

SANITARY SEWERS

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Sanitary Sewers Proposed FY 2014 – 2023 Capital Improvement Program Summary of Projects

CIP Section/Subsection/Project	Unallocated (02/13)	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Sanitary Sewers												
Holmes Run Trunk Sewer	\$5,637,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Combined Sewer Separation Projects	\$1,100,000	\$200,000	\$600,000	\$200,000	\$200,000	\$600,000	\$200,000	\$200,000	\$600,000	\$200,000	\$200,000	\$3,200,000
Combined Sewer System Permit Compliance	\$1,840,690	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$3,000,000
Four Mile Run Sanitary Sewer Repair	\$1,330,000	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$500,000
Reconstructions & Exts. of Sanitary Sewers	\$1,495,918	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$9,000,000
Holmes Run Sewershed Infiltration & Inflow	\$9,320,000	\$0	\$3,000,000	\$2,375,000	\$3,075,000	\$2,850,000	\$4,000,000	\$0	\$0	\$0	\$0	\$15,300,000
Wet Weather Management Facility	\$0	\$0	\$3,375,000	\$1,125,000	\$0	\$8,750,000	\$9,000,000	\$0	\$0	\$0	\$0	\$22,250,000
Combined Sewer Overflow 001 Planning	\$0	\$0	\$0	\$0	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$500,000
Sewer Assessment & Rehabilitation	\$450,000	\$0	\$0	\$0	\$0	\$0	\$3,700,000	\$2,550,000	\$2,550,000	\$0	\$0	\$8,800,000
AlexRenew WWTP Capacity	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$11,070,000	\$11,400,000	\$11,750,000	\$0	\$34,220,000
Sanitary Sewers Total	\$21,673,608	\$1,900,000	\$8,175,000	\$4,900,000	\$4,975,000	\$13,400,000	\$18,100,000	\$15,020,000	\$15,750,000	\$13,150,000	\$1,400,000	\$96,770,000

Sanitary Sewer Fund Proposed FY 2014 – 2023 Capital Improvement Program Sources and Uses Table Capital Projects and Operating Expenditures

Sanitary Sewer Rate Summary

Sanitary Sewer Rate	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Sanitary Sewer Rate (\$ per 1,000 gallons)	\$1.25	\$1.25	\$1.25	\$1.25	\$1.50	\$1.75	\$2.00	\$2.00	\$2.25	\$2.25
Proposed Rate Increase	0.0%	0.0%	0.0%	20.0%	16.7%	14.0%	0.0%	12.5%	0.0%	0.0%
New Sanitary Sewer Rate	\$1.25	\$1.25	\$1.25	\$1.50	\$1.75	\$2.00	\$2.00	\$2.25	\$2.25	\$2.25

Sanitary Sewer Revenue Summary

Revenues	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY2014-2023
Sewer Line Maintenance Fee	\$6,548,750	\$6,597,866	\$6,647,350	\$8,036,646	\$9,449,106	\$10,852,771	\$10,934,167	\$12,393,195	\$12,486,144	\$12,579,790	\$96,525,783
Sewer Connection Fee	\$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	\$1,628,895	\$13,206,787
*Additional Connection Fee - Increase Multi-Family Connection Fees	\$247,545	\$501,445	\$494,438	\$486,119	\$476,392	\$645,684	\$842,788	\$1,071,669	\$1,336,829	\$1,376,934	\$7,479,842
New Debt Issuance	\$430,000	\$8,000,000	\$5,000,000	\$4,025,000	\$11,400,000	\$13,700,000	\$12,350,000	\$12,500,000	\$11,775,000	\$1,000,000	\$80,180,000
New Debt Issuance (with New Projects)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Reprogrammed Prior Year Funding	\$1,659,257	\$0	\$375,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,034,257
Fund Balance Carryover	\$0	\$291,419	\$277,998	\$275,715	\$285,659	\$337,316	\$368,911	\$389,753	\$467,980	\$483,801	\$3,178,550
Total	\$9,935,552	\$16,493,229	\$13,952,411	\$14,038,986	\$22,887,439	\$26,875,866	\$25,902,966	\$27,832,071	\$27,617,281	\$17,069,419	\$202,605,219

* Proposed to increase from 50% of the base connection fee to 70% in FY 2014 and to 90% in FY 2015.

Sanitary Sewer Expenditure Summary

Project	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY2014-2023
All Operating	\$5,052,982	\$4,977,315	\$5,126,635	\$4,996,326	\$4,988,644	\$5,138,304	\$5,601,452	\$5,769,496	\$5,942,581	\$6,120,858	\$53,714,592
All Capital Projects	\$2,050,000	\$8,525,000	\$5,150,000	\$4,975,000	\$13,400,000	\$16,250,000	\$13,745,000	\$14,475,000	\$13,150,000	\$1,400,000	\$93,120,000
All Debt Service	\$2,541,151	\$2,712,916	\$3,400,061	\$3,782,001	\$4,161,480	\$5,118,652	\$6,166,761	\$7,119,595	\$8,040,899	\$8,658,871	\$51,702,387
Total Expenditures	\$9,644,133	\$16,215,231	\$13,676,696	\$13,753,327	\$22,550,124	\$26,506,956	\$25,513,213	\$27,364,091	\$27,133,480	\$16,179,729	\$198,536,979

Sanitary Sewer Operating Expenditures

Project	Sanitary Sewer Operating Expenditures										Total FY2014-2023
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	
Current Personnel (Through FY 2013)	\$2,510,678	\$2,585,998	\$2,663,578	\$2,743,486	\$2,825,790	\$2,910,564	\$2,997,881	\$3,087,817	\$3,180,452	\$3,275,865	\$28,782,110
Current Non-Personnel (Through FY 2013)	\$1,077,435	\$852,258	\$877,826	\$904,161	\$931,285	\$959,224	\$988,001	\$1,017,641	\$1,048,170	\$1,079,615	\$9,735,616
Debt Service - Current (Through FY 2013)	\$2,532,551	\$2,514,646	\$2,550,651	\$2,523,951	\$2,424,565	\$2,356,047	\$2,269,566	\$2,205,360	\$2,138,474	\$2,058,781	\$23,574,592
Debt Service - Planned (FY 2014 - 2023)	\$8,600	\$198,270	\$849,410	\$1,258,050	\$1,736,915	\$2,762,605	\$3,897,195	\$4,914,235	\$5,902,425	\$6,600,090	\$28,127,795
NEW - Sewer Billing	\$80,000	\$82,400	\$84,872	\$87,418	\$90,041	\$92,742	\$95,524	\$98,390	\$101,342	\$104,382	\$917,111
NEW - Annual CCTV of Sewers	\$400,000	\$412,000	\$424,360	\$437,091	\$450,204	\$463,710	\$477,621	\$491,950	\$506,708	\$521,909	\$4,585,553
NEW - Heavy Cleaning of Sewers	\$250,000	\$257,500	\$265,225	\$273,182	\$281,377	\$289,819	\$298,513	\$307,468	\$316,693	\$326,193	\$2,865,970
NEW - Additional Personnel and Equipment	\$274,869	\$220,659	\$227,279	\$234,097	\$241,120	\$248,354	\$255,804	\$263,478	\$271,383	\$279,524	\$2,516,567
NEW - Sanitary Sewer Capacity Study - Flow Metering and Sewer Modeling	\$460,000	\$566,500	\$583,495	\$316,891	\$168,826	\$173,891	\$179,108	\$184,481	\$190,016	\$195,716	\$3,018,924
PLANNED - Wet Weather Management Facility Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$309,000	\$318,270	\$327,818	\$337,653	\$1,292,741
Total Operating Expenditures	\$7,594,133	\$7,690,231	\$8,526,696	\$8,778,327	\$9,150,124	\$10,256,956	\$11,459,213	\$12,570,821	\$13,655,662	\$14,442,076	\$105,416,979

Sanitary Sewer Capital Expenditures

Project	Sanitary Sewer Capital Expenditures										Total FY2014-2023
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	
Holmes Run Trunk Sewer	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Combined Sewer System Permit Compliance	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$3,000,000
Reconstruction and Extension of Sanitary Sewers	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$9,000,000
Combined Sewer Separation Projects	\$200,000	\$600,000	\$200,000	\$200,000	\$600,000	\$200,000	\$200,000	\$600,000	\$200,000	\$200,000	\$3,200,000
*Green Infrastructure in CSO Areas	\$150,000	\$350,000	\$250,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$750,000
Four Mile Run Sanitary Sewer Repair	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$500,000
Holmes Run Sewershed Infiltration and Inflow	\$0	\$3,000,000	\$2,375,000	\$3,075,000	\$2,850,000	\$4,000,000	\$0	\$0	\$0	\$0	\$15,300,000
Wet Weather Management Facility	\$0	\$3,375,000	\$1,125,000	\$0	\$8,750,000	\$9,000,000	\$0	\$0	\$0	\$0	\$22,250,000
Combined Sewer Overflow 001 Planning	\$0	\$0	\$0	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$500,000
Sewer Assessment and Rehabilitation	\$0	\$0	\$0	\$0	\$0	\$1,850,000	\$1,275,000	\$1,275,000	\$0	\$0	\$4,400,000
AlexRenew WWTP Expansion	\$0	\$0	\$0	\$0	\$0	\$0	\$11,070,000	\$11,400,000	\$11,750,000	\$0	\$34,220,000
Total Capital Expenditures	\$2,050,000	\$8,525,000	\$5,150,000	\$4,975,000	\$13,400,000	\$16,250,000	\$13,745,000	\$14,475,000	\$13,150,000	\$1,400,000	\$93,120,000

* Shown in the Stormwater Management section of the CIP

Unfunded/Unknown Capital Needs

*Green Infrastructure in CSO Areas	\$0	\$0	\$0	TBD							
Combined Sewer Overflow 001 Planning	\$0	\$0	\$0	\$0	TBD						

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Holmes Run Trunk Sewer

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 255074

Project Location: AlexRenew Plant to the City/Fairfax Border
 Reporting Area: See Text Below
 Project Category: 2 – Renovations/Existing Assets
 Estimated Useful Life: 40 years

Holmes Run Trunk Sewer													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	9,002,000	9,002,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
General Obligation Bonds - Sanitary Sewer	4,200,000	4,200,000	0	0	0	0	0	0	0	0	0	0	0
Sanitary Sewer Fees	4,802,000	4,802,000	0	0	0	0	0	0	0	0	0	0	0
Total Financing Plan	9,002,000	9,002,000	0										
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Costs were estimated by engineering consultant.													

Project Description & Justification

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.

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 AlexRenew plant, and potential wet weather sewer storage and treatment in the Holmes Run Service Area.

A total of \$9.0 million from the Sanitary Sewer fund has been budgeted in prior fiscal years for this project. Engineering analysis which is being coordinated with Fairfax County and AlexRenew is expected to be completed in FY 2014. Upon completion of the analysis, design will begin for recommended improvements. Depending on the outcome of the current on-going study, additional funding may be required in future years.

Completion of this project will improve the City's sanitary sewer infrastructure, which will help mitigate sanitary sewer overflows during periods of wet weather. Additionally the project will improve the City's readiness for quality economic growth.

Linking to the City's Strategic Plan

Goal 1 – Economic Development

- LTO: Increase the City's non-residential and residential tax base
 - IO: Increase value created by the City's planning and development process.
 - IO: Increase residential developer/builder base for new projects
 - IO: Improve the markets' awareness of Alexandria development opportunities

Goal 2 – Health & Environment

- LTO: Improve natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff

Goal 5 – Financial Sustainability

- LTO: Improve community's perception of the effectiveness of City services
 - IO: Improve public's satisfaction regarding their requests to fix public infrastructure

External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

No changes from prior year approved plan. Project has been fully funded; however, depending on the outcome of the current on-going study, additional funding may be required in future years.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Four Mile Run Sanitary Sewer Repair

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 255136

Project Location: End of Commonwealth Ave to Bruce St.
 Reporting Area: Potomac West
 Project Category: 2 – Renovations/Existing Assets
 Estimated Useful Life: 40 years

Four Mile Run Sanitary Sewer Repair													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	2,300,000	1,800,000	500,000	0	0	0	0	0	0	0	0	0	500,000
Financing Plan													
General Obligation Bonds - Sanitary Sewer	800,000	490,000	310,000	0	0	0	0	0	0	0	0	0	310,000
Sanitary Sewer Fees	1,500,000	1,310,000	190,000	0	0	0	0	0	0	0	0	0	190,000
Total Financing Plan	2,300,000	1,800,000	500,000	0	500,000								
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate based on costs of previous similar projects.													

Project Description & Justification

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 trunk 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.

Total project costs are estimated at \$2.3 million, and include planning, design and engineering, construction management, and construction. The project is currently in the design phase and construction is tentatively scheduled to start in FY 2014.

Completion of this project will improve the City's sanitary sewer infrastructure and extend its useful life, reducing potential pipe collapse and other emergency repairs.

Linking to the City's Strategic Plan

Goal 5 – Financial Sustainability

- LTO: Maintain the value of City's physical assets
 - IO: Increase the ration of maintenance investment relative to repair expenditures

External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

Add additional \$500,000 from the Sanitary Sewer Fund is added to the project to complete construction funding.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Combined Sewer System (CSS) Permit Compliance

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 255208

Project Location: Old Town CSO Area
 Reporting Area: Old Town
 Project Category: 1 – Asset Maintenance
 Estimated Useful Life: Varies

Combined Sewer System (CSS) Permit Compliance													
	A	B	C	D	E	F	G	H	I	J	K	L	M (C-L)
	<i>Allocated Balance (02/13)</i>	<i>Unallocated (02/13)</i>	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	22,593	1,840,690	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,000,000
Financing Plan													
General Obligation Bonds - Sanitary Sewer	0	0	0	0	200,000	0	0	0	180,000	0	0	0	380,000
Sanitary Sewer Fees	22,593	1,840,690	300,000	300,000	100,000	300,000	300,000	300,000	120,000	300,000	300,000	300,000	2,620,000
Total Financing Plan	22,593	1,840,690	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,000,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate for the study based on the analysis needed and associated work to develop revision to the LTCP (Long Term Control Plan). Annual cost estimates based on the past history of annual costs for similar costs.													

Project Description & Justification

The City's combined sewer system (sanitary and storm sewers) comprise approximately 540 acres located in the Old Town area. During certain wet weather events, flows in excess of the sewer pipes carrying capacity are discharged into receiving waterways via one of four combined sewer outfalls. These discharges are permitted by the Virginia Department of Environmental Quality (VDEQ). The Hunting Creek Bacteria Total Maximum Daily Load (TMDL) requires reductions in these discharges from 3 of the 4 permitted outfalls. The City is currently in discussions with VDEQ regarding what will be required of the City in the next permit cycle. It is likely the City will be required (mandated) to implement significant combined sewer system controls over a specified timeframe (still being negotiated).

In order to comply with this future CSS permit, the City must perform a number of activities. The City will be required to conduct an Alternatives Analysis envisioned to be in the upcoming permit as it was included in the City's proposal to Virginia Department of Environmental Quality. This Alternatives Analysis is a detailed study of all possible alternatives, their financial costs, and other impacts. Based on the analysis a revised Long Term Control Plan is to be developed which becomes basis of the implementation of projects at a schedule that is acceptable to Virginia Department of Environmental Quality.

The project will also fund the construction of a new weir structure at Outfall 004. This new weir structure will decrease both the number of combined sewer overflow (CSO) discharges at Outfall 004 and the total CSO volume, which will provide the benefit of improving water quality in Hooff's Run.

Completion of these initiatives will enhance the ecological integrity of waterways by maintaining and improving storm water and sanitary infrastructure and stream system health to minimize environmental impacts.

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Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff
- LTO: Improve the health of the waterways within the City
 - IO: Reduce pollutants discharged by residents and businesses within the City
- LTO: Decrease residents' incidence of preventable diseases
 - IO: Reduce contaminants in water runoff

External or Internal Adopted Plan or Recommendation

- Consistent with the Eco-City Charter and Eco-City Action Plan 2030, adopted by City Council June 2008 and June 2009 respectively
- T&ES Strategic Plan: Key Result Area – Meet or exceed state and federal requirements of the City's MS4 and combined sewer permits
- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

Annual funding for permitting and construction activities now budgeted at \$300,000 annually. Annual costs varied in prior year approved plan.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Project Description and Justification (Continued)

Funding also ensures compliance with Commonwealth and Federal statutes and permits, and will continue to improve the City's combined sewer system.

For the City to stay in compliance with future CSS permits, overflows from the Combined Sewer System need to be mitigated. This is primarily because of new regulatory requirements of the bacteria TMDL for Hunting Creek. Total cost of mitigation of these overflows can range as high as \$200 - \$300 million and depends on the type and mix of technologies that get implemented. Through the Alternatives Analysis being conducted by the City in FY 2014 – 2018, an update to its Long-Term Control Plan will be developed. Only after completion of this analysis, and with the approval of the Long Term Control Plan update by the Virginia Department of Environmental Quality (VDEQ), will the exact costs of the resulting projects and applicable schedule will become certain. In the upcoming permit cycle, the City is required to continue implementation of Nine Minimum Controls, Area Reduction Plan. This includes implementation of several capital projects including Green Infrastructure, and select separation projects. The City will also need to continue extensive monitoring, sampling, inspections, and reporting. This budget reflects the anticipated costs of improvements over the next five years only. Costs of improvements required for implementing the approved updated Long Term Control Plan (FY 2019 onwards) are not reflected in the budget. These costs over two to three decades could be in the \$200 million - \$300 million range.

Reconstruction and Extension of Sanitary Sewers

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 255133

Project Location: Citywide
 Reporting Area: Citywide
 Project Category: 1 – Asset Maintenance
 Estimated Useful Life: 50 years

Reconstruction and Extension of Sanitary Sewers													
	A	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	<i>Allocated Balance (02/13)</i>	<i>Unallocated (02/13)</i>	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	2,460,314	1,495,918	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	9,000,000
Financing Plan													
General Obligation Bonds - Sanitary Sewer	0	0	0	900,000	900,000	900,000	360,000	900,000	900,000	500,000	0	800,000	6,160,000
Sanitary Sewer Fees	2,460,314	1,495,918	900,000	0	0	0	540,000	0	0	400,000	900,000	100,000	2,840,000
Total Financing Plan	2,460,314	1,495,918	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	9,000,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate based on costs of previous similar projects.													

Project Description & Justification

This project provides for the construction of new sewer mains and the replacement and rehabilitation of old lines as needed, repairs to City streets disturbed by sewer line repairs and reconstruction, and also funds for the City's share of the cost of sewer extensions required for development. This is an essential infrastructure project.

Prior year allocated and unallocated balances of \$3.956 million along with annual funding of \$900,000 will be utilized to fund multiple projects in this request. Several projects are in early planning stage, while others are currently under design. Obstacles to construction may include the moving of buried utility lines, such as power, water, and gas lines by the various utility owners that if not moved would interfere with the construction.

Projects currently under study/design and tentatively scheduled for construction in FY 2014 include:

- Groves Avenue sewer replacement
- West Uhler Avenue sewer replacement
- Hooff's Run sewer relocation (Chapman Street to Maple Street)
- Beauregard and King Street sewer replacement (being completed in conjunction with the Beauregard and King Street intersection improvement project (Streets & Bridges CIP section))
- Mt. Vernon and Glebe Road sewer siphon replacement
- North Alfred and Pendelton Street alley reconstruction
- Sewer lining project not yet identified
- Miscellaneous or emergency repairs as required

Completion of these projects improves the City's sanitary sewer infrastructure, while reducing the frequency of unplanned repairs due to deferred maintenance.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards

Goal 5 – Financial Sustainability

- LTO: Maintain the value of the City's physical assets
 - IO: Increase the maintenance investment relative to repair expenditures

External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

Annual funding for reconstruction and extension project now budgeted at \$900,000 annually. Annual costs varied in prior year approved plan.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Combined Sewer Separation Projects

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 255115

Project Location: Old Town CSO Area
 Reporting Area: See Text Below
 Project Category: 1 – Asset Maintenance
 Estimated Useful Life: 50 years

Combined Sewer Separation Projects													
	A	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	<i>Allocated Balance (02/13)</i>	<i>Unallocated (02/13)</i>	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	1,445,886	1,100,000	200,000	600,000	200,000	200,000	600,000	200,000	200,000	600,000	200,000	200,000	3,200,000
Financing Plan													
General Obligation Bonds - Sanitary Sewer	0	0	0	600,000	200,000	200,000	600,000	200,000	200,000	600,000	25,000	200,000	2,825,000
Sanitary Sewer Fees	1,445,886	1,100,000	200,000	0	0	0	0	0	0	0	175,000	0	375,000
Total Financing Plan	1,445,886	1,100,000	200,000	600,000	200,000	200,000	600,000	200,000	200,000	600,000	200,000	200,000	3,200,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate based on limited information, including current field evaluation and design services for the ongoing separation project and engineer's planning-level estimate for design.													

Project Description & Justification

This project provides funding for the City to proactively separate small 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 combined 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. In 2012, the City moved forward with design of the recommended separation projects and construction is anticipated to commence in 2013.

The City is currently in the process of identifying other areas of opportunity for sewer separation. Once these areas are identified, staff will move forward with field evaluation, design and construction phases for the next project.

This project will provide water quality benefits in that the separation of sanitary sewers in the combined area will decrease the bacteria loading into Hooff's Run during rain events where combined sewer overflows are activated.

This project will provide water quality benefits in that the separation of sanitary sewers in the combined area will decrease the bacteria loading into Hooff's Run during rain events where combined sewer overflows are activated.

(Continued on next page)

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff
 - IO: Increase public awareness of Eco-City Alexandria
 - IO: Reduce pollutants discharged to residences and businesses within the City
- LTO: Decrease residents' incidence of preventable diseases
 - IO: Reduce contaminants in water runoff

External or Internal Adopted Plan or Recommendation

- Consistent with the Eco-City Charter and Eco-City Action Plan 2030, adopted by City Council June 2008 and June 2009 respectively
- T&ES Strategic Plan: Key Result Area – Meet or exceed state and federal requirements of the City's MS4 and combined sewer permits
- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

Total funding reduced from \$4.9 million in prior year approved plan to \$3.0 million in current plan based on anticipated needs and project implementation rates. Funding in the amount of \$200,000 is added from FY 2023.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Project Description and Justification (Continued)

For the City to stay in compliance with the future CSS permits, overflows from the Combined Sewer System need to be mitigated. This is primarily because of new regulatory requirements of the bacteria TMDL for Hunting Creek. Total cost of mitigation of these overflows can range as high as \$200 million - \$300 million and depends on the type and mix of technologies that get implemented. Through the Alternatives Analysis being conducted by the City in FY 2014 – 2018, an update to its Long-Term Control Plan will be developed. Only after completion of this analysis, and with the approval of the Long Term Control Plan update by the Virginia Department of Environmental Quality (VDEQ), will the exact costs of the resulting projects and applicable schedule will become certain. In the upcoming permit cycle, the City is required to continue implementation of Nine Minimum Controls, Area Reduction Plan. This includes implementation of several capital projects including Green Infrastructure, and select separation projects. The City will also need to continue extensive monitoring, sampling, inspections, and reporting. This budget reflects the anticipated costs of improvements over the next five years only. Costs of improvements required for implementing the approved updated Long Term Control Plan (FY 2019 onwards) are not reflected in the budget. These costs could be over a two to three decade period in the \$200 million to \$300 million range.

Holmes Run Sewershed Infiltration and Inflow

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 255105

Project Location: Holmes Run Sewer Shed
 Reporting Area: See Text Below
 Project Category: 2 – Renovations/Existing Assets
 Estimated Useful Life: 40 years

Holmes Run Sewershed Infiltration & Inflow													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	35,161,440	19,861,440	0	3,000,000	2,375,000	3,075,000	2,850,000	4,000,000	0	0	0	0	15,300,000
Financing Plan													
General Obligation Bonds - Sanitary Sewer	30,215,000	15,750,000	0	3,000,000	2,375,000	2,925,000	2,565,000	3,600,000	0	0	0	0	14,465,000
Sanitary Sewer Fees	4,946,440	4,111,440	0	0	0	150,000	285,000	400,000	0	0	0	0	835,000
Total Financing Plan	35,161,440	19,861,440	0	3,000,000	2,375,000	3,075,000	2,850,000	4,000,000	0	0	0	0	15,300,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate based on previous inspection and remediation contracts, and consultant estimate.													

Project Description & Justification

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, which impacts the Alexandria West, Landmark/Van Dorn and Seminary Hill/Strawberry Hill reporting areas.

Many of the sewers and manholes located in these areas 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 study are being evaluated to develop remediation projects that are expected to include the relining of sewers and manhole repairs. This information will be utilized 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. To date, a total of \$19.9 million has been budgeted for this project, with current allocated and unallocated balances of \$17.1 million remaining. During FY 2014, the Pegram and Strawberry Run sewersheds drainage basin are tentatively scheduled for construction. Funding from the Sanitary Sewer fund planned for FY 2015 – 2019 includes completing remaining field evaluations (\$1.0 million) design (\$1.0 million) and remediation costs (\$1.0 million).

Completion of this project will help mitigate sanitary sewer overflows. Additionally, it will improve the City's sanitary sewer infrastructure and extend the infrastructure's useful life by reducing the potential of pipe collapse and other emergency repairs

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff

Goal 5 – Financial Sustainability

- LTO: Maintain the value of the City's physical assets
 - IO: Increase the maintenance investment relative to repair expenditures

External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

Planned funding from FY 2014 – 2017 totaling \$15.5 million reduced to \$15.3 million and extended to FY 2019 based on anticipated construction schedule.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Wet Weather Management Facility

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: TBD

Project Location: Near the AlexRenew Facility
 Reporting Area: Southwest Quadrant
 Project Category: 3 – New Facilities
 Estimated Useful Life: 20+ years

Wet Weather Management Facility													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	22,250,000	0	0	3,375,000	1,125,000	0	8,750,000	9,000,000	0	0	0	0	22,250,000
Financing Plan													
General Obligation Bonds - Sanitary Sewer	19,740,000	0	0	3,220,000	1,125,000	0	7,875,000	7,520,000	0	0	0	0	19,740,000
Sanitary Sewer Fees	2,510,000	0	0	155,000	0	0	875,000	1,480,000	0	0	0	0	2,510,000
Total Financing Plan	22,250,000	0	0	3,375,000	1,125,000	0	8,750,000	9,000,000	0	0	0	0	22,250,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	300,000	309,000	318,270	327,818	1,255,088
Cumulative Impact			0	0	0	0	0	0	300,000	609,000	927,270	1,255,088	1,255,088
Basis of Project Cost Estimation: Cost estimate provided in the draft report, "Wet Weather Management Evaluation Update (Task Order 14-2005)" prepared by CH2MHill on behalf of the City, Fairfax County and AlexRenew dated July 2012.													

Project Description & Justification

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. 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 Renew Enterprises (AlexRenew) wastewater treatment facility. 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 (and updated in 2012) which recommended a wet weather management facility to mitigate SSOs and basement back-ups. 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 AlexRenew plant from 108 to 116 mgd (through primary treatment), relocation of Outfall 004 from Duke Street to just outside the AlexRenew plant, construction of a 500,000 gallon storage tunnel, and wet weather pumping to reduce the surcharging in the interceptor sewers to prevent back-ups.

Initial planning and design funding is scheduled to begin in FY 2015. The total project cost is estimated to be \$22.3 million (2012 dollars), and it is assumed that the costs for this facility would be shared equally between Fairfax County and the City. In addition, the funding includes extending the storage tunnel upstream to capture additional combined sewage from Outfall 003.

This project provides a number of benefits including reducing sanitary sewer backups into homes and business, while reducing the impact that sanitary sewer that SSOs and CSOs have on the environment.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff
 - IO: Reduce pollutants discharged to residences and businesses within the City
- LTO: Decrease residents' incidences of preventable diseases
 - IO: Reduce contaminants in water runoff

External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

Total estimated costs reduced from \$31.5 million to \$22.3 million based on the draft report entitled "Wet Weather Management Evaluation Update" prepared by CH2M Hill on behalf of the City, Fairfax County, and AlexRenew dated July 2012.

Additional Operating Budget Impact

The annual operating and maintenance costs associated with the facility includes electricity costs associated with the wet weather pumping, labor and equipment rental for the tunnel cleaning and inspection, and equipment replacement costs. The operating costs as assumed to be shared with Fairfax County with the City being responsible for 50 percent of the costs. Operating costs will be paid for from the Sanitary Sewer Fund

Sewer Assessment and Rehabilitation

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: TBD

Project Location: Old Town CSO area
 Reporting Area: Old Town, Old Town North
 Project Category: 1 – Asset Maintenance
 Estimated Useful Life: Varies

Sewer Assessment & Rehabilitation													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	8,800,000	0	0	0	0	0	0	3,700,000	2,550,000	2,550,000	0	0	8,800,000
Financing Plan		0											
General Obligation Bonds	4,400,000	0	0	0	0	0	0	1,850,000	1,275,000	1,275,000	0	0	4,400,000
General Obligation Bonds - Sanitary Sewer	1,480,000	0	0	0	0	0	0	1,480,000	0	0	0	0	1,480,000
Sanitary Sewer Fees	2,920,000	0	0	0	0	0	0	370,000	1,275,000	1,275,000	0	0	2,920,000
Total Financing Plan	8,800,000	0	0	0	0	0	0	3,700,000	2,550,000	2,550,000	0	0	8,800,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate is based on previous infiltration and inflow contracts for field evaluation services (CCTV, condition assessment, engineering design) and construction and construction management services (lining, manhole rehabilitation, etc). Costs have been increased to account for inflation based on the date of the previous contracts and by applying 3% inflation for project being performed in out years.													

Project Description & Justification

This project provides funding from both the Sanitary Sewer and Stormwater Management funds for the condition assessment of all of the sewers (sanitary, storm, combined) in the combined sewer service area in Old Town and remediation of structurally deficient 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. 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.

Funding is not planned until FY 2019, and totals \$8.8 million with 50% coming from the Sanitary Sewer Fund and 50% from the Stormwater Management Fund.

In addition to the health and environmental benefits of this project, completion of this project will repair and renew the City's sewer infrastructure, extend the infrastructure's useful life, and reduce the number of pipe collapses and other emergency repairs.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff
 - IO: Increase public awareness of Eco-City Alexandria
 - IO: Reduce pollutants discharged to residences and businesses within the City

Goal 5 – Financial Sustainability

- LTO: Maintain the value of the City's physical assets
 - IO: Increase the maintenance investment relative to repair expenditures

External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

This is a new project in the Capital Improvement Program.

Additional Operating Budget Impact

An impact to the annual operating budget is not anticipated.

Combined Sewer Overflow 001 Planning

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: TBD

Project Location: CSO 001 – Pendleton St. at Potomac River
 Reporting Area: Old Town/Old Town North
 Project Category: 3 – New Facilities
 Estimated Useful Life: N/A

Cobined Sewer Overflow 001 Planning													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	500,000	0	0	0	0	500,000	0	0	0	0	0	0	500,000
Financing Plan													
Sanitary Sewer Fees	0	0	0	0	0	500,000	0	0	0	0	0	0	500,000
Total Financing Plan	500,000	0	0	0	0	500,000	0	0	0	0	0	0	500,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0

Basis of Project Cost Estimation: Rough estimate based on limited information, including communication from the City's combined sewer permit contractor regarding how much the study and design services might be. Costs were based on unit costs that were derived from other similar facilities.

Project Description & Justification

The City's combined sewer system (sanitary and storm sewers) comprise approximately 540 acres located in the Old Town area. During certain wet weather events, flows in excess of the sewer pipes are discharged into receiving waterways via one of four combined sewer outfalls. These discharges are permitted by the Virginia Department of Environmental Quality (VDEQ). The Hunting Creek Bacteria Total Maximum Daily Load (TMDL) requires reductions in these discharges from 3 of the 4 permitted outfalls. This project is related to the Combined Sewer System (CSS) Permit Compliance project, but focuses only on the CSO 001 area.

The CSO 001 Mitigation project will provide initial feasibility planning funding for combined sewer storage at CSO Outfall 001 (Pendleton Street), resulting in a reduction of 30-40 overflows per year at each outfall to approximately four per year per outfall which will provide significant water quality benefits in Oronoco Bay and the Hunting Creek area.

There will be an additional benefit of significantly reducing the nutrient and sediment loadings into the Chesapeake Bay. These reductions could be applied towards the Chesapeake Bay TMDL stormwater reduction requirements and may benefit the City. Finally, the redevelopment of the GenOn site in Old Town will require developer contributions towards separating the combined sewage at the site. These potential contributions can be used to fund the storage at CSO 001. The timing of the construction of the CSO 001 storage facility should be done prior to the development of the Robinson Terminal North site.

(Continued on next page)

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff
- LTO: Improve the health of the waterways within the City
 - IO: Reduce pollutants discharged by residents and businesses within the City
- LTO: Decrease residents' incidences of preventable diseases
 - IO: Reduce contaminants in water runoff

External or Internal Adopted Plan or Recommendation

- T&ES Strategic Plan 2012-2015: Key Result Area III: Meet or exceed state or federal requirements of City's separate storm sewer and combined sewer system permits and maintain compliance with these environmental permits
- Eco-City Charter (Water Resources) and Eco-City Action Plan, Chapter 4, Goal 4: Eliminate the harmful impact of combined sewer systems in the long-term, and minimize them in the short-term
- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

This is a new project in the Capital Improvement Program.

Additional Operating Budget Impact

Impact on the annual operating budget is unknown until specific capital improvement projects are identified and funded.

Project Description & Justification (Continued)

For the City to stay in compliance with the future CSS permits, overflows from the Combined Sewer System need to be mitigated. This is primarily because of new regulatory requirements of the bacteria TMDL for Hunting Creek. Total cost of mitigation of these overflows can range as high as \$200 million - \$300 million over a two to three decade period and depends on the type and mix of technologies that get implemented. Through the Alternatives Analysis being conducted by the City in FY 2014 – 2018, an update to its Long-Term Control Plan will be developed. Only after completion of this analysis, and with the approval of the Long Term Control Plan update by the Virginia Department of Environmental Quality (VDEQ), will the exact costs of the resulting projects and applicable schedule will become certain. In the upcoming permit cycle, the City is required to continue implementation of Nine Minimum Controls, Area Reduction Plan. This includes implementation of several capital projects including Green Infrastructure, and select separation projects. The City will also need to continue extensive monitoring, sampling, inspections, and reporting. This budget reflects the anticipated costs of improvements over the next five years only. Costs of improvements required for implementing the approved updated Long Term Control Plan (FY 2019 onwards) are not reflected in the budget.

AlexRenew Wastewater Treatment Plant Capacity

Document Subsection: Sanitary Sewers
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: TBD

Project Location: 1500 Eisenhower Ave.
 Reporting Area: Southwest Quadrant
 Project Category: 2 – Renovations/Existing Assets
 Estimated Useful Life: 20+ years

AlexRenew Wastewater Treatment Plant Capacity													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	34,720,000	500,000	0	0	0	0	0	0	11,070,000	11,400,000	11,750,000	0	34,220,000
Financing Plan													
General Obligation Bonds - Sanitary Sewer	34,220,000	0	0	0	0	0	0	0	11,070,000	11,400,000	11,750,000	0	34,220,000
Sanitary Sewer Fees	500,000	500,000	0	0	0	0	0	0	0	0	0	0	0
Total Financing Plan	34,720,000	500,000	0	0	0	0	0	0	11,070,000	11,400,000	11,750,000	0	34,220,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Planning level cost estimate provided by AlexRenew in 2011.													

Project Description & Justification

The City's Department of Planning and Zoning (P&Z) has developed growth forecasts for build-out conditions (post year 2040) as presented in the Sanitary Sewer Master Plan. Based on these forecasts, the City is projected to exceed its wastewater allocation at the Alexandria Renew Enterprises (AlexRenew) Water Resource Recovery Facility by approximately 4 million gallons per day (mgd) beginning incrementally sometime after 2040.

AlexRenew has indicated that their facility can be expanded / upgraded to treat this additional 4 mgd at a total capital cost of \$35.2 million (increased 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 AlexRenew.

The costs provided do not include any additional nutrient (phosphorous and nitrogen) loads associated with these flows, which the City will reach around 2040. Options for addressing these added nutrient loadings have been identified in the Sanitary Sewer Master Plan and will continue to be evaluated. Funding for this project is not planned until FY 2020 – 2022. With the hydraulic expansion, the agreements between the City and AlexRenew and AlexRenew and Fairfax County would have to be renegotiated.

Another option for an additional 4 mgd is to purchase 4 mgd of wastewater treatment capacity from Fairfax County at AlexRenew, estimated to be approximately \$56.0 million (2011 dollars). This option would not require any offset of nutrient loadings since the design flow at AlexRenew wouldn't change, but the City may be expected by Fairfax County to finance the entire \$56.0 million now for capacity the City will not need for 30 years. Additionally, this option is contingent on Fairfax County acquiring additional treatment plant capacity at DC Water Blue Plains facility. The City will be continuing discussions with Fairfax County concerning this option.

Linking to the City's Strategic Plan

Goal 1 – Economic Development

- LTO: Increase the City's non-residential and residential tax base
 - IO: Increase value created by the City's planning and development process.
 - IO: Increase residential developer/builder base for new projects
 - IO: Improve the markets' awareness of Alexandria development opportunities

Goal 5 – Financial Sustainability

- LTO: Improve community's perception of the effectiveness of City services
 - IO: Improve public's satisfaction regarding their requests to fix public infrastructure

External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

Initial feasibility study funding of \$500,000 budgeted in FY 2014 in the prior year approved plan is no longer required. No changes to funding planned from FY 2020 – 2022.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

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STORMWATER MANAGEMENT

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Stormwater Management Proposed FY 2014 – 2023 Capital Improvement Program Summary of Projects

CIP Section/Subsection/Project	Unallocated (02/13)	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Stormwater Management												
Ft. Ward Stormwater	\$460,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
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	\$1,610,000	\$0	\$0	\$0	\$0	\$600,000	\$0	\$0	\$0	\$0	\$600,000	\$1,200,000
Storm Sewer Capacity Assessment	\$0	\$250,000	\$0	\$0	\$0	\$0	\$0	\$950,000	\$0	\$0	\$0	\$1,200,000
Green Infrastructure in CSO Areas	\$0	\$300,000	\$700,000	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,500,000
Stream & Channel Maintenance	\$838,750	\$2,150,000	\$1,100,000	\$1,100,000	\$550,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$7,600,000
MS4-TMDL Compliance Water Quality Imprv.	\$0	\$800,000	\$800,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,600,000
Storm Sewer System Spot Improvements	\$2,864,113	\$0	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$2,700,000
Stormwater Management Total	\$6,458,113	\$3,500,000	\$2,900,000	\$1,900,000	\$850,000	\$1,350,000	\$750,000	\$1,700,000	\$750,000	\$750,000	\$1,350,000	\$15,800,000

Stormwater Management Fund Proposed FY 2014 – 2023 Capital Improvement Program Sources and Uses Table Capital Projects and Operating Expenditures

Stormwater Management - Capital Budget	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Revenues											
Transfer from Capital Fund (GO Bonds)	\$1,000,000	\$1,000,000	\$925,000	\$850,000	\$1,350,000	\$2,600,000	\$2,975,000	\$2,025,000	\$750,000	\$1,325,000	\$14,800,000
Reprogrammed Prior Year Project Balances	1,577,935	550,000	0	0	0	0	0	0	0	0	2,127,935
FEMA Reimbursements (Tropical Storm Lee)	660,000	1,000,000	725,000	0	0	0	0	0	0	0	2,385,000
Environmental Restoration Funds	600,000	0	0	0	0	0	0	0	0	25,000	625,000
Stormwater Management Tax Revenues	197,065	0	0	0	0	0	0	0	0	0	197,065
Carry-Over Balance	0	0	0	0	0	0	0	0	0	0	
Total Capital Revenues	4,035,000	2,550,000	1,650,000	850,000	1,350,000	2,600,000	2,975,000	2,025,000	750,000	1,350,000	20,135,000
Capital Projects											
*Additional Maintenance Equipment (BMP, SW)	685,000	0	0	0	0	0	0	0	0	0	685,000
Green Infrastructure in CSO areas	150,000	350,000	250,000	0	0	0	0	0	0	0	750,000
NEW - MS4-TMDL Compliance Water Quality Improvements	800,000	800,000	0	0	0	0	0	0	0	0	1,600,000
Stream & Channel Maintenance	2,150,000	1,100,000	1,100,000	550,000	450,000	450,000	450,000	450,000	450,000	450,000	7,600,000
Storm Sewer System Spot Improvements	0	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	2,700,000
Storm Sewer Capacity Assessment	250,000	0	0	0	0	0	950,000	0	0	0	1,200,000
Four Mile Run Channel Maintenance	0	0	0	0	600,000	0	0	0	0	600,000	1,200,000
Ft. Ward Stormwater	0	0	0	0	0	0	0	0	0	0	0
**Combined Sewer Area Assessment	0	0	0	0	0	1,850,000	1,275,000	1,275,000	0	0	4,400,000
Total Capital Projects	4,035,000	2,550,000	1,650,000	850,000	1,350,000	2,600,000	2,975,000	2,025,000	750,000	1,350,000	20,135,000

*Shown here for informational purposes only. Funding will be transferred to the Equipment Replacement Fund, and vehicles will be purchased out of that Fund.

** Shown in the Sanitary Sewer section of the CIP document.

Stormwater Management - Unfunded/Unknown Needs	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
NEW - MS4-TMDL Compliance Water Quality Improvements	0	0	TBD								
NEW - Green Infrastructure in CSO areas	0	0	0	TBD							

Stormwater Management - Operating Budget	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Revenues											
Transfer 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
Stormwater Management Tax Revenues (0.5 cents)	1,716,670	1,763,878	1,816,795	1,871,299	1,932,116	1,994,910	2,059,744	2,111,238	2,185,131	2,261,611	19,713,391
Additional Operating Revenues Needed	0	482,375	489,346	496,526	499,244	501,891	504,460	522,393	497,879	494,390	4,488,504
Total Operating Revenues	2,666,670	3,196,253	3,256,141	3,317,825	3,381,360	3,446,801	3,514,205	3,583,631	3,633,010	3,706,000	33,701,894
Operating Expenditures											
Operating Expenditures (FY 2013 Base)	1,549,781	1,567,774	1,586,308	1,605,397	1,625,059	1,645,311	1,666,170	1,687,655	1,687,655	1,709,785	\$16,330,894
NEW - Indirect (Administrative) Costs	113,490	116,895	120,402	124,014	127,734	131,566	135,513	139,578	143,766	148,079	1,301,036
NEW - Additional Engineering Personnel	163,731	168,643	173,702	178,913	184,281	189,809	195,503	201,368	207,410	213,632	1,876,992
NEW - Additional Maintenance Personnel	0	688,560	709,217	730,493	752,408	774,980	798,230	822,177	846,842	872,247	6,995,154
NEW - Additional OEQ Personnel	327,032	336,843	346,948	357,357	368,077	379,120	390,493	402,208	414,274	426,703	3,749,055
NEW - Additional Admin Personnel	65,571	67,538	69,564	71,651	73,801	76,015	78,295	80,644	83,063	85,555	751,698
NEW - Heavy Sewer Cleaning	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	2,500,000
Total Operating Expenditures	2,469,605	3,196,253	3,256,141	3,317,825	3,381,360	3,446,801	3,514,205	3,583,631	3,633,010	3,706,000	33,504,829

Note: Balance of revenues over expenditures in FY 2014 (\$197,065) is used to fund capital projects in FY 2014.

Ft. Ward Stormwater

Document Subsection: Stormwater Management
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): Recreation, Parks & Cultural Activities, Historic Alexandria
 OCA: 250071

Project Location: 4301 West Braddock Rd.
 Reporting Area: Seminary Hill/Strawberry Hill
 Project Category: 3 – New Facilities
 Estimated Useful Life: 25 years

Ft. Ward Stormwater													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	585,000	585,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
Prior City Funding	585,000	585,000	0	0	0	0	0	0	0	0	0	0	0
Total Financing Plan	585,000	585,000	0	0	0	0	0	0	0	0	0	0	0
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate prepared by staff based on similar projects.													

Project Description & Justification

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 adjacent 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. 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.

The scope of work includes studying the existing drainage infrastructure in Fort Ward Park and make recommendations for improvements as well as the construction of those recommended improvements. This project will be informed by and will be required to coordinate planning and construction activities with OHA archaeological investigations and discoveries; which are ongoing.

This project has been fully funded and will be active in FY 2014. As of February 2013, the City is seeking to secure the services of a qualified consulting firm to perform the drainage study and formulate the storm water management plan for the park.

Environmental benefits achieved by the completion of this project include include overland flow improvements, erosion protection, stream restoration and flood prevention, as of which will improve the natural quality of the land in the project area.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of the land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards

Goal 5 – Financial Sustainability

- LTO: Improve community's perception of the effectiveness of City services
 - IO: Improve public's satisfaction regarding their requests to fix public infrastructure

Goal 6 – Public Safety

- LTO: Decrease loss of property from disasters
 - IO: Decrease areas within the City that frequently flood

External or Internal Adopted Plan or Recommendation

- Recommended by the Ad Hoc Fort Ward Park and Museum Area Stakeholder Advisory Group
- Budget Memorandum #46, April 8, 2011 (FY 2012)

Details of Changes from Prior Year Approved Plan

No changes from prior year approved plan. Project does not require additional funding.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Taylor's Run at Janney Lane

Document Subsection: Stormwater Management
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 255050

Project Location: Taylor Run Parkway at Janney's Ln.
 Reporting Area: Taylor Run
 Project Category: 2 – Renovations/Existing Assets
 Estimated Useful Life: 50 years

Taylor Run at Janney's Lane													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	1,051,250	1,051,250	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
Prior City Funding	1,051,250	1,051,250	0	0	0	0	0	0	0	0	0	0	0
Total Financing Plan	1,051,250	1,051,250	0	0	0	0	0	0	0	0	0	0	0
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate based on costs of previous similar projects.													

Project Description & Justification

This project consists of reconstructing culvert head wall, stream restoration and realignment of sanitary sewer to eliminate a siphon at the culvert located at Taylor Run Parkway at Janney's Lane.

This project has been fully funded and will be active in FY 2014. The project design has been completed and is tentatively scheduled for completion in FY 2014. Environmental permitting must be obtained from state and federal authorities before construction can begin. Project completion will need to be coordinated with the re-paving project on Janney's Lane also scheduled for FY 2014.

Completion of this project will improve and extend the useful life of the City's stormwater infrastructure.

Linking to the City's Strategic Plan

Goal 5 – Financial Sustainability

- LTO: Maintain the value of City's physical assets
 - IO: Increase the ration of maintenance investment relative to repair expenditures

External or Internal Adopted Plan or Recommendation

- N/A

Details of Changes from Prior Year Approved Plan

No changes from prior year approved plan.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

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

Document Subsection: Stormwater Management
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 255230

Project Location: Citywide
 Reporting Area: Citywide
 Project Category: 3 – New Facilities
 Estimated Useful Life: Varies

NPDES / MS4 Permit													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	350,000	350,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
Prior City Funding	350,000	350,000	0	0	0	0	0	0	0	0	0	0	0
Total Financing Plan	350,000	350,000	0	0	0	0	0	0	0	0	0	0	0
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: N/A													

Project Description & Justification

This project provides for the data collection, reporting activities, public education, outreach, involvement and citizen participation associated with implementation of the programs required by the National Pollution Discharge Elimination System (NPDES) permit regulations that are administered currently by the Virginia Department of Conservation and Recreation (DCR) through the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Storm Water from Municipal Separate Storm Sewer Systems (MS4) per 4VAC50-60 et. seq.

The permit requires the City to develop, implement and enforce our MS4 Program Plan to reduce discharges of pollutants from the MS4, protect water quality, and satisfy the appropriate requirements of the Clean Water Act. A total of \$134,000 in prior year unallocated funding will be utilized for sampling, monitoring, reporting and required analysis studies.

The City was originally issued General Permit VAR040057 on July 8, 2003. The DCR permit re-issued on July 9, 2008 will expire June 30, 2013. The currently proposed five-year permit is scheduled to be effective on July 1, 2013 and expire on June 30, 2018. Each successive permit has contained more regulatory requirements which necessitates more resources. The proposed permit is no exception. The new permit regulations require more public education and outreach, increased staff training, creation of new TMDL plans and SOPs for daily operations, enhanced inspections, greater data collection, and additional reporting. The new permit also contains stringent requirements to meet the recent Chesapeake Bay Total Maximum Daily Load (TMDL) for nutrients and sediment, as well as other TMDLs that have been developed for local surface waters.

This project maintains the City's compliance with regulatory permits, while developing and enhancing the MS4 program.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff
 - IO: Increase public awareness of Eco-City Alexandria
 - IO: Reduce pollutants discharged to residences and businesses within the City

External or Internal Adopted Plan or Recommendation

- N/A

Details of Changes from Prior Year Approved Plan

No changes from prior year approved plan. Project does not require additional funding.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Four Mile Run Channel Maintenance

Document Subsection: Stormwater Management
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 210237

Project Location: Four Mile Run Stream/Channel
 Reporting Area: Potomac West
 Project Category: 2 – Renovations/Existing Assets
 Estimated Useful Life: 10 years

Four Mile Run Channel Maintenance													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	3,293,000	2,093,000	0	0	0	0	600,000	0	0	0	0	600,000	1,200,000
Financing Plan													
General Obligation Bonds	1,810,000	1,810,000	0	0	0	0	0	0	0	0	0	0	0
Cash Capital	1,483,000	283,000	0	0	0	0	600,000	0	0	0	0	600,000	1,200,000
Total Financing Plan	3,293,000	2,093,000	0	0	0	0	600,000	0	0	0	0	600,000	1,200,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Estimate prepared by consultant and based on previous work.													

Project Description & Justification

This project reflects the City's share of the costs to maintain the federally funded stormwater flood control channel and system of flood walls and levees. The project was constructed as a federal flood control project built by the U.S Army Corps of Engineers (USACE) in the late 1970's which by mutual agreement requires the City to provide regular upgrades to its capital infrastructure. 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 City has 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 the upgraded post-Hurricane Katrina standards that the USACE now considers acceptable.

To date, \$2.093 million in City funding has been applied to the project, with an allocated and unallocated project balance of \$1.85 million remaining to complete current maintenance activities. Funding is programmed in the out-years of the CIP to address future capital infrastructure requirements.

As Four Mile Run maintenance is a shared responsibility with Arlington County, it will be necessary for the County and the City to engage in a joint decision making process concerning some elements of Four Mile Run Maintenance activities. Levee/flood wall maintenance remains the responsibility of the jurisdiction where the levee/wall is located.

The regular upgrades to the flood control system ensure that the flood control project will perform as predicted and protect citizens and property from flooding.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards

Goal 6 – Public Safety

- LTO: Decrease loss of property from disasters
 - IO: Decrease areas within the City that frequently flood

External or Internal Adopted Plan or Recommendation

- N/A

Details of Changes from Prior Year Approved Plan

Funding originally planned in FY 2017 is shifted to FY 2018 based on anticipated timing of maintenance and restoration work. Funding in the amount of \$600,000 is added for FY 2023.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Storm Sewer Capacity Assessment

Document Subsection: Stormwater Management
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 255210

Project Location: Citywide
 Reporting Area: Citywide
 Project Category: 1 – Asset Maintenance
 Estimated Useful Life: N/A

Storm Sewer Capacity Assessment													
	A	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	<i>Allocated Balance (02/13)</i>	<i>Unallocated (02/13)</i>	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	943,383	0	250,000	0	0	0	0	0	950,000	0	0	0	1,200,000
Financing Plan													
Prior City Funding	943,383	0	0	0	0	0	0	0	0	0	0	0	0
Prior Year Stormwater Balances	0	0	52,935	0	0	0	0	0	0	0	0	0	52,935
Cash Capital	0	0	0	0	0	0	0	0	950,000	0	0	0	950,000
Stormwater Management Tax	0	0	197,065	0	0	0	0	0	0	0	0	0	197,065
Total Financing Plan	943,383	0	250,000	0	0	0	0	0	950,000	0	0	0	1,200,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate prepared by staff based on previous work.													

Project Description & Justification

This project provides for a multi-year City-wide storm sewer analysis and flow modeling to determine the stormwater system's capacity and to develop recommendations for improvements to the existing storm sewer system.

The project includes flow modeling, field verification of invert elevations and manhole locations, and condition assessments of pipes 24 inch diameter or greater. 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.

The analysis and assessment will look at employing a variety of technologies to reduce flooding in problem areas including "Green Infrastructure" such as: Rain gardens, infiltration swales, planter boxes, tree canopy and infiltration wells, pervious pavement, gutters, and sidewalks, street/alley retrofits into "green streets", rain barrels and cisterns, green roofs, etc. It is anticipated that completion of this project will result in some recommended improvements to the City storm sewer system. These future projects will be funded through the Storm Sewer System Spot Improvements project as funding becomes available.

As of February 2012, the project has collected field data, updated the City's GIS storm sewer layers, built computer models, and performed condition assessments on storm sewer manholes and pipes for Hooff's Run, Holmes Run, and Four Mile Run watersheds. Problem identification and developing and prioritizing solutions are the next step. Funding planned in FY 2020 will provide for updated analysis and flow modeling.

This project provides the resources for a thorough understanding of the City's storm sewer system, and will assist in anticipating problems in performance and capacity allowing for proactive solutions in protecting citizens and property from stormwater flooding.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff

Goal 6 – Public Safety

- LTO: Decrease loss of property from disasters
 - IO: Decrease areas within the City that frequently flood

External or Internal Adopted Plan or Recommendation

- N/A

Details of Changes from Prior Year Approved Plan

Planned funding in FY 2014 in the amount of \$400,000 is reduced to \$250,000 based on anticipated funding needed to complete the current study. Funding in the amount of \$950,000 is added in FY 2020 to provided updated analysis and flow modeling.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Green Infrastructure in Combined Sewer Overflow (CSO) Areas

Document Subsection: Stormwater Management
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: TBD

Project Location: Citywide
 Reporting Area: Citywide
 Project Category: 3 – New Facilities
 Estimated Useful Life: Varies

Green Infrastructure in CSO Areas													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	1,500,000	0	300,000	700,000	500,000	0	0	0	0	0	0	0	1,500,000
Financing Plan													
General Obligation Bonds	750,000	0	150,000	350,000	250,000	0	0	0	0	0	0	0	750,000
General Obligation Bonds - Sanitary Sewer	600,000	0	120,000	280,000	200,000	0	0	0	0	0	0	0	600,000
Sanitary Sewer Fees	150,000	0	30,000	70,000	50,000	0	0	0	0	0	0	0	150,000
Total Financing Plan	1,500,000	0	300,000	700,000	500,000	0	0	0	0	0	0	0	1,500,000
Add. Operating Impact													
Annual Impact			0	0	750	1,523	1,568	1,615	1,663	1,713	1,765	1,818	12,415
Cumulative Impact			0	0	750	2,273	3,841	5,456	7,120	8,833	10,598	12,415	12,415
Basis of Project Cost Estimation: Staff estimate based on limited information.													

Project Description & Justification

This project provides funding from both the sanitary sewer and storm sewer funds for study, design, and construction of at least two green infrastructure demonstration projects in the combined sewer area. Green infrastructure projects will include at least one "green alley". Completion of these projects will provide the following benefits: increased stormwater infiltration, reduction of stormwater into the combined sewer system (CSS), providing stormwater treatment (nutrients), and decreasing the volume of combined sewer overflow (CSO) discharges. The City is currently in discussions with the Virginia Department of Environmental Quality (VDEQ) regarding requirements of the next VPDES permit for the CSS. Based on recent discussions with VDEQ, it is anticipated that some funding towards green infrastructure will be a requirement (mandate) of the next CSS permit.

The City will be conducting an Alternatives Analysis as part of the upcoming permit cycle to determine what CSO controls (storage, sewer separation, etc.) should be pursued for meeting the Hunting Creek Bacteria Total Maximum Daily Load (TMDL), which calls for significant reductions from three of the four City CSO outfalls.

For the City to stay in compliance with the CSS permit, overflows from the Combined Sewer System need to be mitigated. This is primarily because of new regulatory requirements of the bacteria TMDL for Hunting Creek. Total cost of mitigation of these overflows over two to three decades could range as high as \$200 million - \$300 million and depends on the type and mix of technologies that get implemented. Through the Alternatives Analysis to be conducted by the City in FY 2014 – 2018, an update to its Long-Term Control Plan will be developed. Only after completion of this analysis, and with the approval of the Long Term Control Plan update by the Virginia Department of Environmental Quality, the exact costs of the resulting projects and applicable schedule will become certain. In the upcoming permit cycle, the City is required to continue implementation of Nine Minimum Controls, Area Reduction Plan, several capital projects that include Green Infrastructure, and select separation projects. The City will also need to continue extensive monitoring, sampling, inspections, and reporting.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff
 - IO: Increase public awareness of Eco-City Alexandria

Goal 5 – Financial Sustainability

- LTO: Maintain the value of the City's physical assets

External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

Details of Changes from Prior Year Approved Plan

This is a new project in the Capital Improvement Program.

Additional Operating Budget Impact

Additional operating costs for a green alley and a bioretention facility will be approximately \$750 each annually for maintenance. Maintenance of a green alley includes vacuuming of sediments from the permeable pavement 3-4 times per year. Maintenance of a bioretention facility includes inspection, possible repair and replacement of the individual components. Inflation at 3% per year has been included.

Stream and Channel Maintenance

Document Subsection: Stormwater Management
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 210112

Project Location: Citywide
 Reporting Area: Citywide
 Project Category: 1 – Asset Maintenance
 Estimated Useful Life: Varies

Stream & Channel Maintenance													
	A	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	<i>Allocated Balance (02/13)</i>	<i>Unallocated (02/13)</i>	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	1,360,720	838,750	2,150,000	1,100,000	1,100,000	550,000	450,000	450,000	450,000	450,000	450,000	450,000	7,600,000
Financing Plan													
Prior Year Stormwater Balances	1,360,720	838,750	840,000	100,000	0	0	0	0	0	0	0	0	940,000
General Obligation Bonds	0	0	50,000	0	375,000	550,000	450,000	450,000	450,000	450,000	450,000	425,000	3,650,000
Environmental Restoration Funds	0	0	600,000	0	0	0	0	0	0	0	0	25,000	625,000
FEMA Reimbursement	0	0	660,000	1,000,000	725,000	0	0	0	0	0	0	0	2,385,000
Total Financing Plan	1,360,720	838,750	2,150,000	1,100,000	1,100,000	550,000	450,000	450,000	450,000	450,000	450,000	450,000	7,600,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Basis of Project Cost Estimation: Cost estimate based on actual costs from 2007 and 2011 Stream Channel Restoration work.													

Project Description & Justification

This project provides funding for annual capital infrastructure improvements to 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.

Prior year allocated and unallocated balances of \$2.2 million will be combined with requested FY 2014 funding of \$2.15 million to mitigate damages caused by Tropical Storm Lee. Projects currently under design include: Cameron Run Weirs #2, #3, #4, and #5 repairs; Backlick Run S-Curve repairs; Backlick Run Flume Outlet repairs. These projects are eligible for up to 75% reimbursement from the Federal Emergency Management Agency, and City staff will pursue reimbursement as work is completed.

Continued urbanization in the City and in Fairfax County over the years has put excessive stress on the vitality of natural streams throughout the City. This has caused erosion, loss of natural habitat and flooding issues in these streams. Designing and implementing restoration for these streams will provide the additional capacity needed to handle the added stormwater runoff from urbanization, allowing for the return of natural habitat and enhancing the health of these important resources in our City. Having access to healthy, thriving natural areas provides opportunities for people to connect with the natural world and improves the overall well-being of communities.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff

Goal 6 – Public Safety

- LTO: Decrease loss of property from disasters
 - IO: Decrease areas within the City that frequently flood

Goal 5 – Financial Sustainability

- LTO: Maintain the value of the City's physical assets
 - IO: Increase the maintenance investment relative to repair expenditures

External or Internal Adopted Plan or Recommendation

- N/A

Details of Changes from Prior Year Approved Plan

Funding in the prior year approved plan totaled \$8.4 million from FY 2014 – 2022. Based on anticipated project implementation rates, funding is reduced to \$7.2 million from FY 2014 – 2022. Funding in the amount of \$450,000 is added for FY 2023.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

MS4 / Total Maximum Daily Load (TMDL) Compliance Water Quality Improvements

Document Subsection: Stormwater Management
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: TBD

Project Location: Citywide
 Reporting Area: Citywide
 Project Category: 3 – New Facilities
 Estimated Useful Life: 50+ years

MS4-TMDL Compliance Water Quality Improvement													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	1,600,000	0	800,000	800,000	0	0	0	0	0	0	0	0	1,600,000
Financing Plan													
Prior Year Stormwater Balances	450,000	0	0	450,000	0	0	0	0	0	0	0	0	450,000
General Obligation Bonds	1,150,000	0	800,000	350,000	0	0	0	0	0	0	0	0	1,150,000
Total Financing Plan	1,600,000	0	800,000	800,000	0	1,600,000							
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0

Basis of Project Cost Estimation: Budgetary Costs for the major stormwater management facilities were developed in working with the engineer conducting the Feasibility Study. Costs for stormwater retrofits were based on the C-Bay TMDL Compliance Analysis and Options report.

Project Description & Justification

The Virginia Department of Conservation and Recreation (DCR) has indicated that City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay (C-Bay) Total Maximum Daily Load (TMDL) will be imposed through the City's next Municipal Separate Storm Sewer System (MS4) Permit. DCR has issued new stormwater regulations that apply to all Virginia jurisdictions in the Chesapeake Bay watershed. Accordingly, the proposed permit - with a planned effective date of July 1, 2013 - will require the City to implement practices sufficient to achieve 5% of the reduction targets during first 5-year permit and 40% of reduction targets by the end of 10 years.

In the fall of 2012, the City completed the Chesapeake Bay TMDL Compliance Analysis and Options (Analysis) recommends that treating stormwater can be treated through multiple strategies. In addition to regional facilities, stormwater quality retrofits of City facilities and ROW will also be required to meet the reductions. The budgetary estimates were developed in working with engineers from the respective firms conducting the Chesapeake Bay TMDL Compliance Analysis and Options and the Feasibility Study.

The funding request for FY 2014 – 2015 of \$1.6 million does not completely satisfy the funding needs for compliance with the upcoming permit cycle (FY 2014 – 2018). This request funds only immediate planning and feasibility studies to determine the type and mix of technologies and locations of capital improvements. This analysis will allow determination of more accurate future funding requirements for FY 2016 – 2023, and will become the basis for future requests.

For the City to stay in compliance with its MS4 (Municipal Separate Storm System) permit, the City must improve stormwater management and water quality of discharges from its storm sewer system.

(Continued on next page)

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff
 - IO: Increase public awareness of Eco-City Alexandria
 - IO: Reduce pollutants discharged to residences and businesses within the City

Goal 5 – Financial Sustainability

- LTO: Maintain the value of the City's physical assets

External or Internal Adopted Plan or Recommendation

- Consistent with the Eco-City Charter and Eco-City Action Plan 2030, adopted by City Council June 2008 and June 2009 respectively
- T&ES Strategic Plan: Key Result Area – Meet or exceed state and federal requirements of the City's MS4 and combined sewer permits

Details of Changes from Prior Year Approved Plan

This is a new project in the FY 2014 – 2023 Capital Improvement Program.

Additional Operating Budget Impact

Additional operating impacts for the maintenance of the retrofit facilities that will be constructed are undetermined at this time, as a construction schedule is yet to be determined.

Project Description and Justification (Continued)

This is primarily because of new regulatory requirements of C-Bay TMDLs for nutrients and sediments, bacteria TMDLs for Hunting Creek, and Four Mile Run. Total cost of compliance and mitigation for FY 2014 – 2023 may range as high as \$50 million and depends on the type and mix of technologies implemented. The cost of compliance beyond 2023 (i.e. FY 2023 – 2033) may be an additional \$100 million.

Storm Sewer System Spot Improvements

Document Subsection: Stormwater Management
 Managing Department: Transportation & Environmental Services
 Supporting Department(s): N/A
 OCA: 250076

Project Location: Citywide
 Reporting Area: Citywide
 Project Category: 1 – Asset Maintenance
 Estimated Useful Life: Varies

Storm Sewer System Spot Improvements													
	A	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	<i>Allocated Balance (02/13)</i>	<i>Unallocated (02/13)</i>	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2014-2023
Expenditure Budget	1,459	2,864,113	0	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	2,700,000
Financing Plan													
Prior City Funding	1,459	2,864,113	0	0	0	0	0	0	0	0	0	0	0
General Obligation Bonds	0	0	0	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	2,700,000
Total Financing Plan	1,459	2,864,113	0	300,000	2,700,000								
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
<small>Basis of Project Cost Estimation: Cost estimate is based on historical costs of similar projects.</small>													

Project Description & Justification

This project provides funding for essential capital infrastructure improvements on the City's storm sewer system. These projects are identified as reconstruction projects due to deterioration or need additional capacity to reduce flooding.

The current allocated and unallocated project balance of \$2.9 million will be utilized for projects listed on the next page.

Completion of this project will improve the City's storm sewer capital infrastructure, while mitigating the impacts of flooding. Regular capital infrastructure improvements can reduce the number of pipe collapses while reducing emergency repair costs caused by deferred maintenance.

Linking to the City's Strategic Plan

Goal 2 – Health & Environment

- LTO: Improve the natural quality of land within the City
 - IO: Improve ecological quality of green spaces to meet regional standards
 - IO: Reduce contaminants in water runoff

Goal 6 – Public Safety

- LTO: Decrease loss of property from disasters
 - IO: Decrease areas within the City that frequently flood

Goal 5 – Financial Sustainability

- LTO: Maintain the value of the City's physical assets
 - IO: Increase the maintenance investment relative to repair expenditures

External or Internal Adopted Plan or Recommendation

- N/A

Details of Changes from Prior Year Approved Plan

Funding in the amount of \$9.6 million from FY 2014 – 2022 in the prior year approved plan has been reduced to \$2.4 million over the same time period. Funding in the amount of \$300,000 is added for FY 2023.

Increased operating costs associated with regular cleaning and maintenance, and increased staffing required for MS4 / TMDL requirements has reduced the amount of funding available for capital projects. When current identified projects are completed, additional resources may need to be added to this project.

Additional Operating Budget Impact

An impact on the annual operating budget is not anticipated.

Current Storm Sewer Spot Improvement Projects

Project	Description	Status
Monroe Avenue / Nelson Avenue Alley Improvements	Alley re-grading and storm sewer improvements to alleviate flooding on adjacent properties in the vicinity of the Alexandria and Wayne Avenues	Currently under design; Construction tentatively scheduled for FY 2014
Bishop Lane Drainage Improvements	Installation of storm sewer improvements to alleviate ponding and drainage onto adjacent properties from the public right-of-way	Design complete; Construction spring or summer of calendar year 2013
North Henry Street / Montgomery Street	Drainage improvements (along with sanitary sewer separation) along North Henry and Montgomery Streets	Currently under design; Construction tentatively scheduled for FY 2015
North Rosser Street / Calhoun Avenue / Colfax Avenue / Dawes Avenue Drainage System	Storm sewer evaluation and possible improvements including extension of existing storm sewers in roadside ditches to alleviate nuisance flooding and ponding water.	Currently under design; Construction tentatively scheduled for FY 2014
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.	Currently under design; Construction tentatively scheduled for FY 2014
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.	Currently under design; Construction tentatively scheduled for FY 2014
Route 1 Transitway Stormwater Collection System	Stormwater improvements along the Route 1 Transitway corridor, specifically the new construction of the Bus Rapid Transit (BRT) lanes	Currently under design; Construction tentatively scheduled for FY 2014