

# SANITARY SEWERS

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## Sanitary Sewers Proposed FY 2015 – 2024 Capital Improvement Program Summary of Projects

CIP Section/Subsection/Project	Unallocated (2/14)	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 15-24 TOTAL
<b>Sanitary Sewers</b>												
King & West Combined Sewer Diversion Structure	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Holmes Run Trunk Sewer	\$5,637,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Four Mile Run Sanitary Sewer Repair	\$1,830,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Combined Sewer Overflow 001 Planning	\$0	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$500,000
Wet Weather Management Facility	\$0	\$2,250,000	\$2,250,000	\$0	\$8,750,000	\$9,000,000	\$0	\$0	\$0	\$0	\$0	\$22,250,000
Combined Sewer System (CSS) Permit Compliance	\$1,490,690	\$0	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$2,700,000
Reconstructions & Extensions of Sanitary Sewers	\$2,095,918	\$0	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$8,100,000
Combined Sewer Separation Projects	\$1,300,000	\$0	\$200,000	\$200,000	\$600,000	\$200,000	\$200,000	\$600,000	\$200,000	\$200,000	\$600,000	\$3,000,000
Citywide 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
Sewer Assessment & Rehabilitation	\$450,000	\$0	\$0	\$0	\$0	\$3,700,000	\$2,550,000	\$2,550,000	\$0	\$0	\$0	\$8,800,000
AlexRenew Wastewater Treatment Plant Capacity	\$500,000	\$0	\$0	\$0	\$0	\$0	\$11,070,000	\$11,400,000	\$11,750,000	\$0	\$0	\$34,220,000
<b>Sanitary Sewers Total</b>	<b>\$22,623,608</b>	<b>\$2,750,000</b>	<b>\$6,650,000</b>	<b>\$3,775,000</b>	<b>\$13,625,000</b>	<b>\$16,950,000</b>	<b>\$19,020,000</b>	<b>\$15,750,000</b>	<b>\$13,150,000</b>	<b>\$1,400,000</b>	<b>\$1,800,000</b>	<b>\$94,870,000</b>

### Sanitary Sewers Ten-Year Plan Proposed FY 2015 – 2024 Capital, Operating and Debt Service

Sanitary Sewer Rate	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total
Sanitary Sewer Rate (\$ per 1,000 gallons)	\$1.25	\$1.25	\$1.50	\$1.74	\$2.02	\$2.02	\$2.32	\$2.67	\$2.67	\$2.67	\$2.67
Proposed Rate Increase	0.0%	20.0%	16.0%	16.0%	0.0%	15.0%	15.0%	0.0%	0.0%	0.0%	0.0%
New Sanitary Sewer Rate	\$1.25	\$1.50	\$1.74	\$2.02	\$2.02	\$2.32	\$2.67	\$2.67	\$2.67	\$2.67	\$2.67
<b>Revenues</b>											
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total
Sewer Line Maintenance Fee	6,100,000	7,374,900	8,619,046	10,073,079	10,148,627	11,758,453	13,623,637	13,725,814	13,828,758	13,932,474	109,184,787
Sewer Connection Fee	1,603,945	1,652,063	1,701,625	1,752,674	1,985,780	2,249,888	2,549,124	2,888,157	3,005,828	3,128,581	22,517,665
New Debt Issuance	2,425,000	6,600,000	3,575,000	13,115,000	14,445,000	16,070,000	12,520,000	13,150,000	700,000	1,800,000	84,400,000
Reprogrammed Prior Year Funding	500,000	0	0	0	0	0	0	0	0	0	500,000
Fund Balance Carryover	291,000	34,449	167,286	1,023,698	2,099,057	1,944,268	816,561	216,002	773,789	409,833	
<b>Total Revenues</b>	<b>10,919,945</b>	<b>15,661,412</b>	<b>14,062,957</b>	<b>25,964,450</b>	<b>28,678,463</b>	<b>32,022,609</b>	<b>29,509,322</b>	<b>29,979,974</b>	<b>18,308,375</b>	<b>19,270,888</b>	<b>216,602,452</b>
	175,000										
All Operating	5,232,100	5,472,313	5,633,482	5,799,487	5,970,471	6,455,586	6,646,253	6,842,641	7,044,920	7,253,267	62,350,521
All Capital Projects	3,100,000	6,900,000	3,775,000	13,625,000	15,100,000	17,745,000	14,475,000	13,150,000	1,400,000	1,800,000	91,070,000
All Debt Service	2,553,396	3,121,813	3,630,777	4,440,907	5,663,724	7,005,462	8,172,066	9,213,544	9,453,622	9,282,113	62,537,424
<b>Total Expenditures</b>	<b>10,885,496</b>	<b>15,494,126</b>	<b>13,039,259</b>	<b>23,865,394</b>	<b>26,734,195</b>	<b>31,206,048</b>	<b>29,293,319</b>	<b>29,206,185</b>	<b>17,898,542</b>	<b>18,335,380</b>	<b>215,957,945</b>
<b>Operating Costs</b>											
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total
Current Personnel (T&ES)	2,267,820	2,335,855	2,405,930	2,478,108	2,552,451	2,629,025	2,707,896	2,789,133	2,872,807	2,958,991	25,998,015
Additional Personnel(T&ES)	131,957	135,916	139,993	144,193	148,519	152,974	157,564	162,290	167,159	172,174	1,512,739
DPI Personnel Charges	541,987	558,247	574,994	592,244	610,011	628,311	647,161	666,576	686,573	707,170	6,213,274
T&ES Workers Compensation	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,000,000
Indirect Costs (Tr to G.F.)	240,178	247,383	254,805	262,449	270,322	278,432	286,785	295,389	304,250	313,378	2,753,372
Sewer Jet Cleaning	242,500	249,775	257,268	264,986	272,936	281,124	289,558	298,244	307,192	316,407	2,779,991
Corrective Maintenance	100,000	103,000	106,090	109,273	112,551	115,927	119,405	122,987	126,677	130,477	1,146,388
Other Non-Personnel (Training, Utilities, Rentals, etc.)	137,226	141,343	145,583	149,951	154,449	159,083	163,855	168,771	173,834	179,049	1,573,142
Equipment Replacement	115,432	118,895	122,462	126,136	129,920	133,817	137,832	141,967	146,226	150,613	1,323,299
Sanitary Sewer Capacity Study - Flow Metering and Sewer Modeling	625,000	730,000	751,900	774,457	797,691	821,621	846,270	871,658	897,808	924,742	8,041,147
Sewer Billing	80,000	82,400	84,872	87,418	90,041	92,742	95,524	98,390	101,342	104,382	917,110
Annual CCTV of Sewers	400,000	412,000	424,360	437,091	450,204	463,710	477,621	491,950	506,708	521,909	4,585,552
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
Wet Weather Management Facility Operating	0	0	0	0	0	309,000	318,270	327,818	337,653	347,782	1,640,523
<b>Subtotal, Operating Costs</b>	<b>5,232,100</b>	<b>5,472,313</b>	<b>5,633,482</b>	<b>5,799,487</b>	<b>5,970,471</b>	<b>6,455,586</b>	<b>6,646,253</b>	<b>6,842,641</b>	<b>7,044,920</b>	<b>7,253,267</b>	<b>62,350,521</b>

### Sanitary Sewers FY 2015 – 2024 – Capital, Operating and Debt Service (continued)

<b>Capital Projects</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Total</b>
Green Infrastructure	350,000	250,000	0	0	0	0	0	0	0	0	<b>600,000</b>
Reconstruction and Extension of Sanitary Sewers	0	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	<b>8,100,000</b>
Wet Weather Management Facility	2,250,000	2,250,000	0	8,750,000	9,000,000	0	0	0	0	0	<b>22,250,000</b>
Sewer Separation Projects	0	200,000	200,000	600,000	200,000	200,000	600,000	200,000	200,000	600,000	<b>3,000,000</b>
Combined Sewer Overflow Planning	500,000	0	0	0	0	0	0	0	0	0	<b>500,000</b>
Combined Sewer Permit Compliance	0	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	<b>2,700,000</b>
Sanitary Sewer Rehab and I&I Red.	0	3,000,000	2,375,000	3,075,000	2,850,000	4,000,000	0	0	0	0	<b>15,300,000</b>
Combined Sewer Assessment and Rehab	0	0	0	0	1,850,000	1,275,000	1,275,000	0	0	0	<b>4,400,000</b>
AlexRenew WWTP Expansion	0	0	0	0	0	11,070,000	11,400,000	11,750,000	0	0	<b>34,220,000</b>
Four Mile Run Sanitary Sewer Repair	0	0	0	0	0	0	0	0	0	0	<b>0</b>
King/West Diversion Chamber	0	0	0	0	0	0	0	0	0	0	<b>0</b>
Holmes Run Trunk Sewer	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<i>Subtotal, Capital Projects</i>	<i>3,100,000</i>	<i>6,900,000</i>	<i>3,775,000</i>	<i>13,625,000</i>	<i>15,100,000</i>	<i>17,745,000</i>	<i>14,475,000</i>	<i>13,150,000</i>	<i>1,400,000</i>	<i>1,800,000</i>	<i>91,070,000</i>
<b>Debt Service</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Total</b>
<i>Debt Service Payments</i>	<i>2,553,396</i>	<i>3,121,813</i>	<i>3,630,777</i>	<i>4,440,907</i>	<i>5,663,724</i>	<i>7,005,462</i>	<i>8,172,066</i>	<i>9,213,544</i>	<i>9,453,622</i>	<i>9,282,113</i>	<i>62,537,424</i>
<b>Total, All Categories</b>	<b>10,885,496</b>	<b>15,494,126</b>	<b>13,039,259</b>	<b>23,865,394</b>	<b>26,734,195</b>	<b>31,206,048</b>	<b>29,293,319</b>	<b>29,206,185</b>	<b>17,898,542</b>	<b>18,335,380</b>	<b>215,957,945</b>

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## King and West Combined Sewer Diversion Structure

Document Subsection: Sanitary Sewers  
 Managing Department: Dept. of Project Implementation  
 Supporting Department(s): Transportation & Environmental Services  
 ORG: 53411866

Project Location: 100 Block of N. West St.  
 Reporting Area: Old Town  
 Project Category: 2 – Renovations/Existing Assets  
 Estimated Useful Life: 40 years

King and West Combined Sewer Diversion Structure													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Through FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	1,515,000	1,515,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
Sanitary Sewer Fees	1,515,000	1,515,000	0	0	0	0	0	0	0	0	0	0	0
Total Financing Plan	1,515,000	1,515,000	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

Changes from Prior Year CIP: No changes from prior year CIP. Project was not included in last year's CIP as additional funding was not required; however, as it is about to be under construction, it will be in the CIP until the project is completed.

### Project Description & Justification

The new diversion chamber will replace the existing diversion chamber which transmits low flow sewage to the Alex Renew wastewater treatment facility. The primary goal of the project is to provide better accessibility to T&ES operations staff to enable maintenance and observation with greater efficiency. The secondary goal of the new diversion structure is to allow for maximum CSO diversion capture and conveyance, without causing backups or surcharging the system during wet weather events.

This project has been incorporated into the City's combined sewer system (CSS) permit issued by the Virginia Department of Environmental Quality (VDEQ) in August 2013 and must be completed no later than February 2016. Design is complete and construction will begin in FY 2014.

City's Strategic Plan & City Manager's Performance Plan
<p><b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b></p> <p><b>Focus Area: Livable, Green, and Prospering City</b></p> <ul style="list-style-type: none"> <li>• Improve the health of City waterways</li> <li>• Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> </ul> <p><b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b></p> <ul style="list-style-type: none"> <li>• Ensure government is accountable to the community</li> </ul>
External or Internal Adopted Plan or Recommendation
<ul style="list-style-type: none"> <li>• Consistent with the Eco-City Charter and Eco-City Action Plan 2030, adopted by City Council June 2008 and June 2009 respectively</li> <li>• T&amp;ES Strategic Plan: Key Result Area – Meet or exceed state and federal requirements of the City's MS4 and combined sewer permits</li> <li>• 2013 Sanitary Sewer Master Plan</li> </ul>

Additional Operating Budget Impact
An additional impact to the operating budget is not anticipated.

## Holmes Run Trunk Sewer

Document Subsection: Sanitary Sewers  
 Managing Department: Transportation & Environmental Services

Project Location: AlexRenew Plant to the City/Fairfax Border  
 Reporting Area: Landmark/Van Dorn, Seminary Hill/Strawberry Hill  
 Taylor Run, Eisenhower Ave, Eisenhower East

Supporting Department(s): N/A  
 ORG: 53411869

Project Category: 3 – New Facilities  
 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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	9,002,000	9,002,000	0	0	0	0	0	0	0	0	0	0	0
Financing Plan													
Prior Year City Funding	500,000	500,000	0	0	0	0	0	0	0	0	0	0	0
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	4,302,000	4,302,000	0	0	0	0	0	0	0	0	0	0	0
<b>Total Financing Plan</b>	<b>9,002,000</b>	<b>9,002,000</b>	<b>0</b>										
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
Changes from Prior Year CIP: No changes from prior year CIP.													

### 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.

### City's Strategic Plan & City Manager's Performance Plan

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

#### Focus Area: Livable, Green, and Prospering City

- Improve the health of City waterways
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure
- Increase the value of the real estate tax base
- Ensure Alexandria supports, retains, and attracts businesses

#### Focus Area: Accountable, Effective, & Well-Managed Government

- Ensure government is accountable to the community
- Ensure the fiscal strength of the City government

#### External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

### Additional Operating Budget Impact

An additional impact to the operating budget is not anticipated.

## Four Mile Run Sanitary Sewer Repair

Document Subsection: Sanitary Sewers  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): Dept. of Project Implementation  
 ORG: 53411873

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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	2,300,000	2,300,000	0	0	0	0	0	0	0	0	0	0	0
<b>Financing Plan</b>													
General Obligation Bonds - Sanitary Sewer	800,000	800,000	0	0	0	0	0	0	0	0	0	0	0
Sanitary Sewer Fees	1,500,000	1,500,000	0	0	0	0	0	0	0	0	0	0	0
<b>Total Financing Plan</b>	<b>2,300,000</b>	<b>2,300,000</b>	<b>0</b>										
<b>Add. Operating Impact</b>													
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
Changes from Prior Year CIP: No changes from prior year CIP.													

### 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 2015.

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.

### City's Strategic Plan & City Manager's Performance Plan

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

**Focus Area: Livable, Green, and Prospering City**

- Improve the health of City waterways
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

**Focus Area: Accountable, Effective, & Well-Managed Government**

- Ensure government is accountable to the community

### External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

### Additional Operating Budget Impact

An additional impact to the operating budget is not anticipated.

## Combined Sewer Overflow 001 Planning

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

Combined 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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	500,000	0	500,000	0	0	0	0	0	0	0	0	0	500,000
Financing Plan													
Sanitary Sewer Fees	0	0	500,000	0	0	0	0	0	0	0	0	0	500,000
Total Financing Plan	500,000	0	500,000	0	0	0	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

Changes from Prior Year CIP: Planned funding accelerated from FY 2017 to FY 2015 based on planning needed in North Old Town area.

### 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 Planning project will provide for feasibility planning at CSO 001 (Pendleton Street) with the goal of reducing CSO discharges from 30-40 events per year to about four per year at each outfall through storage of CSOs. \$500,000 is budgeted for feasibility planning in FY 2015, with design and construction TBD based on future permit requirements.

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. Planning for CSO 001 will insure coordination with any redevelopment of the Robinson Terminal North site.

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**City's Strategic Plan & City Manager's Performance Plan**

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

**Focus Area: Livable, Green, and Prospering City**

- Improve the health of City waterways
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure
- Sustain the natural quality of land within the City

**Focus Area: Accountable, Effective, & Well-Managed Government**

- Ensure government is accountable to the community

**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

**Additional Operating Budget Impact**

An additional impact to the operating budget is not anticipated.

**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.

## Wet Weather Management Facility

Document Subsection: Sanitary Sewers  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): N/A  
 ORG: 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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	22,250,000	0	2,250,000	2,250,000	0	8,750,000	9,000,000	0	0	0	0	0	22,250,000
<b>Financing Plan</b>													
General Obligation Bonds - Sanitary Sewer	21,850,000	0	2,100,000	2,000,000	0	8,750,000	9,000,000	0	0	0	0	0	21,850,000
Sanitary Sewer Fees	400,000	0	150,000	250,000	0	0	0	0	0	0	0	0	400,000
<b>Total Financing Plan</b>	22,250,000	0	2,250,000	2,250,000	0	8,750,000	9,000,000	0	0	0	0	0	22,250,000
<b>Add. Operating Impact</b>													
Annual Impact			0	0	0	0	0	309,000	318,270	327,818	337,653	347,782	1,640,523
Cumulative Impact			0	0	0	0	0	309,000	627,270	955,088	1,292,741	1,640,523	1,640,523
Changes from Prior Year CIP: No changes to total project cost or project timing. \$4.5 million for planning/design/engineering budget over FY 2015 - 2016 based on projected cash flow needs.													

### 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 \$33.6 million (2012 dollars), and it is anticipated that the costs for this facility would be shared equally between Fairfax County and the City. In addition, the funding includes \$5.45 million to extend 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.

City's Strategic Plan & City Manager's Performance Plan
<b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b>
<b>Focus Area: Livable, Green, and Prospering City</b> <ul style="list-style-type: none"> <li>Improve the health of City waterways</li> <li>Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> <li>Sustain the natural quality of land within the City</li> </ul>
<b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b> <ul style="list-style-type: none"> <li>Ensure government is accountable to the community</li> </ul>
External or Internal Adopted Plan or Recommendation
<ul style="list-style-type: none"> <li>2013 Sanitary Sewer Master Plan</li> </ul>

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.

## Combined Sewer System (CSS) Permit Compliance

Document Subsection: Sanitary Sewers  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): N/A  
 ORG: 53411875

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 (02/14)</i>	<i>Unallocated (02/14)</i>	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	120,610	1,490,690	0	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	2,700,000
<b>Financing Plan</b>													
General Obligation Bonds - Sanitary Sewer	0	0	0	300,000	100,000	300,000	300,000	300,000	120,000	300,000	300,000	300,000	2,320,000
Sanitary Sewer Fees	1,637,233	1,490,690	0	0	200,000	0	0	0	180,000	0	0	0	380,000
<b>Total Financing Plan</b>	1,637,233	1,490,690	0	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	2,700,000
<b>Add. Operating Impact</b>													
Annual Impact			0	TBD									
Cumulative Impact			0	TBD									
Changes from Prior Year CIP: Planned funding in FY 2015 reduced from \$300,000 to \$0 based on available project balances; no other changes from FY 2016 - 2023. Added funding for FY 2024.													

### 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 received a new permit in August 2013 which requires the City to develop a Long-Term Control Plan (LTCP) update that complies with the TMDL requirements, and to implement the plan no later than 2035.

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.

*(Continued on next page)*

City's Strategic Plan & City Manager's Performance Plan
<b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b>
<p><b>Focus Area: Livable, Green, and Prospering City</b></p> <ul style="list-style-type: none"> <li>Improve the health of City waterways</li> <li>Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> <li>Sustain the natural quality of land within the City</li> </ul>
<p><b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b></p> <ul style="list-style-type: none"> <li>Ensure government is accountable to the community</li> <li>Ensure the fiscal strength of the City government</li> </ul>
<b>External or Internal Adopted Plan or Recommendation</b>
<ul style="list-style-type: none"> <li>Consistent with the Eco-City Charter and Eco-City Action Plan 2030, adopted by City Council June 2008 and June 2009 respectively</li> <li>T&amp;ES Strategic Plan: Key Result Area – Meet or exceed state and federal requirements of the City's MS4 and combined sewer permits</li> <li>2013 Sanitary Sewer Master Plan</li> </ul>

Additional Operating Budget Impact
Unknown at this time. Additional operating impacts will be identified as new infrastructure is installed.

**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): Dept. of Project Implementation  
 ORG: 53411872

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 (02/14)</i>	<i>Unallocated (02/14)</i>	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	282,112	2,095,918	0	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	8,100,000
<b>Financing Plan</b>													
General Obligation Bonds - Sanitary Sewer	0	0	0	900,000	900,000	540,000	900,000	900,000	400,000	900,000	375,000	900,000	6,715,000
Sanitary Sewer Fees	282,112	2,095,918	0	0	0	360,000	0	0	500,000	0	525,000	0	1,385,000
<b>Total Financing Plan</b>	<b>282,112</b>	<b>2,095,918</b>	<b>0</b>	<b>900,000</b>	<b>8,100,000</b>								
<b>Add. Operating Impact</b>													
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
<b>Changes from Prior Year CIP:</b> Planned funding in FY 2015 reduced from \$900,000 to \$0 based on available project balances; no other changes from FY 2016 - 2023. Added funding for FY 2024.													

**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 \$2.37 million along with annual funding of \$900,000 beginning in FY 2016 will be utilized to fund multiple projects in this request. Several projects are in early planning stages, 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 2015 include:

- North Alfred and Pendleton Streets manhole additions
- Beaugard Street Sanitary Sewer Rehabilitation (included with King & Beaugard street intersection improvement project)
- West Uhler Sewer Construction
- Groves Sewer Replacement
- Hooff's Run (Chapman to Maple Steets) Sewer Lining
- Sewer lining projects in to be identified areas
- 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.

City's Strategic Plan & City Manager's Performance Plan
<b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b>
<b>Focus Area: Livable, Green, and Prospering City</b>
<ul style="list-style-type: none"> <li>• Improve the health of City waterways</li> <li>• Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> <li>• Sustain the natural quality of land within the City</li> </ul>
<b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b>
<ul style="list-style-type: none"> <li>• Ensure government is accountable to the community</li> </ul>
External or Internal Adopted Plan or Recommendation
<ul style="list-style-type: none"> <li>• 2013 Sanitary Sewer Master Plan</li> </ul>

Additional Operating Budget Impact
An additional impact to the operating budget is not anticipated.

## Combined Sewer Separation Projects

Document Subsection: Sanitary Sewers  
 Managing Department: Transportation & Environmental Services

Project Location: Old Town CSO Area  
 Reporting Area: Old Town, Old Town North,  
 Braddock Road Metro

Supporting Department(s): Dept. of Project Implementation  
 ORG: 53411876

Project Category: 3 – New Facilities  
 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 (02/14)</i>	<i>Unallocated (02/14)</i>	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	1,437,711	1,300,000	0	200,000	200,000	600,000	200,000	200,000	600,000	200,000	200,000	600,000	3,000,000
Financing Plan													
General Obligation Bonds - Sanitary Sewer	0	0	0	200,000	200,000	600,000	200,000	200,000	600,000	200,000	25,000	600,000	2,825,000
Sanitary Sewer Fees	1,437,711	1,300,000	0	0	0	0	0	0	0	0	175,000	0	175,000
<b>Total Financing Plan</b>	<b>1,437,711</b>	<b>1,300,000</b>	<b>0</b>	<b>200,000</b>	<b>200,000</b>	<b>600,000</b>	<b>200,000</b>	<b>200,000</b>	<b>600,000</b>	<b>200,000</b>	<b>200,000</b>	<b>600,000</b>	<b>3,000,000</b>
Add. Operating Impact													
Annual Impact													0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Changes from Prior Year CIP: Planned funding in FY 2015 reduced from \$600,000 to \$0 based on available project balances; no other changes from FY 2016 - 2023. Added funding for FY 2024.													

### 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 to collect survey data, confirm sewer connectivity, and to provide sewer separation recommendations and planning level design and construction costs.

The Payne Street and Fayette Street separation project is currently in the design phase and construction is anticipated in fall 2014. This project will meet one of the requirements of the City's Combined Sewer System permit that requires the separation of at least 60 sanitary laterals from the Combined Sewer System.

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.

*(Continued on next page)*

**City's Strategic Plan & City Manager's Performance Plan**

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

**Focus Area: Livable, Green, and Prospering City**

- Improve the health of City waterways
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure
- Sustain the natural quality of land within the City

**Focus Area: Accountable, Effective, & Well-Managed Government**

- Ensure government is accountable to the community
- Ensure the fiscal strength of the City government

**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

**Additional Operating Budget Impact**

An additional impact to the operating budget is not anticipated.

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*Combined Sewer Separation Projects (Continued)***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.

## Citywide Sewershed Infiltration and Inflow

Document Subsection: Sanitary Sewers  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): Dept. of Project Implementation  
 ORG: 53411864

Project Location: Citywide  
 Reporting Area: Citywide  
 Project Category: 2 – Renovations/Existing Assets  
 Estimated Useful Life: 40 years

Citywide 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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
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
<b>Total Financing Plan</b>	<b>35,161,440</b>	<b>19,861,440</b>	<b>0</b>	<b>3,000,000</b>	<b>2,375,000</b>	<b>3,075,000</b>	<b>2,850,000</b>	<b>4,000,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15,300,000</b>
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
Changes from Prior Year CIP: Planned funding in FY 2015 shifted to FY 2016 based on estimated cash flow needs; no changes to total funding amount.													

### Project Description & Justification

This CIP program provides for evaluation, remediation and rehabilitation of infiltration/inflow and deficient conditions for the sanitary sewer system across the entire city. In the Holmes Run sewershed, which impacts the Alexandria West, Landmark/Van Dorn and Seminary Hill/Strawberry Hill reporting areas, the on-going programs will continue. In addition, this program will be phased into broader infrastructure issues across the entire sanitary sewer system to ensure dependable service into the future.

Much of the sanitary sewer system located in these areas is aging and deteriorated, and requires maintenance. During wet weather, infiltration and inflow into the sanitary sewers can result in over-capacity conditions that cause overflows into the environment or customers' basements.

During FY 2015, the Pegram & Strawberry sewersheds are scheduled for reconstruction. Manhole repairs are scheduled throughout the Holmes Run sewershed.

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.

### City's Strategic Plan & City Manager's Performance Plan

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

#### Focus Area: Livable, Green, and Prospering City

- Improve the health of City waterways
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure
- Sustain the natural quality of land within the City

#### Focus Area: Accountable, Effective, & Well-Managed Government

- Ensure government is accountable to the community
- Ensure the fiscal strength of the City government

### External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

### Additional Operating Budget Impact

An additional impact to the operating budget is not anticipated.

## Sewer Assessment and Rehabilitation

Document Subsection: Sanitary Sewers  
 Managing Department: Transportation & Environmental Services

Project Location: Old Town CSO area  
 Reporting Area: Old Town, Old Town North,  
 Braddock Road Metro

Supporting Department(s): N/A  
 ORG: TBD

Project Category: 2 – Renovations/Existing Assets  
 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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	8,800,000	0	0	0	0	0	3,700,000	2,550,000	2,550,000	0	0	0	8,800,000
<b>Financing Plan</b>													
General Obligation Bonds	4,400,000	0	0	0	0	0	1,850,000	1,275,000	1,275,000	0	0	0	4,400,000
General Obligation Bonds - Sanitary Sewer	1,480,000	0	0	0	0	0	1,480,000	0	0	0	0	0	1,480,000
Sanitary Sewer Fees	2,920,000	0	0	0	0	0	370,000	1,275,000	1,275,000	0	0	0	2,920,000
<b>Total Financing Plan</b>	8,800,000	0	0	0	0	0	3,700,000	2,550,000	2,550,000	0	0	0	8,800,000
<b>Add. Operating Impact</b>													
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
Changes from Prior Year CIP: No changes from prior year CIP.													

### 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 City funds.

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.

City's Strategic Plan & City Manager's Performance Plan
<b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b>
<b>Focus Area: Livable, Green, and Prospering City</b>
<ul style="list-style-type: none"> <li>• Improve the health of City waterways</li> <li>• Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> <li>• Sustain the natural quality of land within the City</li> </ul>
<b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b>
<ul style="list-style-type: none"> <li>• Ensure government is accountable to the community</li> </ul>
<b>External or Internal Adopted Plan or Recommendation</b>
<ul style="list-style-type: none"> <li>• 2013 Sanitary Sewer Master Plan</li> </ul>

Additional Operating Budget Impact
An additional impact to the operating budget is not anticipated.

## AlexRenew Wastewater Treatment Plant Capacity

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

Project Location: 1500 Eisenhower Ave.  
 Reporting Area: Southwest Quadrant  
 Project Category: 3 – New Facilities  
 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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	34,220,000	0	0	0	0	0	0	11,070,000	11,400,000	11,750,000	0	0	34,220,000
Financing Plan													
General Obligation Bonds - Sanitary Sewer	34,220,000	0	0	0	0	0	0	11,070,000	11,400,000	11,750,000	0	0	34,220,000
Total Financing Plan	34,220,000	0	0	0	0	0	0	11,070,000	11,400,000	11,750,000	0	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

Changes from Prior Year CIP: Initial planning and design work was performed by City staff, so \$500,000 budgeted in FY 2014 will not be required for the project and is removed from prior year funding. The \$500,000 will be reprogrammed in FY 2015 for other sanitary sewer projects. No changes to planned funding in FY 2020 - 2022.

### 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 \$34.22 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.

### City's Strategic Plan & City Manager's Performance Plan

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

#### Focus Area: Livable, Green, and Prospering City

- Improve the health of City waterways
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure
- Increase the value of the real estate tax base
- Ensure Alexandria supports, retains, and attracts businesses

#### Focus Area: Accountable, Effective, & Well-Managed Government

- Ensure government is accountable to the community
- Ensure the fiscal strength of the City government

### External or Internal Adopted Plan or Recommendation

- 2013 Sanitary Sewer Master Plan

### Additional Operating Budget Impact

An additional impact to the operating budget is not anticipated.

# STORMWATER MANAGEMENT

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## Stormwater Management Proposed FY 2015 – 2024 Capital Improvement Program Summary of Projects

CIP Section/Subsection/Project	Unallocated (2/14)	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 15-24 TOTAL
<b>Stormwater Management</b>												
Ft. Ward Stormwater	\$460,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taylor Run at Janney's Lane	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
NPDES / MS4 Permit	\$34,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Four Mile Run Channel Maintenance	\$1,610,000	\$0	\$0	\$0	\$600,000	\$0	\$0	\$0	\$0	\$600,000	\$0	\$1,200,000
Storm Sewer Capacity Assessment	\$0	\$0	\$0	\$0	\$0	\$0	\$475,000	\$475,000	\$0	\$0	\$0	\$950,000
Green Infrastructure in CSO Areas	\$300,000	\$700,000	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,200,000
Stream & Channel Maintenance	\$618,750	\$550,000	\$1,200,000	\$1,200,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$6,100,000
MS4-TMDL Compliance Water Quality Imprv.	\$800,000	\$0	\$0	\$400,000	\$500,000	\$500,000	\$3,000,000	\$3,000,000	\$3,500,000	\$3,500,000	\$7,000,000	\$21,400,000
Storm Sewer System Spot Improvements	\$2,734,113	\$0	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$2,700,000
Lake Cook Stormwater Management	\$0	\$2,400,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,400,000
Cameron Station Pond Retrofit	\$0	\$0	\$0	\$500,000	\$1,500,000	\$1,500,000	\$0	\$0	\$0	\$0	\$0	\$3,500,000
City Facilities Stormwater Best Management Practices (BMPs)	\$0	\$0	\$400,000	\$1,100,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,500,000
<b>Stormwater Management Total</b>	<b>\$6,556,863</b>	<b>\$3,650,000</b>	<b>\$2,400,000</b>	<b>\$3,500,000</b>	<b>\$3,350,000</b>	<b>\$2,750,000</b>	<b>\$4,225,000</b>	<b>\$4,225,000</b>	<b>\$4,250,000</b>	<b>\$4,850,000</b>	<b>\$7,750,000</b>	<b>\$40,950,000</b>

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## Ft. Ward Stormwater

Document Subsection: Stormwater Management  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): Recreation, Parks & Cultural Activities, Historic Alexandria  
 ORG: 52412157

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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
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
Changes from Prior Year CIP: No changes from prior year CIP.													

### 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 ongoing OHA archaeological investigations and discoveries.

This project has been fully funded and will be active in FY 2015. The City expects completion of the stormwater master plan by spring 2014. The master plan will be the basis for design of the improvement which is expected to begin in FY 2015.

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

City's Strategic Plan & City Manager's Performance Plan
<b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b>
<p><b>Focus Area: Livable, Green, and Prospering City</b></p> <ul style="list-style-type: none"> <li>Improve the health of City waterways</li> <li>Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> </ul> <p><b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b></p> <ul style="list-style-type: none"> <li>Ensure government is accountable to the community</li> </ul>
<b>External or Internal Adopted Plan or Recommendation</b>
<ul style="list-style-type: none"> <li>Recommended by the Ad Hoc Fort Ward Park and Museum Area Stakeholder Advisory Group</li> <li>Budget Memorandum #46, April 8, 2011 (FY 2012)</li> </ul>

Additional Operating Budget Impact
An additional impact to the operating budget is not anticipated.

## Taylor Run at Janney's Lane

Document Subsection: Stormwater Management  
 Managing Department: Dept. of Project Implementation  
 Supporting Department(s): Transportation & Environmental Services  
 ORG: 52411857

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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
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
Changes from Prior Year CIP: No changes from prior year CIP.													

### Project Description & Justification

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

This project has been fully funded. The project design has been completed and is scheduled for completion in FY 2014. 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.

### City's Strategic Plan & City Manager's Performance Plan

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

**Focus Area: Livable, Green, and Prospering City**

- Improve the health of City waterways
- Sustain the natural quality of land within the City
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

**Focus Area: Accountable, Effective, & Well-Managed Government**

- Ensure government is accountable to the community

### External or Internal Adopted Plan or Recommendation

- N/A

### Additional Operating Budget Impact

An additional impact to the 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  
 ORG: 52411860

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

NPDES/Municipal Separate Storm Sewer System (MS4) Program													
	A	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	<i>Allocated Balance (02/14)</i>	<i>Unallocated (02/14)</i>	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	103,071	34,000	0										0
Financing Plan													
Prior Year City & Stormwater Funding	103,071	34,000	0	0	0	0	0	0	0	0	0	0	0
Total Financing Plan	103,071	34,000	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
Changes from Prior Year CIP: No changes from prior year CIP.													

### 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.

The City was originally issued General Permit VAR040057 on July 8, 2003, and the most recent permit was issued on July 1, 2013. The currently proposed five-year permit is scheduled to be effective through June 30, 2018. Each successive permit has contained more regulatory requirements which necessitates more resources the new 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.

City's Strategic Plan & City Manager's Performance Plan
<b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b>
<b>Focus Area: Livable, Green, and Prospering City</b> <ul style="list-style-type: none"> <li>Improve the health of City waterways</li> <li>Sustain the natural quality of land within the City</li> <li>Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> </ul>
<b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b> <ul style="list-style-type: none"> <li>Ensure government is accountable to the community</li> </ul>
External or Internal Adopted Plan or Recommendation
<ul style="list-style-type: none"> <li>Consistent with the Eco-City Charter and Eco-City Action Plan 2030, adopted by City Council June 2008 and June 2009 respectively</li> </ul>

Additional Operating Budget Impact
An additional impact to the operating budget is not anticipated.

## Four Mile Run Channel Maintenance

Document Subsection: Stormwater Management  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): N/A  
 ORG: 43411623

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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	3,293,000	2,093,000	0	0	0	600,000	0	0	0	0	600,000	0	1,200,000
Financing Plan													
General Obligation Bonds	1,810,000	1,810,000											0
Cash Capital	1,483,000	283,000	0	0	0	600,000	0	0	0	0	600,000	0	1,200,000
<b>Total Financing Plan</b>	<b>3,293,000</b>	<b>2,093,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>600,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>600,000</b>	<b>0</b>	<b>1,200,000</b>
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
Changes from Prior Year CIP: No changes from prior year CIP.													

### 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.

### City's Strategic Plan & City Manager's Performance Plan

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

**Focus Area: Livable, Green, and Prospering City**

- Improve the health of City waterways
- Sustain the natural quality of land within the City
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

**Focus Area: Accountable, Effective, & Well-Managed Government**

- Ensure government is accountable to the community

**Focus Area: Safe, Secure, & Just Community**

- Reduce harm to people or property from disasters

### External or Internal Adopted Plan or Recommendation

- N/A

### Additional Operating Budget Impact

An additional impact to the operating budget is not anticipated.

# Storm Sewer Capacity Assessment

Document Subsection: Stormwater Management  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): N/A  
 ORG: 52411851

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 (02/14)</i>	<i>Unallocated (02/14)</i>	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
<b>Expenditure Budget</b>	93,051	0	0	0	0	0	0	475,000	475,000	0	0	0	950,000
<b>Financing Plan</b>													
Prior City Funding	93,051	0	0	0	0	0	0	0	0	0	0	0	0
Cash Capital	0	0	0	0	0	0	0	475,000	475,000	0	0	0	950,000
Stormwater Management Tax	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Financing Plan</b>	93,051	0	0	0	0	0	0	475,000	475,000	0	0	0	950,000
<b>Add. Operating Impact</b>													
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
Changes from Prior Year CIP: No changes in out-year cost estimates. Last year's CIP included \$950,000 in FY 2020. Plan has been adjusted to provide \$475,000 in both FY 2020 and FY 2021.													

### 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 2014, 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. In addition, identification of problem areas and their prioritizing on the bases of the findings has been completed. 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.

City's Strategic Plan & City Manager's Performance Plan
<b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b>
<b>Focus Area: Livable, Green, and Prospering City</b> <ul style="list-style-type: none"> <li>Improve the health of City waterways</li> <li>Sustain the natural quality of land within the City</li> <li>Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> </ul>
<b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b> <ul style="list-style-type: none"> <li>Ensure government is accountable to the community</li> </ul>
External or Internal Adopted Plan or Recommendation
<ul style="list-style-type: none"> <li>N/A</li> </ul>

Additional Operating Budget Impact
An additional impact to the 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  
 ORG: TBD

Project Location: Citywide  
 Reporting Area: Old Town, Old Town North,  
 Braddock Road Metro  
 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 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
<b>Expenditure Budget</b>	1,500,000	300,000	700,000	500,000	0	0	0	0	0	0	0	0	1,200,000
<b>Financing Plan</b>													
General Obligation Bonds	750,000	150,000	350,000	250,000	0	0	0	0	0	0	0	0	600,000
General Obligation Bonds - Sanitary Sewer	645,000	120,000	325,000	200,000	0	0	0	0	0	0	0	0	525,000
Sanitary Sewer Fees	105,000	30,000	25,000	50,000	0	0	0	0	0	0	0	0	75,000
<b>Total Financing Plan</b>	1,230,000	30,000	700,000	500,000	0	0	0	0	0	0	0	0	1,200,000
<b>Add. Operating Impact</b>													
Annual Impact			0	0	750	1,523	1,569	1,616	1,664	1,714	1,766	1,819	12,420
Cumulative Impact			0	0	750	2,273	3,842	5,457	7,122	8,836	10,601	12,420	12,420
Changes from Prior Year CIP: No changes from prior year CIP.													

### 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's renewed permit of CSS requires a reduction of five million gallons of stormwater over the next five years. This project will provide infrastructure to help the City comply with this requirement.

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, 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, several capital projects that include Green Infrastructure, and select separation projects. The City will also need to continue extensive monitoring, sampling, inspections, and reporting.

**City's Strategic Plan & City Manager's Performance Plan**

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

**Focus Area: Livable, Green, and Prospering City**

- Improve the health of City waterways
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

**Focus Area: Accountable, Effective, & Well-Managed Government**

- Ensure government is accountable to the community

**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.
- Consistent with Eco-City Charter (Water Resources) and with Eco-City Action Plan, Chapter 4, Goal 4
- 2013 Sanitary Sewer Master Plan

**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.

## Stream and Channel Maintenance

Document Subsection: Stormwater Management  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): Dept. of Project Implementation  
 ORG: 43411609

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 (02/14)</i>	<i>Unallocated (02/14)</i>	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
<b>Expenditure Budget</b>	1,361,792	618,750	550,000	1,200,000	1,200,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	6,100,000
<b>Financing Plan</b>													
Prior Year City & Stormwater Funding	1,361,792	0	0	0	0	0	0	0	0	0	0	0	0
Cash Capital	0	18,750	275,000	600,000	600,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	3,050,000
General Obligation Bonds	0	0	275,000	600,000	600,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	3,050,000
Environmental Restoration Funds	0	600,000	0	0	0	0	0	0	0	0	0	0	0
<b>Total Financing Plan</b>	1,361,792	618,750	550,000	1,200,000	1,200,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	6,100,000
<b>Add. Operating Impact</b>													
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
<b>Changes from Prior Year CIP:</b> Total project reduced from \$7.55 million in last year's plan to \$6.1 million based on current projects underway and projected costs of future projects.													

### 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 \$1.98 million will be combined with requested FY 2014 funding of \$2.15 million to mitigate damages caused by Tropical Storm Lee. Projects scheduled for construction in FY 2015 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.

City's Strategic Plan & City Manager's Performance Plan
<b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b>
<b>Focus Area: Livable, Green, and Prospering City</b>
<ul style="list-style-type: none"> <li>• Improve the health of City waterways</li> <li>• Sustain the natural quality of land within the City</li> <li>• Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> </ul>
<b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b>
<ul style="list-style-type: none"> <li>• Ensure government is accountable to the community</li> </ul>
<b>Focus Area: Safe, Secure, &amp; Just Community</b>
<ul style="list-style-type: none"> <li>• Reduce harm to people or property from disasters</li> </ul>
<b>External or Internal Adopted Plan or Recommendation</b>
<ul style="list-style-type: none"> <li>• N/A</li> </ul>

Additional Operating Budget Impact
An additional impact to the 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  
 ORG: TBD

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

MS4-Total Maximum Daily Load (TMDL) Compliance Water Quality Improvements													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C-L)
	Total Budget & Financing	Through FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	800,000	800,000											0
Financing Plan													
Cash Capital	10,200,000	800,000	0	0	400,000	500,000	500,000	1,000,000	1,000,000	1,750,000	1,750,000	2,500,000	9,400,000
General Obligation Bonds	12,000,000	0	0	0	0	0	0	2,000,000	2,000,000	1,750,000	1,750,000	4,500,000	12,000,000
<b>Total Financing Plan</b>	<b>22,200,000</b>	<b>800,000</b>	<b>0</b>	<b>0</b>	<b>400,000</b>	<b>500,000</b>	<b>500,000</b>	<b>3,000,000</b>	<b>3,000,000</b>	<b>3,500,000</b>	<b>3,500,000</b>	<b>7,000,000</b>	<b>21,400,000</b>
Add. Operating Impact													
Annual Impact			0	0	0	0	50,000	50,000	100,000	150,000	150,000	150,000	650,000
Cumulative Impact			0	0	0	0	50,000	100,000	200,000	350,000	500,000	650,000	650,000
Changes from Prior Year CIP: Planned funding in FY 2015 has been reprogrammed to support the Lake Cook Stormwater Management project. Funding is added beginning FY 2017 for to be determined stormwater projects associated with the federally mandated infrastructure improvements. As specific projects are identified, funds will be shifted from this project to stand-alone projects like Lake Cook Stormwater.													

### Project Description & Justification

The Virginia Department of Conservation and Recreation (DCR) has imposed City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay (C-Bay) Total Maximum Daily Load (TMDL) 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 new MS4 permit requires the City to implement practices sufficient to achieve 5% of the reduction targets during the first 5-year permit and 40% of reduction targets by the end of 10 years.

The City has been discussing the options available to comply with these targets through Stormwater Steering Committee, and Stormwater Workgroup. Additionally, the City completed the Chesapeake Bay TMDL Compliance Analysis and Options (Analysis) report that looked into options and alternatives for treating stormwater, and corresponding costs. As the specific projects to achieve these reductions are being discussed and developed, this budget is based on funding that can be used to implement a diverse mix of strategies to achieve a large portion of the required reductions in the next ten years.

In addition to these regional facilities, stormwater quality retrofits of City facilities and ROW will be required to meet the reductions. The budgetary estimates were developed in working with engineers from the firms conducting the Chesapeake Bay TMDL Compliance Analysis and Options Study. Please note that funding request, along with the inclusion of the Lake Cook, Cameron Station Pond Retrofit and City Facilities BMP projects will likely satisfy the first permit cycle (2013 - 2018 permit). For FY 2019 and beyond, estimates are provided based on staff's best professional judgment and may need to be revised as the 2018 permit requirements, and as the regulators' expectations become clearer.

*(Continued on next page)*

City's Strategic Plan & City Manager's Performance Plan
<p><b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b></p> <p><b>Focus Area: Livable, Green, and Prospering City</b></p> <ul style="list-style-type: none"> <li>• Improve the health of City waterways</li> <li>• Sustain the natural quality of land within the City</li> <li>• Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> </ul> <p><b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b></p> <ul style="list-style-type: none"> <li>• Ensure government is accountable to the community</li> </ul>
<p><b>External or Internal Adopted Plan or Recommendation</b></p> <ul style="list-style-type: none"> <li>• Consistent with the Eco-City Charter and Eco-City Action Plan 2030, adopted by City Council June 2008 and June 2009 respectively</li> <li>• T&amp;ES Strategic Plan: Key Result Area – Meet or exceed state and federal requirements of the City's MS4 and combined sewer permits</li> </ul>

Additional Operating Budget Impact
<p>Operating impact is to cover for the maintenance of the retrofit facilities that will be coming online is estimated at \$50,000 in FY 2019 and increasing to \$150,000 by FY 2024. Costs will be lower in FY 2019 as the facilities that come online will be newer. With passing time, a more rigorous inspection and maintenance program will need to be implemented for the City to continue to get reduction credits from the implemented practices.</p>

**Project Description and Justification (Continued)**

This is primarily because of new regulatory requirements of Chesapeake 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): Dept. of Project Implementation  
 ORG: 52411855

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 (02/14)</i>	<i>Unallocated (02/14)</i>	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
<b>Expenditure Budget</b>	111,218	2,734,113											0
<b>Financing Plan</b>													
Prior Year City & Stormwater Funding	111,218	2,734,113	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
<b>Total Financing Plan</b>	111,218	2,734,113	0	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	2,700,000
<b>Add. Operating Impact</b>													
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
Changes from Prior Year CIP: Planned funding in FY 2015 reduced from \$300,000 to \$0 based on available project balances; no other changes from FY 2016 - 2023. Added funding for FY 2024.													

### 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 \$2.85 million will be utilized for projects listed on the next page.

Completion of these projects 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.

City's Strategic Plan & City Manager's Performance Plan
<b>Primary Strategic Plan Goal: Goal 2 – Health &amp; Environment</b>
<b>Focus Area: Livable, Green, and Prospering City</b>
<ul style="list-style-type: none"> <li>Improve the health of City waterways</li> <li>Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure</li> </ul>
<b>Focus Area: Accountable, Effective, &amp; Well-Managed Government</b>
<ul style="list-style-type: none"> <li>Ensure government is accountable to the community</li> </ul>
External or Internal Adopted Plan or Recommendation
<ul style="list-style-type: none"> <li>N/A</li> </ul>

Additional Operating Budget Impact
An additional impact to the operating budget is not anticipated.

**Current Storm Sewer Spot Improvement Projects**

<b>Project</b>	<b>Description</b>	<b>Status</b>
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 2015
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 2015
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 construction scheduled for completion in FY 2015
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 2016

## Lake Cook Stormwater Management

Document Subsection: Stormwater Management  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): Dept. of Project Implementation  
 ORG: TBD

Project Location: Eisenhower Avenue  
 Reporting Area: Seminary Hill/Strawberry Hill  
 Project Category: 3 – New Facilities  
 Estimated Useful Life: 30 years

Lake Cook Stormwater Management													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C-L)
	Total Budget & Financing	Through FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
<b>Expenditure Budget</b>	2,400,000	0	2,400,000	0	0	0	0	0	0	0	0	0	2,400,000
<b>Financing Plan</b>													
Cash Capital	600,000	0	600,000	0	0	0	0	0	0	0	0	0	600,000
General Obligation Bonds	600,000	0	600,000	0	0	0	0	0	0	0	0	0	600,000
Stormwater Local Assistance Fund	1,200,000	0	1,200,000	0	0	0	0	0	0	0	0	0	1,200,000
<b>Total Financing Plan</b>	2,400,000	0	2,400,000	0	0	0	0	0	0	0	0	0	2,400,000
<b>Add. Operating Impact</b>													
Annual Impact			0	0	100,000	103,000	106,090	109,273	112,551	115,927	119,405	122,987	889,234
Cumulative Impact			0	0	100,000	203,000	309,090	418,363	530,914	646,841	766,246	889,234	889,234
Changes from Prior Year CIP: New project for FY 2015. Funding previously planned in the MS4-TMDL Compliance Water Quality Improvements project (\$800,000) has been shifted to this project in FY 2015. An additional \$400,000 are added to leverage a \$1.2 million State Stormwater Local Assistance Fund grant.													

### Project Description & Justification

The Virginia Department of Environmental Quality (VDEQ) issued the City's new Municipal Separate Storm Sewer System (MS4) Permit on July 1, 2013 that specifies and imposes City-specific stormwater nutrients and sediment reduction targets for the Chesapeake Bay (C-Bay) Total Maximum Daily Load (TMDL) through the permit. Accordingly, the new permit requires the City to implement practices sufficient to achieve 5% of the reduction targets during first 5-year permit (2013-2018) and 40% of reduction targets by the end of 10 years (2023).

Retrofits to existing large regional stormwater facilities will provide additional pollutant removal either by enhancing the treatment efficiency and/or in combination to increasing the amount of area draining to the facility, and is one of the most cost effective strategies to meet the identified pollution reduction requirements. In order to comply with these targets, the City has been discussing these strategies and other options available through a Stormwater Steering Committee and Stormwater Workgroup. The City also completed the Chesapeake Bay TMDL Compliance Analysis and Options report that looked into options and alternatives for treating stormwater, and corresponding costs.

In order to capitalize on an opportunity available to seek a stormwater improvements grant, the City pursued and received \$1.2 million for the Lake Cook retrofit project, leveraged by \$1.2 million in City funds. Once completed, Lake Cook is expected to treat stormwater from a total of approximately 300 acres, including approximately 100 impervious acres, and is expected to meet approximately 10% of the total pollution reduction requirements of the City. This project also offers an opportunity to enhance the recreational elements of this facility, making it more of an amenity than it is currently.

### City's Strategic Plan & City Manager's Performance Plan

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

**Focus Area: Livable, Green, and Prospering City**

- Improve the health of City waterways
- Sustain the natural quality of land within the City
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

**Focus Area: Accountable, Effective, & Well-Managed Government**

- Ensure government is accountable to the community

### 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

### Additional Operating Budget Impact

Average operational costs based on published studies of such facilities with enhanced amenities and visibility are estimated at \$100,000 annually beginning in FY 2017, with a three percent annual inflation factor included each year thereafter.

## Cameron Station Pond Retrofit

Document Subsection: Stormwater Management  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): Dept. of Project Implementation  
 ORG: TBD

Project Location: Cameron Station  
 Reporting Area: Landmark/Van Dorn  
 Project Category: 3 – New Facilities  
 Estimated Useful Life: 30 years

Cameron Station Pond Retrofit													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C-L)
	Total Budget & Financing	Through FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	3,500,000	0	0	0	500,000	1,500,000	1,500,000	0	0	0	0	0	3,500,000
Financing Plan													
Cash Capital	1,250,000	0	0	0	250,000	500,000	500,000	0	0	0	0	0	1,250,000
General Obligation Bonds	2,250,000	0	0	0	250,000	1,000,000	1,000,000	0	0	0	0	0	2,250,000
<b>Total Financing Plan</b>	<b>3,500,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>500,000</b>	<b>1,500,000</b>	<b>1,500,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,500,000</b>
Add. Operating Impact													
Annual Impact			0	0	0	0	67,500	135,000	139,050	143,222	147,518	151,944	784,233
Cumulative Impact			0	0	0	0	67,500	202,500	341,550	484,772	632,290	784,233	784,233
Changes from Prior Year CIP: New project added from FY 2017 - 2019 associated with federally mandated stormwater infrastructure improvements.													

### Project Description & Justification

Virginia Department of Environmental Quality (VDEQ) issued the City's new Municipal Separate Storm Sewer System (MS4) Permit on July 1, 2013 that specifies and imposes City-specific stormwater nutrients and sediment reduction targets for the Chesapeake Bay (C-Bay) Total Maximum Daily Load (TMDL) through the permit. Accordingly, the new permit requires the City to implement practices sufficient to achieve 5% of the reduction targets during first 5-year permit (2013-2018) and 40% of reduction targets by the end of 10 years (2023).

Retrofits to existing large regional stormwater facilities will provide additional pollutant removal either by enhancing the treatment efficiency and/or in combination to increasing the amount of area draining to the facility, and is one of the most cost effective strategies to meet the identified pollution reduction requirements. In order to comply with these targets, the City has been discussing these strategies and other options available to the City through a Stormwater Steering Committee and Stormwater Workgroup. The City also completed the Chesapeake Bay TMDL Compliance Analysis and Options report that looked into options and alternatives for treating stormwater, and corresponding costs.

A Cameron Station Pond Retrofit is expected to meet approximately 9% of the City's total pollution reduction requirements, making it a very cost effective strategy. This project also offers an opportunity to enhance the recreational elements of this facility, making it more of an amenity than it is currently.

**City's Strategic Plan & City Manager's Performance Plan**

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

**Focus Area: Livable, Green, and Prospering City**

- Improve the health of City waterways
- Sustain the natural quality of land within the City
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

**Focus Area: Accountable, Effective, & Well-Managed Government**

- Ensure government is accountable to the community

**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

**Additional Operating Budget Impact**

Average operational costs based on published studies of such facilities with enhanced amenities and visibility are estimated at \$135,000 annually beginning in FY 2020, with a three percent annual inflation factor included each year thereafter. FY 2019 is estimated at one-half year of operating.

## City Facilities Stormwater Best Management Practices (BMPs)

Document Subsection: Stormwater Management  
 Managing Department: Transportation & Environmental Services  
 Supporting Department(s): Dept. of Project Implementation  
 ORG: TBD

Project Location: Citywide  
 Reporting Area: Citywide  
 Project Category: 3 – New Facilities  
 Estimated Useful Life: 25 years

City Facilities Stormwater Best Management Practices (BMPs)													
	A (B+M)	B	C	D	E	F	G	H	I	J	K	L	M (C-L)
	Total Budget & Financing	Through FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	1,500,000	0	0	400,000	1,100,000	0	0	0	0	0	0	0	1,500,000
Financing Plan													
Cash Capital	500,000	0	0	200,000	300,000	0	0	0	0	0	0	0	500,000
General Obligation Bonds	1,000,000	0	0	200,000	800,000	0	0	0	0	0	0	0	1,000,000
<b>Total Financing Plan</b>	<b>1,500,000</b>	<b>0</b>	<b>0</b>	<b>400,000</b>	<b>1,100,000</b>	<b>0</b>	<b>1,500,000</b>						
Add. Operating Impact													
Annual Impact			0	0	0	25,000	25,750	26,523	27,318	28,138	28,982	29,851	191,562
Cumulative Impact			0	0	0	25,000	50,750	77,273	104,591	132,728	161,710	191,562	191,562
Changes from Prior Year CIP: New project added from FY 2016 - 2017 associated with federally mandated stormwater infrastructure improvements.													

### Project Description & Justification

The Virginia Department of Environmental Quality (VDEQ) issued the City's new Municipal Separate Storm Sewer System (MS4) Permit on July 1, 2013 that specifies and imposes City-specific stormwater nutrients and sediment reduction targets for the Chesapeake Bay (C-Bay) Total Maximum Daily Load (TMDL). Accordingly, the proposed permit requires the City to implement practices sufficient to achieve 5% of the reduction targets during the first 5-year permit and 40% of the reduction target by the end of 10 years.

One of the strategies to meet the identified pollution reduction requirements is by retrofitting existing City properties that currently do not provide stormwater treatment with stormwater facilities to provide the additional pollutant removal. The City has been discussing these and other options available to comply with these targets through a Stormwater Steering Committee and a Stormwater Workgroup. The City has also completed the Chesapeake Bay TMDL Compliance Analysis and Options (Analysis) report that looked into options and alternatives for treating stormwater and corresponding costs.

Working closely with the General Services and Recreation, Parks and Cultural Activities Departments, the following three locations have been identified for stormwater retrofits:

- City maintenance facility at Lockett Field
- T&ES/Recreation operations at 2900 Business Center Drive
- City traffic shop at Colvin Street

Once completed these retrofits are expected to treat stormwater from a total of approximately 4-8 impervious acres. These sites have been selected because of the facilities operational stormwater impacts and their relatively high percentage of impervious acreage.

### City's Strategic Plan & City Manager's Performance Plan

**Primary Strategic Plan Goal: Goal 2 – Health & Environment**

#### Focus Area: Livable, Green, and Prospering City

- Improve the health of City waterways
- Sustain the natural quality of land within the City
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

#### Focus Area: Accountable, Effective, & Well-Managed Government

- Ensure government is accountable to the community

### 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

### Additional Operating Budget Impact

Average operational costs based on published studies of such facilities with enhanced amenities and visibility are estimated at \$25,000 annually beginning in FY 2018, with a three percent annual inflation factor included each year thereafter.