

CRCOG - 2011 Cost Estimating Guide

Town or Agency: _____

Street: _____ Route No.: _____

Project Title or Name: _____

Contact Person: _____ Phone Number: _____

All proposals for CRCOG's STP-Enhancement Program must include a cost estimate based on the general procedures provided below.

In order to develop a program of projects that we can finance within the limits of available funds, we must receive project cost estimates that are reasonably accurate and not subject to significant increases upon completion of design. Therefore, we are requiring the following:

1. **Detailed Estimate Required.** All estimates must be developed from a detailed list of construction contract items, estimated quantities of those items, and unit prices based on recent bid prices for similar projects. The sample cost data supplied in this document are in **English units**, however, a town may prepare its quantity and cost estimate using **metric units**.
 - *Individual Unit Costs.* The recommended unit prices included in these guidelines are based on average unit prices for transportation improvement projects awarded by the Connecticut Department of Transportation (ConnDOT). If a town chooses to use a different set of unit prices it must document that the prices are based on recent bids for projects that are similar in nature and scale. (pages 4 & 5)
 - *Composite Costs.* Some composite costs are included to simplify the cost estimating procedure. You may choose to use the composite costs in lieu of individual items and quantities. The composite costs are on page 6.
2. **Include Itemized Cost Sheet with Application.** An itemized cost estimate sheet must be included as part of the proposal.
 - A town may substitute its own cost estimating form for the list of contract items included in the guidelines.
3. **Use Specified Cost Factors.** All estimates must include the specified factors for minor items, inflation, contingencies, incidentals, and trafficperson hourly rates.
 - *Minor Items (25% or less):* Minor items include materials and services not normally identified *early* in the design process. If a town has completed some design work and has developed a detailed list of items, and good estimates of quantities, the town may reduce the minor item factor from 25 percent to 15 percent. A town that has final plans available may reduce this factor to 0 percent. If less than 25 percent is used, justification must be provided. If structure costs are estimated with composite items, then Minor Items are not to be applied to the structure costs.
 - *Inflation (5% per year – assume 2 years)*
 - *Contingencies (10%)*

- *Incidentals (25% - 30%)*: Incidentals include construction survey, construction inspection, redesign necessitated by problems found in the field, materials testing, & miscellaneous items. On small projects (less than \$1,000,000) use 30 percent. On large projects (over \$1,000,000) use 25 percent.
- *Trafficperson* : In many instances this item is largely underestimated. During the estimating process, Towns need to first determine who will be on site during construction (Police Officers or Uniformed Flaggers) and how long their services will be needed. In some cases, town ordinances dictate who controls construction project traffic. The estimated hours need to be multiplied by the following rates: State, Town (City) Police Officer - \$75 per hour; Uniformed Flagger - \$55 per hour.

Example: Assume a construction duration of 5 months (100 days) and a need for 1 Police Officer and 1 Flagger.

Police Officer: $(100 \text{ days}) \times (8 \text{ hrs/day}) \times (\$75/\text{hr}) = \$60,000$

Flagger: $(100 \text{ days}) \times (8 \text{ hrs/day}) \times (\$55/\text{hr}) = \$44,000$

Total Trafficperson Cost = \$104,000

4. Lump Sum Items.

Environmental Considerations – Often times environmental contamination and treatment is overlooked or underestimated. Controlled materials handling and disposal are just a couple of the items that need to be considered when estimating projects. If there are known or suspected Hazardous or Contaminated Sites within the project area, you must include the ‘Environmental Considerations’ multiplier in your estimate. If you are confident that there is no evidence of past or present contaminants, you do not need to include the environmental multiplier.

Cost Summary: Construction Costs

Town: _____

Project: _____

1. Construction Items (from your itemized estimate)	
2. Minor Items (25% or less. See page 1)	
3. SUM of 1 and 2	

Lump sum items (estimate as % of line 3 using percentages suggested below)

4. Clearing & Grubbing	2%	
5. Mobilization	7.5%	
6. Maintenance & protection of traffic (Trafficperson not included, See Item 15)	4%	
7. Construction Staking	1%	
8. Environmental Considerations (See page 2)	12%	
9. Inflation (5% per year - assume 2 years)	10%	
10. SUM of 4 thru 9		

11. Total contract items (Add lines 3 & 10)	
12. Contingencies (10 % of line 11)	10%

13. Contract items & contingencies (Add lines 11 & 12)	
14. Incidentals (25% or 30% of line 13, see page 2)	
15. Trafficperson (See page 2)	
16. Utilities (enter only if on State roads or MDC)	
17. Railroad force account	

18. TOTAL CONSTRUCTION COST (sum of lines 13 thru 17)	
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Individual Construction Items & Prices

See ConnDOT website for supplemental cost information, if needed

	Unit	Cost/unit
1. PAVEMENT		
HMA (0.25 inch to 1.0 inch) <100 tons	ton	150.00
HMA (0.25 inch to 1.0 inch) 100 - 1,000 tons	ton	120.00
HMA (0.25 inch to 1.0 inch) >1,000 tons	ton	100.00
Subbase	C.Y.	45.00
Processed aggregate base	C.Y.	50.00
Rolled gravel base	C.Y.	30.00
Formation of subgrade	S.Y.	3.00
Concrete for pavement	C.Y.	250.00
Cut pavement - bituminous	L.F.	4.00
Cut pavement - concrete	L.F.	10.00
Material for tack coat	GAL.	9.00
Milling of Bit. Concrete 0-4"	S.Y.	7.50
Reclamation (10" Maximum Depth)	S.Y.	8.00
Pavement Recycling (4" Maximum Depth)	S.Y.	6.75
Removal of concrete pavement	S.Y.	15.00

2. EARTHWORK

Earth excavation - less than 500 cy	C.Y.	37.50
Earth excavation - 500 to 2,500cy	C.Y.	25.00
Earth excavation - 2,500 to 5,000cy	C.Y.	22.50
Earth excavation - more than 5,000 cy	C.Y.	15.00
Rock excavation - less than 500 cy	C.Y.	90.00
Rock excavation - 500 to 2,500cy	C.Y.	82.50
Rock excavation - 2,500 to 5,000cy	C.Y.	70.00
Rock excavation - more than 5,000 cy	C.Y.	35.00
Borrow - less than 500 cy	C.Y.	30.00
Borrow - 500 to 5,000cy	C.Y.	22.50
Borrow - more than 5,000 cy	C.Y.	14.00

3. DRAINAGE

Catch basin	EA.	3,000.00
Double grate catch basin	EA.	3,500.00
Complex Basin (CM-2)	EA.	5,200.00
Catch basin top	EA.	700.00
Reset catch basin	EA.	900.00
Manhole (new)	EA.	3,000.00
Manhole (reset)	EA.	900.00
Class "A" concrete	C.Y.	900.00
Bedding material (< 100 cy)	C.Y.	45.00
Bedding material (500-1,000 cy)	C.Y.	38.00
Bedding material (>1,000 cy)	C.Y.	35.00
Riprap	C.Y.	75.00
Trench excavation (0'-4' deep)	C.Y.	16.00
Trench excavation (0'-10' deep)	C.Y.	25.00
Trench excavation (0'-15' deep)	C.Y.	40.00

Trench excavation (0'-20' deep)	C.Y.	45.00
Rock in trench excavation	C.Y.	115.00
Paved ditch	S.Y.	65.00
Sedimentation control system	L.F.	5.00
Sedimentation Chamber (10'x4')*	EA.	35,000.00
Sedimentation Chamber (13'x7')*	EA.	40,000.00
Sedimentation Chamber (18'x12')*	EA.	50,000.00
12" R.C. pipe	L.F.	52.00
15" R.C. pipe	L.F.	55.00
18" R.C. pipe	L.F.	70.00
24" R.C. pipe	L.F.	75.00
30" R.C. pipe	L.F.	90.00
36" R.C. pipe	L.F.	115.00
42" R.C. pipe	L.F.	130.00
48" R.C. pipe	L.F.	150.00
24" R.C. culvert end	EA.	1,000.00
30" R.C. culvert end	EA.	1,200.00
36" R.C. culvert end	EA.	1,500.00

4. GUIDE RAIL

Metal beam rail (type R-B 350)	L.F.	26.00
Metal beam rail (type R-B 350) - End Anchorage	EA.	1,200.00
Metal beam rail (type R-B 350) - Bridge Attachment	EA.	2,500.00
Three-cable guide railing (I-beam post)	L.F.	13.00
Merritt Parkway Guiderail (local roads only)	L.F.	60.00
Anchorage	EA.	1,200.00
Precast conc. median or Jersey barrier (15" X 32")	L.F.	50.00
Precast conc. median or Jersey barrier (24" X 32")	L.F.	75.00
Temporary precast conc. barrier (24" X 32")	L.F.	42.00

5. OTHER ITEMS

Bituminous concrete curbing (if new, consider adding pavement)	L.F.	7.50
Concrete curbing	L.F.	35.00
Granite curbing	L.F.	38.00
Reset granite curbing	L.F.	32.00
Cut concrete sidewalk	L.F.	20.00
Concrete sidewalk	S.F.	12.50
Concrete sidewalk(stamped/dyed)	S.F.	25.00
Brick sidewalk	S.F.	35.00
Concrete paving brick	S.F.	15.00
Bituminous concrete sidewalk	S.Y.	50.00
Bituminous concrete driveway	S.Y.	36.00
Sodding	S.Y.	12.50
Turf establishment	S.Y.	2.50
Furnish & place topsoil	S.Y.	6.50
Traffic signals - new (\$150,000 if part of a city system)	EA.	110,000.00
Traffic signals- modification (\$80,000 if major modification)	EA.	30,000.00
Temporary Signalization (\$35,000 if not at existing signal)	EA.	3,500.00
Street lighting	L.F.	45.00

* Required per Stormwater Phase II General Permit (see DEP/DOT guidelines)

Selected Composite Items & Prices

1. PAVEMENT

(unit prices include HMA, tack coat, and formation of subgrade; excavation **not** included and must be calculated separately)

Arterial composite pavement cost: 4" HMA 0.5 inch on 6" HMA 1.0 inch on 14" Subbase (20" rock)

Collector composite pavement cost: 3" HMA 0.5 inch on 6" HMA 1.0 inch on 10" Subbase (20" rock)

Overlay:

2" HMA 0.5 inch with tack coat (min. overlay)

Overlay:

3" HMA 0.5 inch with tack coat (structural)

Overlay:

4" HMA 0.5 inch with tack coat (structural expressway)

unit	<2,600	2,600 - 26,000 SF	>26,000 SF
S.F.	12.00 (12.65)	10.10 (10.70)	8.80 (9.35)
S.F.	10.50 (11.75)	8.75 (10.00)	7.60 (8.75)

unit	<7,800 SF	7,800 - 78,000 SF	>78,000 SF
S.F.	1.97	1.58	1.33

unit	<5,200 SF	5,200 - 52,000 SF	>52,000 SF
S.F.	2.98	2.40	2.02

unit	<3,900 SF	3,900 - 39,000 SF	>39,000 SF
S.F.	3.93	3.17	2.66

2. STRUCTURES

Bridges - New (per sq. ft. of deck area)

Bridges - Deck rehabilitation (per sq. ft. of deck area)

Bridges - Deck replacement (per sq. ft. of deck area)

Bridges - New superstructure-including deck (per sq. ft. of deck area)

Bridges - Removal of superstructure over roadway

Bridges - Removal of superstructure over water or rail

Concrete Modular Walls / Mechanically Stabilized Earth Walls (sf estimate includes the subsurface area)

Cast-in-place concrete wall

(sf estimate includes the subsurface area)

Precast box culverts (Estimate per sq. ft of top face; Length X Width)

unit	unit price
S.F.	375.00
S.F.	100.00
S.F.	125.00
S.F.	175.00
S.F.	55.00
S.F.	75.00
S.F.	55.00
S.F.	65.00
S.F.	210.00

3. DRAINAGE

(Unit prices include surface runoff and CB's; doesn't include cross culverts or sedimentation chambers)

Compact Urban Area - Full Drainage Improvement (total cost / area of pavement)

Suburban Area - Full Drainage Improvement (total cost / area of pavement)

Suburban Area - Upgraded Drainage & Rural Drainage (total cost / area of pavement)

unit	unit price
S.F.	3.75
S.F.	2.50
S.F.	1.25