

# STORMWATER MANAGEMENT

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Stormwater Rate	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2023 - FY 2032
Stormwater Utility Rate per ERU	\$ 280.00	\$ 294.00	\$ 308.70	\$ 358.10	\$ 415.40	\$ 440.30	\$ 471.10	\$ 504.10	\$ 524.30	\$ 514.30	
Proposed Rate Increase	5.0%	5.0%	16.0%	16.0%	6.0%	7.0%	7.0%	4.0%	3.0%	3.0%	
New Stormwater Utility Rate	\$ 294.00	\$ 308.70	\$ 358.10	\$ 415.40	\$ 440.30	\$ 471.10	\$ 504.10	\$ 524.30	\$ 540.00	\$ 529.70	

Revenues	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2023 - FY 2032
Billing Units	60,330	60,571	60,813	61,056	61,300	61,545	61,791	62,038	62,286	62,535	
Non Billable Units for EDTR	430	430	430	430	430	430	430	430	430	431	
Revenue Generation	17,737,000	18,698,000	21,777,000	25,363,000	26,990,000	28,994,000	31,149,000	32,527,000	33,634,000	33,125,000	269,994,000
Other Revenue Sources	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,001	210,001
General Fund Contribution for EDTR *	130,000	135,000	140,000	146,000	152,000	158,000	164,000	171,000	178,000	185,000	1,559,000
Revenue Stream Reductions for Improvement	(185,000)	(191,000)	(197,000)	(203,000)	(209,000)	(215,000)	(221,000)	(228,000)	(235,000)	(242,000)	(2,126,000)
New Debt Issuance	\$28,540,000	\$34,070,000	\$36,600,000	\$21,940,000	\$18,640,000	\$20,000,000	\$16,500,000	\$13,835,000	\$15,625,000	\$21,100,000	226,850,000
State/Federal Grants	115,200	-	-	-	-	-	-	-	-	-	115,200
Use of Fund Balance 1/2 Cent	-	-	-	-	-	-	-	-	-	-	-
Use of Fund Balance SWU	2,139,182	-	-	-	-	-	-	-	-	-	2,139,182
COA General Fund Loan	-	-	-	-	-	-	-	-	-	-	-
<b>Total Revenues</b>	<b>48,497,382</b>	<b>52,733,000</b>	<b>58,341,000</b>	<b>47,267,000</b>	<b>45,594,000</b>	<b>48,958,000</b>	<b>47,613,000</b>	<b>46,326,000</b>	<b>49,223,000</b>	<b>54,189,001</b>	<b>498,741,383</b>

Expenditures	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2023 - FY 2032
<b>All Operating</b>	7,525,756	7,889,000	8,361,000	8,884,000	9,235,000	9,624,000	10,034,000	10,378,000	10,706,000	10,891,000	93,527,756
<b>All Capital Projects</b>	39,868,200	42,108,400	45,759,930	31,654,667	27,799,385	28,335,159	24,056,262	20,290,865	20,949,638	24,372,650	305,195,156
<b>Repayment of G/F Loan</b>	-	675,000	675,000	650,000	-	-	-	-	-	-	2,000,000
<b>All Debt Service</b>	1,103,426	2,200,761	3,691,139	6,228,637	8,716,104	11,159,533	13,688,204	15,826,891	17,742,997	19,890,560	100,248,252
<b>Total Expenditures</b>	<b>48,497,382</b>	<b>52,873,161</b>	<b>58,487,069</b>	<b>47,417,304</b>	<b>45,750,489</b>	<b>49,118,692</b>	<b>47,778,466</b>	<b>46,495,756</b>	<b>49,398,635</b>	<b>55,154,210</b>	<b>500,971,164</b>

Operating Costs	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2023 - FY 2032
TES Personnel	\$4,821,660	4,967,000	5,117,000	5,271,000	5,430,000	5,593,000	5,761,000	5,934,000	6,113,000	6,297,000	55,304,660
Main Operating	488,096	503,000	519,000	535,000	552,000	569,000	587,000	605,000	624,000	643,000	5,625,096
BMP's Operation	279,000	288,000	297,000	306,000	316,000	326,000	336,000	347,000	358,000	369,000	3,222,000
Oronoco Outfall Maintenance	111,000	115,000	119,000	123,000	127,000	131,000	135,000	140,000	145,000	150,000	1,296,000
Additional operating impact from capital	67,000	70,000	73,000	76,000	79,000	82,000	85,000	88,000	91,000	94,000	805,000
Indirect Costs	1,632,000	1,720,000	2,003,000	2,333,000	2,483,000	2,667,000	2,866,000	2,992,000	3,094,000	3,048,000	24,838,000
Contingent Cash Funding	127,000	226,000	233,000	240,000	248,000	256,000	264,000	272,000	281,000	290,000	2,437,000
<b>Subtotal, Operating Costs</b>	<b>7,525,756</b>	<b>7,889,000</b>	<b>8,361,000</b>	<b>8,884,000</b>	<b>9,235,000</b>	<b>9,624,000</b>	<b>10,034,000</b>	<b>10,378,000</b>	<b>10,706,000</b>	<b>10,891,000</b>	<b>93,527,756</b>

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2023 - FY 2032
<b>Capital Projects</b>											
Four Mile Run Channel Maintenance	936,600		300,000	300,000		1,251,300	2,900,000	-	300,000	300,000	6,287,900
Green Infrastructure	-	1,549,600	-	-	-	-	-	-	-	-	1,549,600
MS4-TMDL Compliance Water Quality Improvements	1,300,000	2,100,000	1,800,000	2,050,000	1,750,000	2,000,000	2,575,000	1,500,000	1,000,000	1,750,000	17,825,000
NPDES / MS4 Permit	-	170,000	171,700	173,500	175,200	177,000	178,700	180,500	182,200	185,900	1,594,700
Storm Sewer Capacity Projects Program	-	-	-	15,950,000	15,200,000	13,675,000	6,700,000	6,350,000	4,000,000	7,000,000	68,875,000
<i>Large Capacity Projects: Commonwealth Ave &amp; E. Glebe Rd / Ashby St &amp; E. Glebe Rd</i>	26,407,300	12,632,800	-	-	-	-	-	-	-	-	39,040,100
<i>Large Capacity Project: Hooffs Run Culvert Timber Branch Bypass</i>	-	16,176,100	32,352,100	-	-	-	-	-	-	-	48,528,200
Storm Sewer System Spot Improvements	5,907,000	4,011,000	4,122,000	4,228,000	4,337,000	4,540,000	4,606,000	4,688,000	4,812,000	4,937,000	46,188,000
Stream and Channel Maintenance	881,000	907,500	934,700	962,700	991,600	1,021,400	1,052,000	1,083,600	1,116,100	1,149,600	10,100,200
Stormwater BMP Maintenance CFMP	286,000	303,500	1,575,300	1,622,500	317,100	326,600	336,400	346,500	356,900	1,792,200	7,263,000
Small-Midsize Stormwater Maintenance Projects	581,300	613,900	649,100	685,900	724,400	765,800	809,100	854,200	901,400	922,900	7,508,000
Inspection and Cleaning (State of Good Repair) CFMP	1,268,000	1,457,000	1,578,000	1,695,000	1,835,000	2,006,000	2,220,000	2,496,000	2,862,000	3,304,000	20,721,000
Floodproofing Grant Program	769,000	789,000	809,000	830,000	851,000	873,000	895,000	918,000	941,000	965,000	8,640,000
Hooffs Run Culvert	-	-	-	1,616,000	-	-	-	-	-	2,510,000	4,126,000
Braddock and West Flood Management	198,000	-	-	-	-	-	-	-	-	-	198,000
DPI Personnel	1,281,000	1,342,000	1,409,030	1,479,067	1,553,085	1,631,059	1,713,062	1,799,065	1,889,038	1,983,050	16,079,456
Capitalized Sustainability Coordinator	53,000	56,000	59,000	62,000	65,000	68,000	71,000	75,000	79,000	83,000	671,000
<b>Subtotal, Capital Projects</b>	<b>39,868,200</b>	<b>42,108,400</b>	<b>45,759,930</b>	<b>31,654,667</b>	<b>27,799,385</b>	<b>28,335,159</b>	<b>24,056,262</b>	<b>20,290,865</b>	<b>20,949,638</b>	<b>24,372,650</b>	<b>305,195,156</b>
<b>Debt Service</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>FY 2030</b>	<b>FY 2031</b>	<b>FY 2032</b>	<b>FY 2023 - FY 2032</b>
Total Debt Service Payments	1,103,426	2,200,761	3,691,139	6,228,637	8,716,104	\$11,159,533	\$13,688,204	\$15,826,891	\$17,742,997	\$19,890,560	100,248,252
<b>Total Expenditures, All Categories</b>	<b>48,497,382</b>	<b>52,198,161</b>	<b>57,812,069</b>	<b>46,767,304</b>	<b>45,750,489</b>	<b>49,118,692</b>	<b>47,778,466</b>	<b>46,495,756</b>	<b>49,398,635</b>		<b>498,971,164</b>

Note: Projects with a \$0 total funding are active capital projects funded in prior CIP's that do not require additional resources.

	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2023 - FY 2032
<b>Stormwater Management</b>												
Stormwater Management												
Braddock and West Flood Management	-	198,000	-	-	-	-	-	-	-	-	-	198,000
Floodproofing Grant Program	750,000	769,000	789,000	809,000	830,000	851,000	873,000	895,000	918,000	941,000	965,000	8,640,000
Four Mile Run Channel Maintenance	3,475,281	936,600	-	300,000	300,000	-	1,251,300	2,900,000	-	300,000	300,000	6,287,900
Green Infrastructure	2,311,026	-	1,549,600	-	-	-	-	-	-	-	-	1,549,600
Hooffs Run Culvert	-	-	-	-	1,616,000	-	-	-	-	2,510,000	-	4,126,000
Inspection and Cleaning (State of Good Repair) CFMP	3,852,000	1,268,000	1,457,000	1,578,000	1,695,000	1,835,000	2,006,000	2,220,000	2,496,000	2,862,000	3,304,000	20,721,000
Large Capacity - Commonwealth Ave & E. Glebe/Ashby St & Glebe Rd	-	26,407,300	12,632,800	-	-	-	-	-	-	-	-	39,040,100
Large Capacity - Hooffs Run Culvert Bypass	-	-	16,176,100	32,352,100	-	-	-	-	-	-	-	48,528,200
Lucky Run Stream Restoration	2,852,715	-	-	-	-	-	-	-	-	-	-	-
MS4-TDML Compliance Water Quality Improvements	5,605,000	1,300,000	2,100,000	1,800,000	2,050,000	1,750,000	2,000,000	2,575,000	1,500,000	1,000,000	1,750,000	17,825,000
NPDES / MS4 Permit	1,150,000	-	170,000	171,700	173,500	175,200	177,000	178,700	180,500	182,200	185,900	1,594,700
Phosphorus Exchange Bank	-	-	-	-	-	-	-	-	-	-	-	-
Small-Midsize Stormwater Maintenance Projects	-	581,300	613,900	649,100	685,900	724,400	765,800	809,100	854,200	901,400	922,900	7,508,000
Spot Project - Hume Avenue Bypass	1,070,000	-	-	-	-	-	-	-	-	-	-	-
Spot Project - Mt. Vernon Cul-de-sac and Alley	830,000	-	-	-	-	-	-	-	-	-	-	-
Storm Sewer Capacity Projects	26,685,988	-	-	-	15,950,000	15,200,000	13,675,000	6,700,000	6,350,000	4,000,000	7,000,000	68,875,000
Storm Sewer System Spot Improvements	11,165,902	5,907,000	4,011,000	4,122,000	4,228,000	4,337,000	4,540,000	4,606,000	4,688,000	4,812,000	4,937,000	46,188,000
Stormwater BMP Maintenance CFMP	520,000	286,000	303,500	1,575,300	1,622,500	317,100	326,600	336,400	346,500	356,900	1,792,200	7,263,000
Stormwater Utility Implementation	1,673,200	-	-	-	-	-	-	-	-	-	-	-
Strawberry Run Stream Restoration	1,645,138	-	-	-	-	-	-	-	-	-	-	-
Stream & Channel Maintenance	7,429,454	881,000	907,500	934,700	962,700	991,600	1,021,400	1,052,000	1,083,600	1,116,100	1,149,600	10,100,200
Taylor Run Stream Restoration	4,540,258	-	-	-	-	-	-	-	-	-	-	-
<b>Grand Total</b>	<b>81,912,436</b>	<b>38,534,200</b>	<b>40,710,400</b>	<b>44,291,900</b>	<b>30,113,600</b>	<b>26,181,300</b>	<b>26,636,100</b>	<b>22,272,200</b>	<b>18,416,800</b>	<b>18,981,600</b>	<b>22,306,600</b>	<b>288,444,700</b>

Significant Project Changes in the Stormwater Management Section

This year’s Capital Improvement Program (CIP) underwent significant changes for a variety of reasons. A major driver was the need to accommodate several new projects, and commitments to funding, while keeping the General Fund transfer to the CIP consistent and staying within City debt limits. This means funding for projects in other categories had to be decreased, or removed.

Projects with increased funding in this CIP section total \$27.2 million, while \$168,400 in reductions were made. Therefore, this section had a net increase of \$27.0 million, or +11 percent of the Approved FY 2022 – FY 2031 funding level. Please reference the table footnotes for further clarification about why the two largest project increases and the largest reduction were considered a net decrease of \$56,700. Also note, these comparisons do not include Fiscal Years 2022 or 2032 funding. This section is unique from some others because investments are predominantly funded by the Stormwater Utility Fee and fee-backed GO Bonds.

The below chart highlights any project funding that increased or decreased by more than 15%, or \$1 million.

CIP Subsection	CIP Doc Title	TOTAL	Amount	Percentage
		FY 2023 - 2032	Changed Since FY22 Approved CIP*	Changed Since FY22 Approved CIP
Stormwater Management	Large Capacity - Hooffs Run Culvert Bypass**	48,528,200	48,528,200	100.0%
Stormwater Management	Large Capacity - Commonwealth Ave & E. Glebe/Ashby St & Glebe Rd**	39,040,100	39,040,100	100.0%
Stormwater Management	Braddock and West Flood Management	198,000	198,000	100.0%
Stormwater Management	Inspection and Cleaning (State of Good Repair) CFMP	20,721,000	7,196,000	70.4%
Stormwater Management	Storm Sewer System Spot Improvements	46,188,000	15,300,000	59.0%
Stormwater Management	Stormwater BMP Maintenance CFMP	7,263,000	1,711,800	45.5%
Stormwater Management	Hooffs Run Culvert	4,126,000	1,276,700	44.8%
Stormwater Management	Small-Midsize Stormwater Maintenance Projects	7,508,000	1,461,100	28.5%
Stormwater Management	Storm Sewer Capacity Projects**	68,875,000	(87,625,000)	(58.6%)

\*This dollar amount was calculated by comparing FY 2023 – 2031 funding levels of the FY 2022 Approved CIP and this FY 2023 Proposed CIP. Since the FY 2022 Approved CIP did not have FY 2032 funding designations, that FY was removed from these calculations.

\*\*Two large projects previously captured in the CIP project "Storm Sewer Capacity Projects" were broken out into their own projects: 1) Large Capacity - Hooffs Run Culvert Bypass; and 2) Large Capacity - Commonwealth Ave & E. Glebe/Ashby St & Glebe Rd. Therefore, the increases and decrease for these three projects should be considered collectively, for a sum total change of \$56,700 (decrease).

## BRADDOCK AND WEST FLOOD MANAGEMENT

DOCUMENT SUBSECTION: Stormwater Management

PROJECT LOCATION: Braddock Road and West Street

MANAGING DEPARTMENT: Transportation and Environmental Services

REPORTING AREA: Braddock Road Metro

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustain.

PROJECT CATEGORY: 1  
ESTIMATE USEFUL LIFE: 3 – 5 years

Braddock and West Flood Management													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C/L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>198,000</b>	-	<b>198,000</b>	-	-	-	-	-	-	-	-	-	<b>198,000</b>
Financing Plan													
Stormwater Utility Fund	198,000	-	198,000	-	-	-	-	-	-	-	-	-	198,000
<b>Financing Plan Total</b>	<b>198,000</b>	-	<b>198,000</b>	-	-	-	-	-	-	-	-	-	<b>198,000</b>

### CHANGES FROM PRIOR YEAR CIP

New project added to FY 2023 - FY 2032 CIP.

### PROJECT DESCRIPTION & JUSTIFICATION

The Braddock & West intersection has experienced periodic severe flooding from flash flood rain events. The area is served by storm sewers that drain under the Railroad tracks into the Hooffs Run Culvert (HRC) at E. Linden Street. The City of Alexandria Storm Sewer Capacity Assessment (CASSCA) study identified both conveyance and storage solutions to alleviate severe flooding.

This study would continue to evaluate the specific need, volume and area required for the storage component. This study will consider the need for a stormwater storage facility and the potential for the availability of property not in the Right-of-Way to contain said facility near the Braddock & West Street intersection to alleviate flooding.

The project will use professional services to perform study of existing information, verify findings of previous studies, and recommend appropriate storage volume for the sub-watershed. Investigate and contact potential stakeholders for public/private partnerships in the deployment of the recommended stormwater storage volume. Analysis will include feasibility of providing stormwater storage to mitigate flooding during the 10, 25, 50 & 100-year precipitation events. Planning level costs for construction will also be provided as part of the study.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Storm Sewer Capacity Analysis (CASSCA); Flood Action Alexandria; Northern Virginia Flood Hazard Mitigation Plan

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts by completing this study.

## CAMERON STATION POND RETROFIT

DOCUMENT SUBSECTION: Stormwater Management	PROJECT LOCATION: Ben Brenman Park, 4800 Brenman Park Dr, Alexandria, VA 22304
MANAGING DEPARTMENT: Department of Transportation and Environmental Services	REPORTING AREA: Landmark/Van Dorn
PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability	PROJECT CATEGORY: 3 ESTIMATE 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	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>4,723,474</b>	<b>4,723,474</b>	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
GO Bonds (Stormwater)	1,750,000	1,750,000	-	-	-	-	-	-	-	-	-	-	-
Private Capital Contributions	1,050,000	1,050,000	-	-	-	-	-	-	-	-	-	-	-
State/Federal Grants	1,881,885	1,881,885	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	41,589	41,589	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>4,723,474</b>	<b>4,723,474</b>	-	-	-	-	-	-	-	-	-	-	-
Operating Impact													

### CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

### PROJECT DESCRIPTION & JUSTIFICATION

Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on July 1, 2013 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay (Bay) Total Maximum Daily Load (TMDL) enforced through three 5-year permit cycles. Accordingly, the current MS4 permit requires the City to implement practices sufficient to achieve 5% of the reduction targets during the first 5-year permit (2013-2018), while successive MS4 permits will require implementation of practices to achieve an additional 35% or 40% of total reduction targets during the second 5-year permit (2018-2023) by 2023, and the remaining 60% or 100% of the total reductions on or before the end of the third 5-year permit (2023-2028) by 2028. The City's 2018 - 2023 MS4 General Permit mandating a total of 40% Bay reductions by June 30, 2023 is scheduled to be in effect on or after July 1, 2018 and remain effective through June 30, 2023.

Retrofits to existing large regional stormwater facilities will provide additional pollutant removal either by enhancing the treatment efficiency and/or increasing the amount of area draining to the facility and are one of the most cost-effective strategies to meet the identified pollution reduction requirements.

The City has been discussing these strategies to comply with the reduction targets and other options available to the City through the Water Quality Steering Committee and Water Quality Workgroup. The City also completed the Chesapeake Bay TMDL Compliance Analysis and Options report that investigated options and alternatives for treating stormwater and provided corresponding costs. The City's Phase 1 Chesapeake Bay TMDL Action Plan for achieving 5% of the reductions was submitted to DEQ on October 1, 2015 and approved by DEQ on January 12, 2016. The City's draft Bay Phase 2 Action Plan for achieving a total 40% of the reductions was submitted in June 2018, with the final due one year after the effective date of the 2018 - 2023 MS4 General Permit (October 31, 2019). The City's approved Bay TMDL Action Plan and the draft Phase 2 Action Plan identify the retrofit of large regional stormwater facilities as a major strategy towards meeting pollution reduction goals. Most of the structure components have been installed for the pond retrofit, including the diversion of an extra 35 acres of stormwater being treated in the pond. The next phase will include the installation of plant materials on the shore and for the aquatic bench. Substantial completion occurred in 2020.

In FY 2015, City staff pursued and received \$1.75 million in a grant from the state through the Stormwater Local Assistance Fund (SLAF) by leveraging an equivalent amount of City funding for this project. This reduced the City funded contribution to this project by half of the original budgeted amount. While the Cameron Station Pond Retrofit is a cost effective strategy to meet the City's pollution reduction requirements, this project also offers an opportunity to enhance the recreational elements of this facility, making it more of an amenity to park-goers than it is currently.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) General Permit, Program Plan, and Year 5 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## CITY FACILITIES STORMWATER BEST MANAGEMENT PRACTICES (BMPs)

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 21 - 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	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>1,633,000</b>	<b>1,633,000</b>	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
Cash Capital	125,000	125,000	-	-	-	-	-	-	-	-	-	-	-
GO Bonds (Stormwater)	1,133,000	1,133,000	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	375,000	375,000	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>1,633,000</b>	<b>1,633,000</b>	-	-	-	-	-	-	-	-	-	-	-
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

### PROJECT DESCRIPTION & JUSTIFICATION

Stormwater facility best management practices (BMPs) must be regularly inspected to identify any needed operation and maintenance activities. These operations and maintenance activities must be performed to ensure the BMP is functioning as designed to provide water quality benefits to clean up the Bay. Retrofits of large regional ponds, stormwater facility best management practice (BMP) retrofits on City property and the right-of-way, stream restoration projects, and other strategies implemented to meet City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay (Bay) Total Maximum Daily Load (TMDL) require frequent inspection and maintenance to ensure proper functioning to achieve stormwater pollutant reductions.

The Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on November 1, 2018 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay (Bay) Total Maximum Daily Load (TMDL) enforced through three 5-year MS4 permit cycles. Accordingly, the previous 2013-2018 permit required the City to achieve 5% of the reduction targets during the first 5-year permit (2013-2018), and an additional 35% or 40% of the total during the second 5-year permit (2018-2023) by 2023, and the remaining 60% or 100% of the reduction on or before the end of the third 5-year permit cycle (2023-2028) no later than 2028. The City's 2018 - 2023 MS4 General Permit mandating the total 40% Bay reductions by June 30, 2023 was effective November 1, 2018 and remains in effect through October 31, 2023. The City's Chesapeake Bay TMDL Action Plan identifies, retrofitting of regional ponds, implementing new regional ponds, BMP retrofits on City properties, retrofits in the Right-of-Way, stream restoration, and other strategies towards meeting mandated pollutant reduction goals.

The City recently completed the Lake Cook Retrofit and the Cameron Pond Retrofit projects towards meeting the Bay TMDL. Working closely with the General Services; Recreation, Parks and Cultural Activities; and Project Implementation departments, the following locations, among others, have been identified as potential locations for stormwater retrofits that include:

- T&ES/Recreation operations at 2900 Business Center Drive,
- City Fuel Island on Wheeler Avenue,
- ACPS Mount Vernon Elementary School and Recreation Center, and
- City Traffic Control Shop on Colvin Street.

The City has identified at least 16 potential locations in addition to the above list that may treat stormwater from a total of approximately 4-8 acres of impervious surface. These sites have been selected because of the facilities' operational stormwater impacts and their relatively high percentage of impervious acreage.

This project provides for the inspection and maintenance of existing and planned BMP retrofits to ensure proper functioning to continue achieving the City's mandated water quality goals to clean up the Chesapeake Bay.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

#### ADDITIONAL OPERATING IMPACTS

City of Alexandria Municipal Separate Storm Sewer System (MS4) General Permit, Program Plan and Year 5 Annual Report; Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter and Action Plan

No additional operating impacts identified at this time.



## FLOODPROOFING GRANT PROGRAM

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 1  
 ESTIMATE USEFUL LIFE: Varies

Floodproofing Grant Program													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>9,390,000</b>	<b>750,000</b>	<b>769,000</b>	<b>789,000</b>	<b>809,000</b>	<b>830,000</b>	<b>851,000</b>	<b>873,000</b>	<b>895,000</b>	<b>918,000</b>	<b>941,000</b>	<b>965,000</b>	<b>8,640,000</b>
Financing Plan													
Stormwater Utility Fund	9,390,000	750,000	769,000	789,000	809,000	830,000	851,000	873,000	895,000	918,000	941,000	965,000	8,640,000
<b>Financing Plan Total</b>	<b>9,390,000</b>	<b>750,000</b>	<b>769,000</b>	<b>789,000</b>	<b>809,000</b>	<b>830,000</b>	<b>851,000</b>	<b>873,000</b>	<b>895,000</b>	<b>918,000</b>	<b>941,000</b>	<b>965,000</b>	<b>8,640,000</b>

### CHANGES FROM PRIOR YEAR CIP

Funding added for FY 2032.

### PROJECT DESCRIPTION & JUSTIFICATION

The purpose of this project, initiated in FY 2022, is to provide grant funding to private property owners who have incurred flooding impacts to their primary residence as a result of recent climate change-induced flash flooding and cloudburst events. This project was recommended by the 2020 Interdepartmental Flooding Management Task Force and was supported in the City’s 2020 legislative package, which was successful in revising the state code to provide clear authority to support localities dealing with the impacts of flooding to implement a jurisdictional-wide grant program to implement floodproofing measures on private property for the health and safety of the community. Further analysis is ongoing with the pilot launching in FY 2022. No project update and adjustment is suggested in FY 2023. Staff will continue to gather data and information in consideration of any needed adjustments. The program incentivizes implementation of flood mitigation measures and allows property owners to experience immediate benefits to mitigate flooding issues.

This program is administered like the City’s Backflow Preventer Program, which provides reimbursement to those who have installed backflow preventers as a result of sanitary sewer backups. This program provides reimbursement for floodproofing installed to mitigate flooding issues in the near-term.

The Flooding Mitigation Pilot Program Manual document frames the program and policies, to include processes, funding level, and eligible reimbursable expenses. The grant program includes:

- Reimbursement for 50% of the cost of improvements, not to exceed \$5,000 reimbursed
- Total funding for FY 2023: \$769,000
- Retroactive to July 2019
- Eligible reimbursable practices and expenses include installation of floodproof doors and windows, and other measures to prevent water from entering a structure, with examples included in online materials
- Applications are processed using the City’s APEX permitting system

### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Eco-City Charter; Strategic Plan, MS4 General Permit; Environmental Action Plan (EAP) 2040; City of Alexandria Storm Sewer Capacity Analysis (CASSCA); Flood Action Alexandria;

### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## FOUR MILE RUN CHANNEL MAINTENANCE

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Four Mile Run Stream/Channel  
 REPORTING AREA: Potomac West

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 2  
 ESTIMATE USEFUL LIFE: 6 - 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	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>9,763,181</b>	<b>3,475,281</b>	<b>936,600</b>	-	<b>300,000</b>	<b>300,000</b>	-	<b>1,251,300</b>	<b>2,900,000</b>	-	<b>300,000</b>	<b>300,000</b>	<b>6,287,900</b>
Financing Plan													
Cash Capital	315,281	315,281	-	-	-	-	-	-	-	-	-	-	-
GO Bonds	2,260,000	2,260,000	-	-	-	-	-	-	-	-	-	-	-
GO Bonds (Stormwater)	4,651,300	-	-	-	200,000	200,000	-	1,151,300	2,800,000	-	-	300,000	4,651,300
Stormwater Utility Fund	2,536,600	900,000	936,600	-	100,000	100,000	-	100,000	100,000	-	300,000	-	1,636,600
<b>Financing Plan Total</b>	<b>9,763,181</b>	<b>3,475,281</b>	<b>936,600</b>	-	<b>300,000</b>	<b>300,000</b>	-	<b>1,251,300</b>	<b>2,900,000</b>	-	<b>300,000</b>	<b>300,000</b>	<b>6,287,900</b>
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

Funding added for FY 2022.

### 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 on Four Mile Run to reduce potential riverine flooding. The federal Four Mile Run Flood Control project was constructed 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 associated capital infrastructure. The USACE annually inspects Four Mile Run and dictates the extent of the 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 USACE 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. The City is currently developing revised plans for USACE to review that includes maintenance repairs to the flood walls, embankments, and gabions.

To date, nearly \$3 million in City funding has been applied to the project. Funding is programmed in the near term to address maintenance items with funding in 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 maintenance activities. Staff is collaborating with Arlington County to dredge the channel and remove sediment to maintain the conveyance capacity of the flood control project. Design for this work has been completed and construction is estimated to begin in June 2022. The grant application submitted in calendar year 2021 for FEMA's Build Resilient Infrastructure and Communities (BRIC) funding was not successful. The project is moving forward with city funds covering the agreed cost share of the project.

Additional maintenance concerns that need to be addressed were uncovered during routine inspection and maintenance of structures, updates to the operations and maintenance (O&M) manual, design and removal of accumulated sediment, and continued vegetation removal from the levee, as requested by USACE. Routine inspection and maintenance, including design and removal of significant accumulated sediment and routine vegetation maintenance, is necessary to get this flood control channel back into conditions considered acceptable by the federal government. Achieving federal acceptance ensures that the flood control project will perform as predicted, protects our communities – along with Arlington – and properties from flooding, and provides eligibility for federal assistance in repairing any damage to the channels that storms may cause. To address USACE concerns for annual inspections, the vegetation management will be performed annually along the entire reach between I-395 and Rt-1.

### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4)  
 General Permit, Program Plan and Year 5 Annual Report; Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter and Action Plan; Flood Action Alexandria initiative

### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## GREEN INFRASTRUCTURE

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: Varies

Green Infrastructure													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>3,860,626</b>	<b>2,311,026</b>	-	<b>1,549,600</b>	-	-	-	-	-	-	-	-	<b>1,549,600</b>
Financing Plan													
GO Bonds (Stormwater)	2,644,600	1,195,000	-	1,449,600	-	-	-	-	-	-	-	-	1,449,600
Sanitary Sewer Fund	350,000	350,000	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	866,026	766,026	-	100,000	-	-	-	-	-	-	-	-	100,000
<b>Financing Plan Total</b>	<b>3,860,626</b>	<b>2,311,026</b>	-	<b>1,549,600</b>	-	-	-	-	-	-	-	-	<b>1,549,600</b>
Operating Impact	24,500	-	-	-	-	3,500	3,500	3,500	3,500	3,500	3,500	3,500	24,500

### CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

### PROJECT DESCRIPTION & JUSTIFICATION

This project is for the identification, study, design, and construction of green infrastructure projects to address water quality and quantity goals and is consistent with the objectives of the citywide approach to implement Green Infrastructure for the combined sewer system (CSS) and the separate storm sewer area. Completed green infrastructure projects will help address regulatory requirements and help to mitigate flooding in conjunction with the co-benefits provided by the implementation of these practices. An initial identification and prioritization study will be conducted in planning for the next green infrastructure project to be implemented as identified with funding in FY 2024. Funding for additional projects, if identified, may be supplemented with funding from the MS4 Water Quality Improvements project.

Completion of these projects will provide the following benefits: increase stormwater infiltration; reduce stormwater runoff; provide stormwater treatment (nutrients and sediment); decrease the volume of discharges; and, provide co-benefits, including creating habitat, reducing heat island effect, and enhancing air quality.

Projects are identified through work related to the City’s Chesapeake Bay TMDL Action Plan and the Green Infrastructure Program Policy Study commenced in FY 2019 which laid out a citywide approach to implementation. Further, green infrastructure projects may be implemented as stand-alone water quality projects or in conjunction with flood control projects to mitigate flooding and/or provide water quality benefits. Funding for projects identified through these efforts will be used for future years and supplemented, as needed, through the MS4-TMDL Water Quality Improvement CIP. Consistent with the City’s planning documents that include green infrastructure as a strategy, funding has been added to the FY 2022 – FY 2031 budget to continue with the implementation of green infrastructure on a citywide basis.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

T&ES Strategic Plan 2012-2015; City of Alexandria Municipal Separate Storm Sewer System (MS4) General Permit, Program Plan, and PY5 Annual Report; Eco-City Charter City’s Combined Sewer System Permit; City’s Chesapeake Bay TMDL Action Plan; Old Town North Small Area Plan; Eisenhower West Small Area Plan; Landmark Van Dorn Small Area Plan; Flood Action Alexandria

#### ADDITIONAL OPERATING IMPACTS

Annual inspection, minor routine maintenance, and major maintenance will be required to ensure continued proper functioning of the asset.

## HOOFFS RUN CULVERT MAINTENANCE

DOCUMENT SUBSECTION: Stormwater Management

PROJECT LOCATION: Areas west of Commonwealth Avenue and near W. Spring Street

MANAGING DEPARTMENT: Transportation and Environmental Services

REPORTING AREA: Potomac West, Northridge/Rosemont

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 1  
ESTIMATE USEFUL LIFE: 3-6 years

Hooffs Run Culvert													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>4,126,000</b>	-	-	-	-	<b>1,616,000</b>	-	-	-	-	<b>2,510,000</b>	-	<b>4,126,000</b>
Financing Plan													
GO Bonds (Stormwater)	4,126,000	-	-	-	-	1,616,000	-	-	-	-	2,510,000	-	4,126,000
<b>Financing Plan Total</b>	<b>4,126,000</b>	-	-	-	-	<b>1,616,000</b>	-	-	-	-	<b>2,510,000</b>	-	<b>4,126,000</b>

### CHANGES FROM PRIOR YEAR CIP

Project funding increased, over the 10-year plan, by \$1.3 million.

### PROJECT DESCRIPTION & JUSTIFICATION

This project proposes funding on a 5-year cycle for ongoing heavy cleaning of the Hooffs Run Culvert. This culvert conveys stormwater from a significant portion of Northridge, Del Ray, and Rosemont and has been subject to recurrent flooding for over 100 years. Recent climate-change induced flash flooding has placed greater emphasis on the importance of ongoing heavy cleaning of this culvert by maximizing the culvert capacity.

In June 2020 the city hired a contractor to conduct a detailed inspection and, for the first time, a robotic survey of approximately 7,000 feet of the culvert. The survey identified overall debris levels in the range of 5% with isolated sections having debris accumulation of approximately 15-20%. The City, using prior-year funding, undertook an inspection and major heavy cleaning effort beginning in November 2020 and completed by mid-2021 from West Chapman down to Duke Street. Subsequently, inspection of the northern portion of the culvert from W. Chapman to West Spring Street determined that portion did not require cleaning at the time.

While the City has Operating funding to provide some routine debris removal and maintenance, this Capital Improvement Project ensures funding is set aside for ongoing inspections, heavy cleaning and/or other capital maintenance requirements that may be identified in future structural inspections. This funding was recommended by the Interdepartmental Flooding Management Task Force and the Flood Action Alexandria initiative.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Flood Action Alexandria

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## INSPECTION AND CLEANING (STATE OF GOOD REPAIR) CFMP

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 1  
 ESTIMATE USEFUL LIFE: Varies

Inspection and Cleaning (State of Good Repair) CFMP													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>24,573,000</b>	<b>3,852,000</b>	<b>1,268,000</b>	<b>1,457,000</b>	<b>1,578,000</b>	<b>1,695,000</b>	<b>1,835,000</b>	<b>2,006,000</b>	<b>2,220,000</b>	<b>2,496,000</b>	<b>2,862,000</b>	<b>3,304,000</b>	<b>20,721,000</b>
Financing Plan													
GO Bonds (Stormwater)	4,739,900	-	-	-	-	-	-	-	-	-	1,436,600	3,303,300	4,739,900
Stormwater Utility Fund	15,981,100	-	1,268,000	1,457,000	1,578,000	1,695,000	1,835,000	2,006,000	2,220,000	2,496,000	1,425,400	700	15,981,100
ARPA	3,852,000	3,852,000	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>24,573,000</b>	<b>3,852,000</b>	<b>1,268,000</b>	<b>1,457,000</b>	<b>1,578,000</b>	<b>1,695,000</b>	<b>1,835,000</b>	<b>2,006,000</b>	<b>2,220,000</b>	<b>2,496,000</b>	<b>2,862,000</b>	<b>3,304,000</b>	<b>20,721,000</b>

### CHANGES FROM PRIOR YEAR CIP

Project funding increased, over the 10 year plan, by \$10.5 million

### PROJECT DESCRIPTION & JUSTIFICATION

This project provides funding annually for expanded and increased frequency of inspection and maintenance towards ensuring a state of good repair for 189 miles of pipe network and over 13,000 structures for the separate storm sewer system. Beginning in July 2020 under the Flood Action Alexandria initiative, staff expanded the inspection and repair portion of the storm sewer system. While initial expansion of the program is based on the inspections and requests from residents, staff is increasing proactive measures for inspection and cleaning based on timing and results of additional data sets to develop a Capital Facility Maintenance Program (CFMP) which will include a more detailed listing of projects with a prioritization based on these and other metrics. The prioritized list of projects and areas will be addressed based on funding allocated within the CIP. These additional data will inform future budgeting decisions.

While the operating budget supports routine maintenance and inspections, this CIP reflects expanded video inspections and infrastructure repair activities (up to and including structure replacement) to ensure all conveyance and storage structures, and outfalls are functional and operating at maximum capacity.

### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

N/A

### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## LARGE CAPACITY - COMMONWEALTH AVE & E. GLEBE AND ASHBY ST & GLEBE RD

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Four Mile Run Watershed  
 REPORTING AREA: Potomac West

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 50 – 75 years

Large Capacity - Commonwealth Ave & E. Glebe/Ashby St & Glebe Rd													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>39,040,100</b>	-	<b>26,407,300</b>	<b>12,632,800</b>	-	-	-	-	-	-	-	-	<b>39,040,100</b>
Financing Plan													
GO Bonds (Stormwater)	38,924,900	-	26,292,100	12,632,800	-	-	-	-	-	-	-	-	38,924,900
State/Federal Grants	115,200	-	115,200	-	-	-	-	-	-	-	-	-	115,200
<b>Financing Plan Total</b>	<b>39,040,100</b>	-	<b>26,407,300</b>	<b>12,632,800</b>	-	-	-	-	-	-	-	-	<b>39,040,100</b>

### CHANGES FROM PRIOR YEAR CIP

New project added to FY 2023 - FY 2032 CIP; this funding has been separated out from the Storm Sewer Capacity Projects program.

### PROJECT DESCRIPTION & JUSTIFICATION

This project is for the design and implementation of two large-scale capital projects to address capacity and flooding issues at the intersection of Commonwealth Avenue and East Glebe Road and Ashby Street and East Glebe Road under Flood Action Alexandria. In the Four Mile Run Watershed, a series of smaller storm sewer systems converge at the intersections of Commonwealth Avenue and East Glebe Road, and Ashby Street and East Glebe Road. During high intensity storm events, the drainage network becomes over capacity and unable to accommodate heavy discharge from multiple upstream systems in tandem, that creates flooding impacts.

The City has been experiencing widespread flooding due to the increase in high intensity precipitation events associated with Climate Change and its inherent low-lying nature adjacent to the Potomac. The City’s 2016 City of Alexandria Storm Sewer Capacity Analysis (CASSCA), service requests received through Alex311 during large storm events, and subsequent investigations have identified segments and junctions of the storm sewer system which could be improved to better convey storm flows and help to reduce surface flooding and impacts to properties.

The project concept and design will consider a mixture of storage, capacity, and green infrastructure solutions to provide flood mitigation with consideration of scenarios under varying storm intensities, including more recent flash flooding events, to create design alternatives and cost-benefit estimates for different levels of service based on varying design storms. The Communications Plan for robust civic engagement will include interaction with the Ad Hoc Stormwater Utility and Flood Mitigation Advisory Group, the City Council, the community, and affected stakeholders to garner input, communicate expectations, and identify and report on project milestone achievements. Tools include but are not limited to a dedicated website with a project progress dashboard, frequent social media updates, inclusion in the eNewsletter, community meetings, and Council discussions.

Funding in the FY 2021 – FY 2030 CIP identified capacity project funding in FY 2025 and FY 2028 based on earlier planning-level estimates in CASSCA. Adjusted funding in the FY 2022 – FY 2031 CIP identified design funding appropriations in FY 2022 for the full design and FY 2024 for the full construction funding for these projects. The City continues to pursue state and federal grants to accelerate delivery of projects and offset local funding needs to soften proposed Stormwater Utility Fee increases in the 10-Year CIP.

An RFQu for consultant-led design services was issued in January 2022.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Eco-City Charter; Strategic Plan; Water Quality Management Supplement to the City’s Master Plan; MS4 General Permit; Environmental Action Plan (EAP) 2040; City of Alexandria Storm Sewer Capacity Analysis (CASSCA); Flood Action Alexandria; Northern Virginia Flood Hazard Mitigation Plan

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## LARGE CAPACITY - HOOFFS RUN CULVERT BYPASS

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Northridge / Rosemont  
 REPORTING AREA: Northridge / Rosemont

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 50 – 75 years

Large Capacity - Hooffs Run Culvert Bypass													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>48,528,200</b>	-	-	<b>16,176,100</b>	<b>32,352,100</b>	-	-	-	-	-	-	-	<b>48,528,200</b>
Financing Plan													
GO Bonds (Stormwater)	48,528,200	-	-	16,176,100	32,352,100	-	-	-	-	-	-	-	48,528,200
<b>Financing Plan Total</b>	<b>48,528,200</b>	-	-	<b>16,176,100</b>	<b>32,352,100</b>	-	-	-	-	-	-	-	<b>48,528,200</b>

### CHANGES FROM PRIOR YEAR CIP

New project added to FY 2023 - FY 2032 CIP; this funding has been separated out from the Storm Sewer Capacity Projects program.

### PROJECT DESCRIPTION & JUSTIFICATION

This project includes the design and implementation of the third prioritized capital project under Flood Action Alexandria which will address capacity and flooding issues associated with the Hooffs Run Culvert by creating a bypass for Timber Branch in a new culvert to remove that flow from the existing Hooffs Run Culvert. The project concept and design will consider a new bypass culvert to carry flows from Timber Branch, generally along Russell Road to the south, and may include a mixture of storage, capacity, and green infrastructure solutions to provide flood mitigation with consideration of scenarios under varying storm intensities, including more recent flash flooding events, to create design alternatives and cost-benefit estimates for different levels of service based on varying design storms.

In the Timber Branch / Hooffs Run Watershed, the Timber Branch stream enters a culvert near the intersection of W. Glendale and W. Timber Branch Parkway. The culvert is situated along the backyards of the properties fronting W. Glendale Avenue and Summers Drive and W. Glendale Avenue and W. Spring Street and joins the lower portion of the Hooffs Run Culvert near E. Spring Street and leads south near Commonwealth Avenue in a single culvert. During high intensity storm events, the drainage network becomes over capacity and unable to accommodate heavy discharge from multiple upstream systems in tandem, that creates flooding impacts.

The City has been experiencing widespread flooding due to the increase in high intensity precipitation events associated with Climate Change and its inherent low-lying nature adjacent to the Potomac. The City’s 2016 City of Alexandria Storm Sewer Capacity Analysis (CASSCA), service requests received through Alex311 during large storm events, and subsequent investigations have identified segments and junctions of the storm sewer system which could be improved to better convey storm flows and help to reduce surface flooding and impacts to properties.

The Communications Plan for robust civic engagement will include interaction with the Ad Hoc Stormwater Utility and Flood Mitigation Advisory Group, the City Council, the community, and affected stakeholders to garner input, communicate expectations, and identify and report on project milestone achievements. Tools include, but are not limited to, a dedicated website with a project progress dashboard, frequent social media updates, inclusion in the eNewsletter, community meetings, and Council discussions.

Funding in the FY 2022 – FY 2031 CIP identified scheduled design funding appropriations in FY 2022 and full construction funding split in three separate fiscal years in FY 2022, FY 2024, and FY 2026 for scheduling of complete construction funding based on the current cost estimate. No grants or external funding has been secured to date; however, the City continues to pursue state and federal grants to accelerate delivery of projects and offset local funding needs to soften proposed Stormwater Utility Fee increases in the 10-Year CIP.

Staff will procure consultant-led design services through the issuance of an RFQ for these services expected to be issued in February 2022.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Eco-City Charter; Strategic Plan; MS4 General Permit; Environmental Action Plan (EAP) 2040; City of Alexandria Storm Sewer Capacity Analysis (CASSCA); Flood Action Alexandria; Northern Virginia Flood Hazard Mitigation Plan

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## LUCKY RUN STREAM RESTORATION

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: 2601 Gadsby Place  
 REPORTING AREA: Beauregard

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 21-25

Lucky Run Stream Restoration													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>2,852,715</b>	<b>2,852,715</b>	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
GO Bonds (Stormwater)	1,935,000	1,935,000	-	-	-	-	-	-	-	-	-	-	-
State/Federal Grants	668,720	668,720	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	248,995	248,995	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>2,852,715</b>	<b>2,852,715</b>	-	-	-	-	-	-	-	-	-	-	-
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

### PROJECT DESCRIPTION & JUSTIFICATION

Urban Stream Restoration is one of the major strategies in the City's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan and referenced in the City's Eco-City Alexandria Environmental Action Plan 2040, to reduce pollution and address the Bay TMDL mandates enforced through the City's Municipal Separate Storm Sewer System (MS4) permit. However, more importantly, the project seeks to stabilize critical infrastructure and the channel, restore ecological habitats, and remove invasive vegetation and replanting with native vegetation as a sample of the planned co-benefits. The exposed portion of the sanitary sewer located along the existing stream bank is planned to be buried and that portion of the stream will be relocated farther away from the sewer.

To comply with the Chesapeake Bay Action Plan targets, the City completed preliminary stream assessment to obtain information on conditions to guide in protecting and restoring local streams. During these assessments, Lucky Run was identified as being in poor condition, making it a prime candidate for a stream restoration project. While the Lucky Run Stream Restoration project is a cost-effective strategy to meet the City's pollution reduction requirements, this project also offers an opportunity to stabilize the critical sanitary sewer infrastructure, address accelerated erosion of the stream banks enhance the ecological integrity of the stream, and enhance the Resource Protection Area (RPA) Also, the project will include major rehabilitative maintenance of the Lucky Run Pond under the agreement stating that the City is required to perform maintenance for this regional facility to ensure proper functioning and the ability to continue claiming pollutant removal credits for the Pond as noted in the Phase 1 Bay TMDL Action Plan.

Initial project schedule delay was due to challenges with public engagement during the COVID-19 public health emergency and the need for more engagement with the community. Staff held a work session with City Council at the April 27, 2021 legislative meeting. At the work session, City Council instructed staff to perform soil analysis tests on the stream using the updated Expert Panel protocol, while proceeding with the Lucky Run project.

The City has been awarded a \$668,720 grant from the state through the Stormwater Local Assistance Fund (SLAF) by leveraging an equivalent amount of funding from the Stream and Channel Maintenance project to fund this project. This reduced the original City contribution by half of the original estimated amount for the stream restoration portion of the project. However, changes to the schedule due to COVID and increases in costs will likely require additional available funding from the MS4-TMDL Water Quality Improvements program to supplement the initial funding in order to deliver the stream restoration and pond rehabilitation work. Design is completed and construction procurement will occur in FY 2022, with an anticipated completion in 2023.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) General Permit, Program Plan, and Year 5 Annual Report; City's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan; Strategic Plan; Eco-City Charter; Environmental Action Plan; Green Infrastructure Program

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.



## MS4-TMDL COMPLIANCE WATER QUALITY IMPRV.

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 30+ Years

MS4-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	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>23,430,000</b>	<b>5,605,000</b>	<b>1,300,000</b>	<b>2,100,000</b>	<b>1,800,000</b>	<b>2,050,000</b>	<b>1,750,000</b>	<b>2,000,000</b>	<b>2,575,000</b>	<b>1,500,000</b>	<b>1,000,000</b>	<b>1,750,000</b>	<b>17,825,000</b>
Financing Plan													
GO Bonds (Stormwater)	9,328,401	3,375,401	-	-	-	-	-	-	1,703,000	1,500,000	1,000,000	1,750,000	5,953,000
Stormwater Utility Fund	14,101,599	2,229,599	1,300,000	2,100,000	1,800,000	2,050,000	1,750,000	2,000,000	872,000	-	-	-	11,872,000
<b>Financing Plan Total</b>	<b>23,430,000</b>	<b>5,605,000</b>	<b>1,300,000</b>	<b>2,100,000</b>	<b>1,800,000</b>	<b>2,050,000</b>	<b>1,750,000</b>	<b>2,000,000</b>	<b>2,575,000</b>	<b>1,500,000</b>	<b>1,000,000</b>	<b>1,750,000</b>	<b>17,825,000</b>
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

Funding added for FY 2032.

### PROJECT DESCRIPTION & JUSTIFICATION

The Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on July 1, 2013 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan required and enforced through three 5-year MS4 permit cycles. Accordingly, the permit requires the City to implement stormwater treatment best management practices (BMPs) sufficient to achieve 5% of the reduction targets during the first 5-year permit (2013-2018), to achieve an additional 35% or 40% of total reduction targets during the second 5-year permit (2018-2023) by 2023, and the remaining 60% or 100% of the reductions on or before the end of the third permit cycle (2023-2028), but no later than by 2028.

The City continues planning efforts and identifying projects from the list of strategies in the City's Bay TMDL Action Plan. These plans and options are discussed through the City's Water Quality Workgroup, and through meetings with other internal and external stakeholders. The City completed the Chesapeake Bay TMDL Compliance Analysis and Options report (August 2014) that considered options and alternatives for treating stormwater to meet the Bay TMDL regulatory mandates, along with the corresponding planning-level costs to implement these alternatives. These formed the basis of the strategies included in the City's Phase 1 Chesapeake Bay TMDL Action Plan for 5% targets and in the subsequent draft (June 1, 2018) and final Phase 2 Chesapeake Bay Action Plan, dated September 24, 2019, to meet a total 40% of the targets. This budget is based on funding that can be used to implement a diverse mix of strategies to include retrofit of regional stormwater management facilities, implementation of Green Infrastructure as stormwater quality retrofits of City facilities and right-of-way retrofits, and urban stream restoration. Funding is used as specific projects are identified and developed to achieve these reductions.

Strategies implemented during the second permit cycle (2018 - 2023 permit) have already exceeded the Strategic Plan goal of 45% reductions by 2022 for a total of approximately 74% through June 30, 2021 to move towards more aggressive reductions to meet 100% of the current required reductions as mandated no later than 2028. Permit requirements and other regulatory expectations are adjusted with each successive MS4 permit and with each iteration of the state's Watershed Implementation Plan (WIP). The state is currently implementing the Phase III WIP (WIP III) with plans to develop a Phase IV WIP (WIP IV) likely in 2025.

(Continued on Next Page)

### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) Permit, Program Plan, and Year 5 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan

### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## MS4-TMDL Compliance Water Quality Imprv. (continued)

This project funds separate, discrete projects once identified and moved to the design phase. Past completed projects include the Lake Cook Retrofit and Ben Brenman Pond Retrofit and the upcoming Lucky Run Urban Stream Restoration. Potential new projects may include the following:

Potential City Properties for Retrofit	Estimated Pollutant Reductions (lbs./yr.)		
	TN	TP	TSS
Maintenance Facility / Lockett Field	11	2	1,496
TES / Recreation Operations	8	1	1,113
Traffic Control Shop	3	1	485
ACPS Minnie Howard School	13	2	1,820
ACPS John Adams School	12	2	1,647

Potential Right-of-Way Projects	Estimated Pollutant Reductions (lbs./yr.)		
	TN	TP	TSS
Braddock Rd - North of I-395	12	2	1,547
Braddock Rd - South of I-395	27	4	3,537
King St - North of I-395	8	1	1,053
King St - South of I-395	21	3	2,480
Edsall Rd	9	1	1,078
Yoakum Pkwy	9	1	1,027

## NPDES / MS4 PERMIT

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: Varies

NPDES / MS4 Permit													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>2,744,700</b>	<b>1,150,000</b>	-	<b>170,000</b>	<b>171,700</b>	<b>173,500</b>	<b>175,200</b>	<b>177,000</b>	<b>178,700</b>	<b>180,500</b>	<b>182,200</b>	<b>185,900</b>	<b>1,594,700</b>
Financing Plan													
Cash Capital	250,000	250,000	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	2,494,700	900,000	-	170,000	171,700	173,500	175,200	177,000	178,700	180,500	182,200	185,900	1,594,700
<b>Financing Plan Total</b>	<b>2,744,700</b>	<b>1,150,000</b>	-	<b>170,000</b>	<b>171,700</b>	<b>173,500</b>	<b>175,200</b>	<b>177,000</b>	<b>178,700</b>	<b>180,500</b>	<b>182,200</b>	<b>185,900</b>	<b>1,594,700</b>
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

Funding removed for FY 2023; funding added for FY 2032.

### PROJECT DESCRIPTION & JUSTIFICATION

This project provides funding for the data collection, inspection and enforcement, public education and outreach, public involvement and citizen participation, GIS mapping, development of water quality action plans, BMP database management, and reporting activities associated with implementation of the programs required by the National Pollution Discharge Elimination System (NPDES) permit regulations administered by the Virginia Department of Environmental Quality (DEQ) through the Virginia Stormwater Management Program (VSMP) General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (MS4) per 9VAC25-890 et. seq.

The MS4 general permit has a duration of 5-year cycles that requires the City to develop, implement and enforce an 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 November 1, 2018 and is effective through October 31, 2023. Each successive permit contains increased regulatory requirements which necessitate more resources. The current 2018 – 2023 MS4 general permit is no exception, with increased requirements for public education and outreach, staff training, revisions to Total Maximum Daily Load (TMDL) plans, implementation of Stormwater Pollution Prevention Plans (SWPPPs), enhanced inspections, and additional reporting. The permits continue to contain increasingly stringent mandates to address the Chesapeake Bay Total Maximum Daily Load (TMDL).

The City developed and submitted on April 1, 2018 the required MS4 permit registration statement as an application for coverage under the 2018 – 2023 MS4 general permit, which included the City’s Phase 2 Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan that contains strategies to achieve an additional 35% of reductions in nutrients and sediment by 2023 for a total of 40% required reductions by 2023. The general permit also required the City to update the MS4 Program Plan and perform new programmatic compliance, with MS4 annual reports covering compliance activities and other permit reporting requirements carried out for each fiscal year, to include annual reporting on Chesapeake Bay TMDL Action Plan progress, that are due by October 1st. Planned capital projects to meet the Bay TMDL reductions are budgeted as separate, specific projects under the “Stormwater Management” section of the CIP.

Finally, new broad requirements under the Virginia Watershed Implementation Plan Phase III (WIP III) and changes to guidance documents continue to translate into additional compliance activities.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) Permit; MS4 Program Plan; MS4 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## PHOSPHORUS EXCHANGE BANK

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 30+ Years

Phosphorus Exchange Bank													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

### PROJECT DESCRIPTION & JUSTIFICATION

Virginia Stormwater Management Program (VSMP) regulations, as incorporated into Article XIII of the Alexandria Zoning Ordinance - the Environmental Management Ordinance (EMO) – require properties that undergo development or redevelopment to reduce the amount of phosphorous in stormwater runoff that leaves the site in the post-construction condition. The amount of phosphorus that must be reduced is based upon several factors such as disturbed area, increases in impervious area, land cover types, etc. Owners of development sites may use applicable “offsite compliance options” to meet these requirements pursuant to 62.1-44.15:35 of the Code of Virginia and the attendant VSMP regulations per 9VAC25-870-69 A. The City can ‘exchange’ phosphorus reductions between projects occurring on city-owned properties under the current VSMP regulations.

Small-scale City-funded construction projects and City projects with unfavorable site conditions face difficulties in meeting stormwater management requirements on-site through the installation of stormwater quality structural best management practices (BMPs) due to lack of space and/or cost of construction that make installation infeasible. As such, these projects regularly use offsite compliance options to meet their regulatory phosphorous reduction requirements. Most often, this requirement is met by purchasing nutrient credits from the state’s Nutrient Credit Exchange for practices implemented outside the City within the Potomac River basin. In effect, these purchases send funds outside of the City and provide no benefit to local water quality.

The Transportation and Environmental Services, Stormwater Management Division (T&ES-SWM) created this policy alternative for City projects that allows offsite compliance options that provide benefits to local water quality and keep funds within the City. The policy was developed with input across city agencies, revised given that input, shared and approved by the Virginia Department of Environmental Quality, and executed via signature by the director of Transportation and Environmental Services. This project was initially seeded with \$100,000 to supplement the installation of BMPs that go beyond stormwater quality requirements that may be used on other projects. The project seeding also includes five (5) pounds of phosphorus that may be purchased by other City departments for small capital projects where installation of BMPs are not feasible.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) Permit, Program Plan and Year 5 Annual Report; City's Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## SMALL-MIDSIZE STORMWATER MAINTENANCE PROJECTS

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 1  
 ESTIMATE USEFUL LIFE: Varies

Small-Midsize Stormwater Maintenance Projects													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>7,508,000</b>	-	<b>581,300</b>	<b>613,900</b>	<b>649,100</b>	<b>685,900</b>	<b>724,400</b>	<b>765,800</b>	<b>809,100</b>	<b>854,200</b>	<b>901,400</b>	<b>922,900</b>	<b>7,508,000</b>
Financing Plan													
GO Bonds (Stormwater)	4,136,400	-	-	300,000	300,000	376,500	300,000	372,700	300,000	362,900	901,400	922,900	4,136,400
Stormwater Utility Fund	3,371,600	-	581,300	313,900	349,100	309,400	424,400	393,100	509,100	491,300	-	-	3,371,600
<b>Financing Plan Total</b>	<b>7,508,000</b>	-	<b>581,300</b>	<b>613,900</b>	<b>649,100</b>	<b>685,900</b>	<b>724,400</b>	<b>765,800</b>	<b>809,100</b>	<b>854,200</b>	<b>901,400</b>	<b>922,900</b>	<b>7,508,000</b>

### CHANGES FROM PRIOR YEAR CIP

Project funding increased, over the 10 year plan, by \$2.4 million.

### PROJECT DESCRIPTION & JUSTIFICATION

This project provides annual funding for small and midsize stormwater maintenance projects to accelerate infrastructure repairs beyond maintenance. These small to mid-size stormwater maintenance projects would not be associated with other Spot Improvement projects and would not require in-depth design to mitigate flooding issues.

Typical small to midsize projects include repair/replacement of structure tops, inverts, gutter pans and pipe in the City’s 189-mile storm sewer network and over 13,400 associated catch basin structures. Work may also include rehabilitation of pipe with trenchless technology or dig and replace based on the inspection and condition of the pipe. Work may also include cleaning or replacement of components of outfall structures and any other maintenance activity that keeps structures in satisfactory operating condition.

Currently, the City is in the early stages of compiling data from the enhanced inspections. Based on the data that has been collected to date, it is anticipated that the projects will be completed will fall under the following areas:

Cleaning of Structures	50%
Repair of Structures	20%
Replacement of Structures	5%
Replacement of Pipe Sections	15%
Lining of Pipe Sections	10%

It is noted that these percentages may change, based on requests from citizens, findings from City Staff, findings from closed circuit television inspections, and prioritization of work.

This project was recommended by the City’s Interdepartmental Flooding Management Task Force and performed under the Flood Action Alexandria initiative. A list of headline progress indicators is under development.

### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

N/A

### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## SPOT PROJECT - HUME AVENUE BYPASS

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Hume Avenue  
 REPORTING AREA: Potomac West

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 11 - 15 Years

Spot Project - Hume Avenue Bypass													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>1,070,000</b>	<b>1,070,000</b>	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
ARPA	1,070,000	1,070,000	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>1,070,000</b>	<b>1,070,000</b>	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

New project added to FY 2023 - FY 2032 CIP; this funding has been separated out from the Storm Sewer System Spot Improvements program.

### PROJECT DESCRIPTION & JUSTIFICATION

Severe urban flash flooding occurred in this area on Hume Avenue during more recent severe storm events. The existing storm sewer trunk line passes through private property where the city has no access easements. Approximately 15 properties are impacted by flooding when this trunk line is surcharged. This storm sewer improvement re-routes a section of storm sewer away from private property to the right-of-way. Hume Ave will be resurfaced, and the curb & gutter will be replaced under the Flood Action Alexandria initiative.

The project will address a section of storm sewer pipe that does not have capacity to pass the city's 10-year design storm. The project will disconnect the trunk line at the point it enters private property, and the end will be capped. A new trunk line will traverse Dewitt Ave and continue down Hume Ave where it will re-enter the main line serving the area. The pipe on private property will remain in place and continue to serve the adjacent properties that have low yards with inlets connected to the pipe. At a minimum, the bypass pipe system will be designed to handle the 10-year standard design storm. The curb and gutter and pavement will also be replaced in Hume Ave to improve street drainage.

The neighborhood in this area was part of the Alexandria Flood Action neighborhood outreach program and is currently engaged by staff. Updates to progress is through the city Flood Action website and the Ad Hoc Stormwater Utility and Flood Mitigation Advisory Group.

Most of the project, including the design and construction, is funded by the first tranche of American Rescue Plan Act (ARPA) funding. Given the currently cost estimate, local funding under the stormwater utility program will likely be required to supplement full delivery of the project.

This project will be designed by a consultant currently under contract.

### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Strategic Plan; MS4 General Permit; Environmental Action Plan (EAP) 2040; City of Alexandria Storm Sewer Capacity Analysis (CASSCA); Flood Action Alexandria; Northern Virginia Flood Hazard Mitigation Plan

### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## SPOT PROJECT - MT. VERNON CUL-DE-SAC AND ALLEY

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: 10-Block of Mt. Vernon Ave  
 REPORTING AREA: Potomac West

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 11 - 15 Years

Spot Project - Mt. Vernon Cul-de-sac and Alley													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>830,000</b>	<b>830,000</b>	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
ARPA	830,000	830,000	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>830,000</b>	<b>830,000</b>	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

New project added to FY 2023 - FY 2032 CIP; this funding has been separated out from the Storm Sewer System Spot Improvements program.

### PROJECT DESCRIPTION & JUSTIFICATION

This project included in the Flash Flooding and Spot Improvements project receiving funding from the American Rescue Plan Act (ARPA), and is being delivered under the City’s Flood Action Alexandria initiative. The project is primarily within the right-of-way in the 10-block of Mt Vernon Ave, east of Commonwealth Ave. The project will consist of the construction of new inlets, a storm sewer extension up a portion of Mt Vernon Ave with new inlets at the curbs. Another storm sewer extension will be constructed in the alley to reduce nuisance flooding from alley runoff. Check valves will be installed at the connection to the Hooffs Run Culvert to prevent backflow into My Vernon Ave. A section of sanitary sewer will be installed in the Hooffs Run / Blue Park are with a backflow preventer to reduce sanitary sewer backups for four properties.

The neighborhood in this area was part of the Alexandria Flood Action neighborhood outreach program and is currently engaged by staff. Updates to progress is through the city Flood Action website and the Ad Hoc Stormwater Utility and Flood Mitigation Advisory Group.

Severe urban flash flooding occurs in this area. The existing storm sewer in Mt Vernon Ave is inadequate to pass the local drainage from the city standard 10-year design storm and causes nuisance flooding and compounds severe flooding when the Hooffs Run Culvert is surcharged. This project will improve the local stormwater runoff management and increase the efficiency of moving stormwater through the storm sewers, reducing the frequency of nuisance flooding, and reduce the surcharge flooding from Hooffs Run Culvert during extreme flash flood events.

Most of this project is funded by American Rescue Plan Act (ARPA) under the Flash Flooding and Spot Improvements project designation.

### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Strategic Plan; MS4 General Permit; Environmental Action Plan (EAP) 2040; City of Alexandria Storm Sewer Capacity Analysis (CASSCA); Flood Action Alexandria; Northern Virginia Flood Hazard Mitigation Plan

### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## STORM SEWER CAPACITY PROJECTS

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 11 - 15 Years

Storm Sewer Capacity Projects													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>95,560,988</b>	<b>26,685,988</b>	-	-	-	<b>15,950,000</b>	<b>15,200,000</b>	<b>13,675,000</b>	<b>6,700,000</b>	<b>6,350,000</b>	<b>4,000,000</b>	<b>7,000,000</b>	<b>68,875,000</b>
Financing Plan													
Cash Capital	949,492	949,492	-	-	-	-	-	-	-	-	-	-	-
GO Bonds (Stormwater)	79,191,300	14,535,000	-	-	-	14,761,800	13,367,900	13,226,600	6,450,000	6,100,000	3,750,000	7,000,000	64,656,300
Stormwater Utility Fund	10,055,197	5,836,497	-	-	-	1,188,200	1,832,100	448,400	250,000	250,000	250,000	-	4,218,700
Use of Stormwater Fund Utility Balance	3,600,000	3,600,000	-	-	-	-	-	-	-	-	-	-	-
Use of Stormwater Tax Dedication Fund	1,765,000	1,765,000	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>95,560,988</b>	<b>26,685,988</b>	-	-	-	<b>15,950,000</b>	<b>15,200,000</b>	<b>13,675,000</b>	<b>6,700,000</b>	<b>6,350,000</b>	<b>4,000,000</b>	<b>7,000,000</b>	<b>68,875,000</b>
Operating Impact			-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

Project funding decreased, over the 10 year plan, by \$80.6 million. Funding was moved into separate projects for Commonwealth Ave & E. Glebe/Ashby St & Glebe Rd and Hooffs Run Culvert Bypass large capacity projects.

### PROJECT DESCRIPTION & JUSTIFICATION

This project includes the aggressive design and implementation of large-scale capital projects to address capacity and flooding issues. The City has experienced repeated and increasingly frequent flooding from storm events which lead to development of the *City of Alexandria Storm Sewer Capacity Analysis (CASSCA, 2016)*, a multi-year citywide storm sewer analysis and planning-level exercise to identify potential capacity issues and develop prioritized recommendations for improvements to the storm sewer system.

The City experienced three flash flooding events (July 8, 2019; July 23, 2020; and September 10, 2020) primarily as a result of climate change-induced severe rain events. Indications are that the City will continue to experience these severe rainfall events more frequently and that these large capital projects can provide a mix of conveyance and storage options to achieve long-term solutions to flooding issues.

The top 11 projects were prioritized based on planning-level cost-benefit analysis. These projects will mitigate flooding for the greatest number of residents, direct investment to areas where the most significant property damage is occurring and provide the greatest overall system benefit.

The prioritization sequence incorporates multiple data points such as the previous storm sewer and capacity analysis (CASSCA, 2016), property impacts documented through Alex311 service requests, refinement of those priorities through recent and ongoing neighborhood engagement meetings, and infrastructure connectivity from a systems perspective. These inputs were used to further prioritize capacity issues compared against reported issues and feedback from neighborhood groups. This prioritization includes a systematic (holistic, watershed) perspective to provide the needed capacity (conveyance and storage as practicable) that must first ensure downstream capacity is adequate before upstream issues can be addressed. For these large capacity capital projects that are costly, multi-year projects at the multi-block level, there is a greater level of certainty of project sequencing for the first three to four years. The estimated funding for the top three capacity projects is as follows:

1. Commonwealth Ave and Glebe Road: Design Fully Funded in FY 2022 and Construction Fully Funded in FY 2023. Planning level estimate of \$34 million.
2. Ashby Street and Glebe Road: Design Fully Funded in FY 2022 and Construction Fully Funded in FY 2024. Planning level estimate of \$16 million.
3. Hooffs Run Culvert Bypass: Design Fully Funded in FY 2022 and Construction Fully Funded in FY 2025. Planning level estimate of \$60 million.

(Continued on next page)

### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

### ADDITIONAL OPERATING IMPACTS

Eco-City Charter; Strategic Plan; Water Quality Management Supplement to the City's Master Plan; MS4 General Permit; Environmental Action Plan (EAP) 2040; City of Alexandria Storm Sewer Capacity Analysis (CASSCA); Flood Action Alexandria; Northern Virginia Flood Hazard Mitigation Plan

No additional operating impacts identified at this time.



## Storm Sewer Capacity Projects (continued)

All planning and modeling to date is based on conceptual cost estimates and preliminary assessments, so there is considerable risk that costs could be higher than anticipated. During the feasibility and design of the first three projects, staff will conduct further cost-benefit analysis of including additional flood mitigation and resiliency in the design of these and future capacity projects to determine the potential positive impact of designing these projects beyond the City's 10-year storm design standard. It should be noted that even if the City designs capacity projects for larger, more intense storm events, there is always the risk that an even more significant rain event will occur. In those situations, greater capacity will help, but it cannot eliminate the risk of flooding entirely. If a higher design standard than the 10-year storm is used, and therefore individual projects likely cost far more than projected and afforded in this model, fewer projects will be delivered overall unless additional funding can be provided.

FY 2026 to FY 2032 Projects

Project sequencing from FY 2026 to FY 2032 was based on the same considerations as the earlier projects; however, these may require reprioritization as further cost-benefit analysis, feasibility, and other design considerations become more available. These projects also include funding for potential property acquisition and/or public-private partnerships. The projects for the remaining six years of the capacity project element of the 10-Year Plan will address the following areas:

1. Edison and Dale Streets
2. Dewitt Avenue
3. East Mason Avenue
4. Notabene Drive and Old Dominion Boulevard
5. Mt. Vernon Avenue, East Glendale Avenue, East Luray Avenue, and East Alexandria Avenue
6. East Monroe Avenue and Wayne Street
7. Russell Rd & W. Rosemont Ave
8. Russell Rd & W. Rosemont Ave (south)

The schedule is aggressive, based on generic stormwater construction projects, and intended for financial planning and budgetary purposes only. Until substantial feasibility and design work is completed for each specific project, the schedule and budget will only be estimates that will include significant contingencies. As additional information is collected and the design of each project is further defined, more precise construction schedules and cost estimates can be developed.

## STORM SEWER SYSTEM SPOT IMPROVEMENTS

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 1  
 ESTIMATE USEFUL LIFE: Varies

Storm Sewer System Spot Improvements													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>57,353,902</b>	<b>11,165,902</b>	<b>5,907,000</b>	<b>4,011,000</b>	<b>4,122,000</b>	<b>4,228,000</b>	<b>4,337,000</b>	<b>4,540,000</b>	<b>4,606,000</b>	<b>4,688,000</b>	<b>4,812,000</b>	<b>4,937,000</b>	<b>46,188,000</b>
Financing Plan													
Cash Capital	3,076,648	3,076,648	-	-	-	-	-	-	-	-	-	-	-
GO Bonds (Stormwater)	43,806,927	5,328,827	1,717,900	2,908,000	2,905,200	4,071,000	4,173,000	4,278,000	4,385,000	4,495,000	4,608,000	4,937,000	38,478,100
Private Capital Contributions	9,927	9,927	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	8,321,218	2,750,500	2,049,918	1,103,000	1,216,800	157,000	164,000	262,000	221,000	193,000	204,000	-	5,570,718
Use of Stormwater Fund Utility Balance	2,139,182	2,139,182	-	-	-	-	-	-	-	-	-	-	2,139,182
<b>Financing Plan Total</b>	<b>57,353,902</b>	<b>11,165,902</b>	<b>5,907,000</b>	<b>4,011,000</b>	<b>4,122,000</b>	<b>4,228,000</b>	<b>4,337,000</b>	<b>4,540,000</b>	<b>4,606,000</b>	<b>4,688,000</b>	<b>4,812,000</b>	<b>4,937,000</b>	<b>46,188,000</b>
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

Project funding increased, over the 10-year plan, by \$20.2 million.

### PROJECT DESCRIPTION & JUSTIFICATION

This project provides funding for essential capital infrastructure that provide localized flood mitigation to specific neighborhoods on the lot and block level. These “Spot Improvements” of the City’s storm sewer system are typically small to mid-sized capital projects that alleviate localized drainage and flooding concerns and can be implemented in 8 to 20 months from the beginning of design. These projects are typically identified through Alex311 inquiries, field observations, neighborhood engagement meetings, and onsite investigations.

A list of projects planned for FY 2023 – FY 2024 is included below. Due to the possibility of unexpected or emergency repairs, or if efficiencies can be achieved by staging projects together, the list is subject to change:

**FY 2023**

- Lloyd's Lane
- N. Columbus Street Alley
- E. Alexandria and Dewitt
- E. Linden near Commonwealth
- Pitt and Gibbon Streets
- Clifford/Manning/Fulton Street Green Alley

**FY 2024**

- Ansell Street and Commonwealth
- Park Fairfax - Valley and Gunston Rd
- West Taylor Run Pkwy and Janneys Lane
- Commonwealth - East Rosemont & East Maple
- E. Del Ray & Commonwealth
- E. Abingdon
- Taney Rd & Paxton Street
- Commonwealth & Glebe
- North Morgan Street
- Sanford Street

City staff continues to identify spot projects to provide improvements in the short to mid-term timeframe while concurrently advancing system capacity upgrades to reduce flooding. Completion of these Spot projects will improve the City’s storm sewer capital infrastructure while mitigating the impacts of localized flooding and drainage issues. Planning efforts related to the more recent flooding events include a wider identification and prioritization of Spot projects for consideration of scheduling and funding based on neighborhood engagement in response to flooding and further investigation of those issues. This includes maintaining and updating the ranking and prioritization for those identified projects.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Eco-City Charter; Strategic Plan; Water Quality Management Supplement to the City’s Master Plan; MS4 General Permit; Environmental Action Plan (EAP) 2040; City of Alexandria Storm Sewer Capacity Analysis (CASSCA); Flood Action Alexandria; Northern Virginia Hazard Mitigation Plan

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## STORMWATER BMP MAINTENANCE CFMP

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 1  
 ESTIMATE USEFUL LIFE: 30+ Years

Stormwater BMP Maintenance CFMP													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>7,783,000</b>	<b>520,000</b>	<b>286,000</b>	<b>303,500</b>	<b>1,575,300</b>	<b>1,622,500</b>	<b>317,100</b>	<b>326,600</b>	<b>336,400</b>	<b>346,500</b>	<b>356,900</b>	<b>1,792,200</b>	<b>7,263,000</b>
Financing Plan													
GO Bonds (Stormwater)	2,495,600	-	-	-	-	-	-	-	-	346,500	356,900	1,792,200	2,495,600
Stormwater Utility Fund	5,287,400	520,000	286,000	303,500	1,575,300	1,622,500	317,100	326,600	336,400	-	-	-	4,767,400
<b>Financing Plan Total</b>	<b>7,783,000</b>	<b>520,000</b>	<b>286,000</b>	<b>303,500</b>	<b>1,575,300</b>	<b>1,622,500</b>	<b>317,100</b>	<b>326,600</b>	<b>336,400</b>	<b>346,500</b>	<b>356,900</b>	<b>1,792,200</b>	<b>7,263,000</b>
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

Project funding increased, over the 10-year plan, by \$3.5 million.

### PROJECT DESCRIPTION & JUSTIFICATION

The City is required to inspect and maintain stormwater facility best management practices (BMPs) installed to meet the City's Chesapeake Bay cleanup mandates. The Virginia Department of Environmental Quality (DEQ) issued the City's current Municipal Separate Storm Sewer System (MS4) Permit on November 1, 2018 that mandates City-specific stormwater nutrient and sediment reduction targets for the Chesapeake Bay Total Maximum Daily Load (TMDL) enforced through three 5-year MS4 permit cycles. Accordingly, the previous 2013-2018 MS4 permit required the City to implement stormwater treatment best management practices (BMPs) sufficient to achieve 5% of the reduction targets. The current MS4 permit requires implementation of practices to achieve an additional 35% or 40% of total reduction targets during the second 5-year permit (2018-2023) by 2023. The remaining 60% or 100% of the reductions are to be achieved on or before the end of the third permit cycle (2023-2028), and no later than 2028. Identification of strategies to meet these reductions, which includes the retrofit of large regional ponds, urban stream restoration, and installation of green infrastructure, are included in the City's Chesapeake Bay TMDL Action Plan.

Long-term maintenance of this new infrastructure must be performed to ensure proper functioning and reduce pollution in stormwater runoff to meet the state and federal mandates. This project funds maintenance of Stormwater Best Management Practices (BMPs) implemented throughout the City, with a focus on the maintenance of larger stormwater management capital projects implemented under the Bay TMDL Action Plan:

- Cameron Station Pond Retrofit
- City Facilities Stormwater BMPs
- Green Infrastructure
- Lake Cook Stormwater Management
- Lucky Run Stream Restoration
- MS4-TMDL Water Quality Compliance projects
- Strawberry Run Stream Restoration
- Taylor Run Stream Restoration

### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Bay TMDL Action Plan, MS4 General Permit, Strategic Plan, Environmental Action Plan, Water Quality Management Supplement

### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## STORMWATER UTILITY IMPLEMENTATION

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 1  
 ESTIMATE USEFUL LIFE: N/A

Stormwater Utility Implementation													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>1,673,200</b>	<b>1,673,200</b>	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
Cash Capital	1,518,200	1,518,200	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	155,000	155,000	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>1,673,200</b>	<b>1,673,200</b>	-	-	-	-	-	-	-	-	-	-	-
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

No changes from previous CIP.

### PROJECT DESCRIPTION & JUSTIFICATION

The City Council directed staff in February 2016 to develop the framework of a Stormwater Utility (SWU) to provide a dedicated funding source to more equitably distribute the increasing costs of recent state and federal Chesapeake Bay water pollution reduction mandates that require the implementation of costly infrastructure associated with stormwater management, as enforced through the City’s Municipal Separate Storm Sewer System (MS4) general permit. Also, to fund flooding mitigation capital projects. Increasing operating and capital costs associated with the mandates exceeded the ½ cent dedication, demanding increasing contributions from the General Fund. Creation of the SWU more equitably apportions the cost obligation and provides a dedicated funding source for the City’s Stormwater Management Program by shifting the burden to those properties that contribute more to stormwater runoff, thus alleviating pressure on the General Fund to support these funding responsibilities.

Following extensive public outreach, the City Council adopted the Stormwater Utility framework at its May 4, 2017 special meeting as part of the FY 2018 Budget. The City began implementing the Stormwater Utility Fee, effective January 1, 2018. First billing was sent May 2018 and second billing in October 2018, with the Real Estate bill. Every May and October thereafter, the Stormwater Utility bill was sent with each Real Estate bill, to fund these mandated stormwater improvements and the stormwater management program in an adequate, sustainable and equitable manner.

Database management, additional systems development (database modeling, integration and user interfaces), ongoing GIS data management, and other identified needs will continue, to successfully implement the utility. Extensive and ongoing robust public engagement is also key to implementation of the utility. Finally, an update to the Credit Program is currently under review to consider expanding the Credit Program to include flood mitigation practices for partial waivers to property owners for eligible practices.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

City of Alexandria Municipal Separate Storm Sewer System (MS4) Permit; MS4 Program Plan; MS4 Year 5 Annual Report; City’s Chesapeake Bay TMDL Action Plan; T&ES Strategic Plan; Eco-City Charter; Eco-City Action Plan 2040; Flood Action Alexandria

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## STRAWBERRY RUN STREAM RESTORATION

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation & Environmental Services

PROJECT LOCATION: Ft. Williams Parkway  
 REPORTING AREA: Seminary Hill

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustain.

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 21-25 years

Strawberry Run Stream Restoration													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>1,645,138</b>	<b>1,645,138</b>	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
Cash Capital	50,000	50,000	-	-	-	-	-	-	-	-	-	-	-
GO Bonds (Stormwater)	625,000	625,000	-	-	-	-	-	-	-	-	-	-	-
State/Federal Grants	800,000	800,000	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	170,138	170,138	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>1,645,138</b>	<b>1,645,138</b>	-	-	-	-	-	-	-	-	-	-	-
Operating Impact													

### CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

### PROJECT DESCRIPTION & JUSTIFICATION

This project includes restoring approximately 900 linear feet of the Strawberry Run stream north of Duke Street and continuing north to the culvert under Fort Williams Parkway. It is bounded by residential development along Taft Avenue, Featherstone Place, and Fort Williams Parkway. When the Taft Avenue development was constructed, stream restoration was completed for a 500-foot section of Strawberry Run just to the north of Duke Street, before the current requirements.

The restoration project is proposed to stabilize the stream banks to mitigate erosion and protect nearby private property, repair a stormwater outfall, and provide overall improvement to stream health, while protecting local water quality and mitigating the transport of pollutants to the Chesapeake Bay.

This project was initially identified in the FY 2019 Phase III Stream Restoration and Outfall Rehabilitation Feasibility Study. The Study considered prioritization and identified strategies for five stream segments for potential restoration projects and five outfalls for potential rehabilitation. The Study prioritized two potential stream restoration projects, with the top two potential projects identified along Strawberry Run and Taylor Run. Partial funding for the Strawberry Run project included funding from this project and from the MS4 TMDL Water Quality Improvement CIP project.

City Council has acted on the project as part of the Chesapeake Bay TMDL Action Plan, the Stormwater Local Assistance Fund (SLAF) grant application, and through the budget process. The Virginia Department of Environmental Quality (VDEQ) reviewed the concept plan and performed a site walk as part of the SLAF award and has more recently reviewed the current plans. The project team consists of City staff from T&ES, RPCA, DPI and a consultant. A schedule delay was due to challenges with public engagement during the COVID-19 public health emergency and the need for more engagement. Staff has conducted public outreach and engagement via the following: general in-person and virtual public meetings; Parks and Recreation Commission; Environmental Policy Commission (EPC); targeted civic associations; social media posts; providing a 21-day public comment period; written responses; interviews with local news organizations; and, a comprehensive, dedicated project webpage.

Staff held a work session with City Council at the April 27, 2021 legislative meeting. At the work session, City Council instructed staff to perform soil analysis tests on the stream using the updated Expert Panel protocol, to pause the planned stream restoration project for further evaluation, and evaluate alternatives to natural channel design in coordination with the EPC. Council instructed staff to return as soon as possible with a planned schedule and summary of impacts. Therefore, the anticipated completion date is to be determined at this time.

The SLAF grant deadline was previously extended by the VDEQ for one year due to COVID impacts. While the VDEQ SLAF award requires the City to have a signed grant agreement by the extended deadline of June 30, 2022, VDEQ has recently stated that the intent of the SLAF grant deadline is to ensure that applicants are making a good faith effort to move projects forward. It is possible VDEQ will be willing to adjust the sunset date if requested by the City. As the analysis of alternatives to natural channel design proceeds, staff will consider requesting an extension to the SLAF grant deadlines if appropriate.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

MS4 General Permit, Chesapeake Bay TMDL Action Plan, Strategic Plan, Environmental Action Plan 2040, Open Space Plan

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## STREAM & CHANNEL MAINTENANCE

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide  
 REPORTING AREA: Citywide

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustainability

PROJECT CATEGORY: 1  
 ESTIMATE USEFUL LIFE: Varies

Stream & Channel Maintenance													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>17,529,654</b>	<b>7,429,454</b>	<b>881,000</b>	<b>907,500</b>	<b>934,700</b>	<b>962,700</b>	<b>991,600</b>	<b>1,021,400</b>	<b>1,052,000</b>	<b>1,083,600</b>	<b>1,116,100</b>	<b>1,149,600</b>	<b>10,100,200</b>
Financing Plan													
Cash Capital	3,802,125	3,802,125	-	-	-	-	-	-	-	-	-	-	-
GO Bonds	1,487,602	1,487,602	-	-	-	-	-	-	-	-	-	-	-
GO Bonds (Stormwater)	8,710,700	-	530,000	603,500	842,700	914,700	799,100	971,400	862,000	1,030,600	1,062,100	1,094,600	8,710,700
Private Capital Contributions	230,000	230,000	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	3,299,227	1,909,727	351,000	304,000	92,000	48,000	192,500	50,000	190,000	53,000	54,000	55,000	1,389,500
<b>Financing Plan Total</b>	<b>17,529,654</b>	<b>7,429,454</b>	<b>881,000</b>	<b>907,500</b>	<b>934,700</b>	<b>962,700</b>	<b>991,600</b>	<b>1,021,400</b>	<b>1,052,000</b>	<b>1,083,600</b>	<b>1,116,100</b>	<b>1,149,600</b>	<b>10,100,200</b>
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

Funding added for FY 2032.

### PROJECT DESCRIPTION & JUSTIFICATION

This capital maintenance project preserves the capacity for City streams and channels to carry a 100-year floodwater, performs repairs to erosion damage, stream corridor degradation, grade control structures, storm sewer discharge points, and provides for stream stabilization/restoration. Projects may minimize blockages at bridges by removing and thinning excess vegetation and restoring conveyance capacity by removing sediment that accumulates more quickly due to more frequent, intense storm events. Efforts typically include sediment removal, vegetation maintenance, and in Holmes Run and Cameron Run watersheds, often include efforts in smaller tributaries to these streams.

The increasing frequency of climate-change induced intense storm events is requiring increased funding to ensure the conveyance capacity of these waterways as climate resiliency and adaption measures consistent with the City's Climate Emergency Declaration. In response to recommendations through the Flood Action Alexandria initiative, this project included a funding increase of over \$0.4 million annually for a total of \$10.1M over the 10-year period to perform more aggressive inspection and maintenance of the City's larger flood channels due to the impact from more frequent, intense storm events.

Sediment removal and vegetation maintenance was conducted on Cameron Run in FY 2018. Vegetation maintenance for Holmes Run is scheduled to occur in FY 2023 and likely Cameron Run. Staff will also be prioritizing projects on our smaller streams, including Hooffs Run, Taylor Run, Timber Branch, Backlick, and tributaries to larger streams to ensure there are no blockages at road and railroad crossings and that conveyance capacity is maintained. A condition inspection of the Lake Cook Eisenhower Culverts – the discharge culverts from Lake Cook under Eisenhower Avenue to Cameron Run – will take place in FY 2023, along with a schedule for design and maintenance depending on the condition inspection.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Eco-City Charter; Water Quality Management Supplement to City Master Plan; MS4 General Permit and Program Plan; Chesapeake Bay TMDL Action Plan; Strategic Plan; Flood Action Alexandria

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

## TAYLOR RUN STREAM RESTORATION

DOCUMENT SUBSECTION: Stormwater Management  
 MANAGING DEPARTMENT: Department of Transportation & Environmental Services

PROJECT LOCATION: Chinguapin and Forest Parks  
 REPORTING AREA: Taylor Run

PRIMARY STRATEGIC THEME: Theme 8: Environmental Sustain.

PROJECT CATEGORY: 3  
 ESTIMATE USEFUL LIFE: 21-25 Years

Taylor Run Stream Restoration													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total FY 2023 - FY 2032
<b>Expenditure Budget</b>	<b>4,540,258</b>	<b>4,540,258</b>	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
Cash Capital	100,000	100,000	-	-	-	-	-	-	-	-	-	-	-
GO Bonds (Stormwater)	1,867,850	1,867,850	-	-	-	-	-	-	-	-	-	-	-
State/Federal Grants	2,255,000	2,255,000	-	-	-	-	-	-	-	-	-	-	-
Stormwater Utility Fund	317,408	317,408	-	-	-	-	-	-	-	-	-	-	-
<b>Financing Plan Total</b>	<b>4,540,258</b>	<b>4,540,258</b>	-	-	-	-	-	-	-	-	-	-	-
Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-

### CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

### PROJECT DESCRIPTION & JUSTIFICATION

The project along Taylor Run is mainly located in Chinguapin Park, west of King Street in the City. This project will restore a severely degraded section of the stream from below the culvert near the Chinguapin Recreation Center to approximately 1,900 feet downstream. The project goals include stabilizing the stream corridor, stabilizing the sanitary sewer infrastructure that is at risk for failure, and enhancing the flora and fauna of the stream, while addressing Chesapeake Bay pollution mandates.

This project was initially identified in the FY 2019 Phase III Stream Restoration and Outfall Rehabilitation Feasibility Study. The Study considered five stream segments for potential restoration projects and five outfalls for potential rehabilitation. The Study prioritized two potential stream restoration projects, with the top two potential projects identified along Strawberry Run and Taylor Run. Partial funding for the Taylor Run project included funding from this project and from the MS4 TMDL Water Quality Improvement CIP project.

The City Council has acted on this project as part of the Chesapeake Bay TMDL Action Plan, the Stormwater Local Assistance Fund (SLAF) grant application, and through the budget process. The Virginia Department of Environmental Quality (VDEQ) reviewed the concept plan and performed a site walk as part of the SLAF award and has more recently reviewed the current plans. The project team consists of City staff from T&ES, RPCA, DPI and a consultant. Initial project schedule delay was due to challenges with engaging the public during the COVID-19 public health emergency, and the need for more engagement with the community. Staff has conducted public outreach and engagement via the following: general in-person and virtual public meetings onsite; at a virtual meeting with a small group from the Environmental Council of Alexandria, representatives from civic associations, and the community; the Parks and Recreation Commission; Environmental Policy Commission (EPC); targeted civic associations; social media posts; providing a 21-day public comment period; written responses; interviews with local news organizations; and, a comprehensive, dedicated project webpage.

Staff held a work session with City Council at the April 27, 2021 legislative meeting. At the work session, City Council instructed staff to perform soil analysis tests on the stream using the updated Expert Panel protocol, to pause the planned stream restoration project for further evaluation, and evaluate alternatives to natural channel design in coordination with the EPC. Council instructed staff to return as soon as possible with a planned schedule and summary of impacts. Therefore, the anticipated completion date is to be determined at this time.

The SLAF grant deadline was previously extended by the VDEQ for one year, due to COVID impacts. While the VDEQ SLAF award requires the City to have a signed grant agreement by the extended deadline of June 30, 2022, VDEQ has recently stated that the intent of the SLAF grant deadline is to ensure that applicants are making a good faith effort to move projects forward. It is possible VDEQ will be willing to adjust the sunset date if requested by the City. As the analysis of alternatives to natural channel design proceeds, staff will consider requesting an extension to the SLAF grant deadlines if appropriate.

#### EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

MS4 General Permit and Program Plan, Chesapeake Bay TMDL Action Plan, Strategic Plan, Environmental Action Plan 2040, Open Space Plan

#### ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.