

Grade Separation Facility Study on the BNSF Mainline

East Grand Forks, Minnesota

**Grand Forks - East Grand Forks
Metropolitan Planning Organization**

January, 2000

File No. 652-99-100



APPENDIX

Appendix

Summary of Options 1 Through 4 Construction Costs		
Option 1 - Central Avenue Overpass With No 4th Street Access		
Total Construction Cost =		<u>\$7,414,615.00</u>
Option 2 - Central Avenue Underpass Spine With 4th Street Access		
Total Construction Cost =		<u>\$6,735,263.00</u>
Option 3 - Central Avenue Underpass Spine With No 4th Street Access		
Total Construction Cost =		<u>\$6,778,895.00</u>
Option 4 - 2nd Avenue Underpass Spine With 4th Street Access		
<u>Preferred</u>	Total Construction Cost =	<u>\$6,532,106.00</u>

** A detailed summary of each of the Option is presented on the following 13 pages of the Appendix.*

Option 1 - Central Avenue Overpass With No 4th Street Access

Street Construction **Total Construction Cost = \$7,414,615.00**

Item	Unit	Quantity	Unit Cost	Total Cost
Traffic Control	LS	1	\$25,000.00	\$25,000.00
Remove Bituminous Pavement	SY	114400	\$1.25	\$143,000.00
Remove Curb & Gutter	LF	4400	\$5.00	\$22,000.00
Common Excavation	CY	13859	\$3.75	\$51,973.00
Class 5 Aggregate (8")	TN	6305	\$8.00	\$50,442.00
Select Granular (3')	CY	18733	\$7.00	\$131,133.00
Geotextile Fabric I (road - granular)	SY	13889	\$2.20	\$30,556.00
Geotextile Fabric II (tire containment)	SY	20751	\$2.20	\$45,653.00
Shredded Tires	CY	27668	\$8.60	\$237,947.00
Bituminous Pavement (6")	TN	3510	\$31.00	\$108,810.00
Sidewalk	LF	1600	\$3.00	\$4,800.00
Bike & Pedestrian Trail	LF	1600	\$6.00	\$9,600.00
Curb & Gutter	LF	7000	\$10.00	\$70,000.00
Striping	LF	9000	\$0.33	\$2,970.00
Lighting	EA	22	\$3,000.00	\$66,000.00
Landscape & Erosion Control	LS	1	\$50,000.00	\$50,000.00
Right of Way Acquisition & Easements	LS	1	\$2,000,000.00	\$250,000.00
Street Construction Subtotal				\$1,299,884.00

Potential Sanitary Sewer

Item	Unit	Quantity	Unit Cost	Total Cost
8-inch PVC, Schedule SDR 35, 6'-8' deep in place	LF	200	\$19.00	\$3,800.00
8-inch PVC, Schedule SDR 35, 8'-10' deep in place	LF	400	\$20.00	\$8,000.00
8-inch PVC, Schedule SDR 35, 10'-12' deep in place	LF	200	\$21.00	\$4,200.00
Std. 4' dia. MH, 8'dp. W/R1642B cstg. in place	EA	6	\$1,200.00	\$7,200.00
Manhole depth greater than 8'	LF	12	\$120.00	\$1,440.00
8"x6" PVC wye branch, Schedule SDR 35 in place, serv stub	EA	4	\$80.00	\$320.00
6" PVC, Schedule 40, sewer service	LF	150	\$14.00	\$2,100.00
6" PVC Riser, Schedule 40, in place	LF	50	\$14.00	\$700.00
Outside drop pipe in place	LF	2	\$200.00	\$400.00
Televise sanitary sewer	LF	800	\$0.50	\$400.00
Improved pipe fdn. mtl. 6" thick in place	LF	800	\$1.00	\$800.00
1-1/2 inch clear rock for mud break, in place	TN	20	\$15.00	\$300.00
Subtotal of Potential Sanitary Sewer				\$29,660.00

Option 1 - Potential Storm Sewer

Item	Unit	Quantity	Unit Cost	Total Cost
30" RCP, Class 5, 0'-8' deep in place	LF	300	\$33.00	\$9,900.00
24" RCP, Class 5, 0'-8' deep in place	LF	750	\$30.00	\$22,500.00
18" RCP, Class 5, 0'-8' deep in place	LF	600	\$25.00	\$15,000.00
15" RCP, Class 5, 0'-8' deep in place	LF	600	\$23.00	\$13,800.00
18" RCP, flared end section, in place	EA	6	\$500.00	\$3,000.00
Rip Rap, in place	TN	50	\$50.00	\$2,500.00
Granular filter material	SY	90	\$20.00	\$1,800.00
Standard 4' diameter CBMH w/casting in place	EA	16	\$1,500.00	\$24,000.00
Improved pipe fnd. Mat'l., 6" thick	LF	1200	\$1.00	\$1,200.00
Erosion control system, CB protection	EA	4	\$50.00	\$200.00
Emergency overflow swale grading & restoration	SY	250	\$3.00	\$750.00
Subtotal of Potential Storm Sewer				\$94,650.00

Option 1 - Potential Water Main

Item	Unit	Quantity	Unit Cost	Total Cost
8" DIP CI/ 52 in place	LF	300	\$19.25	\$5,775.00
10" DIP CI/ 52 in place	LF	100	\$24.00	\$2,400.00
8" gate valve and box in place	EA	4	\$700.00	\$2,800.00
WB-67 hydrant in place	EA	4	\$1,400.00	\$5,600.00
C.I. Fittings in place	LB	900	\$1.50	\$1,350.00
6" DIP CI/ 52, domestic and fire service, in place	LF	120	\$17.00	\$2,040.00
Improved pipe fnd. Mtl. 6" thick in place	LF	400	\$1.00	\$400.00
Subtotal of Potential Water Main				\$20,365.00

65Option 1 - Railroad Construction

Item	Unit	Quantity	Unit Cost	Total Cost
RR Shoofly	LF	0	\$250.00	\$0.00
RR Grade Sag	LF	0	\$170.00	\$0.00
Subtotal of Railroad Construction				\$0.00

Option 1 - Bridge & Retaining Wall Structures

Item	Unit	Quantity	Unit Cost	Total Cost
Central Avenue Bridge	SF	16200	\$80.00	\$1,296,000.00
8' Retaining Wall	LF	250	\$1,600.00	\$400,000.00
10' Retaining Wall	LF	250	\$2,200.00	\$550,000.00
17' Retaining Wall	LF	250	\$3,200.00	\$800,000.00
23' Retaining Wall	LF	250	\$4,200.00	\$1,050,000.00
29' Retaining Wall	LF	200	\$6,000.00	\$1,200,000.00
Subtotal of Bridge & Structures				\$5,296,000.00

Total Construction Subtotal	\$6,740,559.00
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10% CONTINGENCIES	\$674,056.00
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TOTAL CONSTRUCTION COST	\$7,414,615.00
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20% ENGINEERING, LEGAL, ADMIN.	\$1,482,923.00
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MINUS FACILITIES STUDY	\$35,000.00
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TOTAL PROJECT COST	\$8,862,538.00
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Option 2 - Central Avenue Underpass Spine With 4th Street Access

Street Construction **Total Construction Cost = \$6,735,263.00**

Item	Unit	Quantity	Unit Cost	Total Cost
Traffic Control	LS	1	\$25,000.00	\$25,000.00
Remove Bituminous Pavement	SY	114400	\$1.25	\$143,000.00
Remove Curb & Gutter	LF	4400	\$5.00	\$22,000.00
Common Excavation	CY	30867	\$4.00	\$123,467.00
Class 5 Aggregate (8")	TN	6868	\$8.00	\$54,946.00
Select Granular (3')	CY	15867	\$7.00	\$111,067.00
Geotextile Fabric I (road - granular)	SY	8333	\$2.20	\$18,334.00
Geotextile Fabric II (tire containment)	SY	0	\$2.20	\$0.00
Shredded Tires	CY	0	\$8.60	\$0.00
Bituminous Pavement (6")	TN	4455	\$31.00	\$138,105.00
Sidewalk	LF	1600	\$3.00	\$4,800.00
Bike & Pedestrian Trail	LF	1600	\$6.00	\$9,600.00
Curb & Gutter	LF	6600	\$10.00	\$66,000.00
Striping	LF	9000	\$0.33	\$2,970.00
Lighting	EA	22	\$3,000.00	\$66,000.00
Landscape & Erosion Control	LS	1	\$50,000.00	\$50,000.00
Right of Way Acquisition & Easments	LS	1	\$250,000.00	\$250,000.00
Street Construction Subtotal				\$1,085,289.00

Potential Sanitary Sewer

Item	Unit	Quantity	Unit Cost	Total Cost
8-inch PVC, Schedule SDR 35, 6'-8' deep in place	LF	200	\$19.00	\$3,800.00
8-inch PVC, Schedule SDR 35, 8'-10' deep in place	LF	400	\$20.00	\$8,000.00
8-inch PVC, Schedule SDR 35, 10'-12' deep in place	LF	200	\$21.00	\$4,200.00
Std. 4' dia. MH, 8'dp. W/R1642B csgt. in place	EA	6	\$1,200.00	\$7,200.00
Manhole depth greater than 8'	LF	12	\$120.00	\$1,440.00
8"x6" PVC wye branch, Schedule SDR 35 in place, serv stub	EA	4	\$80.00	\$320.00
6" PVC, Schedule 40, sewer service	LF	150	\$14.00	\$2,100.00
6" PVC Riser, Schedule 40, in place	LF	50	\$14.00	\$700.00
Outside drop pipe in place	LF	2	\$200.00	\$400.00
Televise sanitary sewer	LF	800	\$0.50	\$400.00
Improved pipe fdn. mtl. 6" thick in place	LF	800	\$1.00	\$800.00
1-1/2 inch clear rock for mud break, in place	TN	20	\$15.00	\$300.00
Subtotal of Potential Sanitary Sewer				\$29,660.00

Option 2 - Potential Storm Sewer

Item	Unit	Quantity	Unit Cost	Total Cost
30" RCP, Class 5, 0'-8' deep in place	LF	500	\$33.00	\$16,500.00
24" RCP, Class 5, 0'-8' deep in place	LF	900	\$30.00	\$27,000.00
18" RCP, Class 5, 0'-8' deep in place	LF	600	\$25.00	\$15,000.00
15" RCP, Class 5, 0'-8' deep in place	LF	600	\$23.00	\$13,800.00
18" RCP, flared end section, in place	EA	6	\$500.00	\$3,000.00
Rip Rap, in place	TN	50	\$50.00	\$2,500.00
Granular filter material	SY	90	\$20.00	\$1,800.00
Standard 4' diameter CBMH w/casting in place	EA	18	\$1,500.00	\$27,000.00
Improved pipe fnd. Mat'l., 6" thick	LF	1200	\$1.00	\$1,200.00
Erosion control system, CB protection	EA	4	\$50.00	\$200.00
Emergency overflow swale grading & restoration	SY	250	\$3.00	\$750.00
Subtotal of Potential Storm Sewer				\$108,750.00

Option 2 - Potential Water Main

Item	Unit	Quantity	Unit Cost	Total Cost
8" DIP CI/ 52 in place	LF	300	\$19.25	\$5,775.00
10" DIP CI/ 52 in place	LF	100	\$24.00	\$2,400.00
8" gate valve and box in place	EA	4	\$700.00	\$2,800.00
WB-67 hydrant in place	EA	4	\$1,400.00	\$5,600.00
C.I. Fittings in place	LB	900	\$1.50	\$1,350.00
6" DIP CI/ 52, domestic and fire service, in place	LF	120	\$17.00	\$2,040.00
Improved pipe fnd. Mtl. 6" thick in place	LF	400	\$1.00	\$400.00
Subtotal of Potential Water Main				\$20,365.00

Option 2 - Railroad Construction

Item	Unit	Quantity	Unit Cost	Total Cost
RR Shoofly				
Common Excavation	CY	5,185	\$4.50	\$23,334.00
Sub-ballast (2' of Class 5)	CY	4,148	\$9.50	\$39,408.00
Ballast (8" below ties + between ties)	CY	1,162	\$12.50	\$14,526.00
RR Ties	EA	2000	\$9.00	\$18,000.00
Rail	LF	2000	\$110.00	\$220,000.00
Switch	EA	2	\$100,000.00	\$200,000.00
RR Grade Raise				
Common Excavation	CY	1,037	\$4.50	\$4,667.00
Sub-ballast (12" Class 5)	CY	2,074	\$9.50	\$19,704.00
Ballast (8" below ties + between ties)	CY	581	\$12.50	\$7,263.00
RR Ties	EA	1000	\$9.00	\$9,000.00
Salvage & Reinstall Rail	LF	1000	\$12.00	\$12,000.00
Subtotal of Railroad Construction				\$567,902.00

Option 2 - Bridge & Retaining Wall Structures

Item	Unit	Quantity	Unit Cost	Total Cost
RR Bridge	SF	1140	\$650.00	\$741,000.00
10' Retaining Wall	LF	450	\$2,200.00	\$990,000.00
17' Retaining Wall	LF	300	\$3,400.00	\$1,020,000.00
23' Retaining Wall	LF	300	\$4,700.00	\$1,410,000.00
Lift Station	EA	1	\$150,000.00	\$150,000.00
Subtotal of Bridge & Structures				\$4,311,000.00

Total Construction Subtotal			\$6,122,966.00
10% CONTINGENCIES			\$612,297.00
TOTAL CONSTRUCTION COST			\$6,735,263.00
20% ENGINEERING, LEGAL, ADMIN.			\$1,347,053.00
MINUS FACILITIES STUDY			\$35,000.00
TOTAL PROJECT COST			\$8,047,316.00

Option 3 - Central Avenue Underpass Spine With No 4th Street Access

Street Construction **Total Construction Cost = \$6,778,895.00**

Item	Unit	Quantity	Unit Cost	Total Cost
Traffic Control	LS	1	\$25,000.00	\$25,000.00
Remove Bituminous Pavement	SY	114400	\$1.25	\$143,000.00
Remove Curb & Gutter	LF	4400	\$5.00	\$22,000.00
Common Excavation	CY	30867	\$4.00	\$123,467.00
Class 5 Aggregate (8")	TN	6868	\$8.00	\$54,946.00
Select Granular (3')	CY	15867	\$7.00	\$111,067.00
Geotextile Fabric I (road - granular)	SY	0	\$2.20	\$0.00
Geotextile Fabric II (tire containment)	SY	0	\$2.20	\$0.00
Shreaded Tires	CY	0	\$8.60	\$0.00
Bituminous Pavement (6")	TN	4455	\$31.00	\$138,105.00
Sidewalk	LF	1600	\$3.00	\$4,800.00
Bike & Pedestrian Trail	LF	1600	\$6.00	\$9,600.00
Curb & Gutter	LF	6600	\$10.00	\$66,000.00
Striping	LF	9000	\$0.33	\$2,970.00
Lighting	EA	0	\$3,000.00	\$0.00
Landscape & Erosion Control	LS	1	\$50,000.00	\$50,000.00
Right of Way Acquisition & Easments	LS	1	\$250,000.00	\$150,000.00
Street Construction Subtotal				\$900,955.00

Potential Sanitary Sewer

Item	Unit	Quantity	Unit Cost	Total Cost
8-inch PVC, Schedule SDR 35, 6'-8' deep in place	LF	200	\$19.00	\$3,800.00
8-inch PVC, Schedule SDR 35, 8'-10' deep in place	LF	400	\$20.00	\$8,000.00
8-inch PVC, Schedule SDR 35, 10'-12' deep in place	LF	200	\$21.00	\$4,200.00
Std. 4' dia. MH, 8'dp. W/R1642B cstg. in place	EA	6	\$1,200.00	\$7,200.00
Manhole depth greater than 8'	LF	12	\$120.00	\$1,440.00
8"x6" PVC wye branch, Schedule SDR 35 in place, serv stub	EA	4	\$80.00	\$320.00
6" PVC, Schedule 40, sewer service	LF	150	\$14.00	\$2,100.00
6" PVC Riser, Schedule 40, in place	LF	50	\$14.00	\$700.00
Outside drop pipe in place	LF	2	\$200.00	\$400.00
Televise sanitary sewer	LF	800	\$0.50	\$400.00
Improved pipe fdn. mtl. 6" thick in place	LF	800	\$1.00	\$800.00
1-1/2 inch clear rock for mud break, in place	TN	20	\$15.00	\$300.00
Subtotal of Potential Sanitary Sewer				\$29,660.00

Option 3 - Potential Storm Sewer

Item	Unit	Quantity	Unit Cost	Total Cost
30" RCP, Class 5, 0'-8' deep in place	LF	500	\$33.00	\$16,500.00
24" RCP, Class 5, 0'-8' deep in place	LF	900	\$30.00	\$27,000.00
18" RCP, Class 5, 0'-8' deep in place	LF	600	\$25.00	\$15,000.00
15" RCP, Class 5, 0'-8' deep in place	LF	600	\$23.00	\$13,800.00
18" RCP, flared end section, in place	EA	6	\$500.00	\$3,000.00
Rip Rap, in place	TN	50	\$50.00	\$2,500.00
Granular filter material	SY	90	\$20.00	\$1,800.00
Standard 4' diameter CBMH w/casting in place	EA	18	\$1,500.00	\$27,000.00
Improved pipe fnd. Mat'l., 6" thick	LF	1200	\$1.00	\$1,200.00
Erosion control system, CB protection	EA	4	\$50.00	\$200.00
Emergency overflow swale grading & restoration	SY	250	\$3.00	\$750.00
Subtotal of Potential Storm Sewer				\$108,750.00

Option 3 - Potential Water Main

Item	Unit	Quantity	Unit Cost	Total Cost
8" DIP CI/ 52 in place	LF	300	\$19.25	\$5,775.00
10" DIP CI/ 52 in place	LF	100	\$24.00	\$2,400.00
8" gate valve and box in place	EA	4	\$700.00	\$2,800.00
WB-67 hydrant in place	EA	4	\$1,400.00	\$5,600.00
C.I. Fittings in place	LB	900	\$1.50	\$1,350.00
6" DIP CI/ 52, domestic and fire service, in place	LF	120	\$17.00	\$2,040.00
Improved pipe fnd. Mtl. 6" thick in place	LF	400	\$1.00	\$400.00
Subtotal of Potential Water Main				\$20,365.00

Option 3 - Railroad Construction

Item	Unit	Quantity	Unit Cost	Total Cost
RR Shoofly				
Common Excavation	CY	5,185	\$4.50	\$23,334.00
Sub-ballast (2' of Class 5)	CY	4,148	\$9.50	\$39,408.00
Ballast (8" below ties + between ties)	CY	1,162	\$12.50	\$14,526.00
RR Ties	EA	2000	\$9.00	\$18,000.00
Rail	LF	2000	\$110.00	\$220,000.00
Switch	EA	2	\$100,000.00	\$200,000.00
RR Grade Raise				
Common Excavation	CY	1,037	\$4.50	\$4,667.00
Sub-ballast (12" Class 5)	CY	2,074	\$9.50	\$19,704.00
Ballast (8" below ties + between ties)	CY	581	\$12.50	\$7,263.00
RR Ties	EA	1000	\$9.00	\$9,000.00
Salvage & Reinstall Rail	LF	1000	\$12.00	\$12,000.00
Subtotal of Railroad Construction				\$567,902.00

Option 3 - Bridge & Retaining Wall Structures

Item	Unit	Quantity	Unit Cost	Total Cost
RR Bridge	SF	1140	\$650.00	\$741,000.00
4th Street Bridge	SF	3200	\$70.00	\$224,000.00
10' Retaining Wall	LF	450	\$2,200.00	\$990,000.00
17' Retaining Wall	LF	300	\$3,400.00	\$1,020,000.00
23' Retaining Wall	LF	300	\$4,700.00	\$1,410,000.00
Lift Station	EA	1	\$150,000.00	\$150,000.00
Subtotal of Bridge & Structures				\$4,535,000.00

Total Construction Subtotal			\$6,162,632.00
10% CONTINGENCIES			\$616,263.00
TOTAL CONSTRUCTION COST			\$6,778,895.00
20% ENGINEERING, LEGAL, ADMIN.			\$1,355,779.00
MINUS FACILITIES STUDY			\$35,000.00
TOTAL PROJECT COST			\$8,099,674.00

Option 4 - 2nd Avenue Underpass Spine With 4th Street Access

Street Construction **Total Construction Cost = \$6,532,106.00**

Item	Unit	Quantity	Unit Cost	Total Cost
Traffic Control	LS	1	\$25,000.00	\$25,000.00
Remove Bituminous Pavement	SY	135200	\$1.25	\$169,000.00
Remove Curb & Gutter	LF	5200	\$5.00	\$26,000.00
Common Excavation	CY	28711	\$4.00	\$114,845.00
Class 5 Aggregate (8")	TN	5531	\$8.00	\$44,249.00
Select Granular (3')	CY	12756	\$7.00	\$89,289.00
Geotextile Fabric I (road - granular)	SY	8333	\$2.20	\$18,334.00
Geotextile Fabric II (tire containment)	SY	0	\$2.20	\$0.00
Shreaded Tires	CY	0	\$8.60	\$0.00
Bituminous Pavement (6")	TN	3510	\$31.00	\$108,810.00
Sidewalk	LF	1200	\$3.00	\$3,600.00
Bike & Pedestrian Trail	LF	1100	\$6.00	\$6,600.00
Curb & Gutter	LF	5200	\$10.00	\$52,000.00
Striping	LF	7800	\$0.33	\$2,574.00
Lighting	EA	18	\$3,000.00	\$54,000.00
Landscape & Erosion Control	LS	1	\$50,000.00	\$50,000.00
Right of Way Acquisition & Easments	LS	1	\$150,000.00	\$150,000.00
Street Construction Subtotal				\$914,301.00

Potential Sanitary Sewer

Item	Unit	Quantity	Unit Cost	Total Cost
8-inch PVC, Schedule SDR 35, 6'-8' deep in place	LF	200	\$19.00	\$3,800.00
8-inch PVC, Schedule SDR 35, 8'-10' deep in place	LF	400	\$20.00	\$8,000.00
8-inch PVC, Schedule SDR 35, 10'-12' deep in place	LF	200	\$21.00	\$4,200.00
Std. 4' dia. MH, 8'dp. W/R1642B cstg. in place	EA	6	\$1,200.00	\$7,200.00
Manhole depth greater than 8'	LF	12	\$120.00	\$1,440.00
8"x6" PVC wye branch, Schedule SDR 35 in place, serv stub	EA	4	\$80.00	\$320.00
6" PVC, Schedule 40, sewer service	LF	150	\$14.00	\$2,100.00
6" PVC Riser, Schedule 40, in place	LF	50	\$14.00	\$700.00
Outside drop pipe in place	LF	2	\$200.00	\$400.00
Televise sanitary sewer	LF	800	\$0.50	\$400.00
Improved pipe fdn. mtl. 6" thick in place	LF	800	\$1.00	\$800.00
1-1/2 inch clear rock for mud break, in place	TN	20	\$15.00	\$300.00
Subtotal of Potential Sanitary Sewer				\$29,660.00

Option 4 - Potential Storm Sewer

Item	Unit	Quantity	Unit Cost	Total Cost
30" RCP, Class 5, 0'-8' deep in place	LF	400	\$33.00	\$13,200.00
24" RCP, Class 5, 0'-8' deep in place	LF	900	\$30.00	\$27,000.00
18" RCP, Class 5, 0'-8' deep in place	LF	500	\$25.00	\$12,500.00
15" RCP, Class 5, 0'-8' deep in place	LF	400	\$23.00	\$9,200.00
18" RCP, flared end section, in place	EA	6	\$500.00	\$3,000.00
Rip Rap, in place	TN	50	\$50.00	\$2,500.00
Granular filter material	SY	90	\$20.00	\$1,800.00
Standard 4' diameter CBMH w/casting in place	EA	16	\$1,500.00	\$24,000.00
Improved pipe fnd. Mat'l., 6" thick	LF	900	\$1.00	\$900.00
Erosion control system, CB protection	EA	4	\$50.00	\$200.00
Emergency overflow swale grading & restoration	SY	250	\$3.00	\$750.00
Subtotal of Potential Storm Sewer				\$95,050.00

Option 4 - Potential Water Main

Item	Unit	Quantity	Unit Cost	Total Cost
8" DIP CI/ 52 in place	LF	300	\$19.25	\$5,775.00
10" DIP CI/ 52 in place	LF	100	\$24.00	\$2,400.00
8" gate valve and box in place	EA	4	\$700.00	\$2,800.00
WB-67 hydrant in place	EA	4	\$1,400.00	\$5,600.00
C.I. Fittings in place	LB	900	\$1.50	\$1,350.00
6" DIP CI/ 52, domestic and fire service, in place	LF	120	\$17.00	\$2,040.00
Improved pipe fdn. Mtl. 6" thick in place	LF	400	\$1.00	\$400.00
Subtotal of Potential Water Main				\$20,365.00

Option 4 - Railroad Construction

Item	Unit	Quantity	Unit Cost	Total Cost
RR Shoofly				
Common Excavation	CY	5,185	\$4.50	\$23,334.00
Sub-ballast (2' of Class 5)	CY	4,148	\$9.50	\$39,408.00
Ballast (8" below ties + between ties)	CY	1,162	\$12.50	\$14,526.00
RR Ties	EA	2000	\$9.00	\$18,000.00
Rail	LF	2000	\$110.00	\$220,000.00
Switch	EA	2	\$100,000.00	\$200,000.00
RR Grade Raise				
Common Excavation	CY	1,037	\$4.50	\$4,667.00
Sub-ballast (12" Class 5)	CY	2,074	\$9.50	\$19,704.00
Ballast (8" below ties + between ties)	CY	581	\$12.50	\$7,263.00
RR Ties	EA	1000	\$9.00	\$9,000.00
Salvage & Reinstall Rail	LF	1000	\$12.00	\$12,000.00
Subtotal of Railroad Construction				\$567,902.00

Option 4 - Bridge & Retaining Wall Structures

Item	Unit	Quantity	Unit Cost	Total Cost
RR Bridge	SF	1140	\$650.00	\$741,000.00
10' Retaining Wall	LF	450	\$2,200.00	\$990,000.00
17' Retaining Wall	LF	300	\$3,400.00	\$1,020,000.00
23' Retaining Wall	LF	300	\$4,700.00	\$1,410,000.00
Lift Station	EA	1	\$150,000.00	\$150,000.00
Subtotal of Bridge & Structures				\$4,311,000.00

Total Construction Subtotal			\$5,938,278.00
10% CONTINGENCIES			\$593,828.00
TOTAL CONSTRUCTION COST			\$6,532,106.00
20% ENGINEERING, LEGAL, ADMIN.			\$1,306,421.00
MINUS FACILITIES STUDY			\$35,000.00
TOTAL PROJECT COST			\$7,803,527.00