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Bureau of Utility Operations FY 2024 Proposed Capital Budget May 8, 2023





Asset Inventory Management

Approximate Value of E	xisting Assets	Replacement Goal	Replacement Life Cycle	Amount Needed to Meet Goal	Requested FY24 Appropriation
Water & Sewer Piping	\$2,472,624,000	1.5%	75 years	\$37,089,000	\$30,303,000 *
Pumping Stations	\$1,420,000,000	2%	50 years	\$28,400,000	\$18,928,400**
Water Storage Tank Painting	\$31,000,000	6.67%	15 years	\$2,068,000	\$2,636,000

Assumptions on replacement costs

- Water & Sewer Piping @ \$150 per linear foot (3122 miles)
- Pumping Stations @ \$5M each (272 SPS + 12 WBPS)
- Water Storage Tank @ \$1M each (31 EWST & GST) Cost for Tank Painting

Notes: *- This includes X733700-Water Repl/reco and X7388000-Sewer Rehab and W787800-Fire Hydrant Rehab + S808100-Cattail Creek FM Replacement only



**- This includes S791800 Upgr/Retro and S799200 Mayo Collection Sys Upgrade



Highlighted Sewer Projects

(page 41 of Highlighter Report)

Project	Name	FY24 Request	Total Project Cost	Program Driver
S647500	Baltimore County Sewer Agreement	\$6,006,000	Mulit-Year	Regulatory, Reliability
S792700	Fac Abandonment WW2	\$930,000	Multi-Year	Enhance
S799200	Mayo Collection System	\$6,262,000	Multi-Year	Capacity, Reliability
S802300	WRF Infrasrt Up/Retro	\$5,500,000	Multi-Year	Regulatory, Reliability
S802800	Sewer Proj Mgmt	\$2,000,000	Multi-Year	Enhance
S806100	Cox Creek Non ENR	\$441,000	\$9,398,966	Enhance, Reliability
S808000	Cox Creek Grit System Improv	\$1,300,000	\$6,806,790	Regulatory, Reliability
S808100	Cattail Creek FM Replacement	\$2,814,000	\$34,262,000	Reliability
S808200	Grinder Pump Repl/Upgrade Prgm	\$1,690,000	\$6,190,000	Reliability
S809000	Broadwater WRF Grit Sys Repl	\$1,662,000	\$7,798,000	Regulatory, Reliability
S809400	Cox Creek Permeate Piping Modi	\$641,000	\$2,584,000	Regulatory, Reliability
S810000	Managed Aquifer Recharge	\$4,187,000	\$235,980,000	Regulatory, Capacity
S810100	Minor System Upgrades	\$1,895,000	\$51,901,000	Enhance, Regulatory
S810200	Regional Biosolids	\$2,000,000	\$132,556,000	Regulatory, Reliability
S810300	Cox Creek Septage Facility Impv	\$295,000	\$6,655,000	Enhance, Reliability
X764200	Wastewater Project Planning	\$2,657,000	Multi-Year	Varies



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S647500 - Baltimore County Sewer Agreement

Project Description: Funds have been approved for construction of improvements to Baltimore City's Patapsco Wastewater Treatment Plant and connecting interceptors. Approved funding is Anne Arundel County's apportioned share of the costs, 7.6%, which will be contributed under agreement to Baltimore County, which in turn maintains a similar agreement with Baltimore City to cover 68% of the project cost.

68% x 7.6% = 5.17 % = Anne Arundel County's share

FY24 Request: \$6,006,000 FY25 Request: \$3,240,000 FY26 Request: \$650,000 FY27 Request: \$3,070,000 FY28+ Request: \$650,000

Benefits: Per Inter-jurisdictional agreement to support rehabilitation and improvements to the Patapsco WWTP. The County's Baltimore City SSA sends flow to this WWTP







S792700 - Fac Abandonment WW2

Project Description: This project provides funds to demolish abandoned structures, and to dismantle, remove and dispose of unused/unwanted equipment from wastewater conveyance and treatment facilities as required by Utility Operations.

FY24 Request: \$930,000 FY25 Request: \$1.88 Million

Example Projects:

- Quarterfield SPS Demo
- Evergreen Commons SPS Demo
- Cox Creek Decant/Digester 2 Demo

Benefits: Disposal of surplus facilities and equipment







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S799200 - Mayo Collection System

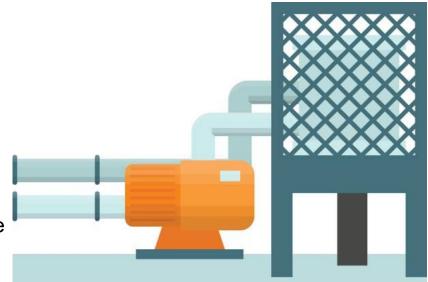
Project Description: This project is for the expansion of the Mayo Wastewater Collection and Conveyance System and to provide for upgrades to existing facilities.

FY24 Request: \$6.3 Million FY25 Request: \$489,000 FY26 Request: \$5.0 Million FY27 Request: \$5.1 Million

Example Projects:

- Shoreham Beach SPS & FM
- Carrs Ridge 2-5 SPS Upgrade

Benefits: The project will accommodate the planned growth within the Mayo SSA





S802300 - WRF Infrastr Up/Retro

Project Description: Funds are requested for design and construction to upgrade various wastewater system infrastructure, including structures, support facilities and equipment to meet current control and operational standards. This includes support facilities.

FY24 Request: \$5.5 Million FY25 Request: \$3.8 Million FY26+ Request: \$1.0 Million

Example Projects:

- Broadwater PCS Upgrade
- Patuxent Mudwell Imprv





Benefits: This project will better ensure the proper operation and maintenance of wastewater infrastructure facilities to allow upgrades, rehabilitation or replacement of various components to improve reliability and performance.



S802800 - Sewer Proj Mgmt

Project Description: Project provides contract services for project management of wastewater class projects during design, right of way acquisition, construction and performance. Funding for this project will be reimbursed by the individual capital projects to be managed. Additional funds requested to allow improvement of financial transactions as part of the reimbursement process.

FY24 Request: \$2.0 Million Total Project Cost: Multi Year

Benefits: Improved efficiency of capital transfer during execution of the Capital Improvement Program.







S806100 - Cox Creek Non ENR

Project Description: Funds are requested for the design and construction of facility upgrades at the Cox Creek WRF. This project includes plant modifications that are not eligible for MDE grant funding thru the ENR program. Work under this project and S802200 is essential to assuring continuous and reliable plant operations within stringent environmental permit limits.

FY24 Request: \$441,000 Total Project Cost: \$9.4 Million

Benefits: The project will enhance and retrofit existing treatment plant components for continued plant reliability.







S808000 - Cox Creek Grit System Improvements

Project Description: This project will evaluate, design, and construct facilities to address grit handling during high flow events.

FY24 Request:\$1.3 MillionTotal Project Cost:\$6.8 Million

Need:

Additional Structural Repairs needed distribution and grit chambers

Benefits: The existing system of grit collection, classification, and disposal of influent grit loads is inadequate and has resulted in significant impacts to operations and recovery efforts during storms.



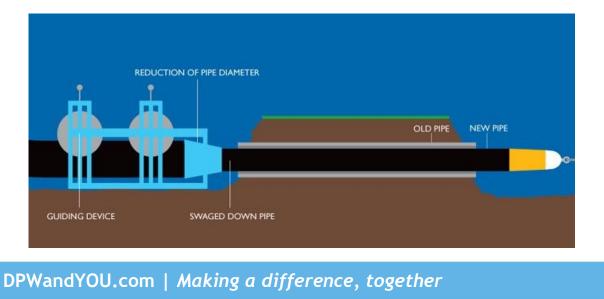


S808100 - Cattail Creek FM Replacement

Project Description: This project is for design, right of way acquisition, and construction of the replacement of 17,000 If of 24" and greater force main (FM) beginning at the Cattail Creek SPS and ending at a gravity manhole in College Parkway. Approximately 10,000 LF of this FM is along the MD Rte 2 Right of Way in Severna Park.

FY24 Request:\$2.8 MillionTotal Project Cost:\$34.2 Million

Benefits: This project will replace aging, at-risk infrastructure to increase the reliability of the conveyance system and reduce risks for spills resulting from infrastructure failures.





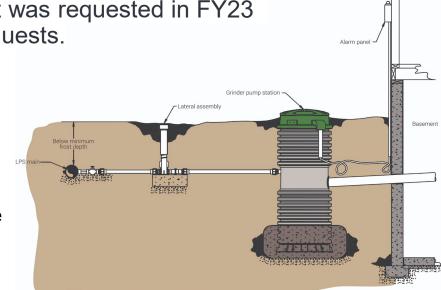
S808200 - Grinder Pump Repl/Upgrade Prgm

Project Description: This project is for a multi-year sewer infrastructure investigation, rehabilitation and replacement program to ensure the adequacy of the County's Wastewater Collection System. Aging infrastructure and changes to manufacturing and design standards have resulted in some existing low pressure force main areas exhibiting lower overall reliability. The initial phase will concentrate on the Fishing Creek Farms neighborhood.

Reason for Increase: This is what was requested in FY23 that was cut from appropriation requests.

FY24 Request: \$1.69 Million **FY25+ Request:** \$500,000

Benefits: This project will investigate existing systems and where practicable provide upgrades or replacements as needed to meet current best practices.

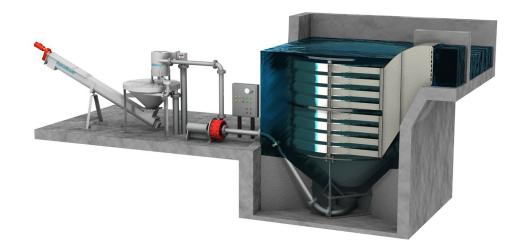




S809000 - Broadwater WRF Grit Sys Repl

Project Description: Planning, design, and construction of new grit removal facilities at the Broadwater WRF to replace the existing aging equipment.

FY24 Request: \$1.7 Million Total Project Cost: \$7.8 Million



Benefits: By improving the removal of heavy and abrasive grit at the head of the facility, this project will increase reliability of plant operations and reduce wear on mechanical equipment.



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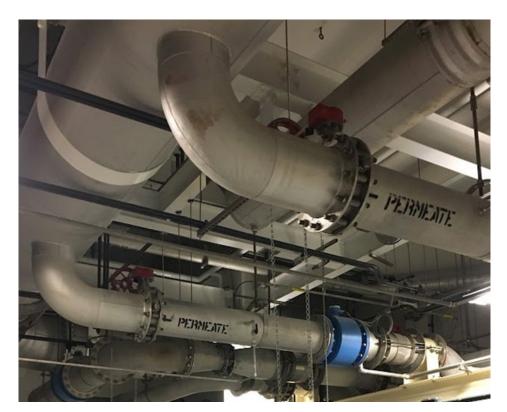
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S809400 - Cox Creek Permeate Piping

Project Description: This project is for the design, construction, and inspection of modifications to the permeate piping at Cox Creek WRF.

FY24 Request: \$641,000 Total Project Cost: \$2.6 Million

Benefits: This project will address a current operational concern and provide increased reliability in the future by improving the ability to perform maintenance functions.







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Small System Upgrades Consolidate and/or upgrade small privately owned facilities



Septic conversions Goal of connecting 6,000 units over 30 years

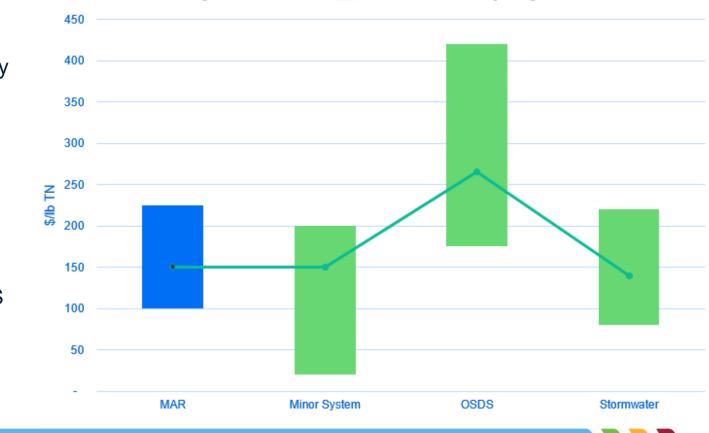
Managed Aquifer Recharge Test and implement at Patuxent WRF





S810000 - Managed Aquifer Recharge

Project Cost Effectiveness of Managed Aquifer Recharge as Compared to Other Initiatives



Project Costs - \$/Ib TN Removed per year

Capital costs only

Notes:

- Costs are total project costs
 without consideration of other funding sources
- Stormwater can also provide TSS removal



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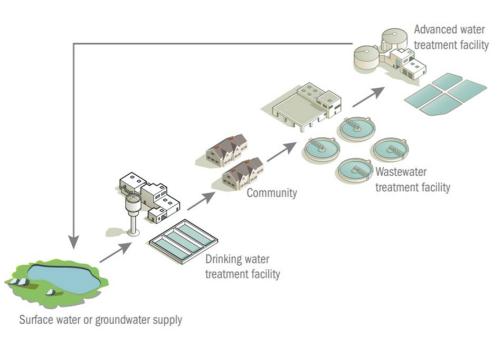
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S810000 - Managed Aquifer Recharge

Project Description: Design, construction, and inspection work related to the development and implementation of a managed aquifer recharge program. Efforts to include testing, public outreach and education, and full scale implementation. Construction of full scale system planned to start in FY30.

FY24 Request:	\$4.2 Million
FY25 Request:	\$19.1 Million
FY26 Request:	\$10.6 Million
FY27 Request:	\$16.8 Million
FY28 Request:	\$0
FY29 Request:	\$0
Total Project Cost:	\$236.0 Million

Benefits: Provides advanced wastewater treatment, groundwater replenishment, and reduces nutrient load at WRFs.

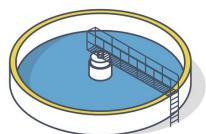




S810100 - Minor System Upgrades

Project Description: Design, construction, and inspection work related to the development and implementation of ENR treatment at Boone's Estates, Holiday Estates, Lyon's Creek, Maryland Manor, Patuxent Mobile Estates and Wayson Woods. Work to include a new ENR treatment facilities including headworks and solids handling at each location except for Patuxent Mobile Estates and Holiday Estates which will have a pump station and forcemain to ultimately connect to ENR treatment plants.

FY24 Request:\$1.1 MillionTotal Project Cost:\$51.9 Million



Need: Schedule affected by Agreements and Permits

Benefits: Improved wastewater treatment and decrease nutrient loads at several mobile home communities, mostly located in the Southern part of the County. This would greatly improve the quality of the wastewater effluent into local receiving streams and Patuxent River. *High Level of BRF Funding likely*.





S810200 - Regional Biosolids

Project Description: Planning, land acquisition, design, construction, and inspection work related construction a new Regional Biosolids Receiving Facility. **Project to include plant scale demonstration facility in FY25 and regional facility funding request added in FY26**

FY24 Request: \$2.0 Million FY25 Request: \$20.1 Million FY26 Request: \$107.5 Million Total Project Cost : \$132.6 Million

Benefits: Currently, Bio-solids are handle via a third party contractor for operations, handling, and disposal. Preliminary estimates show substantial savings to County with Capital Investment in Regional Biosolids Facility.



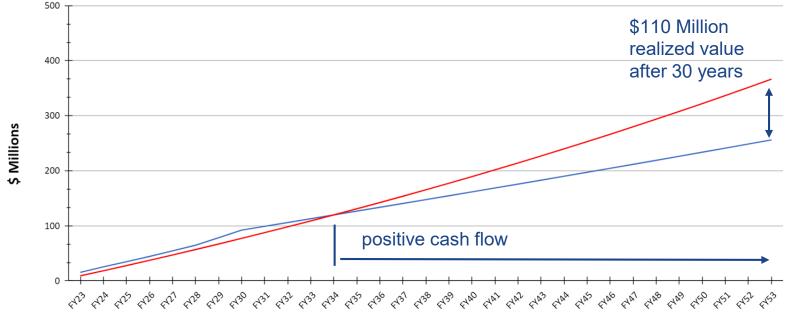




S810200 - Regional Biosolids

Return on Investment:





Fiscal Year

- Demo and Pyrolysis Cumulative Cost - Current Operations (Synagro) Cumulative Cost



Positive Cash Flow after 11 years, including time for design and construction of new facilities

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S810300 - Cox Creek Septage Fac Improve

Project Description: Funds are requested for the design, construction, and inspection work related to building a new septage receiving facility at the Cox Creek Water Reclamation Facility.

 FY24 Request:
 \$295,000

 FY25 Request:
 \$3,060,000

 Total Project Cost :
 \$6,655,000

Reason for Increase: Revised Cost Estimate

Benefits: This project will improve the septage receiving equipment allowing for more efficient use by private septic haulers at the Cox Creek Water Reclamation Facility and allow use of the facility during off hours.







X764200 - Wastewater Project Planning

Project Description: Funds have been approved for preliminary planning, engineering and cost estimating for proposed future Capital Sewer Projects. This is a revolving fund that will be reimbursed as the future capital projects are established and funded in the Capital Budget.

FY24 Request: \$2.7 Million
FY25 Request: \$1.7 Million
FY26 Request: \$2.0 Million
FY27 Request: \$2.3 Million
FY28 Request: \$2.3 Million
FY29 Request: \$1.1 Million
Total Project Cost: Multi Year

Projects include:

Our wAAter Program, MAR Pilot and Test Wells, Sewer Asset Management Plan, Sewer Utility Benchmarking Study

Benefit: Provides for future planning of contemplated projects.



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Our wAAter.



X800000 - State Hwy Reloc-Sewer

Project Description: This project funds for replacement and/or relocation of existing County **Wastewater** Infrastructure and **Water** Infrastructure which are required because of state highway construction.

FY24 Request: \$1.0 Million FY25 Request: \$10.2 Million FY26+ Request: \$300,000 Total Project Cost: Multi Year

Reason for Increase:

In FY25 request due to relocation of approximately 3400 LF of 20" water main. The work is generally located in Dorsey Rd between MD 713 to MD 170.

Benefit: Due to construction begins on sections of state highways, existing county water and wastewater facilities in these areas may require relocation due to conflicts in grade or alignment.





Highlighted Water Projects

(page 47 of Highlighter Report)

	Project	Name	FY24 Request	Total Project Cost	Program Driver
,	W002824	Lead Service Line Replacement	\$2,476,000	\$39,976,000	Regulatory
	W753400	Demo Abandoned Facilities	\$1,612,000	Multi-Year	Regulatory, Enhance
•	W778600	Crofton Meadows II WTP Upgr	\$2,384,000	\$18,242,734	Regulatory, Reliability
	W778800	Water Strategic Plan	\$321,000	Multi-Year	Capacity, Regulatory
	W787800	Fire Hydrant Rehab	\$789,000	Multi-Year	Reliability, Enhance
	W799600	Elevated Water Storage	\$0	Multi-Year	Capacity
	W801400	Crofton Meadows II Exp Ph2	\$5,000,000	\$70,482,350	Capacity, Regulatory
	W801600	TM-MD Rte 32 @ Meade	\$0	\$85,764,091	Capacity, Reliability
,	W803300	WTR Infrstr Up/Retro	\$2,758,000	Multi-Year	Regulatory, Reliability
1	W803600	East West TM-North	\$8,000,000	\$124,390,413	Capacity, Reliability
	W804300	New Cut WTP	\$186,000	\$1,953,000	Capacity
1	W809600	Arnold WTP Upgrades	\$0	\$5,636,000	Reliability, Enhance
	W809700	Crofton Meadows WTP Bldg Imp	\$129,000	\$2,388,000	Reliability, Enhance
	W809800	Dorsey WTP Improvements	\$276,000	\$4,426,000	Reliability, Enhance
E	W810400	Crofton Meadows WTP Rehab	\$0	\$5,934,000	Reliability, Enhance
	X764300	Water Project Planning	\$3,150,000	Multi-Year	Varies
			<i></i>		



New Water Project

W002824 - Lead Service Line Replacement (LSLR)

Project Description: This project includes the design, inspection and construction services for the replacement of all lead house connections including both the public and private sides. This project is in response to a regulatory requirement based on EPA's 2021 Revised Lead and Copper Rule.

FY24 Request:	\$2,476,000
FY25 Request:	\$2,500,000
FY26 Request:	\$5,000,000
FY27+ Request:	\$10,000,000

Outlook: There is Federal grant funding available through the Bipartisan Infrastructure Law (BIL) but it is difficult to determine how much the County may receive. DPW is currently developing its LSLR inventory which is required to be complete by October 2024

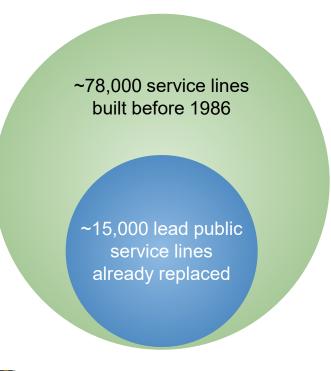






New Water Project

W002824 - Lead Service Line Replacement (LSLR)



Key Highlights:

- No known risk exposure of public to lead
- Ongoing monitoring of lead in water since 1991
- Current lead testing results less than 15 ug/L
- Higher pH (7.5-8.0) and Alkalinity > 25 mg/L of CaCO₃ minimizes potential corrosion of pipes
- Program requires replacement of both public and private service lines
- Next step in process is to create and publish an inventory of public and private side due October 2024
- Revisions to Lead Copper Rule proposed and ongoing
- \$51 Million in FFY22 available in State Funds for Inventory and Replacement with additional allotments expected in future FY's





W753400 Demo Abandoned Facilities

Project Description: Funds are approved, requested and programmed to demolish various water facilities which are no longer in service as required by Utility Operations. The facilities currently planned for demolition include Amberly WTP, Crofton Meadows I WTP Basins, and Self Contained Wells.

FY24 Request: \$1,600,000 **FY25 Request:** \$362,000

Reason for Increase: Actual Costs & revised Cost Estimates

Benefit: Demolition of these facilities will allow the county to dispose of excess land, and reduce maintenance.





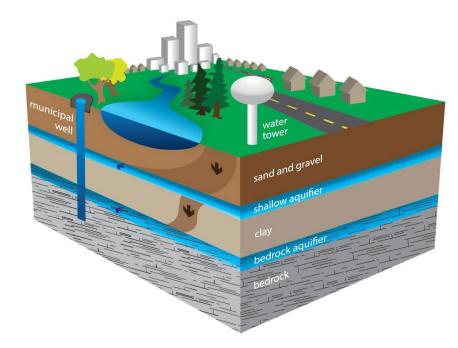


W778600 Crofton Meadows II WTP Upgr

Project Description: This is the final phase of the expansion of the Crofton Meadows II plant from 5 MGD to 15 MGD. The final phase includes construction of Wells 12 & 13 and the raw water transmission main to the Crofton Meadows II WTP.

FY24 Request: \$2.4 M Total Project Costs: \$18.2 M

Reason for Increase: Based on the current schedule and revised cost estimate







W778800 Water Strategic Plan

Project Description: This projects used to fund the update of the Comprehensive Strategic Water Plan, the Master Plan and to Fund the County's Interest in Well Head Protection. Funding through this project will also be used for the development of water strategic plans for the orderly programming and construction planning of water facilities.

FY24 Request:\$321,000FY25 Request:\$400,000FY26 Request:\$400,000FY27+ Request:\$100,000



Reason for Increase:

Funding is requested to initiate an update the Comprehensive Water Strategic Plan. The current strategic plan was last completed in 2016. Initial Phase will include Flow Factor Study to determine EDU for different uses and assist with demand projections. This will follow in FY25 with a full update of the Comprehensive Water Strategic Plan.





W787800 Fire Hydrant Rehab

Project Description: This project is to remove lead paint and repaint fire hydrants. This project is a multi year, on going project for coating maintenance on an approximate 7-10 year life cycle

FY24 Request:\$789,000FY25 Request:\$844,000FY26 Request:\$966,000FY27 Request:\$1,020,000FY28 Request:\$1,008,000FY29 Request:\$1,027,000

Reason for Increase: Based on the current cost and need.

Benefit: Improved efficiency of operation and identification of needed repairs. Improved aesthetics. Quantification of County assets.







W799600 Elevated Water Storage Tank

Project Description: Construction of Elevated Water Storage Tanks in accordance with the Water Strategic Plan. Current Program includes new Elevated Tanks in the Heritage Harbor, Glen Burnie High, and Maryland City zones

FY24 Request: No funding request FY25 Request: \$15.5 Million

Reason for Increase: Based on the current schedule and cost estimate.





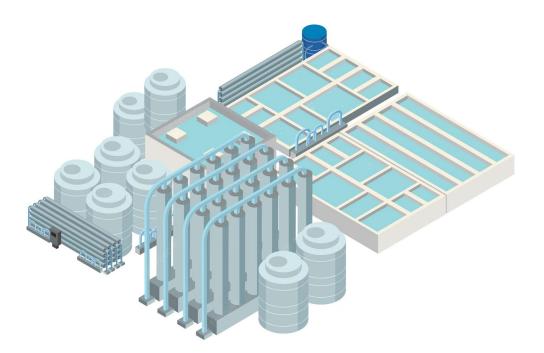


W801400 Crofton Meadows II Exp Ph2

Project Description: This project will increase the capacity of the Crofton Meadows II WTP from 15 to 20 MGD by adding additional sedimentation basins, filters and raw water wells. Well field will be increased from 15 to 21.5 MGD.

FY24 Request: \$5.0 Million Total Project Cost: \$70.5 Million

Reason for Increase: Based on the current schedule, funding for Raw Water Transmission Main and Wells not required until FY26. Cost increase is based on escalation.







W801600 TM-MD Rte 32 @ Meade

Project Description: This project provides for the design, right of way acquisition, and construction of approximately 5,400 LF of 20" and 15,900 LF of 30" Water main to interconnect the Kings Heights 330 PZ to the MD City 369 PZ.

FY24 Request: No Funding Requested FY25 Request: \$56.8 Million Total Project Cost: \$85.8 Million

Reason for Increase:

There has been significant progress in design and alignment of the project. Increase based on revised cost estimate and schedule

Benefit: Project will improve reliability by providing a looped transmission main. Project will ultimately be a water source for a future booster pumping station pumping from the 330 Zone and discharging to the 369 Zone (Maryland City).







W803300 WTR Infrstr Up/Retro

Project Description: Funds are requested for design and construction to upgrade various water system infrastructure, including structures and equipment to meet current control and operational standards.

FY24 Request: \$2,800,000 **FY25 Request:** \$980,000 **FY26+ Request:** \$750,000 **Total Project Cost:** Multi Year

Benefit: This project will better ensure the proper operation and maintenance of water infrastructure facilities to allow upgrades, rehabilitation or replacement of various components to improve reliability and performance.

Projects included:

Baltimore City and Ft Smallwood PRV projects, Water Facility Painting, Outdoor Sampling Stations, and Roof Improvements at the Millersville Utility Complex.







W803600 East West TM-North

Project Description: Funds are requested for the design, right of way acquisition and construction of a water transmission main that will transfer water in an easterly-westerly direction in the northern part of Anne Arundel County. Generally, the transmission network will provide improved distribution system conveyance between the Glen Burnie High and Glen Burnie Low Service Areas, while providing a source of supply for pumpage to higher pressure zones in the western part of the County.

FY24 Request: \$8.0 Million (per the program) FY25 Request: \$20.0 Million FY26 Request: \$20.0 Million FY27 Request: \$20.0 Million FY28 Request: \$20.0 Million FY29 Request: \$15.1 Million Total Project Cost: \$124,360,413

Reason for Increase:

Significant progress has been made in the design of Phase 1 and Phase 2 of the East West Transmission Main. Cost increase based on revised cost estimate and schedule.





W804300 New Cut WTP

Project Description: Funds are requested for planning and siting studies to support the design, right of way acquisition and construction of a new water treatment plant to serve the Glen Burnie High Zone. The new facility will provide additional capacity to support future growth.

 FY24 Request:
 \$186,000

 Total Project Cost:
 \$1,953,000

Reason for Increase: Based on current estimate





W809600 Arnold WTP Upgrades

Project Description: Funds are requested for the design, construction, and inspection of a new administration building and maintenance building at the Arnold WTP. This project will also include an upgrade to the existing process control system and related SCADA system improvements, and upgrades to the facilities' fires alarm system as needed.

FY24 Request: No Funding Requested FY25 Request: \$5,262,000 Total Project Cost: \$5,636,000

Reason for Increase: Revised Cost Estimate and Schedule







W809700 Crofton Meadows WTP Imp

Project Description: Funds are requested for the design, construction, and inspection of a new administration building at the Crofton Meadows WTP. This project will also include an upgrade to the existing process control system and related SCADA system improvements, and upgrades to the facilities' fires alarm system, and provisions of new air conditioning and dehumidification equipment at the high lift and low lift pumping stations

FY24 Request: \$129,000 **Total Project Cost:** \$2,388,000

Reason for Increase: Revised Schedule and Escalation







W809800 Dorsey WTP Improvements

Project Description: Funds are requested for the design, construction, and inspection of a new administration building and maintenance building at the Dorsey WTP. This project will also include related process control system and SCADA system improvements, upgrades to the facility's fire alarm system as needed, and painting and repair of structures and equipment throughout the facility.

FY24 Request: \$276,000 FY25 Request: No Funding Requested FY26 Request: \$3.9 Million Total Project Cost: \$4.4 Million

Reason for Increase: Revised Cost Estimate and Schedule







W810400 Crofton Meadows WTP Rehab

Project Description: Funds are requested for the design, construction, and inspection of rehabilitation of the existing process treatment trains at the Crofton Meadows WTP. Work shall include repair, rehabilitation, and replacement of process components, including mechanical, electrical, instrumentation and control, and other supporting components.

FY24 Request: No Funding Requested FY25 Request: \$5,143,000 Total Project Costs: \$5,934,000

Reason for Increase: Revised Schedule and Escalation



Benefit: This project will replace aging critical components of the water treatment plant to maintain operational effectiveness and minimize disruption to operations.



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X764300 Water Project Planning

Project Description: Funds have been approved for preliminary planning, engineering, and cost estimating for proposed future Capital Water Projects. This will be a revolving fund that will be reimbursed as the future capital projects are established and funded in the Capital Budget.

FY24 Request: \$3.15 Million FY25+ Request: \$250,000 Total Project Cost: Multi Year

Projects Included:

Major projects include development of Water Asset Management Plan. There will be a similar project in Wastewater Project Planning. Projects also include planning and evaluation of Transite Pipe Replacement.





