

APPENDIX F

PRELIMINARY CONSTRUCTION COST ESTIMATES FOR STORM SEWER SYSTEM PROJECTS

The following is an explanation of the preliminary cost estimates for the construction of each sewer system capital improvement project described in Chapter 6 of this Plan. Assumptions made to develop cost estimates for these projects are presented in the discussion below. The information below describes the unit prices used, percentages applied for contingencies, and the methods of cost estimate calculation.

After defining the location of the recommended new stormwater lines (see Figure 6-1), pipe lengths and elevations were determined from 1"=200' scale, 4-foot contour maps. All pipe costs include the pipe bedding, trenching, and installation labor and fitting costs.

Pipe	Unit Cost (per LF)
12" Drain Pipe	\$28.00
15" Drain Pipe	\$35.00
18" Drain Pipe	\$48.00
24" Drain Pipe	\$55.00
30" Drain Pipe	\$84.00
36" Drain Pipe	\$97.00

Catch basin types are dependent upon the size of the incoming pipe. For pipe sizes 18 inches or less, a simple Type I catch basin is all that is required. For 24-inch to 36-inch pipe, a Type II, 48-inch catch basin is required. All pipes 18 inches or less are buried 5 feet deep (invert elevation) and the larger pipes are buried 6 feet deep (invert elevation).

Catch Basin Type	Unit Cost
Type I	\$1,400.00 each
Type II, 48-inch	\$2,500.00 each

Volume of gravel base was calculated from the length of trench and the cross-sectional area of the trench as determined from the attached table and figure. The amount of base gravel used is half the volume calculated with the assumption that 50 percent of the backfill will utilize suitable excavated native soil that was removed from the trench. Crushed rock and hydroseeding will be assumed for the areas not lying in the Town's road right-of-way.

Material	Unit Cost
Foundation Gravel	\$48.00 per TN
Gravel Base	\$48.00 per TN
Crushed Rock	\$48.00 per TN
Seeding	\$ 0.70 per SY

In the case where the sewer line is constructed under an existing road, the costs of placing asphalt cold mix and general pavement repair are included. The depth of cold mix is assumed to be 3 inches deep, on average. Pavement repair costs are based on the square yards of surface required for trench repair.

Item	Unit Cost
Cold Mix	\$138.00 per TN
Pavement Repair	\$ 48.00 per SY

Once the above unit costs are subtotaled, additional costs are added for mobilization, environmental control (erosion), clearing and grubbing, and groundwater control. These costs are all based on a percentage of the above subtotal. For this Plan, this percentage will be 10 percent.

The total of all of the above costs is then increased for 7.7 percent sales tax and a 20 percent construction contingency. To arrive at the estimated construction costs, a 25 percent engineering and administrative contingency is then added.

**STORMWATER LINE FOR DRAINAGE BASIN NO. 4
 SPRING STREET – ARGYLE AVENUE TO FIRST STREET**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	36" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	600 LF	\$ 97.00	\$58,200.00
2.	24" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	50 LF	\$ 55.00	\$ 2,750.00
3.	Type II Catch Basin	1	\$ 2,500.00	\$ 2,500.00
4.	Connections to Existing Catch Basins	5	\$ 1,000.00	\$ 5,000.00
5.	Foundation Gravel	180 TN	\$ 48.00	\$ 8,640.00
6.	Gravel Base	740 TN	\$ 48.00	\$35,520.00
7.	Cold Mix Asphalt	70 TN	\$ 138.00	\$ 9,660.00
8.	Pavement Repair	1,090 SY	\$ 48.00	\$52,320.00
9.	Trench Safety Equipment	LUMP SUM	\$ 4,000.00	\$ 4,000.00
10.	Special Material Excavation	LUMP SUM	\$ 2,000.00	\$ 2,000.00
11.	Mobilization, etc.	LUMP SUM	\$18,100.00	\$18,100.00

Subtotal	\$198,690.00
Sales Tax (7.7%)	\$ 15,299.13
Construction Contingency (20%)	\$ 42,797.83
Estimated Construction Cost.....	\$256,786.96
Engineering and Administration (25%)	\$ 64,196.74
TOTAL.....	\$320,983.70

ESTIMATED PROJECT COST (2005)\$ 321,000*

*Note: April 2005 ENR CCI = 8194.11.

**STORMWATER LINE FOR DRAINAGE BASINS NO. 4
WEST STREET DIVERSION**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	18" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	270 LF	\$ 48.00	\$12,960.00
2.	Type I Catch Basin	1 EA	\$1,400.00	\$ 1,400.00
3.	Connections to Existing Catch Basins	2 EA	\$1,000.00	\$ 2,000.00
4.	Foundation Gravel	40 TN	\$ 48.00	\$ 1,920.00
5.	Gravel Base	140 TN	\$ 48.00	\$ 6,720.00
6.	Cold Mix Asphalt	20 TN	\$ 138.00	\$ 2,760.00
7.	Pavement Repair	230 SY	\$ 48.00	\$11,040.00
8.	Trench Safety Equipment	LUMP SUM	\$1,500.00	\$ 1,500.00
9.	Special Material Excavation	LUMP SUM	\$ 500.00	\$ 500.00
10.	Mobilization, etc.	LUMP SUM	\$4,080.00	\$ 4,080.00

Subtotal	\$44,880.00
Sales Tax (7.7%)	\$ 3,455.76
Construction Contingency (20%)	\$ 9,667.15
Estimated Construction Cost.....	\$58,002.91
Engineering and Administration (25%)	\$14,500.73
TOTAL.....	\$72,503.64

ESTIMATED PROJECT COST (2005)\$ 73,000*

*Note: April 2005 ENR CCI = 8194.11).

**STORMWATER LINE FOR DRAINAGE BASINS NO. 4
CAINES STREET DIVERSION**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	18" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	250 LF	\$ 48.00	\$12,000.00
2.	Type I Catch Basin	1 EA	\$1,400.00	\$ 1,400.00
3.	Connections to Existing Catch Basins	2 EA	\$1,000.00	\$ 2,000.00
4.	Foundation Gravel	30 TN	\$ 48.00	\$ 1,440.00
5.	Gravel Base	130 TN	\$ 48.00	\$ 6,240.00
6.	Cold Mix Asphalt	20 TN	\$ 138.00	\$ 2,760.00
7.	Pavement Repair	220 SY	\$ 48.00	\$10,560.00
8.	Trench Safety Equipment	LUMP SUM	\$1,000.00	\$ 1,000.00
9.	Special Material Excavation	LUMP SUM	\$2,000.00	\$ 2,000.00
10.	Mobilization, etc.	LUMP SUM	\$3,940.00	\$ 3,940.00

Subtotal	\$43,340.00
Sales Tax (7.7%)	\$ 3,337.18
Construction Contingency (20%)	\$ 9,335.44
Estimated Construction Cost.....	\$56,012.62
Engineering and Administration (25%)	\$14,003.16
TOTAL.....	\$70,015.78

ESTIMATED PROJECT COST (2005)\$ 70,000*

*Note: April 2005 ENR CCI = 8194.11.

**STORMWATER LINE FOR DRAINAGE BASINS NO. 4
WEB STREET DIVERSION**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	24" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	620 LF	\$ 55.00	\$34,100.00
2.	Type II Catch Basin	3 EA	\$ 2,500.00	\$ 7,500.00
3.	Connections to Existing Catch Basins	2 EA	\$ 1,000.00	\$ 2,000.00
4.	Foundation Gravel	90 TN	\$ 48.00	\$ 4,320.00
5.	Gravel Base	420 TN	\$ 48.00	\$20,160.00
6.	Cold Mix Asphalt	40 TN	\$ 138.00	\$ 5,520.00
7.	Pavement Repair	610 SY	\$ 48.00	\$29,280.00
8.	Trench Safety Equipment	LUMP SUM	\$ 1,500.00	\$ 1,500.00
9.	Special Material Excavation	LUMP SUM	\$ 3,000.00	\$ 3,000.00
10.	Mobilization, etc.	LUMP SUM	\$10,740.00	\$10,740.00

Subtotal	\$118,120.00
Sales Tax (7.7%).....	\$ 9,095.24
Construction Contingency (20%)	\$ 25,443.05
Estimated Construction Cost.....	\$152,658.29
Engineering and Administration (25%)	\$ 38,164.57
TOTAL.....	\$190,822.86

ESTIMATED PROJECT COST (2005)\$ 191,000*

*Note: April 2005 ENR CCI = 8194.11.

**STORMWATER LINE FOR DRAINAGE BASIN NO. 7
680/690 LARSON STREET**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	18" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	1,000 LF	\$ 48.00	\$48,000.00
2.	Type I Catch Basin w/ Beehive	3 EA	\$1,800.00	\$ 5,400.00
3.	Type II Catch Basin	1 EA	\$2,500.00	\$ 2,500.00
4.	Foundation Gravel	120 TN	\$ 48.00	\$ 5,760.00
5.	Gravel Base	585 TN	\$ 48.00	\$28,080.00
6.	Hydroseeding	1,111 SY	\$ 0.70	\$ 780.00
7.	Trench Safety Equipment	LUMP SUM	\$1,500.00	\$ 1,500.00
8.	Special Material Excavation	LUMP SUM	\$ 500.00	\$ 500.00
9.	Mobilization, etc.	LUMP SUM	\$9,250.00	\$ 9,250.00

Subtotal	\$ 101,770.00
Sales Tax (7.7%).....	\$ 7,836.29
Construction Contingency (20%)	\$ 21,921.26
Estimated Construction Cost.....	\$ 131,527.55
Engineering and Administration (25%).....	\$ 32,881.89
TOTAL.....	\$ 164,409.44

ESTIMATED PROJECT COST (2005)\$ 165,000*

*Note: April 2005 ENR CCI = 8194.11.

**STORMWATER LINE FOR DRAINAGE BASIN NO. 7
LARSON STREET**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	24" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	300 LF	\$ 55.00	\$16,500.00
2.	36" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	1,000 LF	\$ 97.00	\$97,000.00
3.	Type I Catch Basin w/ Beehive	3 EA	\$ 1,800.00	\$ 5,400.00
4.	Type II Catch Basin	5 EA	\$ 2,500.00	\$12,500.00
5.	Foundation Gravel	209 TN	\$ 48.00	\$10,032.00
6.	Gravel Base	1,490 TN	\$ 48.00	\$71,520.00
7.	Cold Mix	126 TN	\$ 138.00	\$17,430.00
8.	Pavement Repair	689 SY	\$ 48.00	\$33,070.00
9.	Trench Safety Equipment	LUMP SUM	\$ 1,500.00	\$ 1,500.00
10.	Special Material Excavation	LUMP SUM	\$ 500.00	\$ 500.00
11.	Mobilization, etc.	LUMP SUM	\$26,550.00	\$26,550.00

Subtotal	\$292,002.00
Sales Tax (7.7%).....	\$ 22,484.15
Construction Contingency (20%)	\$ 62,897.23
Estimated Construction Cost.....	\$377,383.38
Engineering and Administration (25%).....	\$ 94,345.85
TOTAL.....	\$471,729.23

ESTIMATED PROJECT COST (2005)\$ 472,000*

*Note: April 2005 ENR CCI = 8194.11.

**STORMWATER LINE FOR DRAINAGE BASIN NO. 7
TUCKER AVENUE**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	36" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	550 LF	\$ 97.00	\$53,350.00
2.	Type II Catch Basin	4 EA	\$ 2,500.00	\$10,000.00
3.	Foundation Gravel	93.5 TN	\$ 48.00	\$ 4,488.00
4.	Gravel Base	688 TN	\$ 48.00	\$33,000.00
5.	Cold Mix	56 TN	\$ 138.00	\$ 7,730.00
6.	Pavement Repair	306 SY	\$ 48.00	\$14,670.00
7.	Trench Safety Equipment	LUMP SUM	\$ 1,500.00	\$ 1,500.00
8.	Special Material Excavation	LUMP SUM	\$ 500.00	\$ 500.00
9.	Mobilization, etc.	LUMP SUM	\$12,520.00	\$12,520.00

Subtotal	\$137,758.00
Sales Tax (7.7%).....	\$ 10,637.37
Construction Contingency (20%)	\$ 29,673.07
Estimated Construction Cost.....	\$178,038.44
Engineering and Administration (25%).....	\$ 44,509.61
TOTAL.....	\$222,548.05

ESTIMATED PROJECT COST (2005)\$ 223,000*

*Note: April 2005 ENR CCI = 8194.11.

**STORMWATER LINE FOR DRAINAGE BASIN NO. 7
FRIDAY AVENUE TO OUTFALL**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	36" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	370 LF	\$ 97.00	\$35,890.00
2.	Type II Catch Basin	1 EA	\$2,500.00	\$ 2,500.00
3.	Foundation Gravel	63 TN	\$ 48.00	\$ 3,024.00
4.	Gravel Base	463 TN	\$ 48.00	\$22,200.00
5.	Cold Mix	6 TN	\$ 138.00	\$ 840.00
6.	Pavement Repair	33 SY	\$ 48.00	\$ 1,600.00
7.	Trench Safety Equipment	LUMP SUM	\$1,500.00	\$ 1,500.00
8.	Special Material Excavation	LUMP SUM	\$ 500.00	\$ 500.00
9.	Mobilization, etc.	LUMP SUM	\$6,800.00	\$ 6,800.00

Subtotal	\$ 74,854.00
Sales Tax (7.7%).....	\$ 5,763.76
Construction Contingency (20%)	\$ 16,123.55
Estimated Construction Cost.....	\$ 96,741.31
Engineering and Administration (25%).....	\$ 24,185.33
TOTAL.....	\$120,926.64

ESTIMATED PROJECT COST (2005)\$ 121,000*

*Note: April 2005 ENR CCI = 8194.11.

**STORMWATER LINE FOR DRAINAGE BASINS NO. 2
LINDER/NELSON/FANCK/"C"/NICHOLS STREET**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	12" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	300 LF	\$ 28.00	\$ 8,400.00
2.	18" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	1,360 LF	\$ 48.00	\$65,280.00
3.	Type I Catch Basin	6 EA	\$ 1,400.00	\$ 8,400.00
4.	Connections to Existing Catch Basins	3 EA	\$ 1,000.00	\$ 3,000.00
5.	Foundation Gravel	200 TN	\$ 48.00	\$ 9,600.00
6.	Gravel Base	840 TN	\$ 48.00	\$40,320.00
7.	Cold Mix Asphalt	90 TN	\$ 138.00	\$12,420.00
8.	Pavement Repair	1,400 SY	\$ 48.00	\$67,200.00
9.	Trench Safety Excavation	LUMP SUM	\$ 3,500.00	\$ 3,500.00
10.	Special Material Excavation	LUMP SUM	\$ 4,000.00	\$ 4,000.00
11.	Mobilization, etc.	LUMP SUM	\$23,212.00	\$23,212.00

Subtotal	\$245,332.00
Sales Tax (7.7%).....	\$ 18,890.56
Construction Contingency (20%)	\$ 52,844.51
Estimated Construction Cost.....	\$317,067.07
Engineering and Administration (25%)	\$ 79,266.77
TOTAL ESTIMATED PROJECT COST (ORIGINAL).....	\$396,333.84

TOTAL ESTIMATED PROJECT COST (DECEMBER 2000)\$ 397,000*

*Note: April 2005 ENR CCI = 8194.11.

**STORMWATER LINE FOR DRAINAGE BASINS NO. 6
MARGUERITE PLACE AND GUARD STREET**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	12" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	760 LF	\$ 28.00	\$21,280.00
2.	Type I Catch Basin	3 EA	\$ 1,400.00	\$ 4,200.00
3.	Connections to Existing Catch Basins	3 EA	\$ 1,000.00	\$ 3,000.00
4.	Foundation Gravel	150 TN	\$ 48.00	\$ 7,200.00
5.	Gravel Base	630 TN	\$ 48.00	\$30,240.00
6.	Cold Mix Asphalt	70 TN	\$ 138.00	\$ 9,660.00
7.	Pavement Repair	1,050 SY	\$ 48.00	\$50,400.00
8.	Trench Safety Equipment	LUMP SUM	\$ 1,500.00	\$ 1,500.00
9.	Special Material Excavation	LUMP SUM	\$ 3,000.00	\$ 3,000.00
10.	Mobilization, etc.	LUMP SUM	\$13,050.00	\$13,050.00

Subtotal\$143,530.00
 Sales Tax (7.7%).....\$ 11,051.81
 Construction Contingency (20%)\$ 30,916.36
 Estimated Construction Cost.....\$185,498.17
 Engineering and Administration (25%).....\$ 46,374.54
TOTAL ESTIMATED PROJECT COST (ORIGINAL).....\$231,872.71

TOTAL ESTIMATED PROJECT COST (DECEMBER 2000)\$ 232,000*

*Note: April 2005 ENR CCI = 8194.11.

**STORMWATER LINE FOR DRAINAGE BASINS NO. 7
MARBLE STREET AND TUCKER AVENUE**

PRELIMINARY CONSTRUCTION COST ESTIMATE

No.	Item	Quantity	Unit Price	Amount
1.	15" Dia. Drain Pipe & Fittings, incl. Gravel Bkfl. for Pipe Bedding	250 LF	\$ 35.00	\$ 8,750.00
2.	Foundation Gravel	30 TN	\$ 48.00	\$ 1,440.00
3.	Gravel Base	140 TN	\$ 48.00	\$ 6,720.00
4.	Cold Mix Asphalt	20 TN	\$ 138.00	\$ 2,760.00
5.	Pavement Repair	220 SY	\$ 48.00	\$10,560.00
6.	Trench Safety Equipment	LUMP SUM	\$1,000.00	\$ 1,000.00
7.	Special Material Excavation	LUMP SUM	\$2,000.00	\$ 2,000.00
8.	Mobilization, etc.	LUMP SUM	\$3,323.00	\$ 3,323.00

Subtotal\$36,553.00
 Sales Tax (7.7%).....\$ 2,814.58
 Construction Contingency (20%)\$ 7,873.52
 Estimated Construction Cost.....\$47,241.10
 Engineering and Administration (25%).....\$11,810.28
TOTAL ESTIMATED PROJECT COST (ORIGINAL).....\$59,051.38

TOTAL ESTIMATED PROJECT COST (DECEMBER 2000)\$ 59,000*

*Note: April 2005 ENR CCI = 8194.11.

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