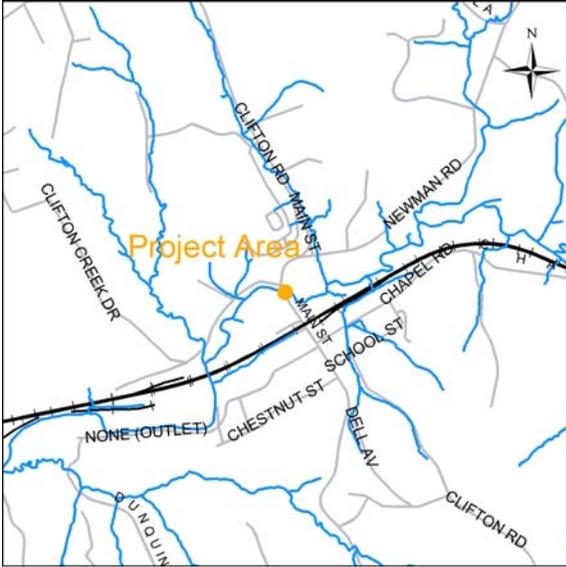


Appendix J: Road Crossing Projects

Bridge Project

Structure Location: Clifton Road #1.
Stream Name: Popes Head Creek.
Project ID PH9400 (LP-7).
Type of Structure: 40' wide bridge.



Vicinity Map.



Bridge Overview.



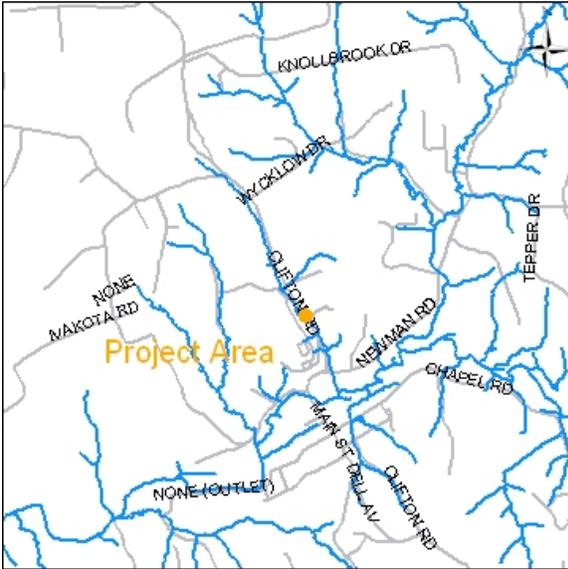
Overtopping Frequency: Existing 1-year.
Future 1-year.
Benefit: Reduce road flooding frequency – emergency access.
Cost: \$1,850,000

PLANNING COST ESTIMATES
PH9400 - Clifton Road at Popes Head Creek

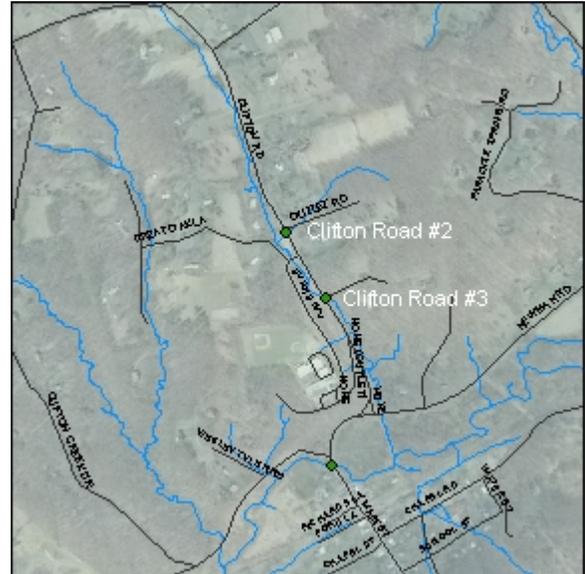
No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 800' at 24' wide	1400	SY	\$ 9.00	\$ 12,600.00
2	Excavation	140	CY	\$ 30.00	\$ 4,200.00
3	Bridge Removal	1	LS	\$ 30,000.00	\$ 30,000.00
4	140' slab bridge, 140' x 40' wide	5600	SF	\$ 110.00	\$ 616,000.00
6	Outlet Protection	0	SY	\$ 75.00	\$ -
7	Fill Placement & Hauling, 800' at 40' wide and 4' dk	5000	CY	\$ 20.00	\$ 100,000.00
8	Paving	2200	SY	\$ 25.00	\$ 55,000.00
9	Seeding & Mulching	900	SY	\$ 2.00	\$ 1,800.00
Subtotal Construction Cost =					\$ 819,600.00
Mobilization & Erosion Control (10%) =					\$ 81,960.00
Traffic Maintenance (10%) =					\$ 81,960.00
Subtotal 1 =					\$ 983,520.00
Contingency (25%) =					\$ 245,880.00
Subtotal 2 =					\$ 1,229,400.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) =					\$ 614,700.00
Total =					\$ 1,844,100.00
ESTIMATED PROJECT COST =					\$ 1,850,000.00

Culvert Project

Structure Location: Clifton Road #2 and #3.
 Stream Name: Popes Head Creek unnamed tributary.
 Project ID: PH9401.
 Type of Structure: 30" diameter pipe and 60" diameter pipe.



Vicinity Map.



Bridge Overview.



Site #2



Site #3

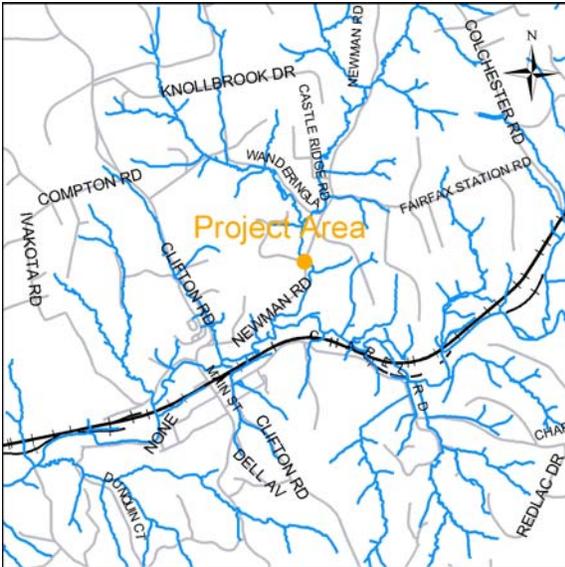
Proposed Project: #2: Raise road and replace with 54" pipe
 #3: Add another 60" pipe
 Benefit: Reduce road flooding frequency – emergency access.
 Cost: \$260,000

PLANNING COST ESTIMATES
 PH9401 - Clifton Road #2 and #3 at Popes Head unnamed tributary

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 500' at 30' wide	1680	SY	\$ 9.00	\$ 15,120.00
2	Excavation	120	CY	\$ 30.00	\$ 3,600.00
3	Pipe Removal, 30' pipe	30	LF	\$ 15.00	\$ 450.00
4	Pipe, 30'-54" RCP, 30' 60" pipe	60	LF	\$ 195.00	\$ 11,700.00
5	Headwalls	14	CY	\$ 350.00	\$ 4,900.00
6	Outlet Protection	20	SY	\$ 75.00	\$ 1,500.00
7	Fill Placement & Hauling, 500' at 40' wide and 2' d€	1500	CY	\$ 20.00	\$ 30,000.00
8	Paving	1680	SY	\$ 25.00	\$ 42,000.00
9	Seeding & Mulching	1200	SY	\$ 2.00	\$ 2,400.00
Subtotal Construction Cost = \$					111,670.00
Mobilization & Erosion Control (10%) = \$					11,167.00
Traffic Maintenance (10%) = \$					11,167.00
Subtotal 1 = \$					134,004.00
Contingency (25%) = \$					33,501.00
Subtotal 2 = \$					167,505.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) = \$					83,753.00
Total = \$					251,258.00
ESTIMATED PROJECT COST = \$					260,000.00

Bridge Project

Structure Location: Newman Road.
Stream Name: Castle Creek.
Project ID: PH9403 (CC-RD-2)
Type of Structure: 17' wide bridge.



Vicinity Map.



Bridge Overview.



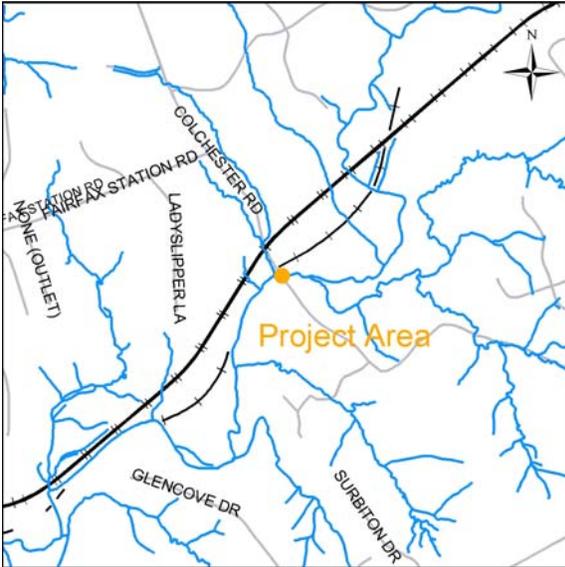
Overtopping Frequency: Existing 1-year
Future 1-year.
Proposed project: Raise road and replace structure
Benefit: Reduce road flooding frequency – emergency access.
Estimated Cost: \$390,000

PLANNING COST ESTIMATES
PH9403 - Newman Road at Castle Creek

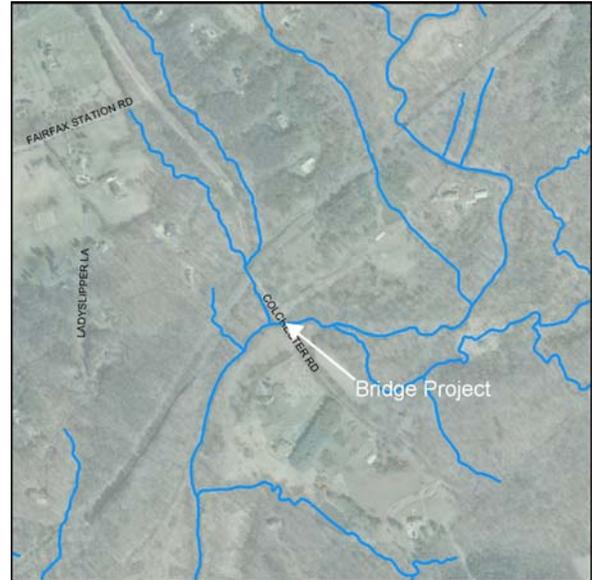
No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 400' at 24' wide	1100	SY	\$ 9.00	\$ 9,900.00
2	Excavation	140	CY	\$ 30.00	\$ 4,200.00
3	Bridge removal	1	LS	\$ 15,000.00	\$ 15,000.00
4	Box Culvert 2- 30' 12 x 8' RCBC	60	LF	\$ 1,200.00	\$ 72,000.00
5	Headwalls	8	CY	\$ 350.00	\$ 2,800.00
6	Outlet Protection	70	SY	\$ 75.00	\$ 5,250.00
7	Fill Placement & Hauling, 400' at 35' wide and 3' d€	1600	CY	\$ 20.00	\$ 32,000.00
8	Paving	1100	SY	\$ 25.00	\$ 27,500.00
9	Seeding & Mulching	450	SY	\$ 2.00	\$ 900.00
Subtotal Construction Cost =					\$ 169,550.00
Mobilization & Erosion Control (10%) =					\$ 16,955.00
Traffic Maintenance (10%) =					\$ 16,955.00
Subtotal 1 =					\$ 203,460.00
Contingency (25%) =					\$ 50,865.00
Subtotal 2 =					\$ 254,325.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) =					\$ 127,163.00
Total =					\$ 381,488.00
ESTIMATED PROJECT COST =					\$ 390,000.00

Bridge Project

Structure Location: Colchester Road.
Stream Name: Popes Head Creek.
Project ID: PH9404 (PH3-RD-1)
Type of Structure: 15' wide bridge.



Vicinity Map.



Bridge Overview.



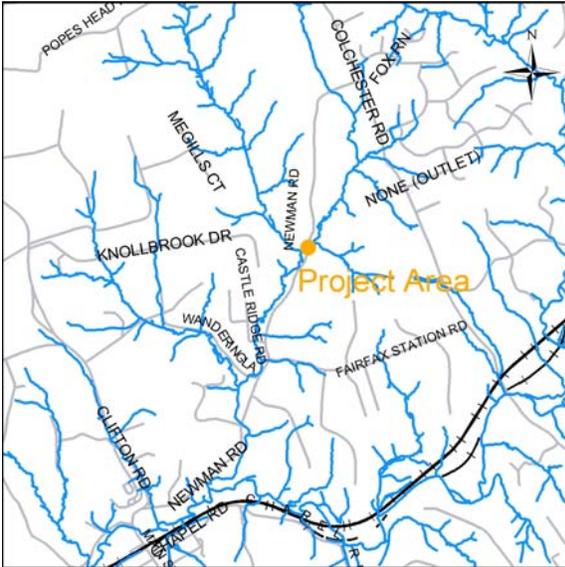
Overtopping Frequency: Existing 1-year
Future 1-year.
Proposed Project: Raise road and replace structure
Benefit: Reduce road flooding frequency – emergency access.
Estimated Cost: \$1,240,000

PLANNING COST ESTIMATES
PH9404 - Colchester Road at Popes Head Creek

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 500' at 24' wide	1400	SY	\$ 9.00	\$ 12,600.00
2	Excavation	140	CY	\$ 30.00	\$ 4,200.00
3	Bridge Removal	1	LS	\$ 15,000.00	\$ 15,000.00
4	100' slab bridge, 100' x 30' wide	3000	SF	\$ 110.00	\$ 330,000.00
6	Outlet Protection	0	SY	\$ 75.00	\$ -
7	Fill Placement & Hauling, 500' at 50' wide and 8' d€	7500	CY	\$ 20.00	\$ 150,000.00
8	Paving	1400	SY	\$ 25.00	\$ 35,000.00
9	Seeding & Mulching	600	SY	\$ 2.00	\$ 1,200.00
Subtotal Construction Cost =					\$ 548,000.00
Mobilization & Erosion Control (10%) =					\$ 54,800.00
Traffic Maintenance (10%) =					\$ 54,800.00
Subtotal 1 =					\$ 657,600.00
Contingency (25%) =					\$ 164,400.00
Subtotal 2 =					\$ 822,000.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) =					\$ 411,000.00
Total =					\$ 1,233,000.00
ESTIMATED PROJECT COST =					\$ 1,240,000.00

Culvert Replacement

Structure Location: Newman Road.
Stream Name: Castle Creek Tributary 1.
Project ID: PH9412 (CC-RD-3)
Type of Structure: Double - 30" corrugated metal pipe.



Vicinity Map.



Culvert Overview.



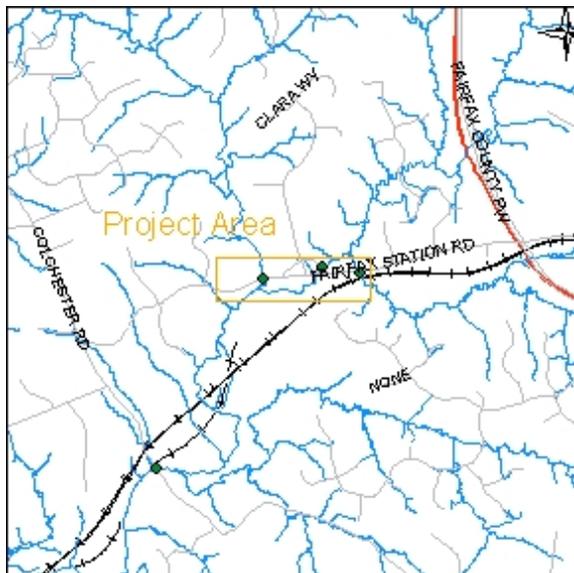
Overtopping Frequency: Existing 5-year
Future 5-year.
Proposed Project: Raise road and replace structure
Benefit: Reduce road flooding frequency – emergency access.
Estimated Cost: \$430,000.

PLANNING COST ESTIMATES
PH9412 - Newman Road at Castle Creek Trib 1

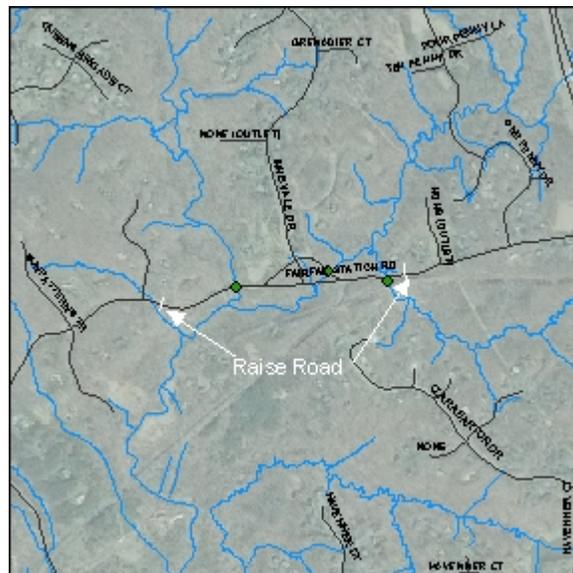
No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 550' at 24' wide	1500	SY	\$ 9.00	\$ 13,500.00
2	Excavation	45	CY	\$ 30.00	\$ 1,350.00
3	Pipe Removal, 2- 30' pipes	60	LF	\$ 15.00	\$ 900.00
4	Box Culvert 2- 30' 12 x 6' RCBC	60	LF	\$ 1,200.00	\$ 72,000.00
5	Headwalls	7	CY	\$ 350.00	\$ 2,450.00
6	Outlet Protection	60	SY	\$ 75.00	\$ 4,500.00
7	Fill Placement & Hauling, 550' at 30' wide and 4.5'	2750	CY	\$ 20.00	\$ 55,000.00
8	Paving	1500	SY	\$ 25.00	\$ 37,500.00
9	Seeding & Mulching	700	SY	\$ 2.00	\$ 1,400.00
Subtotal Construction Cost =					\$ 188,600.00
Mobilization & Erosion Control (10%) =					\$ 18,860.00
Traffic Maintenance (10%) =					\$ 18,860.00
Subtotal 1 =					\$ 226,320.00
Contingency (25%) =					\$ 56,580.00
Subtotal 2 =					\$ 282,900.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) =					\$ 141,450.00
Total =					\$ 424,350.00
ESTIMATED PROJECT COST =					\$ 430,000.00

Road Project

Structure Location: Fairfax Station Road.
 Stream Name: Piney Branch, Popes Head Creek, Trib to Popes Head.
 Project ID: PH9414
 Type of Structure: Piney Branch: Double 7' x 5' corrugated metal pipe arch; Popes Head: 30' wide bridge; Trib: 7.6' x 5.4' corrugated metal pipe arch.



Vicinity Map.



Culvert Overview.



Piney Branch Crossing



Popes Head Crossing

Overtopping Frequency: Existing 1-year
 Future 1-year.
 Proposed Project: Raise road and replace structures
 Benefit: Reduce road flooding frequency – emergency access.
 Estimated Cost: \$4,190,000.

PLANNING COST ESTIMATES
PH9414 - Fairfax Station Road at Piney Branch, Popes Head Creek and Trib

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 2800' at 24' wide	7500	SY	\$ 9.00	\$ 67,500.00
2	Excavation	260	CY	\$ 20.00	\$ 5,200.00
3	Pipe Removal, 3- 40' pipes (Piney & Trib)	120	LF	\$ 25.00	\$ 3,000.00
4	Bridge Removal (Popes Head)	1	LS	\$ 21,000.00	\$ 21,000.00
5	Conspan Arch - 42' W x 12'H x 30' L (Piney)	1260	SF	\$ 140.00	\$ 176,400.00
7	Bridge - 90 x 40' wide (Popes Head)	3600	SF	\$ 110.00	\$ 396,000.00
8	Box Culvert 2- 45' 12 x 6' RCBC (Trib)	90	LF	\$ 1,200.00	\$ 108,000.00
9	Headwalls (Trib)	7	CY	\$ 350.00	\$ 2,450.00
10	Outlet Protection (Piney and Trib)	160	SY	\$ 75.00	\$ 12,000.00
11	Fill Placement & Hauling, 2800' at 40' wide and 10'	41500	CY	\$ 20.00	\$ 830,000.00
12	Paving	9400	SY	\$ 25.00	\$ 235,000.00
13	Seeding & Mulching	800	SY	\$ 2.00	\$ 1,600.00

Subtotal Construction Cost = \$ 1,858,150.00
Mobilization & Erosion Control (10%) = \$ 185,815.00
Traffic Maintenance (10%) = \$ 185,815.00
Subtotal 1 = \$ 2,229,780.00

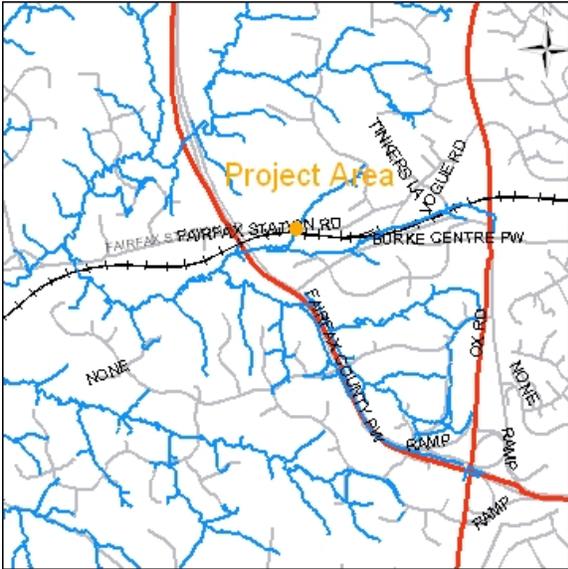
Contingency (25%) = \$ 557,445.00
Subtotal 2 = \$ 2,787,225.00

Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) = \$ 1,393,613.00
Total = \$ 4,180,838.00

ESTIMATED PROJECT COST = \$ 4,190,000.00

Culvert Replacement

Structure Location: Fairfax Station Road.
Stream Name: Popes Head unnamed tributary.
Project ID: PH9420
Type of Structure: 24" diameter pipe.



Vicinity Map.



Culvert Overview.



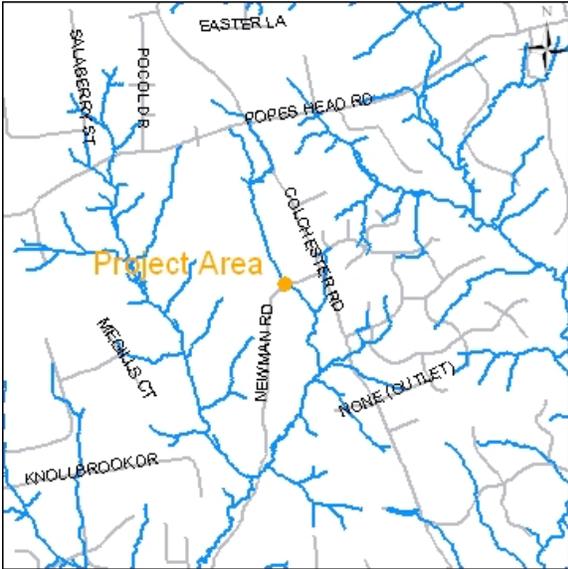
Proposed Project: Replace structure with 3' x 3' box culvert and raise the road by 2 feet for a 400 foot length
Benefit: Reduce road flooding frequency – emergency access.
Estimated Cost: \$160,000.

PLANNING COST ESTIMATES
 PH9420 - Fairfax Station Road #3 at Popes Head unnamed tributary

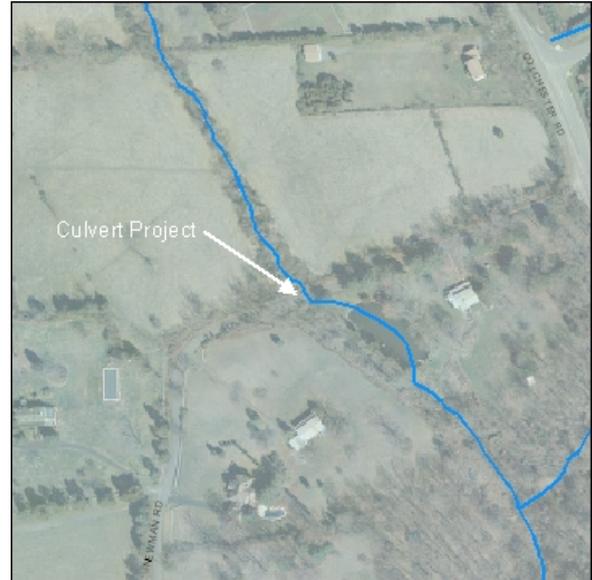
No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 400' at 24' wide	1100	SY	\$ 9.00	\$ 9,900.00
2	Excavation	25	CY	\$ 30.00	\$ 750.00
3	Pipe Removal, 30' pipe	30	LF	\$ 15.00	\$ 450.00
4	Box Culvert 24'- 3 x 3' RCBC	24	LF	\$ 275.00	\$ 6,600.00
5	Headwalls	5	CY	\$ 350.00	\$ 1,750.00
6	Outlet Protection	10	SY	\$ 75.00	\$ 750.00
7	Fill Placement & Hauling, 400' at 30' wide and 2' d€	900	CY	\$ 20.00	\$ 18,000.00
8	Paving	1100	SY	\$ 25.00	\$ 27,500.00
9	Seeding & Mulching	600	SY	\$ 2.00	\$ 1,200.00
Subtotal Construction Cost =					\$ 66,900.00
Mobilization & Erosion Control (10%) =					\$ 6,690.00
Traffic Maintenance (10%) =					\$ 6,690.00
Subtotal 1 =					\$ 80,280.00
Contingency (25%) =					\$ 20,070.00
Subtotal 2 =					\$ 100,350.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) =					\$ 50,175.00
Total =					\$ 150,525.00
ESTIMATED PROJECT COST =					\$ 160,000.00

Culvert Replacement

Structure Location: Newman Road.
Stream Name: Castle Creek unnamed tributary.
Project ID: PH9435
Type of Structure: (1) 18" and (1) 24" diameter pipe



Vicinity Map.



Culvert Overview.



Proposed Project: Replace with (2) 4'x4' box culverts and raise road 2 feet
Benefit: Reduce road flooding frequency – emergency access.
Estimated Cost: \$130,000.

PLANNING COST ESTIMATES
PH9435 - Newman Road at Castle Creek unnamed tributary

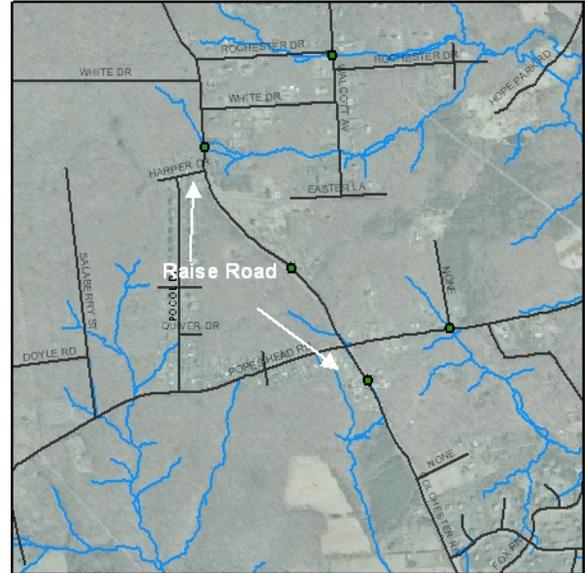
No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 200' at 30' wide	670	SY	\$ 9.00	\$ 6,030.00
2	Excavation	30	CY	\$ 30.00	\$ 900.00
3	Pipe Removal, 2-40' pipe	80	LF	\$ 15.00	\$ 1,200.00
4	Pipe, 2-30'-4'x4' box culvert	60	LF	\$ 275.00	\$ 16,500.00
5	Headwalls	5	CY	\$ 350.00	\$ 1,750.00
6	Outlet Protection	10	SY	\$ 75.00	\$ 750.00
7	Fill Placement & Hauling, 200' at 40' wide and 2' d€	600	CY	\$ 20.00	\$ 12,000.00
8	Paving	670	SY	\$ 25.00	\$ 16,750.00
9	Seeding & Mulching	600	SY	\$ 2.00	\$ 1,200.00
Subtotal Construction Cost = \$					57,080.00
Mobilization & Erosion Control (10%) = \$					5,708.00
Traffic Maintenance (10%) = \$					5,708.00
Subtotal 1 = \$					68,496.00
Contingency (25%) = \$					17,124.00
Subtotal 2 = \$					85,620.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) = \$					42,810.00
Total = \$					128,430.00
ESTIMATED PROJECT COST = \$					130,000.00

Drainage Improvements

Structure Location: Colchester Road.
Stream Name: Castle Creek Tributary No. 1 & Piney Branch Trib.
Project ID: PH9450 (CC-RD-4, CC-RD-5, PB-RD-3)



Vicinity Map



Culvert Overview



Proposed Project: Drainage improvements along Colchester Road. Increase swale depths, raise the road elevation, and install culverts to increase relief and decrease road flooding.
Benefit: Reduce road flooding identified by community
Estimated Cost: \$1,020,000

PLANNING COST ESTIMATES
 PH9450 - Colchester Road at Castle Creek Tributary #1 and Piney Branch Tributary #1

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 3100' at 24' wide	8267	SY	\$ 9.00	\$ 74,403.00
2	Excavation (6200' x 1' x 1')	230	CY	\$ 20.00	\$ 4,600.00
3	Pipe Removal, 30' pipe	30	LF	\$ 15.00	\$ 450.00
4	Pipe, 30'-24" RCP 6 times	180	LF	\$ 52.00	\$ 9,360.00
5	End Sections	12	EA	\$ 672.00	\$ 8,064.00
6	Outlet Protection (10' x 3' 12 times)	40	SY	\$ 75.00	\$ 3,000.00
7	Fill Placement & Hauling, 3100' at 30' wide and 2' c	7000	CY	\$ 20.00	\$ 140,000.00
8	Paving	8267	SY	\$ 25.00	\$ 206,675.00
9	Seeding & Mulching (3100' x 8')	2755	SY	\$ 2.00	\$ 5,510.00

Subtotal Construction Cost = \$ 452,062.00
 Mobilization & Erosion Control (10%) = \$ 45,206.00
 Traffic Maintenance (10%) = \$ 45,206.00
 Subtotal 1 = \$ 542,474.00

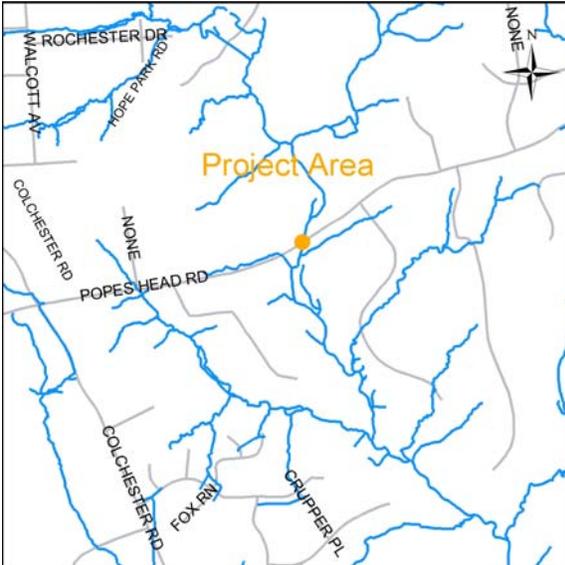
Contingency (25%) = \$ 135,619.00
 Subtotal 2 = \$ 678,093.00

Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) = \$ 339,047.00
 Total = \$ 1,017,140.00

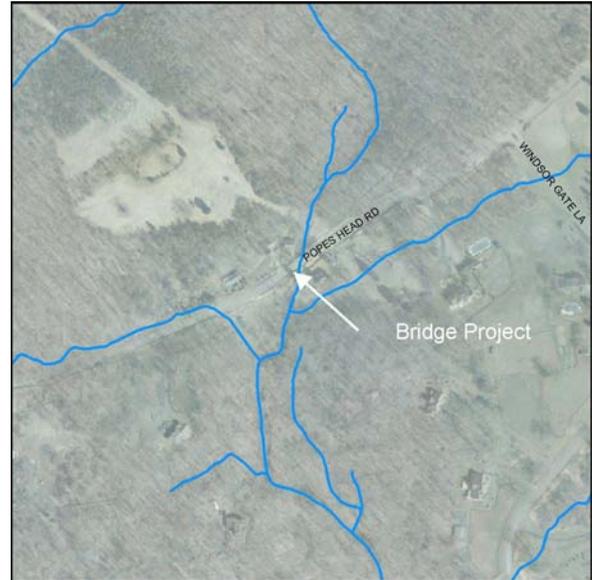
ESTIMATED PROJECT COST = \$ 1,020,000.00

Bridge Project

Structure Location: Popes Head Road.
Stream Name: Piney Branch.
Project ID: PH9452 (PB-RD-2)
Type of Structure: 50' wide bridge.



Vicinity Map.



Bridge Overview.



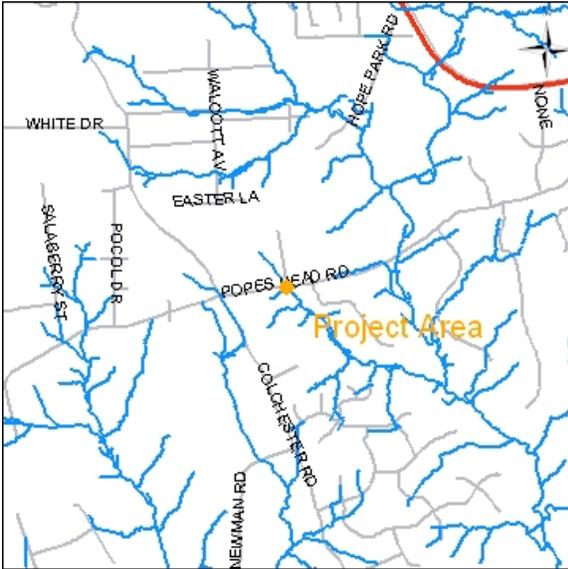
Overtopping Frequency: Existing 5-year
Future 5-year.
Proposed Project: Clear any sediment and debris buildup from bridge opening
Benefit: Reduce road flooding frequency – emergency access.
Estimated Cost: \$10,000.

PLANNING COST ESTIMATES
PH9452 - Popes Head Road at Piney Branch

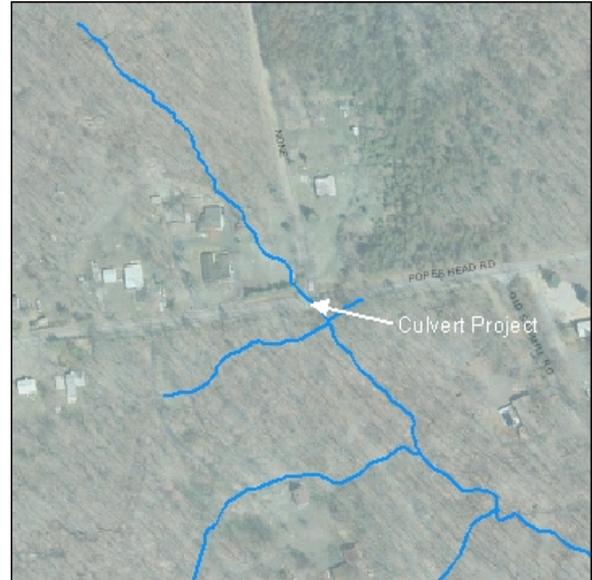
No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal	0	SY	\$ 9.00	\$ -
2	Excavation	100	CY	\$ 30.00	\$ 3,000.00
3	Pipe Removal	0	LS	\$ 10,000.00	\$ -
4	Box Culvert	0	LF	\$ 500.00	\$ -
5	Headwalls	0	CY	\$ 350.00	\$ -
6	Outlet Protection	0	SY	\$ 75.00	\$ -
7	Fill Placement & Hauling	0	CY	\$ 20.00	\$ -
8	Paving	0	SY	\$ 25.00	\$ -
9	Seeding & Mulching	120	SY	\$ 2.00	\$ 240.00
Subtotal Construction Cost = \$					3,240.00
Mobilization & Erosion Control (10%) = \$					324.00
Traffic Maintenance (10%) = \$					324.00
Subtotal 1 = \$					3,888.00
Contingency (25%) = \$					972.00
Subtotal 2 = \$					4,860.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) = \$					2,430.00
Total = \$					7,290.00
ESTIMATED PROJECT COST = \$					10,000.00

Culvert Replacement

Structure Location: Popes Head Road.
 Stream Name: Piney Branch unnamed tributary.
 Project ID: PH9453
 Type of Structure: (1) 12" pipe and (1) 18" pipe.



Vicinity Map.



Culvert Overview.



Existing Culvert



Existing Culvert

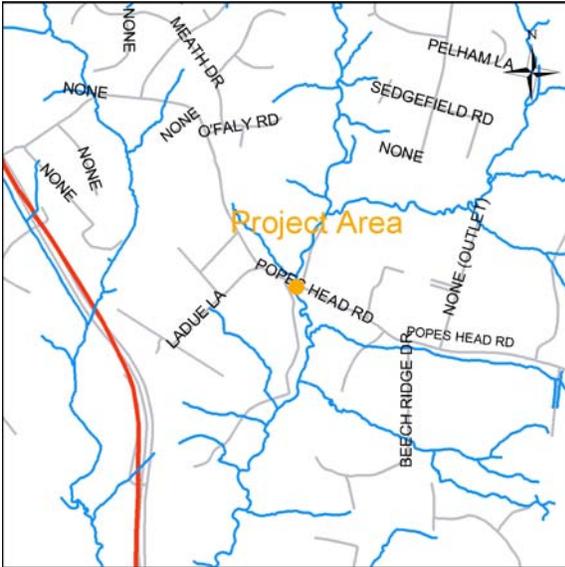
Proposed Project: Replace with (1) 48" pipe and raise road by 3.5 feet for 300 feet length
 Benefit: Reduce road flooding frequency – emergency access.
 Estimated Cost: \$180,000.

PLANNING COST ESTIMATES
PH9453 - Popes Head Road #2 at Piney Branch unnamed tributary

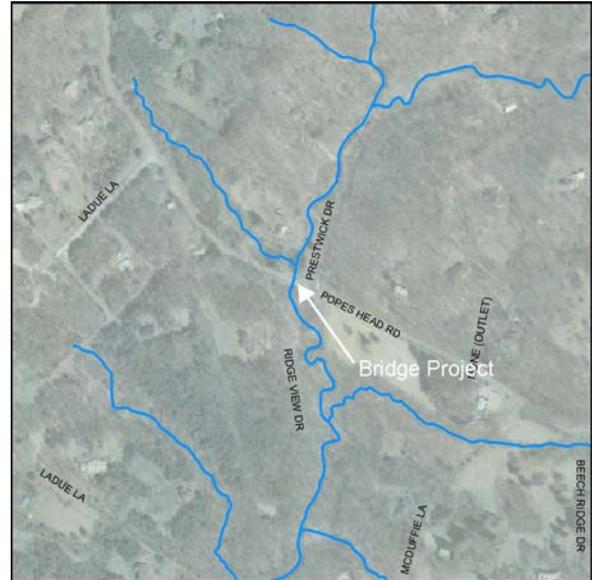
No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 400' at 30' wide	1350	SY	\$ 9.00	\$ 12,150.00
2	Excavation	40	CY	\$ 30.00	\$ 1,200.00
3	Pipe Removal, 2-30' pipe	60	LF	\$ 15.00	\$ 900.00
4	Pipe, 30'-48" RCP	30	LF	\$ 150.00	\$ 4,500.00
5	Headwalls	4	CY	\$ 75.00	\$ 300.00
6	Outlet Protection	10	SY	\$ 46.00	\$ 460.00
7	Fill Placement & Hauling, 400' at 40' wide and 2' d€	1200	CY	\$ 20.00	\$ 24,000.00
8	Paving	1350	SY	\$ 25.00	\$ 33,750.00
9	Seeding & Mulching	600	SY	\$ 2.00	\$ 1,200.00
Subtotal Construction Cost =					\$ 78,460.00
Mobilization & Erosion Control (10%) =					\$ 7,846.00
Traffic Maintenance (10%) =					\$ 7,846.00
Subtotal 1 =					\$ 94,152.00
Contingency (25%) =					\$ 23,538.00
Subtotal 2 =					\$ 117,690.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) =					\$ 58,845.00
Total =					\$ 176,535.00
ESTIMATED PROJECT COST =					\$ 180,000.00

Bridge Project

Structure Location: Popes Head Road.
Stream Name: Popes Head Creek.
Project ID: PH9461 (PH2-RD-3)
Type of Structure: 25' wide bridge.



Vicinity Map.



Bridge Overview.



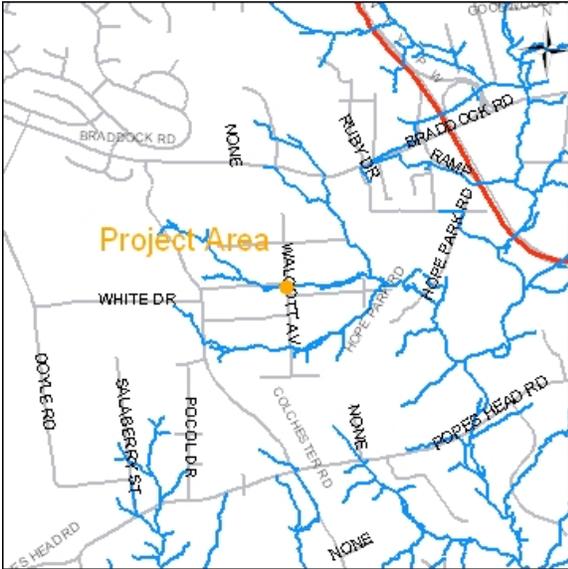
Overtopping Frequency: Existing 1-year
Future 1-year.
Proposed Project: Raise road and replace structure
Benefit: Reduce road flooding frequency – emergency access.
Estimated Cost: \$1,050,000

PLANNING COST ESTIMATES
PH9461 - Popes Head Road at Popes Head Creek

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 400' at 24' wide	1100	SY	\$ 9.00	\$ 9,900.00
2	Excavation	180	CY	\$ 30.00	\$ 5,400.00
3	Bridge Removal	1	LS	\$ 18,000.00	\$ 18,000.00
4	Bridge - 100' x 30' wide	3000	SF	\$ 110.00	\$ 330,000.00
6	Outlet Protection	0	SY	\$ 75.00	\$ -
7	Fill Placement & Hauling, 400' at 40' wide and 6' dk	3600	CY	\$ 20.00	\$ 72,000.00
8	Paving	1100	SY	\$ 25.00	\$ 27,500.00
9	Seeding & Mulching	500	SY	\$ 2.00	\$ 1,000.00
Subtotal Construction Cost = \$					463,800.00
Mobilization & Erosion Control (10%) = \$					46,380.00
Traffic Maintenance (10%) = \$					46,380.00
Subtotal 1 = \$					556,560.00
Contingency (25%) = \$					139,140.00
Subtotal 2 = \$					695,700.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) = \$					347,850.00
Total = \$					1,043,550.00
ESTIMATED PROJECT COST = \$					1,050,000.00

Culvert Replacement

Structure Location: Walcott Avenue.
Stream Name: Piney Branch unnamed tributary.
Project ID: PH9462
Type of Structure: 21" diameter corrugated metal pipe.



Vicinity Map.



Culvert Overview.



Existing culvert

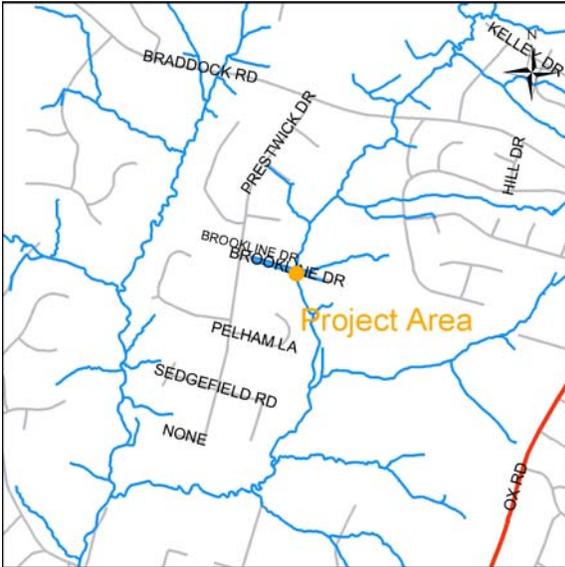
Proposed Project: Replace with a 5'x4' box culvert and raise road 2 feet.
Benefit: Reduce road flooding frequency – emergency access.
Estimated Cost: \$100,000.

PLANNING COST ESTIMATES
PH9462 - Walcott Road at Piney Branch unnamed tributary

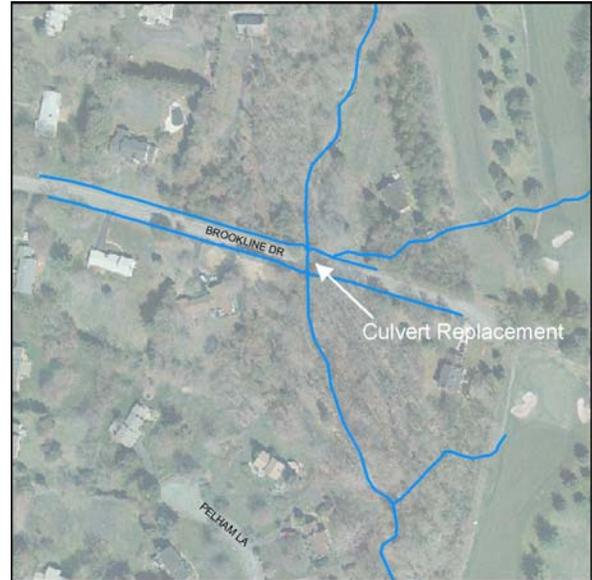
No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal, 200' at 30' wide	670	SY	\$ 9.00	\$ 6,030.00
2	Excavation	20	CY	\$ 30.00	\$ 600.00
3	Pipe Removal, 30' pipe	30	LF	\$ 15.00	\$ 450.00
4	Box Culvert 30'- 5' x 4' RCBC	30	LF	\$ 340.00	\$ 10,200.00
5	Headwalls	5	CY	\$ 350.00	\$ 1,750.00
6	Outlet Protection	10	SY	\$ 75.00	\$ 750.00
7	Fill Placement & Hauling, 200' at 40' wide and 1' d€	300	CY	\$ 20.00	\$ 6,000.00
8	Paving	670	SY	\$ 25.00	\$ 16,750.00
9	Seeding & Mulching	600	SY	\$ 2.00	\$ 1,200.00
Subtotal Construction Cost = \$					43,730.00
Mobilization & Erosion Control (10%) = \$					4,373.00
Traffic Maintenance (10%) = \$					4,373.00
Subtotal 1 = \$					52,476.00
Contingency (25%) = \$					13,119.00
Subtotal 2 = \$					65,595.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) = \$					32,798.00
Total = \$					98,393.00
ESTIMATED PROJECT COST = \$					100,000.00

Culvert Replacement

Structure Location: Brookline Drive.
Stream Name: East Fork.
Project ID: PH9470 (EF-RD-2)
Type of Structure: 18' x 8' corrugated metal pipe arch.



Vicinity Map.



Culvert Overview.



Overtopping Frequency: Existing 10-year
Future 5-year.
Proposed Project: Replace structure
Benefit: Reduce road flooding frequency – emergency access.
Estimated Cost: \$300,000.

PLANNING COST ESTIMATES
PH9470 - Brookline Drive at East Fork

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Pavement Removal. 80' at 24' wide	220	SY	\$ 9.00	\$ 1,980.00
2	Excavation	180	CY	\$ 30.00	\$ 5,400.00
3	Pipe Removal	1	LS	\$ 15,000.00	\$ 15,000.00
4	Box Culvert 2- 40' 10 x 8' RCBC	80	LF	\$ 1,200.00	\$ 96,000.00
5	Headwalls	7	CY	\$ 350.00	\$ 2,450.00
6	Outlet Protection	50	SY	\$ 75.00	\$ 3,750.00
7	Fill Placement & Hauling	0	CY	\$ 20.00	\$ -
8	Paving	220	SY	\$ 25.00	\$ 5,500.00
9	Seeding & Mulching	120	SY	\$ 2.00	\$ 240.00
Subtotal Construction Cost =					\$ 130,320.00
Mobilization & Erosion Control (10%) =					\$ 13,032.00
Traffic Maintenance (10%) =					\$ 13,032.00
Subtotal 1 =					\$ 156,384.00
Contingency (25%) =					\$ 39,096.00
Subtotal 2 =					\$ 195,480.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (50%) =					\$ 97,740.00
Total =					\$ 293,220.00
ESTIMATED PROJECT COST =					\$ 300,000.00