

Montana Transportation Commission

Minutes

December 20, 2013

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The Montana Transportation Commission met via conference call on October 8, 2013 the meeting was called to order by Commissioner Howlett at 8:45 am with the following participants:

Kevin Howlett, Commissioner (District 1)
Rick Griffith, Commissioner (District 2)
John Cobb, Commissioner (District 3)
Carol Lambert, Commissioner (District 4)
Barb Skelton, Commissioner (District 5)
Dwane Kailey, MDT
Kevin Christensen, MDT
Kent Barnes, MDT
Tim Reardon, MDT
Lynn Zanto, MDT
Lori Ryan, MDT
Gene Koffman, FHWA

1. Award: Kevin Christensen presented the additional information regarding project 202 and the staff recommendation for the following project:

Call No	Project Number	Project Description	County Counties	Working Days	District	Bid Amount	Contractor	Billing Address	City State zip
202	STPS 240-1(10)7 & STPB 240-1(6)3	South of Chinook S & 3 Mile Cr-2 Miles S Chinook	Blaine	85 working days	Great Falls	3,046,046.00	Helena Sand & Gravel, Inc.	PO Box 5960	Helena, MT 59604

Kent Barnes provided information concerning the project:

7924000 & 6855000 District: Great Falls
STPS 240-1(10)7 & STPB 240-1(6)3
South of Chinook S & 3 Mile Cr - 2 Miles S Chinook

The 3 Mile Creek Bridge on these projects was designed using a prefabricated bridge element system. The intent of this design was to reduce the impact to the traveling public through rapid construction while also gaining industry knowledge in prefabricated bridge elements and systems.

Initially, consideration was given to eliminating the detour and specifying a short duration closure (48 - 66 hours). Based on the location, it was felt that a minimal detour during rapid replacement would adequately serve the needs of the area while minimizing the overall costs. The prefabricated bridge element system allows for a significant reduction in construction time.

The prefabricated bridge element system was bid as Bridge Superstructure. This bid item hasn't been used before. However, the prefabricated bridge element system is similar to the elements used on the Maxwell Coulee bridge project. Maxwell Coulee was a rapid bridge replacement project done on an exigency basis.

The Engineer's Estimate for the Bridge Superstructure was based on the Maxwell Coulee experience. Unfortunately, the fabricator that did Maxwell Coulee choose not to offer quotes on this project. The resulting bids include both startup costs and uncertainty risk costs.

We believe that prefabricated bridge element system offer several potential advantages to MDT. These include reduction in traffic disruption, fabrication in a more controlled environment, and potential cost savings. The cost savings may come directly from the cost of the elements as the industry become familiar with the systems and concepts. Other savings come from reduced construction time including less traffic control and less field crew time. Additionally, there can be environmental advantaged through reduced detour impacts.

Anytime new items and techniques are introduced, the initial costs tend to be higher. As the industry learns and adjusts, costs tend to go down. For prefabricated bridge element system, that pattern has been shown nationally. On this project, the Engineer's Estimate assumed that some of the startup costs and uncertainty had been absorbed on another project. That turned out to be incorrect.

The bid prices for the Bridge Superstructure include some startup and uncertainty costs. Continuing with this project will help the industry learn and adjust to rapid construction techniques using prefabricated bridge element systems.

Cost information from Bridge Bureau:

I looked at the total cost of the bridge as bid. The bridge items total \$816,217. That is about \$250/sqft.

Typical bridges cost between \$100 and \$175 per square foot. I would expect a short bridge like this with the piling and support units it has to be in the upper part of that range. The excess cost is almost completely in the Bridge Superstructure prefabricated bridge element item. I estimate that extra cost to be between \$250,000 and \$300,000.

There are savings that are hard to capture. The prefabrication shortens the construction duration resulting in savings in traffic control and other items. The detour was minimized based on this design. Also, there are our construction engineering costs to maintain our crews on the project. There is also potential long term benefit from developing contractor's ability to work with this type of system.

As an alternate, we could redesign the bridge for conventional construction. The changes would be fairly straight forward.

Commissioner Cobb moved to award project 202 to the respective low bidder and requested the Commission be advised prior to the award process when another project of this manner is considered; Commissioner Griffith seconded the motion, all Commissioners voted aye.

Meeting adjourned at 9:05am