Potomac WFP Pre-Filter Chlorination & Air Scour Improvements

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W - 000073.22	143803	Change

PDF Date	October 1, 2019
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County

E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance		
Debt Service	$1,588	22
Total Cost	$1,588	22
Impact on Water and Sewer Rate		

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision	1,749	782	720	247	247						
Land											
Construction	21,591	11,918	7,201	2,472	2,472						
Other	1,064		792	272	272						
Total	**24,404**	**12,700**	**8,713**	**2,991**	**2,991**						

C. Funding Schedule (000's)

WSSC Bonds	24,404	12,700	8,713	2,991	2,991						

F. Approval and Expenditure Data (000's)

Date First in Program	FY 14
Date First Approved	FY 14
Initial Cost Estimate	5,602
Cost Estimate Last FY	25,275
Present Cost Estimate	24,404
Approved Request Last FY	8,000
Total Expense & Encumbrances	12,700
Approval Request Year 1	2,991

G. Status Information

Land Status	Not Applicable
Project Phase	Design
Percent Complete	100 %
Estimated Completion Date	June 2021

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

D. Description & Justification

DESCRIPTION

This project provides for the planning, design, and construction of a pre-filter chlorination system and filter air scour system for the Potomac Water Filtration Plant. It also includes the replacement of all 32 filter underdrains.

JUSTIFICATION

Due to numerous separate incidents of catastrophic filter underdrain failures since October 2006, an investigation was conducted by WSSC and ITT Leopold, suppliers of the failed underdrain systems. The investigation revealed that the ITT Leopold underdrain system with an Integral Media Support (IMS) cap is not compatible with the biologically active filters at the Potomac WFP.
Engineering Standard - I. M. S. Cap Monitoring Operation, and Maintenance Instructions, ITT Water & Wastewater, Leopold, Inc., (April 2009). Memo from John Geibel, P.E., Sr. Product Engineer @ ITT Water & Wastewater, Leopold, Inc. - Potomac Filtration Plant Visit April2009 - to Joseph Johnson, Potomac Plant Superintendent, (May 2010).

COST CHANGE

Not applicable.

OTHER

The project scope has remained the same. The Potomac Water Filtration Plant experienced fourteen separate incidents of catastrophic filter underdrain failure from October 2006 through FY '17, including three filters that failed twice. The failure rate accelerated with six of the fourteen filter failures taking place during the spring and summer of 2016. The construction for Pre-Filter Chlorination and Underdrain Replacement have been completed. Expenditure and schedule projections shown in Block B above include design level estimates for Air Scour (which may change based on actual bids). The original plan was to design and construct both pre-filter chlorination and air scour systems as one deliverable at the same time. However, due to the more critical need to implement pre-filter chlorination at the Potomac plant, this portion of the project was placed on an accelerated schedule for design and construction, separate from that of the air scour system. WSSC Water Green Bonds issued in December 2019 will be utilized to fund a portion of this project. The elimination of filter underdrain failures will address the following International Capital Market Association (ICMA) Green Bond Principles 2016 category: Sustainable water management.

COORDINATION

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

H. Map

MAP NOT APPLICABLE

Potomac WFP Submerged Channel Intake

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W - 000073.30	033812	Change

PDF Date	October 1, 2019
Date Revised	

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

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision	11,181	4,228									6,953
Land											
Construction	73,004	120									72,884
Other	3,992										3,992
Total	**88,177**	**4,348**									**83,829**

C. Funding Schedule (000's)

WSSC Bonds	88,177	4,348									83,829

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 2003); "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 was deferred to beyond six years.

OTHER

The project scope has remained the same. Significant 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. Land costs are included in WSSC Project W-202.00.

COORDINATION

Coordinating Agencies: Maryland Department of Natural Resources; Maryland Department of the Environment; Maryland-National Capital Park & Planning Commission; Montgomery County Department of Environmental Protection; Montgomery County Government; National Park Service; Prince George's County Department of Environmental Resources; Prince George's County Government; U.S. Army Corps of Engineers
Coordinating Projects: W - 000073.33 - Potomac WFP Consent Decree Program

E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance		
Debt Service	$5,736	
Total Cost	$5,736	
Impact on Water and Sewer Rate	$0.01	

F. Approval and Expenditure Data (000's)

Date First in Program	FY 04
Date First Approved	FY 03
Initial Cost Estimate	936
Cost Estimate Last FY	85,603
Present Cost Estimate	88,177
Approved Request Last FY	
Total Expense & Encumbrances	4,348
Approval Request Year 1	

G. Status Information

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

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE

Potomac WFP Main Zone Pipeline

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W - 000073.32	133800	Change

PDF Date	October 1, 2019
Date Revised	

Pressure Zones	Montgomery Main 495A; Prince George's High HG450A;
Drainage Basins	
Planning Areas	Potomac-Cabin John & Vicinity PA 29

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision	3,540	1,400	800	1,340	625	415	100	100	100		
Land											
Construction	30,900			30,900		6,300	12,300	9,300	3,000		
Other	3,305		80	3,225	63	672	1,240	940	310		
Total	**37,745**	**1,400**	**880**	**35,465**	**688**	**7,387**	**13,640**	**10,340**	**3,410**		

C. Funding Schedule (000's)

WSSC Bonds	37,745	1,400	880	35,465	688	7,387	13,640	10,340	3,410		

D. Description & Justification

DESCRIPTION

This project provides for the planning, design, and construction of approximately 1,500 feet of 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 project may include a rock tunnel segment.

JUSTIFICATION

The existing 78-inch diameter PCCP pipeline is the major feed to the 96-inch diameter Montgomery County Main Zone pipeline and the 66-inch diameter River Road pipeline. The primary purpose of this project is to provide redundancy for the existing line. The Business Case recommended a new 84-inch diameter main be installed from the Main Zone pumping station to the 66-inch diameter and 96-inch diameter wye connection. In addition the wye connection will be replaced as part of this project.
E-mail from M. Woodcock to C. Fricke and E. Betanzo dated April 27, 2011; "Business Case Evaluation for Potomac Water Treatment Plan - 78 inch finished water main redundancy", O'Brien and Gere Engineers, Inc. (October 2013)

COST CHANGE

Not applicable.

OTHER

The project scope has remained the same. Expenditure and schedule projections shown in Block B above are Order of Magnitude estimates and may change based upon site specific conditions and design constraints.

COORDINATION

Coordinating Agencies: Maryland Department of Natural Resources; Maryland Department of the Environment; Maryland State Highway Administration; Maryland-National Capital Park & Planning Commission; Montgomery County Department of Public Works and Transportation; Montgomery County Government; U.S. Army Corps of Engineers
Coordinating Projects: W - 000073.33 - Potomac WFP Consent Decree Program

E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance	$44	26
Debt Service	$2,455	26
Total Cost	$2,499	26
Impact on Water and Sewer Rate	$0.01	26

F. Approval and Expenditure Data (000's)

Date First in Program	FY 13
Date First Approved	FY 13
Initial Cost Estimate	330
Cost Estimate Last FY	38,102
Present Cost Estimate	37,745
Approved Request Last FY	460
Total Expense & Encumbrances	1,400
Approval Request Year 1	688

G. Status Information

Land Status	Not Applicable
Project Phase	Planning
Percent Complete	25 %
Estimated Completion Date	June 2025

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	Approx. 200 MGD

H. Map

MAP NOT AVAILABLE

Potomac WFP Consent Decree Program

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W - 000073.33	173801	Change

PDF Date	October 1, 2019
Date Revised	

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

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision	40,154	6,154	3,500	26,500	4,000	5,000	5,000	4,500	4,000	4,000	4,000
Land	1,000	1,000									
Construction	151,653	1,153	7,000	126,000	6,000	20,000	25,000	25,000	25,000	25,000	17,500
Other	9,225		525	7,625	500	1,250	1,500	1,475	1,450	1,450	1,075
Total	**202,032**	**8,307**	**11,025**	**160,125**	**10,500**	**26,250**	**31,500**	**30,975**	**30,450**	**30,450**	**22,575**

C. Funding Schedule (000's)

WSSC Bonds	202,032	8,307	11,025	160,125	10,500	26,250	31,500	30,975	30,450	30,450	22,575

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 and are based on recommendations in the approved revised LTUP Report dated September 2018.

OTHER

The project scope has remained the same. Expenditure and schedule projections shown above are Order of Magnitude level estimates. 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. WSSC Water Green Bonds issued in December 2019 will be utilized to fund a portion of this project. The reduction in suspended solids discharged into the Potomac River will address the following International Capital Market Association (ICMA) Green Bond Principles 2016 categories: Pollution prevention/control; and, Terrestrial and aquatic biodiversity conservation.

COORDINATION

Coordinating Agencies: Maryland Department of the Environment; Montgomery County Government; National Park Service; Prince George's County Government; U.S. Environmental Protection Agency, Region III
Coordinating Projects: W - 000073.30 - Potomac WFP Submerged Channel Intake; W - 000073.32 - Potomac WFP Main Zone Pipeline

E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance		
Debt Service	$13,142	28
Total Cost	$13,142	28
Impact on Water and Sewer Rate	$0.03	28

F. Approval and Expenditure Data (000's)

Date First in Program	FY 17
Date First Approved	FY 16
Initial Cost Estimate	27,250
Cost Estimate Last FY	163,823
Present Cost Estimate	202,032
Approved Request Last FY	9,975
Total Expense & Encumbrances	8,307
Approval Request Year 1	10,500

G. Status Information

Land Status	Land Acquired
Project Phase	Design
Percent Complete	0 %
Estimated Completion Date	January 2027

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 - 000139.02	073802	Change

PDF Date	October 1, 2019
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision	8,195	7,448	747								
Land											
Construction	32,835	24,461	8,354	20	20						
Other	912		910	2	2						
Total	**41,942**	**31,909**	**10,011**	**22**	**22**						

C. Funding Schedule (000's)

WSSC Bonds	41,942	31,909	10,011	22	22						

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

Not applicable.

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 complete. Brighton Dam Upgrades construction project is currently under construction.

COORDINATION

Coordinating Agencies: City of Laurel; Howard County Government; Maryland Department of the Environment; Maryland State Highway Administration; Montgomery County Government; Prince George's County Government; U.S. Army Corps of Engineers
Coordinating Projects: W - 000172.08 - Rocky Gorge Pump Station Upgrade

E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance		
Debt Service	$2,728	21
Total Cost	$2,728	21
Impact on Water and Sewer Rate	$0.01	21

F. Approval and Expenditure Data (000's)

Date First in Program	FY 07
Date First Approved	FY 07
Initial Cost Estimate	575
Cost Estimate Last FY	40,291
Present Cost Estimate	41,942
Approved Request Last FY	6,838
Total Expense & Encumbrances	31,909
Approval Request Year 1	22

G. Status Information

Land Status	Not Applicable
Project Phase	Construction
Percent Complete	57 %
Estimated Completion Date	February 2020

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 - 000161.01	113803	Change

PDF Date	October 1, 2020
Date Revised	January 15, 2020

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision	58,925		6,472	52,453	8,301	8,314	8,826	9,154	8,708	9,150	
Land											
Construction	382,269		29,080	353,189	44,552	53,324	60,651	62,773	64,970	66,919	
Other	44,502		3,936	40,566	5,286	6,165	6,949	7,193	7,367	7,606	
Total	**485,696**		**39,488**	**446,208**	**58,139**	**67,803**	**76,426**	**79,120**	**81,045**	**83,675**	

C. Funding Schedule (000's)

WSSC Bonds	485,696		39,488	446,208	58,139	67,803	76,426	79,120	81,045	83,675	

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 Water 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 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 Water'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 Water 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, or replace any of the nearly 1,500 large diameter valves and vaults located throughout the system.

Utility Wide Master Plan (December 2007); 30 Year Infrastructure Plan (2007); FY 2021 Water Network Asset Management Plan (May 2019).

COST CHANGE

Program costs reflect the latest expenditure and schedule estimates based upon the recommendations from the Buried Water Asset Systems Asset Management Plan.
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E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance		
Debt Service	$31,843	
Total Cost	$31,843	
Impact on Water and Sewer Rate	$0.07	

F. Approval and Expenditure Data (000's)

Date First in Program	FY 11
Date First Approved	FY 11
Initial Cost Estimate	
Cost Estimate Last FY	433,056
Present Cost Estimate	485,696
Approved Request Last FY	40,385
Total Expense & Encumbrances	
Approval Request Year 1	58,139

G. Status Information

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

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE

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 ongoing inspections and condition assessments. Additional costs associated with PCCP inspection/condition assessment, large valve inspection/repairs, and emergency repairs are included in the Operating Budget. WSSC Water Green Bonds issued in December 2019 will be utilized to fund a portion of this project. The annual replacement of large diameter water mains will address the following International Capital Market Association (ICMA) Green Bond Principles 2016 category: Sustainable water management.

COORDINATION

Coordinating Agencies: Local Community Civic Associations; Maryland State Highway Administration; Maryland-National Capital Park & Planning Commission; 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); Prince George's County Department of Permitting Inspection and Enforcement

Coordinating Projects: W - 000001.00 - Water Reconstruction Program; W - 000107.00 - Specialty Valve Vault Rehabilitation Program

Patuxent Raw Water Pipeline

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W - 000172.07	063804	Change

PDF Date	October 1, 2020
Date Revised	January 15, 2020

Pressure Zones	Prince George's Main HG320A
Drainage Basins	
Planning Areas	Bi-County

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision	3,525	3,125	100	300	200	100					
Land	306	306									
Construction	25,223	10,045	1,178	14,000	8,500	5,500					
Other	1,847		417	1,430	870	560					
Total	**30,901**	**13,476**	**1,695**	**15,730**	**9,570**	**6,160**					

C. Funding Schedule (000's)

WSSC Bonds	30,901	13,476	1,695	15,730	9,570	6,160					

D. Description & Justification

DESCRIPTION

This project provides for the planning, design, and construction of approximately 2.5 miles of new 48-inch diameter raw water pipeline from the Rocky Gorge Raw Water Pumping Station to the Patuxent Water Filtration Plant, cleaning of the existing water lines, and replacement of valves.

JUSTIFICATION

The existing raw water supply facilities are hydraulically limited to 72 MGD with all pumps running at the Rocky Gorge Pumping Station. In order to convey more than 72 MGD of raw water, a new raw water pipeline is required. A fourth raw water pipeline from the Rocky Gorge Pumping Station to the Patuxent Plant and modification/expansion of the Rocky Gorge Pumping Station will provide a firm raw water pumping transmission capacity of 110 MGD. These improvements, in conjunction with expansion of the Patuxent Water Filtration Plant, will give the Plant a firm nominal capacity of 72 MGD, with an emergency capacity of 110 MGD.
Patuxent WFP Facility Plan (April 1997); In-House Study (April 2002).

COST CHANGE

Not applicable.

OTHER

The project scope has remained the same. The Rocky Gorge Valve Replacement and the cleaning of existing raw water pipelines are 100% complete. The new raw water pipeline is currently in design. Expenditure and schedule estimates for the new raw water pipeline may change based upon design constraints and permitting issues. The project has been delayed due to a lengthy permit and right-of-way acquisition process. Due to county permitting requirements the project design and construction schedule was split into two phases. As with any construction project, areas disturbed by construction will be restored. This restoration includes paving of impacted roads in accordance with Prince George's County Policy and Specifications for Utility Installation and Maintenance Manual (Section 4.7.2).

COORDINATION

Coordinating Agencies: Baltimore Gas & Electric; Interstate Commission on the Potomac River Basin; Local Community Civic Associations;(West Laurel Civic Association); Maryland Department of the Environment; Maryland-National Capital Park & Planning Commission; Montgomery County Government; Prince George's County Government
Coordinating Projects: W - 000172.08 - Rocky Gorge Pump Station Upgrade

E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance	$389	23
Debt Service	$2,198	23
Total Cost	$2,587	23
Impact on Water and Sewer Rate	$0.01	23

F. Approval and Expenditure Data (000's)

Date First in Program	FY 06
Date First Approved	FY 03
Initial Cost Estimate	18,750
Cost Estimate Last FY	34,439
Present Cost Estimate	33,788
Approved Request Last FY	8,580
Total Expense & Encumbrances	13,476
Approval Request Year 1	9,570

G. Status Information

Land Status	Land Acquired
Project Phase	Design
Percent Complete	98 %
Estimated Completion Date	July 2022

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE

Rocky Gorge Pump Station Upgrade

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W - 000172.08	063805	Change

PDF Date	October 1, 2019
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision	6,205	5,105	900	200	200						
Land											
Construction	18,499	16,843	1,500	156	156						
Other	276		240	36	36						
Total	**24,980**	**21,948**	**2,640**	**392**	**392**						

C. Funding Schedule (000's)

WSSC Bonds	24,980	21,948	2,640	392	392						

D. Description & Justification

DESCRIPTION

This project provides for the modification and expansion of the Rocky Gorge Pump Station to allow the station to provide up to 110 MGD of raw water to the Patuxent Water Filtration Plant.

JUSTIFICATION

The modification and expansion of the Rocky Gorge Raw Water Pumping Station will provide a firm raw water pumping capacity of 110 MGD. The improvements to the pump station, along with a fourth water pipeline (W-172.07) and expansion of the Patuxent Plant (W-172.05) will give the Patuxent Plant a firm nominal capacity of 72 MGD, with emergency capacity of 110 MGD.
Patuxent WFP Facility Plan (April 1997); In-House Study (April 2002).

COST CHANGE

Costs were increased due to current construction contract change orders, replacement of substation batteries, and expected engineering contract increases due to construction delays.

OTHER

The project scope remains the same. Expenditure and schedule projections shown in Block B above are based on contracts in place.

COORDINATION

Coordinating Agencies: Baltimore Gas & Electric; Maryland Department of the Environment; Maryland State Highway Administration; Montgomery County Government; Prince George's County Government
Coordinating Projects: W - 000139.02 - Duckett & Brighton Dam Upgrades; W - 000172.07 - Patuxent Raw Water Pipeline

E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance		
Debt Service	$1,625	22
Total Cost	$1,625	22
Impact on Water and Sewer Rate		

F. Approval and Expenditure Data (000's)

Date First in Program	FY 06
Date First Approved	FY 03
Initial Cost Estimate	12,930
Cost Estimate Last FY	23,241
Present Cost Estimate	24,980
Approved Request Last FY	1,025
Total Expense & Encumbrances	21,948
Approval Request Year 1	392

G. Status Information

Land Status	Public/Agency owned land
Project Phase	Construction
Percent Complete	77 %
Estimated Completion Date	August 2020

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	
Capacity	110 MGD

H. Map

MAP NOT AVAILABLE

Regional Water Supply Resiliency

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W - 000175.05	382101	Add

PDF Date	October 1, 2019
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Montgomery County PA

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision	15,000			15,000	1,500	4,000	4,000	4,000	1,500		
Land											
Construction											
Other											
Total	**15,000**			**15,000**	**1,500**	**4,000**	**4,000**	**4,000**	**1,500**		

C. Funding Schedule (000's)

Federal Aid	15,000			15,000	1,500	4,000	4,000	4,000	1,500		

D. Description & Justification

DESCRIPTION

This project includes planning, preliminary engineering, community outreach, and coordination with elected officials for a regional raw water supply reservoir and raw water conveyance system to serve the long-range water supply needs of the Washington metropolitan region. A new regional reservoir is needed to mitigate against drought and contamination events in the Potomac River which could curtail or halt withdrawal from the river for days to months. This project will include the performance of a business case to evaluate conveyance alternatives and provide a recommendation for subsequent preliminary design.

JUSTIFICATION

Justification for the project is based in part on two independent studies. A study conducted by the Metropolitan Washington Council of Governments (COG) in 2016 concluded that the Washington metropolitan region needed, among other capital projects and initiatives, an off-river raw water storage reservoir to provide the necessary resiliency for water quantity and quality in the region in the event of a contamination in the Potomac River. A separate study conducted by the Interstate Commission for the Potomac River Basin (ICPRB) in 2017 concluded that the region needed additional off-river raw water reservoir capacity as part of the regional water supply system to ensure adequate water supply to the region in the event of a drought.

COST CHANGE

Not applicable.

OTHER

The present project scope was developed for the FY'21 CIP and has an estimated cost of $15,000,000.

This project will be contingent upon receipt of federal grant funding and the execution of other relevant cost sharing agreements between WSSC and other ICPRB CO-OP Operations Committee members. Placement of the proposed work in the CIP will enable WSSC to solicit funding opportunities in a timely fashion.

COORDINATION

Coordinating Agencies: Federal and State Grant Agencies; Interstate Commission on the Potomac River Basin; Local Community Civic Associations; Maryland Department of the Environment; Maryland-National Capital Park & Planning Commission; Montgomery County Department of Environmental Protection; Montgomery County Government; National Park Service; Prince George's County Government; Prince George's County Department of Permitting Inspection and Enforcement
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance		
Debt Service		
Total Cost		
Impact on Water and Sewer Rate		

F. Approval and Expenditure Data (000's)

Date First in Program	FY 21
Date First Approved	FY 21
Initial Cost Estimate	15,000
Cost Estimate Last FY	
Present Cost Estimate	15,000
Approved Request Last FY	
Total Expense & Encumbrances	
Approval Request Year 1	1,500

G. Status Information

Land Status	Land and R/W to be acquired
Project Phase	Planning
Percent Complete	0 %
Estimated Completion Date	TBD

Growth	
System Improvement	100%
Environmental Regulation	
Population Served	1,800,000
Capacity	7.5 BG

H. Map

MAP NOT APPLICABLE

Land & Rights-of-Way Acquisition - Bi-County Water

A. Identification and Coding Information		
Agency Number	Project Number	Update Code
W - 000202.00	983857	Change

PDF Date	October 1, 2019
Date Revised	

Pressure Zones	
Drainage Basins	
Planning Areas	Bi-County

B. Expenditure Schedule (000's)

Cost Elements	Total	Thru FY'19	Estimate FY'20	Total 6 Years	Year 1 FY'21	Year 2 FY'22	Year 3 FY'23	Year 4 FY'24	Year 5 FY'25	Year 6 FY'26	Beyond 6 Years
Planning, Design & Supervision											
Land	3,093		913	1,580	1,512	20	18	10	10	10	600
Construction											
Other											
Total	**3,093**		**913**	**1,580**	**1,512**	**20**	**18**	**10**	**10**	**10**	**600**

C. Funding Schedule (000's)

WSSC Bonds	2,884		791	1,493	1,425	20	18	10	10	10	600
SDC	209		122	87	87						

D. Description & Justification

DESCRIPTION

This PDF provides a consolidated estimate of funding for the acquisition of land and rights-of-way for water projects and for easement and land acquisitions for watershed protection. Expenditures are programmed based upon anticipated schedules and are required for the completion of those specific projects. These costs do not include purchases which have already been completed.

JUSTIFICATION

Consolidation of expenditures for land and rights-of-way acquisitions provides flexibility in expending funds in a specific fiscal year and permits the WSSC to respond to the uncertainty of project-specific implementation schedules. Other considerations include the accommodation of unpredictable delays which impact the timing of a planned purchase, unanticipated rights-of-way requirements due to minor alignment changes identified late in the design phase, and the need to assure the WSSC an equitable negotiation position by avoiding project-specific cost displays prior to contacting property owners.

Acquisition needs are determined by the WSSC and are based upon facility planning efforts, alignment studies, field surveys, realignments required by other agencies, or requirements identified within the Development Services Process (DSP).

COST CHANGE

Not applicable.

OTHER

The project scope has remained the same. Expenditure and schedule projections shown in Block B are Order of Magnitude estimates only and may change based upon actual negotiations. When purchases are complete, the actual cost will be displayed in the expenditure schedule on the appropriate project.

COORDINATION

Coordinating Agencies: Not Applicable
Coordinating Projects: Not Applicable

E. Annual Operating Budget Impact (000's)		FY of Impact
Staff & Other		
Maintenance		
Debt Service	$188	
Total Cost	$188	
Impact on Water and Sewer Rate		

F. Approval and Expenditure Data (000's)

Date First in Program	FY 98
Date First Approved	FY 98
Initial Cost Estimate	
Cost Estimate Last FY	3,598
Present Cost Estimate	3,093
Approved Request Last FY	1,720
Total Expense & Encumbrances	
Approval Request Year 1	1,512

G. Status Information

Land Status	Land and R/W to be acquired
Project Phase	On-Going
Percent Complete	0 %
Estimated Completion Date	Not Applicable

Growth	7%
System Improvement	93%
Environmental Regulation	
Population Served	
Capacity	

H. Map

MAP NOT AVAILABLE