APPENDIX A

Cameron Run Watershed Plan
Candidate Projects

A-1 Project Fact Sheets for Tier 1 Projects

A-2 Tier 2 Projects

A-3 Tier 3 Projects

A-4 Project Fact Sheets for Selected Drainage Complaint Projects

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APPENDIX A-1

Project Fact Sheets for Tier 1 Projects

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Cameron Run Watershed Plan - Tier 1 Projects

CA9142
CA9957
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CA9139
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CA9885
CA9892
CA9959
CA9886
CA9897
CA9901
CA9904
CA9128
CA9126

CITY OF FALLS CHURCH

Tripps Run

Holmes Run - Upper

Holmes Run - Lower

Turkeycock Run

CA9863
CA9862
CA9861
CA9860
CA9859
CA9107
CA9853
CA9858
CA9118
CA9115
CA9869
CA9868
CA9117
CA9857
CA9866

Indian Run

CA9210
CA9851
CA9207
CA9208
CA9850
CA9856
CA9111
CA9112
CA9830
CA9855
CA9848
CA9846
CA9854

CITY OF ALEXANDRIA

Tribs to Cameron Run

CA9102
CA9100
CA9821
CA9818
CA9802
CA9842
CA9104
CA9829
CA9103
CA9823
CA9822
CA9805
CA9958
CA9809
CA9804
CA9835
CA9813
CA9836
CA9839
CA9827
CA9828
CA9808
CA9807

Backlick Run

Pike Branch

Cameron Run Watershed
Cameron Run Subwatersheds
Streams
Roads

Type of Project

Low Impact Development
New Pond
Stormwater Retrofit Pond
Stream Restoration

N

0 0.5 1 1.5 2 Miles

Farrington Park SWM Pond Retrofit

Project ID: CA9100

Project Name: Farrington Park SWM Pond Retrofit

Project Location: Mount Vernon Dr. & Arlington Terr.

Parcel ID No.:

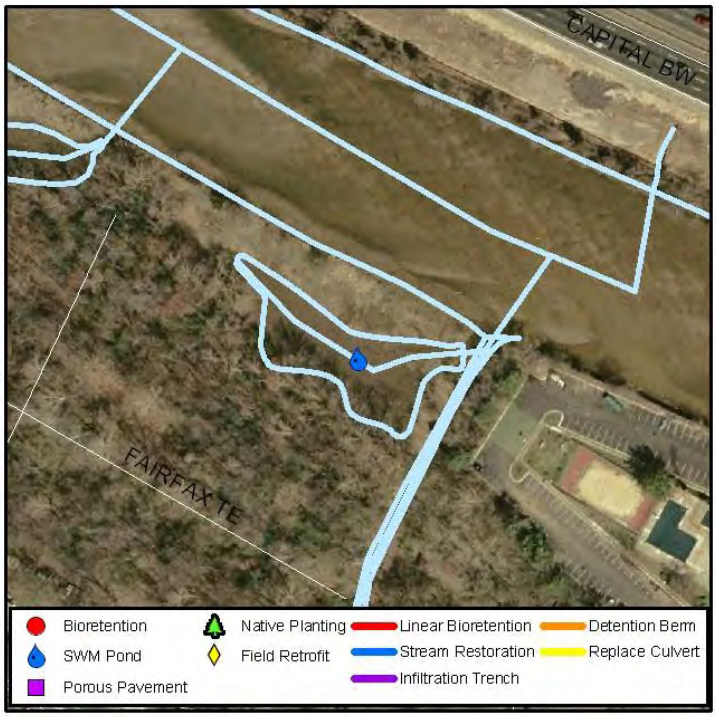
Project Type: Stormwater Pond Retrofit

Subwatershed: Tributaries to Cameron Run

Drainage Area: 13.8 acres

Project Location:

Proposed Project:



Proposed Action:

Expand capacity of existing SWM wet pond and upgrade control structure. This project will be re-evaluated by the on-going flood damage reduction study for the Huntington community (see Section 4.2.7.1) and recommendations from that study may supersede this project.

Outfall into SWM pond

Wetlands adjacent to SWM pond and mainstem Cameron Run

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $61,000

Farrington Park SWM Pond Retrofit

Project ID: CA9100

Project Name: Farrington Park SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	475	CY	$35.00	$16,625
Structural Improvements & Incidentals	1	LS	$10,000.00	$10,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
			Base Cost =	$31,625
			Mobilization (5%) =	$1,581
			Subtotal 1 =	$33,206
			Contingency (25%) =	$8,302
			Subtotal 2 =	$41,508
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$18,679
			Total =	$60,186
			Estimated Project Cost =	$61,000

Huntington Park SWM Pond

Project ID: CA9102

Project Name: Huntington Park SWM Pond
Project Location: Huntington Park
Parcel ID No.: 0831 14C 0110A

Project Type: New Pond

Subwatershed: Tributaries to Cameron Run
Drainage Area: 16.7 acres

Project Location:

Proposed Project:

Proposed Action:

Install SWM pond with micropool areas in pond bottom to provide water quality and extended detention controls. This project will be re-evaluated by the on-going flood damage reduction study for the Huntington community (see Section 4.2.7.1) and recommendations from that study may supersede this project.

Location of small stream meeting mainstem Cameron Run

Stormwater inlet in park

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $98,000

Huntington Park SWM Pond

Project ID: CA9102

Project Name: Huntington Park SWM Pond

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	525	CY	$50.00	$26,250
Structural Improvements & Incidentals	1	LS	$20,000.00	$20,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
			Base Cost =	$51,250
			Mobilization (5%) =	$2,563
			Subtotal 1 =	$53,813
			Contingency (25%) =	$13,453
			Subtotal 2 =	$67,266
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$30,270
			Total =	$97,535
			Estimated Project Cost =	$98,000

Woodfield SWM Pond Retrofit

Project ID: CA9103

Project Type: Stormwater Pond Retrofit

Project Name: Woodfield SWM Pond Retrofit

Subwatershed: Backlick Run

Project Location: Van Dorn St. & Woodfield Estates Dr.

Drainage Area: 102.1 acres

Parcel ID No.: 0814 33 C

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

Outfall entering pond

Outfall entering pond

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $276,000

Woodfield SWM Pond Retrofit

Project ID: CA9103

Project Name: Woodfield SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	3100	CY	$35.00	$108,500
Structural Improvements & Incidentals	1	LS	$20,000.00	$20,000
Erosion & Sediment Control	3100	CY	$3.50	$10,850
Landscaping	3100	CY	$1.75	$5,425

Base Cost =	$144,775
Mobilization (5%) =	$7,239
Subtotal 1 =	$152,014
Contingency (25%) =	$38,003
Subtotal 2 =	$190,017
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$85,508
Total =	$275,525
Estimated Project Cost =	$276,000

Thomas SWM Pond Retrofit

Project ID: CA9104

Project Name: Thomas SWM Pond Retrofit
Project Location: Northanna Dr. & Thomas Dr.
Parcel ID No.: 0813 01 0003

Project Type: Stormwater Pond Retrofit

Subwatershed: Backlick Run
Drainage Area: 39.3 acres

Project Location:

Proposed Project:

Proposed Action:

Expand existing SWM pond control structure to provide additional storage capacity.

Existing stormwater pond

Outfall

Benefits: Provide stormwater quantity controls.
Provide stormwater quality controls.
Improve stormwater quality controls.

Estimated Cost: $148,000

Thomas SWM Pond Retrofit

Project ID: CA9104

Project Name: Thomas SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	1550	CY	$35.00	$54,250
Structural Improvements & Incidentals	1	LS	$15,000.00	$15,000
Erosion & Sediment Control	1550	CY	$3.50	$5,425
Landscaping	1550	CY	$1.75	$2,713

Base Cost =	$77,388
Mobilization (5%) =	$3,869
Subtotal 1 =	$81,257
Contingency (25%) =	$20,314
Subtotal 2 =	$101,571
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$45,707
Total =	$147,278
Estimated Project Cost =	$148,000

Jayhawk SWM Pond Retrofit

Project ID: CA9107

Project Type: Stormwater Pond Retrofit

Project Name: Jayhawk SWM Pond Retrofit

Subwatershed: Backlick Run

Project Location: Ravensworth Rd. & Jayhawk St.

Drainage Area: 46.3 acres

Parcel ID No.: 0711 09 0007A

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

Outlets filled with trash and debris

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $236,000

Jayhawk SWM Pond Retrofit

Project ID: CA9107

Project Name: Jayhawk SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	2575	CY	$35.00	$90,125
Structural Improvements & Incidentals	1	LS	$20,000.00	$20,000
Erosion & Sediment Control	2600	CY	$3.50	$9,100
Landscaping	2600	CY	$1.75	$4,550

Base Cost =	$123,775
Mobilization (5%) =	$6,189
Subtotal 1 =	$129,964
Contingency (25%) =	$32,491
Subtotal 2 =	$162,455
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$73,105
Total =	$235,559
Estimated Project Cost =	$236,000

Beauregard SWM Pond Retrofit

Project ID: CA9111

Project Name: Beauregard SWM Pond Retrofit
Project Location: Strawbridge Square Dr.
Parcel ID No.: 0723 01 0040

Project Type: Stormwater Pond Retrofit

Subwatershed: Turkeycock Run
Drainage Area: 3.5 acres

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

Stormwater outfall

SWM pond

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $25,000

Beauregard SWM Pond Retrofit

Project ID: CA9111

Project Name: Beauregard SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	75	CY	$35.00	$2,625
Structural Improvements & Incidentals	1	LS	$5,000.00	$5,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000

Base Cost =	$12,625
Mobilization (5%) =	$631
Subtotal 1 =	$13,256
Contingency (25%) =	$3,314
Subtotal 2 =	$16,570
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$7,457
Total =	$24,027
Estimated Project Cost =	$25,000

Strawbridge Square SWM Pond Retrofit

Project ID: CA9112

Project Name: Strawbridge Square SWM Pond Retrofit

Project Location: Strawbridge Square Dr. & Lincoln Ave.

Parcel ID No.: 0723 01 0040

Project Type: Stormwater Pond Retrofit

Subwatershed: Turkeycock Run

Drainage Area: 2 acres

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

SWM dry pond

Inlet in parking lot to east leading to pond

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $25,000

Strawbridge Square SWM Pond Retrofit

Project ID: CA9112

Project Name: Strawbridge Square SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	75	CY	$35.00	$2,625
Structural Improvements & Incidentals	1	LS	$5,000.00	$5,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
			Base Cost =	$12,625
			Mobilization (5%) =	$631
			Subtotal 1 =	$13,256
			Contingency (25%) =	$3,314
			Subtotal 2 =	$16,570
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$7,457
			Total =	$24,027
			Estimated Project Cost =	$25,000

Little River SWM Pond Retrofit

Project ID: CA9115

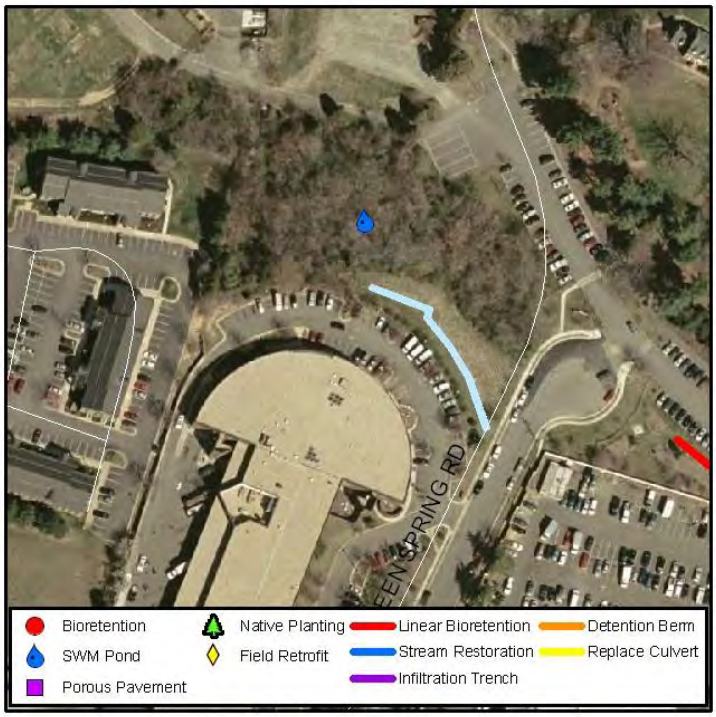
Project Name: Little River SWM Pond Retrofit
Project Location: Little River Turnpike & Green Spring Rd.
Parcel ID No.: 0721 01 0022B

Project Type: Stormwater Pond Retrofit

Subwatershed: Turkeycock Run
Drainage Area: 3.9 acres

Project Location:

Proposed Project:



Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

Concrete ditch below roadway

SWM dry pond

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $33,000

Little River SWM Pond Retrofit

Project ID: CA9115

Project Name: Little River SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	200	CY	$35.00	$7,000
Structural Improvements & Incidentals	1	LS	$5,000.00	$5,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
			Base Cost =	$17,000
			Mobilization (5%) =	$850
			Subtotal 1 =	$17,850
			Contingency (25%) =	$4,463
			Subtotal 2 =	$22,313
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$10,041
			Total =	$32,353
			Estimated Project Cost =	$33,000

Braddock Place SWM Pond Retrofit

Project ID: CA9117

Project Name: Braddock Place SWM Pond Retrofit
Project Location: Irvin Pl. & Irvin Ct.
Parcel ID No.: 0721 30 A

Project Type: Stormwater Pond Retrofit

Subwatershed: Turkeycock Run
Drainage Area: 7.4 acres

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

View of pond and trickle ditch looking at inlet

Inlet

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $49,000

Braddock Place SWM Pond Retrofit

Project ID: CA9117

Project Name: Braddock Place SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	300	CY	$35.00	$10,500
Structural Improvements & Incidentals	1	LS	$10,000.00	$10,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
			Base Cost =	$25,500
			Mobilization (5%) =	$1,275
			Subtotal 1 =	$26,775
			Contingency (25%) =	$6,694
			Subtotal 2 =	$33,469
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$15,061
			Total =	$48,530
			Estimated Project Cost =	$49,000

Pinecrest SWM Pond Retrofit

Project ID: CA9118

Project Name: Pinecrest SWM Pond Retrofit
Project Location: Little River Turnpike & Pinecrest
Parcel ID No.: 0712 3404 A

Project Type: Stormwater Pond Retrofit

Subwatershed: Turkeycock Run
Drainage Area: 13.3 acres

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

SWM dry pond

Grassy swale and outlet

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $69,000

Pinecrest SWM Pond Retrofit

Project ID: CA9118

Project Name: Pinecrest SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	600	CY	$35.00	$21,000
Structural Improvements & Incidentals	1	LS	$10,000.00	$10,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
			Base Cost =	$36,000
			Mobilization (5%) =	$1,800
			Subtotal 1 =	$37,800
			Contingency (25%) =	$9,450
			Subtotal 2 =	$47,250
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$21,263
			Total =	$68,513
			Estimated Project Cost =	$69,000

Dominion SWM Pond Retrofit

Project ID: CA9126

Project Name: Dominion SWM Pond Retrofit
Project Location: Crook Oak Ln. & Sleepy Hollow Rd.
Parcel ID No.: 0513 31 A1

Project Type: Stormwater Pond Retrofit

Subwatershed: Tripps Run
Drainage Area: 8.3 acres

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

SWM dry pond

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $61,000

Dominion SWM Pond Retrofit

Project ID: CA9126

Project Name: Dominion SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	475	CY	$35.00	$16,625
Structural Improvements & Incidentals	1	LS	$10,000.00	$10,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
			Base Cost =	$31,625
			Mobilization (5%) =	$1,581
			Subtotal 1 =	$33,206
			Contingency (25%) =	$8,302
			Subtotal 2 =	$41,508
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$18,679
			Total =	$60,186
			Estimated Project Cost =	$61,000

Great Oak SWM Pond Retrofit

Project ID: CA9128

Project Name: Great Oak SWM Pond Retrofit
Project Location: Great Oak & James Lee St.
Parcel ID No.: 0502 14 A

Project Type: Stormwater Pond Retrofit

Subwatershed: Tripps Run
Drainage Area: 18.9 acres

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

SWM dry pond

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $89,000

Great Oak SWM Pond Retrofit

Project ID: CA9128

Project Name: Great Oak SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	900	CY	$35.00	$31,500
Structural Improvements & Incidentals	1	LS	$10,000.00	$10,000
Erosion & Sediment Control	925	CY	$3.50	$3,238
Landscaping	900	CY	$1.75	$1,575
			Base Cost =	$46,313
			Mobilization (5%) =	$2,316
			Subtotal 1 =	$48,628
			Contingency (25%) =	$12,157
			Subtotal 2 =	$60,785
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$27,353
			Total =	$88,138
			Estimated Project Cost =	$89,000

Columbia Pines SWM Pond Retrofit

Project ID: CA9134

Project Name: Columbia Pines SWM Pond Retrofit
Project Location: Sprucedale Dr. & Sprucedale Ct.
Parcel ID No.: 0604 01 0003

Project Type: Stormwater Pond Retrofit

Subwatershed: Holmes Run - Upper
Drainage Area: 7.7 acres

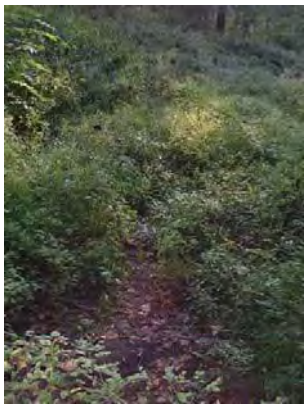
Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality.

Outfall into SWM pond



SWM pond area

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.
Improve floodplain and nutrient cycling functions.

Estimated Cost: $30,000

Columbia Pines SWM Pond Retrofit

Project ID: CA9134

Project Name: Columbia Pines SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	150	CY	$35.00	$5,250
Structural Improvements & Incidentals	1	LS	$5,000.00	$5,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
			Base Cost =	$15,250
			Mobilization (5%) =	$763
			Subtotal 1 =	$16,013
			Contingency (25%) =	$4,003
			Subtotal 2 =	$20,016
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$9,007
			Total =	$29,023
			Estimated Project Cost =	$30,000

Providence RECenter SWM Pond Retrofit

Project ID: CA9138

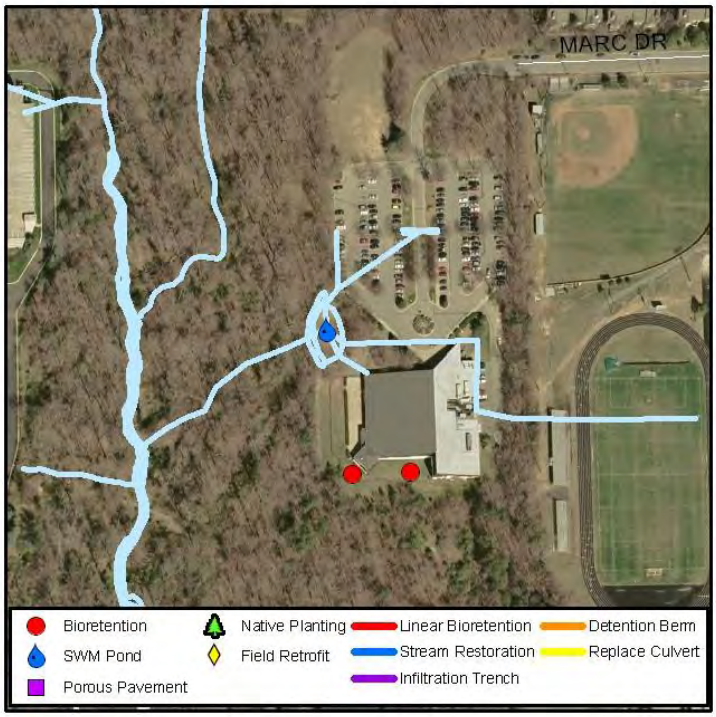
Project Name: Providence RECenter SWM Pond Retrofit
Project Location: March Rd. & Jaguar Tr.
Parcel ID No.: 0494 01 0068

Project Type: Stormwater Pond Retrofit

Subwatershed: Holmes Run - Upper
Drainage Area: 4.5 acres

Project Location:

Proposed Project:



Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality; add bioretention areas in existing swale S of bldg.

SWM pond and control structure

Newly constructed parking lot with existing tree box filter, underdrain, and infiltration

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Opportunity for public education.

Estimated Cost: $102,000

Providence RECenter SWM Pond Retrofit

Project ID: CA9138

Project Name: Providence RECenter SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	100	CY	$35.00	$3,500
Structural Improvements & Incidentals	1	LS	$5,000.00	$5,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
Bioretention Area	1600	SF	$25.00	$40,000
			Base Cost =	$53,500
			Mobilization (5%) =	$2,675
			Subtotal 1 =	$56,175
			Contingency (25%) =	$14,044
			Subtotal 2 =	$70,219
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$31,598
			Total =	$101,817
			Estimated Project Cost =	$102,000

Kings Glen SWM Pond Retrofit

Project ID: CA9139

Project Name: Kings Glen SWM Pond Retrofit
Project Location: Foxmore Dr. & Morgan Ln.
Parcel ID No.: 0394 29 A1

Project Type: Stormwater Pond Retrofit

Subwatershed: Holmes Run - Upper
Drainage Area: 81.8 acres

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality; add detention micro-berm along contour and margin of mature woods in pond bottom.

SWM pond control structure

Detention berms could be installed along contour and margin of mature woods

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $243,000

Kings Glen SWM Pond Retrofit

Project ID: CA9139

Project Name: Kings Glen SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	2650	CY	$35.00	$92,750
Structural Improvements & Incidentals	1	LS	$20,000.00	$20,000
Erosion & Sediment Control	2600	CY	$3.50	$9,100
Landscaping	2650	CY	$1.75	$4,638
Detention Berm	410	LF	$2.00	$820

Base Cost =	$127,308
Mobilization (5%) =	$6,365
Subtotal 1 =	$133,673
Contingency (25%) =	$33,418
Subtotal 2 =	$167,091
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$75,191
Total =	$242,282
Estimated Project Cost =	$243,000

Courts of Tyson SWM Pond Retrofit

Project ID: CA9142

Project Name: Courts of Tyson SWM Pond Retrofit
Project Location: Arden Ct. & Trevor Pl.
Parcel ID No.: 0394 21 A

Project Type: Stormwater Pond Retrofit

Subwatershed: Holmes Run - Upper
Drainage Area: 6.5 acres

Project Location:

Proposed Project:

Proposed Action:

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality; install two bioretention areas at yard drains in Ch. 2 street (Kelleher Rd.).

Existing SWM pond

Yard drain in undeveloped road

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.

Estimated Cost: $31,000

Courts of Tyson SWM Pond Retrofit

Project ID: CA9142

Project Name: Courts of Tyson SWM Pond Retrofit

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	25	CY	$35.00	$875
Structural Improvements & Incidentals	1	LS	$5,000.00	$5,000
Erosion & Sediment Control - Minimum	1	LS	$3,000.00	$3,000
Landscaping - Minimum	1	LS	$2,000.00	$2,000
Bioretention Area	200	SF	$25.00	$5,000
			Base Cost =	$15,875
			Mobilization (5%) =	$794
			Subtotal 1 =	$16,669
			Contingency (25%) =	$4,167
			Subtotal 2 =	$20,836
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$9,376
			Total =	$30,212
			Estimated Project Cost =	$31,000

Wilburdale Park Stream Restoration

Project ID: CA9207

Project Name: Wilburdale Park Stream Restoration
Project Location: Wilburdale Park
Parcel ID No.: 0713 09 A

Project Type: Stream Restoration

Subwatershed: Backlick Run
Drainage Area: 0 acres

Project Location:

Proposed Project:

Proposed Action:

Notch two weirs and one concrete ford; redistribute large rocks in reach; control invasive vegetation; reforest buffer.

Concrete ford to be notched

Large rocks in reach to be redistributed in stream

Benefits: Improve stream stability and instream habitat. Reduce erosion.
Improve floodplain and nutrient cycling functions.
Opportunity for public education.
Other.

Estimated Cost: $320,000

Wilburdale Park Stream Restoration

Project ID: CA9207

Project Name: Wilburdale Park Stream Restoration

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	800	LF	$200.00	$160,000
Riparian Buffer Restoration	790	LF	$10.00	$7,900
			Base Cost =	$167,900
			Mobilization (5%) =	$8,395
			Subtotal 1 =	$176,295
			Contingency (25%) =	$44,074
			Subtotal 2 =	$220,369
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$99,166
			Total =	$319,535
			Estimated Project Cost =	$320,000

Wilburdale Park Bank Stabilization

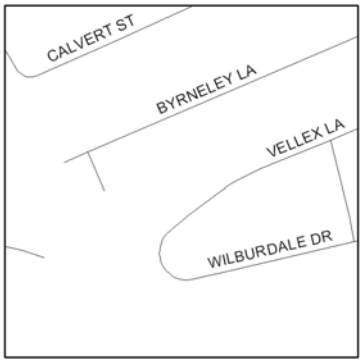
Project ID: CA9208

Project Name: Wilburdale Park Bank Stabilization
Project Location: Wilburdale Park
Parcel ID No.: 0713 09 0097

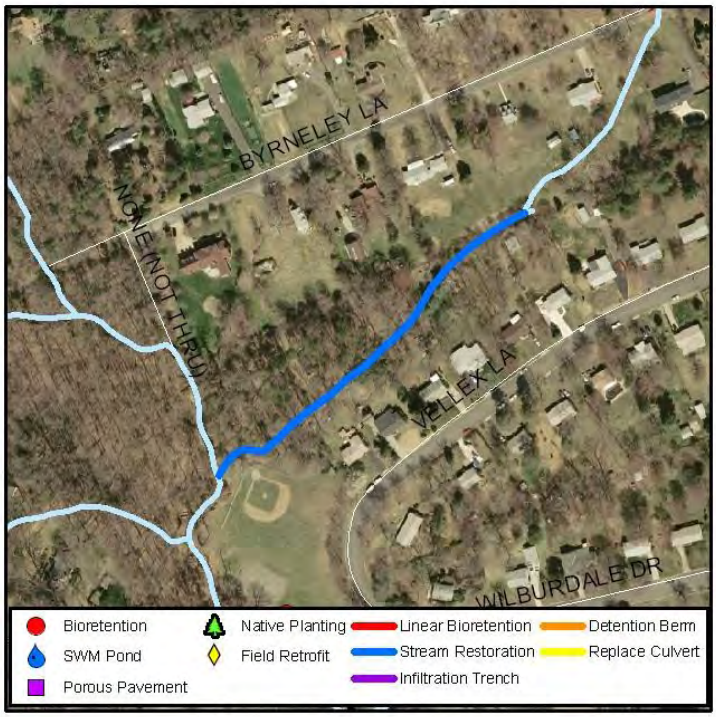
Project Type: Stream Restoration

Subwatershed: Backlick Run
Drainage Area: 0 acres

Project Location:



Proposed Project:



Proposed Action:

Remove check dam; enhance buffer through backyards; remove invasive bamboo and other species; implement backyard management program to reduce dumping of yard wastes/trash into streams.

Eroding streambanks to be restored with woody riparian buffer and removal of invasive bamboo

Streambanks to be stabilized and buffers planted to reestablish connection with floodplain

Benefits: Improve stream stability and instream habitat. Reduce erosion.
Improve floodplain and nutrient cycling functions.
Opportunity for public education.
Improve community usage.

Estimated Cost: $169,000

Wilburdale Park Bank Stabilization

Project ID: CA9208

Project Name: Wilburdale Park Bank Stabilization

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Remove: small dam, invasive species	800	LF	$100.00	$80,000
Planting	1.1	AC	$8,000.00	$8,800
			Base Cost =	$88,800
			Mobilization (5%) =	$4,440
			Subtotal 1 =	$93,240
			Contingency (25%) =	$23,310
			Subtotal 2 =	$116,550
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$52,448
			Total =	$168,998
			Estimated Project Cost =	$169,000

Brook Hill Stream Restoration

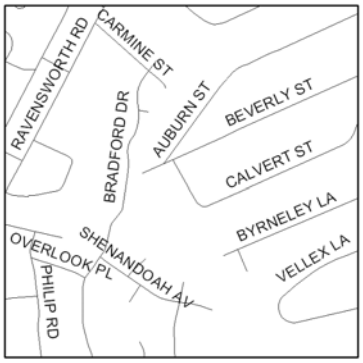
Project ID: CA9210

Project Name: Brook Hill Stream Restoration
Project Location: Rapidan Place, Wilburdale Park
Parcel ID No.: 0713 01 0004

Project Type: Stream Restoration

Subwatershed: Backlick Run
Drainage Area: 0 acres

Project Location:



Proposed Project:

Proposed Action:

Notch weirs in gabion lined channel; add rock vanes to straightened and overwidened middle section; cut log pourovers/debris jams; add toe protection on steep berms in lower third; enhance buffer in localized areas; construct bioretention area at end of two roads; implement backyard management program to reduce dumping of yard wastes/ trash into streams.

Stream lined with gabion baskets and concrete weirs

Install toe protection on steep banks. Restore woody riparian buffer

Benefits: Provide stormwater quantity controls.
Improve floodplain and nutrient cycling functions.
Opportunity for public education.
Improve community usage.

Greenway opportunity

Estimated Cost: $1,171,000

Project ID: CA9210

Project Name: Brook Hill Stream Restoration

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	2	EA	$15,000.00	$30,000
Stream Restoration	2750	LF	$200.00	$550,000
Planting	4.4	AC	$8,000.00	$35,200

Base Cost =	$615,200
Mobilization (5%) =	$30,760
Subtotal 1 =	$645,960
Contingency (25%) =	$161,490
Subtotal 2 =	$807,450
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$363,353
Total =	$1,170,803
Estimated Project Cost =	$1,171,000

Mason District Park Stream Restoration - A

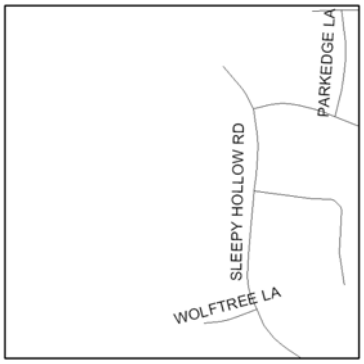
Project ID: CA9216

Project Name: Mason District Park Stream Restoration - A
Project Location: Mason District Park
Parcel ID No.: 0604 01 0028

Project Type: Stream Restoration

Subwatershed: Turkeycock Run
Drainage Area: 10 acres

Project Location:



Proposed Project:

Proposed Action:

Implement Park Authority's stream restoration plans at this location.

Benefits: Improve stream stability and instream habitat. Reduce erosion.
Improve floodplain and nutrient cycling functions.
Opportunity for public education.
Improve community usage.

Greenway opportunity

Estimated Cost: $996,000

Mason District Park Stream Restoration - A

Project ID: CA9216

Project Name: Mason District Park Stream Restoration - A

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	1	LS	$523,000.00	$523,000
			Base Cost =	$523,000
			Mobilization (5%) =	$26,150
			Subtotal 1 =	$549,150
			Contingency (25%) =	$137,288
			Subtotal 2 =	$686,438
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$308,897
			Total =	$995,334
			Estimated Project Cost =	$996,000

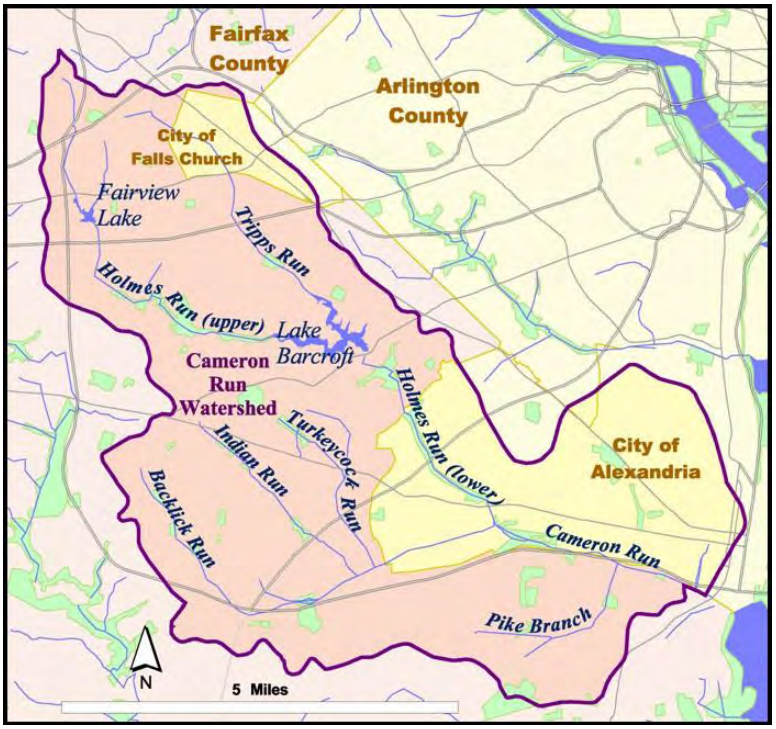
Instream Debris Jam Evaluation and Removal

Project ID: CA9700
Project Name: Instream Debris Jam Evaluation and Removal
Project Location: Cameron Run Watershed
Parcel ID No.:

Project Type: Non-Structural Watershed-wide
Subwatershed:
Drainage Area: 28400 acres

Project Location:

Proposed Project:



Proposed Action:

Locate, evaluate, and remove debris jams observed to cause excessive erosion.

Example of a debris blockage from Holmes Run, as identified in the Stream Physical Assessment

Benefits: Improve stream stability and instream habitat. Reduce erosion.
Prevent property and structural loss.
Reduce road flooding.
Opportunity for public education.

Estimated Cost: $286,000

Instream Debris Jam Evaluation and Removal

Project ID: CA9700

Project Name: Instream Debris Jam Evaluation and Removal

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Instream debris-jam identification and removal	5	YR	$30,000.00	$150,000
			Base Cost =	$150,000
			Mobilization (5%) =	$7,500
			Subtotal 1 =	$157,500
			Contingency (25%) =	$39,375
			Subtotal 2 =	$196,875
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (45%) =	$88,594
			Total =	$285,469
			Estimated Project Cost =	$286,000

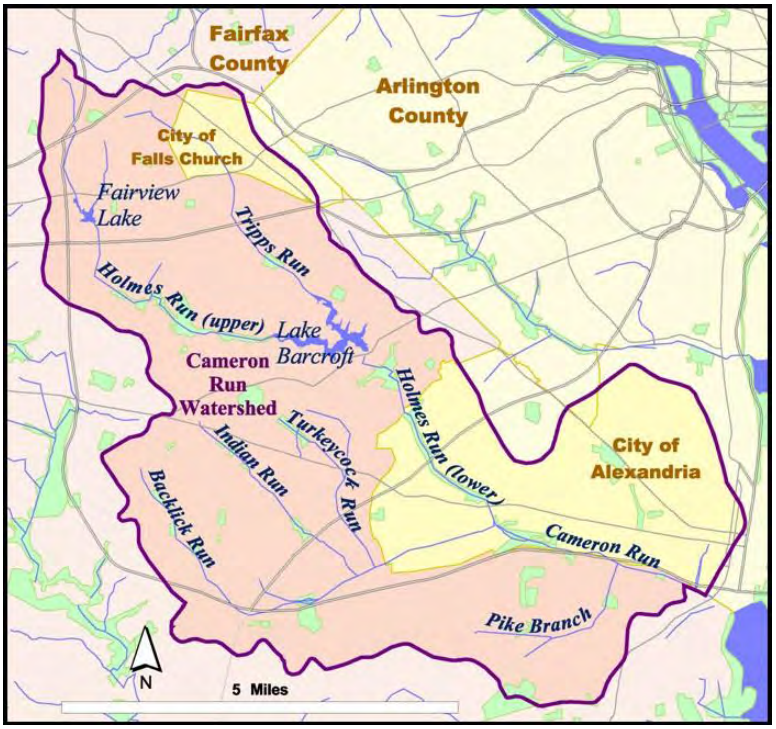
Community Watershed Restoration Support

Project ID: CA9701
Project Name: Community Watershed Restoration Support
Project Location: Cameron Run Watershed
Parcel ID No.:

Project Type: Non-Structural Watershed-wide
Subwatershed:
Drainage Area: 28400 acres

Project Location:

Proposed Project:



Proposed Action:

Provide education and technical assistance to encourage restoration practices on private property. Explain the need for restoration and describe effective techniques. Distribute "how to" information on creating rain gardens, backyard riparian buffers, and other LID projects. Provide technical assistance with individual LID projects.

Benefits: Provide stormwater quantity controls.
Provide stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.
Opportunity for public education.

Estimated Cost: $1,407,000

Community Watershed Restoration Support

Project ID: CA9701

Project Name: Community Watershed Restoration Support

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Informational Brochures	25	YR	$20,000.00	$500,000
County Website support	25	YR	$15,000.00	$375,000
Technical Assistance	25	YR	$10,000.00	$250,000

Base Cost =	$1,125,000
Mobilization (0%) =	$0
Subtotal 1 =	$1,125,000
Contingency (25%) =	$281,250
Subtotal 2 =	$1,406,250
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (0%) =	$0
Total =	$1,406,250
Estimated Project Cost =	$1,407,000

Small Watershed Grant Program

Project ID: CA9702

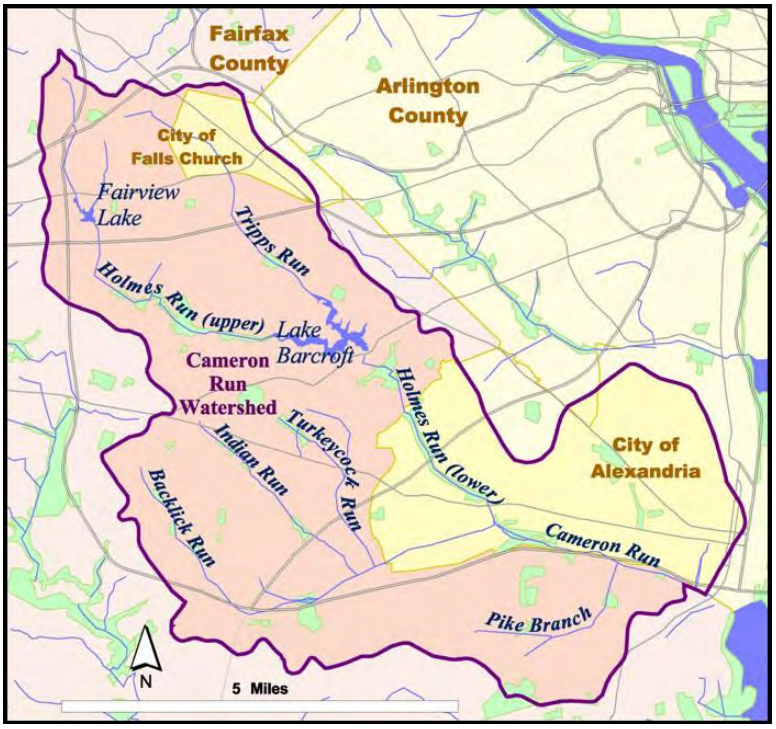
Project Name: Small Watershed Grant Program
Project Location: Cameron Run Watershed
Parcel ID No.:

Project Type: Non-Structural

Subwatershed: Watershed-wide
Drainage Area: 28400 acres

Project Location:

Proposed Project:



Proposed Action:

Establish and administer an annual program that provides small grants to local organizations, residents, and businesses to facilitate education, capacity building, small retrofit and restoration projects, and monitoring activities. For example, grants could be used to off-set the costs to purchase and install rain barrels or other LID projects on private property via a coupon program or other sales mechanism, to cover staff time for a watershed organization, or to provide field equipment for a volunteer watershed monitoring program.

Benefits: Improve stormwater quantity controls.
Improve stormwater quality controls.
Improve stream stability and instream habitat. Reduce erosion.
Opportunity for public education.

Estimated Cost: $1,094,000

Small Watershed Grant Program

Project ID: CA9702

Project Name: Small Watershed Grant Program

Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Create/Administer Program	25	YR	$35,000.00	$875,000

Base Cost =	$875,000
Mobilization (0%) =	$0
Subtotal 1 =	$875,000
Contingency (25%) =	$218,750
Subtotal 2 =	$1,093,750
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits (0%) =	$0
Total =	$1,093,750
Estimated Project Cost =	$1,094,000