

IDAHO – 2020 SEP-14 FBVQ CONTRACTING REPORT
FIXED BUDGET VARIABLE QUANTITY CONTRACTING REPORT
Salmon River Road

PROJECT LOCATION: SALMON RIVER ROAD
KEY NO: 19819
PROJECT MANAGER: LHTAC
REPORT DATE: November 17, 2020

Introduction

This report has been written to document the performance of Fixed Budget / Variable Quantity Contracting on the referenced project. This report is required by FHWA following completion of the project and final acceptance by ITD. This report contains an overall evaluation of the project construction and design. This project was constrained by a fixed final budget which could not be exceeded as it was bound by agreement.

Project Description

The project purpose is to improve safety on an 11 mile stretch of the Salmon River Road. Roadway patching to correct rockfall damage, utility vault adjustments, and chip sealing was selected as the safety countermeasure to help reduce crashes. Chip sealing the road provides improved surface friction and helping cars stay on the road, especially around curves. Additional work was completed in order to effectively implement the chip seal including significant pavement damage caused by frequent rockfalls, and utility vault adjustments that brought utility vaults to roadway elevation eliminating pronounced lips in the transition surface. Used concurrently, these countermeasures help reduce the severity and frequency of lane departure crashes on the Salmon River Road.

Initial Budget

Engineer's Estimate (\$)	\$551,400
Engineer's Estimate (Quantity)	315,266 SY
Contract Time Determination:	20 Day
Initial Duration:	20 Day
Time Restraints:	Work must start no earlier than September 14th or later than September 28th.

Bidding Results

Total number of Bidders:	2
Bid Opening Date:	May 5 th , 2020
Contractor (Low Bid):	Poe Asphalt Paving, Inc.
Award Date:	June 1, 2020
Contract's Bid (\$):	\$551,400.00
Contractor's Bid (quantity):	251,944 SY
Contract Time Determination:	9 day
Contractor's Bid (Time):	9 day

EVALUATION OF FIXED BUDGET VARIABLE QUANTITY CONTRACTING TECHNIQUE

Metric 1- Cost of Inspection

The Construction Engineering and Inspection Agreement was written with HW Lochner for \$107,555.00 which is approximately 20% of the construction contract. To date, Lochner has fulfilled their scope of work and has invoiced \$36,051.23. The final amount is anticipated to be under the originally budgeted amount for Construction Engineering & Inspection (CEI).

The project was performed for the amount estimated and budgeted and is therefore, a success.

Metric 2 – Final Construction Cost

The Contractor bid 9 working days for this work and used 8 of those days. The Contractor completed all project work and fulfilled the full value of the contract.

Metric 3 – Industry Reaction

The Design Industry deals with variations on cost containment design and bidding strategies routinely utilizing state and local money or other sources of federal funds. They find variations of this theme very effective based on how they are implemented. The Construction Industry reaction to this project was largely negative. Primarily due to the style in which it was bid. This project presented 3 Contingency Items in addition to the FP/VQ item. The 3 Contingency Items were completed ahead of the chip seal and their final value determined the final limits of the Chip Seal. Because Contingency Items are very administratively taxing, it took a significant effort by the LHTAC, CE&I, and Contractor to quantify the value of these items ahead of the chip seal work. Additionally, because of the nature of Contingency Items, Contractor location, sources, waste sites, etc. largely impacts the final budgets. Because of this, preliminary engineered estimates were highly subjective. The project Contingency Items saw significant overruns from what was estimated.

Actual Project Statistics

Cost of Inspection (CE):	\$107,555.00
Final Construction Costs (CN):	\$594,078.00
Change Orders (CN):	\$30,000
Other CN Adjustments:	-none-
Total (CN)	\$594,078.00
Final Quantity:	406,901.54 SY
Actual Construction Duration:	8 days
Project Completion Date:	9/23/2020

RECOMMENDATIONS USING THE FIXED BUDGET VARIABLE QUANTITY CONTRACTING TECHNIQUE

This contracting method is very useful for some types of construction projects. Some problems identified were:

- FPVQ projects should be bid partnered with Contingency Items as minimally as possible. This introduces a large variability from Contractor to Contractor and makes cost estimating very difficult. This project bid with Contingency Items as a requirement of the contracting agency. This should be avoided in the future in lieu of fixed contract items.
- Specification language needs to be refined that if the entire area is completed and there is available funds will be paid only for those quantities installed, To avoid having to pay for area(s)/ material(s) not actually constructed.

- There needs to be additional care taken during the design phase to accurately measure and document in the project specifications, the area to be constructed to account for potential over-runs and under-runs of material prior to contracting.
- Materials testing contract-wide needs to be clearly defined for both owner and Contractor.

CONCLUSION

This project utilized a “dirty” chip seal aggregate, not widely seen in the state. While the Contractor was hesitant when faced with a new design as well as a design that permitted placement in the fall, the County is happy with how it went down and confident that it is in-line with applications of the same design they have completed in the past. Overall, this project was successful and, with some tweaks to the presentation, was a good candidate for this bidding structure. Additionally, we were able to accomplish more than original design estimates even with some significant difficulties.

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FIXED BUDGET VARIABLE QUANTITY CONTRACTING REPORT
East Canyon Road, Kootenai County

PROJECT LOCATION: East Canyon Road, Kootenai County
KEY NO: 20474
PROJECT MANAGER: LHTAC
REPORT DATE: November 17, 2020

Introduction

This report has been written to document the performance of Fixed Budget / Variable Quantity Contracting on the referenced project. This report is required by FHWA following completion of the project and final acceptance by ITD. This report contains an overall evaluation of the project construction and design.

Project Description

This Local Highway Safety Improvement Program (LHSIP) project was developed to improve the safety for drivers on several roads in the Eastside Highway District (ESHD) located in Kootenai County. All roads included in the project are two-lane rural sections that traverse rolling and mountainous terrain with centerline striping. The safety improvement for this project was to install durable pavement markings on the edge line and center line in order to reduce roadway departure crashes.

The project was bid on a fixed budget / variable quantity (FB/VQ) basis using feet of durable pavement markings as the primary selection criteria (Part A). The secondary selection criteria (Part B) of working days to complete the project was also bid in the event a tie-breaker was needed for the primary criteria. This type of contracting can also be called an “A plus B bid” and bid is awarded only Part A unless multiple bidders have the same quantity, in which case Part B is used to determine the responsive bidder based on the lowest working days.

All work necessary to provide and complete installation of durable pavement markings was included in the bid item (S911-05A SP Durable Pavement Markings) with a budget of \$395,000. No additional payment was made for items such as mobilization, surface preparation, materials testing or temporary traffic control. A contingency bid item (S900-05A Contingency Amount-Water Pollution and Erosion Control) for \$5,000 was included if needed during construction.

Initial Budget

Engineer’s Estimate (\$)	\$400,000
Engineer’s Estimate (Quantity)	312,050 FT (Maximum Possible)
Contract Time Determination:	Bid by Contractor (Part B-Working Days)
Initial Duration:	Bid by Contractor (Part B-Working Days)
Time Restraints:	Work must start no earlier than July 15, 2020 or later than August 15, 2020.

Bidding Results

Total number of Bidders:	2
Bid Opening Date:	December 10, 2019
Contractor (Low Bid):	Apply-A-Line, LLC
Award Date:	January 3, 2020
Contract’s Bid (\$):	\$400,000
Contractor’s Bid (quantity):	312,050 FT
Contract Time Determination:	Bid by Contractor (Part B-Working Days)
Contractor’s Bid (Time):	1 day

EVALUATION OF FIXED BUDGET VARIABLE QUANTITY CONTRACTING TECHNIQUE

Metric 1- Cost of Inspection

The Construction Engineering and Inspection Agreement was written with JUB Engineers, Inc. (JUB) for \$36,873.00 which is approximately 9% of the construction contract. To date, JUB has fulfilled their scope of work and have invoiced \$16,895.58. CE&I costs for this project were lower than is typical for a conventionally contracted project. This can be attributed to the short duration (4 days), and only having one pay item to account for.

Metric 2 – Final Construction Cost

The Contractor bid one (1) working day for this project and completed the work in four (4) working days. The contractor was assessed liquidated damages, per the contract, for the three (3) days exceeding the number of days bid.

Metric 3 – Industry Reaction

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

Actual Project Statistics

Cost of Inspection (CE):	\$16,895.58
Final Construction Costs (CN):	\$395,000.00
Change Orders (CN):	\$0
Other CN Adjustments:	-\$3,000 (Liquidated Damages per Contract)
Total (CN)	\$392,000.00
Final Quantity:	312,050 FT
Actual Construction Duration:	4 Working Days
Project Completion Date:	06/22/202

RECOMMENDATIONS USING THE FIXED BUDGET VARIABLE QUANTITY CONTRACTING TECHNIQUE

This contracting method has been used on prior projects that were similar in scope. LHTAC implemented lessons learned from those projects to make this project successful. The potential quantity of durable pavement markings was purposefully set high in order to avoid receiving a maximum quantity bid. In this case both bids were for maximum quantity which LTHAC and the Engineer did not believe would occur. The initial estimate was based off a different product than was bid by both contractors. After a thorough submittal review, the Engineer and LHTAC decided to allow the proposed durable pavement marking product as an “equal” to the product specified. The installed durable pavement markings will be informally monitored by the ESHD, JUB and LHTAC to determine their longevity from road wear and snow plowing. This contracting method is very appropriate for some projects, and LHTAC will continue to refine and implement this type of project when it makes sense.

CONCLUSION

The ESHD and LHTAC were pleased with the results from this project. The ESHD received the maximum possible quantity of durable pavement markings within budget. The FB/VQ contracting method worked well for this type of project. Both ESHD and LHTAC would recommend using FB/VQ contracting for similar projects in the future.