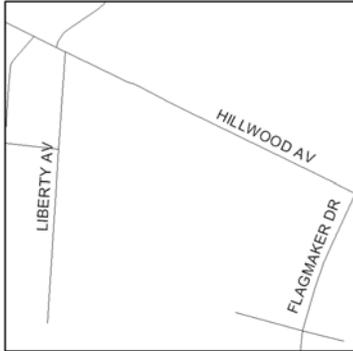


## Larry Graves Park LID

**Project ID:** CA9901  
**Project Name:** Larry Graves Park LID  
**Project Location:** Hillwood Ave. & Hunton Ave.  
**Parcel ID No.:**

**Project Type:** Low Impact Development  
**Subwatershed:** Tripps Run  
**Drainage Area:** 1.2 acres

**Project Location:**



**Proposed Action:**

Construct bioretention areas in grass along Hillwood Ave. and replace inlet with tree box filter.

**Proposed Project:**



Add bioretention areas to parking lot islands



Add bioretention areas along northern parking lot margin

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Opportunity for public education.

**Estimated Cost:** \$41,000

## Larry Graves Park LID

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**Project ID:** CA9901

**Project Name:** Larry Graves Park LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	850	SF	\$25.00	\$21,250
			<b>Base Cost =</b>	\$21,250
			Mobilization ( 5% ) =	\$1,063
			<b>Subtotal 1 =</b>	\$22,313
			Contingency (25% ) =	\$5,578
			<b>Subtotal 2 =</b>	\$27,891
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$12,551
			<b>Total =</b>	\$40,441
			<b>Estimated Project Cost =</b>	\$41,000

## Devonshire Administration Center (School) LID

<b>Project ID:</b>	CA9904	<b>Project Type:</b>	Low Impact Development
<b>Project Name:</b>	Devonshire Administration Center (School) LID	<b>Subwatershed:</b>	Tripps Run
<b>Project Location:</b>	Devonshire Administration Center (School)	<b>Drainage Area:</b>	5.3 acres
<b>Parcel ID No.:</b>	0501 01 0052		

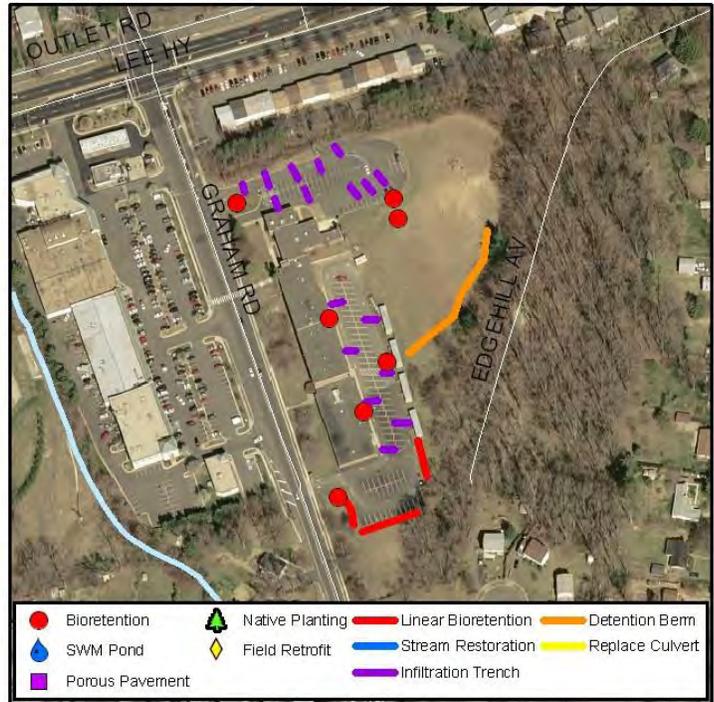
**Project Location:**



**Proposed Action:**

Construct bioretention areas in traffic circle and in grass areas next to N and S parking lots; construct linear bioretention areas at edges of S lot; construct infiltration trenches and filter strips in N and rear lots; build detention micro-berm along tree line.

**Proposed Project:**



Add bioretention areas to traffic circle



Potential bioretention area at stormwater outlet

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Opportunity for public education.

**Estimated Cost:** \$288,000

## Devonshire Administration Center (School) LID

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**Project ID:** CA9904

**Project Name:** Devonshire Administration Center (School) LID

### Estimated Project Cost:

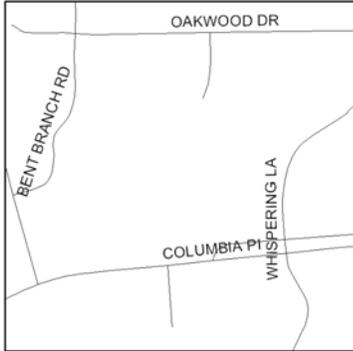
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	3065	SF	\$25.00	\$76,625
Bioretention Area, Linear	1530	SF	\$25.00	\$38,250
Infiltration Trench	350	LF	\$100.00	\$35,000
Filter Strip	200	LF	\$2.00	\$400
Detention Berm	270	LF	\$2.00	\$540
			<b>Base Cost =</b>	\$150,815
			Mobilization ( 5% ) =	\$7,541
			<b>Subtotal 1 =</b>	\$158,356
			Contingency (25% ) =	\$39,589
			<b>Subtotal 2 =</b>	\$197,945
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$89,075
			<b>Total =</b>	\$287,020
			<b>Estimated Project Cost =</b>	\$288,000

## Belvedere Elementary School LID

**Project ID:** CA9911  
**Project Name:** Belvedere Elementary School LID  
**Project Location:** Belvedere Elementary School  
**Parcel ID No.:** 0604 01 0037

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 9.9 acres

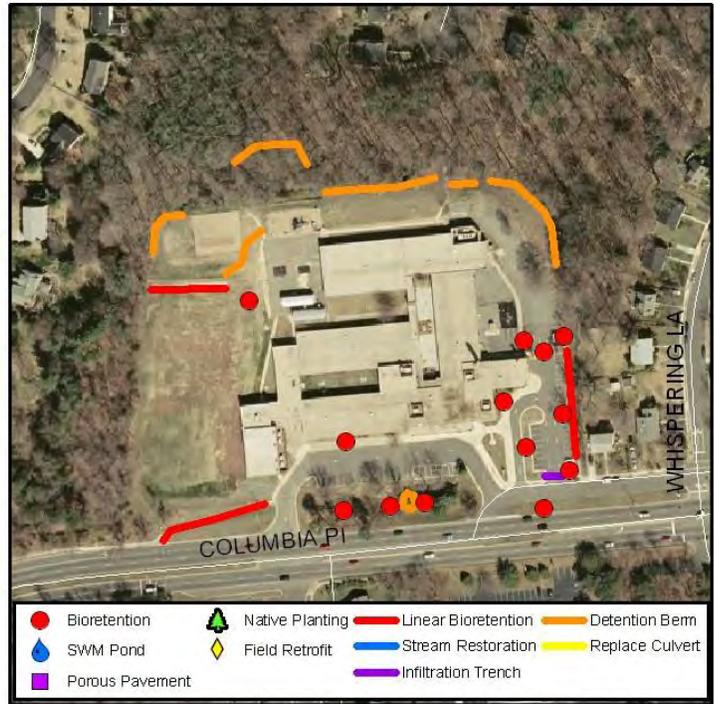
**Project Location:**



**Proposed Action:**

Construct bioretention areas in bus loop island, traffic island, along back edge in side lot, and in landscape islands around bldg.; build detention micro-berm along north side of property; install linear bioretention area and infiltration trench in side parking lot; and convert concrete ditches to grass swales.

**Proposed Project:**



Potential bioretention area in bus loop island



Divert downspouts into bioretention areas alongside building

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Opportunity for public education.

**Estimated Cost:** \$325,000

## Belvedere Elementary School LID

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**Project ID:** CA9911

**Project Name:** Belvedere Elementary School LID

### Estimated Project Cost:

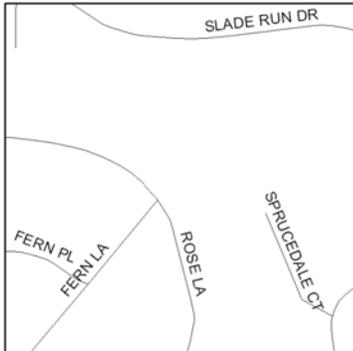
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	3260	SF	\$25.00	\$81,500
Detention Berm	790	LF	\$2.00	\$1,580
Bioretention Area	3300	SF	\$25.00	\$82,500
Infiltration Trench	30	LF	\$100.00	\$3,000
Grass Swale	290	LF	\$6.00	\$1,740
<b>Base Cost =</b>				\$170,320
Mobilization ( 5% ) =				\$8,516
<b>Subtotal 1 =</b>				\$178,836
Contingency (25% ) =				\$44,709
<b>Subtotal 2 =</b>				\$223,545
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$100,595
<b>Total =</b>				\$324,140
<b>Estimated Project Cost =</b>				\$325,000

## Columbia Pines LID

**Project ID:** CA9914  
**Project Name:** Columbia Pines LID  
**Project Location:** Rose La. & Fern La.  
**Parcel ID No.:** 0602 30 P

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 28.1 acres

### Project Location:



### Proposed Action:

Construct off-line bioretention areas to capture end-of-pipe stormwater prior to entering the stream.

### Proposed Project:



Stream below outfall



Evidence of bank erosion

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

**Estimated Cost:** \$96,000

## Columbia Pines LID

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**Project ID:** CA9914

**Project Name:** Columbia Pines LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	2000	SF	\$25.00	\$50,000
			<b>Base Cost =</b>	\$50,000
			Mobilization ( 5% ) =	\$2,500
			<b>Subtotal 1 =</b>	\$52,500
			Contingency (25% ) =	\$13,125
			<b>Subtotal 2 =</b>	\$65,625
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$29,531
			<b>Total =</b>	\$95,156
			<b>Estimated Project Cost =</b>	\$96,000

## Beech Tree Elementary School LID

**Project ID:** CA9917  
**Project Name:** Beech Tree Elementary School LID  
**Project Location:** Beech Tree Elementary School  
**Parcel ID No.:** 0602 38 A

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 7.8 acres

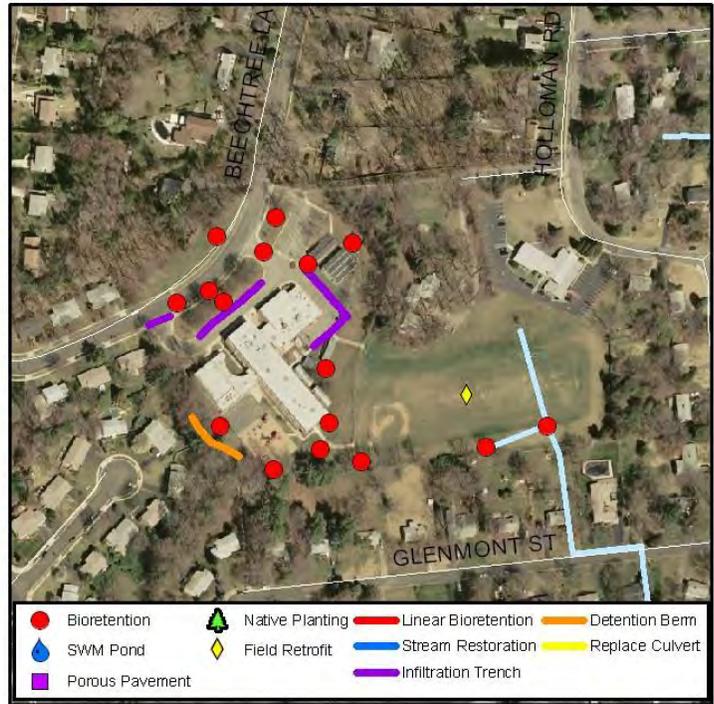
**Project Location:**



**Proposed Action:**

Construct bioretention areas along Beechtree Ln. and in landscape islands around bldg. and trailers; install infiltration trenches in bus loop and drive; install two tree box filters at stormdrain inlets; install filter strip along Beechtree Ln.; build detention micro-berm along SW side of bldg.; convert playing fields to artificial turf with cistern.

**Proposed Project:**



Traffic islands provide space for bioretention areas



Grate inlet on athletic field could be surrounded by a rain garden

**Benefits:** Provide stormwater quality controls.  
 Improve stormwater quantity controls.  
 Improve community usage.  
 Opportunity for public education.

**Estimated Cost:** \$1,409,000

**Beech Tree Elementary School LID**

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**Project ID:** CA9917

**Project Name:** Beech Tree Elementary School LID

**Estimated Project Cost:**

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	3550	SF	\$25.00	\$88,750
Infiltration Trench	450	LF	\$100.00	\$45,000
Tree Box Filter	2	EA	\$3,000.00	\$6,000
Filter Strip	150	LF	\$2.00	\$300
Detention Berm	130	LF	\$2.00	\$260
Artificial Turf, Underdrains and Cistern	1	EA	\$600,000.00	\$600,000

**Base Cost =** \$740,310

Mobilization ( 5% ) = \$37,016

**Subtotal 1 =** \$777,326

Contingency (25% ) = \$194,331

**Subtotal 2 =** \$971,657

Engineering Design, Surveys, Land Acquisition,  
Utility Relocation, and Permits ( 45% ) = \$437,246

**Total =** \$1,408,902

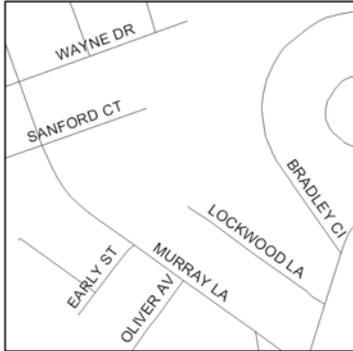
**Estimated Project Cost =** \$1,409,000

## Broyhill Crest Park LID

**Project ID:** CA9921  
**Project Name:** Broyhill Crest Park LID  
**Project Location:** Lockwood LA at community garden  
**Parcel ID No.:** 0603 20 B

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 2.4 acres

**Project Location:**



**Proposed Action:**

Develop detention micro-berm along tree line to slow runoff and induce infiltration; construct bioretention areas with small cistern for watering community garden.

**Proposed Project:**



Berms developed along streambanks will capture runoff and induce infiltration.



Community garden at end of street

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

**Estimated Cost:** \$132,000

## Broyhill Crest Park LID

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**Project ID:** CA9921

**Project Name:** Broyhill Crest Park LID

### Estimated Project Cost:

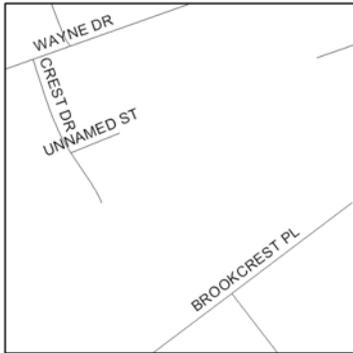
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Detention Berm	225	LF	\$2.00	\$450
Bioretention Area	2750	SF	\$25.00	\$68,750
<b>Base Cost =</b>				\$69,200
Mobilization ( 5% ) =				\$3,460
<b>Subtotal 1 =</b>				\$72,660
Contingency (25%) =				\$18,165
<b>Subtotal 2 =</b>				\$90,825
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$40,871
<b>Total =</b>				\$131,696
<b>Estimated Project Cost =</b>				\$132,000

## Lacey Admin Center LID

**Project ID:** CA9922  
**Project Name:** Lacey Admin Center LID  
**Project Location:** Crest Dr. & Wayne Dr.  
**Parcel ID No.:** 0603 24 0004A

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 6.7 acres

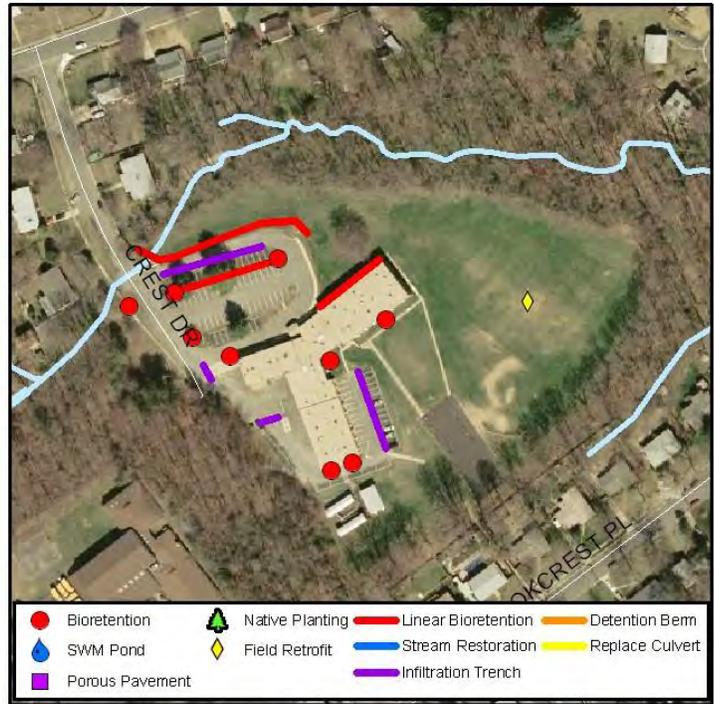
**Project Location:**



**Proposed Action:**

Develop playing field using artificial turf with underdrain/cistern system for use as soccer and football field; add bioretention areas and infiltration strips in parking lot islands and margins.

**Proposed Project:**



Divert downspouts into linear bioretention areas alongside building



Potential bioretention area at stormwater inlet

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Improve community usage.  
 Opportunity for public education.

**Estimated Cost:** \$1,317,000

## Lacey Admin Center LID

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**Project ID:** CA9922

**Project Name:** Lacey Admin Center LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Artificial Turf, Underdrains and Cistern	1	EA	\$600,000.00	\$600,000
Bioretention Area, Linear	510	SF	\$25.00	\$12,750
Bioretention Area	1900	SF	\$25.00	\$47,500
Infiltration Trench	315	LF	\$100.00	\$31,500
			<b>Base Cost =</b>	\$691,750
			Mobilization ( 5% ) =	\$34,588
			<b>Subtotal 1 =</b>	\$726,338
			Contingency (25% ) =	\$181,584
			<b>Subtotal 2 =</b>	\$907,922
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$408,565
			<b>Total =</b>	\$1,316,487
			<b>Estimated Project Cost =</b>	\$1,317,000

## Holmes Run Stream Valley Park LID

**Project ID:** CA9925

**Project Type:** Low Impact Development

**Project Name:** Holmes Run Stream Valley Park LID

**Subwatershed:** Holmes Run - Upper

**Project Location:** Charleson St & Masonville Dr.

**Drainage Area:** 0.9 acres

**Parcel ID No.:** 0601 01 0063

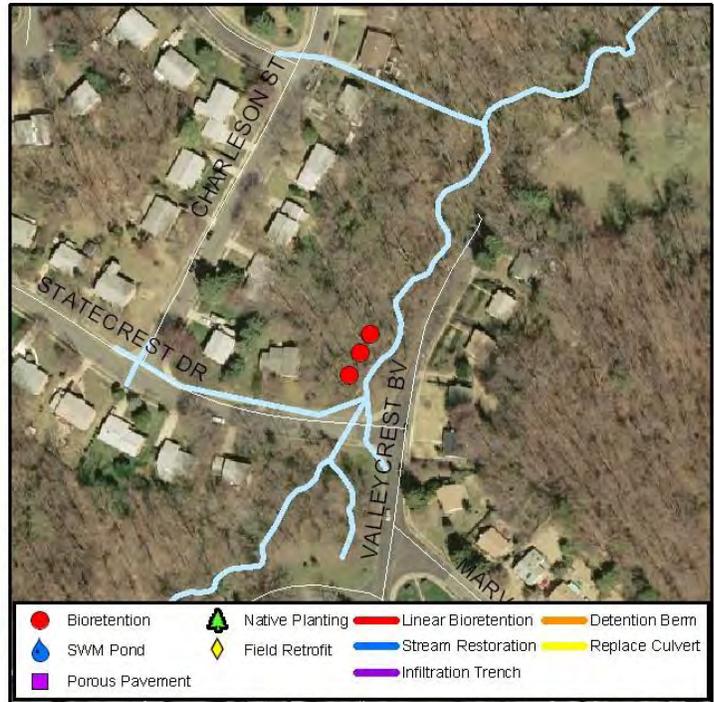
### Project Location:



### Proposed Action:

Construct off-line bioretention areas (stepped) to capture end-of-pipe stormwater prior to entering the stream.

### Proposed Project:



Stormwater pipe outfall

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

**Estimated Cost:** \$87,000

## Holmes Run Stream Valley Park LID

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**Project ID:** CA9925

**Project Name:** Holmes Run Stream Valley Park LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	1815	SF	\$25.00	\$45,375
			<b>Base Cost =</b>	\$45,375
			Mobilization ( 5% ) =	\$2,269
			<b>Subtotal 1 =</b>	\$47,644
			Contingency (25% ) =	\$11,911
			<b>Subtotal 2 =</b>	\$59,555
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$26,800
			<b>Total =</b>	\$86,354
			<b>Estimated Project Cost =</b>	\$87,000

## Round Tree Park LID - C

**Project ID:** CA9927  
**Project Name:** Round Tree Park LID - C  
**Project Location:** Round Tree Park  
**Parcel ID No.:** 0601 01 0069

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 6.8 acres

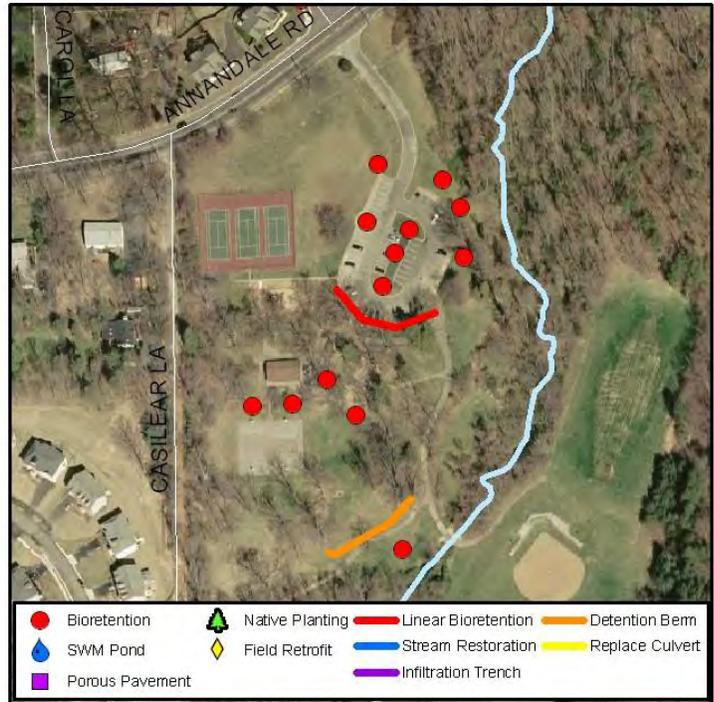
**Project Location:**



**Proposed Action:**

Convert parking lot traffic islands to bioretention areas and re-route field and court drainage to bioretention areas; construct detention micro-berm in open area along stream.

**Proposed Project:**



Potential bioretention areas in parking lot traffic islands



Potential bioretention areas next to field and court areas

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

**Estimated Cost:** \$195,000

## Round Tree Park LID - C

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**Project ID:** CA9927

**Project Name:** Round Tree Park LID - C

### Estimated Project Cost:

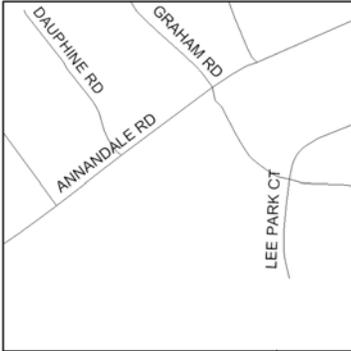
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Detention Berm	160	LF	\$2.00	\$320
Bioretention Area, Linear	480	SF	\$25.00	\$12,000
Bioretention Area	3600	SF	\$25.00	\$90,000
			<b>Base Cost =</b>	\$102,320
			Mobilization ( 5% ) =	\$5,116
			<b>Subtotal 1 =</b>	\$107,436
			Contingency (25% ) =	\$26,859
			<b>Subtotal 2 =</b>	\$134,295
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$60,433
			<b>Total =</b>	\$194,728
			<b>Estimated Project Cost =</b>	\$195,000

## Round Tree Park LID - A

**Project ID:** CA9929  
**Project Name:** Round Tree Park LID - A  
**Project Location:** Annandale Rd. & Lee Park Ct.  
**Parcel ID No.:** 0601 01 0069

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 16 acres

### Project Location:



### Proposed Action:

Install off-line bioretention area to capture end of pipe stormwater prior to entering the stream.

### Proposed Project:



Stormwater pipe outfall



Bluestar Ivy alongside stream

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

**Estimated Cost:** \$52,000

## Round Tree Park LID - A

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**Project ID:** CA9929

**Project Name:** Round Tree Park LID - A

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	1090	SF	\$25.00	\$27,250
			<b>Base Cost =</b>	\$27,250
			Mobilization ( 5% ) =	\$1,363
			<b>Subtotal 1 =</b>	\$28,613
			Contingency (25% ) =	\$7,153
			<b>Subtotal 2 =</b>	\$35,766
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$16,095
			<b>Total =</b>	\$51,860
			<b>Estimated Project Cost =</b>	\$52,000

## Walnut Hill Admin Center LID - B

**Project ID:** CA9937  
**Project Name:** Walnut Hill Admin Center LID - B  
**Project Location:** Camp Alger Ave & Holly Hill Dr.  
**Parcel ID No.:** 0601 01 0004

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 8.7 acres

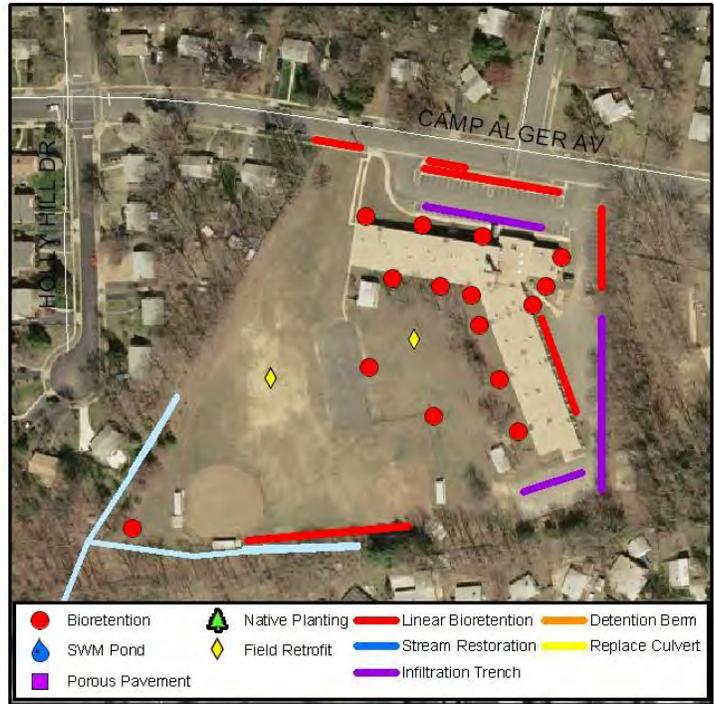
**Project Location:**



**Proposed Action:**

Construct linear bioretention strips along road, parking lots, and south side of playing fields; install infiltration trenches in front and rear lots; divert 12 roof drains and courts to bioretention areas; convert fields to artificial turf with underdrains; plantings in unused open space.

**Proposed Project:**



Install linear bioretention areas along Camp Alger Ave



Convert concrete ditch along back of school property to infiltration trench

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Improve community usage.  
 Opportunity for public education.

**Estimated Cost:** \$2,953,000

## Walnut Hill Admin Center LID - B

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**Project ID:** CA9937

**Project Name:** Walnut Hill Admin Center LID - B

### Estimated Project Cost:

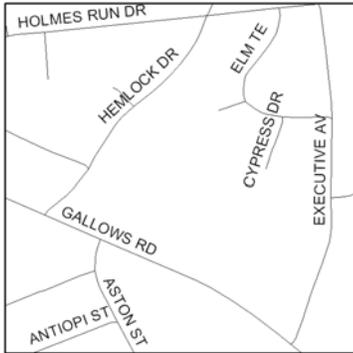
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	10420	SF	\$25.00	\$260,500
Infiltration Trench	510	LF	\$100.00	\$51,000
Artificial Turf, Underdrains and Cistern	2	EA	\$600,000.00	\$1,200,000
Bioretention Area	1590	SF	\$25.00	\$39,750
<b>Base Cost =</b>				\$1,551,250
Mobilization ( 5% ) =				\$77,563
<b>Subtotal 1 =</b>				\$1,628,813
Contingency (25% ) =				\$407,203
<b>Subtotal 2 =</b>				\$2,036,016
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$916,207
<b>Total =</b>				\$2,952,223
<b>Estimated Project Cost =</b>				\$2,953,000

## Woodburn Elementary School LID

**Project ID:** CA9941  
**Project Name:** Woodburn Elementary School LID  
**Project Location:** Hemlock Dr. & Gallows Rd.  
**Parcel ID No.:** 0592 01 0044

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 6.1 acres

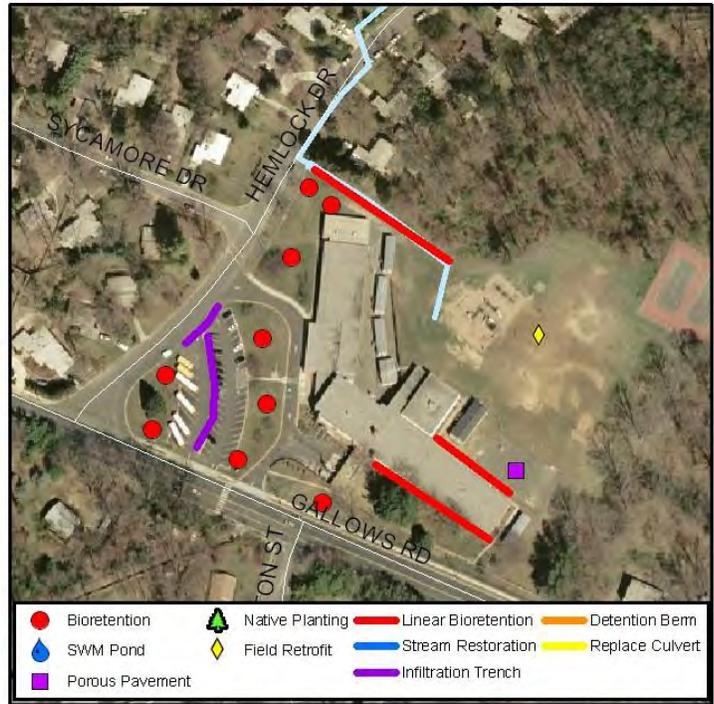
**Project Location:**



**Proposed Action:**

Install bioretention areas in landscaped islands along Gallows Rd., Hemlock Dr., and bus loop; install infiltration trenches in front parking lot; install linear bioretention area along bldg. in downspout areas and ditch to N; install porous pavement in asphalt play area; convert soccer/football field from grass to artificial turf.

**Proposed Project:**



Divert downspouts into linear bioretention areas alongside building



Install linear bioretention areas along roadway incorporating increased tree density

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

**Estimated Cost:** \$1,342,000

## Woodburn Elementary School LID

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**Project ID:** CA9941

**Project Name:** Woodburn Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	100	SF	\$25.00	\$2,500
Infiltration Trench	240	LF	\$100.00	\$24,000
Porous Pavement	1230	SY	\$15.00	\$18,450
Artificial Turf, Underdrains and Cistern	1	EA	\$600,000.00	\$600,000
Bioretention Area, Linear	2390	SF	\$25.00	\$59,750
			<b>Base Cost =</b>	\$704,700
			Mobilization ( 5% ) =	\$35,235
			<b>Subtotal 1 =</b>	\$739,935
			Contingency (25% ) =	\$184,984
			<b>Subtotal 2 =</b>	\$924,919
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$416,213
			<b>Total =</b>	\$1,341,132
			<b>Estimated Project Cost =</b>	\$1,342,000

## Luria Park LID

**Project ID:** CA9942

**Project Type:** Low Impact Development

**Project Name:** Luria Park LID

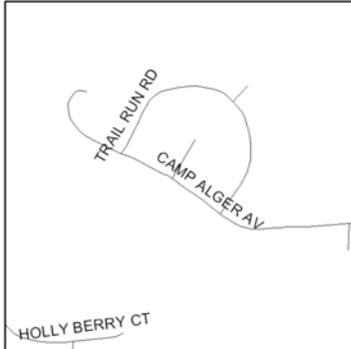
**Subwatershed:** Holmes Run - Upper

**Project Location:** Luria Park

**Drainage Area:** 57.1 acres

**Parcel ID No.:** 0592 19 B

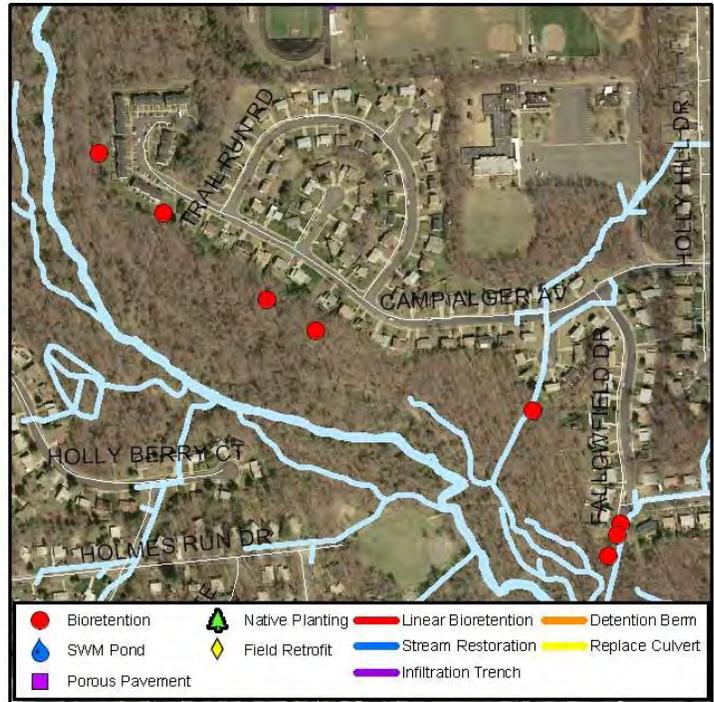
### Project Location:



### Proposed Action:

Install off-line bioretention areas at stormwater pipe outfalls and area bioretention areas at end of streets at Fallowfield Dr., Oak Run Ct., E end of Trail Run Rd., Crest Haven Ct., and W end of Camp Alger Av.

### Proposed Project:



Outfall at end of Trail Run Road



Potential location for off-line bioretention area next to outfall

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

**Estimated Cost:** \$355,000

## Luria Park LID

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**Project ID:** CA9942

**Project Name:** Luria Park LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	7460	SF	\$25.00	\$186,500
			<b>Base Cost =</b>	\$186,500
			Mobilization ( 5% ) =	\$9,325
			<b>Subtotal 1 =</b>	\$195,825
			Contingency (25% ) =	\$48,956
			<b>Subtotal 2 =</b>	\$244,781
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$110,152
			<b>Total =</b>	\$354,933
			<b>Estimated Project Cost =</b>	\$355,000

# Falls Church High School LID

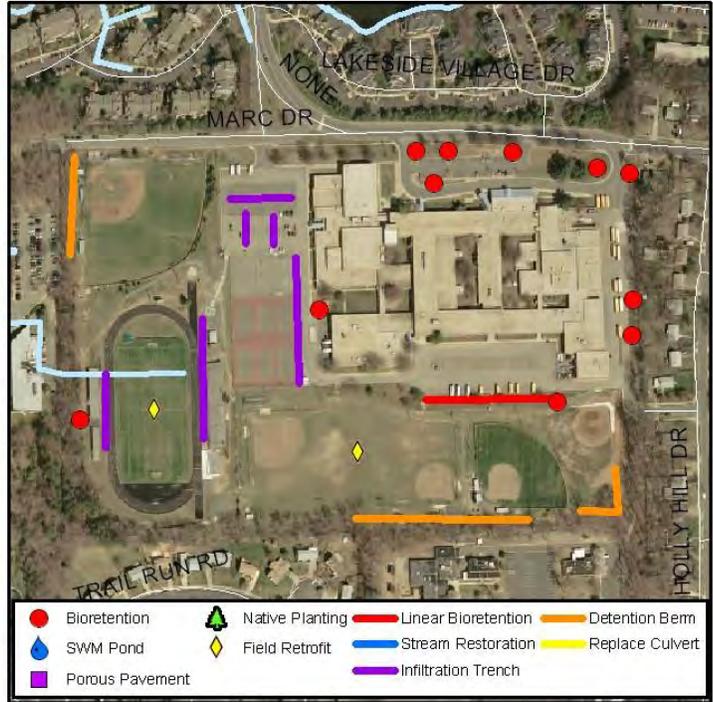
**Project ID:** CA9946  
**Project Name:** Falls Church High School LID  
**Project Location:** Falls Church High School  
**Parcel ID No.:** 0503 01 0001A

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 38.1 acres

**Project Location:**



**Proposed Project:**



**Proposed Action:**

Construct bioretention areas in traffic islands along front of school, in landscape beds, and along side of E parking lot; install infiltration trench along E side of tennis courts, in NW parking lot, and in paved grandstand areas; create two multisport athletic fields with artificial turf; construct linear bioretention areas along S side of rear parking lot; build detention microberms around field margins and yard drain.



Potential bioretention areas in traffic islands along front of school



Convert asphalt apron west of track to a bioretention area

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Improve community usage.  
 Opportunity for public education.

**Estimated Cost:** \$2,772,000

**Falls Church High School LID**

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**Project ID:** CA9946

**Project Name:** Falls Church High School LID

**Estimated Project Cost:**

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	2200	SF	\$25.00	\$55,000
Infiltration Trench	1210	LF	\$100.00	\$121,000
Artificial Turf, Underdrains and Cistern	2	EA	\$600,000.00	\$1,200,000
Bioretention Area, Linear	3125	SF	\$25.00	\$78,125
Detention Berm	980	LF	\$2.00	\$1,960
			<b>Base Cost =</b>	\$1,456,085
			Mobilization ( 5% ) =	\$72,804
			<b>Subtotal 1 =</b>	\$1,528,889
			Contingency (25% ) =	\$382,222
			<b>Subtotal 2 =</b>	\$1,911,112
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$860,000
			<b>Total =</b>	\$2,771,112
			<b>Estimated Project Cost =</b>	\$2,772,000

## Thomas Jefferson Library LID

**Project ID:** CA9947

**Project Type:** Low Impact Development

**Project Name:** Thomas Jefferson Library LID

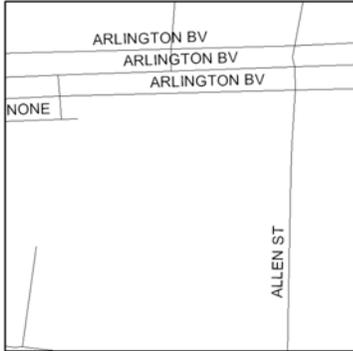
**Subwatershed:** Holmes Run - Upper

**Project Location:** Thomas Jefferson Library

**Drainage Area:** 2.2 acres

**Parcel ID No.:** 0503 01 0004

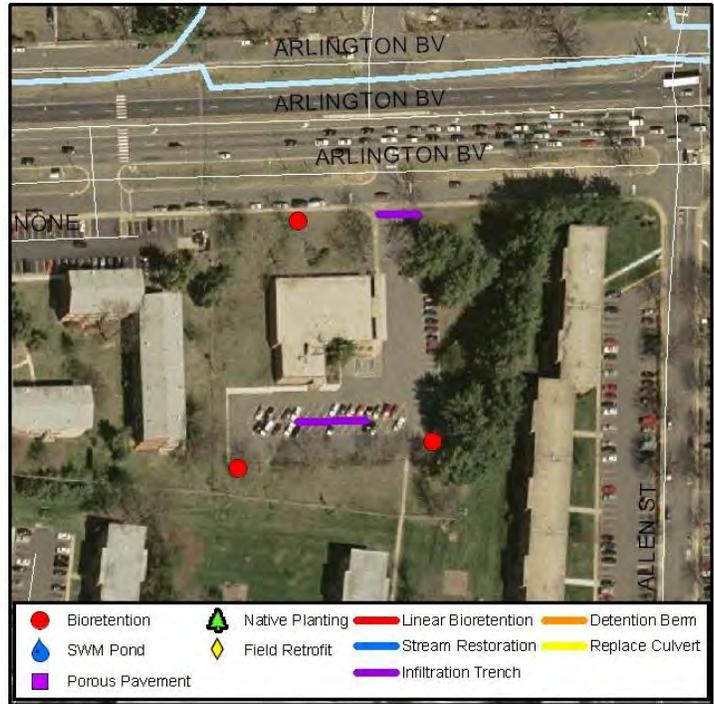
**Project Location:**



**Proposed Action:**

Construct bioretention areas in front of library for roof drainage, along row of head-on parking spaces, and at SW and SE corners of lot; install infiltration trench across entrance road.

**Proposed Project:**



Install infiltration trench across entrance



Bioretention areas and infiltration trenches to be installed in rear parking lot

**Benefits:** Provide stormwater quantity controls.  
Provide stormwater quality controls.  
Opportunity for public education.

**Estimated Cost:** \$179,000

**Thomas Jefferson Library LID**

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**Project ID:** CA9947

**Project Name:** Thomas Jefferson Library LID

**Estimated Project Cost:**

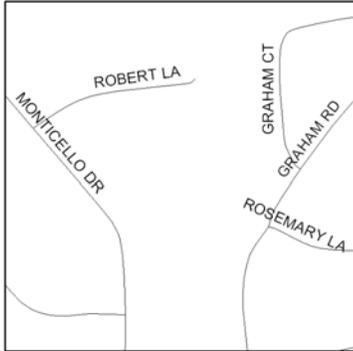
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	2500	SF	\$25.00	\$62,500
Infiltration Trench	315	LF	\$100.00	\$31,500
<b>Base Cost =</b>				\$94,000
Mobilization ( 5% ) =				\$4,700
<b>Subtotal 1 =</b>				\$98,700
Contingency (25%) =				\$24,675
<b>Subtotal 2 =</b>				\$123,375
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$55,519
<b>Total =</b>				\$178,894
<b>Estimated Project Cost =</b>				\$179,000

## Graham Road Elementary School LID

**Project ID:** CA9949  
**Project Name:** Graham Road Elementary School LID  
**Project Location:** Graham Road Elementary School  
**Parcel ID No.:** 0503 12 0011A

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 4.7 acres

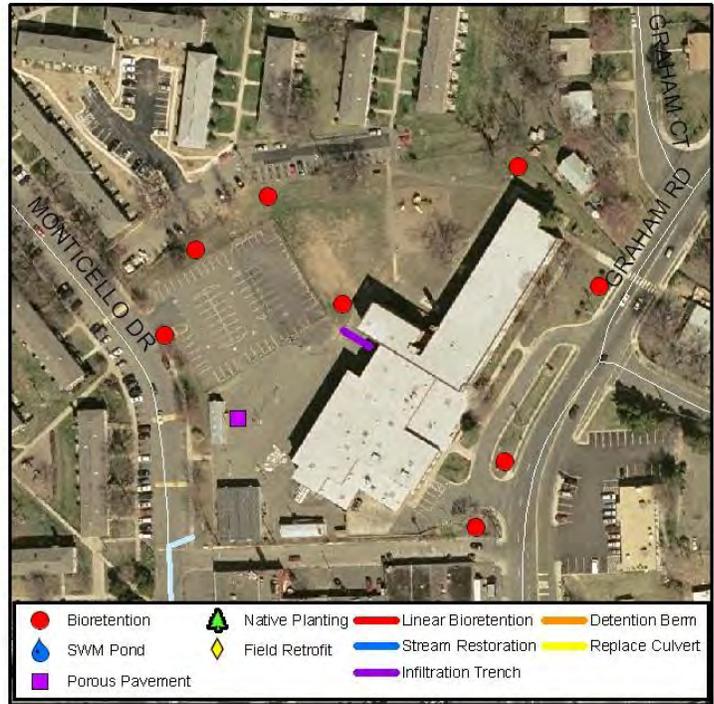
**Project Location:**



**Proposed Action:**

Construct bioretention areas in traffic island for bus loop, between sidewalk and building in front, along Monticello Dr., and along north side of back lot; install porous pavement and infiltration trench in deteriorated asphalt play yard.

**Proposed Project:**



Bioretention areas and swales to be installed in traffic island for bus loop



Divert downspouts into bioretention areas alongside building

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Improve community usage.  
 Opportunity for public education.

**Estimated Cost:** \$127,000

## Graham Road Elementary School LID

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**Project ID:** CA9949

**Project Name:** Graham Road Elementary School LID

### Estimated Project Cost:

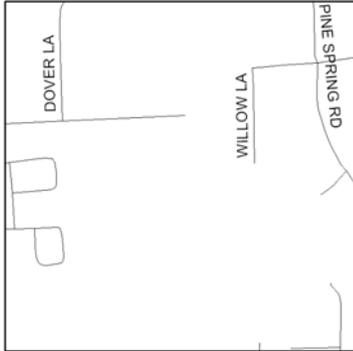
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	2400	SF	\$25.00	\$60,000
Porous Pavement	190	SY	\$15.00	\$2,850
Infiltration Trench	35	LF	\$100.00	\$3,500
<b>Base Cost =</b>				\$66,350
Mobilization ( 5% ) =				\$3,318
<b>Subtotal 1 =</b>				\$69,668
Contingency (25% ) =				\$17,417
<b>Subtotal 2 =</b>				\$87,084
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$39,188
<b>Total =</b>				\$126,272
<b>Estimated Project Cost =</b>				\$127,000

## Pine Spring Elementary School LID

**Project ID:** CA9950  
**Project Name:** Pine Spring Elementary School LID  
**Project Location:** Pine Spring Elementary School  
**Parcel ID No.:** 0494 01 0060

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 11.1 acres

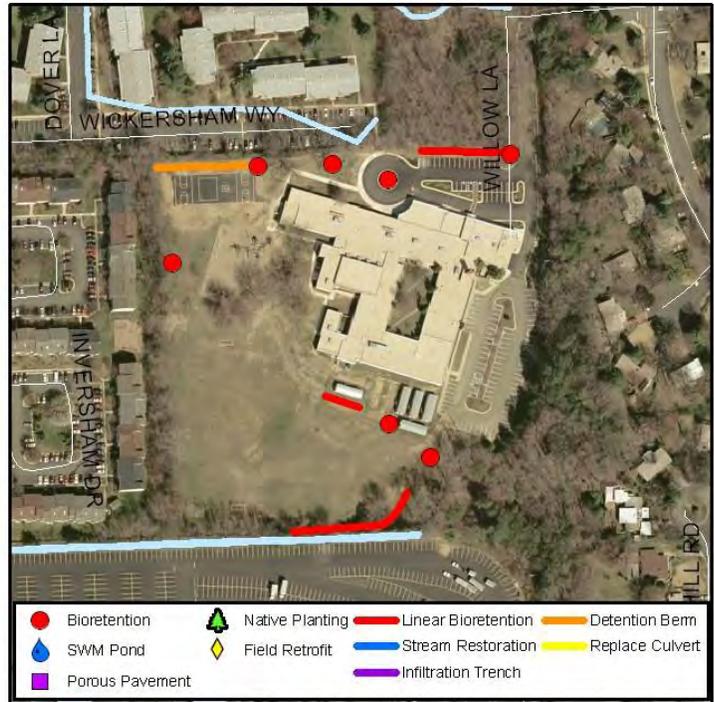
**Project Location:**



**Proposed Action:**

Construct detention micro-berm and bioretention areas along NW property line; construct bioretention areas in bus loop and parking lot islands, NW outfall, and trailers; construct linear bioretention along N parking lot, trailers, and in existing swale on S edge of property; construct off-line bioretention area at outfall S of rear parking lot.

**Proposed Project:**



Potential bioretention area in traffic island



Potential location for bioretention area and detention berm along tree line

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Improve community usage.  
 Opportunity for public education.

**Estimated Cost:** \$576,000

## Pine Spring Elementary School LID

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**Project ID:** CA9950

**Project Name:** Pine Spring Elementary School LID

### Estimated Project Cost:

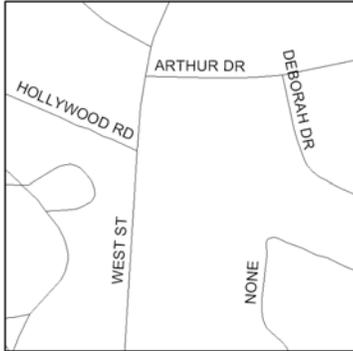
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Detention Berm	175	LF	\$2.00	\$350
Bioretention Area	2500	SF	\$25.00	\$62,500
Bioretention Area, Linear	5520	SF	\$25.00	\$138,000
Bioretention Area, Off-line	4060	SF	\$25.00	\$101,500
			<b>Base Cost =</b>	\$302,350
			Mobilization ( 5% ) =	\$15,118
			<b>Subtotal 1 =</b>	\$317,468
			Contingency (25% ) =	\$79,367
			<b>Subtotal 2 =</b>	\$396,834
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$178,575
			<b>Total =</b>	\$575,410
			<b>Estimated Project Cost =</b>	\$576,000

## Timber Lane Elementary School LID

**Project ID:** CA9952  
**Project Name:** Timber Lane Elementary School LID  
**Project Location:** Timber Lane Elementary School  
**Parcel ID No.:** 0501 01 0044

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 9.7 acres

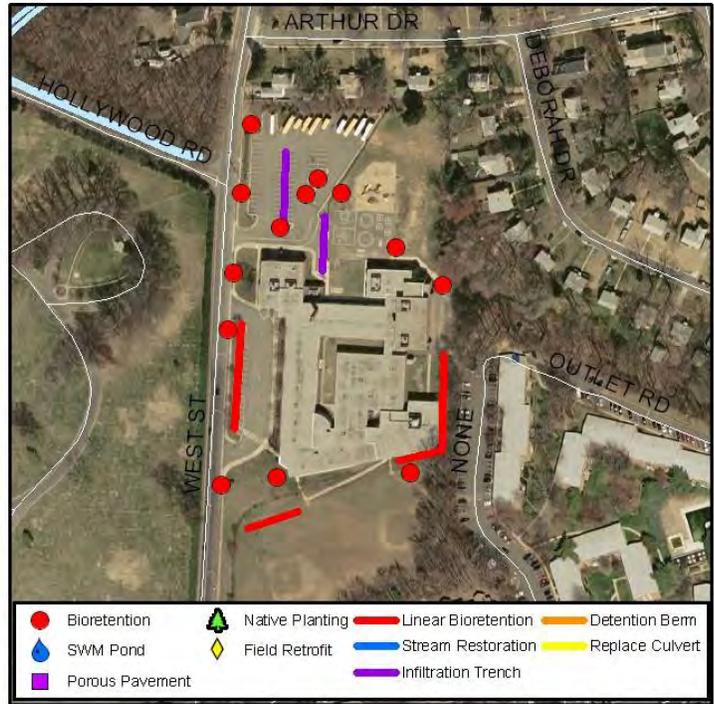
**Project Location:**



**Proposed Action:**

Construct bioretention areas in lawn and traffic islands along West Street, in N parking lot, behind bldg., and next to fields; construct linear bioretention areas around building; install infiltration trench and tree box filter in N parking lot.

**Proposed Project:**



Add infiltration trench to parking rows



Convert traffic islands in parking lot to bioretention areas

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Opportunity for public education.

**Estimated Cost:** \$606,000

## Timber Lane Elementary School LID

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**Project ID:** CA9952

**Project Name:** Timber Lane Elementary School LID

### Estimated Project Cost:

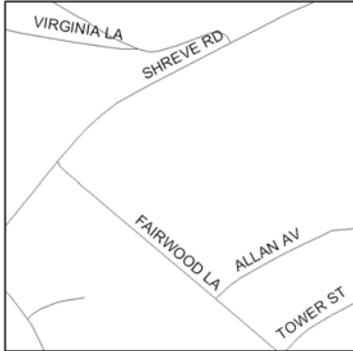
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	8045	SF	\$25.00	\$201,125
Bioretention Area	3570	SF	\$25.00	\$89,250
Infiltration Trench	250	LF	\$100.00	\$25,000
Tree Box Filter	1	EA	\$3,000.00	\$3,000
<b>Base Cost =</b>				\$318,375
Mobilization ( 5% ) =				\$15,919
<b>Subtotal 1 =</b>				\$334,294
Contingency (25% ) =				\$83,573
<b>Subtotal 2 =</b>				\$417,867
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$188,040
<b>Total =</b>				\$605,907
<b>Estimated Project Cost =</b>				\$606,000

## Shrevewood Elementary School LID

**Project ID:** CA9953  
**Project Name:** Shrevewood Elementary School LID  
**Project Location:** Shrevewood Elementary School  
**Parcel ID No.:** 0501 01 0002

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 11.8 acres

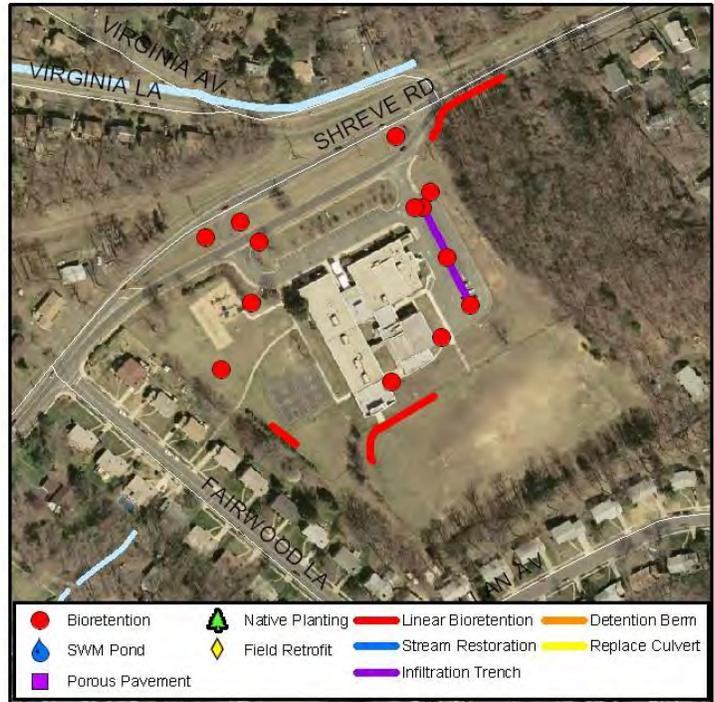
**Project Location:**



**Proposed Action:**

Construct bioretention areas in Shreve Rd. median islands, bus loop island, east side of parking lot, near playground, and at rear of bldg.; construct linear bioretention along NW corner of back field, next to asphalt courts, and in swale at NE corner along road.

**Proposed Project:**



Install linear bioretention area next to asphalt courts



Potential bioretention areas located behind school building

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Opportunity for public education.

**Estimated Cost:** \$359,000

## Shrevewood Elementary School LID

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**Project ID:** CA9953

**Project Name:** Shrevewood Elementary School LID

### Estimated Project Cost:

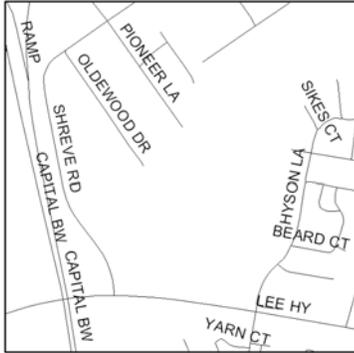
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	1450	SF	\$25.00	\$36,250
Bioretention Area, Linear	5245	SF	\$25.00	\$131,125
Infiltration Trench	210	LF	\$100.00	\$21,000
			<b>Base Cost =</b>	\$188,375
			Mobilization ( 5% ) =	\$9,419
			<b>Subtotal 1 =</b>	\$197,794
			Contingency (25% ) =	\$49,448
			<b>Subtotal 2 =</b>	\$247,242
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$111,259
			<b>Total =</b>	\$358,501
			<b>Estimated Project Cost =</b>	\$359,000

## Jefferson District Park & Golf Course LID

**Project ID:** CA9954  
**Project Name:** Jefferson District Park & Golf Course LID  
**Project Location:** Lee Hwy. & Shreve Rd.  
**Parcel ID No.:** 0492 01 0088

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 59.7 acres

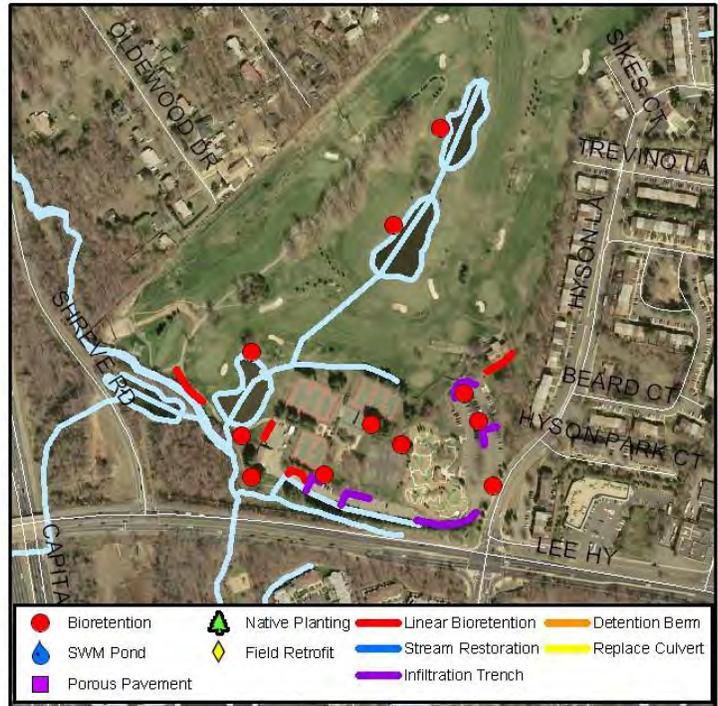
**Project Location:**



**Proposed Action:**

Install filter strips around SWM pond and 2 central water hazards; construct linear and area bioretention areas and infiltration trenches along parking lots and court surfaces; depress footpath to avoid directing flow from ponds to stream.

**Proposed Project:**



Existing stormwater pond on golf course could be surrounded by filter strips



Infiltration trenches could be installed along parking lot

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

**Estimated Cost:** \$236,000

## Jefferson District Park & Golf Course LID

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**Project ID:** CA9954

**Project Name:** Jefferson District Park & Golf Course LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	370	SF	\$25.00	\$9,250
Bioretention Area	2000	SF	\$25.00	\$50,000
Filter Strip	750	LF	\$2.00	\$1,500
Infiltration Trench	630	LF	\$100.00	\$63,000
<b>Base Cost =</b>				\$123,750
Mobilization ( 5% ) =				\$6,188
<b>Subtotal 1 =</b>				\$129,938
Contingency (25% ) =				\$32,484
<b>Subtotal 2 =</b>				\$162,422
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$73,090
<b>Total =</b>				\$235,512
<b>Estimated Project Cost =</b>				\$236,000

## Dunn Loring Center (School) LID

**Project ID:** CA9955  
**Project Name:** Dunn Loring Center (School) LID  
**Project Location:** Dunn Loring Center (School)  
**Parcel ID No.:** 0394 01 0024

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 9.1 acres

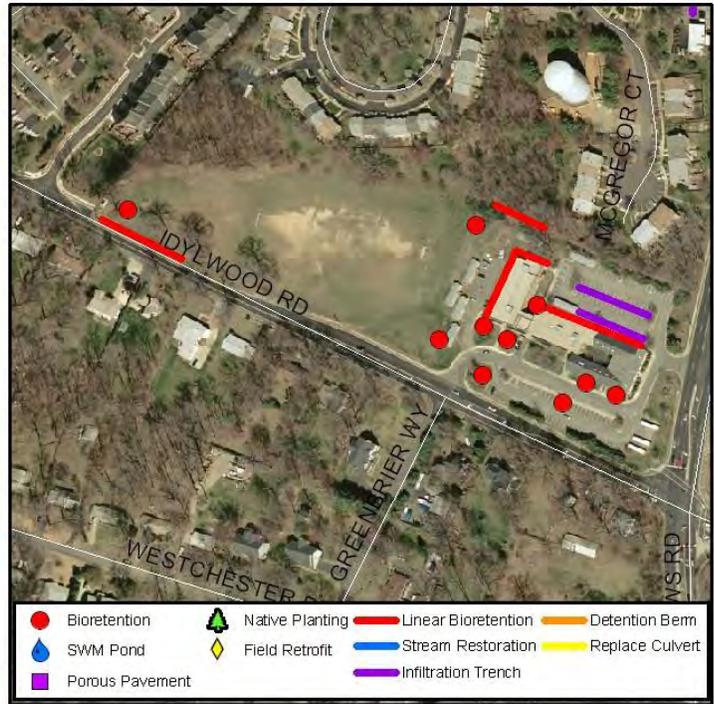
**Project Location:**



**Proposed Action:**

Disconnect downspouts and redirect to bioretention areas in landscape beds; construct linear bioretention areas around NW corner of bldg., above berm N of bldg., and at W end of fields; install infiltration trench in N parking lot; construct bioretention areas in traffic islands SW of bldg. and trailers.

**Proposed Project:**



Existing infiltration trench alongside parking lot



Potential bioretention area in traffic island

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Opportunity for public education.

**Estimated Cost:** \$722,000

## Dunn Loring Center (School) LID

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**Project ID:** CA9955

**Project Name:** Dunn Loring Center (School) LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	12115	SF	\$25.00	\$302,875
Infiltration Trench	290	LF	\$100.00	\$29,000
Bioretention Area	1890	SF	\$25.00	\$47,250
<b>Base Cost =</b>				\$379,125
Mobilization ( 5% ) =				\$18,956
<b>Subtotal 1 =</b>				\$398,081
Contingency (25% ) =				\$99,520
<b>Subtotal 2 =</b>				\$497,602
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$223,921
<b>Total =</b>				\$721,522
<b>Estimated Project Cost =</b>				\$722,000

## Fire Station - Company No. 13 LID

**Project ID:** CA9957  
**Project Name:** Fire Station - Company No. 13 LID  
**Project Location:** Gallows Rd. and Wolftrap Rd.  
**Parcel ID No.:** 0392 08 0007

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Upper  
**Drainage Area:** 1.5 acres

**Project Location:**



**Proposed Action:**

Construct bioretention areas on W side of parking lot prior to inlets; provide rain barrels for downspouts from overhangs at front and rear entrances; install infiltration trenches along N side and in front of bldg.; install linear bioretention area in median along Gallows Rd.

**Proposed Project:**



Install bioretention areas in traffic islands and along center of parking rows



Divert downspouts into linear bioretention areas alongside building

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

**Estimated Cost:** \$132,000

**Fire Station - Company No. 13 LID**

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**Project ID:** CA9957

**Project Name:** Fire Station - Company No. 13 LID

**Estimated Project Cost:**

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	1420	SF	\$25.00	\$35,500
Rain Barrel	2	EA	\$150.00	\$300
Infiltration Trench	225	LF	\$100.00	\$22,500
Bioretention Area, Linear	425	SF	\$25.00	\$10,625
<b>Base Cost =</b>				\$68,925
Mobilization ( 5% ) =				\$3,446
<b>Subtotal 1 =</b>				\$72,371
Contingency (25% ) =				\$18,093
<b>Subtotal 2 =</b>				\$90,464
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$40,709
<b>Total =</b>				\$131,173
<b>Estimated Project Cost =</b>				\$132,000

## Lynbrook Subdivision LID - A

**Project ID:** CA9958

**Project Type:** Low Impact Development

**Project Name:** Lynbrook Subdivision LID - A

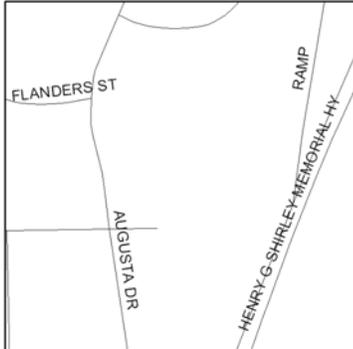
**Subwatershed:** Backlick Run

**Project Location:** Augusta Dr. & Flanders St.

**Drainage Area:** 14.7 acres

**Parcel ID No.:** 0804 0211 A1

### Project Location:



### Proposed Action:

Add 2 off-line bioretention areas below road to capture flow from two outfalls; repair concrete apron below road culvert.

### Proposed Project:



Stream area



Outfall

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

**Estimated Cost:** \$89,000

## Lynbrook Subdivision LID - A

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**Project ID:** CA9958

**Project Name:** Lynbrook Subdivision LID - A

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	425	CY	\$50.00	\$21,250
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
<b>Base Cost =</b>				\$46,250
Mobilization ( 5% ) =				\$2,313
<b>Subtotal 1 =</b>				\$48,563
Contingency (25% ) =				\$12,141
<b>Subtotal 2 =</b>				\$60,703
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$27,316
<b>Total =</b>				\$88,020
<b>Estimated Project Cost =</b>				\$89,000

## Anna Lee Heights LID

**Project ID:** CA9959

**Project Type:** Low Impact Development

**Project Name:** Anna Lee Heights LID

**Subwatershed:** Tripps Run

**Project Location:** Blue Heron Dr. & Kingwood Dr.

**Drainage Area:** 16.8 acres

**Parcel ID No.:**

**Project Location:**



**Proposed Project:**



**Proposed Action:**

Construct bioretention area within existing swale.



Existing swale



Outlet entering swale

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

**Estimated Cost:** \$77,000

## Anna Lee Heights LID

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**Project ID:** CA9959

**Project Name:** Anna Lee Heights LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	1600	SF	\$25.00	\$40,000
<b>Base Cost =</b>				\$40,000
Mobilization ( 5% ) =				\$2,000
<b>Subtotal 1 =</b>				\$42,000
Contingency (25% ) =				\$10,500
<b>Subtotal 2 =</b>				\$52,500
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$23,625
<b>Total =</b>				\$76,125
<b>Estimated Project Cost =</b>				\$77,000

## Mason District Park LID

**Project ID:** CA9960 **Project Type:** Low Impact Development  
**Project Name:** Mason District Park LID **Subwatershed:** Turkeycock Run  
**Project Location:** Columbia Pike & Mason District Park Entrance **Drainage Area:** 5.1 acres  
**Parcel ID No.:** 0604 01 0028

### Project Location:



### Proposed Action:

Implement stormwater retrofits based on the Park Authority's existing LID retrofit concept plan.

### Proposed Project:



Existing stormwater pond with roadway in background

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

**Estimated Cost:** \$120,000

## Mason District Park LID

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**Project ID:** CA9960

**Project Name:** Mason District Park LID

### Estimated Project Cost:

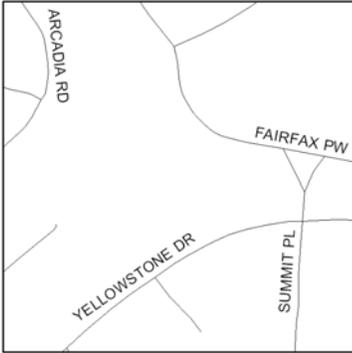
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
LID Retrofits	1	LS	\$63,000.00	\$63,000
			<b>Base Cost =</b>	\$63,000
			Mobilization ( 5% ) =	\$3,150
			<b>Subtotal 1 =</b>	\$66,150
			Contingency (25% ) =	\$16,538
			<b>Subtotal 2 =</b>	\$82,688
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$37,209
			<b>Total =</b>	\$119,897
			<b>Estimated Project Cost =</b>	\$120,000

## Holmes Run Park LID

**Project ID:** CA9962  
**Project Name:** Holmes Run Park LID  
**Project Location:** Holmes Run Park near Fairfax Parkway  
**Parcel ID No.:** 0613 16 A

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Lower  
**Drainage Area:** 8 acres

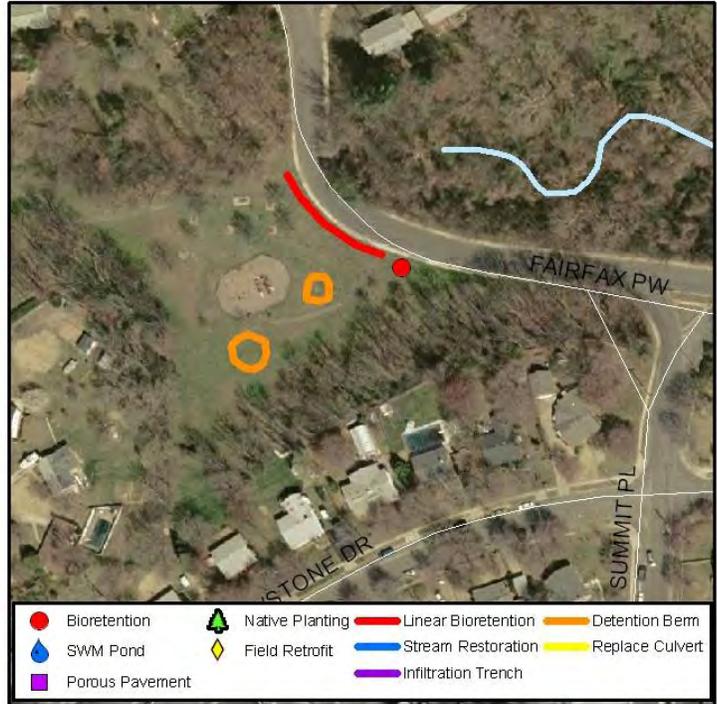
**Project Location:**



**Proposed Action:**

Install linear and circular bioretention areas along road and detention micro-berms around two stormwater area drains in park.

**Proposed Project:**



Detention berms can encircle grate inlets like this one to slow flows



Potential locations for linear bioretention area and tree box filter

**Benefits:** Provide stormwater quantity controls.  
 Provide stormwater quality controls.  
 Opportunity for public education.

**Estimated Cost:** \$158,000

## Holmes Run Park LID

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**Project ID:** CA9962

**Project Name:** Holmes Run Park LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Detention Berm	215	LF	\$2.00	\$430
Bioretention Area, Linear	1430	SF	\$25.00	\$35,750
Bioretention Area	1870	SF	\$25.00	\$46,750
			<b>Base Cost =</b>	\$82,930
			Mobilization ( 5% ) =	\$4,147
			<b>Subtotal 1 =</b>	\$87,077
			Contingency (25% ) =	\$21,769
			<b>Subtotal 2 =</b>	\$108,846
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$48,981
			<b>Total =</b>	\$157,826
			<b>Estimated Project Cost =</b>	\$158,000