
TECHNICAL MEMORANDUM

TO: Amanda Kimball, Deputy Director, Siskiyou County, akimball2@co.siskiyou.ca.us
FROM: Shawn Wade, Principal Engineer *Shawn Wade*
DATE: May 10, 2024
JOB NO.: 470.18
SUBJECT: Delta Pedestrian Bridge Feasibility

The purpose of this technical memorandum is to provide a brief description of the Scope of Work and a preliminary rough order of magnitude cost estimate for the Delta Pedestrian Bridge Project. It is our understanding that Siskiyou County (County) is looking at the feasibility of designing and constructing a pedestrian bridge along the northwest side of Lake Siskiyou. A portion of the existing Lake Siskiyou trail, in the area of the proposed bridge, is inaccessible during winter months as it crosses the Sacramento River Delta that flows into Lake Siskiyou. When river flows decrease, County staff install temporary short-span bridges over the forks of the river. The primary objective of this project is to provide year-round access to the trail and would consist of designing and constructing a new pedestrian bridge and trail improvements to connect the existing trail to the bridge.

This technical memorandum is based on limited information as the following preliminary engineering and investigations have not been completed that could impact the information contained herein:

- Topographic survey
- Environmental study
- Hydrologic and hydraulic studies
- Geotechnical investigation

ASSUMPTIONS/DESIGN CRITERIA

The following assumptions and design criteria were utilized for this technical memorandum:

- Based on an initial site visit to view the site, it is anticipated that the bridge will be installed approximately a quarter to a half mile upstream of where the temporary bridges are placed. An alternative site was discussed further upstream that has a narrower channel; however, this would require access through United States Forest Service property, would increase the trail improvements, and would not appear to reduce the length of the bridge significantly enough to avoid pier(s) in the river.
- Based on Google Earth, the total bridge span is estimated to be 500 feet. This length could change depending on the results of the topographic survey and hydrologic/hydraulic studies, which will dictate the height/elevation of the bridge.
- The bridge will be designed for pedestrian traffic only.

- The basis of design for the bridge is a connector truss bridge by Contech Engineered Solutions that will be 10 feet wide, constructed of weathered steel, and contain a concrete deck. Galvanized steel can be used as an alternative, which is more corrosion resistant, but increases the cost of the bridge material by 45 to 60 percent.
- Because of the length, the bridge will consist of three spans that will require two piers to be constructed in the waterway.
- Since there is not any geotechnical information for the site or nearby area, it is assumed that piles will be required for the footings. The results of the geotechnical investigation will dictate the final design.
- Trail improvements will be required on either side of the bridge that will consist of an 8-foot-wide trail for approximately 200 feet on each side to tie into the existing trail.
- It is assumed that cultural resources will not be encountered.

ROUGH ORDER OF MAGNITUDE COST ESTIMATE

A rough order of magnitude cost estimate for the design and construction of the Delta Pedestrian Bridge is outlined below. See Appendix A for a breakdown of the costs.

Engineering, Investigations, and Design:	\$730,000
Construction:	\$6,700,000 - \$12,500,000
Total Project Cost:	\$7,430,000 - \$13,230,000

The above construction cost estimate is presented as a range per AACE International Guidelines. Since this project is in its infancy and preliminary engineering and investigations still need to be completed to better detail the Scope of Work, an estimate class of Class 5 was used. This has an expected accuracy range of -20% and +50% and is defined as a maturity level of 0% to 2% for an estimate that is for conceptual screening. The above cost estimates do not include permitting, environmental mitigation, internal County costs, or future maintenance and inspection costs.

Enclosure

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Appendix A

SISKIYOU COUNTY					
DELTA BRIDGE FEASIBILITY STUDY					
ROUGH ORDER OF MAGNITUDE COST ESTIMATE					
No.	Item	Quantity	Unit	Unit Cost	Total Cost
Estimated Construction Costs					
1	Mobilization	1	EA	\$250,000.00	\$250,000
2	SWPPP	1	EA	\$75,000.00	\$75,000
3	Dewatering/Cofferdams	1	EA	\$250,000.00	\$250,000
4	Contech Steel Bridge Material and Bridge Design - Weathered Steel	260,000	LB	\$5.50	\$1,430,000
5	Abutment Concrete	340	CY	\$1,900	\$646,000
6	Abutment Deep Foundations (CIDH piles)	8	EA	\$45,000	\$360,000
7	Bridge Piers - Concrete	450	CY	\$1,600	\$720,000
8	Bridge Piers - Pile Caps	100	CY	\$1,600	\$160,000
9	Bridge Piers - Deep Foundations (CIDH piles)	8	EA	\$60,000	\$480,000
10	Bridge Installation	260,000	LB	\$3.50	\$910,000
11	Concrete Deck	100	CY	\$1,200	\$120,000
12	Trail Improvements	400	LF	\$200	\$80,000
13	Subtotal Construction Costs:				\$5,481,000
14	Inflation Adder for Construction in 2026 @ 5% per year:				\$562,000
15	General Conditions/Misc (15%):				\$907,000
16	Bonds and Insurance (2.5%):				\$152,000
17	Overhead and Profit (20%):				\$1,209,000
18	TOTAL ESTIMATED CONSTRUCTION COSTS:				\$8,311,000
19	AACE CLASS 5 LOW RANGE (-20%):				\$6,700,000
20	AACE CLASS 5 HIGH RANGE (+50%):				\$12,500,000
Estimated Design and Engineering Services					
21	Civil/Structural Design and Project Management				\$200,000
22	Environmental				\$175,000
23	Hydraulic and Hydrologic Analyses				\$20,000
24	Geotechnical Investigation				\$60,000
25	Construction Administration (estimated at 2.5% of construction)				\$208,000
26	Subtotal Design and Engineering Service Costs:				\$663,000
27	Contingency (10%):				\$67,000
28	TOTAL ESTIMATED DESIGN AND ENGINEERING SERVICE COSTS:				\$730,000