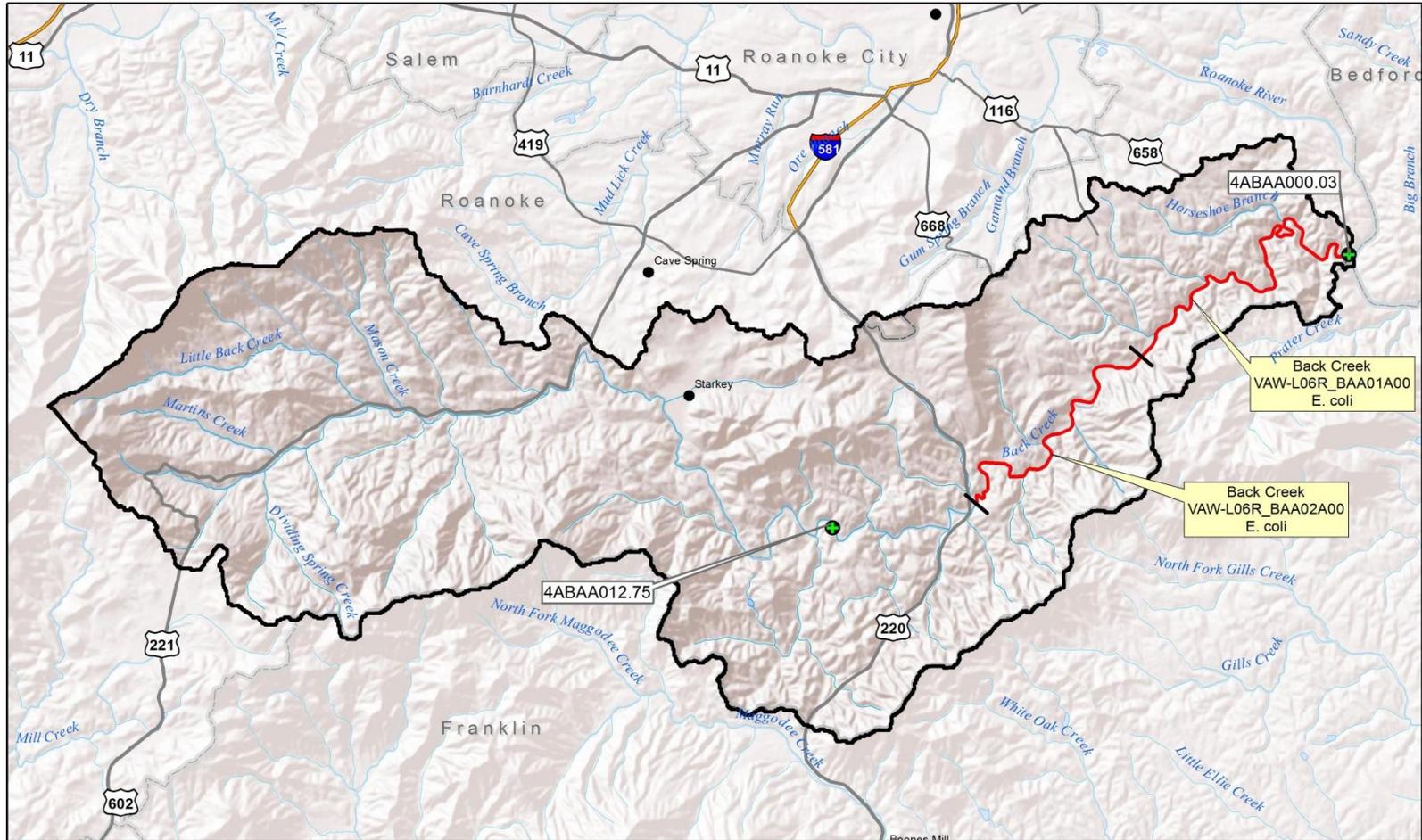


Best Management Practices (BMP) Estimates by Subwatershed

Roanoke River Watershed Clean-up Plan

Presented to Working Groups on
February 27th and 28th, 2014

Back Creek Subwatershed



Back Creek Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	102	\$170	\$17,312
Residential Waste			
Total Septic Pump out (RB-1)	432	\$300	\$129,665
Sewer Connection (RB-2)	94	\$10,000	\$940,000
Total Septic Repair (RB-3)	328	\$3,600	\$1,181,729
Total Septic Install/Replace (RB-4)	352	\$6,000	\$2,111,018
Total Alternative Waste Treatment System (RB-5)	34	\$16,000	\$539,407

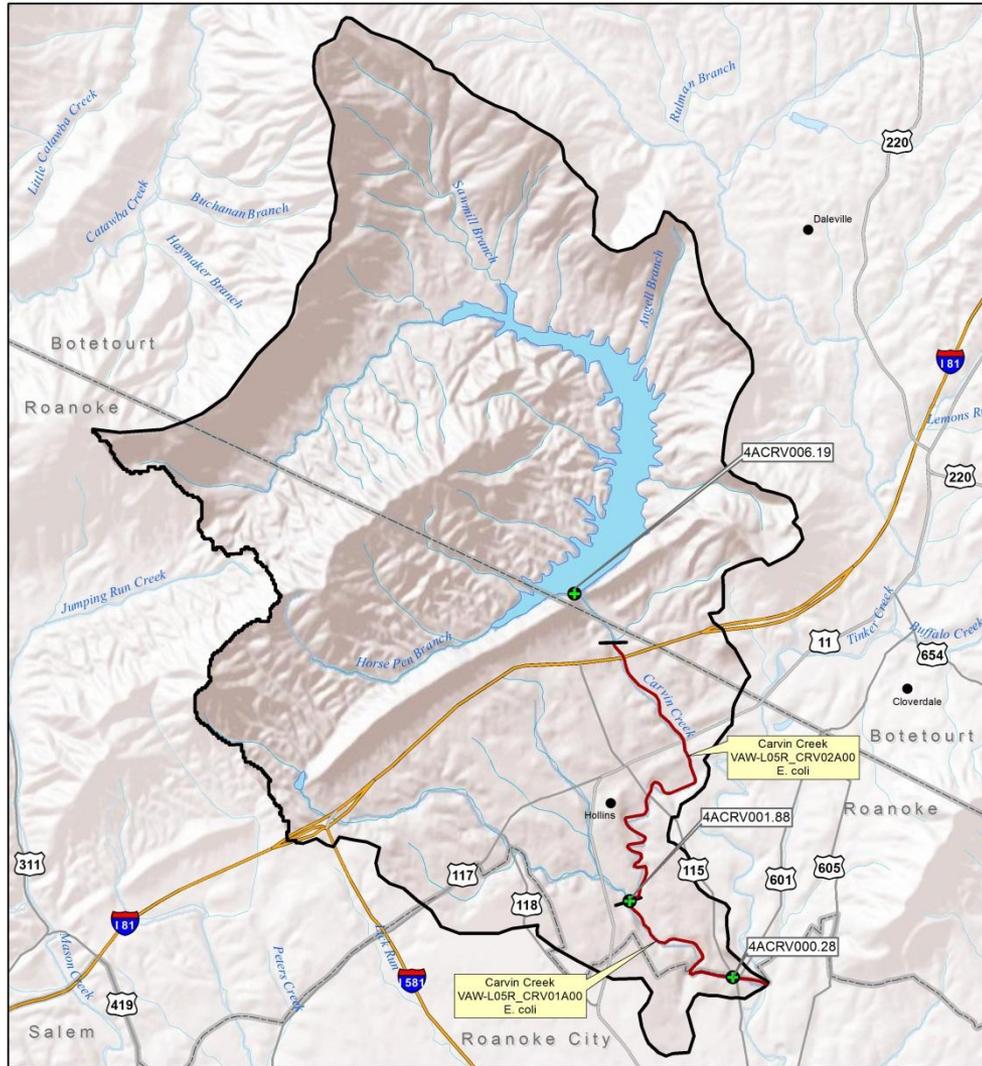
Back Creek Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	62.6	Acres	\$100	\$6,265
Small Grain Cover Crop (SL-8)	62.6	Acres	\$30	\$1,879
Permanent Vegetative Cover on Cropland (SL-1)	0.0	Acres	\$175	\$0
Sod Waterways (WP-3)	0.0	Acres	\$1,600	\$0
Cropland Buffers (CP-33 and WQ-1)	0.0	Acres	\$600	\$0
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	0.0	System	\$27,000	\$0
Livestock Exclusion (SL-6T/LE-1T)	34.7	System	\$21,000	\$729,069
Livestock Exclusion w/ Reduced Setback (LE-2T)	3.6	System	\$17,000	\$60,561
Small Acreage Grazing System (SL-6AT)	2.0	System	\$9,000	\$18,380
Stream Protection/Fencing (WP-2T)	1.0	System	\$5,000	\$21,322
Manure Storage (WP-4) - Dairy	6	System	\$100,000	\$646,671
Manure Storage (WP-4) - Beef	6	System	\$58,000	\$375,069
Pasture				
Vegetative Cover on Critical Areas (SL-11)	269	Acres	\$1,200	\$323,336
Reforestation of Erodible Pasture (FR-1)	142	Acres	\$560	\$79,416
Pasture Management (EQIP 528, SL-10T)	2,694	Acres	\$75	\$202,085

Back Creek Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	37	1160	acre-treated	\$6,000	\$6,960,378
Constructed Wetland	17	545	acre-treated	\$2,900	\$1,581,488
Stormwater BMPs					
Bioretention	131	1,301	acre-treated	\$10,000	\$13,005,647
Raingarden	131	131	acre-treated	\$5,000	\$655,000
Infiltration Basin/Trench	131	130	acre-treated	\$6,000	\$782,581
Manufactured BMP	131	158	acre-treated	\$20,000	\$3,163,925
Constructed Wetland	131	3,755	acre-treated	\$2,900	\$10,889,910
Riparian Buffer (Forested)	N/A	12	acre-treated	\$3,500	\$40,289
Riparian Buffer (Grass/Shrub)	N/A	12	acre-treated	\$360	\$4,144

Carvin Creek Subwatershed



Carvin Creek Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	45	\$170	\$7,700
Residential Waste			
Total Septic Pump out (RB-1)	22	\$300	\$6,576
Sewer Connection (RB-2)	181	\$10,000	\$1,810,000
Total Septic Repair (RB-3)	16	\$3,600	\$56,913
Total Septic Install/Replace (RB-4)	18	\$6,000	\$110,497
Total Alternative Waste Treatment System (RB-5)	2	\$16,000	\$26,727

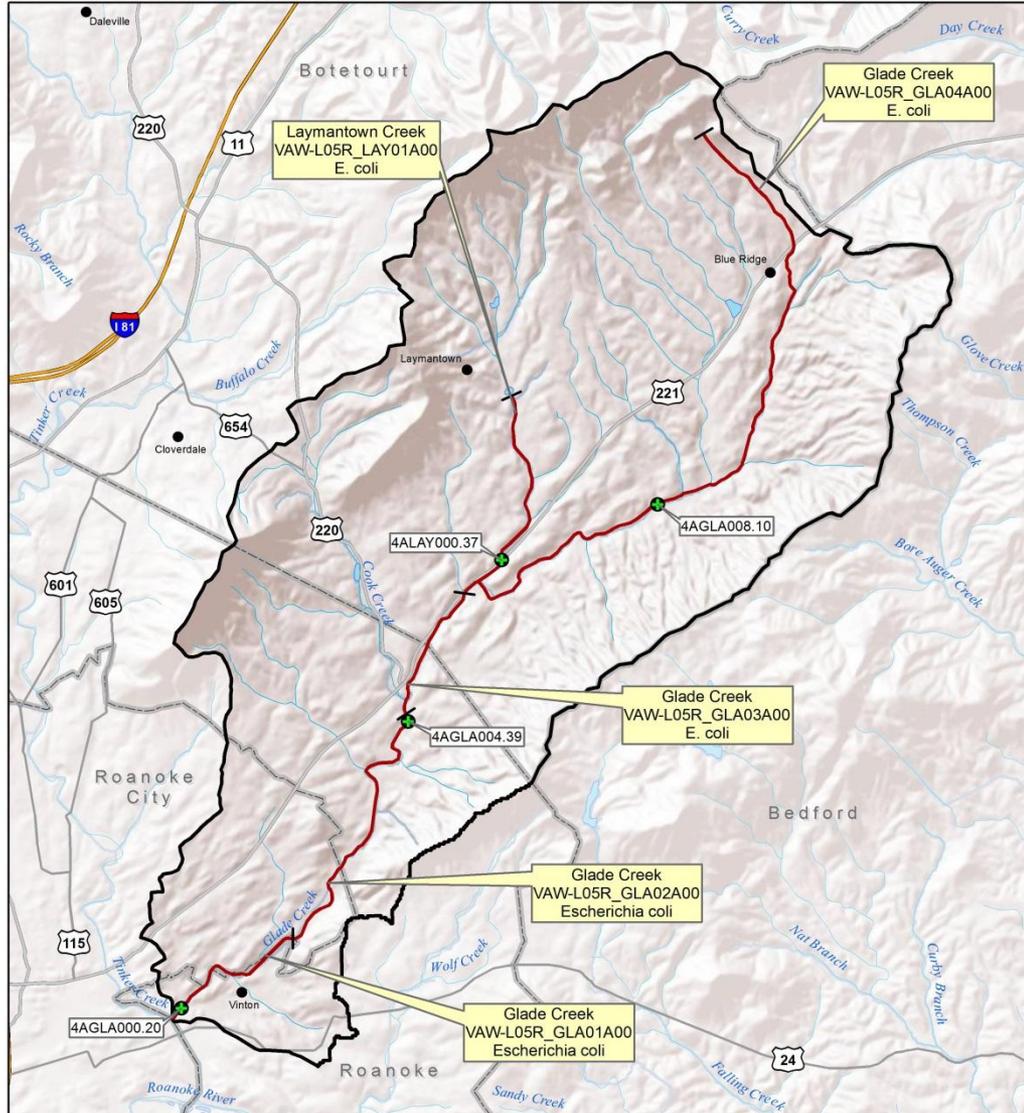
Carvin Creek Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	N/A	Acres	\$100	N/A
Small Grain Cover Crop (SL-8)	N/A	Acres	\$30	N/A
Permanent Vegetative Cover on Cropland (SL-1)	N/A	Acres	\$175	N/A
Sod Waterways (WP-3)	N/A	Acres	\$1,600	N/A
Cropland Buffers (CP-33 and WQ-1)	N/A	Acres	\$600	N/A
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	0.5	System	\$27,000	\$14,764
Livestock Exclusion (SL-6T/LE-1T)	7.5	System	\$21,000	\$157,358
Livestock Exclusion w/ Reduced Setback (LE-2T)	0.8	System	\$17,000	\$13,888
Small Acreage Grazing System (SL-6AT)	0.5	System	\$9,000	\$4,215
Stream Protection/Fencing (WP-2T)	0.2	System	\$5,000	\$4,890
Manure Storage (WP-4) - Dairy	0.5	System	\$100,000	\$53,556
Manure Storage (WP-4) - Beef	0.5	System	\$58,000	\$31,062
Pasture				
Vegetative Cover on Critical Areas (SL-11)	97	Acres	\$1,200	\$116,849
Reforestation of Erodible Pasture (FR-1)	54	Acres	\$560	\$30,294
Pasture Management (EQIP 528, SL-10T)	487	Acres	\$75	\$36,515

Carvin Creek Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	35	538	acre-treated	\$6,000	\$3,230,507
Constructed Wetland	34	538	acre-treated	\$2,900	\$1,559,902
Stormwater BMPs					
Bioretention	100	993	acre-treated	\$10,000	\$9,927,975
Raingarden	100	100	acre-treated	\$5,000	\$500,000
Infiltration Basin/Trench	100	100	acre-treated	\$6,000	\$597,390
Manufactured BMP	100	121	acre-treated	\$20,000	\$2,415,210
Constructed Wetland	100	2867	acre-treated	\$2,900	\$8,312,908
Riparian Buffer (Forested)	N/A	6	acre-treated	\$3,500	\$19,310
Riparian Buffer (Grass/Shrub)	N/A	6	acre-treated	\$360	\$1,986

Glade Creek Subwatershed



Glade Creek Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	84	\$170	\$14,216
Residential Waste			
Total Septic Pump out (RB-1)	597	\$300	\$179,055
Sewer Connection (RB-2)	265	\$10,000	\$2,650,000
Total Septic Repair (RB-3)	511	\$3,600	\$1,840,408
Total Septic Install/Replace (RB-4)	429	\$6,000	\$2,571,068
Total Alternative Waste Treatment System (RB-5)	45	\$16,000	\$724,180

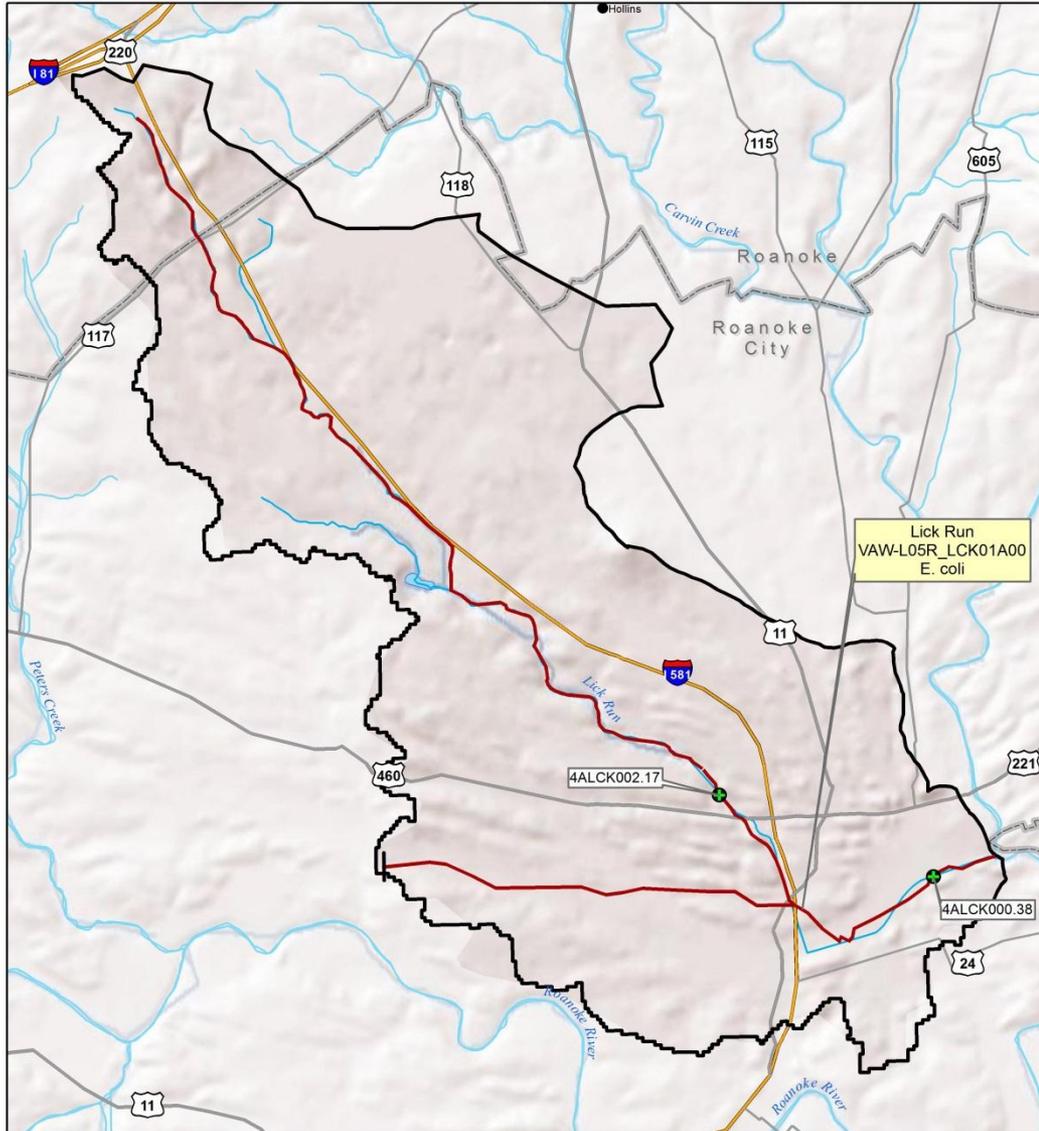
Glade Creek Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	50.0	Acres	\$100	\$5,000
Small Grain Cover Crop (SL-8)	45.0	Acres	\$30	\$1,350
Permanent Vegetative Cover on Cropland (SL-1)	3.3	Acres	\$175	\$584
Sod Waterways (WP-3)	6.7	Acres	\$1,600	\$10,673
Cropland Buffers (CP-33 and WQ-1)	3.3	Acres	\$600	\$2,001
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	4.0	System	\$27,000	\$107,431
Livestock Exclusion (SL-6T/LE-1T)	54.5	System	\$21,000	\$1,144,988
Livestock Exclusion w/ Reduced Setback (LE-2T)	5.9	System	\$17,000	\$101,055
Small Acreage Grazing System (SL-6AT)	3.4	System	\$9,000	\$30,669
Stream Protection/Fencing (WP-2T)	1.7	System	\$5,000	\$35,578
Manure Storage (WP-4) - Dairy	8.0	System	\$100,000	\$795,928
Manure Storage (WP-4) - Beef	8.0	System	\$58,000	\$461,638
Pasture				
Vegetative Cover on Critical Areas (SL-11)	724	Acres	\$1,200	\$868,285
Reforestation of Erodible Pasture (FR-1)	402	Acres	\$560	\$225,111
Pasture Management (EQIP 528, SL-10T)	3,618	Acres	\$75	\$271,339

Glade Creek Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	22	421	acre-treated	\$6,000	\$2,525,724
Constructed Wetland	31	577	acre-treated	\$2,900	\$1,673,488
Stormwater BMPs					
Bioretention	200	1986	acre-treated	\$10,000	\$19,855,949
Raingarden	200	200	acre-treated	\$5,000	\$1,000,000
Infiltration Basin/Trench	200	199	acre-treated	\$6,000	\$1,194,781
Manufactured BMP	200	242	acre-treated	\$20,000	\$4,830,419
Constructed Wetland	200	5733	acre-treated	\$2,900	\$16,625,817
Riparian Buffer (Forested)	N/A	6	acre-treated	\$3,500	\$19,310
Riparian Buffer (Grass/Shrub)	N/A	6	acre-treated	\$360	\$1,986

Lick Run Subwatershed



Lick Run Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	75	\$170	\$12,801
Residential Waste			
Total Septic Pump out (RB-1)	2	\$300	\$629
Sewer Connection (RB-2)	112	\$10,000	\$1,120,000
Total Septic Repair (RB-3)	1	\$3,600	\$2,697
Total Septic Install/Replace (RB-4)	5	\$6,000	\$28,908
Total Alternative Waste Treatment System (RB-5)	0	\$16,000	\$4,439

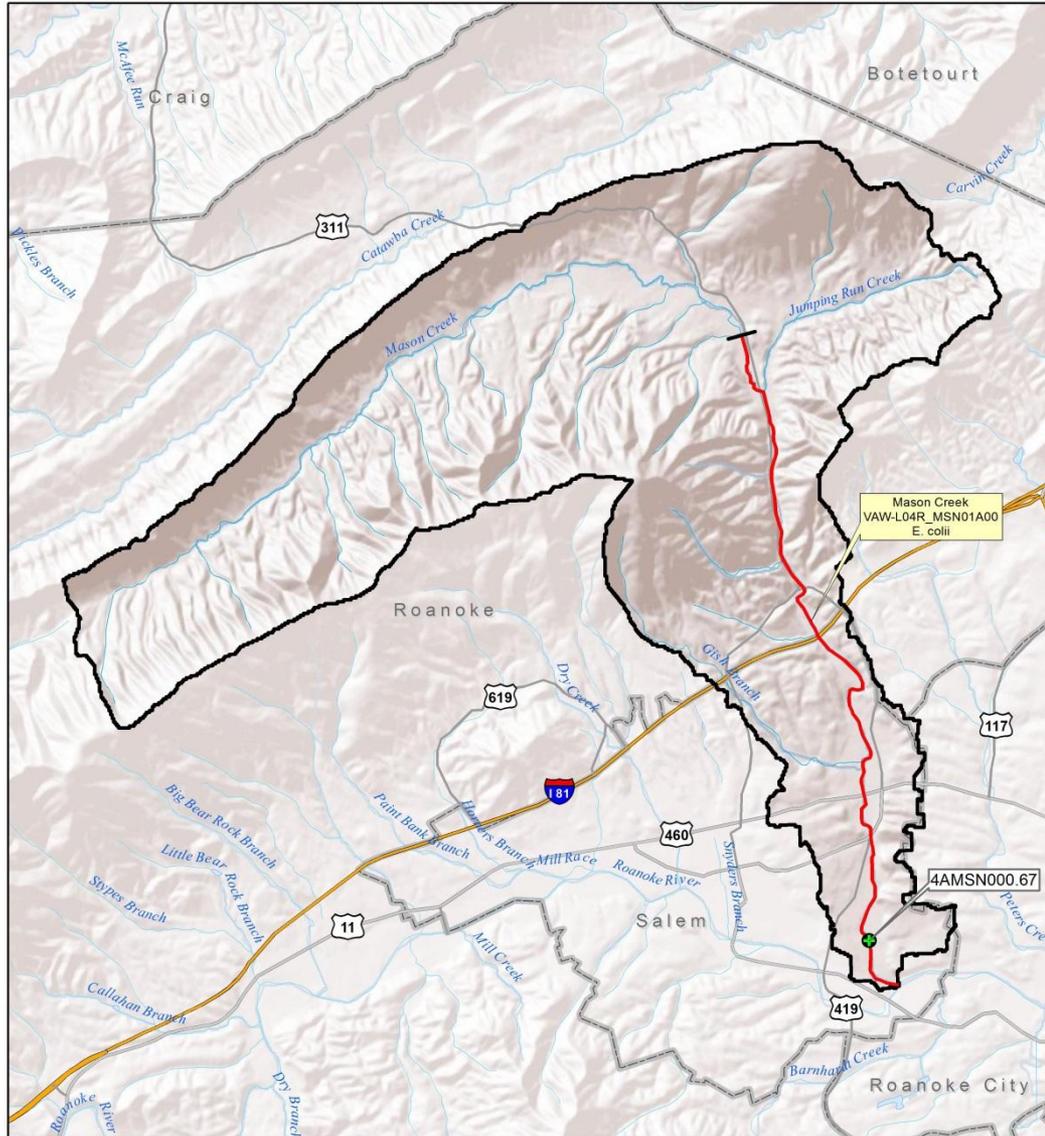
Lick Run Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	N/A	Acres	\$100	N/A
Small Grain Cover Crop (SL-8)	N/A	Acres	\$30	N/A
Permanent Vegetative Cover on Cropland (SL-1)	N/A	Acres	\$175	N/A
Sod Waterways (WP-3)	N/A	Acres	\$1,600	N/A
Cropland Buffers (CP-33 and WQ-1)	N/A	Acres	\$600	N/A
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	N/A	System	\$27,000	N/A
Livestock Exclusion (SL-6T/LE-1T)	N/A	System	\$21,000	N/A
Livestock Exclusion w/ Reduced Setback (LE-2T)	N/A	System	\$17,000	N/A
Small Acreage Grazing System (SL-6AT)	N/A	System	\$9,000	N/A
Stream Protection/Fencing (WP-2T)	N/A	System	\$5,000	N/A
Manure Storage (WP-4) - Dairy	0.04	System	\$100,000	\$3,728
Manure Storage (WP-4) - Beef	0.04	System	\$58,000	\$2,162
Pasture				
Vegetative Cover on Critical Areas (SL-11)	11	Acres	\$1,200	\$12,780
Reforestation of Erodible Pasture (FR-1)	6	Acres	\$560	\$3,313
Pasture Management (EQIP 528, SL-10T)	53	Acres	\$75	\$3,994

Lick Run Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	12	82	acre-treated	\$6,000	\$493,428
Constructed Wetland	37	260	acre-treated	\$2,900	\$754,752
Stormwater BMPs					
Bioretention	195	1936	acre-treated	\$10,000	\$19,359,550
Raingarden	195	195	acre-treated	\$5,000	\$975,000
Infiltration Basin/Trench	195	194	acre-treated	\$6,000	\$1,164,911
Manufactured BMP	195	235	acre-treated	\$20,000	\$4,709,659
Constructed Wetland	195	5590	acre-treated	\$2,900	\$16,210,171
Riparian Buffer (Forested)	N/A	2	acre-treated	\$3,500	\$8,333
Riparian Buffer (Grass/Shrub)	N/A	2	acre-treated	\$360	\$857

Mason Creek Subwatershed



Mason Creek Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	52	\$170	\$8,808
Residential Waste			
Total Septic Pump out (RB-1)	129	\$300	\$38,695
Sewer Connection (RB-2)	563	\$10,000	\$5,630,000
Total Septic Repair (RB-3)	85	\$3,600	\$305,429
Total Septic Install/Replace (RB-4)	133	\$6,000	\$800,232
Total Alternative Waste Treatment System (RB-5)	11	\$16,000	\$172,833

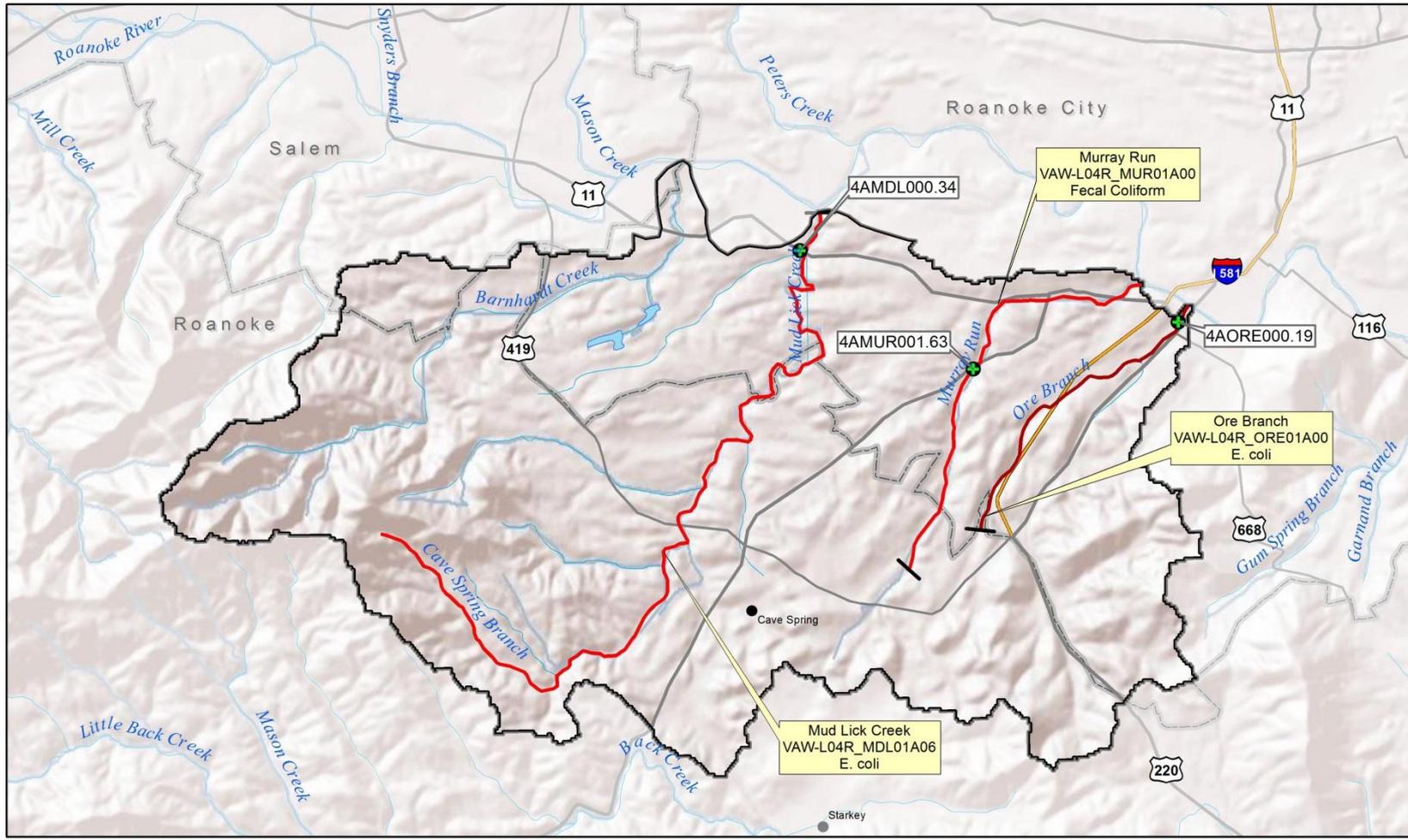
Mason Creek Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	9.1	Acres	\$100	\$913
Small Grain Cover Crop (SL-8)	9.1	Acres	\$30	\$274
Permanent Vegetative Cover on Cropland (SL-1)	0.0	Acres	\$175	\$0
Sod Waterways (WP-3)	0.0	Acres	\$1,600	\$0
Cropland Buffers (CP-33 and WQ-1)	0.0	Acres	\$600	\$0
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	1.1	System	\$27,000	\$29,649
Livestock Exclusion (SL-6T/LE-1T)	7.1	System	\$21,000	\$148,121
Livestock Exclusion w/ Reduced Setback (LE-2T)	0.8	System	\$17,000	\$13,944
Small Acreage Grazing System (SL-6AT)	0.5	System	\$9,000	\$4,232
Stream Protection/Fencing (WP-2T)	0.2	System	\$5,000	\$4,909
Manure Storage (WP-4) - Dairy	0.9	System	\$100,000	\$94,076
Manure Storage (WP-4) - Beef	0.9	System	\$58,000	\$54,564
Pasture				
Vegetative Cover on Critical Areas (SL-11)	94	Acres	\$1,200	\$112,892
Reforestation of Erodible Pasture (FR-1)	52	Acres	\$560	\$29,268
Pasture Management (EQIP 528, SL-10T)	470	Acres	\$75	\$35,279

Mason Creek Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	17	264	acre-treated	\$6,000	\$1,581,401
Constructed Wetland	10	149	acre-treated	\$2,900	\$431,261
Stormwater BMPs					
Bioretention	110	1092	acre-treated	\$10,000	\$10,920,772
Raingarden	110	110	acre-treated	\$5,000	\$550,000
Infiltration Basin/Trench	110	110	acre-treated	\$6,000	\$657,129
Manufactured BMP	110	133	acre-treated	\$20,000	\$2,656,731
Constructed Wetland	110	3153	acre-treated	\$2,900	\$9,144,199
Riparian Buffer (Forested)	N/A	5	acre-treated	\$3,500	\$16,000
Riparian Buffer (Grass/Shrub)	N/A	5	acre-treated	\$360	\$1,646

Mud Lick Creek/Murray Run/ Ore Branch Subwatershed



Mud Lick Creek/Murray Run/ Ore Branch Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	109	\$170	\$18,586
Residential Waste			
Total Septic Pump out (RB-1)	23	\$300	\$7,039
Sewer Connection (RB-2)	0	\$10,000	\$0
Total Septic Repair (RB-3)	20	\$3,600	\$71,933
Total Septic Install/Replace (RB-4)	6	\$6,000	\$38,232
Total Alternative Waste Treatment System (RB-5)	1	\$16,000	\$20,785

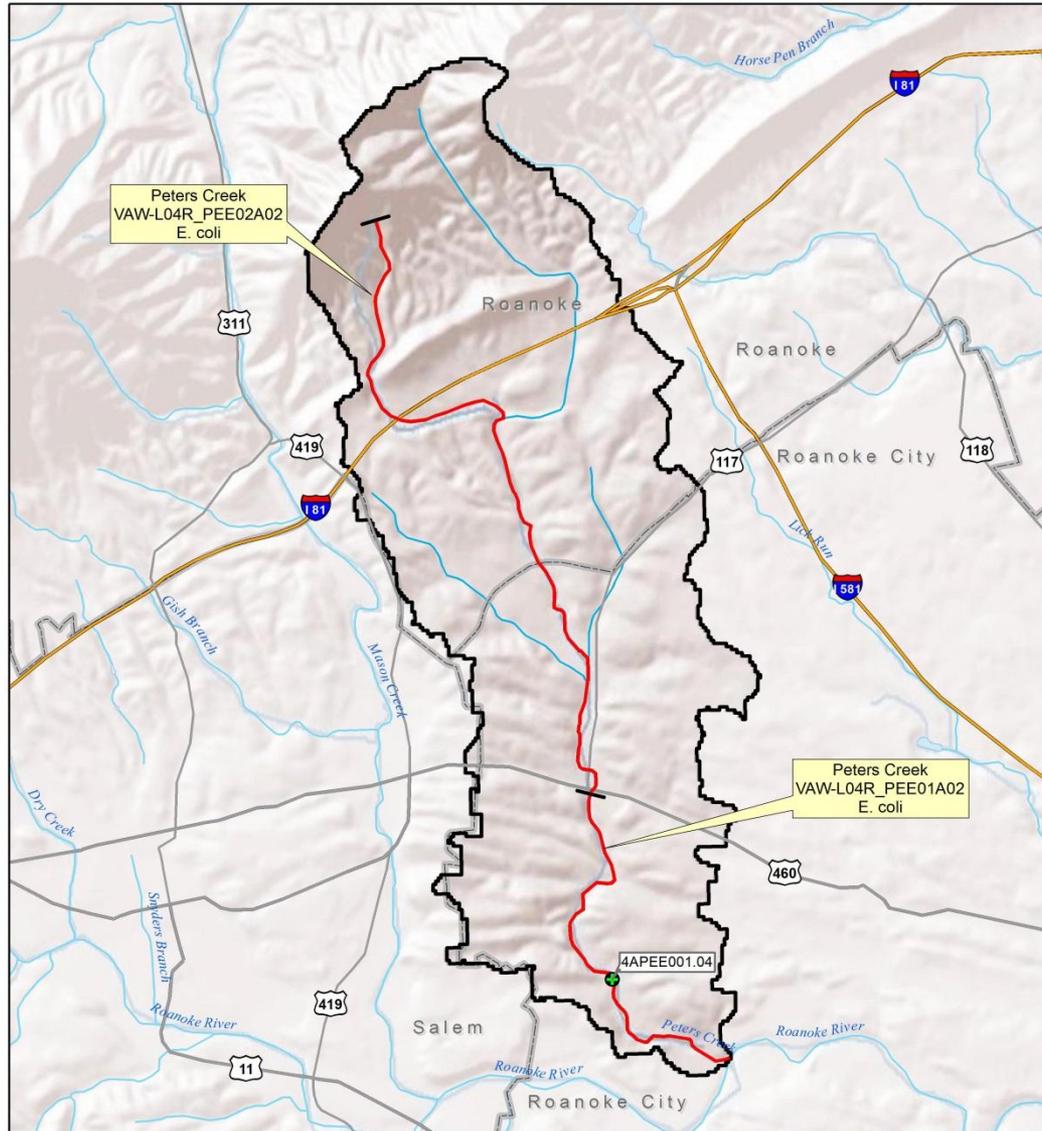
Mud Lick Creek/Murray Run/ Ore Branch Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	2.5	Acres	\$100	\$250
Small Grain Cover Crop (SL-8)	0.3	Acres	\$30	\$8
Permanent Vegetative Cover on Cropland (SL-1)	0.2	Acres	\$175	\$39
Sod Waterways (WP-3)	0.4	Acres	\$1,600	\$712
Cropland Buffers (CP-33 and WQ-1)	0.2	Acres	\$600	\$134
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	0.1	System	\$27,000	\$3,414
Livestock Exclusion (SL-6T/LE-1T)	0.8	System	\$21,000	\$17,058
Livestock Exclusion w/ Reduced Setback (LE-2T)	0.1	System	\$17,000	\$1,606
Small Acreage Grazing System (SL-6AT)	0.1	System	\$9,000	\$487
Stream Protection/Fencing (WP-2T)	0.0	System	\$5,000	\$565
Manure Storage (WP-4) - Dairy	N/A	System	\$100,000	N/A
Manure Storage (WP-4) - Beef	N/A	System	\$58,000	N/A
Pasture				
Vegetative Cover on Critical Areas (SL-11)	9	Acres	\$1,200	\$10,561
Reforestation of Erodible Pasture (FR-1)	9	Acres	\$560	\$5,188
Pasture Management (EQIP 528, SL-10T)	10	Acres	\$75	\$750

Mud Lick Creek/Murray Run/ Ore Branch Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	25	661	acre-treated	\$6,000	\$3,968,163
Constructed Wetland	80	2154	acre-treated	\$2,900	\$6,245,442
Stormwater BMPs					
Bioretention	260	2581	acre-treated	\$10,000	\$25,812,734
Raingarden	260	260	acre-treated	\$5,000	\$1,300,000
Infiltration Basin/Trench	260	259	acre-treated	\$6,000	\$1,553,215
Manufactured BMP	260	314	acre-treated	\$20,000	\$6,279,545
Constructed Wetland	260	7453	acre-treated	\$2,900	\$21,613,562
Riparian Buffer (Forested)	N/A	10	acre-treated	\$3,500	\$33,943
Riparian Buffer (Grass/Shrub)	N/A	10	acre-treated	\$360	\$3,491

Peters Creek Subwatershed



Peters Creek Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	42	\$170	\$7,118
Residential Waste			
Total Septic Pump out (RB-1)	12	\$300	\$3,567
Sewer Connection (RB-2)	94	\$10,000	\$940,000
Total Septic Repair (RB-3)	8	\$3,600	\$29,321
Total Septic Install/Replace (RB-4)	16	\$6,000	\$96,648
Total Alternative Waste Treatment System (RB-5)	1	\$16,000	\$19,316

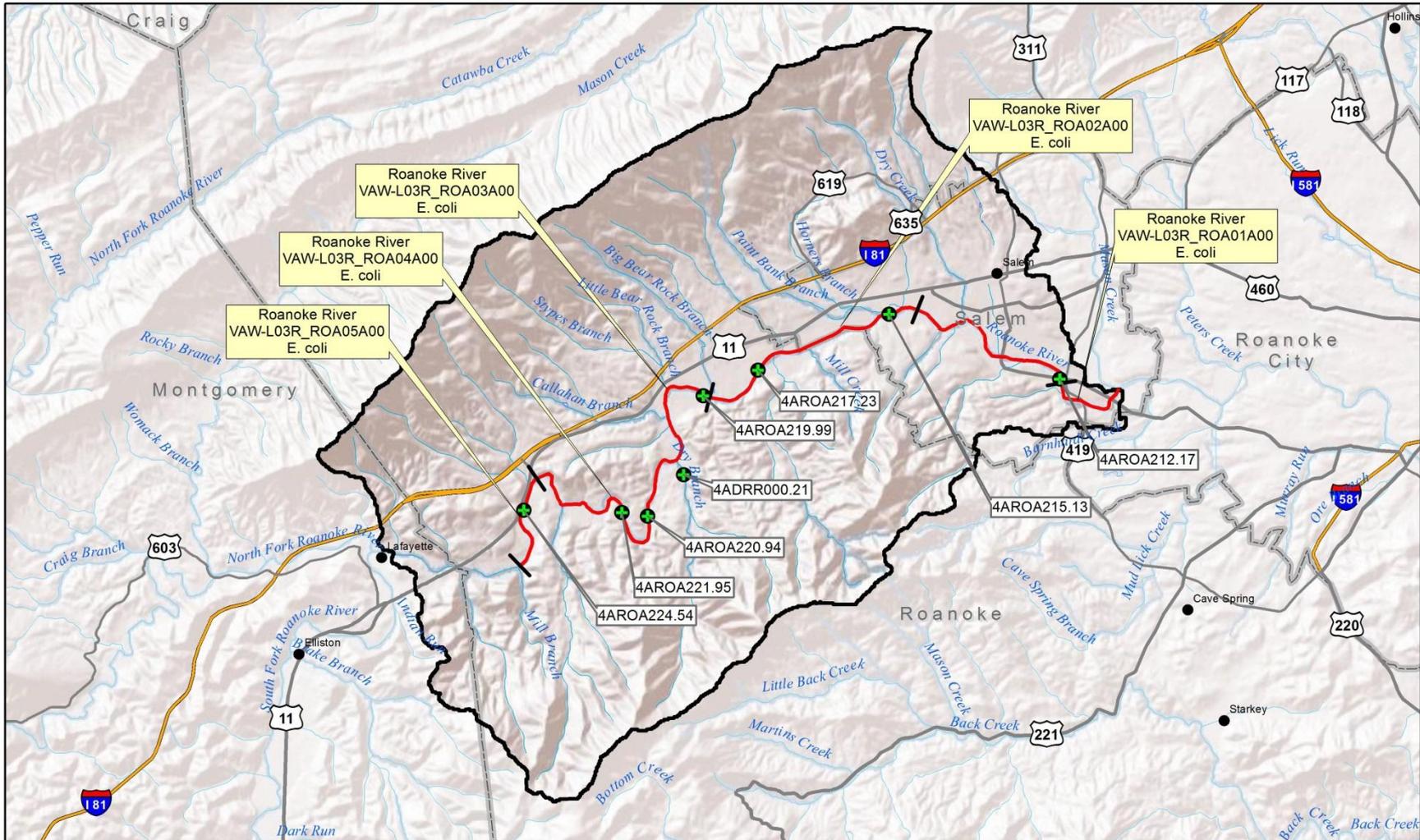
Peters Creek Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	N/A	Acres	\$100	N/A
Small Grain Cover Crop (SL-8)	N/A	Acres	\$30	N/A
Permanent Vegetative Cover on Cropland (SL-1)	N/A	Acres	\$175	N/A
Sod Waterways (WP-3)	N/A	Acres	\$1,600	N/A
Cropland Buffers (CP-33 and WQ-1)	N/A	Acres	\$600	N/A
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	0.1	System	\$27,000	\$2,021
Livestock Exclusion (SL-6T/LE-1T)	0.5	System	\$21,000	\$10,096
Livestock Exclusion w/ Reduced Setback (LE-2T)	0.1	System	\$17,000	\$950
Small Acreage Grazing System (SL-6AT)	0.0	System	\$9,000	\$288
Stream Protection/Fencing (WP-2T)	0.0	System	\$5,000	\$335
Manure Storage (WP-4) - Dairy	0.1	System	\$100,000	\$11,338
Manure Storage (WP-4) - Beef	0.1	System	\$58,000	\$6,576
Pasture				
Vegetative Cover on Critical Areas (SL-11)	9	Acres	\$1,200	\$10,798
Reforestation of Erodible Pasture (FR-1)	18	Acres	\$560	\$10,078
Pasture Management (EQIP 528, SL-10T)	162	Acres	\$75	\$12,148

Peters Creek Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	9	154	acre-treated	\$6,000	\$923,646
Constructed Wetland	19	309	acre-treated	\$2,900	\$896,097
Stormwater BMPs					
Bioretention	110	1092	acre-treated	\$10,000	\$10,920,772
Raingarden	110	110	acre-treated	\$5,000	\$550,000
Infiltration Basin/Trench	110	110	acre-treated	\$6,000	\$657,129
Manufactured BMP	110	133	acre-treated	\$20,000	\$2,656,731
Constructed Wetland	110	3153	acre-treated	\$2,900	\$9,144,199
Riparian Buffer (Forested)	N/A	3	acre-treated	\$3,500	\$10,512
Riparian Buffer (Grass/Shrub)	N/A	3	acre-treated	\$360	\$1,081

Roanoke River 1 Subwatershed



Roanoke River 1 Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	125	\$170	\$21,291
Residential Waste			
Total Septic Pump out (RB-1)	197	\$300	\$59,006
Sewer Connection (RB-2)	835	\$10,000	\$8,350,000
Total Septic Repair (RB-3)	134	\$3,600	\$481,655
Total Septic Install/Replace (RB-4)	180	\$6,000	\$1,080,834
Total Alternative Waste Treatment System (RB-5)	15	\$16,000	\$247,834

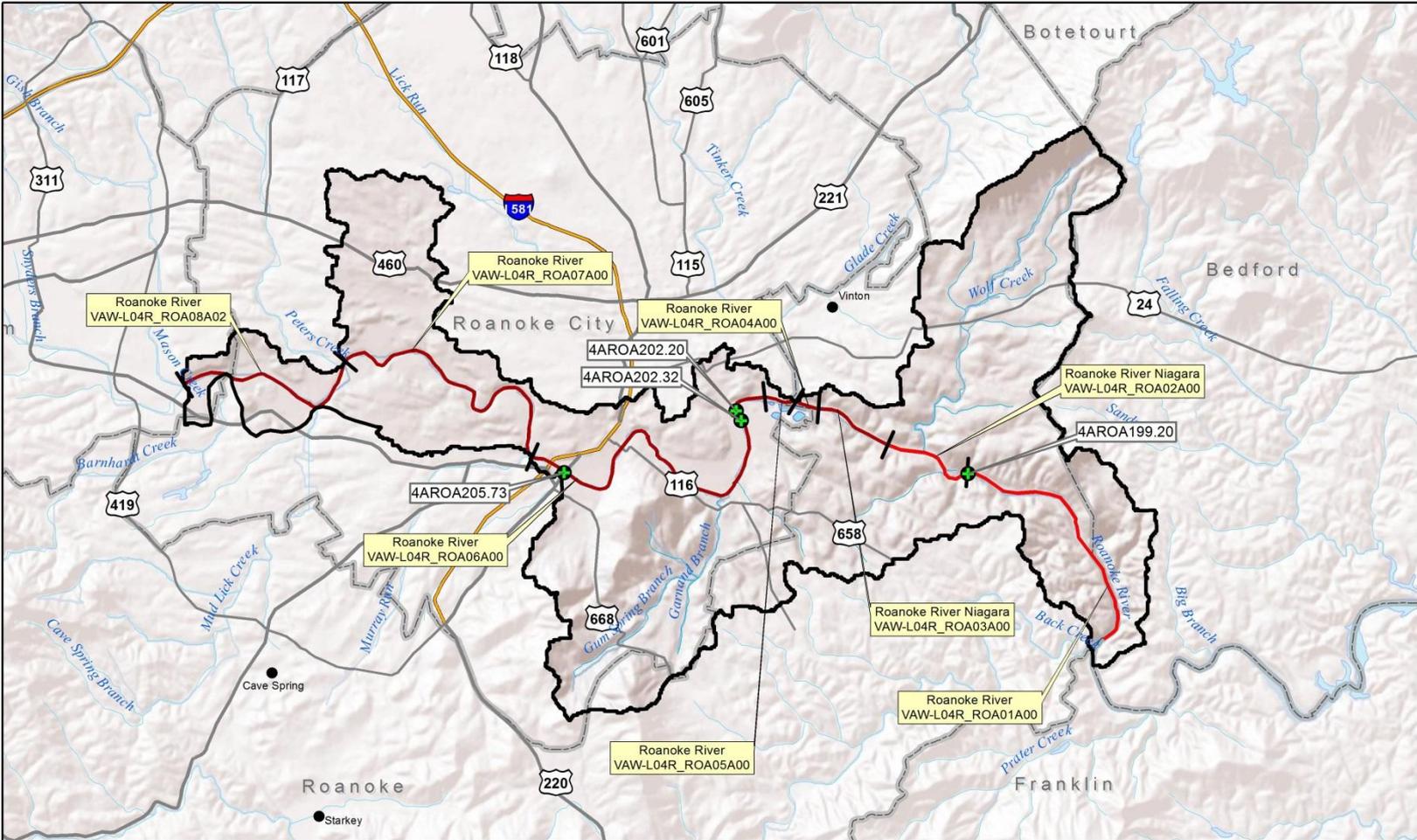
Roanoke River 1 Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	25.0	Acres	\$100	\$2,500
Small Grain Cover Crop (SL-8)	5.0	Acres	\$30	\$150
Permanent Vegetative Cover on Cropland (SL-1)	2.0	Acres	\$175	\$349
Sod Waterways (WP-3)	4.0	Acres	\$1,600	\$6,386
Cropland Buffers (CP-33 and WQ-1)	2.0	Acres	\$600	\$1,197
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	2.1	System	\$27,000	\$56,979
Livestock Exclusion (SL-6T/LE-1T)	13.6	System	\$21,000	\$284,659
Livestock Exclusion w/ Reduced Setback (LE-2T)	1.6	System	\$17,000	\$26,798
Small Acreage Grazing System (SL-6AT)	0.9	System	\$9,000	\$8,133
Stream Protection/Fencing (WP-2T)	0.4	System	\$5,000	\$9,435
Manure Storage (WP-4) - Dairy	2.0	System	\$100,000	\$200,259
Manure Storage (WP-4) - Beef	2.0	System	\$58,000	\$116,150
Pasture				
Vegetative Cover on Critical Areas (SL-11)	286	Acres	\$1,200	\$343,302
Reforestation of Erodible Pasture (FR-1)	159	Acres	\$560	\$89,004
Pasture Management (EQIP 528, SL-10T)	1,430	Acres	\$75	\$107,282

Roanoke River 1 Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	53	1298	acre-treated	\$6,000	\$7,789,409
Constructed Wetland	25	596	acre-treated	\$2,900	\$1,728,558
Stormwater BMPs					
Bioretention	275	2730	acre-treated	\$10,000	\$27,301,930
Raingarden	275	275	acre-treated	\$5,000	\$1,375,000
Infiltration Basin/Trench	275	274	acre-treated	\$6,000	\$1,642,824
Manufactured BMP	275	332	acre-treated	\$20,000	\$6,641,827
Constructed Wetland	275	7883	acre-treated	\$2,900	\$22,860,498
Riparian Buffer (Forested)	N/A	16	acre-treated	\$3,500	\$55,731
Riparian Buffer (Grass/Shrub)	N/A	16	acre-treated	\$360	\$5,732

Roanoke River 2 Subwatershed



Roanoke River 2 Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	133	\$170	\$22,650
Residential Waste			
Total Septic Pump out (RB-1)	153	\$300	\$45,825
Sewer Connection (RB-2)	39	\$10,000	\$390,000
Total Septic Repair (RB-3)	86	\$3,600	\$309,152
Total Septic Install/Replace (RB-4)	86	\$6,000	\$515,333
Total Alternative Waste Treatment System (RB-5)	8	\$16,000	\$134,620

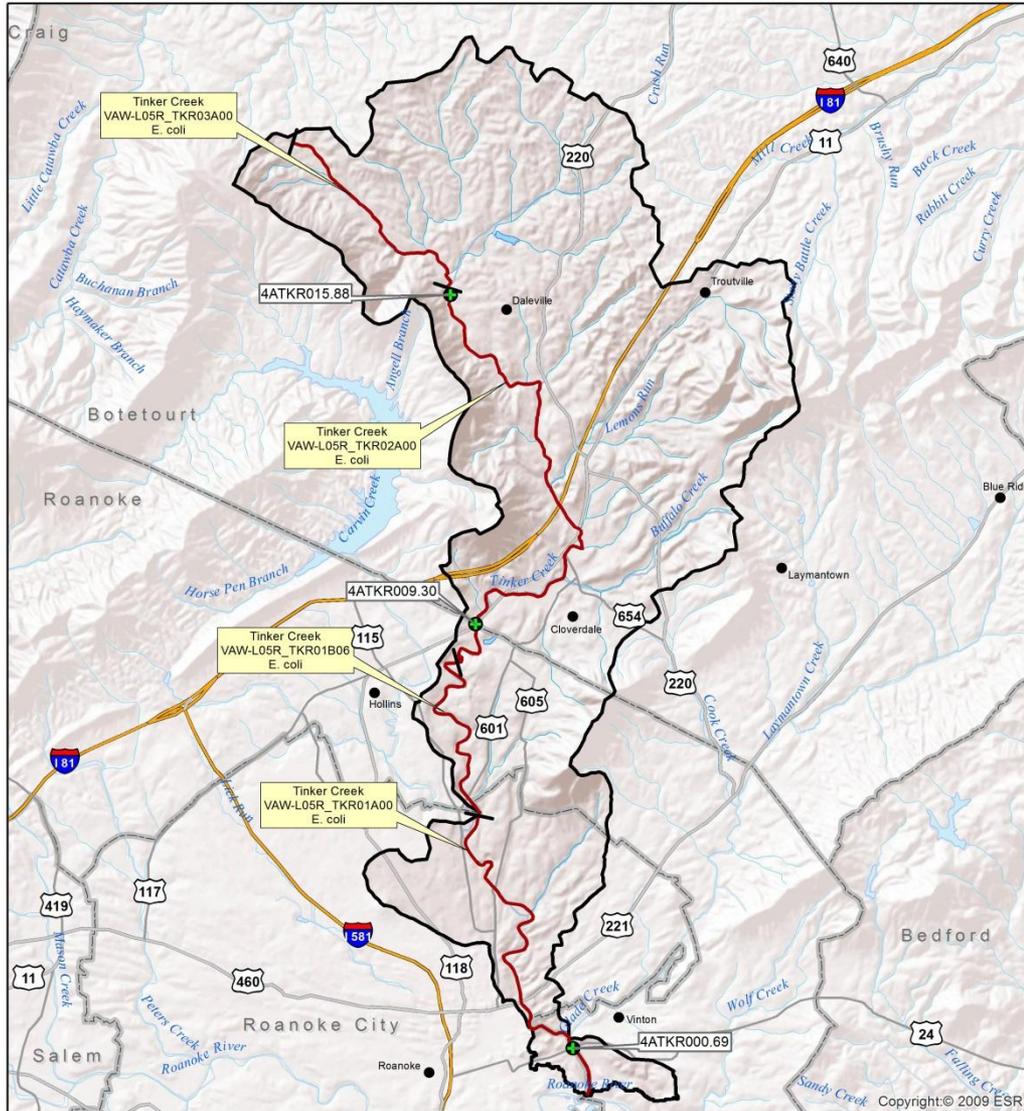
Roanoke River 2 Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	1.0	Acres	\$100	\$100
Small Grain Cover Crop (SL-8)	0.2	Acres	\$30	\$6
Permanent Vegetative Cover on Cropland (SL-1)	0.0	Acres	\$175	\$0
Sod Waterways (WP-3)	0.0	Acres	\$1,600	\$0
Cropland Buffers (CP-33 and WQ-1)	0.0	Acres	\$600	\$0
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	1.3	System	\$27,000	\$35,238
Livestock Exclusion (SL-6T/LE-1T)	8.4	System	\$21,000	\$176,043
Livestock Exclusion w/ Reduced Setback (LE-2T)	1.0	System	\$17,000	\$16,573
Small Acreage Grazing System (SL-6AT)	0.6	System	\$9,000	\$5,030
Stream Protection/Fencing (WP-2T)	0.3	System	\$5,000	\$5,835
Manure Storage (WP-4) - Dairy	2.2	System	\$100,000	\$223,679
Manure Storage (WP-4) - Beef	2.2	System	\$58,000	\$129,734
Pasture				
Vegetative Cover on Critical Areas (SL-11)	263	Acres	\$1,200	\$315,781
Reforestation of Erodible Pasture (FR-1)	146	Acres	\$560	\$81,869
Pasture Management (EQIP 528, SL-10T)	1,316	Acres	\$75	\$98,682

Roanoke River 2 Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	29	501	acre-treated	\$6,000	\$3,008,203
Constructed Wetland	21	366	acre-treated	\$2,900	\$1,060,712
Stormwater BMPs					
Bioretention	285	2829	acre-treated	\$10,000	\$28,294,727
Raingarden	285	285	acre-treated	\$5,000	\$1,425,000
Infiltration Basin/Trench	285	284	acre-treated	\$6,000	\$1,702,563
Manufactured BMP	285	344	acre-treated	\$20,000	\$6,883,348
Constructed Wetland	285	8170	acre-treated	\$2,900	\$23,691,789
Riparian Buffer (Forested)	N/A	8	acre-treated	\$3,500	\$27,437
Riparian Buffer (Grass/Shrub)	N/A	8	acre-treated	\$360	\$2,822

Tinker Creek Subwatershed



Tinker Creek Subwatershed

Residential BMPs	Units	Cost/unit	Total Cost
Pet Waste			
Educational Campaign	1	\$3,750	\$3,750
Pet Waste Stations	106	\$170	\$17,993
Residential Waste			
Total Septic Pump out (RB-1)	688	\$300	\$206,371
Sewer Connection (RB-2)	244	\$10,000	\$2,440,000
Total Septic Repair (RB-3)	459	\$3,600	\$1,652,228
Total Septic Install/Replace (RB-4)	558	\$6,000	\$3,348,930
Total Alternative Waste Treatment System (RB-5)	49	\$16,000	\$784,122

Tinker Creek Subwatershed

Agricultural BMPs	Units	Cost Basis	Cost/unit	Total Cost
Cropland				
Continuous No-Till (SL-15)	N/A	Acres	\$100	N/A
Small Grain Cover Crop (SL-8)	N/A	Acres	\$30	N/A
Permanent Vegetative Cover on Cropland (SL-1)	N/A	Acres	\$175	N/A
Sod Waterways (WP-3)	N/A	Acres	\$1,600	N/A
Cropland Buffers (CP-33 and WQ-1)	N/A	Acres	\$600	N/A
Livestock Exclusion System				
CREP Livestock Exclusion (CRSL-6)	4.0	System	\$27,000	\$108,085
Livestock Exclusion (SL-6T/LE-1T)	54.9	System	\$21,000	\$1,151,953
Livestock Exclusion w/ Reduced Setback (LE-2T)	6.0	System	\$17,000	\$101,669
Small Acreage Grazing System (SL-6AT)	3.4	System	\$9,000	\$30,856
Stream Protection/Fencing (WP-2T)	1.7	System	\$5,000	\$35,795
Manure Storage (WP-4) - Dairy	14.9	System	\$100,000	\$1,494,264
Manure Storage (WP-4) - Beef	14.9	System	\$58,000	\$866,673
Pasture				
Vegetative Cover on Critical Areas (SL-11)	1,299	Acres	\$1,200	\$1,559,232
Reforestation of Erodible Pasture (FR-1)	722	Acres	\$560	\$404,245
Pasture Management (EQIP 528, SL-10T)	6,497	Acres	\$75	\$487,260

Tinker Creek Subwatershed

Urban BMPs	Units	Area Treated (acres)	Unit	Cost/unit	Total Cost
Detention Pond Retrofits					
Infiltration Basin/Trench	32	348	acre-treated	\$6,000	\$2,086,600
Constructed Wetland	27	293	acre-treated	\$2,900	\$850,444
Stormwater BMPs					
Bioretention	265	2631	acre-treated	\$10,000	\$26,309,133
Raingarden	265	265	acre-treated	\$5,000	\$1,325,000
Infiltration Basin/Trench	265	264	acre-treated	\$6,000	\$1,583,085
Manufactured BMP	265	320	acre-treated	\$20,000	\$6,400,306
Constructed Wetland	265	7596	acre-treated	\$2,900	\$22,029,207
Riparian Buffer (Forested)	N/A	12	acre-treated	\$3,500	\$40,418
Riparian Buffer (Grass/Shrub)	N/A	12	acre-treated	\$360	\$4,157