



FY 2019 - 2024 CIP

County Worksessions

July 7&14, 2017

CIP Strategic Priorities

- ▶ **Improve Infrastructure**
 - Plan, invest in and renew our infrastructure to provide future generations with a sustainable system, through innovative, cost-effective technology and world-class asset management
- ▶ **Achieve Business Process Excellence and Maintain Financial Stability**
 - Achieve financial stability through an improved rate structure and improved business processes that drive performance and obtain cost-effective business outcomes

CIP Program Content

WSSC's Capital Improvements Program (CIP), by State law, includes major projects as defined: water mains at least 16 inches in diameter; sewers at least 15 inches in diameter; water or sewage pumping stations; force mains; water or sewage storage facilities; improvements or expansions to water filtration or wastewater treatment plants; and other major facilities.

(Section 23-301 of the Public Utilities Article, WSSD Laws, Annotated Code of Maryland)

Projects shown in the Information Only Section are not required to be in the CIP, but may be included to provide more comprehensive information on important programs or projects.

CIP Review Process

- ▶ Staff Draft document (May & June)
- ▶ Worksessions with GM, Counties and Commissioners (June & July)
- ▶ Public Hearings (September 5 & 6)
- ▶ Commission approval to transmit (September)
- ▶ County Executive & Council review and approval (March through May 2018)
- ▶ Adopted CIP (June 2018)

CIP Overview

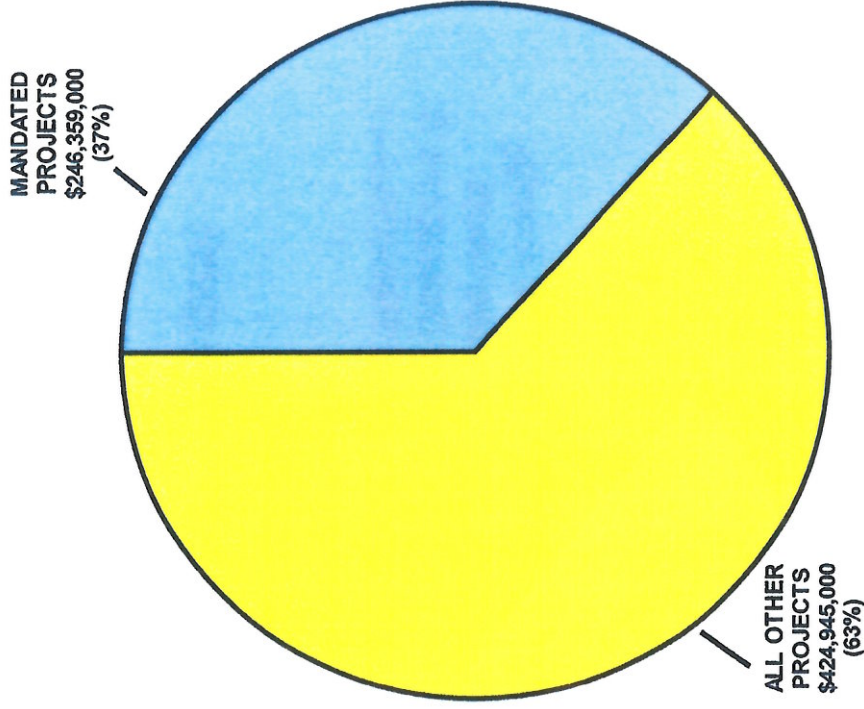
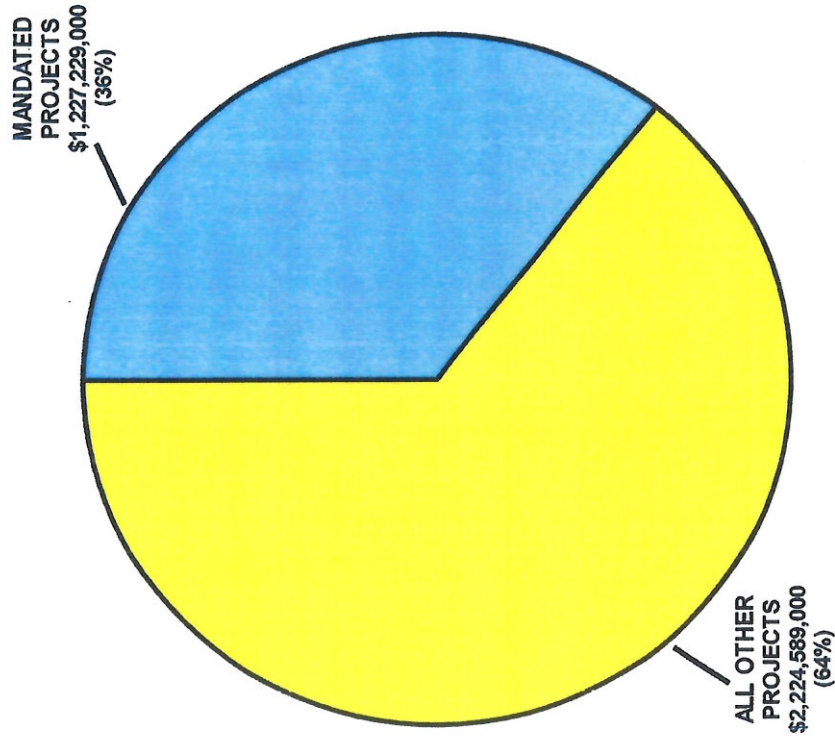
- ▶ Total CIP \$3.5 Billion
- ▶ 70 projects
- ▶ Six-year program cost \$2.0 billion
 - Bond Funded \$1.8 billion (less PAYGO of \$308 million)
 - Mandated Projects \$804 million (40%)
 - Blue Plains \$336 million
 - Consent Decree \$446 million
 - Other Regulatory & Agreement \$22 million
- ▶ FY'19 Budget Year cost \$424.4 million
 - Bond Funded \$348.3 million (less PAYGO of \$36.8 million)
 - Mandated Projects \$182 million (43%)

Information Only Projects

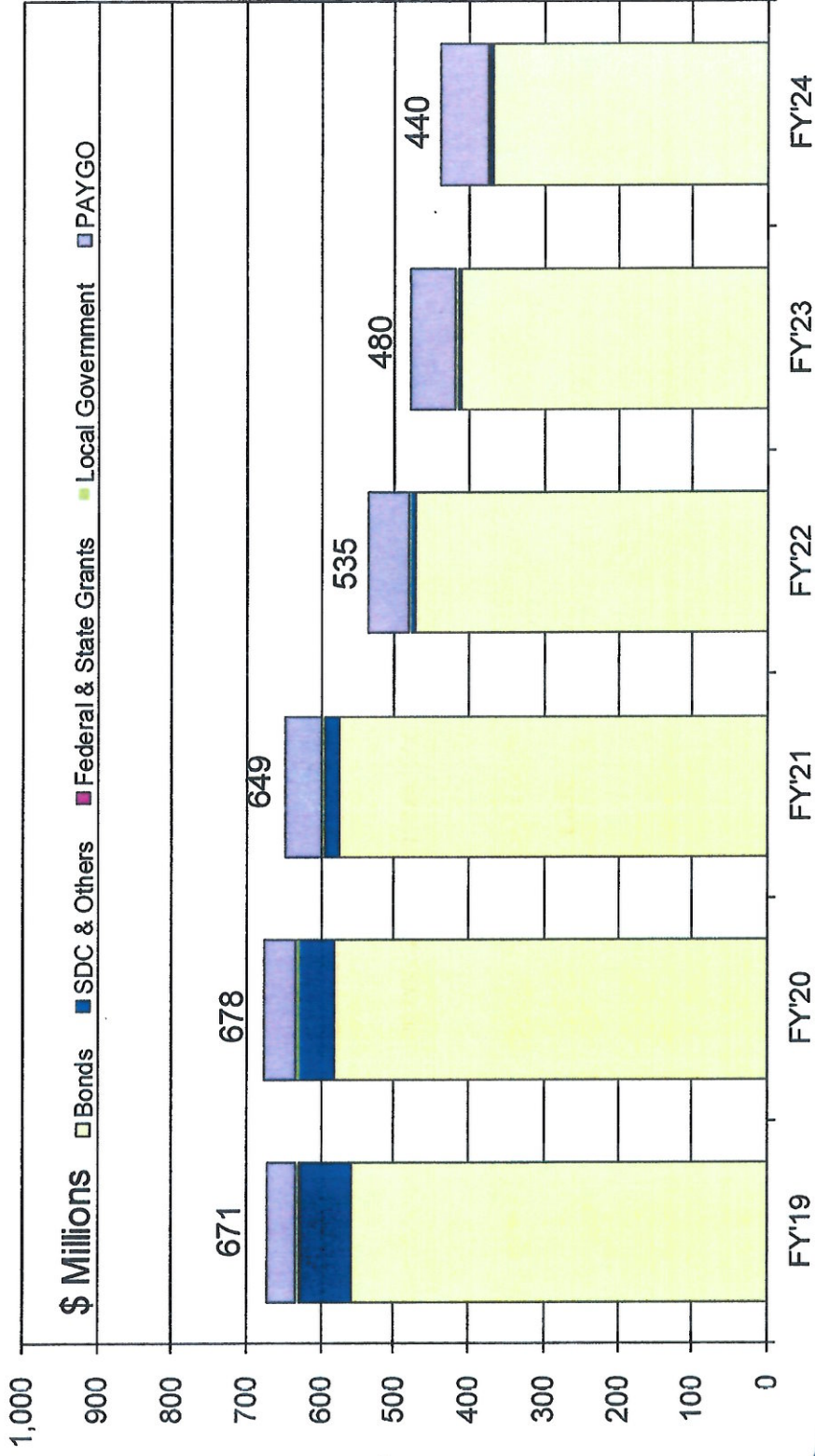
Projects not required by law to be in the CIP but provided as additional information for customers and stakeholders.

- ▶ **Nine projects**
 - Water Reconstruction; Sewer Reconstruction; Engineering Support; Energy Performance; Water Storage Facility Rehabilitation; Specialty Valve Vault Rehabilitation; Advanced Metering Infrastructure; Brighton Dam Operations & Maintenance Facility and Site Improvements; D'Arcy Park North Relief Sewer
- ▶ **Six-year program cost \$1.4 billion**
 - Bond funded \$1.4 billion
 - Mandated - Consent Decree Sewer Reconstruction \$423 million (29%)
- ▶ **FY'19 Budget Year cost \$246.9 million**
 - Bond funded \$246.1 million
 - Mandated - Consent Decree Sewer Reconstruction \$64.7 million (26%)

Combined CIP & Information Only Mandated Projects



Combined CIP & Information Only Funding Requirements

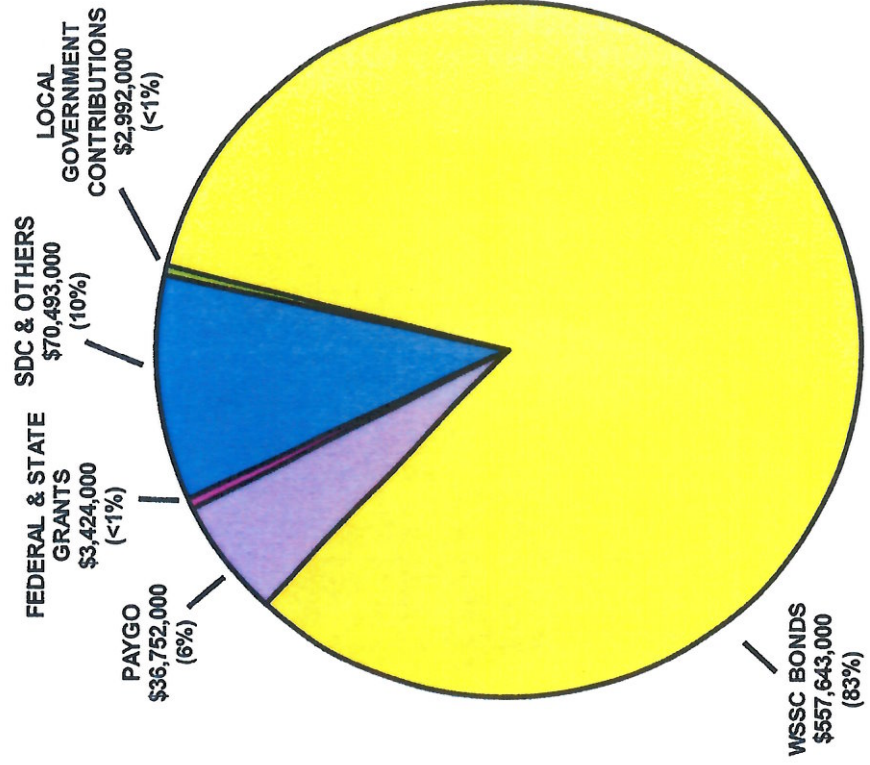
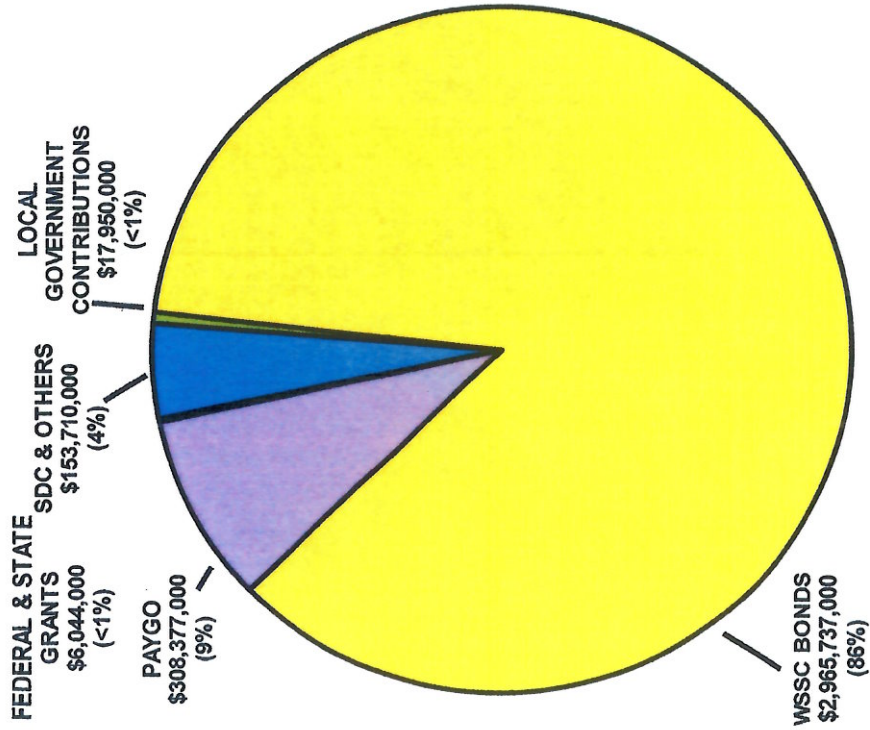


Combined CIP & Information Only Operating Budget & Rate Impacts

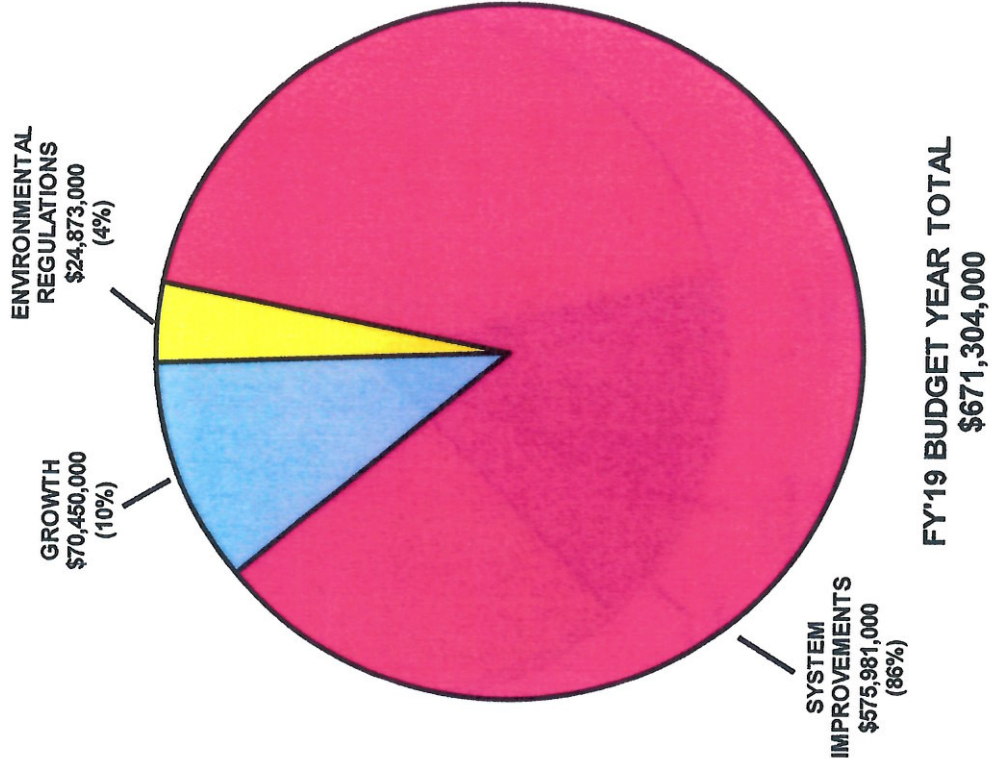
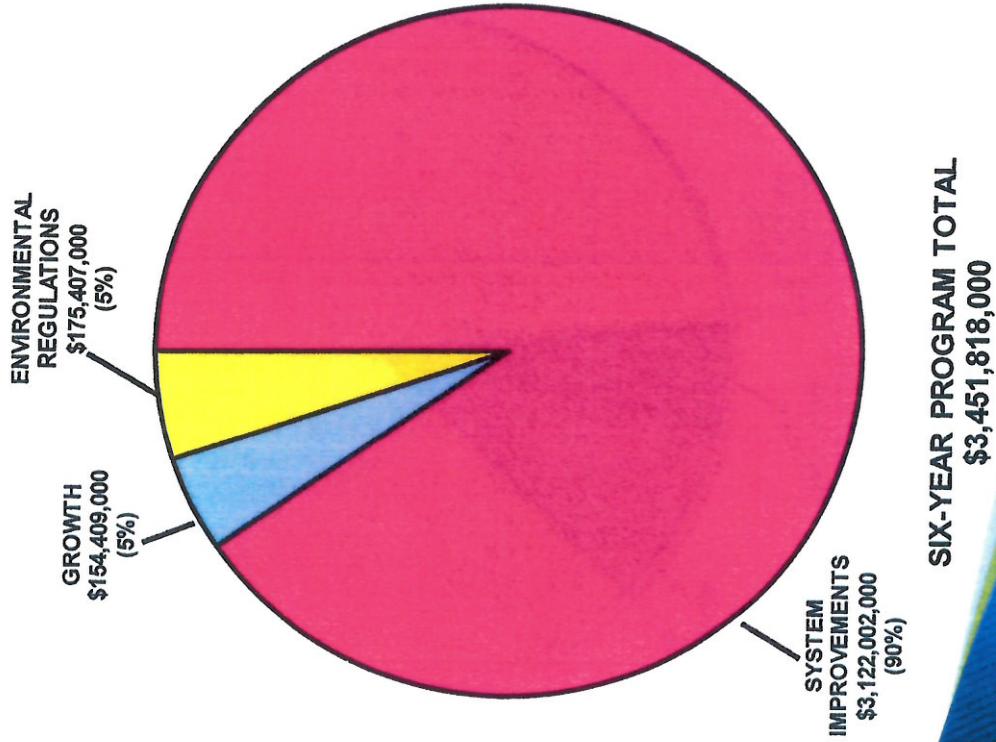
	FY19	FY20	FY21	FY22	FY23	FY24
Net Bond Amount	558,000,000	562,000,000	545,000,000	449,000,000	392,000,000	352,000,000
Increase in Debt Service	36,000,000	37,000,000	35,000,000	29,000,000	26,000,000	23,000,000
Rate Impact	6.0%	6.1%	5.9%	4.9%	4.2%	3.8%
Cumulative Rate Impact	6.0%	12.1%	18.0%	22.9%	27.1%	30.9%



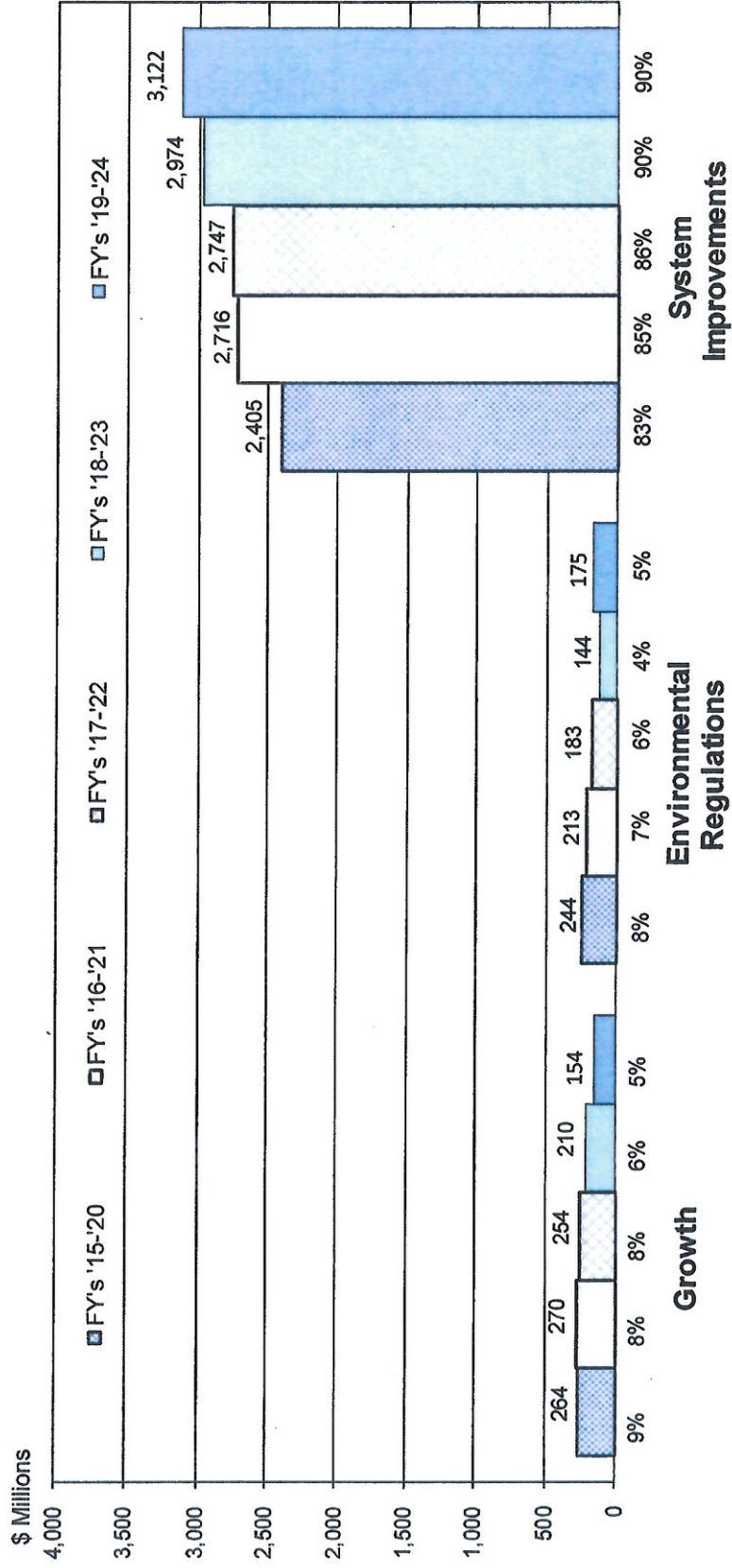
Combined CIP & Information Only Funding Requirements



Combined CIP & Information Only by Major Category



Combined CIP & Information Only by Major Category



Reconstruction Projects

- ▶ Water Reconstruction Program
- ▶ Sewer Reconstruction Program
- ▶ Trunk Sewer Reconstruction Program
- ▶ Large Diameter Water Pipe & Large Valve Rehabilitation Program

Water Reconstruction Program

	Current		Planned
	<u>FY'18 Adopted</u>	<u>FY'18 Estimated</u>	<u>FY'19 Proposed</u>
Main Line Design - (\$)	\$ 20,313,000	\$ 17,500,000	\$ 17,993,000
Main Line & House Connection Construction - Miles	55 miles	48 miles	45 miles
Main Line & House Connection Construction - (\$)	\$ 78,947,000	\$ 88,179,000	\$ 85,040,000
Cathodic Protection - (\$)	\$ 4,746,000	\$ 1,422,000	\$ 1,036,000
Large Water Service Design - (\$)	\$ 2,636,000	\$ 2,571,000	\$ 2,636,000
Large Water Service Construction - Meters	30 meters	30 meters	30 meters
Large Water Service Construction - (\$)	\$ 5,314,000	\$ 5,229,000	\$ 5,314,000
Emergency Contracts at Depots - (\$)	\$	\$ 6,571,000	\$ 6,703,000
Total Water Reconstruction	\$ 111,956,000	\$ 121,472,000	\$ 118,722,000



Sewer Reconstruction Program

	Current		Planned	
	<u>FY'18 Adopted</u>	<u>FY'18 Estimated</u>	<u>FY'19 Proposed</u>	<u>FY'19 Proposed</u>
Main and Lateral Line Design - (\$)	\$ 1,429,000	\$ 1,514,000	\$ 1,893,000	1,893,000
Main Line Residential Construction - Miles	20 miles	20 miles	20 miles	20 miles
Main Line Residential Construction - (\$)	\$ 29,614,000	\$ 29,671,000	\$ 30,223,000	30,223,000
Lateral Line & House Connection Construction - Miles	6 miles	6 miles	6 miles	6 miles
Lateral Line & House Connection Construction - (\$)	\$ 24,986,000	\$ 24,986,000	\$ 25,483,000	25,483,000
Sewer House Connection Renewal	400 renewals	400 renewals	400 renewals	400 renewals
Sewer House Connection Renewal - (\$)	\$ 4,229,000	\$ 4,000,000	\$ 4,229,000	4,229,000
Emergency Repairs - (\$)	\$ 2,856,000	\$ 2,857,000	\$ 2,856,000	2,856,000
Total Sewer Reconstruction	\$ 63,114,000	\$ 63,028,000	\$ 64,684,000	64,684,000



Reconstruction Projects

The Trunk Sewer and Large Diameter Water Pipe Reconstruction Programs address extending the useful life of our system's largest sewer and water mains.

- ▶ Trunk Sewer Reconstruction Program (S-170.09; p. 4-11): provides for the rehabilitation of sewer mains and manholes located in environmentally sensitive areas (ESAs). All construction contracts have been awarded. As actual construction progresses the projections may be updated. Construction work in the ESAs has been released for construction. 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 to taper down to roughly five miles per year by FY'22. (FY'19: \$84.5M)
- ▶ Large Diameter Water Pipe & Large Valve Rehabilitation Program (W-161.01; p. 3-10): provides for the repair and replacement of water mains 16-inches in diameter and larger and installation of Acoustic Fiber Optic (AFO) monitoring equipment. Inspection, re-inspection and installation of AFO equipment is on-going, repair and replacement underway. The large valve rehabilitation program projects to ramp up from 2 valves to 5 valves per year by FY'23. (FY'19: \$53.6M)

Proposed New Projects

One new project

- ▶ Parkway North Substation Replacement (S-77.20; p.6-11) this project provides for the planning, design, and construction of electrical upgrades for the Parkway Wastewater Treatment Plant in Laurel including the full replacement of the north electrical substation, motor control cabinet #1 and 480 volt substation. Estimated completion date is March 2020. (FY'19: \$2.7M; Bond Funded; Total Cost: \$5.0M)

Project Updates

- ▶ Blue Plains
- ▶ Potomac WFP
- ▶ Patuxent WFP
- ▶ Broad Creek WWPS
- ▶ Septage Discharge Facilities
- ▶ Piscataway WWTP Bio-Energy Project
- ▶ Advanced Metering Infrastructure

Blue Plains Impact on CIP

- ▶ **Five projects:**
 - Liquid Train; Biosolids Management; Plant-wide; Enhanced Nutrient Removal (ENR); Pipelines & Appurtenances
- ▶ **At \$336 million, equals 17% of the six-year program**
- ▶ **FY'19 Budget at \$59.0 million, equals 14% of the budget year CIP request**

Blue Plains Projects

- ▶ Liquid Train (S-22.06; p. 4-3): grit chamber buildings, dual purpose sedimentation basins and filtration & disinfection facilities rehabilitation, high strength waste receiving facility, wastewater asset management support, process control upgrade, and chemical system/building upgrades. Construction ongoing as planned. (FY'19 cost \$18.8M)
- ▶ Biosolids Management (S-22.07; p. 4-4): new anaerobic digesters and combined heat & power, gravity thickener upgrades and solids processing building/dewatered sludge loading facility. Construction has wound down on new anaerobic digestion facilities. (FY'19 cost \$10.7M)
- ▶ Plant-wide Projects (S-22.09; p. 4-5): plant-wide program management, plant-wide fine bubble aeration, plant-wide painting of steel pipes, process computer control system, Blue Plains IT backbone, wastewater asset management technical support, and plant-wide paving. Construction ongoing as planned. (FY'19 cost \$7.0M)
- ▶ Enhanced Nutrient Removal (ENR) (S-22.10; p. 4-6): 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, and wet weather mitigation, diversion at Bolling and tunnel dewatering pump station. Construction ramping down. Grant & Bond funded. (FY'19 cost \$5.5M)
- ▶ Pipelines & Appurtenances (S-22.11; p. 4-7): rehabilitation of interceptor and influent sewers, sewage pumping station rehabilitation, projects for combined sewer overflow (CSO) long term control plan (LTCP) and new headquarters building. Construction ongoing as planned. (FY'19 cost \$17.0M)

Potomac Plant

- ▶ Potomac WFP Outdoor Substation No.2 Replacement (W-73.19; p.3-3): provides for the replacement of the existing electrical substation. In construction with completion expected August 2017. (FY'19: \$22,000; Bond funded; Total Cost: \$15.1M)
- ▶ Potomac WFP Corrosion Mitigation (W-73.21; p.3-4): upgrade and replace existing metallic components due to accelerated corrosion and in advance of new ferric chloride feed system. In construction with completion expected September 2017. (FY'19: \$65,000; Bond funded; Total Cost: \$17.3M)
- ▶ Potomac WFP Pre-Filter Chlorination & Air Scour Improvements (W-73.22; p.3-5): new pre-filter chlorination system and addition of air scour system to address filter underdrain failures. Design complete. Total project cost increased to include the replacement of all 32 filter underdrains. (FY'19: \$7.9M; Bond funded; Total Cost: \$25.0M)
- ▶ Potomac WFP Submerged Channel Intake (W-73.30; p. 3-6): new intake to enhance safety and reliability while reducing treatment costs by drawing water from a location with cleaner, more stable water quality. (FY'19: \$1.5M; Bond funded; Total Cost: \$83.1M)
- ▶ Potomac WFP Main Zone Pipeline (W-73.32; p.3-7): new rock tunnel and 1,500 feet of 84-inch diameter redundant water main under plant and out to existing mains in River Road; Order of Magnitude estimate for design and construction; currently in design. (FY'19: \$1.1M; Bond funded; Total Cost: \$37.5M)
- ▶ Potomac WFP Consent Decree Program (W-73.33; p.3-8): planning, design, and construction required for the implementation of Short-Term Operational and Long-Term Capital Improvements at the Potomac Water Filtration Plant to meet the new discharge limitations identified in the Consent Decree. Cost increased to reflect the December 2016 Audit Report to MDE. (FY'19: \$9.9M; Bond funded; Total Cost: \$157.5M)

Patuxent Plant

- ▶ Phase II Expansion (W-172.05; p. 3-13): expands plant to 72 MGD, adds a sixth treatment train, new solids removal facility and UV disinfection; new solids removal facility and three smaller centrifuges. Construction winding down. (FY'19: \$1.1M; Bond funded; Total Cost: \$63.9M)
- ▶ Raw Water Pipeline (W-172.07; p. 3-14): adds a fourth raw water pipeline for redundancy; alignment process coordinated with HOA and elected officials; currently in design. Project has been delayed due to a lengthy permit and right-of-way acquisition process. Expect to begin construction FY 2018. (FY'19: \$8.4M; Bond funded; Total Cost: \$33.7M)
- ▶ Rocky Gorge Raw Water Pump Station (W-172.08; p. 3-15): modifications to allow station to pump up to 110 MGD. Currently in construction with completion expected summer 2019. (FY'19: \$2.5M; Bond funded; Total Cost: \$22.6M)
- ▶ Duckett & Brighton Dam Upgrades (W-139.02; p. 3-9): upgrades to meet MDE standards for flood and earthquake; Duckett Dam work complete. Brighton Dam work now in construction with completion expected summer 2019. (FY'19: \$7.8M; Bond funded; Total Cost: \$30.8M)

Project Updates

- ▶ Broad Creek WWPS Augmentation (S-43.02; p. 6-5): pumping station capacity expansion, new force main and new intermittent storage at Piscataway WWTP to meet Consent Decree. Permanent generator completed November 2009; headworks and storage at Piscataway WWTP substantially complete; construction underway on North end of Force Main and South end of Force Main. Final contract for pumping station currently in construction. (FY'19: \$15.2M; SDC & Bond funded; Total Cost: \$182.5M)
- ▶ Septage Discharge Facilities (S-170.08; p. 4-10): construct new Septage and Fats, Oils and Grease (FOG) receiving facilities at the abandoned Rock Creek WWTP and new Septage discharge facilities at Anacostia WWPS No 2 and Piscataway WWTP. Project for FOG facility at Piscataway WWTP moved to Piscataway Bio-Energy project. Cost increased based upon final design. Facility studies for each County determined sites; projects are currently in design. (FY'19: \$5.2M; Bond funded; Total Cost: \$30.5M)

Project Updates

- ▶ Piscataway WWTP Bio-Energy Project (S-103.02; p. 4-8): construct a new anaerobic digestion/ combined heat & power system to treat biosolids from Piscataway, Parkway, Western Branch, Seneca, and Damascus wastewater treatment plants. Project benefits include reducing biosolids output by more than 50,000 tons per year, recovering 2-3 megawatts of renewable energy, and reducing our total greenhouse gas emissions by 15%. In addition, the project will produce Class A biosolids for beneficial reuse and help prevent sanitary sewer overflows by removing 5 million gallons of restaurant grease per year from entering the sewer system by recovering and using it as fuel for the anaerobic digesters. Economic benefits are expected to exceed \$3.7 million per year through energy savings and reduced biosolids disposal and chemical costs. Cost increased to reflect early design level estimate, addition of FOG facilities and plant utility water upgrades and to reflect decision to cancel Western Branch Incinerator project and send all biosolids to Piscataway WWTP. Currently in design. (FY'19: \$44.3M; Federal Aid, State Grant & Bond funded; MDE Low Interest Loan; Total Cost: \$248.7M)

Project Updates

- ▶ Advanced Metering Infrastructure (AMI) (A-109.00; p. 7-9): project provides for the implementation of a system-wide fully automated meter reading infrastructure system. All meter readings will be collected remotely through a network communications system AMI will improve both customer service and operational efficiency. The expected results include:
 - Monthly billing based on fully automated, actual meter readings. Reduced bill size will be to help customers stay current with payments, help customers develop a greater awareness of their water consumption, and ensure that any excessive consumption due to leaks are addressed more quickly
 - Active notification of customers with abnormal consumption that might signify leaks before customers get high consumption bills
 - Reduced customer calls and reduced field investigation visits
 - 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 and are expected to change based upon the latest technology available at the time the project is bid. (FY'19: \$27.7M; Bond funded; Total Cost: \$93.9M)

Development Services Projects

- ▶ Built by Applicants to support growth
- ▶ No WSSC rate-supported debt
- ▶ Applicants earn SDC credits
- ▶ By count, 23 of the 70 projects in the CIP (33%)
- ▶ Six-Year program impact \$35.9 million (1.8%)
- ▶ FY'19 Budget Year impact \$16.0 million (3.8%)

Projects Pending Close Out

- ▶ Eleven projects pending close out (page 3)
- ▶ Total cost \$180.4 million
 - S-25.03, Twinbrook Commons Sewer
 - S-25.04, Mid-Pike Plaza Sewer Main, Phase 1
 - S-25.05, Mid-Pike Plaza Sewer Main, Phase 2
 - W-46.14, Clarksburg Area Stage 3 Water Main, Parts 1, 2, & 3
 - S-57.94, Western Branch WWTP Incinerator Emissions Control (Terminated)
 - S-84.65, Tapestry Wastewater Pumping Station
 - S-84.66, Tapestry WWPS Force Main
 - W-120.16, Villages of Timothy Water Main, Part 3
 - W-127.01, Bi-County Water Tunnel
 - S-137.02, South Potomac Supply Improvement, Phase 1
 - A-104.00, Entrepreneurial Projects (Terminated)

Rates & Upcoming Major Capital Projects

- ▶ Budget & rates are driven by capital costs/debt service.
- ▶ Several critical upcoming capital projects will have a significant and ongoing rate impact:
 - Potomac WFP 69kV Feeder ~\$38M
 - Regional Water Supply Redundancy ~\$400M (Regional Cost)
- ▶ As the project details mature, WSSC and the Counties will need to collaboratively weigh options, timing, costs, rate impacts, and risks.
- ▶ Potential adjustments to SAG process to emphasize long term impacts of CIP/Debt costs on water & sewer rates should be considered.