

Connecticut Department of Transportation
Preliminary Cost Estimating Guidelines - ENGLISH
January 2011

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:

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

II. COST ADJUSTMENT CRITERIA

For projects with a construction midpoint beyond 2011, apply a simple 5% annual inflation factor (from 2011 to the midpoint of construction).

III. CONTRACT ITEMS

A. Roadway Items

<u>Earth Exc.</u>	<500 C.Y.	\$25 - \$50 / C.Y.
	500- 2,500 C.Y.	\$20 - \$35 / C.Y.
	2,500 - 5,000 C.Y.	\$15 - \$30 / C.Y.
	>5,000 C.Y.	\$10 - \$20 / C.Y.
<u>Rock Exc.</u>	<500 C.Y.	\$70 - \$110 / C.Y.
	500- 2,500 C.Y.	\$50 - \$90 / C.Y.
	2,500 - 5,000 C.Y.	\$55 - \$110 / C.Y.
	>5,000 C.Y.	\$20 - \$50 / C.Y.
<u>Trench Exc.</u>		
	0 - 4' Deep	\$12 - \$18 / C.Y.
	0 - 10' Deep	\$20 - \$30 / C.Y.
	0 - 15' Deep	\$40 / C.Y.
	0 - 20' Deep	\$45 / C.Y.
<u>Rock in Trench Exc.</u>		\$60 - \$175 / C.Y.

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Borrow

< 500 C.Y.	\$25 - \$95 / C.Y.
500-5,000 C.Y.	\$15 - \$30 / C.Y.
> 5,000 C.Y.	\$10 - \$22 / C.Y.

Subbase

< 100 C.Y.	\$75 / C.Y.
100 - 1,000 C.Y.	\$45 / C.Y.
1,000 – 5,000 C.Y.	\$35 / C.Y.
> 5,000 C.Y.	\$28 / C.Y.

Sedimentation Control System \$4.00/L.F.

Processed Agregate Base

< 100 C.Y.	\$60 / C.Y.
100 – 1,000 C.Y.	\$45 / C.Y.
> 1,000 C.Y.	\$35 / C.Y.

Milling of H.M.A. 0 – 4” \$7.50 / S.Y.

Pavement Preservation Projects

Nova Chip (HMA) Pave.	\$6.00 / S.Y.
Milling of HMA 0-4”	\$3.25 / S.Y.
Fine Milling of HMA	\$2.00 / S.Y.
Diamond Grinding	\$7.00 / S.Y.
Joint and Crack Sealing / Filling	\$0.60 / S.Y.

H.M.A. (.25" - 1")

< 100 Ton	\$120 - \$180 / Ton
100 - 1,000 Ton	\$100 - \$125 / Ton
> 1,000 Ton	\$90 - \$110 / Ton

Bedding Material

< 100 C.Y.	\$50 / C.Y.
100-1,000 C.Y.	\$30 - \$40 / C.Y.
> 1,000 C.Y.	\$30 / C.Y.

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Drainage

12" R.C.Pipe	\$52 / L.F.
15" R.C.Pipe	\$55 / L.F.
24" R.C.Pipe	\$75 / L.F.
48" R.C.Pipe	\$185 / L.F.
Simple Catch Basins	\$3,000 Ea.
Double Catch Basins	\$3,500 Ea.
Complex Basins ("CM-2")	\$4,500 - \$6,000 Ea.
Sedimentation Chambers: (Vortechs, etc.)	
10' x 4'	\$35,000 Ea.
13' x 7'	\$40,000 Ea.
18' x 12'	\$50,000 Ea.

Rip Rap

Standard	\$65 / C.Y.
Intermediate	\$80 / C.Y.
Modified	\$80 / C.Y.

Curbing

Temporary P.C.B.C.	\$30 - \$60 / L.F.
B.C.L.C.	\$5 - \$10 / L.F.
Concrete Curbing	\$25 - \$40 / L.F.
F-Shape P.C.B. Curb (21" x 45")	\$84 / L.F.
Temp. Pre. Con. Bar. Curb (Struct.)	\$50 - \$85 / L.F.

Guide Railing

Metal Beam Rail (Type R-B 350)	\$26 /L.F.
R-B End Anchorage Type 1	\$1,200 Ea.
R-B 350 Bridge Attachment - Jersey Shaped Parapet	\$2,500 Ea.
Merritt Parkway Guiderail	
<500 L.F.	\$65 / L.F.
500 L.F. – 5,000 L.F.	\$60 / L.F.
>5,000 L.F.	\$55 / L.F.

<u>Concrete Sidewalk</u>	\$12.50 / S.F.
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Bituminous Concrete Driveway

Residential	\$36 / S.Y.
Commercial	\$40 / S.Y.

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Furnishing & Placing Topsoil

<1,000 S.Y.	\$12 / S.Y.
1,000 - 5,000 S.Y.	\$6.50 / S.Y.
>5,000 S.Y.	\$4.50 / S.Y.

Turf Establishment

<1,000 S.Y.	\$3.50 / S.Y.
1,000 – 5,000 S.Y.	\$2.50 / S.Y.
>5,000 S.Y.	\$1.50 / S.Y.

Sodding \$12.50 / S.Y.

Noise Barrier Walls

(New specifications under development, contact Environmental Planning)

Roadway Lighting

Expressway	\$55 / L.F.
Ramps	\$40 / L.F.

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	\$100 - \$150 / S.F.
Superstructure	\$150 - \$200 / S.F.
New Structure	\$375 / S.F. of Deck Area

Structure Exc.

<100 C.Y.	\$75 / C.Y.
100 - 1,000 C.Y.	\$40 / C.Y.
>1,000 C.Y.	\$35 / C.Y.

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Structural Steel - Installation

Favorable site conditions \$2.50 / lb.
Less than favorable conditions Up to \$7.50 / lb.
(Limited access, height restrictions, etc.)

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 \$250 / L.F.

Removal of Superstructure

Bridge over Roadway \$55 / S.F.
Bridge over Water or Rail \$75 / S.F.

Bridge Painting

(Cost per square foot of structural steel to be painted)
Class 1 Containment and Collection \$15 / S.F.
Blast Cleaning and Field Painting \$15 / S.F.

Box Culverts

8' x 4' \$750 / L.F.
12' x 6' \$975 / L.F.

Retaining Walls (Concrete)

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

Modular Walls and Mechanically Stabilized Earth \$50 - \$60 / S.F.
Cast-in-Place Concrete \$60 - \$70 / S.F.

Embankment Walls \$55 / S.F.

Structural Concrete

Class A

< 50 C.Y. \$900 / C.Y.
> 50 C.Y. \$500 - \$850 / C.Y.

Class F

< 50 C.Y. \$1,200 / C.Y.
> 50 C.Y. \$700 - \$900 / C.Y.

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Deformed Steel Bars

<10,000 LBS.	\$2.25 / LBS.
10,000 – 50,000 LBS.	\$1.75 / LBS.
>50,000 LBS	\$1.40 / LBS.
Epoxy Coated	Add \$0.25 / LB. to above costs

Removal of Existing Masonry \$375 / C.Y.

Temporary Earth Retaining System Reasonable Range \$25 - \$40 / S.F.

Cofferdam and Dewatering \$200 - \$700 / L.F.

Deck Patching

Partial Depth Patch	\$2,500 / C.Y.
Full Depth Patch	\$3,000 / C.Y.

Cast-in-Place Concrete Piles \$75 / L.F.

Steel Piles

Furnishing	\$0.80 / lb.
Driving	\$25 / L.F.
Splicing	\$600 Ea.
Point Reinforcement	\$200 Ea.

Prestressed Deck Units

4' x 2' 3"	\$300 / L.F.
4' x 1' 9"	\$250 / L.F.

Lead Health and Protection

<u>Value of Structure Items</u>	<u>Lead Health & 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

State Signal	\$100,000 - \$120,000 per intersection
City Signal System	\$200,000 - \$250,000 per intersection
Minor Modification	\$30,000 per intersection
Major Modification	\$80,000 per intersection
Temporary Signalization	
Bridge Projects – M&PT	\$35,000 per intersection
Existing Signal	\$2,800 per intersection
Utility Relocation Costs for a Signalization Project	\$7,000 per intersection

E. Minor Items / Unidentified 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 20% is applied only to Roadway Items.
- 30 - 65% design completion - Add 15% of (A) Roadway + (B) Structure + (C) Environmental + (D) Traffic Items
- >65% design completion – No additive required since the estimate is based on actual quantity take-offs

F. Lump Sum Items

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 Items + (B) Structure Items + (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	30%	10%
\$1 - 5 million	25%	10%
\$5 - 20 million	23%	10%

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(ENGINEERING PERCENTAGES – CONTINUED)

\$20- 50 million	18%	10%
Over \$50 million	15%	10%
Various Location Projects (e.g. Traffic Signal, Signing, etc.)	30%	10%

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

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 and RAILROADS

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.Y.
0202315	Disposal of Controlled Material	Ton
0202103	Rock Excavation	C.Y.
0950005	Turf Establishment	S.Y.
12091XX	Pavement Markings	L.F. or S.F.
Various	Temporary Traffic Control Items	

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