	21
Other Project Costs		
Debt Service		
Total Cost	$38	21
Impact on Water and Sewer Rate		

F. Approval and Expenditure Data (000's)

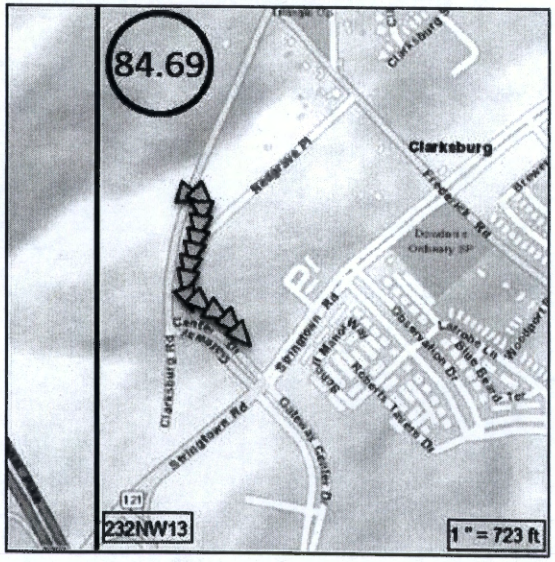
Date First in Program	FY 18
Date First Approved	FY 18
Intial Cost Estimate	1,149
Cost Estimate Last FY	1,840
Present Cost Estimate	1,936
Approved Request Last FY	877
Total Expense & Encumbrances	140
Approval Request Year 1	22

G. Status Information

Land Status	Site Selected
Project Phase	Design
Percent Complete	95%
Est Completion Date	FY 2019

Growth	100%
System Improvement	
Environmental Regulation	
Population Served	
Capacity	.94 MGD

H. Map



23

Damascus Town Center WWPS Replacement

A. Identification and Coding Information

Agency Number	Project Number	Update Code
S-94.13	382002	Add

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Patuxent North 26; Seneca Creek 15;
Planning Areas	Damascus & Vicinity PA 11;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**1,670**	120	150	**1,400**	450	550	175	175	50		
Land											
Site Improvements & Utilities											
Construction	**6,575**			**6,575**			2,275	4,150	150		
Other	**1,215**		20	**1,195**	70	80	370	645	30		
Total	**9,460**	**120**	**170**	**9,170**	**520**	**630**	**2,820**	**4,970**	**230**		

C. Funding Schedule (000's)

WSSC Bonds	**6,622**	84	120	**6,418**	364	440	1,974	3,480	160		
SDC	**2,838**	36	50	**2,752**	156	190	846	1,490	70		

D. Description & Justification

DESCRIPTION

This project provides for the planning, design and, construction of a 0.416 MGD wastewater pumping station (WWPS), approximately 2,100 LF of gravity sewer and 2,100 LF of force main (FM). The new WWPS and associated FM and gravity sewer will provide service to the existing and future Damascus Town Center service area.

JUSTIFICATION

The existing pumping station, which is over thirty-five years old was originally built as a privately owned facility and did not conform to WSSC standards. The pumping station was taken over by WSSC in the late 1970s. It has reached the end of its useful life and replacement parts are obsolete. Additionally, the capacity of the pumping station must be increased to accommodate the future service area in accordance with the Maryland National Capital Park and Planning Commission Damascus Master Plan. The Asset Management Office Business Case CNPV7 recommended the pumping station replacement.

COST CHANGE

Not applicable.

OTHER

The present project scope was developed for FY 2020 CIP and has an estimated total cost of $9,460,000. The schedule and expenditure projections shown in Block B above are preliminary planning level estimates and may change based upon site conditions and design constraints. Planning work began in FY'18 under ESP project S-602.01, Damascus Town Center WWPS Replacement. Land costs are included in WSSC project S-203.00.

COORDINATION

Coordinating Agencies: Maryland-National Capital Park & Planning Commission; Montgomery County Department of Environmental Protection; Maryland Department of the Environment; Montgomery County Department of Public Works and Transportation;
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$431	25
Total Cost	$431	25
Impact on Water and Sewer Rate	$0.01	25

F. Approval and Expenditure Data (000's)

Date First in Program	FY 20
Date First Approved	FY 20
Intial Cost Estimate	9,460
Cost Estimate Last FY	
Present Cost Estimate	9,460
Approved Request Last FY	
Total Expense & Encumbrances	120
Approval Request Year 1	520

G. Status Information

Land Status	Land and R/W to be acquired
Project Phase	Planning
Percent Complete	5%
Est Completion Date	November 2023

Growth	30%
System Improvement	70%
Environmental Regulation	
Population Served	854
Capacity	0.416MGD

H. Map

MAP NOT APPLICABLE

Spring Gardens WWPS Replacement

A. Identification and Coding Information

Agency Number	Project Number	Update Code
S-94.14	382003	Add

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Monocacy 25;
Planning Areas	Damascus & Vicinity PA 11;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**2,190**	280	595	**1,315**	800	400	65	50			
Land	**140**	140									
Site Improvements & Utilities											
Construction	**6,700**			**6,700**		900	4,750	1,050			
Other	**1,290**		89	**1,201**	121	197	720	163			
Total	**10,320**	**420**	**684**	**9,216**	**921**	**1,497**	**5,535**	**1,263**			

C. Funding Schedule (000's)

WSSC Bonds	**3,440**	140	228	**3,072**	307	499	1,845	421			
SDC	**6,880**	280	456	**6,144**	614	998	3,690	842			

D. Description & Justification

DESCRIPTION

This project provides for the planning, design, and construction of a 1.3 MGD wastewater pumping station, 7,500 LF of force main, and 900 LF of gravity sewer. The relocated wastewater pumping station and force main will provide service to the existing and future Spring Gardens service area.

JUSTIFICATION

The existing pumping station and force main are over forty-one years old and have reached the end of their useful life. Additionally, the existing capacity of the pumping station must be increased to accommodate build-out of the service area and therefore it must be replaced with a new facility rated at 1.3 MGD. The Asset Management Office Business Case CNPV6 recommended the pumping station replacement.

COST CHANGE

Not applicable.

OTHER

The present project scope was developed for the FY 2020 CIP and has an estimated total cost of $10,320,000. The schedule and expenditure projections shown in Block B above are preliminary planning level estimates and may change based upon site conditions and design constraints. Planning work began in FY'18 under ESP project S-602.26, Spring Gardens WWPS Replacement.

COORDINATION

Coordinating Agencies: Montgomery County Department of Public Works and Transportation; Maryland State Highway Administration; Maryland Department of the Environment; Maryland-National Capital Park & Planning Commission;
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance	$146	24
Other Project Costs		
Debt Service	$224	24
Total Cost	$370	24
Impact on Water and Sewer Rate	$0.01	24

F. Approval and Expenditure Data (000's)

Date First in Program	FY 20
Date First Approved	FY 20
Intial Cost Estimate	10,180
Cost Estimate Last FY	
Present Cost Estimate	10,320
Approved Request Last FY	
Total Expense & Encumbrances	420
Approval Request Year 1	921

G. Status Information

Land Status	Land acquired
Project Phase	Planning
Percent Complete	5%
Est Completion Date	FY 2023

Growth	67%
System Improvement	33%
Environmental Regulation	
Population Served	
Capacity	1.3 MGD

H. Map

MAP NOT APPLICABLE

Western Branch WRRF Process Train Improvements

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
S-157.02		Add

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Western Branch 14;
Planning Areas	Upper Marlboro & Vicinity PA 79;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**2,923**	163	1,600	**1,160**	700	200	200	60			
Land											
Site Improvements & Utilities											
Construction	**10,600**			**10,600**	2,500	5,000	3,000	100			
Other	**1,336**		160	**1,176**	320	520	320	16			
Total	**14,859**	**163**	**1,760**	**12,936**	**3,520**	**5,720**	**3,520**	**176**			

C. Funding Schedule (000's)

WSSC Bonds	**14,859**	163	1,760	**12,936**	3,520	5,720	3,520	176			

D. Description & Justification

DESCRIPTION

This project provides for the planning, design, and construction of improvements at the Western Branch WRRF required to rehabilitate aging structures within the process treatment trains. Improvements are to the clarifiers, aeration system as well as concrete structure and walkway rehabilitation.

JUSTIFICATION

The Plant was originally built in the early 1970s. Weathering and corrosion of concrete structures and metal equipment require rehabilitation and replacement to extend the useful life and maintain safe access and operation of the process treatment trains.
This project was evaluated through the Asset Management Needs Planning process under ESP Project Number S-647.46. A treatment train structural condition assessment was performed by WSSC's Engineering and Environmental Services Division as part of the needs planning process.

COST CHANGE

Not applicable.

OTHER

The present project scope was developed for FY2020 CIP and has an estimated cost of $14,859,000. The expenditure and schedule projections shown in Block B are planning level estimates and may change based upon site conditions and design constraints. Planning work began in FY'18 under ESP project S-647.46, Western Branch WRRF Process Train Improvements.

COORDINATION

Coordinating Agencies: Prince George's County Government; Maryland Department of the Environment;
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$967	24
Total Cost	$967	24
Impact on Water and Sewer Rate	$0.02	24

F. Approval and Expenditure Data (000's)

Date First in Program	FY 20
Date First Approved	FY 20
Intial Cost Estimate	14,859
Cost Estimate Last FY	
Present Cost Estimate	14,859
Approved Request Last FY	
Total Expense & Encumbrances	163
Approval Request Year 1	3,520

G. Status Information

Land Status	Not Applicable
Project Phase	Design
Percent Complete	0%
Est Completion Date	FY2023

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	30.6 MGD

H. Map

MAP NOT APPLICABLE

25a

DATE: October 1, 2018

FINANCIAL SUMMARY

(ALL FIGURES IN THOUSANDS)

BI-COUNTY WATER PROJECTS

AGENCY NUMBER	PROJECT NAME	EST. TOTAL COST	EXPEND THRU 18	EST. EXPEND 19	TOTAL SIX YEARS	EXPENDITURE SCHEDULE						BEYOND SIX YEARS	PAGE NUM
						YR 1 20	YR 2 21	YR 3 22	YR 4 23	YR 5 24	YR 6 25		
W-73.22	Potomac WFP Pre-Filter Chlorination & Air Scour Improvements	25,275	11,893	2,723	10,659	8,000	2,659	0	0	0	0	0	3-3
W-73.30	Potomac WFP Submerged Channel Intake	85,603	4,336	21	0	0	0	0	0	0	0	81,246	3-4
W-73.32	Potomac WFP Main Zone Pipeline	38,102	1,014	575	36,513	460	690	575	13,915	13,915	6,958	0	3-5
W-73.33	Potomac WFP Consent Decree Program	163,823	6,323	9,450	118,125	9,975	10,500	25,200	25,200	24,150	23,100	29,925	3-6
W-139.02	Duckett & Brighton Dam Upgrades	40,291	19,763	13,690	6,838	6,838	0	0	0	0	0	0	3-7
W-161.01	Large Diameter Water Pipe & Large Valve Rehabilitation Program	433,056	0	40,260	392,796	40,385	58,447	64,159	74,149	76,678	78,978	0	3-8
W-172.07	Patuxent Raw Water Pipeline	34,439	13,121	4,158	17,160	8,580	8,580	0	0	0	0	0	3-11
W-172.08	Rocky Gorge Pump Station Upgrade	23,241	13,415	8,801	1,025	1,025	0	0	0	0	0	0	3-12
W-202.00	Land & Rights-of-Way Acquisition - Bi-County Water	3,598	0	1,100	1,898	1,720	130	18	10	10	10	600	3-13
	Projects Pending Close-Out	97,950	95,715	2,235	0	0	0	0	0	0	0	0	3-14
	TOTALS	945,378	165,580	83,013	585,014	76,983	81,006	89,952	113,274	114,753	109,046	111,771	

POTOMAC WATER FILTRATION PLANT PROJECTS
(costs in thousands)

AGENCY NUMBER	PROJECT NAME	ADOPTED FY'19 TOTAL COST	PROPOSED FY'20 TOTAL COST	CHANGE $	CHANGE %	SIX-YEAR COST	COMPLETION DATE (est)
W-73.22	Potomac WFP Pre-Filter Chlorination & Air Scour Improvements	$24,961	$25,275	$314	1.3%	$10,659	June 2021
W-73.30	Potomac WFP Submerged Channel Intake	83,104	85,603	2,499	3.0%	0	Beyond 6 Years
W-73.32	Potomac WFP Main Zone Pipeline	37,470	38,102	632	1.7%	36,513	FY 2025
W-73.33	Potomac WFP Consent Decree Program	157,480	163,823	6,343	4.0%	118,125	January 2026
	TOTALS	**$303,015**	**$312,803**	**$9,788**	**3.2%**	**$165,297**	

Summary: This group of projects represents operational improvements to the Potomac Water Filtration Plant (WFP) in Montgomery County. The Potomac WFP Pre-Filter Chlorination & Air Scour Improvements project (W-73.22) provides for a pre-filter chlorination system, evaluation of retrofitting an air scour system, and the replacement of existing plant filters to improve the performance of the underdrain system. The Potomac WFP Submerged Channel Intake project (W-73.30) will provide an additional barrier against drinking water contamination, enhance reliability, and reduce treatment costs by drawing water from a location with a cleaner, more stable water quality. The Potomac WFP Main Zone Pipeline project (W-73.32) provides an 84-inch diameter redundancy main from the Main Zone pumping station to the 96-inch diameter and 66-inch diameter main wye connections on River Road. The Potomac WFP Consent Decree Program project (W-73.33) provides for the planning, design, and construction required for the implementation of Short-Term Operational and Long-Term Capital Improvements at the Potomac Water Filtration Plant (WFP) to allow the Commission to meet the new discharge limitations identified in the Consent Decree.

Cost Impact: Due to budgetary constraints, all expenditures for the Potomac WFP Submerged Channel Intake project (W-73.30) have been deferred to beyond six years. Estimates and other long-term alternatives associated with the Potomac WFP Consent Decree Program (W-73.33) are under review and revision by consultants to seek the most effective long-term upgrade plan for MDE approval.

(27)

Potomac WFP Submerged Channel Intake

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W-73.30	033812	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	Potomac WFP HGPOWF;
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**10,972**	4,336	20								6,616
Land											
Site Improvements & Utilities											
Construction	**70,761**										70,761
Other	**3,870**		1								3,869
Total	**85,603**	**4,336**	**21**								**81,246**

C. Funding Schedule (000's)

WSSC Bonds	**85,603**	4,336	21								81,246

D. Description & Justification

DESCRIPTION

This project includes planning, which involves community outreach and coordination with elected officials, design, and construction of a submerged channel intake to provide an additional barrier against drinking water contamination (particularly Giardia cysts and Cryptosporidium oocysts), as well as to enhance reliability and reduce treatment costs by drawing water from a location with cleaner, more stable water quality.

JUSTIFICATION

The project is expected to pay for itself over time based upon the reduced chemical and solids handling costs resulting from the cleaner raw water source. It also provides for a more reliable supply by eliminating the current problems associated with ice and vegetation blocking the existing bank withdrawal. This project is consistent with the industry's recommended multiple barrier approach.

"Technical Memorandum No. 2 Water Quality Needs Assessment," O'Brien & Gere Engineers, Inc. (November 2001); "Draft Source Water Assessment Study," Maryland Department of the Environment (April 2002); "Potomac WFP Facility Plan," O'Brien & Gere Engineers, Inc. (September 2002). "Draft Feasibility Study Report", Black & Veatch (November 2013).

COST CHANGE

Due to budgetary constraints the project costs have been moved to beyond six (6) years column.

OTHER

The project scope has remained the same. Significant public outreach activities occurred as part of the planning phase of this project. The National Environmental Policy Act (NEPA) process was concluded in January 2018 when the National Park Service (NPS) approved the Environmental Assessment and transmitted its record of decision and the Finding of No Significant Impact. A series of briefings with State legislators, County Council members, County Executive staff and County Council staff will be undertaken prior to commencement of further engineering work. Both Councils will review the results of the detailed study and must approve continuing with the project before design and construction may proceed. Expenditure and schedule projections shown above are planning level estimates and may change based on site-specific conditions and design constraints. Land costs are included in WSSC Project W-202.00.

COORDINATION

Coordinating Agencies: Montgomery County Government; Prince George's County Government; National Park Service; Montgomery County Department of Environmental Protection; Maryland Department of the Environment; Maryland Department of Natural Resources; Prince George's County Department of Environmental Resources; U.S. Army Corps of Engineers; Maryland-National Capital Park & Planning Commission;

Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$5,569	20
Total Cost	$5,569	20
Impact on Water and Sewer Rate	$0.12	20

F. Approval and Expenditure Data (000's)

Date First in Program	FY 04
Date First Approved	FY 03
Intial Cost Estimate	936
Cost Estimate Last FY	83,104
Present Cost Estimate	85,603
Approved Request Last FY	70
Total Expense & Encumbrances	4,336
Approval Request Year 1	

G. Status Information

Land Status	Land and R/W to be acquired
Project Phase	Planning
Percent Complete	100%
Est Completion Date	TBD

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE

Potomac WFP Consent Decree Program

A. Identification and Coding Information

Agency Number	Project Number	Update Code
W-73.33	173801	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	Potomac WFP HGPOWF;
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**31,600**	4,600	3,500	**20,500**	3,500	4,000	4,000	4,000	3,000	2,000	3,000
Land	**1,000**	1,000									
Site Improvements & Utilities											
Construction	**123,723**	723	5,500	**92,000**	6,000	6,000	20,000	20,000	20,000	20,000	25,500
Other	**7,500**		450	**5,625**	475	500	1,200	1,200	1,150	1,100	1,425
Total	**163,823**	**6,323**	**9,450**	**118,125**	**9,975**	**10,500**	**25,200**	**25,200**	**24,150**	**23,100**	**29,925**

C. Funding Schedule (000's)

WSSC Bonds	**163,823**	6,323	9,450	**118,125**	9,975	10,500	25,200	25,200	24,150	23,100	29,925

D. Description & Justification

DESCRIPTION

The Potomac WFP Consent Decree Program provides for the planning, design, and construction required for the implementation of Short-Term Operational and Long-Term Capital Improvements at the Potomac Water Filtration Plant (WFP) to allow the Commission to meet the new discharge limitations identified in the Consent Decree.

JUSTIFICATION

The Consent Decree (CD) was Entered by the U.S. District Court of Maryland on April 15, 2016. Under the terms of the CD the Commission is required to "undertake short-term operational changes and capital improvements at the Potomac WFP that will enable WSSC to reduce significantly the pounds per day of solids discharged to the River" (CD Section II. Paragraph 6.i); and to plan, design, and implement long term "upgrades to the existing Plant or to design and construct a new plant to achieve the effluent limits, conditions, and waste load allocations established by the Maryland Department of the Environment (the Department) and/or in this Consent Decree, and incorporated in a new discharge permit to be issued by the Department" (CD Section II. Paragraph 6.ii). The CD required the Commission to submit a Draft Audit Report and Draft Long-Term Upgrade Plan to the Citizens and the Department by November 15, 2016, and final reports to the Citizens and the Department by January 1, 2017. The Final Audit and Long-Term Upgrade Plan Reports were submitted to the Citizens and the Department on December 29, 2016. The Department reviews the Audit Report and selects recommended improvements in operations, monitoring, and waste tracking, along with select capital projects that can be completed no later than April 1, 2020 and that are necessary to achieve the goals identified in CD Section IV. Paragraph 24. Additionally, the work required to implement the Long-Term Capital Improvements Project(s) shall be fully implemented in accordance with the schedule set forth in the Long Term Upgrade Plan. The Commission shall be subject to a lump-sum stipulated penalty in accordance with the CD for failure to implement the Long Term Capital Improvement Project(s) by January 1, 2026.

COST CHANGE

Costs were increased for inflation. These estimates and other long-term alternatives are under review and revision by consultants to seek the most effective long-term upgrade plan for MDE approval.

OTHER

The project scope has remained the same. Expenditure and schedule projections shown above are estimates and serve as placeholders because project alternatives are being reconsidered and revised for a Long-Term Plan Amendment to the 2016 plan to be submitted to MDE by Fall of 2018. The construction estimates were increased significantly based on the Short-Term Audit Report and Long-Term Upgrade Plan Report dated December 2016. The expenditure and schedule projections shown above also include $1,000,000 for Supplemental Environmental Projects included under CD Section IX. Paragraph 50. Preliminary planning work began in FY'16 under ESP project W-708.48, Potomac WFP Consent Decree Projects; operational requirements identified in CD Section IV. Interim Performance Measures and Plant Improvements are currently underway under ESP project W-708.47, Potomac WFP Turbidity Monitoring.

COORDINATION

Coordinating Agencies: Maryland Department of the Environment; Montgomery County Government; Prince George's County Government; National Park Service; U.S. Environmental Protection Agency, Region III;

Coordinating Projects: W-73.30-Potomac WFP Submerged Channel Intake;

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$10,657	
Total Cost	$10,657	
Impact on Water and Sewer Rate	$0.22	

F. Approval and Expenditure Data (000's)

Date First in Program	FY 17
Date First Approved	FY 16
Intial Cost Estimate	27,250
Cost Estimate Last FY	157,480
Present Cost Estimate	163,823
Approved Request Last FY	9,850
Total Expense & Encumbrances	6,323
Approval Request Year 1	9,975

G. Status Information

Land Status	Land acquired
Project Phase	Planning
Percent Complete	95%
Est Completion Date	January 2026

Growth	
System Improvement	
Environmental Regulation	100%
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE

Duckett & Brighton Dam Upgrades

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W-139.02	073802	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**10,568**	9,292	855	**421**	421						
Land											
Site Improvements & Utilities											
Construction	**27,856**	10,471	11,590	**5,795**	5,795						
Other	**1,867**		1,245	**622**	622						
Total	**40,291**	**19,763**	**13,690**	**6,838**	**6,838**						

C. Funding Schedule (000's)

WSSC Bonds	**40,291**	19,763	13,690	**6,838**	6,838						

D. Description & Justification

DESCRIPTION

This project provides for the planning, design, and construction of the upgrades required to enable the T. Howard Duckett Dam to meet current Maryland Department of the Environment (MDE) dam safety standards including the Probable Maximum Flood (PMF) criteria and maximum credible earthquake loadings. The upgrades include parapet walls on both embankments of the dam and three foot thick scour slabs tied into the rock on the downstream side of the dam. The project also includes work at the Brighton Dam to assure continued safe operation, e.g., spillway resurfacing, new stairs and intake repairs.

JUSTIFICATION

The MDE requested that WSSC perform a safety analysis of the T. Howard Duckett Dam to ensure that the dam can safely pass the Probable Maximum Flood criteria. MDE also requested that the evaluation include an analysis of the dam's ability to withstand the maximum credible earthquake loadings. The safety analysis includes geotechnical and structural evaluations.
December 13, 2004 letter from MDE; "Comprehensive Safety Evaluation of the T. Howard Duckett Dam", URS Corporation (January 2007); June 28, 2007 letter from MDE.

COST CHANGE

Costs were increased due to changed conditions discovered during Brighton Dam Upgrade construction project, including asbestos in the existing concrete joints and remedial concrete work.

OTHER

The project scope has remained the same. Expenditures and schedule projections shown in Block B above reflect the actual bid for the Brighton Dam Upgrades construction. Construction work at Duckett Dam is substantially complete. Brighton Dam Upgrades construction project is currently under construction.

COORDINATION

Coordinating Agencies: Maryland State Highway Administration; Montgomery County Government; Prince George's County Government; Howard County Government; City of Laurel; Maryland Department of the Environment; U.S. Army Corps of Engineers;
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$2,621	21
Total Cost	$2,621	21
Impact on Water and Sewer Rate	$0.05	21

F. Approval and Expenditure Data (000's)

Date First in Program	FY 07
Date First Approved	FY 07
Intial Cost Estimate	575
Cost Estimate Last FY	30,754
Present Cost Estimate	40,291
Approved Request Last FY	7,801
Total Expense & Encumbrances	19,763
Approval Request Year 1	6,838

G. Status Information

Land Status	Not Applicable
Project Phase	Construction
Percent Complete	37%
Est Completion Date	December 2019

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE

Large Diameter Water Pipe & Large Valve Rehabilitation Program

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W-161.01	113803	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**44,871**		6,690	**38,181**	5,861	6,170	6,355	6,404	6,597	6,794	
Land											
Site Improvements & Utilities											
Construction	**367,564**		31,653	**335,911**	32,601	49,494	54,749	64,214	66,430	68,423	
Other	**20,621**		1,917	**18,704**	1,923	2,783	3,055	3,531	3,651	3,761	
Total	**433,056**		**40,260**	**392,796**	**40,385**	**58,447**	**64,159**	**74,149**	**76,678**	**78,978**	

C. Funding Schedule (000's)

WSSC Bonds	**433,056**		40,260	**392,796**	40,385	58,447	64,159	74,149	76,678	78,978	

D. Description & Justification

DESCRIPTION

The purpose of this Program is to plan, inspect, design, and rehabilitate or replace large diameter water transmission mains and large system valves that have reached the end of their useful life. Condition assessment and/or corrosion monitoring is performed on metallic pipelines, including ductile iron, cast iron, and steel, to identify lengths of pipe requiring replacement or rehabilitation and cathodic protection. The PCCP Inspection and Condition Assessment and Monitoring Program identifies individual pipe segments that require repair or replacement to assure the continued safe and reliable operation of the pipeline. The Program also identifies extended lengths of pipe that require the replacement of an increased number of pipe segments in varying stages of deterioration that are most cost effectively accomplished by the replacement or rehabilitation of long segments of the pipeline or the entire pipeline. Rehabilitation or replacement of these mains provides value to the customer by minimizing the risk of failure and ensuring a safe and reliable water supply. The Program includes installation of Acoustic Fiber Optic Monitoring equipment in order to accomplish these goals in PCCP mains.
* EXPENDITURES FOR LARGE DIAMETER WATER PIPE REHABILITATION ARE EXPECTED TO CONTINUE INDEFINITELY.

JUSTIFICATION

WSSC has approximately 1,031 miles of large diameter water main ranging from 16-inch to 96-inch in diameter. This includes 335 miles of cast iron, 326 miles of ductile iron, 35 miles of steel and 335 miles of PCCP. Internal inspection and condition assessment is performed annually on PCCP pipelines 36-inch and larger in diameter. Of the 335 miles of PCCP, 140 miles are 36-inch diameter and larger. The inspection program includes internal visual and sounding, sonic/ultrasonic testing, and electromagnetic testing to establish the condition of each pipe section and determine if maintenance repairs, rehabilitation, or replacement are needed.

The planning and design phase evaluates the alignment, hydraulic capacity, and project coordination amongst other factors in an effort to re-engineer these pipelines to meet today's design standards. The design effort includes the preparation of bid ready contract documents including all needed rights-of-way acquisitions and regulatory permits. The constructed system is inspected and an as-built plan is produced to serve as the renewed asset record.

In July 2013, WSSC's Acoustic Fiber Optic monitoring system identified breaking wires in a 54-inch diameter PCCP water transmission main in the Forestville area of Prince George's County. Upon attempting to close nearby valves to isolate the failing pipe for repair, WSSC crews encountered an inoperable valve with a broken gear, requiring the crew to drop back to the next available valve. This dropping-back to another valve would block one of the major water mains serving Prince George's county, significantly enlarging the shutdown area and reduce our capacity to supply water to over 100,000 residents. In order to minimize the risk associated with inoperable large valves and possible water outages, the large valve inspection and repair program was initiated to systematically inspect, exercise, repair and replace (when necessary) any of the 1,500 large diameter valves and vaults located throughout the system.

Utility Wide Master Plan (December 2007); 30 Year Infrastructure Plan (2007); FY2016 Water Transmission System Asset Management Plan (February 2014); WSSC FY 2018 Buried Water Asset Systems Asset Management Plan (December 2015);

COST CHANGE

Not applicable.

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$28,171	26
Total Cost	$28,171	26
Impact on Water and Sewer Rate	$0.59	26

F. Approval and Expenditure Data (000's)

Date First in Program	FY 11
Date First Approved	FY 11
Intial Cost Estimate	
Cost Estimate Last FY	435,594
Present Cost Estimate	433,056
Approved Request Last FY	40,661
Total Expense & Encumbrances	
Approval Request Year 1	40,385

G. Status Information

Land Status	Not Applicable
Project Phase	On-Going
Percent Complete	0%
Est Completion Date	On-Going

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE

Large Diameter Water Pipe & Large Valve Rehabilitation Program

OTHER

The project scope has remained the same. Expenditure and schedule projections shown in Block B above are Order of Magnitude estimates and are expected to change based upon the results of the inspections and condition assessments. Life to date expenditures for this program thru FY'18 are approximately $225 million. Additional costs associated with PCCP inspection/condition assessment, large valve inspection/repairs and emergency repairs are included in the Operating Budget.

COORDINATION

Coordinating Agencies: Maryland State Highway Administration; Montgomery County Department of Public Works and Transportation; Montgomery County Government; (including localities where work is to be performed); Prince George's County Government; (including localities where work is to be performed); Maryland-National Capital Park & Planning Commission; Prince George's County Department of Permitting Inspection and Enforcement; Local Community Civic Associations;

Coordinating Projects: W-1.00-Water Reconstruction Program; A-107.00-Specialty Valve Vault Rehabilitation Program;

DATE: October 1, 2018

FINANCIAL SUMMARY

(ALL FIGURES IN THOUSANDS)

BI-COUNTY SEWER PROJECTS

AGENCY NUMBER	PROJECT NAME	EST. TOTAL COST	EXPEND THRU 18	EST. EXPEND 19	TOTAL SIX YEARS	EXPENDITURE SCHEDULE						BEYOND SIX YEARS	PAGE NUM
						YR 1 20	YR 2 21	YR 3 22	YR 4 23	YR 5 24	YR 6 25		
S-22.06	Blue Plains WWTP: Liquid Train Projects, Part 2	247,693	0	17,471	125,793	22,831	23,621	19,984	15,432	19,886	24,039	104,429	4-3
S-22.07	Blue Plains WWTP: Biosolids Management, Part 2	41,472	0	7,890	32,969	10,164	10,809	8,708	2,156	726	406	613	4-4
S-22.09	Blue Plains WWTP: Plant-wide Projects	117,624	0	8,206	89,324	10,487	20,379	20,438	17,999	10,505	9,516	20,094	4-5
S-22.10	Blue Plains WWTP: Enhanced Nutrient Removal	394,543	356,289	8,345	12,979	1,507	1,209	884	1,517	1,502	6,360	16,930	4-6
S-22.11	Blue Plains: Pipelines & Appurtenances	152,284	0	23,393	107,131	17,117	18,083	26,145	18,684	16,809	10,293	21,760	4-7
S-103.02	Piscataway WRRF Bio-Energy Project	261,993	11,030	30,188	220,775	58,118	67,988	64,040	20,286	10,343	0	0	4-8
S-170.08	Septage Discharge Facility Planning & Implementation	32,455	5,175	1,364	25,916	12,276	12,276	1,364	0	0	0	0	4-10
S-170.09	Trunk Sewer Reconstruction Program	371,635	0	74,857	296,778	75,326	77,636	45,140	31,925	32,882	33,869	0	4-11
S-203.00	Land & Rights-Of-Way Acquisition - Bi-County Sewer	375	0	50	325	50	215	15	15	15	15	0	4-12
	TOTALS	1,620,074	372,494	171,764	911,990	207,876	232,216	186,718	108,014	92,668	84,498	163,826	

BLUE PLAINS WASTEWATER TREATMENT PLANT PROJECTS
(costs in thousands)

AGENCY NUMBER	PROJECT NAME	ADOPTED FY'19 TOTAL COST	PROPOSED FY'20 TOTAL COST	CHANGE $	CHANGE %	SIX-YEAR COST	COMPLETION DATE (est)
S-22.06	Blue Plains WWTP: Liquid Train Projects, Part 2	$192,823	$247,693	$54,870	28.5%	$125,793	On-Going
S-22.07	Blue Plains WWTP: Biosolids Management, Part 2	40,688	41,472	784	1.9%	32,969	On-Going
S-22.09	Blue Plains WWTP: Plant-wide Projects	110,265	117,624	7,359	6.7%	89,324	On-Going
S-22.10	Blue Plains WWTP: Enhanced Nutrient Removal	404,480	394,543	(9,937)	-2.5%	12,979	On-Going
S-22.11	Blue Plains: Pipelines & Appurtenances	147,842	152,284	4,442	3.0%	107,131	On-Going
	TOTALS	**$896,098**	**$953,616**	**$57,518**	**6.4%**	**$368,196**	

Summary: These five projects, with an estimated total cost of $953.6 million, provide funding for the upgrade, expansion, and enhancement of wastewater treatment and solids handling facilities at the Regional Blue Plains Wastewater Treatment Plant, located in the District of Columbia. Whereas typical WSSC projects encompass planning, design, construction, and start-up for a single project, with defined starting and ending dates, the Blue Plains projects are comprised of many sub-projects and are "open-ended." As the Blue Plains Facility Plans move forward and new sub-projects are approved, the costs of these new sub-projects are added to the appropriate existing Blue Plains project. The expenditures displayed represent the WSSC's calculated share. There are four main funding divisions: liquid treatment train (S-22.06); biosolids management (S-22.07); plant-wide projects (S-22.09); and, pipelines & appurtenances (S-22.11). Project S-22.10 Enhanced Nutrient Removal (ENR) will achieve nutrient removal levels surpassing Biological Nutrient Removal (BNR) as determined in the Tributary Strategy process of 2005 in order to meet Chesapeake Bay water quality targets.

Cost Impact: These five Blue Plains projects, which comprise one of the largest groups of expenditures in the CIP, represent 19% of the Six-Year WSSC CIP program. The figures shown above are derived from the latest available spending projections provided by the District of Columbia Water and Sewer Authority (DCWASA). Spending at the DCWASA staff-proposed rate in future years may challenge the WSSC's ability to stay within County-established spending affordability limits. It is, therefore, recommended that the coordination of development and approval of the DCWASA's and WSSC's CIPs be sustained in order that the economic development and environmental objectives of the region be met, without causing a rapid increase in WSSC customers' bills. An explanation of the cost changes for each project is included on the individual project description forms that immediately follow this summary page.

Blue Plains WWTP: Liquid Train Projects, Part 2

A. Identification and Coding Information

Agency Number	Project Number	Update Code
S-22.06	954811	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Bi-County 30;
Planning Areas	Bi-County;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**48,642**		3,398	**28,835**	2,294	3,926	4,843	3,863	7,151	6,758	16,409
Land											
Site Improvements & Utilities											
Construction	**196,598**		13,900	**95,712**	20,311	19,461	14,943	11,416	12,538	17,043	86,986
Other	**2,453**		173	**1,246**	226	234	198	153	197	238	1,034
Total	**247,693**		**17,471**	**125,793**	**22,831**	**23,621**	**19,984**	**15,432**	**19,886**	**24,039**	**104,429**

C. Funding Schedule (000's)

WSSC Bonds	**234,095**		16,512	**118,887**	21,578	22,324	18,887	14,585	18,794	22,719	98,696
City of Rockville	**13,598**		959	**6,906**	1,253	1,297	1,097	847	1,092	1,320	5,733

D. Description & Justification

DESCRIPTION

This project provides funding for WSSC's share of Blue Plains liquid train projects for which construction began after June 30, 1993. Major projects include: Filtration/Disinfection Facilities Phases I & II, upgrading influent screening, and upgrading effluent filters.

JUSTIFICATION

This is a continuation of the DCWASA's upgrading of the Blue Plains Wastewater Treatment Plant.

The Blue Plains Intermunicipal Agreement of 2012; the DCWASA Master Plan (1998); Blue Plains Facilities Master Plan (2016), and the DCWASA Approved FY 2019 Capital Improvements Program.

COST CHANGE

Costs beyond six years were increased for renewal and replacement of components expected to have reached the end of their useful life, including mechanical treatment components and some structural rebuilds of tanks and filters.

OTHER

The project scope has remained the same. Project costs are derived from the DCWASA Capital & Operating Budget 10-year forecast of spending and DCWASA's latest project management data, and fully reflect DCWASA's current cost estimates and expenditure schedules. Given the open-ended nature of the Blue Plains projects, this PDF does not fully reflect the total project costs. These projects are, in fact, expected to continue indefinitely. As new sub-projects are added to the Blue Plains facility plans, the associated costs will be added to this project. The funding schedule also indicates the calculated Rockville share of the cost. Life to date expenditures for this program are approximately $381 million.

COORDINATION

Coordinating Agencies: District of Columbia Water and Sewer Authority; (responsible for design and construction); City of Rockville; (responsible for a share of funding)

Coordinating Projects: S-22.10-Blue Plains WWTP: Enhanced Nutrient Removal;

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$15,228	
Total Cost	$15,228	
Impact on Water and Sewer Rate	$0.35	

F. Approval and Expenditure Data (000's)

Date First in Program	FY 95
Date First Approved	FY 95
Intial Cost Estimate	
Cost Estimate Last FY	192,823
Present Cost Estimate	247,693
Approved Request Last FY	17,471
Total Expense & Encumbrances	
Approval Request Year 1	22,831

G. Status Information

Land Status	Not Applicable
Project Phase	On-Going
Percent Complete	
Est Completion Date	On-Going

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	169.6 / 370 MGD

H. Map

MAP NOT AVAILABLE

Blue Plains WWTP: Biosolids Management, Part 2

A. Identification and Coding Information

Agency Number	Project Number	Update Code
S-22.07	954812	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Bi-County 30;
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	7,331		814	5,910	1,498	1,638	1,292	610	470	402	607
Land											
Site Improvements & Utilities											
Construction	33,731		6,998	26,733	8,565	9,064	7,330	1,525	249		
Other	410		78	326	101	107	86	21	7	4	6
Total	**41,472**		**7,890**	**32,969**	**10,164**	**10,809**	**8,708**	**2,156**	**726**	**406**	**613**

C. Funding Schedule (000's)

WSSC Bonds	39,196		7,457	31,160	9,606	10,216	8,230	2,038	686	384	579
City of Rockville	2,276		433	1,809	558	593	478	118	40	22	34

D. Description & Justification

DESCRIPTION

This project provides funding for WSSC's share of the Blue Plains biosolids handling projects for which construction began after June 30, 1993. Major projects include: Gravity Thickener Facility upgrades; and Solids Processing Building/Dewatered Sludge Loading Facility.

JUSTIFICATION

This project is needed to implement a set of facilities which will provide a permanent biosolids management program for Blue Plains.

The Blue Plains Intermunicipal Agreement of 2012; the DCWASA Master Plan (1998); EPMC IV Facility Plan, CH2MHILL (2001); the Biosolids Management at DCWASA Blue Plains Wastewater Treatment Plant Phase II - Design and Cost Considerations for Treatment Alternatives Report (December 2007); Blue Plains Facilities Master Plan (2016); and the DCWASA Approved FY 2019 Capital Improvement Program.

COST CHANGE

Not applicable.

OTHER

The project scope has remained the same. Project costs are derived from the DCWASA Capital & Operating Budget 10-year forecast of spending and DCWASA's latest project management data, and fully reflect DCWASA's current cost estimates and expenditure schedules. Given the open-ended nature of the Blue Plains projects, this PDF does not fully reflect the total project costs. These projects are, in fact, expected to continue indefinitely. As new sub-projects are added to the Blue Plains facility plans, the associated costs will be added to this project. Portions of the program have been financed by low interest loans through the Maryland Department of the Environment's Water Quality Administration State Revolving Loan Program. The funding schedule also indicates the calculated Rockville share of the cost. Life to date expenditures for this program are approximately $416 million.

COORDINATION

Coordinating Agencies: City of Rockville; (responsible for a share of funding); District of Columbia Water and Sewer Authority; (responsible for design and construction)

Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$2,550	
Total Cost	$2,550	
Impact on Water and Sewer Rate	$0.06	

F. Approval and Expenditure Data (000's)

Date First in Program	FY 95
Date First Approved	FY 95
Intial Cost Estimate	
Cost Estimate Last FY	40,688
Present Cost Estimate	41,472
Approved Request Last FY	7,890
Total Expense & Encumbrances	
Approval Request Year 1	10,164

G. Status Information

Land Status	Not Applicable
Project Phase	On-Going
Percent Complete	
Est Completion Date	On-Going

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	169.6 / 370 MGD

H. Map

MAP NOT AVAILABLE

Blue Plains WWTP: Plant-wide Projects

A. Identification and Coding Information

Agency Number	Project Number	Update Code
S-22.09	023805	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Bi-County 30;
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**26,840**		2,327	**22,131**	2,558	5,763	5,056	4,491	2,549	1,714	2,382
Land											
Site Improvements & Utilities											
Construction	**89,620**		5,798	**66,309**	7,825	14,414	15,180	13,330	7,852	7,708	17,513
Other	**1,164**		81	**884**	104	202	202	178	104	94	199
Total	**117,624**		**8,206**	**89,324**	**10,487**	**20,379**	**20,438**	**17,999**	**10,505**	**9,516**	**20,094**

C. Funding Schedule (000's)

WSSC Bonds	**111,167**		7,756	**84,420**	9,911	19,260	19,316	17,011	9,928	8,994	18,991
City of Rockville	**6,457**		450	**4,904**	576	1,119	1,122	988	577	522	1,103

D. Description & Justification

DESCRIPTION

This project provides funding for WSSC's share of Blue Plains plant-wide projects for which construction began after June 30, 1993. Major projects include: Electrical system upgrades, Floodwall construction, Lighting upgrades, Chemical system upgrades, Process Computer Control system, and Miscellaneous projects.

JUSTIFICATION

This is a continuation of the DCWASA's upgrading of the Blue Plains Wastewater Treatment Plant.

The Blue Plains Intermunicipal Agreement of 2012; the WASA Master Plan (1998); Blue Plains Facilities Master Plan (2016), and the DCWASA Approved FY 2019 Capital Improvement Program.

COST CHANGE

Not applicable.

OTHER

The project scope has remained the same. Project costs are derived from the DCWASA Capital & Operating Budget 10-year forecast and latest project management data, and reflect DCWASA's current expenditure estimates and schedules. Given the open-ended nature of the project, this PDF does not fully reflect the total project costs. These projects are, in fact, expected to continue indefinitely. As new sub-projects are added to the Blue Plains facility plans, the associated costs will be added to this project. The funding schedule also indicates the calculated Rockville share of the cost. Life to date expenditures for this program are approximately $217 million.

COORDINATION

Coordinating Agencies: City of Rockville; (responsible for a share of funding); District of Columbia Water and Sewer Authority; (responsible for design and construction)

Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$7,232	
Total Cost	$7,232	
Impact on Water and Sewer Rate	$0.17	

F. Approval and Expenditure Data (000's)

Date First in Program	FY 95
Date First Approved	FY 02
Intial Cost Estimate	
Cost Estimate Last FY	110,265
Present Cost Estimate	117,624
Approved Request Last FY	8,206
Total Expense & Encumbrances	
Approval Request Year 1	10,487

G. Status Information

Land Status	Not Applicable
Project Phase	On-Going
Percent Complete	
Est Completion Date	On-Going

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	169.6 / 370 MGD

H. Map

MAP NOT AVAILABLE

Blue Plains WWTP: Enhanced Nutrient Removal

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
S-22.10	083800	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Bi-County 30;
Planning Areas	Bi-County;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**104,214**	89,072	5,224	**6,956**	942	846	747	1,496	1,474	1,451	2,962
Land											
Site Improvements & Utilities											
Construction	**289,949**	267,217	3,038	**5,894**	550	351	128	6	13	4,846	13,800
Other	**380**		83	**129**	15	12	9	15	15	63	168
Total	**394,543**	**356,289**	**8,345**	**12,979**	**1,507**	**1,209**	**884**	**1,517**	**1,502**	**6,360**	**16,930**

C. Funding Schedule (000's)

WSSC Bonds	**173,123**	144,032	3,991	**9,388**	677	349	307	1,199	1,113	5,743	15,712
State Aid	**213,184**	205,712	4,122	**3,045**	791	840	559	248	324	283	305
City of Rockville	**8,236**	6,545	232	**546**	39	20	18	70	65	334	913

D. Description & Justification

DESCRIPTION

This project provides funding for WSSC's share of the Blue Plains Enhanced Nutrient Removal (ENR) projects required to achieve nutrient removal to levels below Biological Nutrient Removal (BNR) levels to meet the Chesapeake Bay water quality targets determined in the 2005 Tributary Strategies Process and DC Water's 2010 NPDES permit. Major projects include: Enhanced Nitrogen Removal North, Enhanced Clarification Facilities, Enhanced Nitrogen Removal Facilities, Biosolids Filtrate Treatment Facilities, Combined Heat & Power as Back-up Power, Biosolids Blending Development Center, ENR Program Management, Wet Weather Mitigation, Diversion at Bolling, a portion of the Blue Plains Tunnel, and the Tunnel Dewatering Pump Station (used as flow equalization to aid nutrient removal at Blue Plains).

JUSTIFICATION

The funding schedule reflects the final cost sharing agreement with the Maryland Department of the Environment.

Chesapeake Bay Program Tributary Strategies Process (2005); Blue Plains Strategic Process Study, Metcalf & Eddy (2005); Selection of the Enhanced Nitrogen Removal Process Alternative for the Blue Plains Advanced Wastewater Treatment Facility, Metcalf & Eddy (2009); Blue Plains Facilities Master Plan (2016); DCWASA Approved FY 2019 Capital Improvement Program, and the Blue Plains Intermunicipal Agreement of 2012.

COST CHANGE

ENR upgrades are substantially complete. Future upgrades are planned for secondary treatment to provide full nitrification under future flow conditions.

OTHER

The project scope has remained the same. Project costs are derived from the DCWASA Capital & Operating Budget 10-year forecast and latest project management data, and reflect DCWASA's current expenditure estimates and schedules. Total Nitrogen Secondary Treatment Upgrades are scheduled to be initiated in FY23 or later. Projects extending beyond those supported by State Aid include rehabilitation and upgrades to older projects. Portions of the program have been financed by low interest loans through the Maryland Department of the Environment's Water Quality Administration State Revolving Loan Program. The funding schedule also indicates the calculated Rockville share of the cost.

COORDINATION

Coordinating Agencies: Maryland Department of the Environment; U.S. Environmental Protection Agency, Region III; District of Columbia Water and Sewer Authority; (responsible for design and construction); City of Rockville; (responsible for a share of funding)
Coordinating Projects: S-22.06-Blue Plains WWTP: Liquid Train Projects, Part 2;

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$11,262	
Total Cost	$11,262	
Impact on Water and Sewer Rate	$0.26	

F. Approval and Expenditure Data (000's)

Date First in Program	FY 08
Date First Approved	FY 07
Intial Cost Estimate	648
Cost Estimate Last FY	404,480
Present Cost Estimate	394,543
Approved Request Last FY	8,345
Total Expense & Encumbrances	356,289
Approval Request Year 1	1,507

G. Status Information

Land Status	Not Applicable
Project Phase	Construction
Percent Complete	96%
Est Completion Date	FY 2026

Growth	
System Improvement	
Environmental Regulation	100%
Population Served	
Capacity	169.2 / 370 MGD

H. Map

MAP NOT AVAILABLE

Blue Plains: Pipelines & Appurtenances

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
S-22.11	113804	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Bi-County 30;
Planning Areas	Bi-County;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**24,380**		3,833	**19,194**	3,644	4,403	4,442	3,354	1,925	1,426	1,353
Land											
Site Improvements & Utilities											
Construction	**126,397**		19,328	**86,877**	13,304	13,501	21,444	15,145	14,718	8,765	20,192
Other	**1,507**		232	**1,060**	169	179	259	185	166	102	215
Total	**152,284**		**23,393**	**107,131**	**17,117**	**18,083**	**26,145**	**18,684**	**16,809**	**10,293**	**21,760**

C. Funding Schedule (000's)

WSSC Bonds	**144,693**		22,573	**102,545**	16,708	17,631	25,446	17,663	15,602	9,495	19,575
City of Rockville	**7,591**		820	**4,586**	409	452	699	1,021	1,207	798	2,185

D. Description & Justification

DESCRIPTION

This project provides funding for WSSC's share of Blue Plains-associated projects which are "outside the fence" of the treatment plant. Major projects include: Potomac Interceptor Rehabilitation; Upper Potomac Interceptor; Potomac Sewage Pumping Station Rehabilitation; Main Sewage Pumping Station intermediate repairs; Renovations to the central operations facility; Rehabilitation of the Anacostia and Potomac force mains; Influent Sewers Rehabilitation; and projects associated with the Combined Sewer Overflow (CSO) Long Term Control Plan (Clean Rivers Program) (Anacostia and Potomac Tunnels).

JUSTIFICATION

This is a continuation of DCWASA's upgrading of the Blue Plains-associated projects outside the fence.

The Blue Plains Intermunicipal Agreement of 2012; the WASA Master Plan (1998); Technical Memorandum No. 1, Multi-Jurisdictional Use Facilities Capital Cost Allocation, (June 2013); and the DCWASA Approved FY 2019 Capital Improvement Program.

COST CHANGE

Not Applicable.

OTHER

The project scope has remained the same. Project costs are derived from the DC-WASA Capital & Operating Budget 10-year forecast and project management data, and reflect WASA's expenditure estimates and schedules. Given the open-ended nature of the project, this PDF does not fully reflect the total project costs. These projects are, in fact, expected to continue indefinitely. As new sub-projects are added to the Blue Plains facility plans, the associated costs will be added to this project. The funding schedule also indicates the calculated Rockville share of the cost which varies by project based on the City's relative share of WSSC's flow as derived in the Multijurisdiction Use Facilities Study. Life to date expenditures for this program are approximately $164 million.

COORDINATION

Coordinating Agencies: City of Rockville; (responsible for a share of funding); District of Columbia Water and Sewer Authority; (responsible for design and construction)

Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$9,412	
Total Cost	$9,412	
Impact on Water and Sewer Rate	$0.22	

F. Approval and Expenditure Data (000's)

Date First in Program	FY 11
Date First Approved	FY 02
Intial Cost Estimate	
Cost Estimate Last FY	147,842
Present Cost Estimate	152,284
Approved Request Last FY	23,393
Total Expense & Encumbrances	
Approval Request Year 1	17,117

G. Status Information

Land Status	Not Applicable
Project Phase	On-Going
Percent Complete	
Est Completion Date	On-Going

Growth	
System Improvement	45%
Environmental Regulation	55%
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE

Piscataway WRRF Bio-Energy Project

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
S-103.02	153802	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**42,290**	11,030	4,950	**26,310**	9,150	9,250	5,540	1,420	950		
Land											
Site Improvements & Utilities											
Construction	**207,750**		23,800	**183,950**	46,200	55,500	55,450	17,900	8,900		
Other	**11,953**		1,438	**10,515**	2,768	3,238	3,050	966	493		
Total	**261,993**	**11,030**	**30,188**	**220,775**	**58,118**	**67,988**	**64,040**	**20,286**	**10,343**		

C. Funding Schedule (000's)

WSSC Bonds	**257,923**	10,460	29,688	**217,775**	56,618	66,488	64,040	20,286	10,343		
Federal Aid	**570**	570									
State Aid	**3,500**		500	**3,000**	1,500	1,500					

D. Description & Justification

DESCRIPTION

This project will develop a comprehensive program for the engineering, design, construction, maintenance, and monitoring and verification necessary to add sustainable energy equipment and systems to produce biogas and electricity at Piscataway WRRF. It will provide a reduction in operations, maintenance, chemicals, biosolids transportation, and biosolids disposal costs. It will also enhance existing operating conditions and reliability while continuing to meet all permit requirements, and ensure a continued commitment to environmental stewardship at WSSC sites. The scope of work includes, but is not limited to, the addition of anaerobic digestion equipment; thermal hydrolysis pretreatment equipment; gas cleaning, storage and upgrade systems; tanks; piping; valves; pumps; biosolids pre- and post dewatering; cake receiving and blending; cake storage; effluent disinfection systems; instrumentation; flow metering; power measurement; and combined heat and power generation systems.

JUSTIFICATION

In March 2009, the WSSC received approval for a federal Department of Energy grant of $570,900 for the feasibility study/conceptual design phase. On June 16, 2010, the WSSC awarded the study contract to AECOM Technical Services, Inc., of Laurel, Maryland. The study was completed in December 2011, and the Thermal Hydrolysis/Mesophilic Anaerobic Digestion/Combined Heat & Power facility was recommended to be constructed and was presented to the Commission in April 2012.

The EPA is urging wastewater utilities to utilize this commercially available technology (anaerobic digestion) to produce power at a cost below retail electricity, displace purchased fuels for thermal needs, produce renewable fuel for green power programs, enhance power reliability for the wastewater treatment plant to prevent sanitary sewer overflows, reduce biosolids production and improve the health of the Chesapeake Bay, and to reduce greenhouse gas (GHG) and other air pollutants. In April 2009, the EPA announced that greenhouse gases contributed to air pollution that may endanger public health or welfare, and began proceedings to regulate CO2 under the Clean Air Act. In June 2014, the EPA announced a proposed rule to reduce carbon emissions from power plants by 30% by 2030, compared to the levels in 2005. Based on AECOM's feasibility study work as of May 2011, a regional/centralized plant at a location to be determined based on a Thermal Hydrolysis/Mesophillic Anaerobic Digestion/Combined Heat & Power (TH/MAD/CHP) process supplemented by restaurant grease fuel design was recommended.

The environmental benefits are estimated as follows: Recover approximately 2 MW of renewable energy from wastewater biomass; reduce Geenhouse Gas production by 11,800 tons/year; reduce biosolids output by 50 - 55% of current output; reduce lime demand by 4,100 tons/year; maintain permitted nutrient load limits to the Chesapeake Bay; reduce 5 million gallons/year of grease discharge to sewers; produce pathogen-free Class A Biosolids.

The economic benefits are estimated as follows: Recover more than $1.5 million of renewable energy costs/year; reduce biosolids disposal costs by ~ $1.7 million/year; reduce chemical costs by ~ $500,000/year; hedge against rising costs of power fuel and chemicals; provide a net payback over time.

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$16,778	25
Total Cost	$16,778	25
Impact on Water and Sewer Rate	$0.38	25

F. Approval and Expenditure Data (000's)

Date First in Program	FY 15
Date First Approved	FY 10
Intial Cost Estimate	345
Cost Estimate Last FY	248,677
Present Cost Estimate	261,993
Approved Request Last FY	40,310
Total Expense & Encumbrances	11,030
Approval Request Year 1	58,118

G. Status Information

Land Status	Public/Agency owned land
Project Phase	Design
Percent Complete	12%
Est Completion Date	August 2023

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE

Piscataway WRRF Bio-Energy Project

Plans & Studies: Appel Consultants, Urban Waste Grease Resource Assessment-NREL (November 1998); Environmental Protection Agency (EPA), Opportunities For and Benefits Of Combined Heat and Power at Wastewater Treatment Facilities (December 2006); Brown & Caldwell, Anaerobic Digestion and Electric Generation Options for WSSC (November 2007); Metcalf & Eddy, WSSC Sludge Digestion Study for Piscataway and Seneca (December 2007); Black & Veatch, WSSC Digester Scope and Analysis (December 2007); JMT, Prince George's County Septage (FOG) Discharge Facility Study (February 2008); JMT, Western Research Institute (WRI) Biogas Feasibility Study Scope of Work - WSSC (April 2008); JMT, Montgomery County Septage (FOG) Discharge Facility Study (January 2010); Facility Plan for the Rock Creek Wastewater Treatment Plant (January 2010); AECOM Technical Services, Inc., Anaerobic Digestion/Combined Heat & Power Study (December 2011, Executive Summary Revised May 2013). HDR Inc. Design Criteria Report (July 2017). HDR Inc. Design Development Report (March 2017).

COST CHANGE

Cost increased to reflect recent market trends in construction industry escalations for costs of labor, steel, diesel, miscellaneous metals, concrete, electrical and process equipment, and other materials.

OTHER

The project scope has remained the same. The Commission has a defined scope and estimated capital cost, and is able to proceed with the detailed design and construction of the anerobic digestion, biomass, and combined heat and power generation system facilities for treating all biosolids from WSSC's Damascus, Seneca, Parkway, Western Branch and Piscataway WRRFs. The Montgomery and Prince George's County Councils were briefed and approved the project by resolution on November 25, 2014, and September 9, 2014, respectively. In April 2017 the Maryland Energy Administration notified WSSC of approval of grant funding up to $500,000. In June 2017 WSSC was approved for a $3 million grant through the Maryland Department of the Environment's Energy Water Infrastructure Program (EWIP). WSSC has also applied for grants from the local power utility. WSSC will continue to apply for other available funding sources. The Commission retained the following consulting services: in 2015 - Hawkins, Delafield and Wood - procurement; Raftelis Financial Consultants - financial; in 2016 - HDR Inc for program management and construction management for the Bio-Energy project. In Sept 2017 WSSC issued a Request For Proposals (RFP) to two design--build entities for a progressive design-build delivery of the Bio-Energy Project. Transporting of biosolids from Western Branch WRRF to Piscataway was included in FY2019 program update. A portion of this project will be financed by low interest loans through the Maryland Department of the Environment's Water Quality Administration State Revolving Loan Program.

COORDINATION

Coordinating Agencies: Montgomery County Government; Prince George's County Government; Maryland-National Capital Park & Planning Commission; (Mandatory Referral Process); Montgomery County Department of Environmental Protection; Maryland Department of the Environment; Chesapeake Bay Critical Areas; Maryland Energy Administration Washington Gas Light Company; SMECO

Coordinating Projects: S-96.14-Piscataway WRRF Facility Upgrades; S-170.08-Septage Discharge Facility Planning & Implementation;

Septage Discharge Facility Planning & Implementation

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
S-170.08	103802	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**4,640**	3,840	40	**760**	360	360	40				
Land											
Site Improvements & Utilities											
Construction	**25,335**	1,335	1,200	**22,800**	10,800	10,800	1,200				
Other	**2,480**		124	**2,356**	1,116	1,116	124				
Total	**32,455**	**5,175**	**1,364**	**25,916**	**12,276**	**12,276**	**1,364**				

C. Funding Schedule (000's)

WSSC Bonds	**32,455**	5,175	1,364	**25,916**	12,276	12,276	1,364				

D. Description & Justification

DESCRIPTION

This project provides for the planning, design, and construction of a new Septage and Fats, Oils, Grease (FOG) discharge facility at the abandoned Rock Creek WRRF, and new Septage discharge facilities at Anacostia WWPS No 2 and Piscataway WRRF.

JUSTIFICATION

Currently septage waste is collected at three locations: Muddy Branch Road Disposal Site in Montgomery County, and Ritchie Road Disposal Site and Bladensburg Disposal Site in Prince George's County (the Temple Hills Road site was closed down on July 1, 2015). The types of waste collected are as follows: Septic Tank Pump-Out (Sludge), Waste Holding Tank Discharge (Gray Water); Grease Trap Pump Out (FOG), Bus Holding Tank Discharge (Sewage and Chemicals), and Small Food Service Providers (Low Volume FOG Waste). FOG wastes should not be discharged to the Commission's sewerage system without treatment.

Septage Discharge Facility Study for Montgomery County: Final Report, JMT (July 2012); Septage Discharge Facility Study for Prince George's County: Final Report, JMT (July 2012).

COST CHANGE

The estimated construction cost of the three facilities has increased slightly based upon a more refined cost estimate for the Piscataway Septage Facility.

OTHER

The project scope has remained the same. The design of the Rock Creek and Anacostia sites are 100% complete. The design of the Piscataway site is 30% complete. The expenditures and schedule projections shown in Block B are estimates at the current design stages at each site, and may change based upon actual bid. The design and construction of the FOG Discharge Facility at the Piscataway WRRF has been moved to the Piscataway WRRF Bio-Energy Project.

COORDINATION

Coordinating Agencies: Montgomery County Government; Prince George's County Government; Maryland-National Capital Park & Planning Commission; (Mandatory Referral) Montgomery County Department of Environmental Protection; Maryland Department of Natural Resources; Maryland Department of the Environment; Prince George's County Department of Environmental Resources;

Coordinating Projects: S-103.02-Piscataway WRRF Bio-Energy Project;

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$2,111	23
Total Cost	$2,111	23
Impact on Water and Sewer Rate	$0.05	23

F. Approval and Expenditure Data (000's)

Date First in Program	FY 10
Date First Approved	FY 10
Intial Cost Estimate	10,835
Cost Estimate Last FY	30,494
Present Cost Estimate	32,455
Approved Request Last FY	5,229
Total Expense & Encumbrances	5,175
Approval Request Year 1	12,276

G. Status Information

Land Status	Public/Agency owned land
Project Phase	Design
Percent Complete	70%
Est Completion Date	FY 2022

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT APPLICABLE

Trunk Sewer Reconstruction Program

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
S-170.09	113805	Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Bi-County 30;
Planning Areas	Bi-County;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**89,401**		17,171	**72,230**	14,921	15,869	12,058	9,506	9,791	10,085	
Land											
Site Improvements & Utilities											
Construction	**248,670**		50,750	**197,920**	54,372	55,553	28,568	19,227	19,803	20,397	
Other	**33,564**		6,936	**26,628**	6,033	6,214	4,514	3,192	3,288	3,387	
Total	**371,635**		**74,857**	**296,778**	**75,326**	**77,636**	**45,140**	**31,925**	**32,882**	**33,869**	

C. Funding Schedule (000's)

WSSC Bonds	**371,635**		74,857	**296,778**	75,326	77,636	45,140	31,925	32,882	33,869	

D. Description & Justification

DESCRIPTION

The Trunk Sewer Reconstruction Program provides for the inspection, evaluation, planning, design, and construction required for the rehabilitation of sewer mains and their associated manholes in environmentally sensitive areas (ESA). This includes both trunk sewers 15-inches in diameter and greater, along with associated smaller diameter pipe less than 15-inches in diameter. The smaller diameter pipe is included due to its location within the ESA. The Program also includes planning, design and construction for the prioritized replacement of force mains.

JUSTIFICATION

Under the terms of the Consent Decree the WSSC Trunk Sewer Inspection Program inspected all required sewers in 21 basins by December 2010 and completed Sewer System Evaluation Surveys (SSES) for 9 basins. WSSC shall conduct rainfall, groundwater and flow monitoring to determine Inflow/Infiltration (I/I) rates and identify areas of limited capacity through collection system modeling. Where appropriate, WSSC shall use additional means to identify sources of I/I, including CCTV, smoke and/or dye testing. All the Trunk Sewer Inspections, SSES work and other related collection system evaluations are complete. Due to the delay in receiving permits, as well as Right-of-Entry permissions and subcontractor availability, trunk sewer reconstruction work has been delayed. All USACE and MDE permits have been received. WSSC Sanitary Sewer Overflow Consent Decree (December 7, 2005). Second Amendment to WSSC Sanitary Sewer Overflow Consent Decree (December 4, 2015)

COST CHANGE

Program costs reflect the latest expenditure and schedule estimates.

OTHER

The project scope has remained the same. Reconstruction work will include: reduction of I/I; replacement of substandard sewer segments; in situ lining of sewer segments; pipeline and manhole protection; rebuilding of manholes; and correction of structural defects and poor alignment. The reconstruction work in each sewer basin will be prioritized to most effectively prevent Sanitary Sewer Overflows (SSO) and backups. A Second Amendment to the Consent Decree extending WSSC's deadline to FY 2022 was agreed to by the U.S. Environmental Protection Agency, U.S. Department of Justice, and Maryland Department of the Environment and was entered by the US District Court. All construction contracts for ESA work have been awarded and the approved amounts have been utilized in the current budget projections. As actual construction progresses the projections may be updated. Beginning in FY 2015, construction work increased in the ESAs as a majority of the work was released for construction. Most of the upfront costs are associated with the construction of access roads and by-pass pumping. After completion of a majority of the Priority 1 construction activities associated with the Consent Decree, Phase 2 work (Priority 2 & 3 plus any newly identified Priority 1) is programmed at roughly five miles per year beginning in FY 2023. Life to date expenditures for this program are approximately $516 million. Land costs are included in WSSC Project S-203.00.

COORDINATION

Coordinating Agencies: Maryland State Highway Administration; Montgomery County Department of Public Works and Transportation; Maryland-National Capital Park & Planning Commission; National Park Service; Maryland Department of the Environment; Maryland Department of Natural Resources; (Critical Area Commission, FSD Approval Forest Conservation/Reforestation Rare, Threatened or Endangered Species) Prince George's County Department of Permitting Inspection and Enforcement; U.S. Army Corps of Engineers; U.S. Environmental Protection Agency, Region III; Maryland Historical Trust;

Coordinating Projects: S-1.01-Sewer Reconstruction Program;

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance	$459	26
Other Project Costs		
Debt Service	$24,175	26
Total Cost	$24,634	26
Impact on Water and Sewer Rate	$0.56	26

F. Approval and Expenditure Data (000's)

Date First in Program	FY 11
Date First Approved	FY 11
Intial Cost Estimate	
Cost Estimate Last FY	440,073
Present Cost Estimate	371,635
Approved Request Last FY	81,615
Total Expense & Encumbrances	
Approval Request Year 1	75,326

G. Status Information

Land Status	Land and R/W to be acquired
Project Phase	On-Going
Percent Complete	
Est Completion Date	On-Going

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT APPLICABLE

DATE: October 1, 2018

FINANCIAL SUMMARY

(ALL FIGURES IN THOUSANDS)

INFORMATION ONLY PROJECTS

AGENCY NUMBER	PROJECT NAME	EST. TOTAL COST	EXPEND THRU 18	EST. EXPEND 19	TOTAL SIX YEARS	EXPENDITURE SCHEDULE YR 1 20	YR 2 21	YR 3 22	YR 4 23	YR 5 24	YR 6 25	BEYOND SIX YEARS	PAGE NUM
W-1.00	Water Reconstruction Program	815,164	0	121,892	693,272	75,784	96,382	121,439	127,512	132,982	139,173	0	7-2
S-1.01	Sewer Reconstruction Program	496,842	0	62,971	433,871	64,684	69,538	71,624	73,772	75,987	78,266	0	7-3
A-102.00	Engineering Support Program	128,000	0	14,000	114,000	18,000	18,000	18,000	20,000	20,000	20,000	0	7-4
A-103.00	Energy Performance Program	25,105	0	11,308	13,797	5,898	3,636	2,888	1,375	0	0	0	7-5
A-105.00	Water Storage Facility Rehabilitation Program	18,630	0	630	18,000	3,000	3,000	3,000	3,000	3,000	3,000	0	7-6
A-107.00	Specialty Valve Vault Rehabilitation Program	37,947	29,603	419	6,343	1,119	1,104	2,115	1,268	568	169	1,582	7-7
A-109.00	Advanced Metering Infrastructure	96,750	875	19,175	76,700	17,577	19,175	19,175	19,175	1,598	0	0	7-8
S-300.01	D'Arcy Park North Relief Sewer	916	90	267	559	282	277	0	0	0	0	0	7-9
	Projects Pending Close-Out	6,394	4,135	2,259	0	0	0	0	0	0	0	0	7-10
	TOTAL INFORMATION ONLY PROJECTS	1,625,748	34,703	232,921	1,356,542	186,344	211,112	238,241	246,102	234,135	240,608	1,582	

Water Reconstruction Program

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W-1.00		Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	Bi-County;
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**110,960**		19,208	**91,752**	11,281	11,829	13,945	16,176	18,202	20,319	
Land											
Site Improvements & Utilities											
Construction	**609,807**		87,151	**522,656**	55,580	73,372	93,756	96,938	99,781	103,229	
Other	**94,397**		15,533	**78,864**	8,923	11,181	13,738	14,398	14,999	15,625	
Total	**815,164**		**121,892**	**693,272**	**75,784**	**96,382**	**121,439**	**127,512**	**132,982**	**139,173**	

C. Funding Schedule (000's)

WSSC Bonds	**815,164**		121,892	**693,272**	75,784	96,382	121,439	127,512	132,982	139,173	

D. Description & Justification

DESCRIPTION

The purpose of this program is to renew and extend the useful life of water mains, house connections, and large water services. Portions of the water system are more than 80 years old. Bare cast iron mains, installed generally before 1965, permit the build-up of tuberculation which can reduce flow and cause discoloration at the customer's tap. Selected replacement is necessary to supply water in sufficient quantity, quality and pressure for domestic use and fire fighting. As the system ages, water main breaks are increasing. Selected mains are chronically breaking and other mains are undersized for the current flow standards. Replacement, rehabilitation via structural lining, and the addition of cathodic protection to these mains provides added value to the customer. Galvanized, copper and cast iron water mains, as well as all other water main appurtenances including meter and PRV vaults are replaced on an as needed basis when they have exceeded their useful life. * EXPENDITURES FOR WATER RECONSTRUCTION ARE EXPECTED TO CONTINUE INDEFINITELY.

JUSTIFICATION

The program's projected work units and expenditure levels for FY'20 (including overhead) are as follows: design and construction of main replacement and associated water house connection renewals, 25 miles - $56.5M; cathodic protection - $1.1M; Leak Detection system - $3.0M; design and construction of large water service replacements - $8.4M; emergency contracts at depots - $6.8M. Note: The specific mix and type of water main reconstruction may vary in any given year depending on the nature and priority of the work to be addressed. Program level may be adjusted in future years based upon the results of the Asset Management Plan. Based upon the prioritization and recommendations in the Enterprise Asset Management Plan, the number of miles of water main replacement was reduced from 45 miles to 25 miles per year.

Flow studies, water system modeling, and field surveys are routinely conducted. Water Main Condition Assessment, 1915-1998; Analysis and Recommendations by the Water Main Reconstruction Work Group (June, 1999). FY2018 Buried Water Asset Systems Asset Management Plan, (December 2015) identifies the business risk exposure of the water distribution system. FY2019 Enterprise Asset Management Plan (May 2017)

COST CHANGE

Overall program costs increased for inflation and higher construction unit costs.

OTHER

The water reconstruction program has been ongoing since 1979. Funding in the six-year program period is subject to Spending Affordability Guideline limits. The following work accomplishments through FY'18 summarize the magnitude of the reconstruction effort: 1,839 miles rehabilitated or replaced; 237 large water service/meters replaced. It is anticipated water reconstruction activity will be a perpetual element of future work programs.

COORDINATION

Coordinating Agencies: Maryland State Highway Administration; Montgomery County Department of Public Works and Transportation; Montgomery County Government; Prince George's County Government; Prince George's County Department of Permitting Inspection and Enforcement; Local Community Civic Associations;
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$53,027	26
Total Cost	$53,027	26
Impact on Water and Sewer Rate	$1.16	26

F. Approval and Expenditure Data (000's)

Date First in Program	
Date First Approved	
Intial Cost Estimate	
Cost Estimate Last FY	735,727
Present Cost Estimate	815,164
Approved Request Last FY	99,925
Total Expense & Encumbrances	
Approval Request Year 1	75,784

G. Status Information

Land Status	Not Applicable
Project Phase	On-Going
Percent Complete	0%
Est Completion Date	On-Going

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT APPLICABLE

Sewer Reconstruction Program

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
S-1.01		Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	Bi-County 30;
Planning Areas	Bi-County;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**108,999**		13,654	**95,345**	14,262	15,272	15,731	16,202	16,689	17,189	
Land											
Site Improvements & Utilities											
Construction	**338,159**		43,020	**295,139**	43,954	47,312	48,731	50,193	51,699	53,250	
Other	**49,684**		6,297	**43,387**	6,468	6,954	7,162	7,377	7,599	7,827	
Total	**496,842**		**62,971**	**433,871**	**64,684**	**69,538**	**71,624**	**73,772**	**75,987**	**78,266**	

C. Funding Schedule (000's)

WSSC Bonds	**359,842**		45,971	**313,871**	44,684	49,538	51,624	53,772	55,987	58,266	
State Aid	**137,000**		17,000	**120,000**	20,000	20,000	20,000	20,000	20,000	20,000	

D. Description & Justification

DESCRIPTION

This program funds a comprehensive sewer system rehabilitation program in residential areas. The main component of this program is the rehabilitation and/or repair of sewer mains less than 15-inches in diameter and sewer house connections. The program addresses infiltration and inflow control, exposed pipe problems, and future capacity needs for the basin. The rehabilitation and repair funded by this program includes the rehabilitation and repair recommended by comprehensive basin studies as well as that resulting from sewer systems evaluations, line blockage assessments, field surveys, and closed circuit TV inspections. This program does not include funding for any major capital projects (e.g. CIP size relief or replacement sewers) that may result from a comprehensive basin study. These are funded separately in the CIP. * EXPENDITURES FOR SEWER RECONSTRUCTION ARE EXPECTED TO CONTINUE INDEFINITELY.

JUSTIFICATION

The work units and associated costs are based on our historical experience with regards to timing of design and construction work and availability of authorized contractors for proprietary rehabilitation techniques. The program's projected work units and expenditure levels for FY'20 (including overhead) are as follows: 20 miles of mainline construction - $32.1M; 6 miles of lateral line construction and associated sewer house connection renewals - $29.7M; emergency repairs - $2.9M. Note: The specific mix and type of sewer reconstruction may vary in any given year depending on identified system defects.

Comprehensive Basin Studies, Sewer System Evaluation Surveys, Line Blockage Assessments, field surveys, closed circuit TV inspections, and/or other activities investigating specific portions of the collection system. WSSC FY2019 Buried WasteWater Asset Systems Asset Management Plan (December 2016).

COST CHANGE

The overall program cost estimate reflects the current plan for the completion of Phase 2 (Priority 2 and Priority 3) Consent Decree work.

OTHER

The project scope has remained the same. The program schedule and expenditures shown above reflect the terms of the Sanitary Sewer Overflow Consent Decree. The Consent Decree between WSSC, Maryland Department of the Environment (MDE), and the EPA was entered into on December 7, 2005. WSSC has applied for low interest loans through the MDE's Water Quality Administration State Revolving Loan Program and grant funding from the MDE Bay Restoration Fund for portions of this program. The sewer reconstruction program was established in 1979. Expenditures for grouting repairs are included in the operating budget. The following work accomplishments through FY'18 summarize the magnitude of this reconstruction effort: sewer main reconstruction - 503 miles. It is anticipated that sewer reconstruction activity will be a perpetual element of future work programs.

COORDINATION

Coordinating Agencies: Maryland State Highway Administration; Montgomery County Department of Public Works and Transportation; Montgomery County Government; (including local municipalities where work is to be performed); Prince George's County Government; (including local municipalities where work is to be performed); Maryland Department of the Environment; (SSO Consent Decree Compliance); Prince George's County Department of Permitting Inspection and Enforcement; U.S. Environmental Protection Agency, Region III; (SSO Consent Decree Compliance); Local Community Civic Associations;

Coordinating Projects: S-170.09-Trunk Sewer Reconstruction Program;

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance	$2,297	26
Other Project Costs		
Debt Service	$23,408	26
Total Cost	$25,705	26
Impact on Water and Sewer Rate	$0.59	26

F. Approval and Expenditure Data (000's)

Date First in Program	
Date First Approved	
Intial Cost Estimate	
Cost Estimate Last FY	486,081
Present Cost Estimate	496,842
Approved Request Last FY	64,684
Total Expense & Encumbrances	
Approval Request Year 1	64,684

G. Status Information

Land Status	Not Applicable
Project Phase	On-Going
Percent Complete	0%
Est Completion Date	On-Going

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT APPLICABLE

Engineering Support Program

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
A-102.00		Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision											
Land											
Site Improvements & Utilities											
Construction	**128,000**		14,000	**114,000**	18,000	18,000	18,000	20,000	20,000	20,000	
Other											
Total	**128,000**		**14,000**	**114,000**	**18,000**	**18,000**	**18,000**	**20,000**	**20,000**	**20,000**	

C. Funding Schedule (000's)

WSSC Bonds	**128,000**		14,000	**114,000**	18,000	18,000	18,000	20,000	20,000	20,000	

D. Description & Justification

DESCRIPTION

The Engineering Support Program (ESP) represents a consolidation of a diverse group of projects whose unified purpose is to support the extensive water and sewer infrastructure and numerous support facilities that are owned, operated, and maintained by the WSSC. EXPENDITURES FOR ENGINEERING SUPPORT ARE EXPECTED TO CONTINUE INDEFINITELY.

JUSTIFICATION

ESP projects are identified primarily through the WSSC's Asset Management Plan Business Case process. Engineering services are provided for planning, design, and construction to meet a wide range of needs. As such, ESP projects are diverse in scope and typically include work needed to upgrade operating efficiency, modify existing processes, satisfy regulatory requirements, improve safety and security, or rehabilitate aging facilities. The ESP does not include proposed "major projects" which, by law, must be programmed in the WSSC Six-Year Capital Improvements Program or projects to serve new development.

Asset Management Implementation Plan, Stearns & Wheler (April 2008).

COST CHANGE

The annual capital funding level has been increased based upon higher projected needs for facilities requiring rehabilitation.

OTHER

The ESP process provides a stable funding level for projects that require engineering support. Each year, the requested projects will be prioritized and then initiated subject to the available funding for the fiscal year.

COORDINATION

Coordinating Agencies: Not Applicable
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$8,327	26
Total Cost	$8,327	26
Impact on Water and Sewer Rate	$0.18	26

F. Approval and Expenditure Data (000's)

Date First in Program	FY 87
Date First Approved	FY 87
Intial Cost Estimate	
Cost Estimate Last FY	122,000
Present Cost Estimate	128,000
Approved Request Last FY	14,000
Total Expense & Encumbrances	
Approval Request Year 1	18,000

G. Status Information

Land Status	Not Applicable
Project Phase	On-Going
Percent Complete	0%
Est Completion Date	On-Going

Growth	
System Improvement	
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT APPLICABLE

Energy Performance Program

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
A-103.00		Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**4,495**		1,830	**2,665**	1,262	638	515	250			
Land											
Site Improvements & Utilities											
Construction	**18,327**		8,450	**9,877**	4,100	2,667	2,110	1,000			
Other	**2,283**		1,028	**1,255**	536	331	263	125			
Total	**25,105**		**11,308**	**13,797**	**5,898**	**3,636**	**2,888**	**1,375**			

C. Funding Schedule (000's)

WSSC Bonds	**23,905**		10,408	**13,497**	5,598	3,636	2,888	1,375			
Contribution/Other	**1,200**		900	**300**	300						

D. Description & Justification

DESCRIPTION

This program provides for the planning, design and construction of projects to replace and upgrade energy consuming equipment and systems at all Commission facilities to reduce energy consumption and energy-related costs (electricity, fuel oil, natural gas, or other fuel). The projects will maintain or enhance existing operating conditions and reliability while continuing to meet all permit requirements and ensuring a continued commitment to environmental stewardship. Energy conservation measures may include, but are not limited to, the replacement or upgrade of water and wastewater process equipment, wastewater pumps, water pump/valve/motor replacement, peak shaving and backup power generation systems, variable speed drives, HVAC equipment/systems, and lighting. A baseline is established to identify energy usage and costs before the equipment upgrades are implemented and then compared to the actual energy savings to quantify the savings.

JUSTIFICATION

Past Projects: Phases I-A through 1-D were implemented through various Energy Services Companies (ESCO) and Power Purchase Agreement (PPA) procurement mechanisms. Detailed engineering audits and planning of equipment and operations upgrades were undertaken to develop an energy efficient and guaranteed savings program. The implementation phases involved detailed design, construction, savings monitoring, energy/energy-related savings guarantees and, for solar and wind, Power Purchase Agreements. The upgrades were implemented at WSSC's water and wastewater treatment and pumping facilities as well as offices and depots.

Phase II-F: awarded in February 2018, includes Energy Conservation Measures for LED lighting upgrades at the RGH Headquarters building, Potomac and Patuxent WFPs, Parkway, Seneca, Piscataway and Damascus WRRFs, as well Anacostia and Gaithersburg Depots and Mill Branch, Hyattsville and Horsepen WWPSs. Energy Conservation Measures for building envelope upgrades and HVAC controls tuning are also included. Energy efficiency rebates are anticipated from BGE and PEPCO, totaling $300,000. Phase II-F projects will be the last utilizing the ESCO contracting mechanism. The remaining Phase IIF Energy Conservation Measures: Piscataway WRRF Aeration system upgrades; Parkway WRRF mixer replacements; and Potomac WFP LCI Drives replacement will be implemented by WSSC.

WSSC will continue to identify energy savings efforts through the implementation of the energy audit calculations and methods utilized in the previous phases of the program. Future projects may include the replacement or upgrade of equipment at our water resource recovery facilities and water treatment plants. All future projects will be validated via the AMP Business Case Process prior to moving forward.

The Khepra Group, Potomac Water Filtration Plant Pump Systems Evaluation (May 2008); Whitman, Requardt & Associates / Shah Associates, Solar Photovoltaic Concept Study for Potomac WFP and Western Branch WWTP (May 2010).

COST CHANGE

Not applicable.

OTHER

The project scope has remained the same. Costs for monitoring and verification are included in the Operating Budget. Portions of the program were financed by low interest loans through the Maryland Department of the Environment's State Revolving Loan Program.

COORDINATION

Coordinating Agencies: Montgomery County Government; Prince George's County Government;
Coordinating Projects: S-96.14-Piscataway WRRF Facility Upgrades;

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$1,555	24
Total Cost	$1,555	24
Impact on Water and Sewer Rate	$0.03	24

F. Approval and Expenditure Data (000's)

Date First in Program	FY 03
Date First Approved	FY 03
Intial Cost Estimate	
Cost Estimate Last FY	33,398
Present Cost Estimate	25,105
Approved Request Last FY	9,134
Total Expense & Encumbrances	
Approval Request Year 1	5,898

G. Status Information

Land Status	Public/Agency owned land
Project Phase	On-Going
Percent Complete	
Est Completion Date	Various

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT APPLICABLE

Water Storage Facility Rehabilitation Program

A. Identification and Coding Information

Agency Number	Project Number	Update Code
A-105.00		Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	Bi-County;
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditiure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**4,830**		630	**4,200**	700	700	700	700	700	700	
Land											
Site Improvements & Utilities											
Construction	**13,800**			**13,800**	2,300	2,300	2,300	2,300	2,300	2,300	
Other											
Total	**18,630**		**630**	**18,000**	**3,000**	**3,000**	**3,000**	**3,000**	**3,000**	**3,000**	

C. Funding Schedule (000's)

WSSC Bonds	**18,630**		630	**18,000**	3,000	3,000	3,000	3,000	3,000	3,000	

D. Description & Justification

DESCRIPTION

The Water Storage Facility Rehabilitation Program provides for the comprehensive rehabilitation of the Commission's more than 60 water storage facilities located throughout the WSSC service area holding over 200 million gallons of finished drinking water. The Program provides for structural metal and concrete foundation repairs, equipment upgrades to meet current OSHA standards, lead paint removal, security upgrades, advanced mixing systems to improve water quality, and altitude valve vault and supply pipe replacements.

JUSTIFICATION

Currently, there are more than 20 steel tanks whose last painting contract was finished 10 or more years ago. Many older tanks have accumulated significant layers of paint which have lost their bonding strength to the steel. Old coatings will be completely removed and costly lead abatement techniques will be required in many cases. The recommended practice is to perform this extra work every third re-coating to extend the service life of the structure. Modern coating systems should extend the length of service between coatings from the current 10 years to somewhere between 15 to 20 years.

COST CHANGE

Annual program costs have been reduced to reflect the updated schedule for the remaining tanks in the program.

OTHER

The project scope has remained the same. Tanks are prioritized based on the condition of the existing coating and structural integrity issues. The Program plan for FY'20 will address the following water storage facilities: North Woodside and Pointer Ridge.

COORDINATION

Coordinating Agencies: Montgomery County Government; Prince George's County Government;
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$1,212	26
Total Cost	$1,212	26
Impact on Water and Sewer Rate	$0.03	26

F. Approval and Expenditure Data (000's)

Date First in Program	FY 09
Date First Approved	FY 09
Intial Cost Estimate	
Cost Estimate Last FY	56,000
Present Cost Estimate	18,630
Approved Request Last FY	8,000
Total Expense & Encumbrances	
Approval Request Year 1	3,000

G. Status Information

Land Status	Not Applicable
Project Phase	On-Going
Percent Complete	0%
Est Completion Date	On-Going

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT APPLICABLE

Specialty Valve Vault Rehabilitation Program

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
A-107.00		Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision	**8,947**	7,481	203	**1,129**	242	288	278	195	96	30	134
Land											
Site Improvements & Utilities											
Construction	**27,912**	22,122	161	**4,387**	731	672	1,561	908	398	117	1,242
Other	**1,088**		55	**827**	146	144	276	165	74	22	206
Total	**37,947**	**29,603**	**419**	**6,343**	**1,119**	**1,104**	**2,115**	**1,268**	**568**	**169**	**1,582**

C. Funding Schedule (000's)

WSSC Bonds	**37,947**	29,603	419	**6,343**	1,119	1,104	2,115	1,268	568	169	1,582

D. Description & Justification

DESCRIPTION

This program provides for the planning, design, and construction of improvements and replacement of specialty valves and their associated vaults, including pressure reducing valves, pressure relief valves, altitude and metering valves, throughout the water distribution system. The program includes valves ranging in size from 8-inches to 60-inches in diameter. The program will systematically evaluate the condition of individual installations, some of which were constructed as early as the 1930's, and upgrade or relocate the structures and equipment as necessary. This program will improve reliability and increase the efficiency of system operations.

JUSTIFICATION

The facilities included in this program are in need of rehabilitation due to factors such as: location within heavily traveled roadways, age deterioration, obsolescence and operational improvements. The Prince George's, Old Baltimore Ave, and Brinkley vaults are nearly completed.
Candidate PRVs were originally identified in an October 26, 2005, memo from Jeff Asner to Karen Wright, and a subsequent May 7, 2007, memo from Karen Wright to Thomas Heikkinen. Originally, there were 23 candidate vaults within this Program as identified by the Systems Control Group; PRV Vault Rehabilitation Evaluation Study, EBA Engineering, Inc. (September 2010). Additional work has been added through 209B Business Case Report (January 2016).

COST CHANGE

Not applicable.

OTHER

The project scope has remained the same; additional vaults may be added to or removed from the program based upon business case recommendations from the Asset Management Programs. The cost for vaults that may be permanently taken out of service or replaced under other future projects have been moved to funding beyond 6 years. The Prince George's, Old Baltimore Ave, and Brinkley vaults are nearly completed. Land and rights-of-way costs are included in WSSC Project W-202.00.

COORDINATION

Coordinating Agencies: Maryland State Highway Administration; Maryland Water Management Administration; Montgomery County Government; Prince George's County Department of Permitting Inspection and Enforcement; Montgomery County Department of Public Works and Transportation; Prince George's County Government;
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$2,468	
Total Cost	$2,468	
Impact on Water and Sewer Rate	$0.05	

F. Approval and Expenditure Data (000's)

Date First in Program	FY 11
Date First Approved	FY 11
Intial Cost Estimate	17,560
Cost Estimate Last FY	37,136
Present Cost Estimate	37,947
Approved Request Last FY	1,442
Total Expense & Encumbrances	29,603
Approval Request Year 1	1,119

G. Status Information

Land Status	Land and R/W to be acquired
Project Phase	On-Going
Percent Complete	78%
Est Completion Date	On-Going

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT APPLICABLE

Advanced Metering Infrastructure

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
A-109.00		Change

PDF Date	October 1, 2018
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County;

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'18	Estimate FY'19	Total 6 Years	Year 1 FY'20	Year 2 FY'21	Year 3 FY'22	Year 4 FY'23	Year 5 FY'24	Year 6 FY'25	Beyond 6 Years
Planning, Design & Supervision											
Land											
Site Improvements & Utilities											
Construction	**96,750**	875	19,175	**76,700**	17,577	19,175	19,175	19,175	1,598		
Other											
Total	**96,750**	**875**	**19,175**	**76,700**	**17,577**	**19,175**	**19,175**	**19,175**	**1,598**		

C. Funding Schedule (000's)

WSSC Bonds	**96,750**	875	19,175	**76,700**	17,577	19,175	19,175	19,175	1,598		

D. Description & Justification

DESCRIPTION

This project provides for the implementation of a system-wide automated meter reading infrastructure system (System) and new comprehensive customer billing and data analysis integration software. All meters will receive new Meter Interface Units with internal antenna capable of obtaining and/or transmitting the meter register reading. All readings will be collected remotely by either a mobile system or a fixed network communications system.

JUSTIFICATION

The System will be required to obtain accurate register readings from a variety of water meters located in indoor, pit-set, and underground vault settings, and be universally compatible with the existing meters and encoder registers in the distribution system.
Dial Outbound AMR Trial Final Report, Metering Services, Inc. (1990); An Economic Evaluation of AMR for WSSC, Marilyn Harrington (1992); Cost of Meter Reading Study, Marilyn Harrington (2000); The WSSC Experience with Radio-Frequency AMR on Commercial & Industrial Meters (2002); Radio Frequency Solution for Meter Reading (2003); AMR Phase I (July 2005); Customer Care Team Departmental Action Item #20 - AMR Installation (2007); Advanced Metering Infrastructure Study, R.W. Beck (March 2011).

COST CHANGE

Order of Magnitude cost estimates were increased for inflation.

OTHER

The project scope has remained the same. AMI will improve both customer service and operational efficiency. The expected results include: Monthly billing based on actual meter readings. This would reduce bill size to help customers stay current with their payments, help customers develop a greater awareness of their water consumption, and ensure that problems such as excessive consumption due to leaks are addressed more quickly; Active notification of customers with abnormal consumption that might signify leaks before they get high consumption bills; Reduced customer calls; Reduced field investigation visits; Provide opportunities to employ more sophisticated rate structures; Analysis of individual consumption patterns to detect meters suspected of wearing out, or perform meter sizing analysis to ensure that large meters are optimally sized; Monitoring of individual consumption to perform precise, targeted conservation enforcement during droughts; Opportunities to improve the monitoring and operation of the distribution system, in order to detect and reduce non-revenue water. Schedule and expenditure estimates are Order of Magnitude estimates originating from the March 2011 study. These estimates are expected to change based upon the latest technology available at the time the project is bid. The AMI project has been delayed until the replacement of the Commission's Customer Service Information System (CSIS) is completed. Implementation of the new customer billing software, Customer2Meter (C2M), and pilot testing of the latest meter technology is underway.

COORDINATION

Coordinating Agencies: Montgomery County Government; Prince George's County Government;
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)

		FY of Impact
Staff		
Maintenance		
Other Project Costs		
Debt Service	$6,294	25
Total Cost	$6,294	25
Impact on Water and Sewer Rate	$0.14	25

F. Approval and Expenditure Data (000's)

Date First in Program	FY 13
Date First Approved	FY 13
Intial Cost Estimate	86,000
Cost Estimate Last FY	93,930
Present Cost Estimate	96,750
Approved Request Last FY	27,694
Total Expense & Encumbrances	875
Approval Request Year 1	17,577

G. Status Information

Land Status	Not Applicable
Project Phase	Planning
Percent Complete	15%
Est Completion Date	FY 2024

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	1.8 Million Customers
Capacity	

H. Map

MAP NOT AVAILABLE

DATE: October 1, 2018

FINANCIAL SUMMARY

(ALL FIGURES IN THOUSANDS)

PRINCE GEORGE'S COUNTY WATER PROJECTS

AGENCY NUMBER	PROJECT NAME	EST. TOTAL COST	EXPEND THRU 18	EST. EXPEND 19	TOTAL SIX YEARS	EXPENDITURE SCHEDULE						BEYOND SIX YEARS	PAGE NUM
						YR 1 20	YR 2 21	YR 3 22	YR 4 23	YR 5 24	YR 6 25		
W-12.02	Prince George's County HG415 Zone Water Main	3,718	433	1,079	2,206	2,136	70	0	0	0	0	0	5-2
W-34.02	Old Branch Avenue Water Main	23,930	2,698	166	21,066	6,766	8,634	5,666	0	0	0	0	5-3
W-34.03	Water Transmission Improvements 385B Pressure Zone	10,063	2,345	6,615	1,103	1,103	0	0	0	0	0	0	5-4
W-34.04	Branch Avenue Water Transmission Improvements	38,155	12,788	8,195	17,172	10,714	4,422	2,036	0	0	0	0	5-5
W-34.05	Marlboro Zone Reinforcement Main	4,302	461	851	2,990	2,990	0	0	0	0	0	0	5-6
W-62.05	Clinton Zone Water Storage Facility Implementation	17,126	3,721	5,677	413	413	0	0	0	0	0	7,315	5-7
W-65.10	St. Barnabas Elevated Tank Replacement	11,776	9,728	2,036	12	12	0	0	0	0	0	0	5-8
W-84.02	Ritchie Marlboro Road Transmission & PRV	6,877	3,302	3,550	25	25	0	0	0	0	0	0	5-9
W-84.03	Smith Home Farms Water Main	2,689	801	588	1,300	438	434	428	0	0	0	0	5-10
W-84.04	Westphalia Town Center Water Main	1,578	556	44	978	327	385	266	0	0	0	0	5-11
W-84.05	Prince George's County 450A Zone Water Main	79,578	1,700	568	60,487	643	8,604	12,810	12,810	12,810	12,810	16,823	5-12
W-93.01	Konterra Town Center East Water Main	2,107	53	0	2,054	714	814	526	0	0	0	0	5-13
W-105.01	Marlton Section 18 Water Main, Lake Marlton Avenue	2,657	29	1	2,627	417	443	443	440	442	442	0	5-14
W-111.05	Hillmeade Road Water Main	5,431	2,845	2,561	25	25	0	0	0	0	0	0	5-15
W-120.14	Timothy Branch Water Main	2,056	312	1,482	262	262	0	0	0	0	0	0	5-16
W-137.03	South Potomac Supply Improvement, Phase 2	66,759	939	1,512	64,308	651	411	21,096	21,075	21,075	0	0	5-17
	Projects Pending Close-Out	44,037	42,958	1,079	0	0	0	0	0	0	0	0	5-18
	TOTALS	322,839	85,669	36,004	177,028	27,636	24,217	43,271	34,325	34,327	13,252	24,138	

5-1

DATE: October 1, 2018

FINANCIAL SUMMARY

(ALL FIGURES IN THOUSANDS)

PRINCE GEORGE'S COUNTY SEWER PROJECTS

AGENCY NUMBER	PROJECT NAME	EST. TOTAL COST	EXPEND THRU 18	EST. EXPEND 19	TOTAL SIX YEARS	EXPENDITURE SCHEDULE						BEYOND SIX YEARS	PAGE NUM
						YR 1 20	YR 2 21	YR 3 22	YR 4 23	YR 5 24	YR 6 25		
S-27.08	Westphalia Town Center Sewer Main	876	207	473	196	133	51	12	0	0	0	0	6-3
S-28.18	Konterra Town Center East Sewer	7,136	5,144	0	1,992	0	1,992	0	0	0	0	0	6-4
S-43.02	Broad Creek WWPS Augmentation	182,032	162,986	15,225	3,821	3,821	0	0	0	0	0	0	6-5
S-57.92	Western Branch Facility Upgrade	53,040	51,968	837	235	235	0	0	0	0	0	0	6-6
S-68.01	Landover Mall Redevelopment	1,344	24	102	1,218	631	403	46	46	46	46	0	6-7
S-75.19	Brandywine Woods Wastewater Pumping Station	324	7	181	136	70	66	0	0	0	0	0	6-8
S-75.20	Brandywine Woods WWPS Force Main	127	15	43	69	69	0	0	0	0	0	0	6-9
S-75.21	Mattawoman WRRF Upgrades	17,237	0	4,049	12,409	4,174	3,235	1,223	1,283	1,247	1,247	779	6-10
S-77.20	Parkway North Substation Replacement	6,133	325	2,530	3,278	2,473	805	0	0	0	0	0	6-11
S-86.19	Karington Subdivision Sewer	692	103	216	373	182	191	0	0	0	0	0	6-12
S-96.14	Piscataway WRRF Facility Upgrades	147,648	13,358	14,912	119,378	38,229	49,267	30,514	1,368	0	0	0	6-13
S-131.05	Pleasant Valley Sewer Main, Part 2	902	43	205	654	406	169	79	0	0	0	0	6-14
S-131.07	Pleasant Valley Sewer Main, Part 1	1,801	98	479	1,224	999	225	0	0	0	0	0	6-15
S-131.10	Fort Washington Forest No. 1 WWPS Augmentation	4,578	2,626	1,245	707	707	0	0	0	0	0	0	6-16
S-157.02	Western Branch WRRF Process Train Improvements	14,859	163	1,760	12,936	3,520	5,720	3,520	176	0	0	0	6-17
	TOTALS	438,729	237,067	42,257	158,626	55,649	62,124	35,394	2,873	1,293	1,293	779	

516

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Potomac WFP Consent Decree Short & Long-Term Projects

Commissioners Status Briefing

(52)

November 28, 2018
Simon Baidoo, Project Manager

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Agenda

- Background
- Long-Term Upgrade Plan (LTUP) Revision Process
- Recommended LTUP
- LTUP – Status
- Approved Short-Term Projects – Status
- Questions

Background

- Consent Decree (CD) prevents WSSC from discharging into Potomac River
- Original LTUP report submitted in Dec. 2016
- Commissioners briefed in Feb. 2017
- MDE approved short-term projects in Aug. 2017
- LTUP Pilot study revealed original alternative would not work
- MDE/Environmental Plaintiffs ("Citizens") briefed in March 2018
- WSSC tasked its Consultant to review alternatives and revise LTUP

LTUP Revision Process

- Involved review and evaluation of full set of alternatives
- Alternatives evaluation took into consideration benefit, schedule, and cost
- Amended LTUP finalized and submitted to MDE and "Citizens" on Sept. 28, 2018
  - Recommended expansion of existing system

Recommended LTUP

- Upgrades and expands existing basin mechanism
- Basins would remove and treat sediments from storm events
- Construct additional storage tanks and solids handing facilities
- Retains existing site for future expansion
- Meets CD requirements – No discharge to river
- Meets CD deadline – Jan. 2026
- Least expensive alternative (~$78M < other alternative)
- Capital Cost – $202M (~$38M > original alternative)

LTUP – Status

- WSSC awaiting MDE approval of recommended alternative
- Design Start: Feb. 2019
- Construction Start: Jan. 2022
- Construction Completion: Feb. 2026

Approved Short-Term Projects - Status

- Design at 100%
- Construction Start: Jan. 2019
- Construction Completion: Apr. 2020
- Estimated Construction Cost: $8.5M

Questions

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Calculation of Payback Period

Total Budgeted Construction Cost for Bio-Energy Project $190.0M

Projects that would need to be done anyway that are rolled into Bio-Energy:

Piscataway Utility Water System Upgrades	$9.2M	
Piscataway Gravity Thickener & Dewatering Upgrades	$13.1M	
Fats, Oils & Grease Receiving at Piscataway	$3.5M	
TOTAL		$25.8M

Projects removed from CIP because Bio-Energy makes them unnecessary:

Western Branch Incinerator Repairs	$25.3M	
Lime System Upgrade at Multiple Locations	$20.2M	
Piscataway Backup Power Generation	$21.9M	
TOTAL		$67.4M

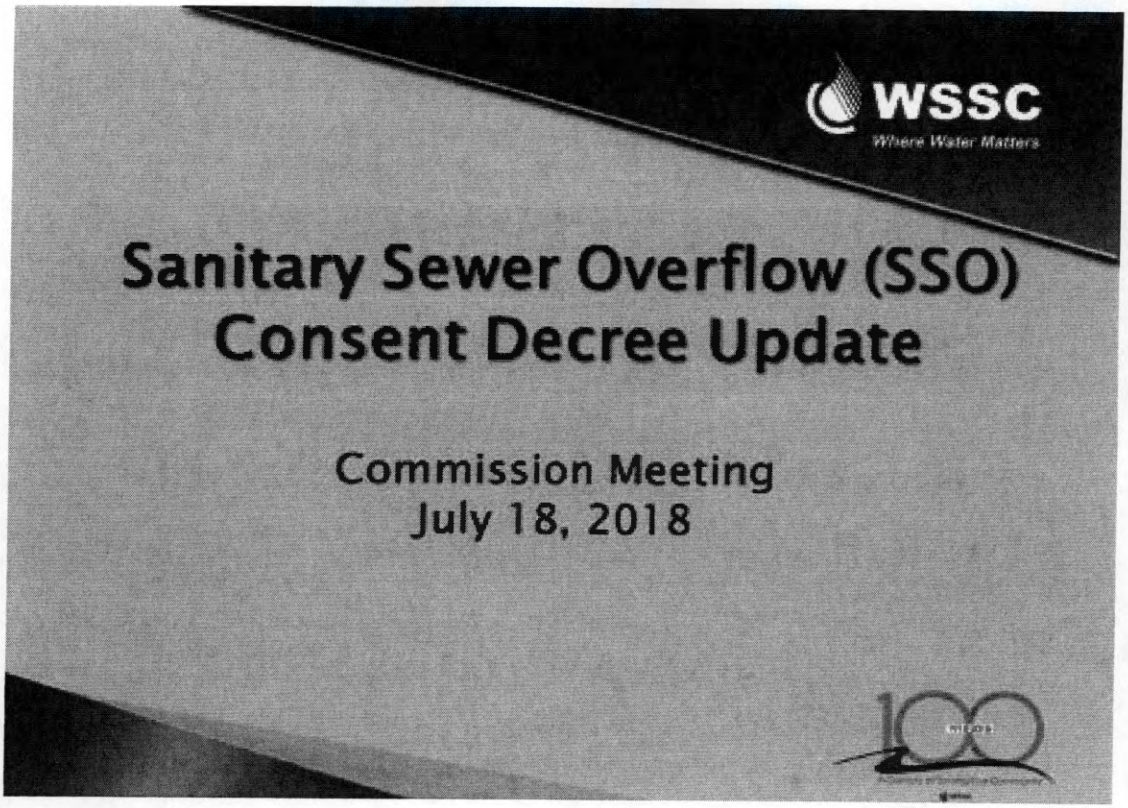
TOTAL COST THAT WOULD BE ADDED BACK INTO CIP IF BIO-ENERGY IS NOT APPROVED $93.2M

NET INCREASE IN CIP DUE TO BIO-ENERGY $96.8M

Annual Savings in Operation & Maintenance Costs attributed to Bio-Energy:

Electricity, Natural Gas, Diesel, Sale of RINs	$3.84M
Hauling and Land Application	$0.71M
Maintenance & Operations Staff (increased cost)	$-0.82M
Lime, Polymer and other Chemicals (increased cost)	$-0.09M
TOTAL ANNUAL SAVINGS=	$3.64M/yr.

Payback Period = $96.8M / $3.64M/yr. = 26.6 years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Sanitary Sewer Overflow (SSO)
Consent Decree Update
Commission Meeting
July 18, 2018

(61)

Strategic Priorities

- Improve Infrastructure.
- Protect Our People, Infrastructure, Systems, and Resources.

62

Agenda

- Schedule Update
- Costs
- Areas of Concern
- Q & A

Schedule Update
Roads Work by Basin

- 135 Construction Task Orders
  - 131.4 miles awarded for construction
  - 130.82 (99%) miles rehabilitated as of April 30, 2018

Sligo Creek		100%		Western Branch		100%	
Cabin John	98%	→	99%	Mattawoman		100%	
Paint Branch		100%		Northwest Branch	99%	→	100%
Lower Anacostia	98%	→	99%	Horsepen Branch		100%	
Beaverdam		100%		Northeast Branch	95%	→	99%
Seneca Creek	99%	→	100%	Oxon Run	98%	→	99%
Dulles Interceptor		100%		Rock Creek		100%	
Muddy Branch		100%		Rock Run		100%	
Broad Creek		100%		Little Falls	99%	→	99%
Piscataway	99%	→	100%	Watts Branch		100%	
Parkway	99%	→	100%				

(64)

Schedule Update
Environmentally Sensitive Area (ESA) Work by Basin

- ESA includes a total of 251 Construction Task Orders
  - 243 (97%) Construction Task Orders issued for construction
- ESA includes a total of 156.38 miles
  - 153.90 (98%) miles awarded for construction
  - 110.19 (70%) miles rehabilitated as of April 30, 2018.

Rock Run	78%	→	78%	Muddy Branch	69%	→	79%
Paint Branch	74%	→	80%	Western Branch	74%	→	83%
Beaverdam	98%	→	98%	Seneca Creek	97%	→	97%
Piscataway	86%	→	95%	Watts Branch	46%	→	58%
Rock Creek	92%	→	97%	Parkway	41%	→	62%
Sligo Creek	87%	→	91%	Oxon Run	51%	→	74%
Cabin John	93%	→	93%	Horsepen Branch		100%	
Northeast Branch	64%	→	75%	Dulles Interceptor		100%	
Lower Anacostia	90%	→	97%	Mattawoman		100%	
Northwest Branch	74%	→	86%	Monocacy		100%	
Broad Creek	88%	→	94%	Patuxent North		100%	
Little Falls	46%	→	58%	Patuxent Center		100%	

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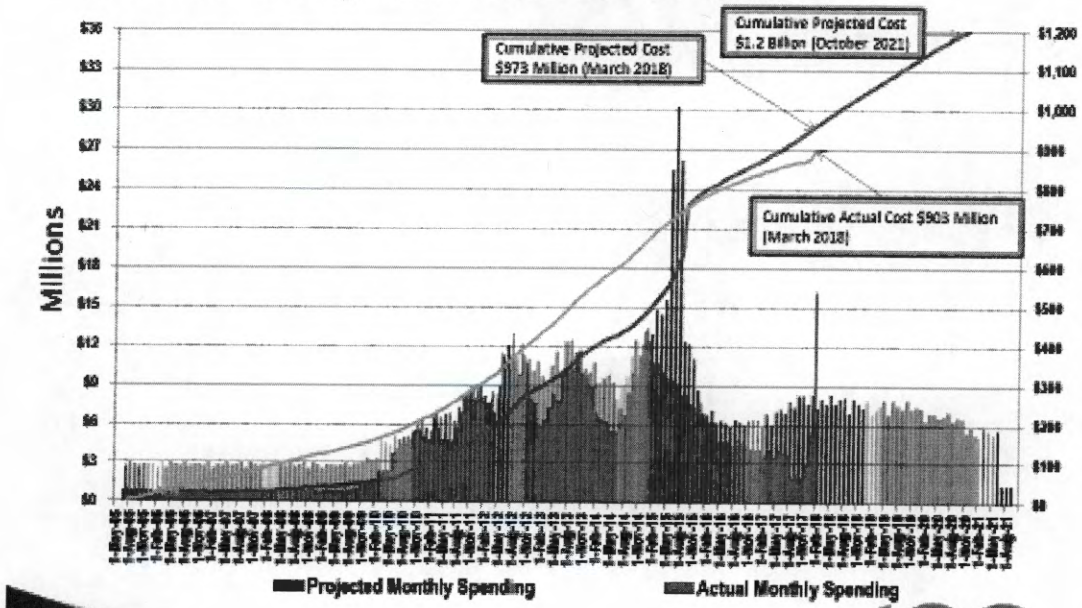
65

Consent Decree Costs

Article 6 – Design and Construction Costs



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Figures as of March 31, 2018

5

66

Consent Decree Costs

Description	Projected Total Cost to Date	Actual Cost to Date
Consent Decree (All Articles) *	**$1,771,178,112.88**	**$1,275,130,932.50**
Article 06	**$1,295,722,721.04**	**$919,808,541.79**
All Other Articles Total Cost **	$472,999,416.84	$353,070,695.84
General Cost	$38,374,062.00	$24,930,020.00
Article 02	$85,604,653.00	$62,186,862.00
Article 03	$44,480,180.84	$27,746,035.84
Article 04	$35,010,776.00	$19,377,026.00
Article 05	$2,708,764.00	$2,708,764.00
Article 07	$11,330,165.00	$153,192.00
Article 10	$201,280,452.00	$175,568,762.00
Article 11	$49,167,267.00	$31,608,709.00
Supplemental Environmental Projects	$5,043,097.00	$5,043,097.00
Stipulated Penalties	$2,445,975.00	$2,251,694.87

* Includes the Article 06, All Other Articles Total Cost and Stipulated Penalties
** Does not include the Stipulated Penalties

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8

67

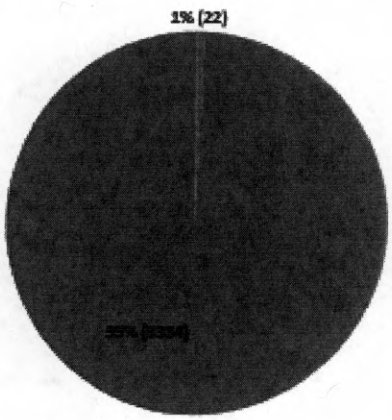
Areas of Concern
Rights of Entry (ROE)

- Total Outstanding ROEs: 22
- General Counsel's Office and Land Unit Involvement: 2
- ROE Letters sent to the County Governments: 10

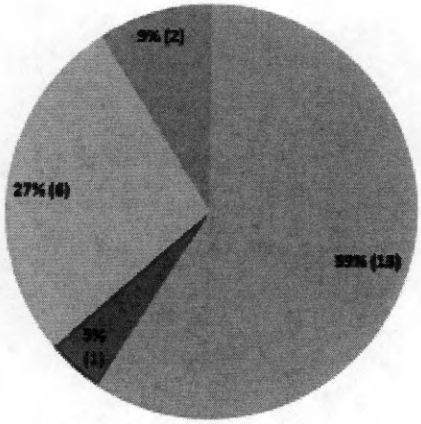
68

Areas of Concern
Rights of Entry

Outstanding vs Received ROEs



Remaining ROEs



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8

69

Areas of Concern
National Park Service (NPS)

NPS Sites Remain on the Critical Path

- Broad Creek WWPS and Force Main– Notice to Proceed Issued January 2017 with Substantial Completion Expected in 2019
- Broad Creek Basin Projects – The construction task order Notice to Proceed was on June 14, 2018. However, construction will commence after July 20th because of the notification requirements.
- Oxon Run – The special use permit was submitted to NPS May 23, 2018; anticipate 4 to 12 weeks for the permit to start construction.
- Northeast Branch Basin Projects – Environmental Assessment is ongoing. Draft EA will be submitted to NPS mid-July.

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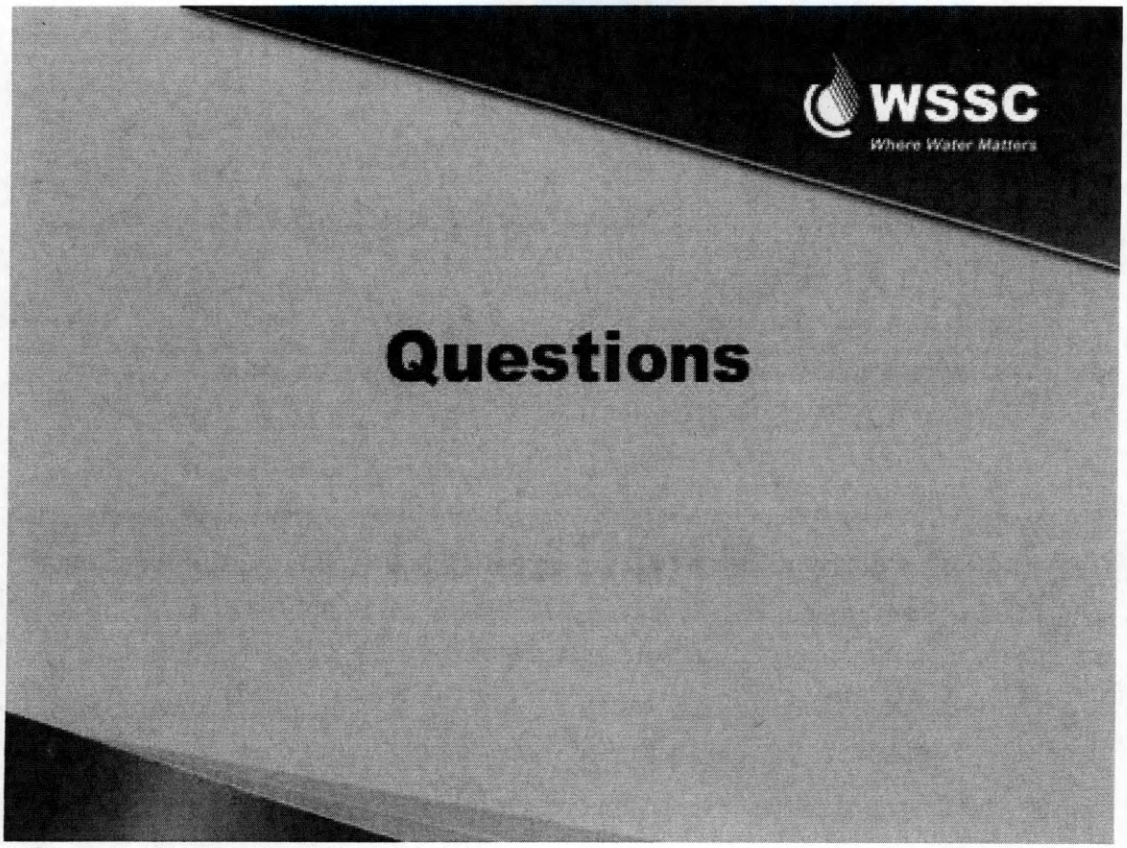
9

70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Questions

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ADVANCED METERING INFRASTRUCTURE PROJECT

FREQUENTLY ASKED QUESTIONS

WSSC is modernizing its operations and technology infrastructure to improve our customers' experience. Part of this initiative is the Advanced Metering Infrastructure (AMI) project. AMI is the foundation of a smart utility, enabling WSSC to use the latest technology and data to better serve our customers.

What is AMI?

AMI is technology that allows water meters to communicate water usage information wirelessly using radio or cellular technology. The resulting data is used to optimize operations, administration and infrastructure management.

What specific parts comprise AMI?

AMI consists of a number of components:

- Water meter – equipment that measures the water used at each location.
- Encoder register – device attached to the meter that converts water usage into electronic data.
- Small radio or cellular transmitter - typically mounted outside a building, this transmitter sends encrypted water usage data back to WSSC.

How will AMI benefit customers?

AMI allows customers to better control their water usage, manage their bills, and helps to better identify and correct on-property issues by providing real-time access to meter and water usage information.

How Will AMI benefit WSSC?

AMI provides frequent meter read data throughout WSSC's water distribution system. This data can be compared to water production data to help identify areas experiencing water loss, allowing WSSC to identify leaks and prevent larger main breaks. AMI also provides WSSC the ability to install additional sensors throughout its system, which can detect leaks through noise and pressure loss. Additional benefits are environmental and economic. WSSC's use of AMI technology:

- Reduces the WSSC carbon footprint by decreasing the need to drive to locations to read meters.
- Reduces operating costs for meter reading, allowing WSSC to reallocate those resources to other priorities.

How will customer information be protected?
Customer information and usage data is encrypted using industry standard processes and technologies before being transmitted to WSSC. Personally identifiable information, such as name, address, bill account number, or credit/collection information, is not transmitted to or from the meter.

If I have an inside water meter, will WSSC need to move it outside?
In rare instances, there may be a need to move the meter outside because the data transmission is somehow blocked.

Will AMI require new water meters for all residential customers?
No, however, some residential meters that were due to be replaced were deferred to complete replacement while implementing AMI technology.

Is AMI technology safe?
AMI uses non-ionizing radio frequencies (RF) to communicate water usage information. Approved by the Federal Communications Commission (FCC), this type of RF is commonly used in mobile phones, broadcasting signals, baby monitors, medical monitors and Bluetooth devices. RF also exists naturally in our environment due to the sun's interaction with our atmosphere. The World Health Organization, American Cancer Society, National Toxicology Project (National Institutes of Health), and International Agency for Research on Cancer, among others, have all studied RF safety. As a result of these studies, no public agency has identified RF as harmful to human health.

What is the schedule for the project?
WSSC is currently in the planning stages of the project. Projected installation of AMI technology is expected to begin in late 2019, and should be complete by late 2023 / early 2024.

How much will it cost to purchase/install AMI technology?
WSSC's current estimate to fully implement AMI technology is $96.8 million, (Proposed FY2020-FY2025 Capital Improvements Program). This estimate is for planning purposes only and is expected to change as AMI technology continues to evolve and the project moves through the planning and design phases. Although most capital projects do not have a measureable payback, based on previous studies, AMI implementation is projected to pay for itself in less than seven years.

Are there other utilities in this region using AMI technology?
Yes. Other utilities in the region using AMI technology include Baltimore City, BGE, DC Water and Pepco.

Will the adoption of AMI technology have an employment impact?
Yes, however, all current employees will be retained and transitioned into new positions to support the new technology. This training is already underway.

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Memorandum

TO: The Metro Washington Committee of the Montgomery County Delegation

FROM: Karyn A. Riley, Esq.
Intergovernmental Relations Director, WSSC

DATE: February 5, 2019 (updated)

SUBJECT: **Responses to Concerns Surrounding AMI (MC/PG 101-19)**

A. Overview of AMI

AMI technology connects every part of a water utility and uses the resulting data to optimize operations, administration and infrastructure. AMI allows water meters to communicate water usage information wirelessly using radio or cellular technologies. It consists of water meters that connect to small radio or cellular transmitters. The transmitters then send encrypted water usage data to WSSC. More information about WSSC's AMI project is available at www.wsscwater.com/AMI.

B. Benefits of AMI

- On-demand access to consumption information: AMI provides real-time notification about usage – and abnormal changes in usage – that customers can access through a secure portal. The ability to monitor usage is critical to affordability, conservation and theft of water issues.

- Early leak detection: AMI proactively notifies customers of leaks – even extremely small ones – prior to high consumption bills. This will reduce the impact of the leak, lowering costs associated with surprise high-bills, reduce the number of adjustments and reduce the amount of non-revenue water lost via the distribution system.

- Monthly billing based on more accurate meter reads and billing: AMI allows for more frequent meter reads and reduces estimated billing, reducing the about of resources

and visits by field representatives. This also helps address affordability issues by allowing payments over a longer period of time.

- Enhanced customer service: AMI increases the effectiveness of customer agents by providing real time data and better analytics to help diagnose concerns with on-property issues more accurately.

- Better asset management and infrastructure investment: The data from AMI uses analytics to help determine vulnerabilities in pipe infrastructure and improve forecasting and planning to ensure that investments and infrastructure are made where they are most needed.

- Reduce costs associated with meter reading: Annually, WSSC conducts close to 2 million meter reads at a cost of $22 per meter read. With AMI, the cost savings will be realized through reduced vehicle usage and materials. This also helps reduce our carbon footprint as our fleet will cover fewer miles and use less gas.

- Identification of distribution system losses earlier: AMI helps reduce costs associated with non-revenue producing water: AMI identifies small and large backflow activity in real time that may indicate pressure issues, distribution system leaks or breaks.

C. AMI Project Costs and Adoption

The cost for the AMI project in the proposed FY2019-25 CIP budget was $96.8. The project costs are currently under review by an independent consultant in preparation for project implementation.

Both the Montgomery County Council and Prince George's County Council have approved the AMI project since FY 2013 after an independent study by R.W. Beck articulated the benefits of an AMI project for WSSC. Staff from both counties review the project annually and continue to recommend adoption in the CIP budget. Per email communications from a Montgomery County committee analyst: "WSSC does a business case review of all of its capital projects each year. However, there are very few capital projects that WSSC undertakes that generate a positive return on investment. AMI is one of them."

D. Health Impacts

AMI uses non-ionizing radio frequencies (RF) to communicate water usage information. This type of RF is commonly used in mobile phones, broadcasting signals, baby monitors, medical monitors and Bluetooth devices. RF also exists naturally in our environment due to the sun's interaction with our atmosphere. The World Health Organization, American

Cancer Society, National Toxicology Project (National Institutes of Health), and International Agency for Research on Cancer, among others, have all studied RF safety. As a result of these studies, no public agency has identified RF as harmful to human health. The attached report provides more information about research on RF's public health impacts.

E. Privacy

Customer information and usage data is encrypted using industry standard processes and technologies before being transmitted to WSSC. Personally identifiable information, such as name, address, bill account number, or credit/collection information, is not transmitted to or from the meter.

As a government agency, WSSC will protect the disclosure of customer information to the extent allowable by law. A customer's financial information, including payment history, is considered private and is protected by law from disclosure. In addition, WSSC will **never** sell any customer information to individuals or businesses.

F. Job Impact

The benefit of AMI is the redeployment of employees to work on other parts of infrastructure. WSSC has approximately 35-38 meter readers who are already being cross-trained to serve as field representatives that can help address other work. No jobs will be lost because of AMI. Meter readers will still be necessary to read some meters and perform other maintenance work in the system.

G. Impact of Opt-Outs on System

Any opt-out provision would negate the benefits of AMI.

Associated cost-savings would be diluted because of the savings from early leak detections, non-revenue water mitigation, enhanced asset management, vehicle and fleet management would not be fully realized. The payback would not exist.

A dual metering infrastructure that necessitates a dual billing structure. The existence of two systems that would add expenses to maintain two systems with different processes; these expenses would also displace AMI's benefits. While the cost per meter read, as indicated below, is currently $22, this does not account for the additional costs that would be incurred through the administrative (financial and technology) support necessary to maintain two billing structures and diverse billing policies. It would render the AMI project economically infeasible.

There is a difference between opt-out for water utility and opt-out for electric utilities: you cannot leak electricity. Electric utilities measure a power outage; water utilities measure when water is being lost. Approximately 15% of WSSC water is lost through leaks and breaks; this has not only a fiscal impact on revenue, but also an impact on WSSC's conservation efforts. AMI can help mitigate these costs by quickly identifying leaks.

H. Cost per Meter Read

Costs per Read	Average Time/Effort	Cost per Read
Meter Reading Labor	13 minutes	$ 7.19
Vehicle and Equipment Expenses	16 miles	$ 9.28
Indirect Service (Customer Service, IT, Billing)	--	$ 5.21
Total Fee per Read		**$ 21.68**

This is the current cost of meter reads. Under an "opt-out" scenario, indirect services costs would increase substantially in order to account for the financial and administrative costs associated with maintaining a dual metering and billing system.

I. Water Utilities – Opt-Out Clauses

W = Water; WW = Wastewater; E = Electric; G = Gas

1. Local Water Utilities with Advanced Metering

Utility	Utility Services Offered	Opt-out Offered?	Type/Fee
Baltimore City	W/WW	N	AMI/--
Baltimore County	W/WW	N	AMR (2/3); AMI (1/3)
City of Bowie	W/WW	N	AMR/--
City of Rockville	W/WW	N	AMR
Howard County	W/WW	N	AMR/--
Arlington Water	W/WW	N	Transitioning from AMR to AMI
DC Water	W/WW	N	AMI
Loudoun Water	W/WW	N	AMI
Fairfax Water	W	N	AMR (from acquired systems)

2. Other Water Utilities

Utility	Utility Services Offered	Opt-out Offered?	Fee
Madison Water Utility	W	Y	Option 1: Electronic Read Transmitter (ERT) installed on the outside of building ($50.69 one-time charge) Option 2: No ERT on property ($7.78 monthly charge)
City of Elmhurst	W/WW	N	--
City of Fountain Valley (CA)	W/WW	N	--
Town of Cary (NC)	W/WW	N	--
Carpinteria Valley Water District (CA)	W	Y	$36.05 set up + $10.05 monthly charge
City of Tempe (AZ)	W	N	--
Cleveland Water Department (Cleveland, OH)	W	N	--
Indian Wells Valley Water District (CA)	W	Y	$25 monthly charge
Las Virgenes Municipal Water District (CA)	W	Y	Switch from AMI to Manual Read: $40 set up + $25 per billing period (bimonthly) Switch from AMR to Manual read: $40 set up + $9 per billing period (bimonthly)
Cleveland Utilities (Cleveland, TN)	E/W/WW	Y	$13.50 monthly charge
Glendale, CA Water and Power	E/W/WW	Y	$59 charge per billing period
Colorado Springs Utilities	E/G/W/WW	Y	$109 set up + $20 quarterly charge
Columbus (OH)	E/W/WW	N	--
Kansas City (MO)	W/WW	N	--
San Jose (CA)	W/WW	N	--
Toronto (ON)	W/WW	N	--
Wichita (KS)	W/WW	N	--
Philadelphia (AMR)	W/WW	N	--

San Francisco (AMI)	W/WW	Y	$20 a month

For more information, please contact Karyn Riley, Esq. at 301-206-8228 or Karyn.Riley@wsscwater.com

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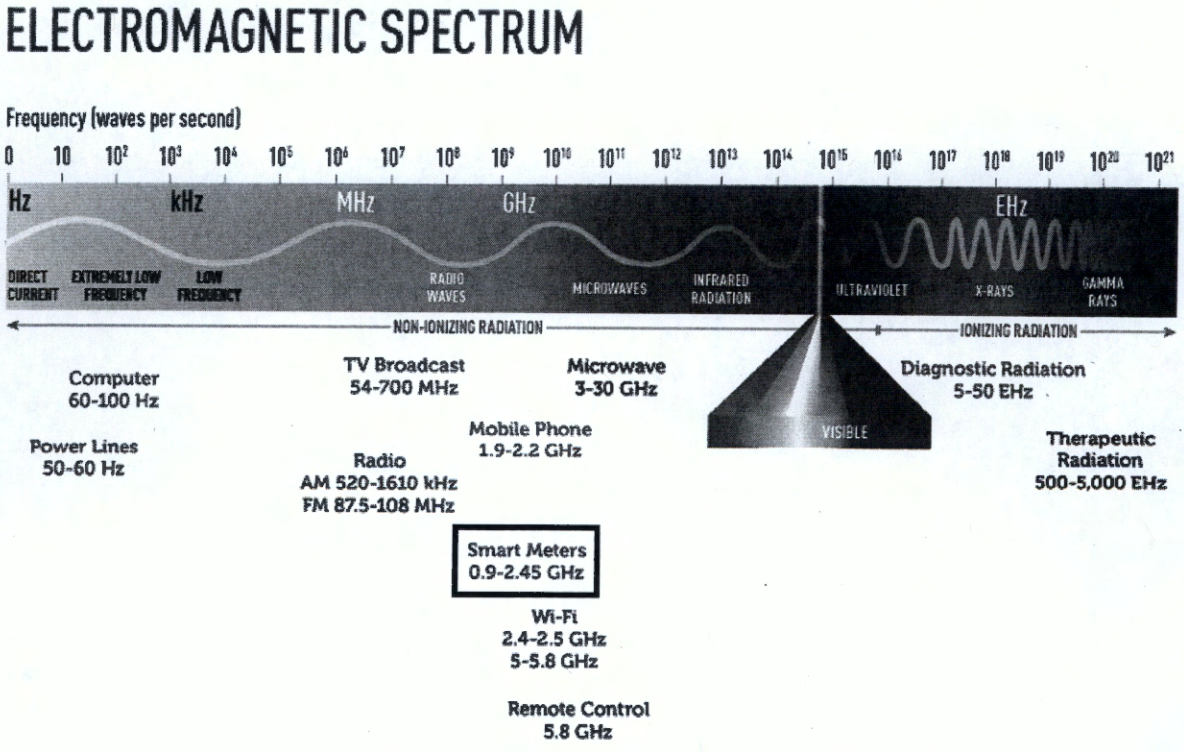
Health Impacts of AMI

The water industry is the foremost protector of public health, and as such, takes care to ensure that customers are not exposed to anything detrimental to their health. AMI uses meters that transmit data using radio frequency (RF).

Opponents of smart meters erroneously apply the International Agency for Research on Cancer's assignment of RF as a "Class 2" carcinogen as an automatic cause of brain cancer. There are two types of RF emissions: ionizing and non-ionizing. Ionizing RF are those emissions found from radioactive decay (x-rays, gamma rays and UV rays). Prolonged exposure to this emission will alter cellular structure and could increase the risk of disease.[i]



AMI uses meters that emit non-ionizing RF in order to communicate. The chart above, prepared by the National Cancer Institute, shows that "smart" meters emit less RF than cell phones, microwaves, wi-fi, and even remote controls[ii]. The World Health Organization

(WHO) has studied the effects of RF for decades, and in response to concerns about the widespread usage of cell phones, launched the International EMF project in 1996, to study the effects of EMF (though these studies have been focused on cell phone usage)[iii]. To date, the WHO has not found any adverse health effects caused by cell phone use[iv].

Because of concerns of advance meters, utilities and their governing bodies have evaluated the results of a number of studies on the impact of radio frequency. A report produced by the Public Utility Commission of Texas, found that exposure to a meter's RF emissions are often mitigated because of the distance of the meter from the home; the meter's enclosure; home building materials; orientation of the antenna and the intermittent transmission of data. The California State Legislature commissioned a study on advanced meters from the California Council on Science and Technology (CCST), a non-profit that provides objective advice from California's scientists and research institutions to the state's policymakers. CCST found that there was no need to change the standards that govern the meter based on RF emission.[v]

In Maryland, the Public Service Commission (PSC) has continuously found no adverse health effects with these meters. The Office of the People's Counsel, who advocate on behalf of Maryland customers before the PSC, agreed with the assessment that the smart meters do not create health concerns after a thorough review of materials from the PSC and related federal agencies.

The chart below reflects statements from leading public health authorities on the impact of radio frequency on human health:

Organization	Statement
American Cancer Society	It is very unlikely that living in a house with a smart meter increases risk of cancer. https://www.cancer.org/cancer/cancer-causes/radiation-exposure/smart-meters.html Most studies of people published so far have not found a link between cell phone use and the development of tumors. https://www.cancer.org/cancer/cancer-causes/radiation-exposure/cellular-phones.html

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World Health Organization	To date, no adverse health effects have been established as being caused by mobile phone use. https://www.who.int/en/news-room/fact-sheets/detail/electromagnetic-fields-and-public-health-mobile-phones
National Institutes of Health (National Toxicology Project)	The exposures used in the studies cannot be compared directly to the exposure that humans experience when using a cell phone. . . the exposure levels and durations in our studies were greater than what people experience. https://www.niehs.nih.gov/news/newsroom/releases/2018/november1/index.cfm
US Centers for Disease Control	At this time, we do not have the science to link health problems to cell phone use. https://www.cdc.gov/nceh/radiation/cell_phones_FAQ.html
Maryland Public Service Commission (PSC)	We have not found convincing evidence that smart meters pose any health risks to the public at large. (Order 85294) Advanced meters satisfy every applicable United States and international standard, and we are persuaded by the substantial evidence and expert testimony that rebuts the claims that the modest non-ionizing radiation from AMI technology causes negative health impact (Dissent) https://www.psc.state.md.us/commission-orders/
Office of People's Counsel (OPC)	Scientists have studied that form of radiation extensively for several decades and found no evidence of harmful effects on human beings . . . OPC agrees with this assessment. http://opc.maryland.gov/Portals/0/Publications/OPC%20Guide%20to%20Smart%20Meters%20and%20Fee%20Options.01042016.pdf

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Vermont Department of Health	The current health protection standards established for mobile telephones in the U.S. and in most other countries are the world are generally accepted as sufficient to prevent health effects of smart meters. http://www.healthvermont.gov/sites/default/files/documents/2016/11/Env_RAD_smart_meters_facts.pdf
Food and Drug Administration (US Department of Health and Human Services)	Decades of research and hundreds of studies . . .[have] informed the FDA's assessment of this important public health issue, and given us the confidence that the current safety limits for cell phone radiofrequency energy exposure remain acceptable for protecting the public health. https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm624809.htm According to current data, the FDA believes that the weight of scientific evidence does not show an association between exposure to radiofrequency from cell phones and adverse health outcomes. https://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/HomeBusinessandEntertainment/CellPhones/ucm116335.htm
Federal Communications Commission	The FCC closely monitors all of these study results. However, at this time, there is no basis on which to establish a different safety threshold than our current requirements. https://www.fcc.gov/consumers/guides/wireless-devices-and-health-concerns
California Council on Science and Technology	The FCC standard provides a currently accepted factor of safety against known thermally induced health impacts of smart meters and other electronic devices in the same range of RF emissions. Exposure levels from smart meters are well below the thresholds for such effects. There is no evidence that additional standards are needed to protect the public from smart meters. https://www.ccst.us/wp-content/uploads/2011smart-final.pdf

Texas Public Utilities Commission	Smart meters are designed to measure a customer's overall electricity usage and deliver that data to the utility. A meter may also offer a limited set of information to an end user if he desires. Smart meters are not intended for, are not designed to, and do not have the capability to harm an individual or direct a person's thoughts or actions. http://www.puc.texas.gov/industry/electric/reports/smartmeter/smartmeter_rf_emf_health_12-14-2012.pdf

For more information, please contact Karyn Riley, Intergovernmental Relations Director at 301-206-8228 or Karyn.Riley@wsscwater.com

[i] https://www.cancer.org/cancer/cancer-causes/radiation-exposure/radiofrequency-radiation.html

[ii] https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/electromagnetic-fields-fact-sheet

[iii] https://www.who.int/peh-emf/about/emf_brochure_webversion.pdf?ua=1

[iv] http://www.who.int/en/news-room/fact-sheets/detail/electromagnetic-fields-and-public-health-mobile-phones

[v] http://www.puc.texas.gov/industry/electric/reports/smartmeter/smartmeter_rf_emf_health_12-14-2012.pdf