

Connecticut Department of Transportation  
Preliminary Cost Estimating Guidelines - METRIC  
January 2009

**NOTE:** **WHEN PRELIMINARY COST ESTIMATES ARE PREPARED, THE ENGINEER MUST TAKE INTO ACCOUNT THE TYPE OF PROJECT, ITS COMPLEXITY, GEOGRAPHICAL LOCATION, AND OTHER SPECIAL CONSIDERATIONS THAT MAY APPLY. QUESTIONS ABOUT THESE GUIDELINES SHOULD BE DIRECTED TO THE DEPARTMENT'S COST ESTIMATING UNIT, ATTENTION MR. ROBERT NEVILLE, 860-594-3245**

**I. ESTIMATE UPDATES**

All construction cost estimates should be updated according to the following:

- o Semi-annually
- o At major milestones in design (PD, SF, FD)
- o When the scope of the project changes significantly

**II. COST ADJUSTMENT CRITERIA**

Construction cost estimates should be adjusted **to the midpoint of construction** using the criteria listed below:

- Before calendar year 2009: 10% annually
- Calendar year 2009 and beyond: 6% annually

**III. CONTRACT ITEMS**

**A. Roadway Items**

<b><u>Earth Exc.</u></b>	<500 C.M.	\$45 - \$80 / C.M.
	500 - 2,500 C.M.	\$32 - \$52 / C.M.
	2,500 - 5,000 C.M.	\$26 - \$40 / C.M.
	>5,000 C.M.	\$18 - \$32 / C.M.
<b><u>Rock Exc.</u></b>	<500 C.M.	\$98 - \$250 / C.M.
	500 - 2,500 C.M.	\$85 - \$200 / C.M.
	2,500 - 5,000 C.M.	\$72 - \$140 / C.M.
	>5,000 C.M.	\$52 - \$100 / C.M.
<b><u>Trench Exc.</u></b>	0 - 1.2 M.	\$23 - \$32 / C.M.
	0 - 3 M.	\$26 - \$39 / C.M.
	0 - 4.5 M	\$20 - \$52 / C.M.
	0 - 6 M	\$20 - \$58 / C.M.

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**Rock in Trench Exc.** \$98 - \$200 / C.M.

**Borrow**

<500 C.M.	\$32 - \$65 / C.M.
500 - 5,000 C.M.	\$18 - \$38 / C.M.
>5,000 C.M.	\$13 - \$23 / C.M.

**Subbase**

<500 C.M.	\$58 / C.M.
500 - 2,000 C.M.	\$50 / C.M.
>2,000 C.M.	\$44 / C.M.

**Sedimentation Control System** \$13.00 / M.

**Processed Agregate Base**

<500 C.M.	\$65 / C.M.
500 - 2,000 C.M.	\$55 / C.M.
>2,000 C.M.	\$50 / C.M.

**Milling of Bituminous Concrete 0 - 100 mm** \$8 / S.M.

**Superpave (12.5 mm + 37.5 mm)**

<100 M. Ton	\$275 / M. Ton
100 - 1,000 M. Ton	\$165 - \$200 / M. Ton
1,000 - 5,000 M. Ton	\$125 - \$165 / M. Ton
>5,000 M. Ton	\$100 - \$125 / M. Ton

**Bedding Material**

<100 C.M.	\$52 / C.M.
500 - 1,000 C.M.	\$40 - \$52 / C.M.
>1,000 C.M.	\$40 / C.M.

**Drainage**

300 mm R.C.P.	\$180 / M.
375 mm R.C.P.	\$215 / M.
600 mm R.C.P.	\$265 / M.
1200 mm R.C.P.	\$700 / M

Simple Catch Basins	\$2,500 Ea.
Double Catch Basins	\$3,500 Ea.
Complex Basins ("CM-2")	\$4,500 - \$6,000 Ea.

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**Sodding**                      \$15 / M<sup>2</sup>

**Noise Barrier Walls - Timber**

Roadway	\$190 / M <sup>2</sup>
Structure	\$215 / M <sup>2</sup>

**Noise Barrier Wall - Durisol (Concrete Panel, Steel Columns)**

Good Site Conditions	\$215 / M <sup>2</sup>
"Hard" Site Conditions	\$275 / M <sup>2</sup>

**Roadway Lighting**

Expressway	\$175 / M
Ramps	\$125 / M

**Railroad Protection**

Station Reconstruction:

    Protection and Inspection \$1,500 per day

Metro North & Amtrak:

    Flagman: \$750 per day

    Night work (Flagman & Groundman): \$2,000 per night

All other Railroads

    Flagman: \$500 - \$750 per day

**B. Structure Items**

**Bridges**

Deck	\$1050 - \$1,600 / M <sup>2</sup>
Superstructure	\$1,600 - \$2,150 / M <sup>2</sup>
New Structure	\$4,000 / Square Meter of Deck Area

**Structure Exc.**

<100 C.M.	\$100 / C.M.
100 - 1,000 C.M.	\$52 / C.M.
>1,000 C.M.	\$45 / C.M.

**Structural Steel - Installation**

Favorable site conditions	\$5.50 / KG
Less than favorable conditions	Up to \$16.50 / KG

(Limited access, height restrictions, etc.)

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**Structural Steel - Raw Material**

This is a new Cost Plus (ESTPLS), contract item intended to ensure that payment for these materials reflects the current market price at the time the order is placed for these materials. Consult the Department's web site under "Owned Special Provisions, Item #0603371 - Materials for Structural Steel" for complete details. Contact the Cost Estimating Unit for current prices.

**Prestressed Beams**                      \$850 / Meter

**Removal of Superstructure**

Bridge over Roadway                      \$600 / M<sup>2</sup>  
Bridge over Water or Rail                      \$800 / M<sup>2</sup>

**Bridge Painting**

(Cost per square foot of structural steel to be painted)

Class 1 Containment and Collection                      \$160 / S.M.

Blast Cleaning and Field Painting                      \$160 / S.M.

**Box Culverts**

2400 mm x 1200 mm                      \$2,450 / M.  
3600 mm x 1800 mm                      \$3,2000 / M.

**Retaining Walls (Concrete)**

(Note: Square footage estimate for retaining walls and embankment walls includes the subsurface area)

Modular Walls and Mechanically Stabilized Earth                      \$550 - \$600 / M<sup>2</sup>  
Cast-in-Place Concrete                      \$650 - \$750 / M<sup>2</sup>

**Embankment Walls**                      \$600 / M<sup>2</sup>

**Structural Concrete**

**Class A**

< 50 C.M.                      \$1,500 / C.M.  
> 50 C.M.                      \$500 - \$900 / C.M.

**Class F**

< 50 C.M.                      \$2,400 / C.M.  
> 50 C.M.                      \$750 - \$1,200 / C.M.

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**Deformed Steel Bars**

<1,000 KG.	\$5.50 / KG.
1,000 - 7,500 KG.	\$3.85 / KG.
>7,500 KG.	\$3.00 / KG.
Epoxy Coated	Add \$0.50 / KG. to above costs.

**Removal of Existing Masonry**      \$450 / C.M.

**Temporary Sheet Piling**    Reasonable Range      \$250 - \$450 / S.M.

**Cofferdam and Dewatering**      \$600 - \$1,200 / M.

**Deck Patching**

Partial Depth Patch	\$2,900 / C.M.
Full Depth Patch	\$3,500 / C.M.

**Cast-in-Place Concrete Piles**      \$180 / M.

**Steel Piles**

Furnishing	\$3.30 / KG.
Driving	\$82 / M.
Splicing	\$500 Ea.
Point Reinforcement	\$200 Ea.

**Prestressed Deck Units**

1200 mm x 800 mm	\$1,250 / M.
1200 mm x 600 mm	\$1,150 / M.

**Lead Health and Protection**

<u>Value of Structure Items</u>	<u>Lead Health &amp; Safety Estimated Cost</u>
<\$1,000,000	\$25,000
\$1,000,000 - \$5,000,000	\$35,000
\$5,000,000 - \$10,000,000	\$60,000
>\$10,000,000	\$100,000

**C. Environmental Compliance Items**

Obtain a construction cost estimate from the Environmental Compliance Division.

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**D. Traffic Items (Consultation with Traffic Engineering Recommended)**

Trafficmen

State Police Officer	\$75 / Hour
Town (City) Police Officer	\$75 / Hour
Uniformed Flagger	\$55 / Hour
New Signal	\$80,000 - \$120,000 per intersection
Minor Modification	\$30,000 per intersection
Major Modification	\$60,000 per intersection
Temporary Signalization	\$2,500 per intersection

**E. Minor Items ( Contingency Costs)**

- < 30% design completion - Add 25% of (A) Roadway, and (B) Structure Items  
Note: If Structure Items are determined on a square foot basis, the 25% is applied only to Roadway Items.
- 30 – 65% design completion - Add 15% of (A) Roadway, (B), Structure, (C) Environmental and (D) Traffic Items.
- 65% design completion – No additive required since the estimate is based on actual quantity take-offs

**F. Lump Sum Items (Percentages to be applied at design completion.)**

Clearing & Grubbing	2.0%	( Item #0201001 )
M & P of Traffic	4.0%	( Item #0971001 )
Mobilization	7.5%	( Item #0975002 )
Construction Staking	1.0%	( Item #0980001 )

Percentages are applied to the sum of (A) Roadway + (B) Structures + (C) Environmental Items + (D) Traffic Items.

**IV. ENGINEERING PERCENTAGES ( INCIDENTALS AND CONTINGENCIES)**

<u>Project Value</u>	<u>Incidentals</u>	<u>Contingencies</u>
Less than \$1 million	25%	10%
\$1 – 5 million	21%	10%
\$5 – 50 million	15%	10%
Over \$50 million	12%	7%

Percentages are applied to the sum of (A) Roadway + (B) Structures + (C) Environmental Items + (D) Traffic Items + (F) Lump Sum Items

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**V. UTILITIES**

Prior to a project's initiation, and at any time thereafter, members of the Department's Utility Section will assist in establishing or updating the preliminary cost estimate for any anticipated utility impacts.

**VI. CONSTRUCTION COST**

Total Construction Cost is the sum of the following: ( Upon design completion )

- ROADWAY ITEMS
- STRUCTURE ITEMS
- ENVIRONMENTAL ITEMS
- TRAFFIC ITEMS
- LUMP SUM ITEMS
- ENGINEERING PERCENTAGES
- UTILITIES

**VII. UNDERESTIMATED ITEMS**

The following is a list of contract items whose final quantities or values often show large increases by project completion. Designers need to be aware of these items.

<u>Item #</u>	<u>Description</u>	<u>Unit</u>
0970004	Trafficperson	EST.
0101117	Controlled Material Handling	C.M.
0202315	Disposal of Controlled Material	M TON
0202103	Rock Excavation	C.M.
0950005	Turf Establishment	S.M.
12091XX	Pavement Markings	M. or S.M.
Various	Temporary Traffic Control Items	

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