BRIDGE CONSTRUCTION

COST ESTIMATING BRIDGES FOR PROGRAMMING

Use the methods and unit costs shown in this section to estimate bridge costs. Cost figures include bridge superstructure and substructure costs, "curbs only" railing system (no approach guardrail), riprap, bridge removal, normal erosion and pollution control work, and nominal approach roadway work (~ 5% to 10% of bridge costs).

Currently, 90% of new or replacement bridges have a spill-thru type configuration (trapezoidal stream channel opening). For spans up to 40 feet, concrete, timber or steel bridges are all competitive alternatives. For spans above 40 feet, concrete is primarily the most competitive alternative, but steel is also being used in certain instances.

For spill thru bridge configurations, the span length (S), can be estimated if the "bankfull" dimension (BF), and height (H) from finish grade to stream bed is known. Span length will be approximately, S = BF+ 5 +(3*H). If scour potential is low, abutments are typically concrete caps perched above the stream in the approach fill. If scour potential is high, abutments will be piling or deep spread footing founded below the stream bed.

Use the following to estimate bridge costs.

- Spans up to 40 feet:
    - Single lane = $2000/ lf to $2500/ lf
    - Double lane = $2500/ lf to $3000/ lf

- Spans greater than 40 feet:
    - Single Lane = $2500/ lf to $2750
    - Double Lane = $3000/ lf to $3250/ lf

- Add $100/ lf of bridge for bridge rail and $10,000 for approach guardrail if needed.
- If piling or deep spread footings are needed due to high scour potential, add $30,000 for single lane bridges and $40,000 for double lane bridges.
- Add 15% for A/ E design costs to include site surveys, preliminary report, and final design.

Costs can vary greatly depending on the general approach conditions, BMP work, and stream channel work that might be included. Questions should be directed to the Transportation Structures Group, John Kattell (406-329-3324).

SECTION 551 – DRIVEN PILES (Contract Item) - No metric conversion for Bridge Construction Items

Type of Pile	Treated Timber	Steel
Furnished Pile Cost	$35/ LF	$40/ LF(HP10x42)
		$45/ LF(HP12x53)
Drive Cost (Depends on quantity)	$55 - 70	$55 - 70
Shoe Cost	$150/ ea	$225/ ea

When applicable, make a subsidiary allowance to this pay item for contractor quality control.

SECTION 552 - STRUCTURAL CONCRETE (Contract Item)

$600 to $1000 per cubic yard - Depending on haul and quantity

When applicable, make a subsidiary allowance to this pay item for contractor quality control.

SECTION 553 - PRESTRESSED CONCRETE (Contract Item)

Multi-Beams (Includes Installation)

Tri Deck		$60/ SF
Bulb Tee	3' to 4'6"	$60/ SF
	5' to 5'6"	$75/ SF
Concrete curb		Add $45/ LF

When applicable, make a subsidiary allowance to this pay item for contractor quality control.

SECTION 554 REINFORCING STEEL (Contract Item)

Large jobs	$1.75/ lb
Small jobs (under 1000 lbs)	$2.00/ lb

SECTION 555 - STEEL STRUCTURES (Contract Item)

SECTION 556 - BRIDGE RAILING (Contract Item)

Timber Glue Lams	$150/ LF
Double layer flexbeam	$ 60/ LF
Single layer flexbeam w/ timber	$ 50/ LF
Double box tube (Concrete Deck)	$ 100/ LF
Double box tube (Timber Deck)	$ 100/ LF
Single box tube	$ 50/ LF
Approach Rail	$ 50/ LF
Breakaway Cable End Anchorage	$500/ Ea
Buried End Anchorage	$500/ Ea
Terminal Section	$300/ Ea

SECTION 557 - TIMBER STRUCTURES (Contract Item) or (R-l Treated Timber Standards - Labor 45 percent of installation cost only)

TIMBER MATERIALS

Solid sawn	up to 3 inches thick.....	$1750/ MFBM
	Heavy.....	$2300/ MFBM
	Treatment.....	add 30%
Glue Laminated.....		$3100/ MFBM
	Treatment.....	add 35%
Timber Hardware	.....	add 1.5%
Treated Structural Timber.....		$3200/ MFBM (installed)
Treated Structural Glu-lam Superstructure.....		$5150/ MFBM (installed)
Treated Structural Glu-lam Substructure..... (vertical timber wall abatements)		$6500/ MFBM (installed)

When applicable, make a subsidiary allowance to this pay item for contractor quality control

End of Bridge Construction