

APPENDIX E

Engineers Conceptual Opinion of Cost Calculations

Feasibility Study for the Extension of Malin Road
Pennsylvania Avenue and Warren Avenue Improvements
Engineer's Opinion of Cost

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
1	Clearing & Grubbing		LS	1	\$15,000.00	\$15,000.00
2	Roadway Excavation for Partial Reconstruction		CY	1,250	\$30.00	\$37,500.00
3	Full Width Pavement Reclamation		SY	5,400	\$12.00	\$64,800.00
4	Full Depth Bituminous Pavement		SY	1,900	\$45.00	\$85,500.00
5	Bituminous Overlay (wearing over binder)		SY	5,400	\$14.00	\$75,600.00
6	Driveway Adjustments		LS	1	\$50,000.00	\$50,000.00
7	Plain Cement Concrete Sidewalk, 5' wide		SY	900	\$100.00	\$90,000.00
8	Plain Cement Concrete Curb		LF	3,200	\$22.00	\$70,400.00
9	Drainage (Inlets & Pipe)		LS	1	\$130,000.00	\$130,000.00
10	Pavement Marking		LF	3,200	\$2.00	\$6,400.00
11	Signage		LS	1	\$2,000.00	\$2,000.00
12	Intersection Improvements at Warren Avenue		LS	1	\$225,000.00	\$225,000.00
13	Pedestrian Improvements along Warren Avenue		SY	550	\$125.00	\$68,750.00
14	Final Grading, Restoration and Erosion & Sediment Control		LS	1	\$60,000.00	\$60,000.00
15	Sub-total Construction Cost	Items 1 - 14				\$980,950.00
16	Maintenance & Protection of Traffic During Construction	10% of Items 15				\$98,095.00
17	Mobilization and Construction Surveying	8% of Items 15				\$78,476.00
18	Contingency and Escalation	10% of Items 15				\$98,095.00
19	Total Construction Cost	Items 15 & 16 - 18				\$1,255,616.00
20	Engineering and Permitting	15% of Item 19				\$188,342.40
21	Construction Inspection	12% of Item 19				\$150,673.92
22	Utility Relocation Cost					\$250,000.00
23	Right of Way Cost (1.2 ac. Permanent and 0.73 ac. Temp. Constr. Easement)					\$258,250.00
24	Total Project Cost	Items 19 - 24				\$1,914,539.92

Feasibility Study for the Extension of Malin Road
Malin Road Extension
Engineer's Opinion of Cost

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
1	Clearing & Grubbing		LS	1	\$185,000.00	\$185,000.00
2	Class 1 Excavation (including embankment)		CY	224,562	\$10.00	\$2,245,620.00
3	Full Depth Bituminous Pavement		SY	15,750	\$45.00	\$708,750.00
4	Off-Road Trail, 5' wide		SY	3,060	\$30.00	\$91,800.00
5	Plain Cement Concrete Sidewalk/ADA Ramps		LS	1	\$16,000.00	\$16,000.00
6	Plain Cement Concrete Curb		LF	1,900	\$22.00	\$41,800.00
7	New Roadway Drainage (Inlets & Pipe)		LS	1	\$600,000.00	\$600,000.00
8	Stormwater Culvert for Little Valley Creek Crossing		LF	110	\$2,000.00	\$220,000.00
9	Stormwater Culvert for Unnamed Tributary Crossing		LF	150	\$2,000.00	\$300,000.00
10	Pavement Marking		LF	4,400	\$2.00	\$8,800.00
11	Signage		LS	1	\$10,000.00	\$10,000.00
12	Retaining Walls		LS	1	\$800,000.00	\$800,000.00
13	Intersection Improvements at Lancaster Avenue		LS	1	\$300,000.00	\$300,000.00
14	Railroad Bridge over Malin Road Abutment Underpinning		LS	1	\$200,000.00	\$200,000.00
15	Traffic Signal Modifications at Lancaster Avenue		LS	1	\$110,000.00	\$110,000.00
16	Pedestrian Underpass at Malin Road Railroad Bridge		LS	1	\$1,500,000.00	\$1,500,000.00
17	New Traffic Signal at Warren Avenue		LS	1	\$110,000.00	\$110,000.00
18	Environmental Mitigation		LS	1	\$75,000.00	\$75,000.00
19	Stormwater Management Basins		SF	62,000	\$7.50	\$465,000.00
20	Post Construction Stormwater BMP's		LS	1	\$150,000.00	\$150,000.00
21	Final Grading, Restoration and Erosion & Sediment Control		LS	1	\$400,000.00	\$400,000.00
22	Sub-total Construction Cost	Items 1 - 21				\$8,537,770.00
23	Maintenance & Protection of Traffic During Construction					\$40,000.00
24	Mobilization and Construction Surveying	8% of Items 22				\$683,021.60
25	Contingency and Escalation	10% of Items 22				\$853,777.00
26	Total Construction Cost	Items 22 & 23 - 25				\$10,114,568.60
27	Engineering and Permitting	12% of Item 26				\$1,213,748.23
28	Construction Inspection	12% of Item 26				\$1,213,748.23
29	Utility Relocation/Adjustment Cost					\$350,000.00
30	Right of Way Cost (16.5 ac. Permanent and 1.5 ac. Temp. Constr. Easement)					\$3,337,500.00
31	Total Project Cost	Items 26 - 30				\$15,015,816.83

**Feasibility Study for the Extension of Malin Road
Three Tun Road Extension
Engineer's Opinion of Cost**

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
1	Clearing & Grubbing		LS	1	\$125,000.00	\$125,000.00
2	Class 1 Excavation (including embankment)		CY	28,895	\$15.00	\$433,425.00
3	Foreign Borrow Excavation		CY	300	\$30.00	\$9,000.00
4	Full Depth Bituminous Pavement		SY	14,364	\$45.00	\$646,380.00
5	Full Depth Pavement Patching (Three Tun Road)	35% of Ex. Road	SY	3,500	\$45.00	\$157,500.00
6	Milling and Bituminous Overlay		SY	10,000	\$8.50	\$85,000.00
7	Off-Road Trail, 5' wide		SY	2,261	\$30.00	\$67,830.00
8	Plain Cement Concrete Sidewalk, 5' wide	Three Tun Road	SY	1,800	\$65.00	\$117,000.00
9	Plain Cement Concrete Curb		LF	1,700	\$22.00	\$37,400.00
10	New Roadway Drainage (Inlets & Pipe)		LS	1	\$400,000.00	\$400,000.00
11	Stormwater Culvert for Three Tun Road Extension	Circular Pipe	LF	100	\$225.00	\$22,500.00
12	Remediation of the existing Three Tun Road Double Culvert		LS	1	\$10,000.00	\$10,000.00
13	Pavement Marking		LF	18,200	\$2.00	\$36,400.00
14	Signage		LS	1	\$7,500.00	\$7,500.00
15	Intersection Improvements at PA Route 352		LS	1	\$300,000.00	\$300,000.00
16	Intersection Improvements at Lancaster Avenue		LS	1	\$300,000.00	\$300,000.00
17	Railroad Bridge over Malin Road Abutment Underpinning		LS	1	\$200,000.00	\$200,000.00
18	Pedestrian Underpass at Malin Road Railroad Bridge		LS	1	\$1,500,000.00	\$1,500,000.00
19	New Traffic Signal at PA Route 352 and Three Tun Road		LS	1	\$150,000.00	\$150,000.00
20	Traffic Signal Modifications at Lancaster Avenue		LS	1	\$110,000.00	\$110,000.00
21	Stormwater Management Basins		SF	20,000	\$7.50	\$150,000.00
22	Post Construction Stormwater BMP's		LS	1	\$100,000.00	\$100,000.00
23	Final Grading, Restoration and Erosion & Sediment Control		LS	1	\$270,000.00	\$270,000.00
24	Sub-total Construction Cost	Items 1 - 23				\$5,234,935.00
25	Maintenance & Protection of Traffic During Construction	5% of Items 24				\$261,746.75
26	Mobilization and Construction Surveying	8% of Items 24				\$418,794.80
27	Contingency and Escalation	10% of Items 24				\$523,493.50
28	Total Construction Cost	Items 24 & 25 - 27				\$6,438,970.05
29	Engineering and Permitting	12% of Item 28				\$772,676.41
30	Construction Inspection	12% of Item 28				\$772,676.41
31	Utility Relocation Cost					\$400,000.00
32	Right of Way Cost (5.86 ac. Permanent and 1.5 ac. Temp. Constr. Easement)					\$1,209,500.00
33	Total Project Cost	Items 28 - 32				\$8,821,146.46