

## Jefferson Manor Park Bioretention

**Project ID:** CA9802

**Project Type:** Low Impact Development

**Project Name:** Jefferson Manor Park Bioretention

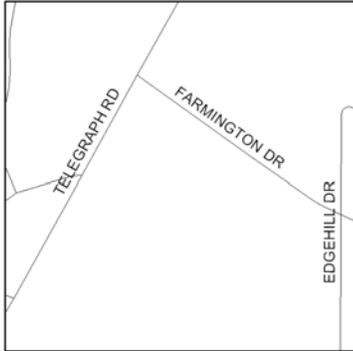
**Subwatershed:** Pike Branch

**Project Location:** Jefferson Manor Park

**Drainage Area:** 9.2 acres

**Parcel ID No.:** 0831 01 0015

### Project Location:



### Proposed Action:

Construct bioretention area below parking lot and detention micro-berm along edge of baseball field.

### Proposed Project:



Construct bioretention area below parking lot

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

**Estimated Cost:** \$73,000

## Jefferson Manor Park Bioretention

---

**Project ID:** CA9802

**Project Name:** Jefferson Manor Park Bioretention

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Detention Berm	190	LF	\$2.00	\$380
Bioretention Area	1500	SF	\$25.00	\$37,500
<b>Base Cost =</b>				\$37,880
Mobilization ( 5% ) =				\$1,894
<b>Subtotal 1 =</b>				\$39,774
Contingency (25%) =				\$9,944
<b>Subtotal 2 =</b>				\$49,718
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$22,373
<b>Total =</b>				\$72,090
<b>Estimated Project Cost =</b>				\$73,000

## Mount Eagle Elementary School LID

**Project ID:** CA9804  
**Project Name:** Mount Eagle Elementary School LID  
**Project Location:** Mount Eagle Elementary School  
**Parcel ID No.:** 0833 01 0004

**Project Type:** Low Impact Development  
**Subwatershed:** Pike Branch  
**Drainage Area:** 5.9 acres

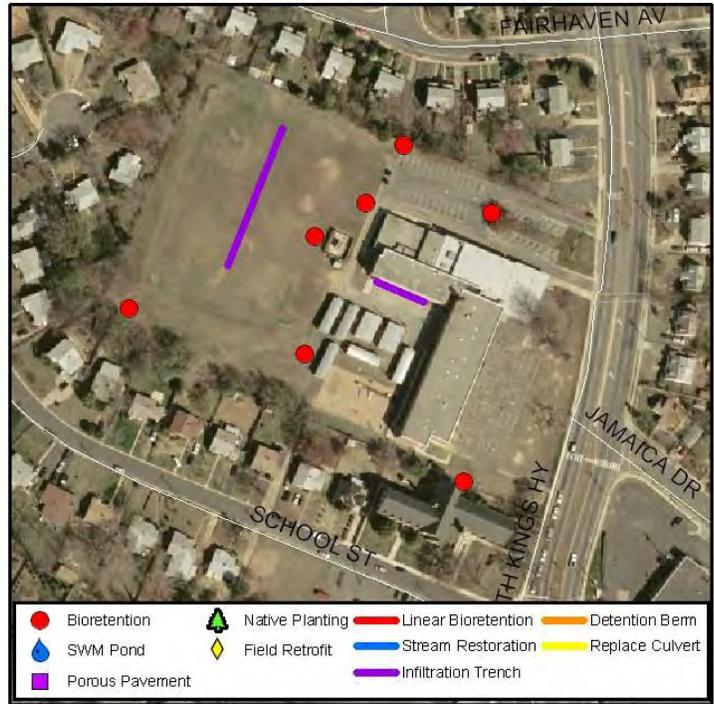
**Project Location:**



**Proposed Action:**

Construct bioretention areas in traffic island, at parking lot margins, SW corner of trailers, and SW corner of property; direct roof drains to bioretention areas; install infiltration trench along W side of new parking lot.

**Proposed Project:**



Convert concrete ditch to linear bioretention area and collect water from downspouts



Potential bioretention areas in rear parking lot and playing fields

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

**Estimated Cost:** \$210,000

## Mount Eagle Elementary School LID

---

**Project ID:** CA9804

**Project Name:** Mount Eagle Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	3150	SF	\$25.00	\$78,750
Infiltration Trench	315	LF	\$100.00	\$31,500
<b>Base Cost =</b>				\$110,250
Mobilization ( 5% ) =				\$5,513
<b>Subtotal 1 =</b>				\$115,763
Contingency (25%) =				\$28,941
<b>Subtotal 2 =</b>				\$144,703
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$65,116
<b>Total =</b>				\$209,820
<b>Estimated Project Cost =</b>				\$210,000

## Wilton Administration Center LID

**Project ID:** CA9805  
**Project Name:** Wilton Administration Center LID  
**Project Location:** Wilton Administration Center  
**Parcel ID No.:** 0824 01 0004A

**Project Type:** Low Impact Development  
**Subwatershed:** Pike Branch  
**Drainage Area:** 6.6 acres

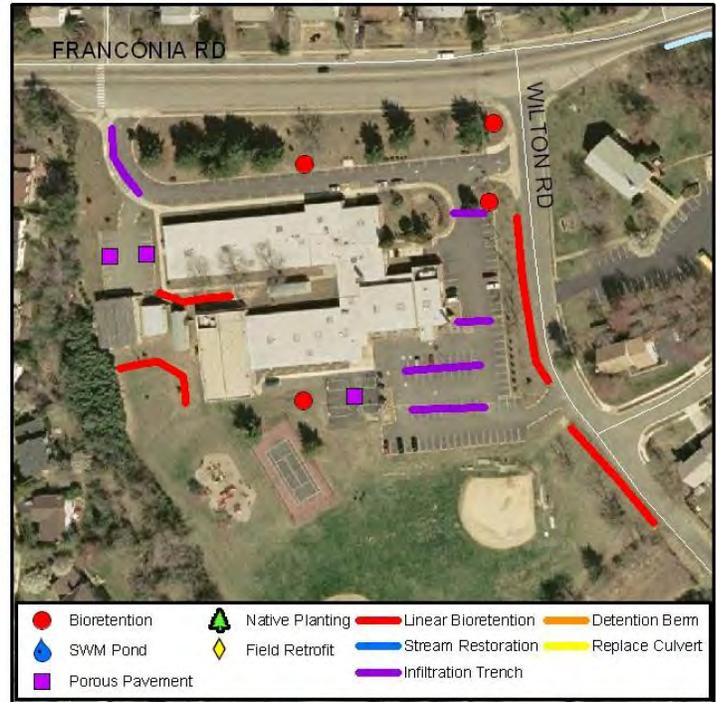
### Project Location:



### Proposed Action:

Construct bioretention areas in traffic islands along front and side parking lot, at inlet on south side of school, and at storm drain outlet on west side; install infiltration trenches and porous pavement in parking lots and asphalt court. This facility may be renovated within the next five years and these proposed retrofits, or similar stormwater improvements, should be incorporated into the renovation plans.

### Proposed Project:



Bioretention area location in traffic islands



Locations for infiltration trenches and porous pavement in parking lots and asphalt courts

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

**Estimated Cost:** \$460,000

## Wilton Administration Center LID

---

**Project ID:** CA9805

**Project Name:** Wilton Administration Center LID

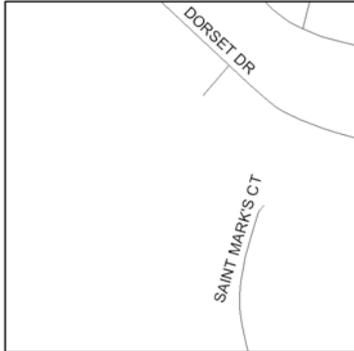
### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	5470	SF	\$25.00	\$136,750
Infiltration Trench	350	LF	\$100.00	\$35,000
Porous Pavement	260	SY	\$15.00	\$3,900
Bioretention Area, Linear	2625	SF	\$25.00	\$65,625
<b>Base Cost =</b>				\$241,275
Mobilization ( 5% ) =				\$12,064
<b>Subtotal 1 =</b>				\$253,339
Contingency (25% ) =				\$63,335
<b>Subtotal 2 =</b>				\$316,673
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$142,503
<b>Total =</b>				\$459,176
<b>Estimated Project Cost =</b>				\$460,000

## Virginia Hills Administration Center (School) LID

<b>Project ID:</b>	CA9807	<b>Project Type:</b>	Low Impact Development
<b>Project Name:</b>	Virginia Hills Administration Center (School) LID	<b>Subwatershed:</b>	Pike Branch
<b>Project Location:</b>	Virginia Hills Administration Center (School)	<b>Drainage Area:</b>	4.8 acres
<b>Parcel ID No.:</b>	0922 01 0002A		

**Project Location:**



**Proposed Action:**

Construct linear bioretention areas along outside of bus loop and along rear parking lot; direct roof drains at front wing to bioretention areas; install infiltration trench in NW corner of bus parking area. This facility may be renovated within the next five years and these proposed retrofits, or similar stormwater improvements, should be incorporated into the renovation plans.

**Proposed Project:**



Potential bioretention area along NW corner of school



Potential linear bioretention areas along outside edge of traffic circle

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

**Estimated Cost:** \$352,000

## Virginia Hills Administration Center (School) LID

---

**Project ID:** CA9807

**Project Name:** Virginia Hills Administration Center (School) LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	4690	SF	\$25.00	\$117,250
Bioretention Area	2215	SF	\$25.00	\$55,375
Infiltration Trench	120	LF	\$100.00	\$12,000
			<b>Base Cost =</b>	\$184,625
			Mobilization ( 5% ) =	\$9,231
			<b>Subtotal 1 =</b>	\$193,856
			Contingency (25% ) =	\$48,464
			<b>Subtotal 2 =</b>	\$242,320
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$109,044
			<b>Total =</b>	\$351,364
			<b>Estimated Project Cost =</b>	\$352,000

## Lee District Park LID

**Project ID:** CA9808  
**Project Name:** Lee District Park LID  
**Project Location:** Dorset Dr. & Robinson Dr.  
**Parcel ID No.:** 0921 01 0021

**Project Type:** Low Impact Development  
**Subwatershed:** Pike Branch  
**Drainage Area:** 43.4 acres

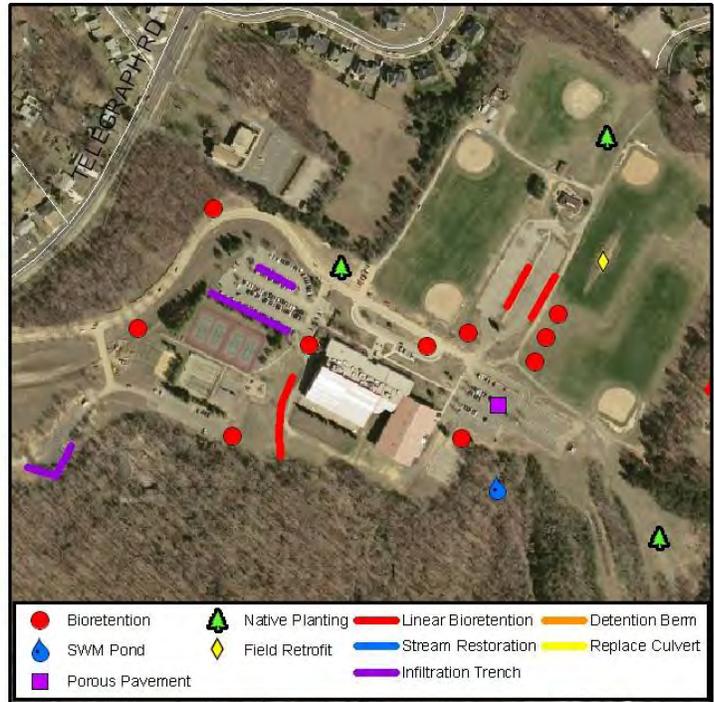
**Project Location:**



**Proposed Action:**

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality; construct bioretention areas along N parking lot, in south central swale, and in parking lot islands/road margins; install infiltration trench in tennis court parking lot and porous pavement in E parking lot; convert athletic fields to artificial turf; add tree cover throughout. Note that athletic fields are scheduled for conversion to artificial turf in 2008. Facility maintenance and renovation is an on-going process and proposed retrofits, or similar stormwater improvements, should be incorporated into site improvement plans.

**Proposed Project:**



Convert athletic fields to artificial turf with underdrain and cistern



Incorporate bioretention and additional tree cover throughout the site, including in this traffic circle

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

**Estimated Cost:** \$1,589,000

## Lee District Park LID

---

**Project ID:** CA9808

**Project Name:** Lee District Park LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	800	CY	\$35.00	\$28,000
Reforestation	0.63	AC	\$25,000.00	\$15,750
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
Artificial Turf, Underdrains and Cistern	1	EA	\$600,000.00	\$600,000
Bioretention Area, Linear	530	SF	\$25.00	\$13,250
Infiltration Trench	570	LF	\$100.00	\$57,000
Bioretention Area	2725	SF	\$25.00	\$68,125
Porous Pavement	2500	SY	\$15.00	\$37,500

**Base Cost =** \$834,625

Mobilization ( 5% ) = \$41,731

**Subtotal 1 =** \$876,356

Contingency (25% ) = \$219,089

**Subtotal 2 =** \$1,095,445

Engineering Design, Surveys, Land Acquisition,  
Utility Relocation, and Permits ( 45% ) = \$492,950

**Total =** \$1,588,396

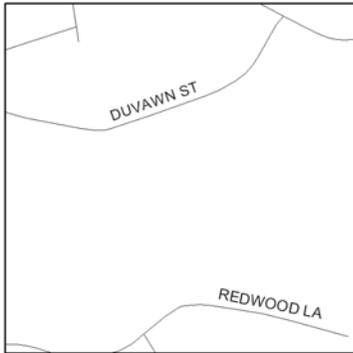
**Estimated Project Cost =** \$1,589,000

## Ridgeview Park LID - A

**Project ID:** CA9809  
**Project Name:** Ridgeview Park LID - A  
**Project Location:** Duvawn St. & Ridge View Dr.  
**Parcel ID No.:** 0823 10 C

**Project Type:** Low Impact Development  
**Subwatershed:** Pike Branch  
**Drainage Area:** 2.9 acres

**Project Location:**



**Proposed Action:**

Construct off-line bioretention in existing swale; plant meadow in lawn areas that extend into park/ROW; build detention micro-berm parallel to ROW in meadow areas; use integrated vegetation management practices to encourage shrub/low growing trees beneath power lines.

**Proposed Project:**



Create detention berm and bioretention area in transmission line ROW; replant unused mowed areas



Enhance habitat in ROW - control regrowth to encourage a low-growth, climax community

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

**Estimated Cost:** \$59,000

## Ridgeview Park LID - A

---

**Project ID:** CA9809

**Project Name:** Ridgeview Park LID - A

### Estimated Project Cost:

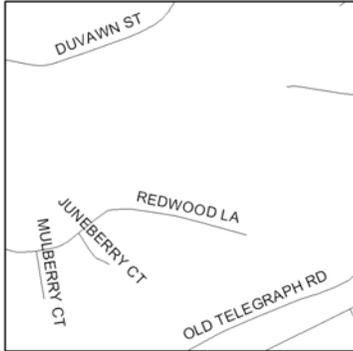
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	1210	SF	\$25.00	\$30,250
Detention Berm	320	LF	\$2.00	\$640
Wildflower Planting	0.02	AC	\$3,000.00	\$60
<b>Base Cost =</b>				\$30,950
Mobilization ( 5% ) =				\$1,548
<b>Subtotal 1 =</b>				\$32,498
Contingency (25% ) =				\$8,124
<b>Subtotal 2 =</b>				\$40,622
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$18,280
<b>Total =</b>				\$58,902
<b>Estimated Project Cost =</b>				\$59,000

## Ridgeview Park LID - B

**Project ID:** CA9810  
**Project Name:** Ridgeview Park LID - B  
**Project Location:** Ridgeview Park  
**Parcel ID No.:** 0824 29 A

**Project Type:** Low Impact Development  
**Subwatershed:** Pike Branch  
**Drainage Area:** 7.6 acres

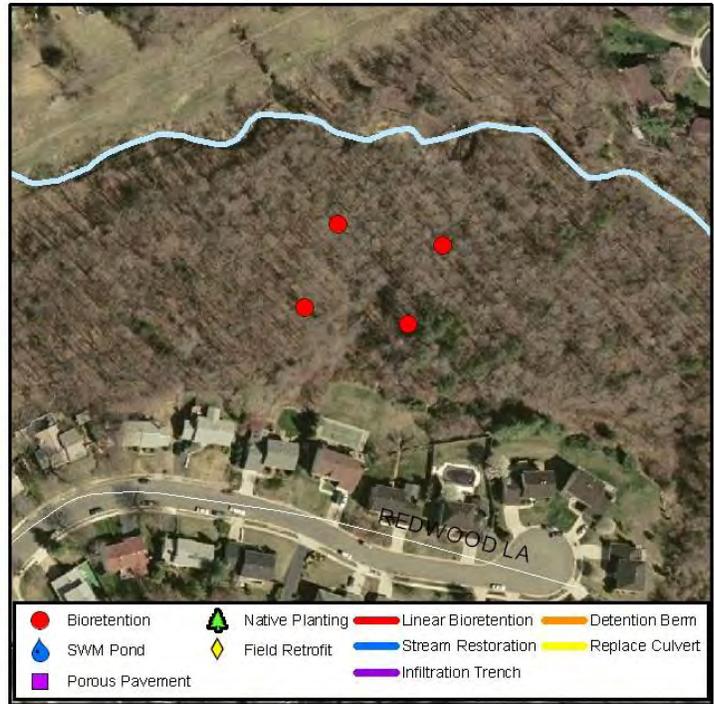
**Project Location:**



**Proposed Action:**

Install off-line bioretention areas to intercept flow before reaching stormwater outfall.

**Proposed Project:**



Divert stormwater into off-line bioretention areas above this eroded pipe outfall



View of eroded outfall from above

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

**Estimated Cost:** \$414,000

## Ridgeview Park LID - B

---

**Project ID:** CA9810

**Project Name:** Ridgeview Park LID - B

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	8690	SF	\$25.00	\$217,250
			<b>Base Cost =</b>	\$217,250
			Mobilization ( 5% ) =	\$10,863
			<b>Subtotal 1 =</b>	\$228,113
			Contingency (25% ) =	\$57,028
			<b>Subtotal 2 =</b>	\$285,141
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$128,313
			<b>Total =</b>	\$413,454
			<b>Estimated Project Cost =</b>	\$414,000

## Redwood Lane - LID

<b>Project ID:</b>	CA9811	<b>Project Type:</b>	Low Impact Development
<b>Project Name:</b>	Redwood Lane - LID	<b>Subwatershed:</b>	Pike Branch
<b>Project Location:</b>	Redwood Ln. at Shannon Hill Rd. and Mulberry Ct	<b>Drainage Area:</b>	2.9 acres
<b>Parcel ID No.:</b>	0824 29 A		

**Project Location:**



**Proposed Action:**

Construct off-line bioretention area at stormwater pipe outfall below Mulberry Ct.; use integrated vegetation management practices to encourage shrub/low growing trees beneath power lines.

**Proposed Project:**



Mulberry Court - off-line bioretention garden to be constructed at stormwater pipe outfall

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

**Estimated Cost:** \$211,000

## Redwood Lane - LID

---

**Project ID:** CA9811

**Project Name:** Redwood Lane - LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	4425	SF	\$25.00	\$110,625
<b>Base Cost =</b>				\$110,625
Mobilization ( 5% ) =				\$5,531
<b>Subtotal 1 =</b>				\$116,156
Contingency (25% ) =				\$29,039
<b>Subtotal 2 =</b>				\$145,195
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$65,338
<b>Total =</b>				\$210,533
<b>Estimated Project Cost =</b>				\$211,000

## Ridge View Drive - LID

**Project ID:** CA9812  
**Project Name:** Ridge View Drive - LID  
**Project Location:** Ridge View Drive after Dubois Street  
**Parcel ID No.:** 0823 01 0037B

**Project Type:** Low Impact Development  
**Subwatershed:** Pike Branch  
**Drainage Area:** 3.1 acres

**Project Location:**



**Proposed Action:**

Construct off-line bioretention area at stormwater pipe outfall.

**Proposed Project:**



Divert flow from concrete channel into off-line bioretention area



Space for off-line bioretention area at end of street

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

**Estimated Cost:** \$249,000

## Ridge View Drive - LID

---

**Project ID:** CA9812

**Project Name:** Ridge View Drive - LID

### Estimated Project Cost:

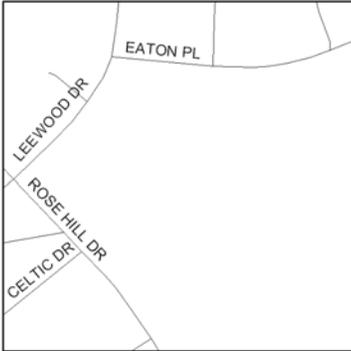
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	5230	SF	\$25.00	\$130,750
			<b>Base Cost =</b>	\$130,750
			Mobilization ( 5% ) =	\$6,538
			<b>Subtotal 1 =</b>	\$137,288
			Contingency (25% ) =	\$34,322
			<b>Subtotal 2 =</b>	\$171,609
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$77,224
			<b>Total =</b>	\$248,834
			<b>Estimated Project Cost =</b>	\$249,000

## John Marshall Library LID

**Project ID:** CA9813  
**Project Name:** John Marshall Library LID  
**Project Location:** Rose Hill Dr. & Celtic Dr.  
**Parcel ID No.:** 0823 12 B

**Project Type:** Low Impact Development  
**Subwatershed:** Pike Branch  
**Drainage Area:** 1.8 acres

**Project Location:**



**Proposed Action:**

Construct linear bioretention areas along edge of rear parking lot and in swale to NW; construct bioretention areas in islands along front of bldg. and in parking lot; install infiltration trench in rear parking lot.

**Proposed Project:**



Potential bioretention areas in island in east parking lot



Convert concrete swale to linear bioretention area along NW side of building

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

**Estimated Cost:** \$246,000

## John Marshall Library LID

---

**Project ID:** CA9813

**Project Name:** John Marshall Library LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	1575	SF	\$25.00	\$39,375
Bioretention Area	3365	SF	\$25.00	\$84,125
Infiltration Trench	55	LF	\$100.00	\$5,500
<b>Base Cost =</b>				\$129,000
Mobilization ( 5% ) =				\$6,450
<b>Subtotal 1 =</b>				\$135,450
Contingency (25% ) =				\$33,863
<b>Subtotal 2 =</b>				\$169,313
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$76,191
<b>Total =</b>				\$245,503
<b>Estimated Project Cost =</b>				\$246,000

## Clermont School Site Park LID

**Project ID:** CA9818  
**Project Name:** Clermont School Site Park LID  
**Project Location:** Clermont School Site Park - Gypsy Ct.  
**Parcel ID No.:** 0822 01 0003B

**Project Type:** Low Impact Development  
**Subwatershed:** Tributaries to Cameron Run  
**Drainage Area:** 1.1 acres

**Project Location:**



**Proposed Action:**

Construct bioretention area below houses on Gypsy Ct.

**Proposed Project:**



Potential bioretention area behind houses



Concrete ditch behind houses

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

**Estimated Cost:** \$49,000

## Clermont School Site Park LID

---

**Project ID:** CA9818

**Project Name:** Clermont School Site Park LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	1020	SF	\$25.00	\$25,500
<b>Base Cost =</b>				\$25,500
Mobilization ( 5% ) =				\$1,275
<b>Subtotal 1 =</b>				\$26,775
Contingency (25% ) =				\$6,694
<b>Subtotal 2 =</b>				\$33,469
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$15,061
<b>Total =</b>				\$48,530
<b>Estimated Project Cost =</b>				\$49,000

## Clermont Elementary School LID

**Project ID:** CA9821  
**Project Name:** Clermont Elementary School LID  
**Project Location:** Clermont Elementary School  
**Parcel ID No.:** 0821 01 0005B

**Project Type:** Low Impact Development  
**Subwatershed:** Tributaries to Cameron Run  
**Drainage Area:** 12.4 acres

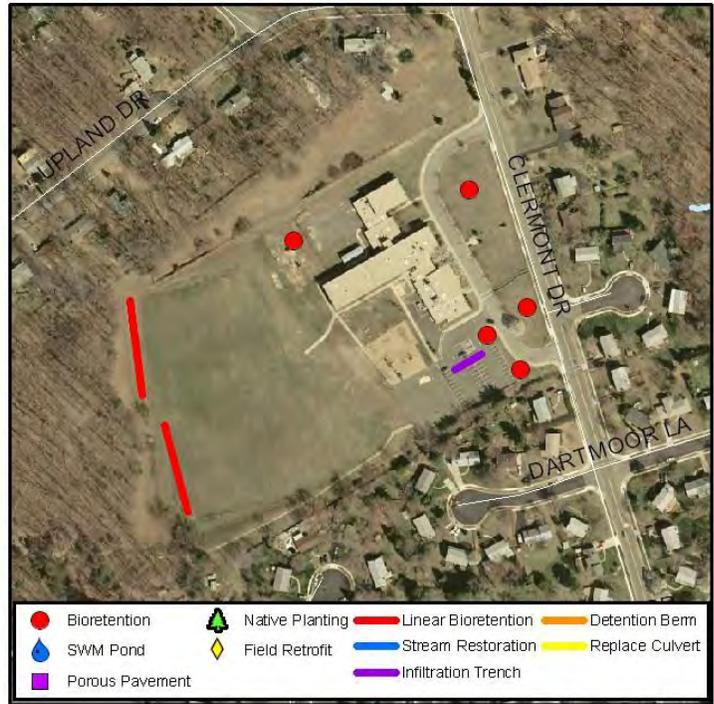
**Project Location:**



**Proposed Action:**

Construct bioretention areas in bus loop traffic island and NW of building; construct linear bioretention area S of building and along west end of fields; replace inlet at NE corner of parking lot with a tree box filter.

**Proposed Project:**



Bus loop where bioretention gardens could be constructed



Potential bioretention area at inlet in front of school

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

**Estimated Cost:** \$308,000

## Clermont Elementary School LID

---

**Project ID:** CA9821

**Project Name:** Clermont Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	3940	SF	\$25.00	\$98,500
Bioretention Area	1675	SF	\$25.00	\$41,875
Tree Box Filter	1	EA	\$3,000.00	\$3,000
Infiltration Trench	180	LF	\$100.00	\$18,000
<b>Base Cost =</b>				\$161,375
Mobilization ( 5% ) =				\$8,069
<b>Subtotal 1 =</b>				\$169,444
Contingency (25% ) =				\$42,361
<b>Subtotal 2 =</b>				\$211,805
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$95,312
<b>Total =</b>				\$307,117
<b>Estimated Project Cost =</b>				\$308,000

## Twain Middle School LID

**Project ID:** CA9822  
**Project Name:** Twain Middle School LID  
**Project Location:** Twain Middle School  
**Parcel ID No.:** 0823 01 0020

**Project Type:** Low Impact Development  
**Subwatershed:** Tributaries to Cameron Run  
**Drainage Area:** 9.6 acres

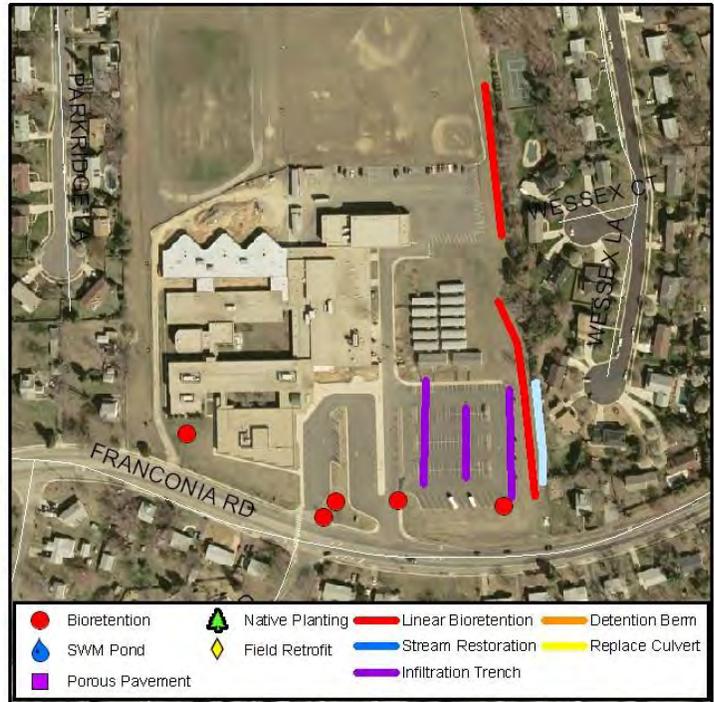
**Project Location:**



**Proposed Action:**

Construct bioretention areas in bus loop traffic island and in grass island SW of bldg.; construct linear bioretention areas along E side of property; install infiltration trenches and tree box filters in SE parking lot.

**Proposed Project:**



Construct bioretention areas in bus loop traffic island and along parking lots



Add bioretention areas in this traffic island, and replace inlet with a tree box filter

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

**Estimated Cost:** \$660,000

## Twain Middle School LID

---

**Project ID:** CA9822

**Project Name:** Twain Middle School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	8740	SF	\$25.00	\$218,500
Bioretention Area	2600	SF	\$25.00	\$65,000
Tree Box Filter	3	EA	\$3,000.00	\$9,000
Infiltration Trench	540	LF	\$100.00	\$54,000
<b>Base Cost =</b>				\$346,500
Mobilization ( 5% ) =				\$17,325
<b>Subtotal 1 =</b>				\$363,825
Contingency (25% ) =				\$90,956
<b>Subtotal 2 =</b>				\$454,781
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$204,652
<b>Total =</b>				\$659,433
<b>Estimated Project Cost =</b>				\$660,000

## Bush Hill Elementary School LID

**Project ID:** CA9823  
**Project Name:** Bush Hill Elementary School LID  
**Project Location:** Bush Hill Elementary School  
**Parcel ID No.:** 0823 01 0001

**Project Type:** Low Impact Development  
**Subwatershed:** Tributaries to Cameron Run  
**Drainage Area:** 9.6 acres

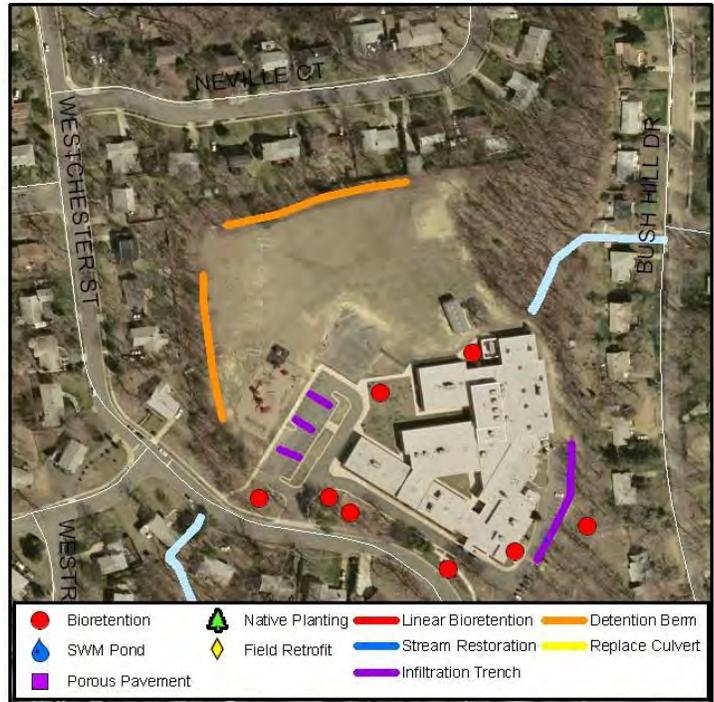
**Project Location:**



**Proposed Action:**

Construct bioretention areas in traffic/sidewalk islands; install infiltration trenches in parking lots; construct off-line bioretention at end of concrete trench from eastern parking lot and detention micro-berm along northern tree line.

**Proposed Project:**



Potential bioretention area in bus circle



Potential bioretention area south of parking lot

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

**Estimated Cost:** \$183,000

## Bush Hill Elementary School LID

---

**Project ID:** CA9823

**Project Name:** Bush Hill Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Detention Berm	590	LF	\$2.00	\$1,180
Bioretention Area, Off-line	915	SF	\$25.00	\$22,875
Bioretention Area	1445	SF	\$25.00	\$36,125
Tree Box Filter	3	EA	\$3,000.00	\$9,000
Infiltration Trench	265	LF	\$100.00	\$26,500
			<b>Base Cost =</b>	\$95,680
			Mobilization ( 5% ) =	\$4,784
			<b>Subtotal 1 =</b>	\$100,464
			Contingency (25% ) =	\$25,116
			<b>Subtotal 2 =</b>	\$125,580
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$56,511
			<b>Total =</b>	\$182,091
			<b>Estimated Project Cost =</b>	\$183,000

## Lee District Government Center LID

<p><b>Project ID:</b> CA9827</p> <p><b>Project Name:</b> Lee District Government Center LID</p> <p><b>Project Location:</b> Lee District Government Center, Franconia Road</p> <p><b>Parcel ID No.:</b> 0813 05 0002A</p>	<p><b>Project Type:</b> Low Impact Development</p> <p><b>Subwatershed:</b> Backlick Run</p> <p><b>Drainage Area:</b> 3.1 acres</p>
---	--

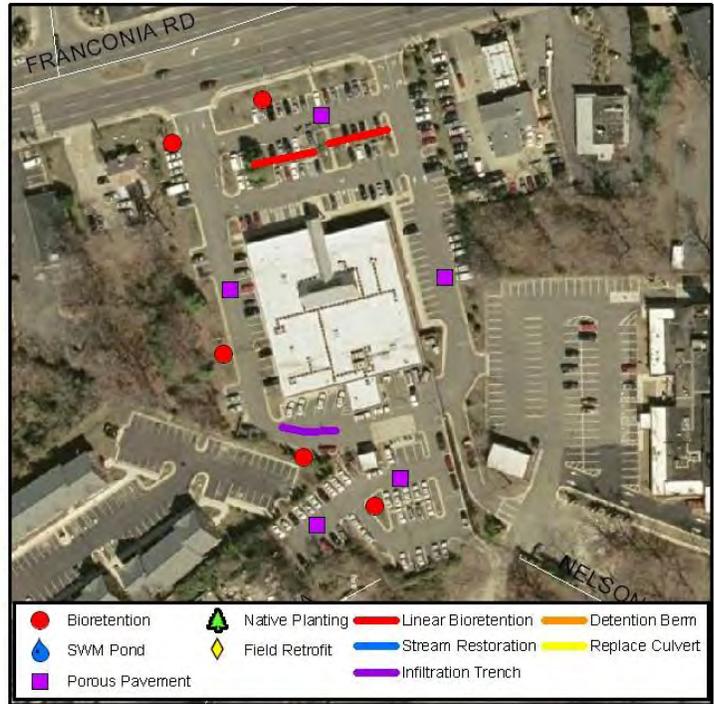
**Project Location:**



**Proposed Action:**

Construct bioretention areas in traffic islands; install infiltration trench in lane SW of bldg.; install tree box filters and porous pavement.

**Proposed Project:**



Traffic island conversion to bioretention areas



Replace inlet with tree box filter

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

**Estimated Cost:** \$209,000

## Lee District Government Center LID

---

**Project ID:** CA9827

**Project Name:** Lee District Government Center LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	1345	SF	\$25.00	\$33,625
Porous Pavement	3400	SY	\$15.00	\$51,000
Bioretention Area	150	SF	\$25.00	\$3,750
Tree Box Filter	2	EA	\$3,000.00	\$6,000
Infiltration Trench	150	LF	\$100.00	\$15,000
			<b>Base Cost =</b>	\$109,375
			Mobilization ( 5% ) =	\$5,469
			<b>Subtotal 1 =</b>	\$114,844
			Contingency (25% ) =	\$28,711
			<b>Subtotal 2 =</b>	\$143,555
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$64,600
			<b>Total =</b>	\$208,154
			<b>Estimated Project Cost =</b>	\$209,000

## Fire Station - Company No. 5 LID

**Project ID:** CA9828  
**Project Name:** Fire Station - Company No. 5 LID  
**Project Location:** Franconia Rd. and Beulah St. (VA 613)  
**Parcel ID No.:** 0813 05 0020

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 2.6 acres

**Project Location:**



**Proposed Project:**



**Proposed Action:**

At Fire Station, divert roof drains to cistern for filling fire trucks; install porous pavement in W parking lot; construct bioretention area in SE corner; install tree box filter.



Roof drains at Fire Station can be diverted to cistern for filling fire trucks



Location for bioretention area

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

**Estimated Cost:** \$71,000

**Fire Station - Company No. 5 LID**

---

**Project ID:** CA9828

**Project Name:** Fire Station - Company No. 5 LID

**Estimated Project Cost:**

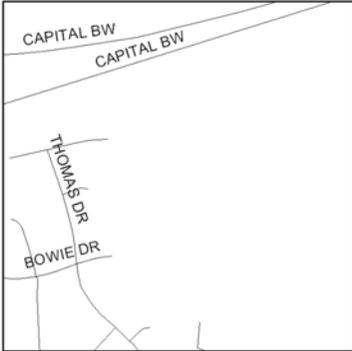
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Cistern	2	EA	\$5,000.00	\$10,000
Porous Pavement	560	SY	\$15.00	\$8,400
Bioretention Area	625	SF	\$25.00	\$15,625
Tree Box Filter	1	EA	\$3,000.00	\$3,000
<b>Base Cost =</b>				\$37,025
Mobilization ( 5% ) =				\$1,851
<b>Subtotal 1 =</b>				\$38,876
Contingency (25% ) =				\$9,719
<b>Subtotal 2 =</b>				\$48,595
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$21,868
<b>Total =</b>				\$70,463
<b>Estimated Project Cost =</b>				\$71,000

## Franconia Park LID

**Project ID:** CA9829  
**Project Name:** Franconia Park LID  
**Project Location:** Franconia Park  
**Parcel ID No.:** 0813 01 0041

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 12.8 acres

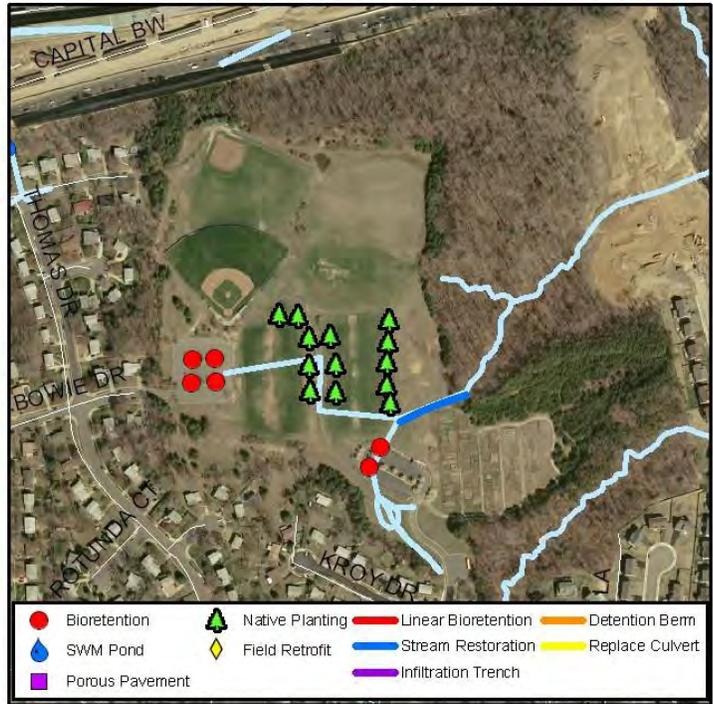
**Project Location:**



**Proposed Action:**

Construct bioretention areas in islands of both parking lots; plant trees between soccer fields and other locations to provide shade; repair streambank erosion and downcutting. Note that athletic fields are scheduled for conversion to artificial turf. Facility maintenance and renovation is an on-going process and proposed retrofits, or similar stormwater improvements, should be incorporated into site improvement plans.

**Proposed Project:**



Eroded cut along streambank



Outfall

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

**Estimated Cost:** \$126,000

## Franconia Park LID

---

**Project ID:** CA9829

**Project Name:** Franconia Park LID

### Estimated Project Cost:

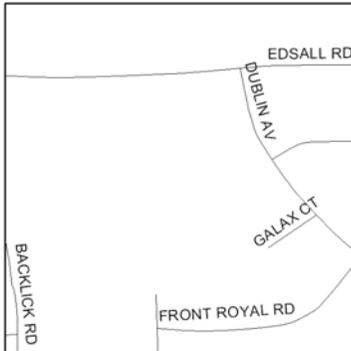
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Streambank Stabilization	250	LF	\$80.00	\$20,000
Bioretention Area	1100	SF	\$25.00	\$27,500
Shade Tree	0.5	AC	\$25,000.00	\$12,500
Tree Box Filter	2	EA	\$3,000.00	\$6,000
<b>Base Cost =</b>				\$66,000
Mobilization ( 5% ) =				\$3,300
<b>Subtotal 1 =</b>				\$69,300
Contingency (25% ) =				\$17,325
<b>Subtotal 2 =</b>				\$86,625
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$38,981
<b>Total =</b>				\$125,606
<b>Estimated Project Cost =</b>				\$126,000

## Edsall Administration Center LID

**Project ID:** CA9830  
**Project Name:** Edsall Administration Center LID  
**Project Location:** Edsall Rd. & Dublin Av.  
**Parcel ID No.:** 0714 01 0042

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 4.5 acres

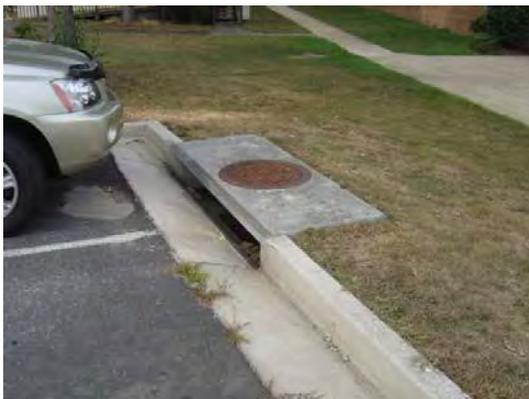
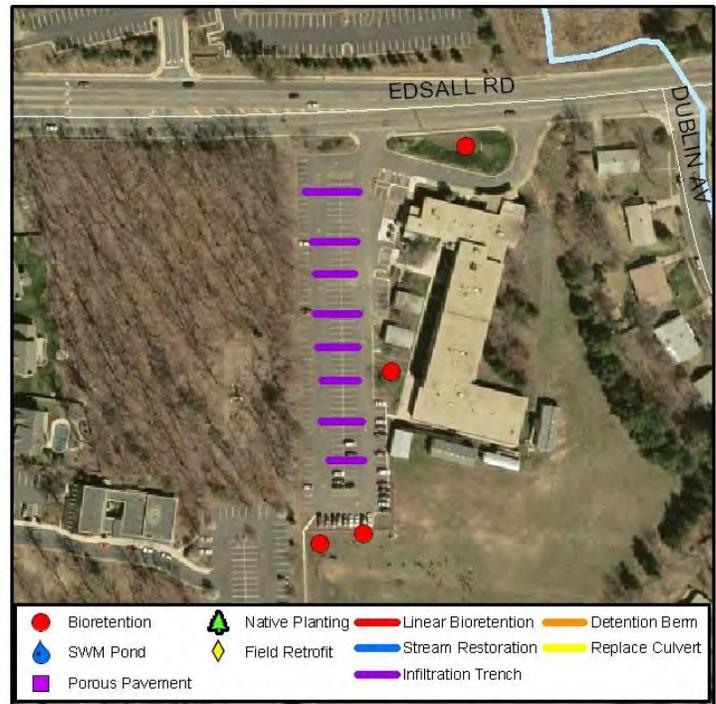
### Project Location:



### Proposed Action:

Install infiltration trenches in parking lots; construct bioretention areas in islands/borders; install tree box filters.

### Proposed Project:



Inlet where tree box filter could be installed



Depressed area where bioretention area could be installed

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

**Estimated Cost:** \$139,000

## Edsall Administration Center LID

---

**Project ID:** CA9830

**Project Name:** Edsall Administration Center LID

### Estimated Project Cost:

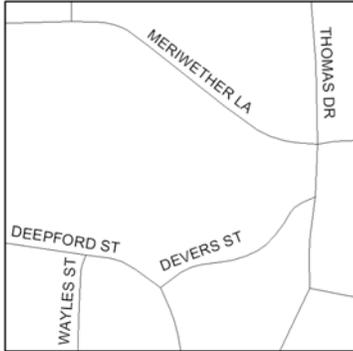
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	150	SF	\$25.00	\$3,750
Tree Box Filter	1	EA	\$3,000.00	\$3,000
Infiltration Trench	660	LF	\$100.00	\$66,000
			<b>Base Cost =</b>	\$72,750
			Mobilization ( 5% ) =	\$3,638
			<b>Subtotal 1 =</b>	\$76,388
			Contingency (25% ) =	\$19,097
			<b>Subtotal 2 =</b>	\$95,484
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$42,968
			<b>Total =</b>	\$138,452
			<b>Estimated Project Cost =</b>	\$139,000

## Springfield Elementary School LID

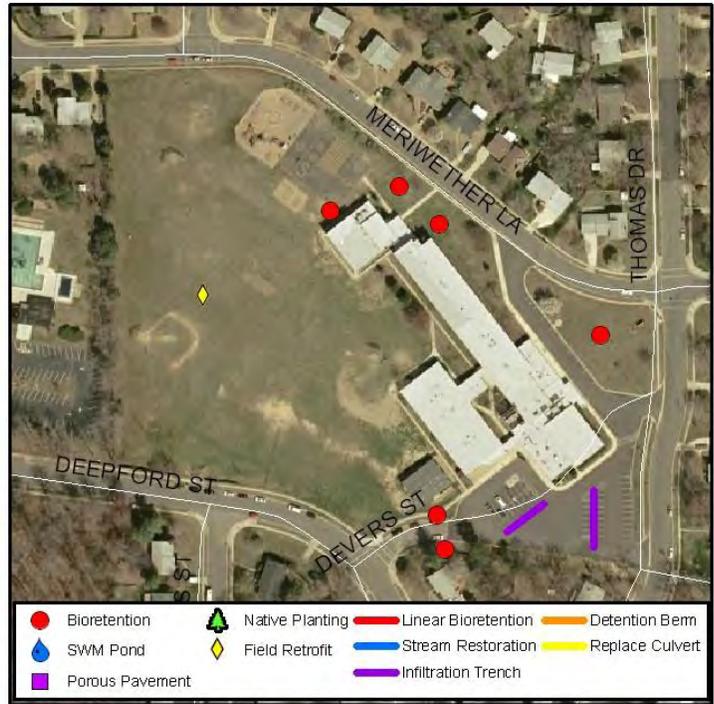
**Project ID:** CA9835  
**Project Name:** Springfield Elementary School LID  
**Project Location:** Deepford St. & Crozet Ct.  
**Parcel ID No.:** 0813 01 0005B

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 10.2 acres

**Project Location:**



**Proposed Project:**



**Proposed Action:**

Create bioretention areas in bus loop and landscape islands in front of bldg.; install infiltration trenches and tree box filters in parking lot; construct linear bioretention areas and filter strip adjacent to asphalt play yard; convert soccer/football field from grass to artificial turf with cistern and underdrain system.



Inlet in front of school where tree box filter could be installed



Inlet in grassy area where bioretention area could be installed. Note parking lot island in background where bioretention can be used

**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:** \$1,356,000

## Springfield Elementary School LID

---

**Project ID:** CA9835

**Project Name:** Springfield Elementary School LID

### Estimated Project Cost:

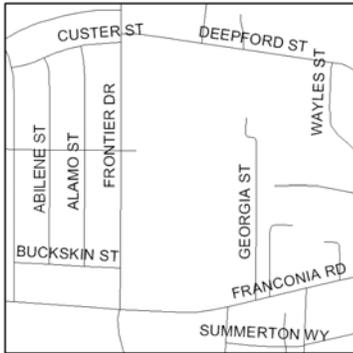
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Artificial Turf, Underdrains and Cistern	1	EA	\$600,000.00	\$600,000
Filter Strip	70	LF	\$2.00	\$140
Bioretention Area	1800	SF	\$25.00	\$45,000
Tree Box Filter	2	EA	\$3,000.00	\$6,000
Infiltration Trench	610	LF	\$100.00	\$61,000
			<b>Base Cost =</b>	\$712,140
			Mobilization ( 5% ) =	\$35,607
			<b>Subtotal 1 =</b>	\$747,747
			Contingency (25% ) =	\$186,937
			<b>Subtotal 2 =</b>	\$934,684
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$420,608
			<b>Total =</b>	\$1,355,291
			<b>Estimated Project Cost =</b>	\$1,356,000

## Lee High School LID

**Project ID:** CA9836  
**Project Name:** Lee High School LID  
**Project Location:** Lee High School and Lee Park  
**Parcel ID No.:** 0804 01 0037

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 42.1 acres

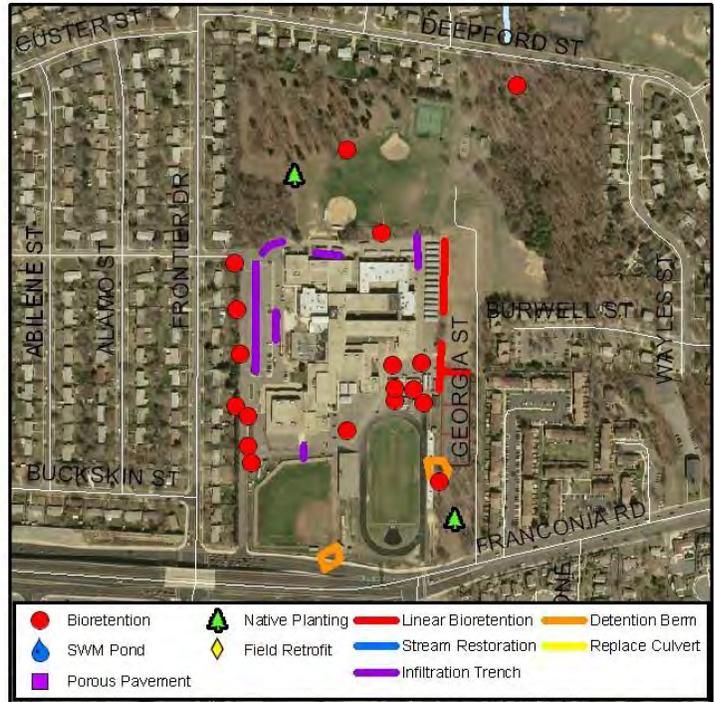
**Project Location:**



**Proposed Action:**

Construct off-line bioretention area at outfall S of Deepford St.; construct infiltration trenches and bioretention areas in parking lots around school bldg.; linear bioretention areas along tennis courts and concrete swale E of trailers; build detention micro-berm around 2 inlets; reforest unused open space.

**Proposed Project:**



Parking lot island conversion to bioretention area



Stormwater pipe inlet at Deepford St where bioretention area could be utilized

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

**Estimated Cost:** \$3,421,000

## Lee High School LID

---

**Project ID:** CA9836

**Project Name:** Lee High School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Detention Berm	540	LF	\$2.00	\$1,080
Bioretention Area, Off-line	31250	SF	\$25.00	\$781,250
Bioretention Area, Linear	12500	SF	\$25.00	\$312,500
Bioretention Area	20000	SF	\$25.00	\$500,000
Reforestation	1	AC	\$25,000.00	\$25,000
Infiltration Trench	1775	LF	\$100.00	\$177,500
			<b>Base Cost =</b>	\$1,797,330
			Mobilization ( 5% ) =	\$89,867
			<b>Subtotal 1 =</b>	\$1,887,197
			Contingency (25% ) =	\$471,799
			<b>Subtotal 2 =</b>	\$2,358,996
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$1,061,548
			<b>Total =</b>	\$3,420,544
			<b>Estimated Project Cost =</b>	\$3,421,000

## Key Middle School LID

**Project ID:** CA9839  
**Project Name:** Key Middle School LID  
**Project Location:** Franconia Rd. & Thomas Dr.  
**Parcel ID No.:** 0813 01 0022B

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 21.3 acres

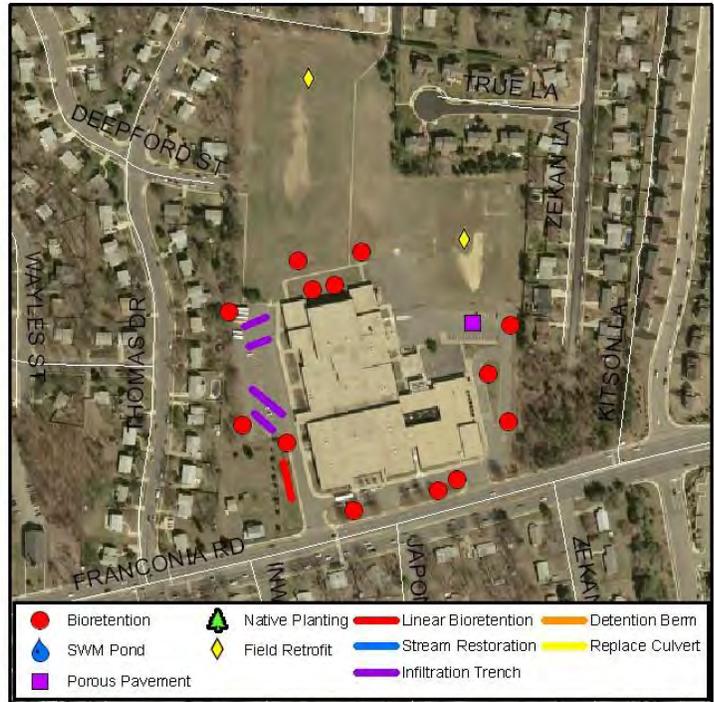
**Project Location:**



**Proposed Action:**

Construct bioretention areas, infiltration trenches, and tree box filters in parking lots; convert NE parking lot to porous pavement; provide depression storage N of bldg. in trailer area (not shown in aerial); convert two fields from grass to artificial turf with cistern and underdrain system.

**Proposed Project:**



Grassy swale leading to inlet



Inlet in parking lot where tree box could be installed

- 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:** \$2,745,000

## Key Middle School LID

---

**Project ID:** CA9839

**Project Name:** Key Middle School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Artificial Turf, Underdrains and Cistern	2	EA	\$600,000.00	\$1,200,000
Depression Storage	4000	SF	\$10.00	\$40,000
Bioretention Area, Linear	1440	SF	\$25.00	\$36,000
Porous Pavement	3750	SF	\$15.00	\$56,250
Bioretention Area	2600	SF	\$25.00	\$65,000
Tree Box Filter	5	EA	\$3,000.00	\$15,000
Infiltration Trench	300	LF	\$100.00	\$30,000

**Base Cost =** \$1,442,250

Mobilization ( 5% ) = \$72,113

**Subtotal 1 =** \$1,514,363

Contingency (25% ) = \$378,591

**Subtotal 2 =** \$1,892,953

Engineering Design, Surveys, Land Acquisition,  
Utility Relocation, and Permits ( 45% ) = \$851,829

**Total =** \$2,744,782

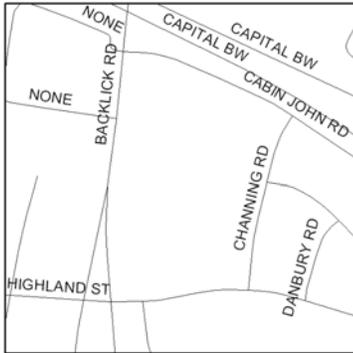
**Estimated Project Cost =** \$2,745,000

## Lynbrook Elementary School LID

**Project ID:** CA9842  
**Project Name:** Lynbrook Elementary School LID  
**Project Location:** Backlick Road  
**Parcel ID No.:** 0802 01 0021

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 11 acres

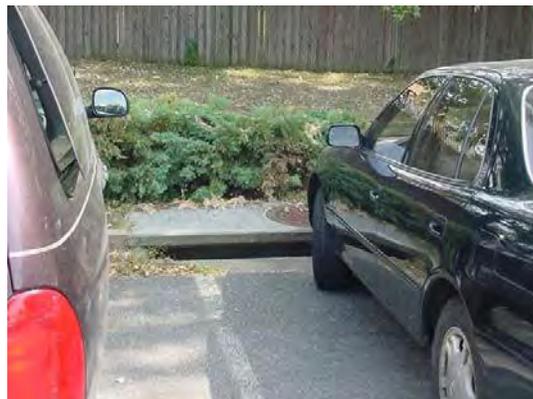
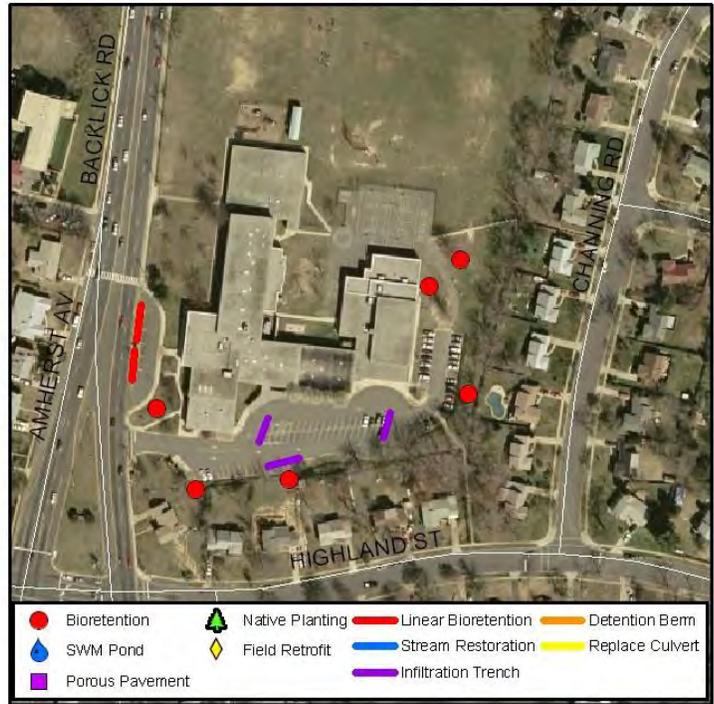
**Project Location:**



**Proposed Action:**

Construct bioretention in bus loop island, in front of school building, and to E of bldg.; direct roof drainage to cistern to water fields; install infiltration trenches and tree box filters in parking lot.

**Proposed Project:**



Inlet in parking lot



Stormwater inlet in lawn

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

**Estimated Cost:** \$254,000

## Lynbrook Elementary School LID

---

**Project ID:** CA9842

**Project Name:** Lynbrook Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Cistern	5	EA	\$5,000.00	\$25,000
Bioretention Area, Linear	490	SF	\$25.00	\$12,250
Bioretention Area	2300	SF	\$25.00	\$57,500
Tree Box Filter	3	EA	\$3,000.00	\$9,000
Infiltration Trench	295	LF	\$100.00	\$29,500
			<b>Base Cost =</b>	\$133,250
			Mobilization ( 5% ) =	\$6,663
			<b>Subtotal 1 =</b>	\$139,913
			Contingency (25% ) =	\$34,978
			<b>Subtotal 2 =</b>	\$174,891
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$78,701
			<b>Total =</b>	\$253,591
			<b>Estimated Project Cost =</b>	\$254,000

## Leewood Park LID - A

**Project ID:** CA9846  
**Project Name:** Leewood Park LID - A  
**Project Location:** Leewood Park  
**Parcel ID No.:** 0801 04 0004A

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 11.4 acres

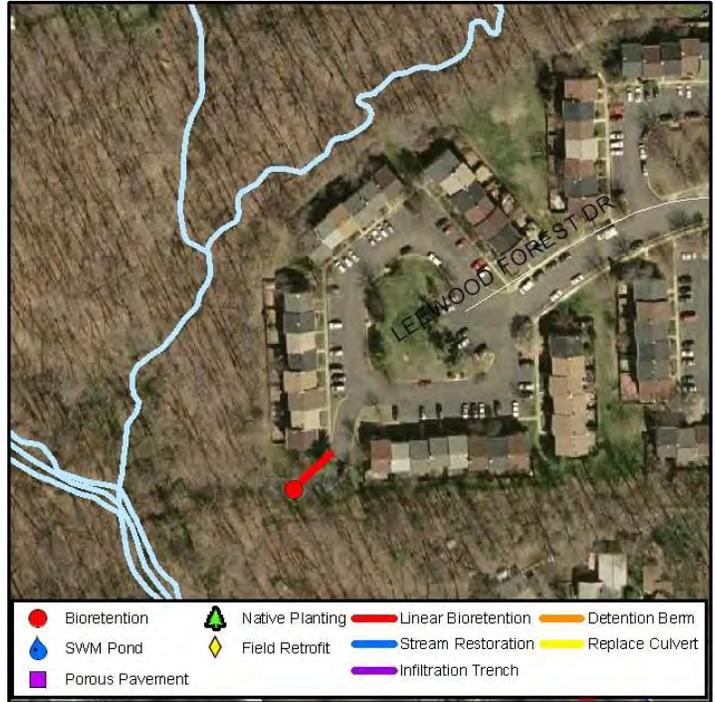
**Project Location:**



**Proposed Action:**

Restore grass swale; install bioretention area next to stormwater outfall pipe. Use woodland species.

**Proposed Project:**



Proposed bioretention area adjacent to outfall



Channel below outfall

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

**Estimated Cost:** \$39,000

## Leewood Park LID - A

---

**Project ID:** CA9846

**Project Name:** Leewood Park LID - A

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grass Swale	50	LF	\$6.00	\$300
Bioretention Area	800	SF	\$25.00	\$20,000
<b>Base Cost =</b>				\$20,300
Mobilization ( 5% ) =				\$1,015
<b>Subtotal 1 =</b>				\$21,315
Contingency (25%) =				\$5,329
<b>Subtotal 2 =</b>				\$26,644
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$11,990
<b>Total =</b>				\$38,633
<b>Estimated Project Cost =</b>				\$39,000

## Leewood Park LID - B

**Project ID:** CA9848  
**Project Name:** Leewood Park LID - B  
**Project Location:** Leewood Park  
**Parcel ID No.:** 0801 13 E

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 6.6 acres

### Project Location:



### Proposed Action:

Install riprap and infiltration trench at the end of stormwater outfall.

### Proposed Project:



View of spillway



Top of spillway looking down

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

**Estimated Cost:** \$13,000

**Leewood Park LID - B**

---

**Project ID:** CA9848

**Project Name:** Leewood Park LID - B

**Estimated Project Cost:**

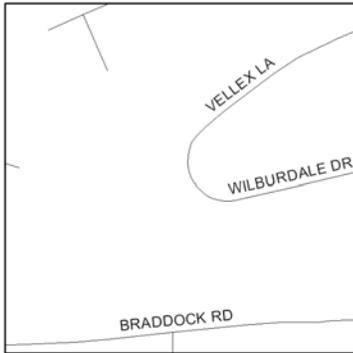
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Rip-Rap lining	50	LF	\$30.00	\$1,500
Infiltration Trench	50	LF	\$100.00	\$5,000
<b>Base Cost =</b>				\$6,500
Mobilization ( 5% ) =				\$325
<b>Subtotal 1 =</b>				\$6,825
Contingency (25%) =				\$1,706
<b>Subtotal 2 =</b>				\$8,531
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$3,839
<b>Total =</b>				\$12,370
<b>Estimated Project Cost =</b>				\$13,000

## Wilburdale Park LID - A

**Project ID:** CA9850  
**Project Name:** Wilburdale Park LID - A  
**Project Location:** Wilburdale Park  
**Parcel ID No.:** 0713 09 A

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 25.6 acres

**Project Location:**



**Proposed Action:**

Install bioretention areas next to court and along street; construct off-line bioretention area at outfall into concrete ditch; reforest unused areas in park.

**Proposed Project:**



Ditch and outfall



Ditch leading into stream

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

**Estimated Cost:** \$156,000

**Wilburdale Park LID - A**

---

**Project ID:** CA9850

**Project Name:** Wilburdale Park LID - A

**Estimated Project Cost:**

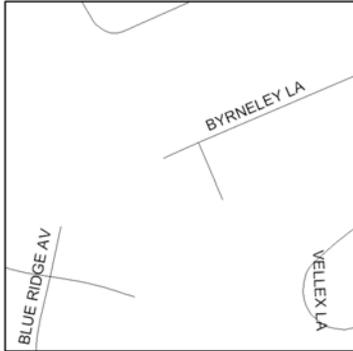
<b>ITEM</b>	<b>QUANTITY</b>	<b>UNITS</b>	<b>UNIT COST</b>	<b>TOTAL</b>
Bioretention Area, Off-line	2500	SF	\$25.00	\$62,500
Bioretention Area	600	SF	\$25.00	\$15,000
Reforestation	0.16	AC	\$25,000.00	\$4,000
<b>Base Cost =</b>				\$81,500
Mobilization ( 5% ) =				\$4,075
<b>Subtotal 1 =</b>				\$85,575
Contingency (25% ) =				\$21,394
<b>Subtotal 2 =</b>				\$106,969
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$48,136
<b>Total =</b>				\$155,105
<b>Estimated Project Cost =</b>				\$156,000

## Wilburdale Park LID - B

**Project ID:** CA9851  
**Project Name:** Wilburdale Park LID - B  
**Project Location:** Byrneley La. & Backlick Rd.  
**Parcel ID No.:** 0713 10 0018

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 6 acres

### Project Location:



### Proposed Action:

Develop/restore grass swales along road to deliver runoff to new bioretention area at end of roadway.

### Proposed Project:



Proposed location for bioretention area



Swale and outlet

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

**Estimated Cost:** \$97,000

## Wilburdale Park LID - B

---

**Project ID:** CA9851

**Project Name:** Wilburdale Park LID - B

### Estimated Project Cost:

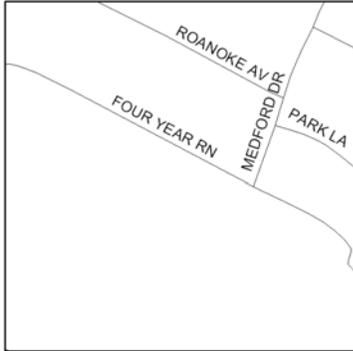
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grass Swale	270	LF	\$6.00	\$1,620
Bioretention Area	1960	SF	\$25.00	\$49,000
<b>Base Cost =</b>				\$50,620
Mobilization ( 5% ) =				\$2,531
<b>Subtotal 1 =</b>				\$53,151
Contingency (25%) =				\$13,288
<b>Subtotal 2 =</b>				\$66,439
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$29,897
<b>Total =</b>				\$96,336
<b>Estimated Project Cost =</b>				\$97,000

## Annandale High School LID

**Project ID:** CA9853  
**Project Name:** Annandale High School LID  
**Project Location:** Four Year Run & Heritage Dr.  
**Parcel ID No.:** 0711 01 0068

**Project Type:** Low Impact Development  
**Subwatershed:** Backlick Run  
**Drainage Area:** 17.7 acres

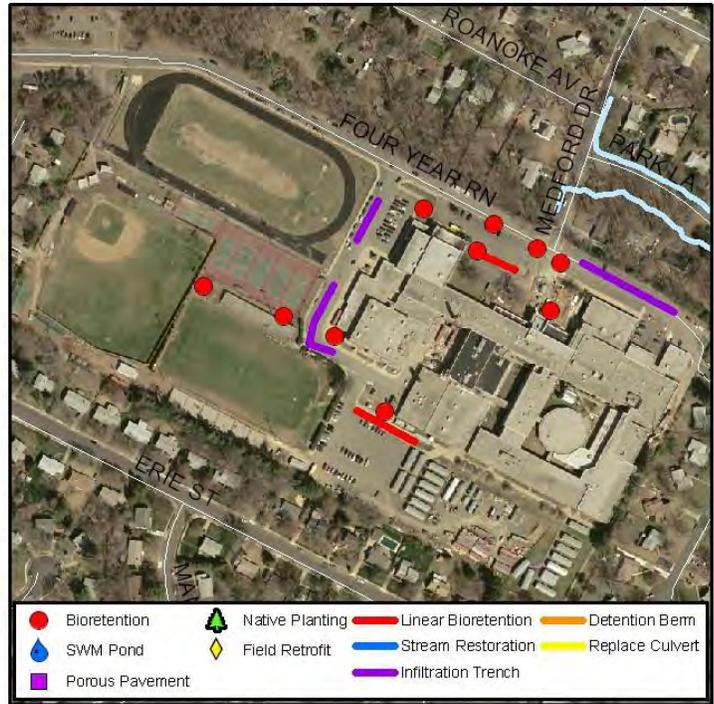
**Project Location:**



**Proposed Action:**

Incorporate grass swale along roadway; construct linear bioretention areas and infiltration trenches along parking lots and courts; install tree box filters.

**Proposed Project:**



Partial sidewalk along Four Year Run could be converted to a grass filter strip



Potential bioretention area

- 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:** \$420,000

## Annandale High School LID

---

**Project ID:** CA9853

**Project Name:** Annandale High School LID

### Estimated Project Cost:

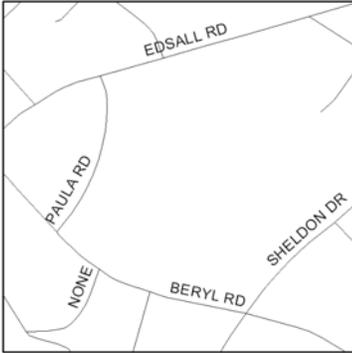
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Filter Strip	190	LF	\$2.00	\$380
Bioretention Area, Linear	2560	SF	\$25.00	\$64,000
Bioretention Area	2500	SF	\$25.00	\$62,500
Tree Box Filter	2	EA	\$3,000.00	\$6,000
Infiltration Trench	875	LF	\$100.00	\$87,500
			<b>Base Cost =</b>	\$220,380
			Mobilization ( 5% ) =	\$11,019
			<b>Subtotal 1 =</b>	\$231,399
			Contingency (25% ) =	\$57,850
			<b>Subtotal 2 =</b>	\$289,249
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$130,162
			<b>Total =</b>	\$419,411
			<b>Estimated Project Cost =</b>	\$420,000

## Bren Mar Park Elementary School LID

**Project ID:** CA9854  
**Project Name:** Bren Mar Park Elementary School LID  
**Project Location:** Bren Mar Park Elementary School  
**Parcel ID No.:** 0811 01 0006

**Project Type:** Low Impact Development  
**Subwatershed:** Indian Run  
**Drainage Area:** 5.5 acres

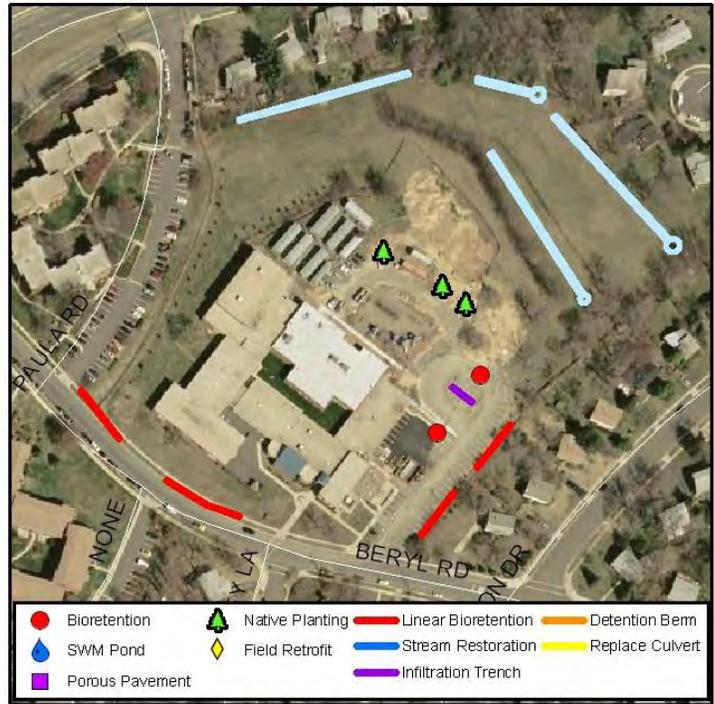
**Project Location:**



**Proposed Action:**

Construct linear bioretention areas in grass areas along Beryl Rd. and along E edge of parking lot; install infiltration trench and tree box filter in rear of parking lot; plant shade trees between new basketball court and baseball field (not shown on aerial).

**Proposed Project:**



Install linear bioretention area along Beryl Road



Potential linear bioretention area along parking lot

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

**Estimated Cost:** \$230,000

## Bren Mar Park Elementary School LID

---

**Project ID:** CA9854

**Project Name:** Bren Mar Park Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	4000	SF	\$25.00	\$100,000
Shade Tree	0.28	AC	\$25,000.00	\$7,000
Tree Box Filter	2	EA	\$3,000.00	\$6,000
Infiltration Trench	75	LF	\$100.00	\$7,500
<b>Base Cost =</b>				\$120,500
Mobilization ( 5% ) =				\$6,025
<b>Subtotal 1 =</b>				\$126,525
Contingency (25% ) =				\$31,631
<b>Subtotal 2 =</b>				\$158,156
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$71,170
<b>Total =</b>				\$229,327
<b>Estimated Project Cost =</b>				\$230,000

## Fire Station - Company No. 26 LID

**Project ID:** CA9855  
**Project Name:** Fire Station - Company No. 26 LID  
**Project Location:** Fire Station - Company No. 26 - Edsall Rd.  
**Parcel ID No.:** 0802 01 0048

**Project Type:** Low Impact Development  
**Subwatershed:** Indian Run  
**Drainage Area:** 1.8 acres

**Project Location:**



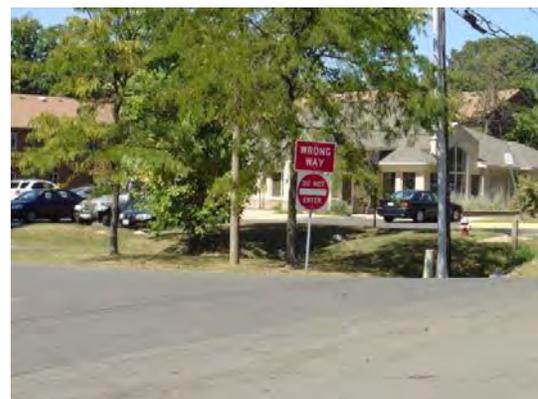
**Proposed Action:**

At Fire Station, divert roof drains to cistern for filling fire trucks; construct bioretention areas in sodded ditch to north and along western edge of parking lot.

**Proposed Project:**



Fire station



Potential linear bioretention area in ditch north of fire station

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

**Estimated Cost:** \$131,000

## Fire Station - Company No. 26 LID

---

**Project ID:** CA9855

**Project Name:** Fire Station - Company No. 26 LID

### Estimated Project Cost:

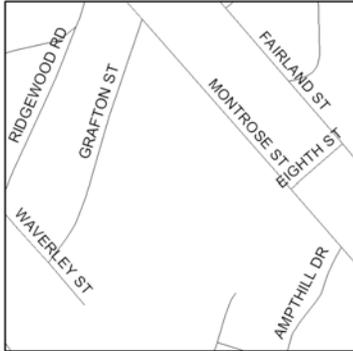
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Cistern	1	EA	\$5,000.00	\$5,000
Bioretention Area, Linear	2550	SF	\$25.00	\$63,750
<b>Base Cost =</b>				\$68,750
Mobilization ( 5% ) =				\$3,438
<b>Subtotal 1 =</b>				\$72,188
Contingency (25%) =				\$18,047
<b>Subtotal 2 =</b>				\$90,234
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$40,605
<b>Total =</b>				\$130,840
<b>Estimated Project Cost =</b>				\$131,000

## Holmes Middle School LID

**Project ID:** CA9856  
**Project Name:** Holmes Middle School LID  
**Project Location:** Holmes Middle School  
**Parcel ID No.:** 0723 01 0014

**Project Type:** Low Impact Development  
**Subwatershed:** Indian Run  
**Drainage Area:** 17.5 acres

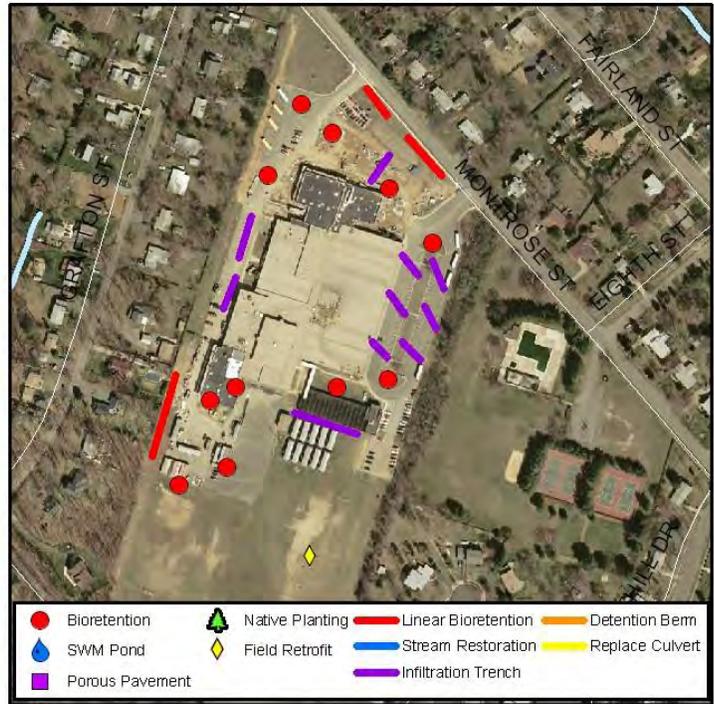
**Project Location:**



**Proposed Action:**

Construct linear bioretention areas in grass along Monrose St.; construct area bioretention areas in traffic islands in NW and E lots; install infiltration trenches in road ways and next to rear of bldg.; install tree box filters in front lot and filter strip along edge of rear parking lots; create multisport, artificial-turf playing fields.

**Proposed Project:**



Linear bioretention and filter strips could be installed along tennis courts



Install infiltration trench along portable buildings

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

**Estimated Cost:** \$1,593,000

## Holmes Middle School LID

---

**Project ID:** CA9856

**Project Name:** Holmes Middle School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	2330	SF	\$25.00	\$58,250
Bioretention Area	3550	SF	\$25.00	\$88,750
Infiltration Trench	825	LF	\$100.00	\$82,500
Tree Box Filter	2	EA	\$3,000.00	\$6,000
Filter Strip	135	LF	\$2.00	\$270
Artificial Turf, Underdrains and Cistern	1	EA	\$600,000.00	\$600,000
Grass Swale	210	LF	\$6.00	\$1,260

**Base Cost =** \$837,030

Mobilization ( 5% ) = \$41,852

**Subtotal 1 =** \$878,882

Contingency (25% ) = \$219,720

**Subtotal 2 =** \$1,098,602

Engineering Design, Surveys, Land Acquisition,  
Utility Relocation, and Permits ( 45% ) = \$494,371

**Total =** \$1,592,973

**Estimated Project Cost =** \$1,593,000

## Weyanoke Elementary School LID

**Project ID:** CA9857  
**Project Name:** Weyanoke Elementary School LID  
**Project Location:** Weyanoke Elementary School  
**Parcel ID No.:** 0721 01 0013

**Project Type:** Low Impact Development  
**Subwatershed:** Indian Run  
**Drainage Area:** 5.9 acres

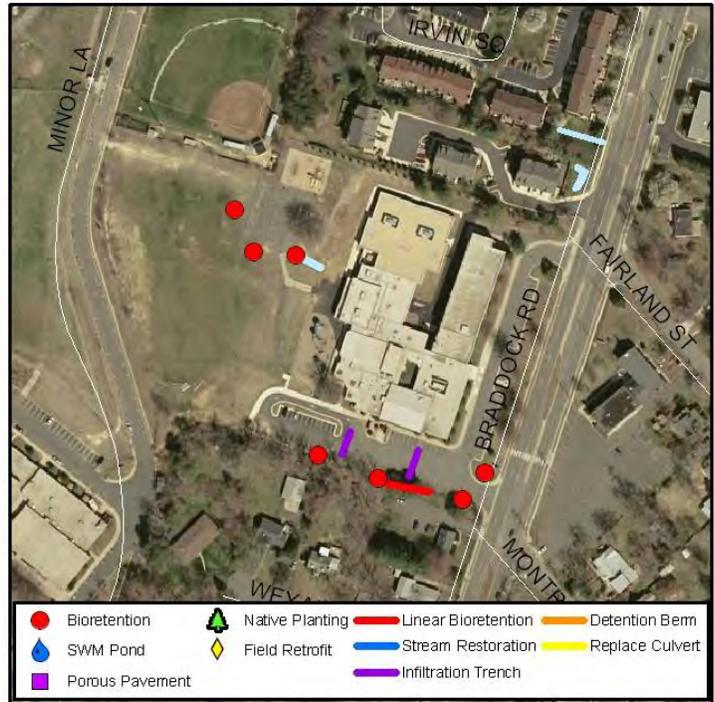
**Project Location:**



**Proposed Action:**

Construct bioretention area in Braddock Rd. traffic island and at edge of asphalt courts; install filter strip around asphalt courts; install linear bioretention area, tree box filters, and infiltration trenches in S parking lot

**Proposed Project:**



Proposed location for stepped bioretention area at edge of courts



Potential bioretention area in traffic island

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

**Estimated Cost:** \$124,000

## Weyanoke Elementary School LID

---

**Project ID:** CA9857

**Project Name:** Weyanoke Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Filter Strip	180	LF	\$2.00	\$360
Bioretention Area, Linear	1020	SF	\$25.00	\$25,500
Bioretention Area	825	SF	\$25.00	\$20,625
Tree Box Filter	2	EA	\$3,000.00	\$6,000
Infiltration Trench	125	LF	\$100.00	\$12,500
			<b>Base Cost =</b>	\$64,985
			Mobilization ( 5% ) =	\$3,249
			<b>Subtotal 1 =</b>	\$68,234
			Contingency (25% ) =	\$17,059
			<b>Subtotal 2 =</b>	\$85,293
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$38,382
			<b>Total =</b>	\$123,675
			<b>Estimated Project Cost =</b>	\$124,000

## Poe Middle School LID

**Project ID:** CA9858  
**Project Name:** Poe Middle School LID  
**Project Location:** Poe Middle School - Monterey Dr.  
**Parcel ID No.:** 0711 01 0131

**Project Type:** Low Impact Development  
**Subwatershed:** Indian Run  
**Drainage Area:** 9.6 acres

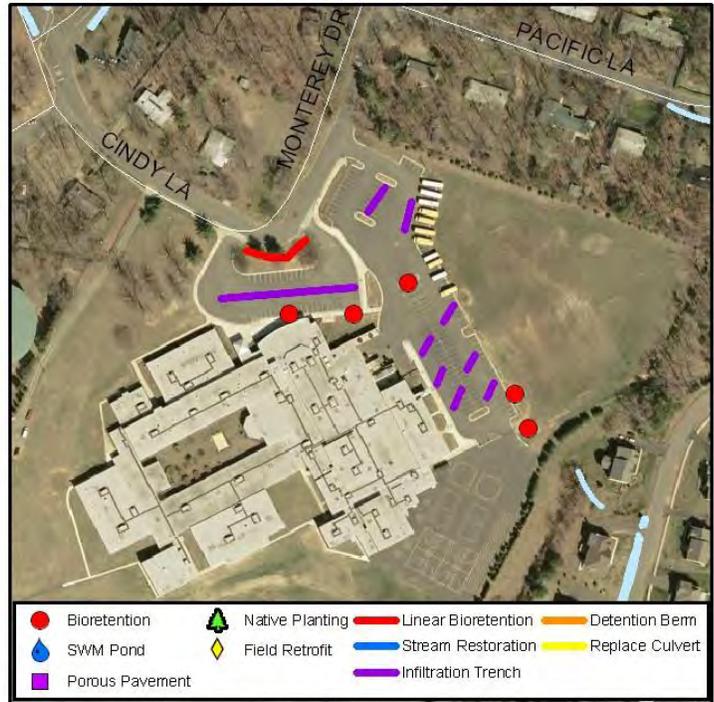
**Project Location:**



**Proposed Action:**

Construct linear bioretention area in loop island; install infiltration trenches, tree box filters, and traffic island bioretention areas in parking lots.

**Proposed Project:**



East parking lot where bioretention could be used in islands and along parking lot edge



Inlet in east parking lot

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

**Estimated Cost:** \$248,000

## Poe Middle School LID

---

**Project ID:** CA9858

**Project Name:** Poe Middle School LID

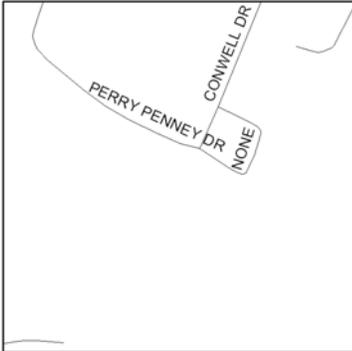
### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	1200	SF	\$25.00	\$30,000
Infiltration Trench	510	LF	\$100.00	\$51,000
Tree Box Filter	3	EA	\$3,000.00	\$9,000
Bioretention Area	1600	SF	\$25.00	\$40,000
			<b>Base Cost =</b>	\$130,000
			Mobilization ( 5% ) =	\$6,500
			<b>Subtotal 1 =</b>	\$136,500
			Contingency (25% ) =	\$34,125
			<b>Subtotal 2 =</b>	\$170,625
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$76,781
			<b>Total =</b>	\$247,406
			<b>Estimated Project Cost =</b>	\$248,000

## Indian Run Stream Valley Park LID - C

**Project ID:** CA9859 **Project Type:** Low Impact Development  
**Project Name:** Indian Run Stream Valley Park LID - C **Subwatershed:** Indian Run  
**Project Location:** Indian Run Stream Valley Park, Logsdon Drive **Drainage Area:** 3.9 acres  
**Parcel ID No.:** 0712 01 0025A

### Project Location:



### Proposed Action:

Install off-line bioretention area at end of stormwater outfall.

### Proposed Project:



Stormwater outfall

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

**Estimated Cost:** \$516,000

## Indian Run Stream Valley Park LID - C

---

**Project ID:** CA9859

**Project Name:** Indian Run Stream Valley Park LID - C

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	10830	SF	\$25.00	\$270,750
<b>Base Cost =</b>				\$270,750
Mobilization ( 5% ) =				\$13,538
<b>Subtotal 1 =</b>				\$284,288
Contingency (25% ) =				\$71,072
<b>Subtotal 2 =</b>				\$355,359
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$159,912
<b>Total =</b>				\$515,271
<b>Estimated Project Cost =</b>				\$516,000

## Indian Run Stream Valley Park LID - A

**Project ID:** CA9860

**Project Type:** Low Impact Development

**Project Name:** Indian Run Stream Valley Park LID - A

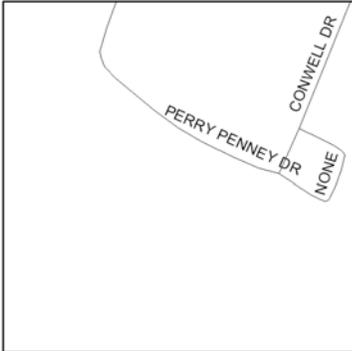
**Subwatershed:** Indian Run

**Project Location:** Indian Run Stream Valley Park

**Drainage Area:** 9.9 acres

**Parcel ID No.:** 0712 01 0025R

### Project Location:



### Proposed Action:

Install bioretention area at end of stormwater outfall.

### Proposed Project:



Stormwater pipe outfall

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

**Estimated Cost:** \$334,000

## Indian Run Stream Valley Park LID - A

---

**Project ID:** CA9860

**Project Name:** Indian Run Stream Valley Park LID - A

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	7000	SF	\$25.00	\$175,000
<b>Base Cost =</b>				\$175,000
Mobilization ( 5% ) =				\$8,750
<b>Subtotal 1 =</b>				\$183,750
Contingency (25% ) =				\$45,938
<b>Subtotal 2 =</b>				\$229,688
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$103,359
<b>Total =</b>				\$333,047
<b>Estimated Project Cost =</b>				\$334,000

## Indian Run Stream Valley Park LID - B

**Project ID:** CA9861

**Project Type:** Low Impact Development

**Project Name:** Indian Run Stream Valley Park LID - B

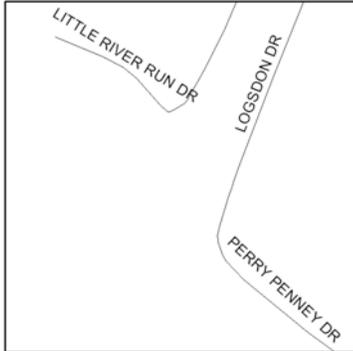
**Subwatershed:** Indian Run

**Project Location:** Indian Run Stream Valley Park

**Drainage Area:** 3.6 acres

**Parcel ID No.:** 0712 32 C

### Project Location:



### Proposed Action:

Install bioretention area at end of stormwater outfall.

### Proposed Project:



Potential bioretention area at end of stormwater outfalls

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

**Estimated Cost:** \$543,000

## Indian Run Stream Valley Park LID - B

---

**Project ID:** CA9861

**Project Name:** Indian Run Stream Valley Park LID - B

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	11400	SF	\$25.00	\$285,000
<b>Base Cost =</b>				\$285,000
Mobilization ( 5% ) =				\$14,250
<b>Subtotal 1 =</b>				\$299,250
Contingency (25% ) =				\$74,813
<b>Subtotal 2 =</b>				\$374,063
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$168,328
<b>Total =</b>				\$542,391
<b>Estimated Project Cost =</b>				\$543,000

## Columbia Elementary School LID

**Project ID:** CA9862  
**Project Name:** Columbia Elementary School LID  
**Project Location:** Alpine Dr. & Pinecrest Pkwy  
**Parcel ID No.:** 0712 05 0084A

**Project Type:** Low Impact Development  
**Subwatershed:** Indian Run  
**Drainage Area:** 5.5 acres

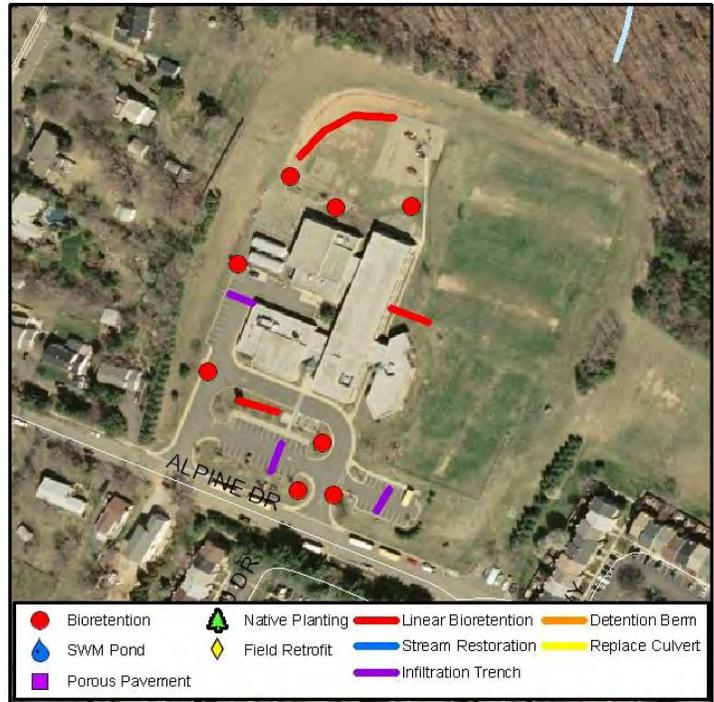
**Project Location:**



**Proposed Action:**

Construct linear and area bioretention areas in traffic islands; install infiltration trenches in front parking lots and side road; replace inlets with tree box filters; restore existing grass swale in back of bldg.; add filter strips around two inlets.

**Proposed Project:**



Replace inlet with tree box filter insert



Stressed vegetation in existing grass swale on property

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

**Estimated Cost:** \$134,000

## Columbia Elementary School LID

---

**Project ID:** CA9862

**Project Name:** Columbia Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	1350	SF	\$25.00	\$33,750
Bioretention Area, Linear	600	SF	\$25.00	\$15,000
Infiltration Trench	110	LF	\$100.00	\$11,000
Tree Box Filter	3	EA	\$3,000.00	\$9,000
Grass Swale	225	LF	\$6.00	\$1,350
Filter Strip	60	LF	\$2.00	\$120

**Base Cost =** \$70,220

Mobilization ( 5% ) = \$3,511

**Subtotal 1 =** \$73,731

Contingency (25%) = \$18,433

**Subtotal 2 =** \$92,164

Engineering Design, Surveys, Land Acquisition,  
Utility Relocation, and Permits ( 45% ) = \$41,474

**Total =** \$133,637

**Estimated Project Cost =** \$134,000

## George Mason Regional Library LID

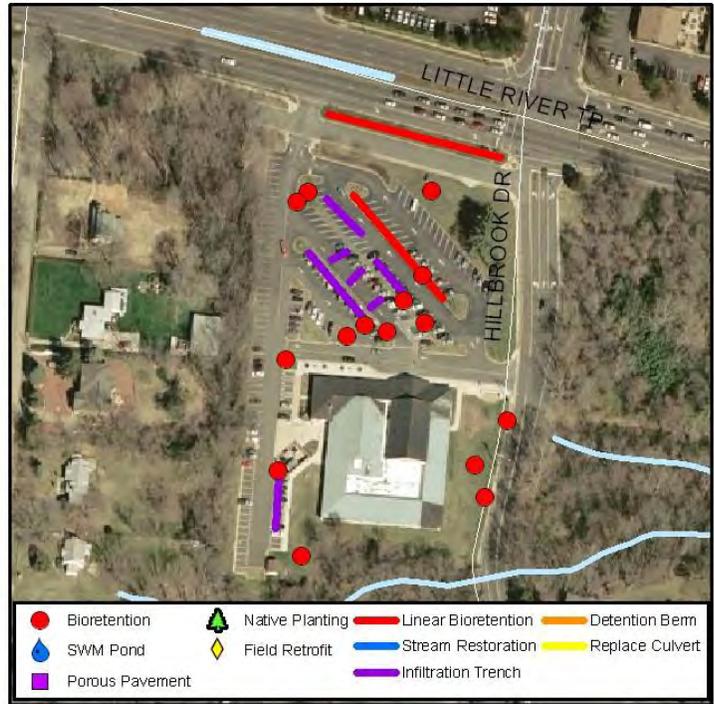
**Project ID:** CA9863  
**Project Name:** George Mason Regional Library LID  
**Project Location:** George Mason Regional Library  
**Parcel ID No.:** 0712 07 0001

**Project Type:** Low Impact Development  
**Subwatershed:** Indian Run  
**Drainage Area:** 5.1 acres

**Project Location:**



**Proposed Project:**



**Proposed Action:**

Construct bioretention in traffic islands along Little River Turnpike, in parking lot, between bldg. and Hillbrook Dr., and at SW corner of bldg.; install infiltration trench along several parking rows; install tree box filter inserts.



Potential bioretention area in traffic island



Divert downspouts on West side of library to bioretention areas

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

**Estimated Cost:** \$403,000

## George Mason Regional Library LID

---

**Project ID:** CA9863

**Project Name:** George Mason Regional Library LID

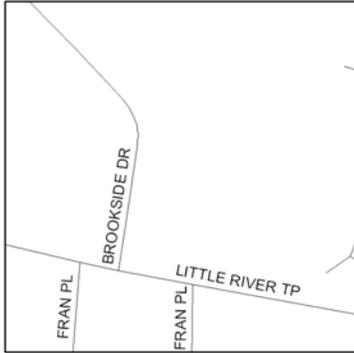
### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	2100	SF	\$25.00	\$52,500
Infiltration Trench	360	LF	\$100.00	\$36,000
Tree Box Filter	11	EA	\$3,000.00	\$33,000
Bioretention Area, Linear	3595	SF	\$25.00	\$89,875
<b>Base Cost =</b>				\$211,375
Mobilization ( 5% ) =				\$10,569
<b>Subtotal 1 =</b>				\$221,944
Contingency (25% ) =				\$55,486
<b>Subtotal 2 =</b>				\$277,430
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$124,843
<b>Total =</b>				\$402,273
<b>Estimated Project Cost =</b>				\$403,000

## Turkeycock Run Stream Valley Park LID

<p><b>Project ID:</b> CA9866</p> <p><b>Project Name:</b> Turkeycock Run Stream Valley Park LID</p> <p><b>Project Location:</b> Turkeycock Run Stream Valley Park</p> <p><b>Parcel ID No.:</b> 0721 01 0044</p>	<p><b>Project Type:</b> Low Impact Development</p> <p><b>Subwatershed:</b> Turkeycock Run</p> <p><b>Drainage Area:</b> 34.4 acres</p>
--	---

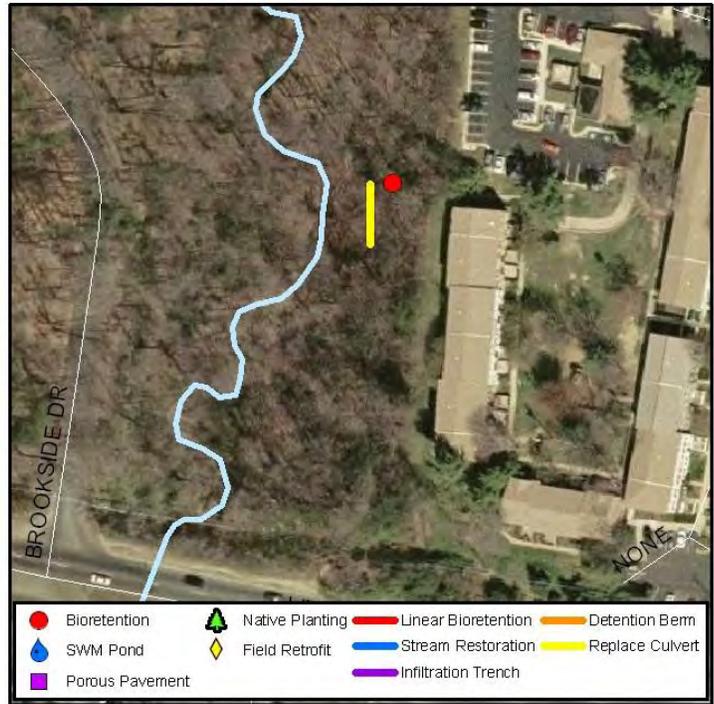
**Project Location:**



**Proposed Action:**

Install off-line bioretention area at end of stormwater outfall; repair concrete ditch and add riprap protection.

**Proposed Project:**



Existing concrete ditch at stormwater outfall



Broken concrete at the end of the channel

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

**Estimated Cost:** \$198,000

## Turkeycock Run Stream Valley Park LID

---

**Project ID:** CA9866

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

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	3750	SF	\$25.00	\$93,750
Repair concrete ditch and add riprap protection	1	EA	\$10,000.00	\$10,000
<b>Base Cost =</b>				\$103,750
Mobilization ( 5% ) =				\$5,188
<b>Subtotal 1 =</b>				\$108,938
Contingency (25%) =				\$27,234
<b>Subtotal 2 =</b>				\$136,172
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$61,277
<b>Total =</b>				\$197,449
<b>Estimated Project Cost =</b>				\$198,000

## Parklawn Elementary School LID

**Project ID:** CA9867  
**Project Name:** Parklawn Elementary School LID  
**Project Location:** Parklawn Elementary School  
**Parcel ID No.:** 0613 01 0012

**Project Type:** Low Impact Development  
**Subwatershed:** Turkeycock Run  
**Drainage Area:** 11.1 acres

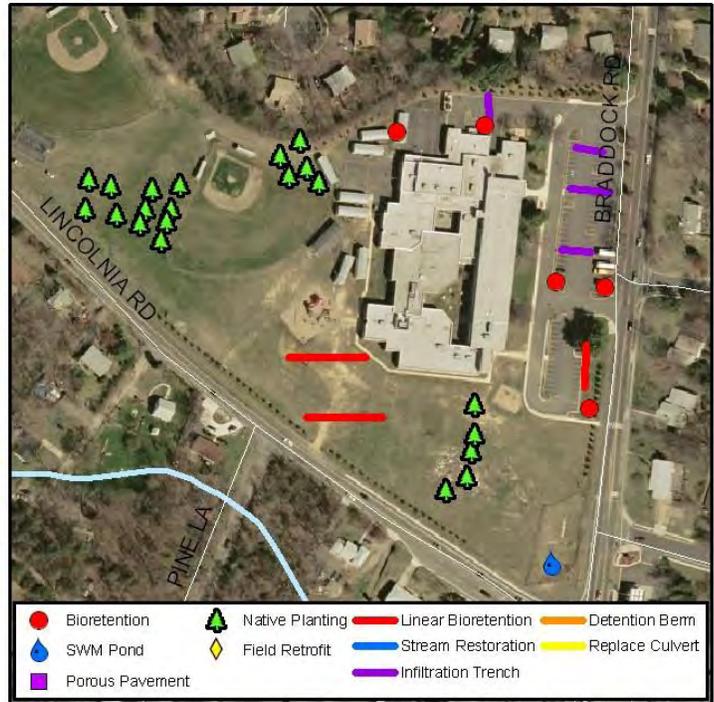
**Project Location:**



**Proposed Action:**

Retrofit small dry pond to wet detention pond; construct bioretention areas in traffic islands; install infiltration trenches and one tree box filter in parking lots; install linear bioretention strips along large trailer (not shown) SW of bldg.; direct roof drains to cistern to water fields; reforest unused lawn areas.

**Proposed Project:**



Dry pond with outlets and inlet structure



Linear bioretention areas could be incorporated along trailer for roof drainage

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

**Estimated Cost:** \$168,000

## Parklawn Elementary School LID

---

**Project ID:** CA9867

**Project Name:** Parklawn Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	325	CY	\$35.00	\$11,375
Cistern	1	EA	\$5,000.00	\$5,000
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
Bioretention Area, Linear	320	SF	\$25.00	\$8,000
Bioretention Area	800	SF	\$25.00	\$20,000
Infiltration Trench	195	LF	\$100.00	\$19,500
Tree Box Filter	1	EA	\$3,000.00	\$3,000
Shade Tree	0.25	AC	\$25,000.00	\$6,250

**Base Cost =** \$88,125

Mobilization ( 5% ) = \$4,406

**Subtotal 1 =** \$92,531

Contingency (25%) = \$23,133

**Subtotal 2 =** \$115,664

Engineering Design, Surveys, Land Acquisition,  
Utility Relocation, and Permits ( 45% ) = \$52,049

**Total =** \$167,713

**Estimated Project Cost =** \$168,000

## Green Spring Gardens LID

**Project ID:** CA9868  
**Project Name:** Green Spring Gardens LID  
**Project Location:** Green Spring Gardens, Lincolnia  
**Parcel ID No.:** 0721 01 0024

**Project Type:** Low Impact Development  
**Subwatershed:** Turkeycock Run  
**Drainage Area:** 1.1 acres

### Project Location:



### Proposed Action:

Install linear bioretention area along parking spaces and infiltration trenches in traffic circle.

### Proposed Project:



Potential linear bioretention area along parking lot



Traffic circle

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

**Estimated Cost:** \$99,000

## Green Spring Gardens LID

---

**Project ID:** CA9868

**Project Name:** Green Spring Gardens LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	1600	SF	\$25.00	\$40,000
Infiltration Trench	120	LF	\$100.00	\$12,000
<b>Base Cost =</b>				\$52,000
Mobilization ( 5% ) =				\$2,600
<b>Subtotal 1 =</b>				\$54,600
Contingency (25%) =				\$13,650
<b>Subtotal 2 =</b>				\$68,250
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$30,713
<b>Total =</b>				\$98,963
<b>Estimated Project Cost =</b>				\$99,000

## Pinecrest Golf Course LID

**Project ID:** CA9869  
**Project Name:** Pinecrest Golf Course LID  
**Project Location:** Pinecrest Golf Course  
**Parcel ID No.:** 0721 26 D

**Project Type:** Low Impact Development  
**Subwatershed:** Turkeycock Run  
**Drainage Area:** 1.9 acres

### Project Location:



### Proposed Action:

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

### Proposed Project:



Parking lot with traffic islands

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

**Estimated Cost:** \$78,000

## Pinecrest Golf Course LID

---

**Project ID:** CA9869

**Project Name:** Pinecrest Golf Course LID

### Estimated Project Cost:

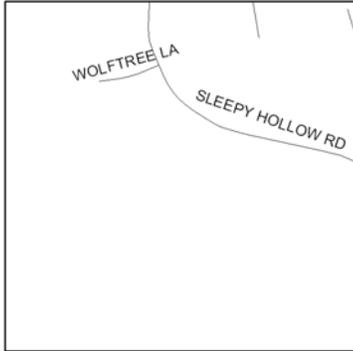
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	750	SF	\$25.00	\$18,750
Tree Box Filter	1	EA	\$3,000.00	\$3,000
Infiltration Trench	190	LF	\$100.00	\$19,000
<b>Base Cost =</b>				\$40,750
Mobilization ( 5% ) =				\$2,038
<b>Subtotal 1 =</b>				\$42,788
Contingency (25% ) =				\$10,697
<b>Subtotal 2 =</b>				\$53,484
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$24,068
<b>Total =</b>				\$77,552
<b>Estimated Project Cost =</b>				\$78,000

## Wolftree Lane LID

**Project ID:** CA9870  
**Project Name:** Wolftree Lane LID  
**Project Location:** Wolftree Ln. & Sleepy Hollow Rd.  
**Parcel ID No.:** 0712 01 0059A

**Project Type:** Low Impact Development  
**Subwatershed:** Turkeycock Run  
**Drainage Area:** 8.6 acres

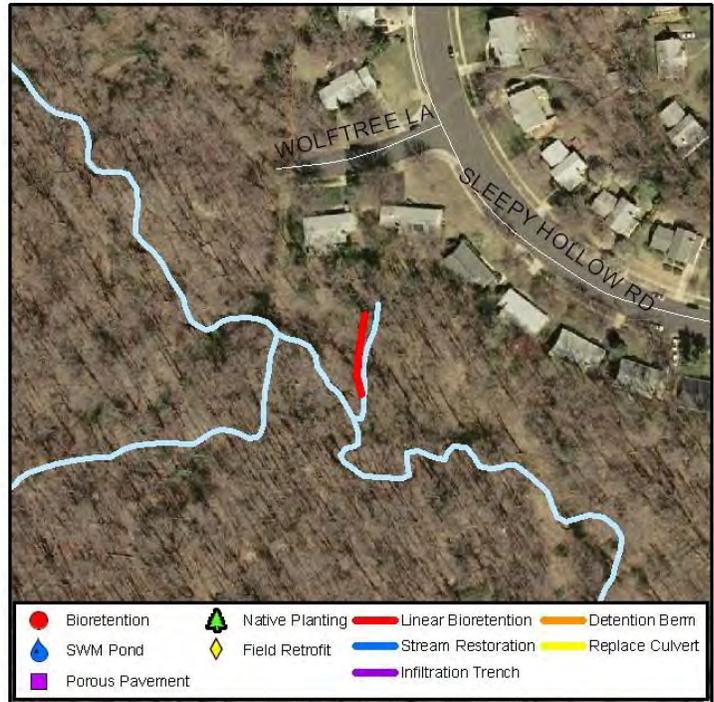
### Project Location:



### Proposed Action:

Linear bioretention area to capture end of pipe stormwater.

### Proposed Project:



Potential location for off-line bioretention at stormwater pipe outfall

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

**Estimated Cost:** \$286,000

## Wolfree Lane LID

---

**Project ID:** CA9870

**Project Name:** Wolfree Lane LID

### Estimated Project Cost:

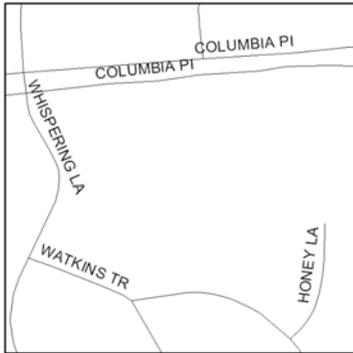
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	6000	SF	\$25.00	\$150,000
			<b>Base Cost =</b>	\$150,000
			Mobilization ( 5% ) =	\$7,500
			<b>Subtotal 1 =</b>	\$157,500
			Contingency (25% ) =	\$39,375
			<b>Subtotal 2 =</b>	\$196,875
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$88,594
			<b>Total =</b>	\$285,469
			<b>Estimated Project Cost =</b>	\$286,000

## Mason Government Center LID

**Project ID:** CA9872  
**Project Name:** Mason Government Center LID  
**Project Location:** Columbia Pike & Downing St.  
**Parcel ID No.:** 0613 01 0003

**Project Type:** Low Impact Development  
**Subwatershed:** Turkeycock Run  
**Drainage Area:** 6.6 acres

**Project Location:**



**Proposed Action:**

Retrofit SWM pond control structure to improve detention control and add micropool areas in pond bottom to improve water quality; construct bioretention area along Columbia Pike to collect roadway runoff; install linear bioretention strips, bioretention areas, and tree box filters in parking lot.

**Proposed Project:**



SWM dry pond



Potential linear bioretention areas along parking lot medians

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

**Estimated Cost:** \$220,000

## Mason Government Center LID

---

**Project ID:** CA9872

**Project Name:** Mason Government Center LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	350	CY	\$35.00	\$12,250
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
Bioretention Area, Linear	875	SF	\$25.00	\$21,875
Bioretention Area	2400	SF	\$25.00	\$60,000
Tree Box Filter	2	EA	\$3,000.00	\$6,000
<b>Base Cost =</b>				\$115,125
Mobilization ( 5% ) =				\$5,756
<b>Subtotal 1 =</b>				\$120,881
Contingency (25% ) =				\$30,220
<b>Subtotal 2 =</b>				\$151,102
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$67,996
<b>Total =</b>				\$219,097
<b>Estimated Project Cost =</b>				\$220,000

## Glasgow Middle School LID

**Project ID:** CA9876  
**Project Name:** Glasgow Middle School LID  
**Project Location:** Glasgow Middle School  
**Parcel ID No.:** 0614 01 0151A

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Lower  
**Drainage Area:** 22.6 acres

**Project Location:**



**Proposed Action:**

Install off-line bioretention areas at stormwater pipe outfall on E side of entrance road. Note: school to be rebuilt by fall 2008.

**Proposed Project:**



Stormwater pipe draining area south of Yellowstone Dr outlets in woods adjacent to school parking lot

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

**Estimated Cost:** \$703,000

## Glasgow Middle School LID

---

**Project ID:** CA9876

**Project Name:** Glasgow Middle School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Off-line	14770	SF	\$25.00	\$369,250
<b>Base Cost =</b>				\$369,250
Mobilization ( 5% ) =				\$18,463
<b>Subtotal 1 =</b>				\$387,713
Contingency (25% ) =				\$96,928
<b>Subtotal 2 =</b>				\$484,641
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$218,088
<b>Total =</b>				\$702,729
<b>Estimated Project Cost =</b>				\$703,000

## Baileys Community Center LID

**Project ID:** CA9877  
**Project Name:** Baileys Community Center LID  
**Project Location:** Baileys Community Center  
**Parcel ID No.:** 0614 01 0042

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Lower  
**Drainage Area:** 6.9 acres

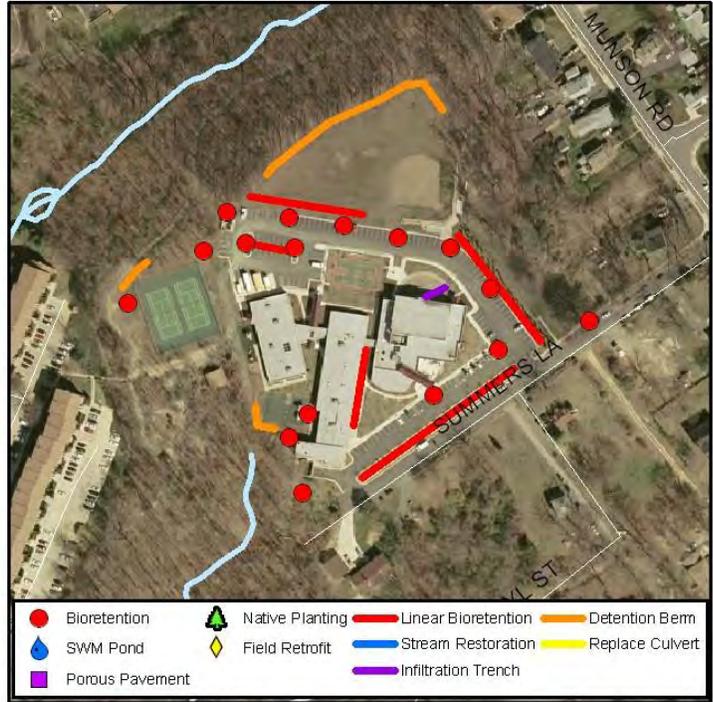
**Project Location:**



**Proposed Action:**

Construct linear and area bioretention areas in traffic islands along front and east sides, by tennis courts, west side of building, and end of Summers Lane; build detention micro-berm along north side of baseball field, NW corner of tennis court, and edge of southwestern lot; install tree box filter in inlet on Summers Ln.

**Proposed Project:**



Linear bioretention can be added to this ditch surrounding the tennis courts



Convert street inlet to a tree box filter

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

**Estimated Cost:** \$351,000

## Baileys Community Center LID

---

**Project ID:** CA9877

**Project Name:** Baileys Community Center LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Detention Berm	465	LF	\$2.00	\$930
Bioretention Area, Linear	4760	SF	\$25.00	\$119,000
Bioretention Area	2450	SF	\$25.00	\$61,250
Tree Box Filter	1	EA	\$3,000.00	\$3,000
<b>Base Cost =</b>				\$184,180
Mobilization ( 5% ) =				\$9,209
<b>Subtotal 1 =</b>				\$193,389
Contingency (25% ) =				\$48,347
<b>Subtotal 2 =</b>				\$241,736
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$108,781
<b>Total =</b>				\$350,518
<b>Estimated Project Cost =</b>				\$351,000

## Baileys Elementary School LID

**Project ID:** CA9879  
**Project Name:** Baileys Elementary School LID  
**Project Location:** Baileys Elementary School  
**Parcel ID No.:** 0612 01 0002

**Project Type:** Low Impact Development  
**Subwatershed:** Holmes Run - Lower  
**Drainage Area:** 9.6 acres

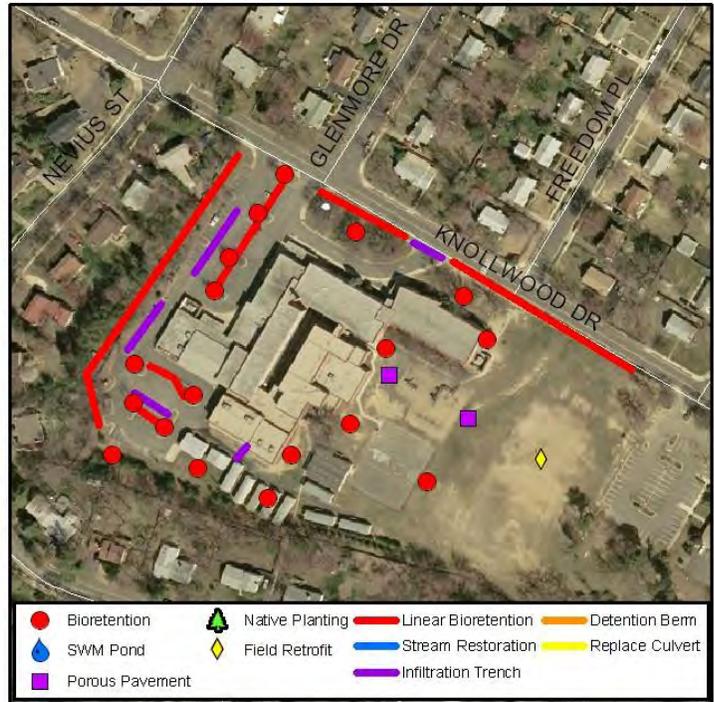
**Project Location:**



**Proposed Action:**

Construct bioretention areas in traffic islands for bus loop and parking lots, near asphalt courts, and near portable classrooms; install infiltration trenches in parking areas and porous pavement in play yards; create artificial turf field with underdrains and cistern.

**Proposed Project:**



Asphalt play yard with athletic field in background



Traffic islands for the bus loop

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

**Estimated Cost:** \$1,535,000

## Baileys Elementary School LID

---

**Project ID:** CA9879

**Project Name:** Baileys Elementary School 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	3050	SF	\$25.00	\$76,250
Porous Pavement	1640	SY	\$15.00	\$24,600
Bioretention Area	2700	SF	\$25.00	\$67,500
Infiltration Trench	380	LF	\$100.00	\$38,000
			<b>Base Cost =</b>	\$806,350
			Mobilization ( 5% ) =	\$40,318
			<b>Subtotal 1 =</b>	\$846,668
			Contingency (25% ) =	\$211,667
			<b>Subtotal 2 =</b>	\$1,058,334
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$476,250
			<b>Total =</b>	\$1,534,585
			<b>Estimated Project Cost =</b>	\$1,535,000

## JEB Stuart High School LID

**Project ID:** CA9882  
**Project Name:** JEB Stuart High School LID  
**Project Location:** JEB Stuart High School  
**Parcel ID No.:** 0611 01 0013

**Project Type:** Low Impact Development  
**Subwatershed:** Tripps Run  
**Drainage Area:** 23.6 acres

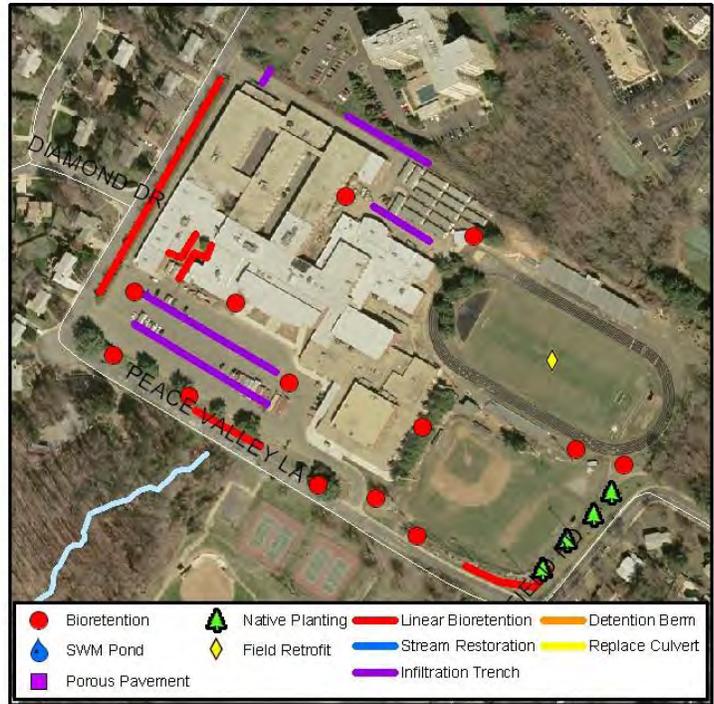
**Project Location:**



**Proposed Action:**

Construct linear bioretention area along Peace Valley Ln. median; construct a stepped bioretention areas along S edge of parking lot and SE corner of fields; construct bioretention areas in parking islands and around playing fields; plant wildflowers along SE side of baseball field; upgrade fields to multisport artificial turf with underdrains and cistern.

**Proposed Project:**



Infiltration trenches could be incorporated into parking lots



Bioretention gardens could be incorporated into traffic islands

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

**Estimated Cost:** \$1,881,000

## JEB Stuart High School LID

---

**Project ID:** CA9882

**Project Name:** JEB Stuart High School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area, Linear	6275	SF	\$25.00	\$156,875
Infiltration Trench	1060	LF	\$100.00	\$106,000
Bioretention Area	5000	SF	\$25.00	\$125,000
Wildflower Planting	0.03	AC	\$3,000.00	\$90
Artificial Turf, Underdrains and Cistern	1	EA	\$600,000.00	\$600,000
<b>Base Cost =</b>				\$987,965
Mobilization ( 5% ) =				\$49,398
<b>Subtotal 1 =</b>				\$1,037,363
Contingency (25% ) =				\$259,341
<b>Subtotal 2 =</b>				\$1,296,704
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$583,517
<b>Total =</b>				\$1,880,221
<b>Estimated Project Cost =</b>				\$1,881,000

## Sleepy Hollow Elementary School LID

**Project ID:** CA9885  
**Project Name:** Sleepy Hollow Elementary School LID  
**Project Location:** Sleepy Hollow Road  
**Parcel ID No.:** 0602 01 0039

**Project Type:** Low Impact Development  
**Subwatershed:** Tripps Run  
**Drainage Area:** 9.2 acres

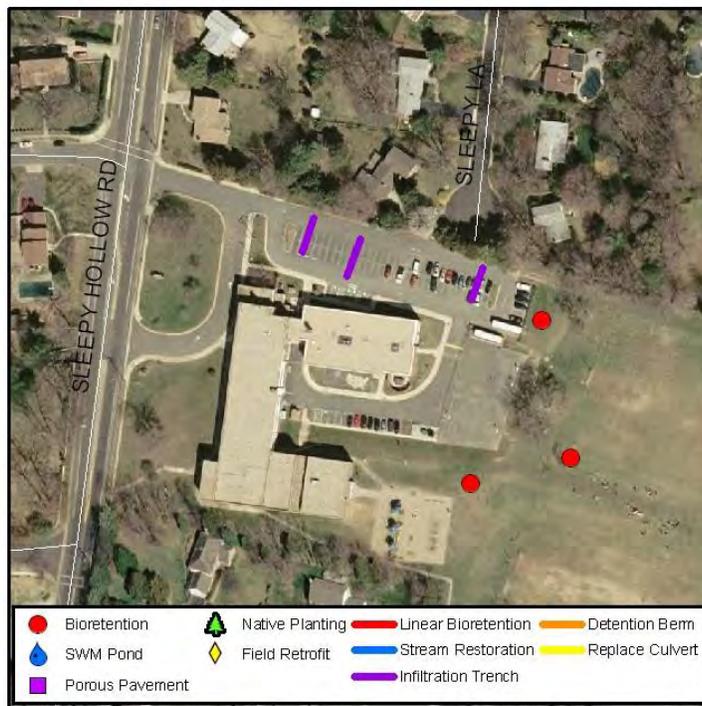
**Project Location:**



**Proposed Action:**

Install infiltration trenches in parking lot and bioretention areas at yard drain inlets.

**Proposed Project:**



Construct bioretention area at yard drain inlet



Convert traffic island to a bioretention area

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

**Estimated Cost:** \$455,000

## Sleepy Hollow Elementary School LID

---

**Project ID:** CA9885

**Project Name:** Sleepy Hollow Elementary School LID

### Estimated Project Cost:

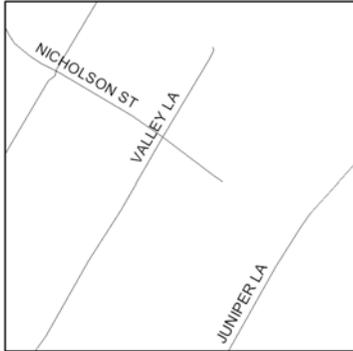
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	8100	SF	\$25.00	\$202,500
Infiltration Trench	365	LF	\$100.00	\$36,500
<b>Base Cost =</b>				\$239,000
Mobilization ( 5% ) =				\$11,950
<b>Subtotal 1 =</b>				\$250,950
Contingency (25%) =				\$62,738
<b>Subtotal 2 =</b>				\$313,688
Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =				\$141,159
<b>Total =</b>				\$454,847
<b>Estimated Project Cost =</b>				\$455,000

## Nicholson St - Ch. 2 Street LID

**Project ID:** CA9886  
**Project Name:** Nicholson St - Ch. 2 Street LID  
**Project Location:** Nicholson St. east of Valley Ln.  
**Parcel ID No.:**

**Project Type:** Low Impact Development  
**Subwatershed:** Tripps Run  
**Drainage Area:** 2.4 acres

**Project Location:**



**Proposed Action:**

Construct bioretention area in Chapter-2 street lot, divert road runoff into area.

**Proposed Project:**



Potential location for bioretention area in unfinished road



View looking into street

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

**Estimated Cost:** \$100,000

## Nicholson St - Ch. 2 Street LID

---

**Project ID:** CA9886

**Project Name:** Nicholson St - Ch. 2 Street LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	2090	SF	\$25.00	\$52,250
			<b>Base Cost =</b>	\$52,250
			Mobilization ( 5% ) =	\$2,613
			<b>Subtotal 1 =</b>	\$54,863
			Contingency (25% ) =	\$13,716
			<b>Subtotal 2 =</b>	\$68,578
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$30,860
			<b>Total =</b>	\$99,438
			<b>Estimated Project Cost =</b>	\$100,000

## Westlawn Elementary School LID

**Project ID:** CA9892  
**Project Name:** Westlawn Elementary School LID  
**Project Location:** Westley Rd. & Ridge Rd.  
**Parcel ID No.:** 0504 01 0002

**Project Type:** Low Impact Development  
**Subwatershed:** Tripps Run  
**Drainage Area:** 8 acres

**Project Location:**



**Proposed Action:**

Install bioretention area, infiltration trenches, and tree box filters in parking lots; construct linear bioretention along asphalt courts; and construct grass swale around two sides of fields.

**Proposed Project:**



Potential location for infiltration trench



Convert concrete ditch to linear bioretention area

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

**Estimated Cost:** \$117,000

## Westlawn Elementary School LID

---

**Project ID:** CA9892

**Project Name:** Westlawn Elementary School LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Area	150	SF	\$25.00	\$3,750
Infiltration Trench	225	LF	\$100.00	\$22,500
Tree Box Filter	3	EA	\$3,000.00	\$9,000
Bioretention Area, Linear	900	SF	\$25.00	\$22,500
Grass Swale	535	LF	\$6.00	\$3,210
			<b>Base Cost =</b>	\$60,960
			Mobilization ( 5% ) =	\$3,048
			<b>Subtotal 1 =</b>	\$64,008
			Contingency (25% ) =	\$16,002
			<b>Subtotal 2 =</b>	\$80,010
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$36,005
			<b>Total =</b>	\$116,015
			<b>Estimated Project Cost =</b>	\$117,000

## Fire Station - Company No. 28 LID

<b>Project ID:</b>	CA9897	<b>Project Type:</b>	Low Impact Development
<b>Project Name:</b>	Fire Station - Company No. 28 LID	<b>Subwatershed:</b>	Tripps Run
<b>Project Location:</b>	Fire Station - Company No. 28 - Sleepy Hollow Rd	<b>Drainage Area:</b>	0.5 acres
<b>Parcel ID No.:</b>	0513 15 0004		

**Project Location:**



**Proposed Action:**

At Fire Station, divert roof drains to cistern for filling fire trucks; construct bioretention areas in SW and SE corners of traffic islands in parking lot; construct linear bioretention areas on S side of truck entrance and S side of parking lot.

**Proposed Project:**



Rain gutter on side of building



Back parking lot

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

**Estimated Cost:** \$23,000

## Fire Station - Company No. 28 LID

---

**Project ID:** CA9897

**Project Name:** Fire Station - Company No. 28 LID

### Estimated Project Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Cistern	1	EA	\$5,000.00	\$5,000
Bioretention Area, Linear	140	SF	\$25.00	\$3,500
Bioretention Area	140	SF	\$25.00	\$3,500
			<b>Base Cost =</b>	\$12,000
			Mobilization ( 5% ) =	\$600
			<b>Subtotal 1 =</b>	\$12,600
			Contingency (25% ) =	\$3,150
			<b>Subtotal 2 =</b>	\$15,750
			Engineering Design, Surveys, Land Acquisition, Utility Relocation, and Permits ( 45% ) =	\$7,088
			<b>Total =</b>	\$22,838
			<b>Estimated Project Cost =</b>	\$23,000