

SEWERS

Including the Sanitary Sewer Fund and
Stormwater Management Fund

Sewers

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Sewers

Sanitary Sewers Subsection/Project	<i>Unallocated Balance (01/12)</i>	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY 13-22
Sanitary Sewers												
Commonwealth Service Chamber	\$370,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Holmes Run Trunk Sewer	6,037,000	0	0	0	0	0	0	0	0	0	0	0
Sanitary Sewer Capacity Studies	149,877	0	0	0	0	0	0	0	0	0	0	0
Four Mile Run Sanitary Sewer Repair	130,000	1,500,000	0	0	0	0	0	0	0	0	0	1,500,000
Holmes Run Sewershed Infiltration & Inflow	4,960,000	4,360,000	4,200,000	3,600,000	3,850,000	3,850,000	0	0	0	0	0	19,860,000
Mitigation of Combined Sewer Overflows	1,581,690	319,000	335,000	335,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	3,439,000
Reconstructions & Exts. of Sanitary Sewers	2,373,918	322,000	0	775,000	320,000	435,000	540,000	660,000	760,000	760,000	845,000	5,417,000
Sewer Separation Projects	600,000	500,000	120,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	5,420,000
ASA Wastewater Treatment Plant Expansion	0	500,000	500,000	0	0	0	0	0	11,070,000	11,400,000	11,750,000	35,220,000
Wet Weather Management Facility	0	0	3,375,000	1,125,000	0	13,300,000	13,700,000	0	0	0	0	31,500,000
Sanitary Sewer Master Plan	0	0	0	0	0	0	0	0	0	0	10,000	10,000
Sanitary Sewers Total	\$16,202,485	\$7,501,000	\$8,530,000	\$6,435,000	\$5,120,000	\$18,535,000	\$15,190,000	\$1,610,000	\$12,780,000	\$13,110,000	\$13,555,000	\$102,366,000
Less Total Non-City Revenue	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Net City Costs	\$16,202,485	\$7,501,000	\$8,530,000	\$6,435,000	\$5,120,000	\$18,535,000	\$15,190,000	\$1,610,000	\$12,780,000	\$13,110,000	\$13,555,000	\$102,366,000

Stormwater Management Subsection/Project	<i>Unallocated Balance (01/12)</i>	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY 13-22
Stormwater Management												
Taylor Run at Janney's Lane	\$551,250	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
NPDES / MS4 Permit	134,000	0	0	0	0	0	0	0	0	0	0	0
Four Mile Run Channel Maintenance	600,000	1,010,000	0	0	0	600,000	0	0	0	0	0	1,610,000
Ft. Ward Stormwater	85,000	500,000	0	0	0	0	0	0	0	0	0	500,000
Storm Sewer Capacity Analysis	1,088,500	350,000	400,000	0	0	0	0	0	0	0	0	750,000
Stream & Channel Maintenance and Rest.	170,750	1,198,000	1,198,000	0	0	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	9,596,000
Miscellaneous Storm Sewer Repairs	3,314,113	0	525,000	775,000	535,000	825,000	925,000	285,000	395,000	670,000	300,000	5,235,000
Storm/Combined Sewer Assessment and Renov.	450,000	0	0	380,000	900,000	900,000	900,000	900,000	900,000	0	0	4,880,000
Key Drive Flood Mitigation	0	0	0	1,000,000	800,000	0	0	0	0	0	0	1,800,000
Braddock Rd. & West St. Storm Sewer	0	0	0	0	0	0	0	750,000	750,000	1,500,000	2,000,000	5,000,000
Stormwater Management Total	\$6,393,613	\$3,058,000	\$2,123,000	\$2,155,000	\$2,235,000	\$3,525,000	\$3,025,000	\$3,135,000	\$3,245,000	\$3,370,000	\$3,500,000	\$29,371,000
Less Total Non-City Revenue	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Net City Costs	\$6,393,613	\$3,058,000	\$2,123,000	\$2,155,000	\$2,235,000	\$3,525,000	\$3,025,000	\$3,135,000	\$3,245,000	\$3,370,000	\$3,500,000	\$29,371,000

Sewers

SANITARY SEWER FUND

Overview: The Proposed FY 2013 – 2022 Sanitary Sewer Fund totals \$189.3 million over ten years, including \$86.9 million of operating expenditure and debt services payment for General Obligation Bonds and \$102.4 million for sanitary sewer capital improvement projects for reducing stormwater inflow and infiltration and expanding system capacity in order to prevent sanitary sewer backups while minimizing the environmental impacts of sanitary sewer discharge. These improvements are provided as part of the City's compliance with Commonwealth of Virginia environmental permitting regulations.

A Sanitary Sewer Master Plan currently under development has defined two significant capital investments which are included as part of the Proposed FY 2013 – 2022 CIP. These projects are the Alexandria Sanitation Authority (ASA) Wastewater Treatment Plant expansion (\$35.2 million) and a Wet Weather Treatment Facility (\$31.5 million). Projects are proposed to be funded with a combination of increases to the current Sewer Maintenance Fee (currently \$1.25/1,000 gallons) and possible increases to the Sewer Line Connection Fees (paid by developers).

Revenue Generation: The Sanitary Sewer Fund is funded by a combination of Sewer Connection Fees charged to developers for tying new structures in to the system and Sanitary Sewer Line Maintenance Fees charged to existing property owners on the quarterly water bill based on gallons consumed. The Sewer Connection Fees are adjusted annually according to the CPI-U. The sewer usage fee was increased to \$1.25/1,000 gallons in FY 2011, is proposed to stay the same for FY 2013. The current rate costs the typical household approximately \$87.50 annually, or \$21.88 per quarter.

Reflecting the Proposed FY 2013 – 2022 Sanitary Sewer Fund budget, rate increases to the Sewer Line Maintenance Fee are projected beginning FY 2015. The rate increases appear necessary to fund large one-time capital projects including the Wet Weather Treatment Facility, ASA Wastewater Treatment Plant Expansion, and completion of funding for the Holmes Run Sewer Shed Infiltration and Inflow project. The following table is an estimate of proposed rate increases in the ten-year plan. The City will also explore the possibility of eventually increasing the Sewer Line Connection Fees charged to developers. Actual rate increases would be aligned with project timing and financing needs as the scope of each project becomes clearer, and the rate increases below are estimated. Rate increases and increases to the base Sewer Line Connection Fees would be approved by City Council on an annual basis.

	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Beginning FY Rate	\$1.25	\$1.25	\$1.25	\$1.38	\$1.38	\$1.47	\$1.77	\$2.05	\$2.05	\$2.27
Proposed % Increase	0.0%	0.0%	10.0%	0.0%	7.0%	20.0%	16.0%	0.0%	12.0%	0.0%
New Rate	\$1.25	\$1.25	\$1.38	\$1.38	\$1.47	\$1.77	\$2.05	\$2.05	\$2.27	\$2.27

Each of the projects listed in the previous paragraph are assumed to be bond financed, and the resulting rate increase will be used to pay debt service associated with the projects. This is a pay-as-you-use system of finance which is an appropriate model for a utility such as a sanitary sewer system. The FY 2013 - 2022 CIP calls for the leveraging of \$85.6 million in General Obligation Bonds over the ten year plan, with the debt service paid from dedicated Sanitary Sewer Fund revenues. General Obligation Bonds paid by sewer fee revenue are considered "double barreled" bonds by the rating agencies and do not count towards a jurisdictions debt ratios.

Planned Projects: The projects included in the FY 2013 – FY 2022 Proposed Sanitary Sewer Fund plan address maintenance-related issues necessary at current levels of development in the City. Additionally, the plan includes capacity-related projects stemming from projected development and population growth in the City. As the Sanitary Sewer Master Plan is fully developed, additional projects are likely to be added to future ten year plans.

Additional operating costs for the Wet Weather Management Facility are also factored into the ten year plan, with an estimated cost of \$654,000 in FY 2019 once construction of the facility is completed.

Sewers

FY 2013 - 2022 PROPOSED CIP: SANITARY SEWER FUND SOURCES AND USES

Sanitary Sewer Rate (\$ per 1,000 gallons)		FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	
Sanitary Sewer Rate (\$ per 1,000 gallons)		\$1.25	\$1.25	\$1.25	\$1.38	\$1.38	\$1.47	\$1.77	\$2.05	\$2.05	\$2.27	
Proposed Rate Increase (% increase)		0.0%	0.0%	10.0%	0.0%	7.0%	20.0%	16.0%	0.0%	12.0%	0.0%	
New Sanitary Sewer Rate (\$ per 1,000 gallons)		\$1.25	\$1.25	\$1.38	\$1.38	\$1.47	\$1.77	\$2.05	\$2.05	\$2.27	\$2.27	

Sanitary Sewer Module Funding Sources		FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY13-FY22
Sewer Line Maintenance Fee		\$6,500,000	\$6,548,750	\$7,257,652	\$7,312,085	\$7,882,610	\$9,530,075	\$11,137,799	\$11,221,333	\$12,662,152	\$12,757,118	\$92,809,574
Sewer Connection Fee		1,000,000	1,050,000	1,102,500	1,157,625	1,215,506	1,276,282	1,340,096	1,407,100	1,477,455	1,551,328	12,577,893
New Debt Issuance		4,850,000	3,530,000	3,750,000	0	0	0	0	0	0	0	12,130,000
New Debt Issuance (with New Projects)		0	3,375,000	1,125,000	3,850,000	17,150,000	13,700,000	0	11,070,000	11,400,000	11,750,000	73,420,000
Reprogrammed Prior Year Funding		246,556	225,000	0	0	0	0	0	0	0	0	471,556
Fund Balance Carryover		0	168	8,392	135,681	132,623	45,868	118,237	184,422	114,775	572,714	0
Total Funding Sources		\$12,596,556	\$14,728,918	\$13,243,545	\$12,455,390	\$26,380,739	\$24,552,225	\$12,596,132	\$23,882,856	\$25,654,382	\$26,631,160	\$191,409,022

Category/Project	Unallocated (12/2011)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY13-FY22
Category 1												
Mitigation of Combined Sewer Overflows	\$1,581,690	\$319,000	\$335,000	\$335,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$3,439,000
Reconstructions & Exts. of Sanitary Sewers	2,373,918	322,000	0	775,000	320,000	435,000	540,000	660,000	760,000	760,000	845,000	5,417,000
Sanitary Sewer Capacity Studies	149,877	0	0	0	0	0	0	0	0	0	0	0
Sewer Separation Projects	600,000	500,000	120,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	5,420,000
Subtotal Category 1	4,705,485	1,141,000	455,000	1,710,000	1,270,000	1,385,000	1,490,000	1,610,000	1,710,000	1,710,000	1,795,000	14,276,000
Category 2												
Commonwealth Service Chamber	370,000	0	0	0	0	0	0	0	0	0	0	0
Holmes Run Trunk Sewer	6,037,000	0	0	0	0	0	0	0	0	0	0	0
Four Mile Run Sanitary Sewer Repair	130,000	1,500,000	0	0	0	0	0	0	0	0	0	1,500,000
ASA Wastewater Treatment Plant Expansion	0	500,000	500,000	0	0	0	0	0	11,070,000	11,400,000	11,750,000	35,220,000
Holmes Run Sewershed Infiltration & Inflow	4,960,000	4,360,000	4,200,000	3,600,000	3,850,000	3,850,000	0	0	0	0	0	19,860,000
Subtotal Category 2	11,497,000	6,360,000	4,700,000	3,600,000	3,850,000	3,850,000	0	0	11,070,000	11,400,000	11,750,000	56,580,000
Category 3												
¹ Reclaimed Water System via WTE Plant	0	0	0	0	0	0	0	0	0	0	0	0
Wet Weather Management Facility	0	0	3,375,000	1,125,000	0	13,300,000	13,700,000	0	0	0	0	31,500,000
Sanitary Sewer Master Plan	0	0	0	0	0	0	0	0	0	0	10,000	10,000
Subtotal Category 3	0	0	3,375,000	1,125,000	0	13,300,000	13,700,000	0	0	0	10,000	31,510,000
Subtotal Capital Expenditures	\$16,202,485	\$7,501,000	\$8,530,000	\$6,435,000	\$5,120,000	\$18,535,000	\$15,190,000	\$1,610,000	\$12,780,000	\$13,110,000	\$13,555,000	\$102,366,000

¹ Project balance of \$146,566 and unallocated balance of \$100,000 proposed to be reprogrammed in FY 2013, and project closed out.

Sewers

FY 2013 - 2022 PROPOSED CIP: SANITARY SEWER FUND SOURCES AND USES

Sanitary Sewer Module Operating Costs	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY13-FY22
Personnel	\$2,437,551	\$2,510,678	\$2,585,998	\$2,663,578	\$2,743,485	\$2,825,790	\$2,910,563	\$2,997,880	\$3,087,817	\$3,180,451	\$27,943,790
² Non-Personnel	803,335	1,077,435	852,258	877,826	904,161	931,285	959,224	988,001	1,017,641	1,048,170	9,459,335
Additional Operating - Wet Weather Facility	0	0	0	0	0	0	654,000	673,620	693,829	714,643	2,736,092
Debt Service - Pre-FY 2013	1,708,727	1,773,909	1,856,576	1,897,309	1,816,622	1,738,762	1,663,572	1,599,332	1,557,806	1,513,098	17,125,713
Debt Service - FY 2013-2022	145,775	828,504	1,378,032	1,764,055	2,335,603	3,748,151	4,614,350	4,729,248	5,614,576	6,507,534	31,665,828
Total Operating Expenditures	\$5,095,388	\$6,190,526	\$6,672,864	\$7,202,768	\$7,799,871	\$9,243,988	\$10,801,709	\$10,988,081	\$11,971,668	\$12,963,897	\$88,930,759
Total Sanitary Sewer Expenditures	\$12,596,388	\$14,720,526	\$13,107,864	\$12,322,768	\$26,334,871	\$24,433,988	\$12,411,709	\$23,768,081	\$25,081,668	\$26,518,897	\$191,296,759

² Includes \$250,000 for an Asset Management System in FY 2014

Sewers

Commonwealth Service Chamber

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 2

Estimated Useful Life of Improvement: 40 years
Priority: Highly Desirable
Strategic Plan Goal: 2 – Health & Environment
Location: Hooff's Run South of Duke Street

Project Summary: This project will fund the construction of a service chamber on the Commonwealth Interceptor. The service chamber will act to prevent sewer backups during wet weather flows from the combined sewer area when the combined sewer outfall at Hooff's Run is submerged. The service chamber may be similar to two located on the Holmes Run Trunk Sewer that protect the low lying developed areas in the Eisenhower Valley. A study initiated in FY 2010, and is still underway using the remaining unallocated project balance of \$370,000. Construction costs and schedule will be determined at the completion of the study, and have not been factored in the FY 2013 – FY 2022 CIP.

Changes from Prior Year: No changes from prior year.

Operating Impact: No additional operating impact.

Commonwealth Service Chamber	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	370,000	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	370,000	0	0	0	0	0

Commonwealth Service Chamber	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0

Sewers

Holmes Run Trunk Sewer

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 2

Estimated Useful Life of Improvement: 40 years
Priority: Highly Desirable
Strategic Plan Goal: 2 – Health & Environment
Location: ASA Plant to the City/Fairfax Border

Project Summary: This project provides for an increase in capacity in the Holmes Run trunk sewer line, required to support development occurring in the Eisenhower Valley, as well as future development and redevelopment in the West End. Engineering studies indicated that lining the existing sewer with specialized materials would provide the needed capacity increase with minimal environmental disruption. Relining will increase the capacity in the western portion of the sewer from Van Dorn Street to Eisenhower Avenue at Cameron Run. A total of \$6.037 million in unallocated project balance from prior fiscal years will be combined with a project balance of \$621,000 to complete this phase of the project. Alexandria Sanitary Authority (ASA) maintains this trunk sewer.

Changes from Prior Year: No changes from prior year.

Project History: Phase I of this project included relining the western portion of the trunk sewer, completed in summer 2008. Additional engineering and analysis has determined that pipe lining alone will not increase capacity sufficiently in the Phase II – East Eisenhower section. Additional engineering analysis is underway to evaluate other capacity relief options, including constructing a relief sewer from Eisenhower Avenue to the Alexandria Sanitation Authority plant, and potential wet weather sewer storage and treatment in the Holmes Run Service Area. City staff is still studying the project, and the construction schedule is unknown at this time.

Operating Impact: This project does not have an impact on the City's operating budget, as it is maintained by the Alexandria Sanitation Authority.

Holmes Run Trunk Sewer	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	6,037,000	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	6,037,000	0	0	0	0	0

Holmes Run Trunk Sewer	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0

Sewers

Sanitary Sewer Capacity Studies

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 1

Estimated Useful Life of Improvement: 40 years
Priority: Essential
Strategic Plan Goal: 2 – Health & Environment
Location: Citywide

Project Summary: This project provides for an ongoing sanitary sewer capacity study to assess the sanitary sewer's systems ability to support existing flows and on-going development.

Changes from Prior Year: Future funding was been moved to the Sanitary Sewers operating budget beginning FY 2012. An unallocated balance of \$149,877 remains to complete studies as part of the CIP. Once all funding is expended, the project will be removed from the CIP.

Operating Impact: No additional operating impact from the remainder of the study.

Sanitary Sewer Capacity Studies	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	149,877	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	149,877	0	0	0	0	0

Sanitary Sewer Capacity Studies	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0

Sewers

Four Mile Run Sanitary Sewer Repair

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 2

Estimated Useful Life of Improvement: 40 years
Priority: Highly Desirable
Strategic Plan Goal: 2 – Health & Environment
Location: End of Commonwealth Ave to Bruce Street

Project Summary: This project will fund the rehabilitation of the Four Mile Run sanitary sewer. During field inspections of the Four Mile Run Inflow and Infiltration project in FY 2001, surcharged manholes with significant solids were encountered along the 36-inch diameter truck sewer upstream of the Four Mile Run pump station. Efforts to clean the trunk sewer were unsuccessful due to the heavy solids volume and compaction in the sewer. In FY 2008, a specialty contractor successfully removed the solids and an inspection and condition assessment was completed. Based on the condition assessment of the trunk sewer following the removal of the solids, rehabilitation is necessary. \$1.8 million is budgeted for this project with \$300,000 approved for design in FY 2012 and \$1.5 million for construction in FY 2013. ASA will be upgrading the existing 4-Mile Run Pump station and the City is coordinating the trunk sewer rehabilitation with ASA's improvements. The project is currently in the design phase, and construction must be coordinated with ASA improvements.

Changes from Prior Year: No change from prior year.

Operating Impact: No additional operating impact.

Four Mile Run Sanitary Sewer Repair	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	130,000	1,500,000	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	130,000	1,500,000	0	0	0	0

Four Mile Run Sanitary Sewer Repair	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	1,500,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	1,500,000

Sewers

Holmes Run Sewershed Inflow and Infiltration and Rehabilitation

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 2

Estimated Useful Life of Improvement: 40 years
Priority: Highly Desirable
Strategic Plan Goal: 2 – Health & Environment
Location: Holmes Run Sewer Shed

Project Summary: This project provides for the evaluation and remediation of infiltration/inflow and sewer rehabilitation conditions for the sanitary sewer system in the Holmes Run sewershed. Many of the sewers and manholes are old and deteriorated, and require rehabilitation. During wet weather, infiltration and inflow into the sanitary sewers have created overload conditions causing basement backups. The field work and monitoring is being performed by dividing the 4,600 acre sewer shed into sections and proceeding through each section sequentially. Leaking sewers and connections (which allow excessive infiltration/inflow to enter sewers), and deteriorated sewers requiring remediation, will be identified via street by street closed circuit television inspection of sewers. The results of this field are being evaluated to develop remediation projects that are expected to include the relining of sewers and manhole repairs. The sewers in the Holmes Run sewershed, although originally constructed more recently than the newly rehabilitated Commonwealth and Four Mile Run sewer sheds, will most likely require a higher percentage of remediation than that of the older sewer sheds.

Changes from Prior Year: Funding in the amount of \$3.85 million in FY 2016 and FY 2017 to fully fund this project. Project funding/completion is contingent on eventually increasing current Sewer Line Maintenance Fees and Sewer Connection Fees.

Project History: During FY 2010, flow metering at 23 locations was completed and closed circuit television field inspections were completed for 10 sub-basins. This provided information to prioritize capital improvements. Design of remediation measures started in summer 2010 for two sub-basins and construction is anticipated to begin in FY 2013.

Operating Impact: No additional operating impact.

Holmes Run I & I	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	4,960,000	4,360,000	4,200,000	3,600,000	3,850,000	3,850,000
Less Revenues	0	0	0	0	0	0
Net City Share	4,960,000	4,360,000	4,200,000	3,600,000	3,850,000	3,850,000

Holmes Run I & I	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	19,860,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	19,860,000

Sewers

Mitigation of Combined Sewer Overflows (CSOs)

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 1

Estimated Useful Life of Improvement: 40 years
Priority: Essential
Strategic Plan Goal: 2 – Health & Environment
Location: Citywide

Project Summary: This project category funds the mitigation projects related to combined sewer overflows (CSOs). The City's combined storm and sanitary sewer system is comprised of areas east of the railroad corridor (primarily Old Town), which includes an area of approximately 560 acres. Combined sewer outfalls (discharge points for wet weather overflows) are located at the foot of Pendleton and Royal Streets and under Duke Street at Hooff's Run. An unallocated balance of \$1.6 million and total of \$3.4 million over ten years is planned to continue the implementation of permit conditions through FY 2022. A total mitigation of the CSO system would require significantly more funds than planned in this CIP.

Changes from Prior Year: Funding in the amount of \$350,000 is added for FY 2022.

Project History: The City began engineering studies in the early 1990's to seek alternative approaches to control combined sewer overflows and in 1995 submitted a Long Term Control Plan (LTCP) to the Virginia Department of Environmental Quality (VADEQ). The VADEQ first issued the City a permit for its combined sewer system in 1995. Based on the City's studies, the permit calls for the City to operate and maintain the combined sewer system according to the United States Environmental Protection Agency's (USEPA) technology-based best management practices. The practices are known as the Nine Minimum Controls (NMCs) and are part of the National CSO Control Policy. The NMCs that the City implemented for controlling CSO discharges comprise the following:

1. Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows;
2. Maximum use of the collection system for storage;
3. Review and modification of the pretreatment program to assure CSO impacts are minimized;
4. Maximization of flow to the publicly owned and treated works (POTW) for treatment;
5. Prohibition of CSOs during dry weather;
6. Control of solid and floatable materials in CSOs;
7. Pollution prevention programs that focus on containment reduction activities;
8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and
9. Monitoring and reporting to effectively characterize CSO impacts and the efficacy of CSO controls.

Currently, TMDLs (Total Maximum Daily Loads) for various pollutants are being developed by USEPA and VA Department of Environmental Quality (DEQ) for the receiving waters. Bacteria TMDL for Hunting Creek approved by VA Department of Environmental Quality and EPA provides load allocations for the Combined Sewer System that requires drastic reductions in the permitted overflows. Depending on the conditions of the future permits, the City may be required to revise its LTCP, and implement expensive controls which may include full or partial separation, detention, or end of pipe technologies. Implementation of an "Area Reduction Plan" study identifies areas within the combined system shed that can be potentially separated as part of new development or re-developments can also become part of permit requirements. The City's current permit was re-issued in January 2007 and expires was to January 2012. The permit was continued by DEQ while negotiations the City over a new permit continue. An application for permit re-issuance has been submitted to the Virginia Department of Environmental Quality, and depending of the conditions of the new permits, it is possible that substantially more CIP funds may be required for FY 2014 and beyond.

Operating Impact: No additional operating impact.

Mitigation of CSOs	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	1,581,690	319,000	335,000	335,000	350,000	350,000
Less Revenues	0	0	0	0	0	0
Net City Share	1,581,690	319,000	335,000	335,000	350,000	350,000

Mitigation of CSOs	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	350,000	350,000	350,000	350,000	350,000	3,439,000
Less Revenues	0	0	0	0	0	0
Net City Share	350,000	350,000	350,000	350,000	350,000	3,439,000

Sewers

Reconstructions & Extensions of Sanitary Sewers

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 1

Estimated Useful Life of Improvement: 40 years
Priority: Essential
Strategic Plan Goal: 2 – Health & Environment
Location: Citywide

Project Summary: This project provides for the construction of new sewer mains and the replacement and rehabilitation of old lines as needed. The project also includes funds for the City's share of the cost of sewer extensions required for development. This is an essential infrastructure project. A total of \$5.42 million is planned over ten years. This project also funds repairs to City streets disturbed by sewer line construction. Projects to be funded with the current allocated balance of \$1.25 million an unallocated balance of \$2.37 million as listed in the table below.

Project/Description	Estimated Costs
Sewer line in alley between Monroe & Nelson	\$100,000
Groves Avenue sewer replacement	\$400,000
W. Uhler Avenue sewer replacement	\$600,000
Sycamore Street sewer replacement	\$450,000
Paxton Street crossing replacement	\$920,000
Taylor Run – replace exposed sewer line (near Tuckahoe and King)	\$100,000
Hoof's Run sewer relocation (Chapman to Maple)	\$600,000
Taylor Run at Janney's Lane – siphon replacement	\$400,000
Total	\$3,570,000

Changes from Prior Year: Total project funding reduced from \$9.7 million in the Approved FY 2012 – 2021 CIP to \$5.42 million based on revised project completion schedule and available fund revenues. Funding in the amount of \$845,000 is added for FY 2022.

Project History: In FY 1987, the City initiated an on-going program to reline existing leaking sewers in the City. Projects completed in the last several years include West Caton Avenue between Commonwealth Avenue and Sanford Street; Diagonal Road, Hickory Street; and Forrest Street. Projects under design include Sycamore Street, between Mt. Ida Street and Kennedy Street; Groves Avenue, W. Uhler Avenue, Hoof's Run from E. Chapman to E. Maple Streets; elimination of a sewer siphon at Taylor Run @ Janney's Lane; and a sewer located in the alley between East Monroe Avenue and East Nelson Avenue. The City's share of the Four Mile Run Force Main is also paid out of this project.

Operating Impact: No additional operating impact.

Recon. and Extensions of San Sewers	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	2,373,918	322,000	0	775,000	320,000	435,000
Less Revenues	0	0	0	0	0	0
Net City Share	2,373,918	322,000	0	775,000	320,000	435,000

Recon. and Extensions of San Sewers	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	540,000	660,000	760,000	760,000	845,000	5,417,000
Less Revenues	0	0	0	0	0	0
Net City Share	540,000	660,000	760,000	760,000	845,000	5,417,000

Sewers

Sewer Separation Projects

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s):
Project Category: 1

Estimated Useful Life of Improvement: 40 years
Priority: Essential
Strategic Plan Goal: 2 - Health & Environment
Location: Citywide

Project Summary: This project provides for small projects to separate areas of combined sewers. Areas of opportunity exist for separation of combined sewer systems where construction of additional sewers in a few blocks due to new development may result in completing the separation of a larger area. Opportunities may also arise in conjunction with redevelopment in the combined sewer area. In 2011 City Staff identified portions of the King and West CSO sewershed where separation may be achieved by disconnecting sanitary sewers from the combined sewer system and reconnecting to the Potomac Yards Trunk Sewer, which was designed to accommodate separated sanitary flow from this area. Field investigations were conducted in the fall of 2011 to collect survey data, confirm sewer connectivity, and to provide sewer separation recommendations and planning level design and construction costs. The City is planning on moving towards design of small-scale sewer separation projections in 2012.

Changes from Prior Year: Funding in the amount of \$600,000 is added for FY 2022.

Project History: \$600,000 has been added to FY 2021 to address future sewer separation projects.

Operating Impact: No additional operating impact.

Sewer Separation Projects	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	600,000	500,000	120,000	600,000	600,000	600,000
Less Revenues	0	0	0	0	0	0
Net City Share	600,000	500,000	120,000	600,000	600,000	600,000

Sewer Separation Projects	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	600,000	600,000	600,000	600,000	600,000	5,420,000
Less Revenues	0	0	0	0	0	0
Net City Share	600,000	600,000	600,000	600,000	600,000	5,420,000

Sewers

ASA AWTF Expansion

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 3

Estimated Useful Life of Improvement: 40 years
Priority: Essential
Strategic Plan Goal: 2 – Health & Environment
Location: Eisenhower Valley

Project Summary: The City's has developed growth forecasts for build-out conditions in the City of Alexandria (post year 2040). Based on these forecasts, the City is projected to need additional wastewater allocation at the Alexandria Sanitation Authority (ASA) Advanced Wastewater Treatment Facility (AWTF) of approximately 4 million gallons per day (mgd) sometime after 2040. ASA has indicated that their facility can be expanded/upgraded to treat this additional 4 MGD at a total capital cost of \$35.2 million (adjusted for inflation). This cost is based on hydraulically expanding the plant at the same time as other anticipated upgrades are needed (as existing process equipment reaches the end of its useful life). Thus, although the need for an additional 4 mgd is not anticipated until after 2040, it would be more cost-effective to perform the hydraulic expansion while other upgrades are occurring based on the timeline provided by ASA. It should be noted that the costs provided are for an additional 4 MGD of flow and does not include any additional nutrient (phosphorous and nitrogen) loads associated with these flows. Options for addressing these added nutrient loadings have been identified (including an additional wet weather allocation, improvements in technology, point and nonpoint source offsets, purchase of nutrient credits) and will continue to be evaluated. The City is not expected to reach its nutrient limits until sometime after 2040 (when the existing flow allocation is forecasted to be reached), so the need to address this is not included as part of the ten-year CIP. Finally, with the hydraulic expansion, the agreement between the City and ASA and ASA and Fairfax County would have to be renegotiated.

Another option for an additional 4 mgd identified in the Sanitary Sewer Master Plan is to purchase 4 mgd of wastewater treatment capacity from Fairfax County. The budget cost for this purchase could be the cost to Fairfax County for the construction of 4 MGD capacity at the ASA plant, and is estimated to be approximately \$56.0 million (2011 dollars). This option would not require any offset of nutrient loadings since the design flow at the ASA facility will not change, but the City may be expected to finance the entire \$56.0 million now, even though this additional capacity is currently not needed. Additionally, this option is contingent on Fairfax County acquiring additional treatment plant capacity at DC Water's Blue Plains Wastewater Treatment facility. The City will be continuing discussions with Fairfax County concerning this option.

Changes from Prior Year: This is a new project for inclusion in the Proposed FY 2013 – 2022 CIP. Project funding/completion is contingent on eventually increasing current Sewer Line Maintenance Fees and Sewer Connection Fees.

Operating Impact: This project will have no impact on the operating budget.

ASA Wastewater Treatment Plant Expansion	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	0	500,000	500,000	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	0	500,000	500,000	0	0	0

ASA Wastewater Treatment Plant Expansion	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	11,070,000	11,400,000	11,750,000	35,220,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	11,070,000	11,400,000	11,750,000	35,220,000

Sewers

Wet Weather Management Facility

Subsection: Sanitary Sewers

Managing Department: T & ES

Supporting Department: N/A

Project Category: 3

Estimated Useful Life of Improvement: 40 years

Priority: Essential

Strategic Plan Goal: 2 – Health & Environment

Location: Eisenhower Valley

Project Summary: During periods of extreme wet weather, stormwater enters the City's sanitary sewer collection system. This has the potential to lead to sewer back-ups in homes and businesses throughout the City. Past sewer back-ups have been recorded and many of them occur in the vicinity of the ASA interceptor sewers, especially the Commonwealth Interceptor. In addition, wet weather flows in the sewer can cause sanitary sewer overflows (SSOs), where raw sewage is discharged to receiving waters before being treated. There are two SSO locations in the City - at the Four Mile Run Pumping Station and at the Alexandria Sanitation Authority wastewater treatment facility. SSOs are not permitted by the State. Due to forecasted growth in the City (and Fairfax County), there is concern that this growth will lead to increased SSOs in the future and create an additional potential for sewer back-ups.

A study was completed in 2010 which recommended a wet weather management facility to mitigate SSOs and basement back-ups for up to the 5-year storm event. The facility also would reduce the occurrence of combined sewer overflows (CSOs) from Outfall 004. The wet weather management facility includes the following components: increasing the flow at the ASA plant from 108 to 116 MGD (through primary treatment), relocation of CSO 004 from Duke Street to the ASA plant, construction of a 500,000 gallon storage tunnel, and a wet weather pumping station to reduce the surcharging in the interceptor sewers to prevent back-ups. The total project cost is estimated to be \$63.0 million (adjusted for inflation), and it is anticipated that the costs for this facility would be shared equally between Fairfax County and the City.

Design of the wet weather management facility is planned for FY2014 and construction scheduled to begin in FY2017.

Changes from Prior Year: This is a new project for inclusion in the Proposed FY 2013 – 2022 CIP. Project funding/completion is contingent on eventually increasing current Sewer Line Maintenance Fees and Sewer Connection Fees.

Operating Impact: Annual operating impacts of \$654,000 annually are factored into the Sanitary Sewer Fund beginning FY 2019.

Wet Weather Management Facility	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	0	0	3,375,000	1,125,000	0	13,300,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	3,375,000	1,125,000	0	13,300,000

Wet Weather Management Facility	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	13,700,000	0	0	0	0	31,500,000
Less Revenues	0	0	0	0	0	0
Net City Share	13,700,000	0	0	0	0	31,500,000

Sewers

Sanitary Sewer Master Plan

Subsection: Sanitary Sewers
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 3

Estimated Useful Life of Improvement: N/A
Priority: Essential
Strategic Plan Goal: 2 – Health & Environment
Location: Citywide

Project Summary: The City of Alexandria is currently developing a comprehensive Sanitary Sewer Master Plan. Projects identified in the master plan include the Alexandria Sanitation Authority (ASA) Advanced Wastewater Treatment Facility (AWTF) Expansion, and the Wet Weather Management Facility. Both of these projects have been included in the Proposed FY 2013-2022 CIP. Projects identified but not included in the FY 2013 CIP are undersized sewers that require upgrading because of projected growth, and an accelerated schedule for Combined Sewer Separation or Storage that may be required by the Virginia Department of Environmental Quality (VDEQ) as part of the City Combined Sewer Overflow (CSO) permit reauthorization.

Changes from Prior Year: No changes from prior year.

Operating Impact: Additional operating impact is unknown at this time.

Sanitary Sewer Master Plan	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	0	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0

Sanitary Sewer Master Plan	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	10,000	10,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	10,000	10,000

STORMWATER MANAGEMENT FUND

Overview: The Stormwater Management Fund will include funding from three separate sources and encompasses both capital and operating costs associated with the storm sewer system. In keeping with City Council guidance restricting the use of a Stormwater Utility to supplant existing operating and capital levels of effort, the Fund collects an annual transfer in of \$0.95 million from the City's General Fund for operating maintenance and \$1.0 million from the Capital Fund for capital maintenance. These funding sources maintain the previous level of effort in these areas (prior to the creation of the Stormwater Management Fund as a part of the FY 2011 budget process) and establish a baseline moving into the future.

Beginning in FY 2013, two projects previously included in the Community Development section of the CIP (Four Mile Run Channel Maintenance and Stream and Channel Maintenance) are moved to the Stormwater Management Fund, along with the associated CIP funding. Moving these projects provides an additional \$5.21 million dollars in base CIP funding to the Stormwater Management Fund.

Additionally, this Fund will gather revenues from 0.5 cents dedicated from the City's real estate tax rate, estimated at \$1.7 million in FY 2013 and growing each year as projected property assessments increase. The revenues from the dedicated tax would be used primarily for capital projects. An average of \$2.1 million of annual funding over the ten year period is planned to come from this dedicated portion (0.5 cents) of the real estate tax rate. This will provide a reliable on-going source of funding for maintaining and improving the City's stormwater infrastructure.

Proposed Uses: The FY 2013 - 2022 CIP includes an average of \$2.9 million per year for stormwater improvement projects necessary to reduce flooding and the environmental impacts of stormwater pollutants entering streams and rivers. The total ten-year spending for this Fund is projected to be \$46.1 million (\$29.4 million capital and \$16.7 million operating).

Projects scheduled to be initiated in the first few years of the Stormwater will address street, property, and/or basement flooding problems. A description of planned projects can be found on the following pages of the Stormwater Management section. Details of individual projects specifically attached to the new revenue source are currently included under the Miscellaneous Storm Sewers CIP Project.

Sewers

FY 2013 -2022 PROPOSED CIP: STORMWATER MANAGEMENT SOURCES AND USES

Stormwater Management Revenue Sources		FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY13-FY 22
Transfer from General Fund (Current Operating)		\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$9,500,000
Transfer from Capital Fund (Base Capital)		2,010,000	1,000,000	1,000,000	1,000,000	2,200,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	15,210,000
Stormwater Management Tax Revenues		1,699,040	1,758,506	1,828,846	1,920,288	2,035,506	2,157,636	2,287,094	2,424,320	2,569,779	2,723,966	21,404,981
Fund Balance Carryovers		0	19,321	4,156	7,811	2,803	2,304	2,604	393	2,778	2,315	
Total Funding Sources		\$4,659,040	\$3,727,826	\$3,783,002	\$3,878,100	\$5,188,309	\$4,709,940	\$4,839,699	\$4,974,713	\$5,122,557	\$5,276,280	\$46,114,981

Category/Project	Unallocated (01-12)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY13-FY 22
Category 1												
Miscellaneous Storm Sewer Projects	\$3,314,113	\$0	\$525,000	\$775,000	\$535,000	\$825,000	\$925,000	\$285,000	\$395,000	\$670,000	\$300,000	\$5,235,000
Storm & Combined Assessment	450,000	0	0	380,000	900,000	900,000	900,000	900,000	900,000	0	0	\$4,880,000
Stream & Channel Maintenance	170,750	1,198,000	1,198,000	0	0	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	\$9,596,000
Subtotal Category 1	3,934,863	1,198,000	1,723,000	1,155,000	1,435,000	2,925,000	3,025,000	2,385,000	2,495,000	1,870,000	1,500,000	19,711,000
Category 2												
Taylor's Run at Janney's Lane	551,250	0	0	0	0	0	0	0	0	0	0	0
NPDES / MS4 Permit	134,000	0	0	0	0	0	0	0	0	0	0	0
Four Mile Run Channel Maintenance	600,000	1,010,000	0	0	0	600,000	0	0	0	0	0	1,610,000
Ft. Ward Stormwater	85,000	500,000	0	0	0	0	0	0	0	0	0	500,000
Storm Sewer Capacity Analysis	1,088,500	350,000	400,000	0	0	0	0	0	0	0	0	750,000
Key Drive Flood Mitigation	0	0	0	1,000,000	800,000	0	0	0	0	0	0	1,800,000
Braddock Rd. & West St. Storm Sewer	0	0	0	0	0	0	0	750,000	750,000	1,500,000	2,000,000	5,000,000
Subtotal Category 2	\$2,458,750	\$1,860,000	\$400,000	\$1,000,000	\$800,000	\$600,000	\$0	\$750,000	\$750,000	\$1,500,000	\$2,000,000	\$9,660,000
Subtotal Capital Expenditures	\$6,393,613	\$3,058,000	\$2,123,000	\$2,155,000	\$2,235,000	\$3,525,000	\$3,025,000	\$3,135,000	\$3,245,000	\$3,370,000	\$3,500,000	\$29,371,000
Operating Expenditures												
Current Operating Support (From General Fund)		\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	\$9,500,000
Expanded Operating Support (Through Dedicated Tax)		631,719	650,671	670,191	690,296	711,005	732,335	754,306	776,935	800,243	824,250	7,241,950
Total Operating Expenditures		\$1,581,719	\$1,600,671	\$1,620,191	\$1,640,296	\$1,661,005	\$1,682,335	\$1,704,306	\$1,726,935	\$1,750,243	\$1,774,250	\$16,741,950
Total Stormwater Management Expenditures		\$4,639,719	\$3,723,671	\$3,775,191	\$3,875,296	\$5,186,005	\$4,707,335	\$4,839,306	\$4,971,935	\$5,120,243	\$5,274,250	\$46,112,950

Sewers

Taylor Run at Janney's Lane

Subsection: Stormwater Management
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 2

Estimated Useful Life of Improvement: 25 years
Priority: Highly Desirable
Strategic Plan Goal: 2 – Health & Environment
Location: Taylor Run Parkway at Janney's Lane

Project Summary: This project provides for the rehabilitation of a deteriorating culvert at Taylor Run and Janney's Lane and other improvements to the existing storm sewer in the area. A total of \$551,250 in prior year unallocated funds will fund the construction.

Changes from Prior Year: No changes from prior year.

Project History: Project is currently in the design phase, with construction schedule to be determined.

Operating Impact: No additional operating impact.

Taylor Run at Janney's Lane	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	551,250	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	551,250	0	0	0	0	0

Taylor Run at Janney's Lane	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0

Sewers

NPDES / Municipal Separate Storm Sewer System (MS4) Permit Program

Subsection: Stormwater Management
 Managing Department: T & ES
 Supporting Department(s): N/A
 Project Category: 2

Estimated Useful Life of Improvement: 5 years
 Priority: Essential
 Strategic Plan Goal: 2 - Health & Environment
 Location: Citywide

Project Summary: This project provides for the data collection, reporting activities, public education, outreach, involvement and citizen participation associated with implementation of any program changes of the programs required by the National Pollution Discharge Elimination System (NPDES) Permit. A total of \$134,000 in prior year unallocated monies remains for this purpose.

Changes from Prior Year: No changes from prior year.

Project History: The Federal Water Quality Act of 1987 required that small municipalities obtain storm water discharge permits for their municipal separate storm sewer system (MS4) under Phase II of the National Storm Water Program. The City submitted an application for a MS4 permit to the Virginia Department of Environmental Quality (VDEQ) and received its first permit effective July 8, 2003. The permit required that the City develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), protect the water quality and satisfy the appropriate water quality requirements of the Clean Water Act. The permit required the City to develop and implement the Stormwater Management program. The City was issued the new MS4 permit effective July 9, 2008 and subsequently has successfully negotiated a Program Plan with the Virginia DCR. The permit has extensive regulatory requirements that require more intensive monitoring and sampling. The MS4 Permit has numerous requirements including an illicit discharge detection and elimination program and associated concept designs; preliminary concept designs of structural and non-structural floatable controls; and best management practices. It includes requirements related to TMDL (Total Maximum Daily Loads) requirements related to PCB s for Potomac River and Bacteria for the Four Mile Run watershed.

The City is now facing decisions on complying with an additional TMDL for Bacteria in Hunting Creek. The Virginia Watershed Implementation Plan, which implements the standards set by the Chesapeake Bay Nutrient and Sediment TMDL (approved in January of 2011 setting measurable effluent limits and outlines penalties for non-compliance), delineates mechanisms to achieve compliance. Implementation will largely be through actions/programs incorporated into the MS4 permit. These new effluent limits are exceedingly stringent and would require an effort termed E3 ("everything, everywhere, by everybody") to achieve compliance. While the City's next permit is reappraised in July of 2013, the City must have practices in place to meet 60% of the load reductions required by 2017. Additionally TMDL's are currently being developed for various other pollutants by USEPA and VA Department of Environmental Quality for the receiving waters. Four Mile Run has recently been declared impaired for Chlordane and a TMDL will be forthcoming. The Chesapeake Bay TMDL requires more explicit reduction allocations resulting in new requirements ranging from additional monitoring and evaluation to improvements in infrastructure that may require significant capital expenditures. Allocated funding in this project is not the total cost of compliance, which staff anticipates will be much higher depending on the permit requirements of future MS4 permits.

Operating Impact: Additional operating impact is unknown at this time and depends on requirements of future MS4 permits.

NPDES / NS4 Permit	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	134,000	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	134,000	0	0	0	0	0

NPDES / NS4 Permit	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0

Sewers

Four Mile Run Channel Maintenance

Subsection: Stormwater Management
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 2

Estimated Useful Life of Improvement: N/A
Priority: Highly Desirable
Strategic Plan Goal: 2 – Health & Environment
Location: Four Mile Run

Project Summary: This project reflects the City's share of the Four Mile Run Channel Maintenance agreement with Arlington County as required by the U.S. Army Corp of Engineers. The U.S. Army Corps of Engineers annually inspects Four Mile Run and dictates the extent of the channel maintenance activities that are to be completed. The latest inspection by USACE (2009) identified a number of deficiencies, and gave the overall levee system an unacceptable rating. The City hired a consultant to perform a detailed inspection of the flood control system, and to develop recommendations for corrections. Staff is working with the Corps to determine exactly what improvements the City needs to do to bring the rating up to acceptable. Total City funding for the current phase of the project is \$1.61 million, with \$0.6 million in unallocated balance from prior years and \$1.01 million planned in FY 2013. City funding for the project will be combined with funds (not shown in the budget) from Arlington County for the sediment removal portion of the project totaling \$2.8 million (\$1.4 million City of Alexandria / \$1.4 million Arlington County).

Additional projects funded with City dollars (not shared with Arlington County) that are required to obtain levee certification on the Alexandria side of Four Mile Run include clearing non-woody brush (\$10,000); clearing woody brush and trees (\$50,000); and levee repairs including rip rap, geotextile, concrete outlet repairs, and floodwall joint repair (\$150,000). An additional \$600,000 is planned in FY 2017 for future channel maintenance costs. Improvements to the channel beyond routine maintenance are funded by the Four Mile Run Stream restoration project (part of the Community Development section of the CIP).

Changes from Prior Year: This project was moved from the Community Development section of the CIP to the Stormwater Management section. No changes in total funding, funding sources or project timeline.

Project History: The valley of Four Mile Run is a historically high flood risk area, and experienced considerable damage during Hurricane Agnes in 1972. The U.S. Army Corps of Engineers (USACE), in cooperation with the City, and Arlington County completed a flood control project in the early 1980's. This project consists of a trapezoidal, gabion lined channel, along with limited stretches of levees and floodwalls. Local governments have the responsibility for maintaining these systems, and are subject to annual inspection by USACE. In FY 2006, maintenance activities were conducted in Four Mile Run primarily involving the removal of sediment near bridges and vegetation within the floodway. The work was completed in partnership with Arlington County and the cost was split 50/50 between the City and the County.

Operating Impact: No additional operating impact.

Four Mile Run Channel Maintenance	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	600,000	1,010,000	0	0	0	600,000
Less Revenues	0	0	0	0	0	0
Net City Share	600,000	1,010,000	0	0	0	600,000

Four Mile Run Channel Maintenance	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	1,610,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	1,610,000

Sewers

Ft. Ward Stormwater

Subsection: Stormwater Management

Managing Department: T & ES

Supporting Department(s): Office of Historic Alexandria/RPCA

Project Category: 2

Estimated Useful Life of Improvement: 25 years

Priority: Highly Desirable

Strategic Plan Goal: 2 - Health & Environment

Location: Ft. Ward

Project Summary: Fort Ward Park is the best preserved of the system of Union forts and batteries built to protect Washington, DC during the American Civil War (1861-1865). This site receives drainage from the adjacent Marlboro Estates subdivision built in the late 1970's, Episcopal High School property and from the Braddock Road area. Over time, due to changes in grading and overland drainage patterns, erosion has occurred in the park and in the adjacent Oakland Baptist Church cemetery. Additionally, the stream in the park is showing signs of erosion and degradation. Property owners at the bottom of the park are experiencing flooding. The proposed project will include overland flow improvements, erosion protection, stream restoration and flood prevention.

In FY 2012, \$85,000 was budgeted to develop a stormwater and drainage master plan, along with associated drainage improvements. The first phase of the master plan is scheduled to be completed in calendar year 2012, and includes the area between the Park Loop Road and Marlboro Estates. FY 2013 funding in the amount of \$500,000 is planned for improvements identified in the stormwater and drainage master plan.

Changes from Prior Year: FY 2013 funding (\$500,000) was included as part of the Miscellaneous Storm Sewer projects in the Approved FY 2012 – 2021. Funding was moved to this stand-alone project for the Proposed FY 2012 – 2021 CIP.

Project History: In calendar year 2011, an interim drainage system was installed to protect the Oakland Baptist Church Cemetery from further soil erosion and flooding due to overland flow and erosion.

Operating Impact: No additional operating impact.

Ft. Ward Stormwater	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	85,000	500,000	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	85,000	500,000	0	0	0	0

Ft. Ward Stormwater	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	500,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	500,000

Sewers

Storm Sewer Capacity Analysis & Modeling

Subsection: Stormwater Management
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 2

Estimated Useful Life of Improvement: N/A
Priority: Highly Desirable
Strategic Plan Goal: 2 – Health & Environment
Location: Citywide

Project Summary: This project provides for a multi-year City-wide storm sewer analysis and flow modeling to determine the storm water system's capacity. Flow modeling, field verification of invert elevations and manhole locations and metering to verify computations will be part of this project, which will be completed over a four year timeframe.

A total of \$2.55 million has been allocated to date. An unallocated balance of \$1.09 million will be combined with planned funding in FY 2013-2014 of \$0.75 million for total project funding of \$4.39 million. Work will be coordinated with the-Storm / Combined Sewer Assessment and Renovation project.

Changes from Prior Year: Funding in the amount of \$350,000 in FY 2013 and \$400,000 in FY 2014 was added to provide for additional capacity analysis and modeling projects.

Project History: This study is budgeted as a response to several large magnitude storms in 2003 and 2006 that caused flooding in low-lying areas of the City. Staff continues to study the system's capacity to develop a comprehensive plan for improvements to the existing storm sewer system.

Operating Impact: No additional operating impact.

Storm Sewer Capacity Analysis	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	1,088,500	350,000	400,000	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	1,088,500	350,000	400,000	0	0	0

Storm Sewer Capacity Analysis	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	750,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	750,000

Sewers

Stream / Channel Maintenance and Restoration

Subsection: Stormwater Management.
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 1

Estimated Useful Life of Improvement: Varies
Priority: Essential
Strategic Plan Goal: 2 – Health & Environment
Location: Citywide

Project Summary: This subtask includes an annual capital maintenance budget for routine maintenance of various streams and channels throughout the City to preserve their capacity to carry a 100-year floodwater, and for repairs to erosion damage, stream corridor degradation, grade control structures, storm sewer discharge points, and stream stabilization/restoration.

Changes from Prior Year: This project was moved from the Community Development section of the CIP to the Stormwater Management section. Funding in the amount of \$1.198 million in FY 2013 and FY 2014 was added from Stormwater Management funds to provide funding for sediment removal in Holmes Run and Backlick Run caused by flooding events in September 2011 by Tropical Storm Lee.

Beginning in FY 2017, \$0.6 million in base CIP funding is combined with \$0.6 million in Stormwater Management funding to provide an annual funding stream of \$1.2 million for stream restoration and sediment removal in Backlick Run, Holmes Run, Lucky Run and Taylor Run, as well as other yet to be identified projects. Some portion of funds may be reimbursed from FEMA and/or insurance for those items damaged by flooding events.

Project History: Stream maintenance activities occurred in FY 2002 in Cameron Run and in FY 2003 and 2004 in Holmes Run. More recently, additional maintenance was performed in early FY 2007 in Cameron Run and Backlick Run as a result of the flooding that occurred in June/July of 2006. Work completed in FY 2011 and FY 2012 included removing large sandbars obstructing flow from the Cameron Run Stream Channel immediately upstream from Cameron Run Beltway crossing near Bluestone Road; in Holmes Run near Pendleton Street, and immediately upstream of the Cameron Run Beltway crossing. Weedy vegetation was removed along the banks of Cameron Run and Holmes Run.

Operating Impact: No additional operating impact.

Stream & Channel Maintenance and Restoration	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	170,750	1,198,000	1,198,000	0	0	1,200,000
Less Revenues	0	0	0	0	0	0
Net City Share	170,750	1,198,000	1,198,000	0	0	1,200,000

Stream & Channel Maintenance and Restoration	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	9,596,000
Less Revenues	0	0	0	0	0	0
Net City Share	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	9,596,000

Sewers

Miscellaneous Extension and Replacement of Storm Sewers

Subsection: Stormwater Management
 Managing Department: T & ES
 Supporting Department(s): N/A
 Project Category: 1

Estimated Useful Life of Improvement: 25 years
 Priority: Essential
 Strategic Plan Goal: 2 – Health & Environment
 Location: Citywide

Project Summary: This project provides funding for essential infrastructure maintenance on the City's storm sewer system. Total funding of \$5.235 million in Stormwater Management dedicated tax revenue is planned over ten years.

These projects are identified as reconstruction projects due to deterioration or needed additional capacity to reduce flooding. Including current allocated and unallocated balances of approximately \$3.7 million, and proposed FY 2014 funding of \$0.5 million, a total of \$4.2 million will be available for these projects from through FY 2014. Current estimated costs exceed available funding for that time period. Once project costs are fully developed, projects may accelerated or delayed based on available funding. A summary of the individual projects prioritized under this project category is provided in the table below.

Project	Description	Estimated Costs
Monroe / Nelson Alley Improvements	Alley re-grading and storm sewer improvements to alleviate flooding on adjacent properties in the vicinity of Alexandria and Wayne Streets.	\$85,000
Bishop Ln. Drainage Improvements	Installation of storm sewer improvements to alleviate ponding and drainage onto adjacent properties from the public right-of-way.	\$100,000
Bruce St. Repetitive Loss Analysis	Conduct a study of the causes of flooding in the Bruce Street area and identify of possible mitigation measures.	\$100,000
Hooff's Run Park Drainage Improvements	Improvements to drainage in the park to eliminate flooding onto adjacent properties.	\$200,000
W. Alexandria Ave. at Timber Branch	Drainage improvements along West Alexandria Ave. An existing culvert and existing inlet currently experience flooding in large storm events. The capacity of both will be analyzed and necessary improvements constructed.	\$60,000
N. Henry St. / Montgomery St.	Drainage improvements and sanitary sewer separation along N. Henry and Montgomery Streets.	\$90,000
N. Rosser St. / Calhoun Ave. / Colfax Ave. / Dawes Ave. Drainage System	Storm sewer evaluation and possible improvements including extension of existing storm sewers in roadside ditches to alleviate nuisance flooding and ponding water. Design is scheduled for FY 2012, construction in FY 2013.	\$975,000
N. Frazier Ave. / N. Frost Ave. / Lawrence Ave. Drainage System	Storm improvements along North Frazier, North Frost, and Lawrence Avenue. The existing drainage ditch has limited capacity and frequent ponding occurs. Design is scheduled for FY 2012, construction in FY 2013.	\$975,000
Pegram / Paxton	This area was identified during the flood of June 2006 as a problem area. This is the next shed to be investigated by the Storm Sewer Capacity Analysis Project. Design is scheduled for FY 2012, construction in FY 2013.	\$600,000
DASH Facility Stormwater Outfall	This project includes storm sewer design and construction of a new storm sewer outfall through CSX railroad property which will provide an adequate outfall to the DASH facility to eliminate frequent flooding. Design and permitting are scheduled for FY 2012, construction in FY 2013.	\$1,100,000
Timber Branch Stream Erosion	Stream bank stabilization to protect the street and sewer line near Oakland Terrace from stream erosion damage.	\$50,000
Total		\$4,335,000

Changes from Prior Year: Projects costs and timing were adjusted based on estimated construction schedules.

Sewers

(Miscellaneous Extension and Replacement of Storm Sewers)

Project History: Recently completed projects include East Maple Street Storm Sewer reconstruction, replacement of the Edsall Road storm sewer near Cameron Station; and George Mason School and Park drainage system. Other completed projects include replacement of the Edsall Road storm sewer near Cameron Station; George Mason school and park drainage system; 800 block of St. Asaph St; Templeton Place ponding; Commonwealth Avenue and Glebe Road (Auburn Village Phase 1); Dash facility(Phase 1); 600 block of S. Pickett Street; and the City Wide Digital Flood Insurance Rate Maps have been updated. Projects under construction in FY 2012 include Hoof's Run culvert repair between E. Maple and E. Walnut Streets, Bishop Lane; Hooff's Run Park; W. Alexandria Avenue at Timber Branch; and Monroe / Nelson Alley.

Operating Impact: No additional operating impact.

Miscellaneous Stormwater	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	3,314,113	0	525,000	775,000	535,000	825,000
Less Revenues	0	0	0	0	0	0
Net City Share	3,314,113	0	525,000	775,000	535,000	825,000

Miscellaneous Stormwater	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	925,000	285,000	395,000	670,000	300,000	5,235,000
Less Revenues	0	0	0	0	0	0
Net City Share	925,000	285,000	395,000	670,000	300,000	5,235,000

Sewers

Storm/Combined Sewer Assessment and Remediation

Subsection: Stormwater Management
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 1

Estimated Useful Life of Improvement: 40 years
Priority: Essential
Strategic Plan Goal: 2 – Health & Education
Location: Citywide

Project Summary: This project provides for the City-wide condition assessment of the existing 14 miles of combined sewers and 185 miles of storm sewers. The City will perform condition assessments including cleaning and televising of the lines; assessing information to determine condition of lines; and determining if rehabilitation is needed. Field work will be performed by dividing the City into sewer sheds and proceeding through each section sequentially. Structurally deficient sewers will be identified and the results of the field work will be evaluated to develop remediation projects, which are expected to include the relining of sewers and manhole repairs. Work will be coordinated with the Storm Sewer Capacity Analysis & Modeling project. Evaluation and design are approximately 30% of the annual costs, while construction comprises the remaining 70% of annual funding.

Changes from Prior Year: Funding is reduced from \$8.55 million in the Approved FY 2012 – 2021 CIP to \$4.88 million in the Proposed FY 2013 – 2022 CIP due to available resources within the Stormwater Management Fund.

Operating Impact: No additional operating impact.

Storm and Combined Syst. Assess. & Remed.	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	450,000	0	0	380,000	900,000	900,000
Less Revenues	0	0	0	0	0	0
Net City Share	450,000	0	0	380,000	900,000	900,000

Storm and Combined Syst. Assess. & Remed.	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	900,000	900,000	900,000	0	0	4,880,000
Less Revenues	0	0	0	0	0	0
Net City Share	900,000	900,000	900,000	0	0	4,880,000

Sewers

Key Drive Flood Mitigation

Subsection: Stormwater Management
 Managing Department: T & ES
 Supporting Department(s): N/A
 Project Category: 2

Estimated Useful Life of Improvement: 25 years
 Priority: Highly Desirable
 Strategic Plan Goal: 2 – Health & Environment
 Location: Key Drive

Project Summary: This project provides for the design and construction of a storm sewer bypass to alleviate drainage problems on Key Drive and Francis Hammond Parkway and to prevent flooding in residential areas with lower elevations.

Changes from Prior Year: No changes from prior year.

Project History: \$1.0 million has been allocated to date for this project, and design is currently underway.

Operating Impact: No additional operating impact.

Key Drive Flood Mitigation	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	0	0	0	1,000,000	800,000	0
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	1,000,000	800,000	0

Key Drive Flood Mitigation	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2013-FY2022
Expenditures	0	0	0	0	0	1,800,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	1,800,000

Sewers

Braddock Rd. and West St. Storm Sewer Drainage Improvements

Subsection: Stormwater Management
Managing Department: T & ES
Supporting Department(s): N/A
Project Category: 2

Estimated Useful Life of Improvement: 40 years
Priority: Highly Desirable
Strategic Plan Goal: 2 – Health & Environment
Location: Braddock Metro Area

Project Summary: This project addresses flooding at the intersection of Braddock Road and West Street, adjacent to the Braddock Road Metro Station. The adjacent properties and streets drain to the intersection, which is a low point (sump condition). Stormwater is collected at the low points and conveyed beneath the rail corridor to the Hooff's Run storm culvert adjacent to Commonwealth Avenue. The conveyance system is inadequate to convey the stormwater in a timely fashion, resulting in flooding of the intersection. The City hired a consultant to investigate various alternatives to alleviate the problem. A cost benefit analysis of the project will be prepared to determine the most feasible solution to this flooding problem. A total of \$5.0 million has been programmed in the FY 2013 – 2022 CIP.

Changes from Prior Year: Funding has been delayed until FY 2019 as City staff continues to explore less costly alternatives to alleviate the flooding issues.

Project History: Based on a drainage study completed in FY 2004, the storm sewers at the intersection of Braddock Road and West Street were found to be inadequate to relieve the frequent flooding of this critical rail crossing. A feasibility study was completed in fall 2008 with engineering alternatives ranging from \$18.0 million to \$64.0 million. Several alternatives will be further evaluated during the preliminary design to address constructability issues and further refine construction costs, as well as to undertake a thorough cost-benefit analysis. Alternatives would include incorporation of a full/partial solution into a Braddock Road Metrorail site redevelopment plan. The total cost reflects the feasibility study's cost estimates to collect and convey the storm water to the Potomac River by means of a large (approximately five foot diameter) storm sewer pipe down Wythe Street through Oronoco Park.

Operating Impact: No additional operating impact.

Braddock and West	Unallocated Balance	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Expenditures	0	0	0	0	0	0
Less Revenues	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0

Braddock and West	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Total FY2012-FY2021
Expenditures	0	750,000	750,000	1,500,000	2,000,000	5,000,000
Less Revenues	0	0	0	0	0	0
Net City Share	0	750,000	750,000	1,500,000	2,000,000	5,000,000