

FIXED BUDGET VARIABLE QUANTITY CONTRACTING REPORT

Project Location: St. Joe River Road, Shoshone County Project No: A019(432)
Key No: 19432
Project Manager: Kevin Kuther, Local Highway Technical Assistance Council (LHTAC)
Report Date: December 7, 2017

INTRODUCTION

This report was written to document the performance of Fixed Budget/ Variable Quantity Contracting on the above referenced project. This report is required by FHWA after completion of the project and final acceptance by the LHTAC for ITD. The report contains an overall evaluation of the project.

PROJECT DESCRIPTION

This project was developed to improve safety for travelers on the St. Joe River Road between the communities of Calder and Avery. Local Highway Safety Improvement Program (LHSIP) funds were utilized. This roadway parallels the St. Joe River and commonly experiences fog and icy driving conditions. Snowplowing and heavy sanding shortens the service life and recognition of standard pavement markings. The safety improvement implemented with this project was the installation of recessed durable centerline pavement markings. This combination was chosen in an effort to minimize the winter maintenance impacts to the pavement markings thus increasing the service life and recognition of the striping.

The contractors bid this project on a Fixed Budget / Variable Quantity (FB/VQ) basis. They bid a defined length of recessed yellow pavement markings to be installed, by the foot, in place, for a total cost of \$445,000 plus an additional \$5,000.00 contingency bid item, for a total of \$450,000. The primary selection was based upon the greatest distance of pavement marking placed (bid item S911-05A). A secondary qualifier, in the case identical distances were submitted, was a bid on the fewest working days.

All work necessary to provide and install recessed durable pavement markings was included in the S911-05A bid item. This included mobilization, surface milling, spraying of pavement makings, testing, and traffic control. A contingency bid item (S900-50A) for additional water pollution and erosion control items, was also included, if needed. This contract had a fixed completion date determined by the amount of working days bid by the contractor added to the actual start date.

Initial Budget

Engineer's Estimate (\$):	<u>\$450,000 (Fixed Budget)</u>
Engineer's Estimate (quantity):	<u>118,135 (Variable Quantity) Units Feet</u>
Contract Time Determination:	<u>Bid by Contractor.</u>
Initial Duration:	<u>0 Units Working days (amount bid by Contractor)</u>
Time Restraints:	<u>none</u>

BIDDING RESULTS

Project Bid Results

Total Number of Bidders:	<u>2</u>
Bid Opening Date:	<u>07/11/2017</u>
Contractor (low bid):	<u>Apply-A-Line Inc.</u>
Award Date:	<u>08/14/2017</u>
Contractor's Bid (\$):	<u>\$450,000</u>
Contractor's Bid (quantity):	<u>*118,135</u> Units <u>Feet</u>
Contract Time Determination:	<u>Working Days bid by Contractor</u>
Contractor's Bid (time):	<u>*1</u> Units <u>Working Days</u>

*Both contractor bids submitted were for the same quantity and working days. A tie breaker, per Idaho Transportation Department spec book (section 102.14) and IDAPA (38.05.01.082) was implemented. Both contractors were notified of the tie and agreed the use of a coin toss to determine which contractor would receive the contract. The coin toss was conducted on 07/19/17. Representatives from both contractors were present (via video conference) and the contract was awarded to Apply-A-Line Inc.

EVALUATION OF FIXED BUDGET VARIABLE QUANTITY CONTRACTING TECHNIQUE

Metric 1 – Cost of Inspection

The construction engineering and inspection (CE&I) agreement was written with HMH Engineering, LLC for \$25,400, which is approximately 6% of the construction contract. To date, HMH Engineering has fulfilled their scope, and have invoiced \$25,329.91. CE&I costs for this project were lower than is typical of conventionally contracted project. This can be attributed to the fact that the Contractor completed the project in 7 days. Also, the inspection only had to one pay item to account for, minimizing their level of effort.

The project was a success. This project required minimal construction engineering and inspection budget. The Consultant was in constant communication with the Contractor for quantity tracking purposes, and ensured that a representative was always on site for traffic control verification and when testing was required. Inspection of all material and construction requirements were reviewed by the CE&I consultant.

Metric 2 – Final Construction Cost

The Contractor bid 1 working day for this work. They completed the project in 7 working days. The contractor was assessed liquidated damages, per the contract, for the 6 days exceeding the number of days bid.

Metric 3 – Industry Reaction

All reaction received from this project was positive. Inspection staff was able to easily track quantities, and ensure compliance with all items deemed incidental to the work of installing recesses pavement markings. The Contractor was not new to Federal-aid construction contracts and did not express any dissatisfaction with the method that this contract was administered. Contractor indicated that they have bid and completed Fixed Budget Variable Quantity contracts in other states, prior to this project, and prefer to bid Federal-aid projects this way.

Actual Project Statistics

Cost of Inspection (CE):	<u>\$25,329.91 to date</u>		
Final Construction (CN):	<u>\$445,000.00 (\$5,000 for S900-05A CA - Water Pollution and Erosion Control was not used)</u>		
Change Orders (CN):	<u>\$0</u>		
Other CN Adjustments:	<u>\$-6000.00 (Liquidated Damage)</u>		
Total (CN):	<u>\$439,000.00</u>		
Final Quantity:	<u>118,135</u>	Units	Feet
Actual Construction Duration:	<u>7</u>	Units	WD
Project Completion Date:	<u>10/10/17</u>		

RECOMMENDATIONS USING THE FIXED BUDGET VARIABLE QUANTITY CONTRACTING TECHNIQUE

This contracting method is not normally implemented; consequently an inordinate amount of time was spent on the design, reviews, and approvals – only because it was unusual and needed approvals from several different sources. The project length (feet) placed in the plans was adjusted based on the original engineers’ estimate. Total project distance could not be adjusted because the project limits matched what was cleared by the Environmental document. The project budget could have been adjusted in an attempt to lower the overall project cost. Future projects, using this contracting method, will account for an increase in the total limits included in the Environmental document. This would allow the project to be adjusted later in design if the engineers estimate allows. This process will improve with practice. The contracting method is VERY appropriate for some projects, LHTAC will continue to identify opportunities to employing it.

CONCLUSION

Shoshone County and LHTAC are pleased with the results of this project. The County received the safety improvement anticipated at the cost that was estimated. The fixed budget / variable quantity contracting technique worked well; it was suited for this project. Both the Sponsor and LHTAC would recommend using FB/VQ contracting for similar projects in the future.