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January 8, 2015

Peter Hartman, Division Administrator
Federal Highway Administration
3050 Lakeharbor Ln, Suite 126
Boise, ID 83703

RE: Special Experimental Project No. 14 (SEP-14) Annual Reporting Requirement
Fixed Budget/Variable Quantity Contracting

Dear Mr. Hartman:

Per the Idaho Transportation Department's Work Plan, we hereby submit the attached report regarding activity on the Department's use of SEP-14 Fixed Budget/Variable Quantity Contracting for federal-aid projects performed during the 2014 calendar year. This report contains an overall evaluation of the projects, along with the Department's suggestions and recommendations for improving the process.

For the 2014 reporting period, one federal-aid project was completed using the Fixed Budget/Variable Quantity Contracting method. Please find enclosed the Department's evaluation of the project.

Even though it is not required that the Department report on state-funded Fixed Budget/Variable Quantity contracts, the Department would also like to submit five additional projects that utilized this method. This will be the only time we will report on state-funded projects of this type, however, our intent for this year's report is to document the Department's successful usage of this bidding technique.

Please don't hesitate to contact me if you have any comments or questions.

Sincerely,

Monica Crider, P.E.
Contracting Services Engineer

Enclosures:

Project Evaluations:

- 12319: SH-7 Gilbert Grade
- 12012: FY12 D2 Distwide Sealcoats
- 12013: FY13 D2 Distwide Sealcoats
- 12993: MP251-261 Concrete Slab Repair
- 12994: FY14 D2 Distwide Sealcoats
- 13011: FY15 D2 Distwide Sealcoats

Copy of SEP-14 Fixed Budget/Variable Quantity Contracting Work Plan (2/6/14)

cc: Kyle Holman - FHWA

Final Report Regarding Fixed Budget/Best Value Contracting
Federal Aid Project No. KN12319: SH-7 Gilbert Grade
January 2, 2015

Introduction

This report was written to document the performance of Fixed Budget/ Best Value Contracting on the above-mentioned project. This report is required by FHWA after completion of the project and final acceptance by the ITD. The report contains an overall evaluation of the project.

Project Description

The project resurfaced SH-7 between MP36.783 and MP48.869 with crushed aggregate base course that is a uniform thickness for a fixed cost of $651,500. SH-7 in this location is a low volume state highway that has a gravel surface, a narrow roadway width of about 20', and steep topography. The project used gravel sources immediately adjacent to the roadway between MP 43.4 and MP 43.7 as the designated sources. The same gravel sources were used on past projects on SH-7.

Contractors bid a tonnage of crushed aggregate base that is excavated or blasted from the source, crushed, placed, and compacted. The aggregate was placed in a uniform thickness of 5" throughout the roadway. All contract items including clearing and grubbing, wasting overburden soil, traffic control, mobilization, and other items were incidental to the unit price of crushed gravel. In addition to the primary pay item, a Contingency Item was set up for sediment and erosion control in the amount of $10,000.

ITD gave the contractor one working day for every 2000 tons of crushed gravel. The contractor required 7 extra working days to complete work; therefore, $8,400 of liquidated damages was charged to the contractor. The contract included a 5% contingency which was not used. No change orders were issued on the project.

The project was constructed during the spring and early summer of 2014.

Bidding Results

Bids were opened on January 7, 2014 and the low bidder, or the bidder that delivered the most value for a fixed budget, was Woods Crushing and Hauling, Incorporated, with a bid of 79% of the engineers estimate, or 41,448 tons. Five other contractors placed bids for the work that ranged between 14,115 tons and 34,055 tons. The contract gave 1 working day for every 2000 tons of placed aggregate; therefore, the total working days allowed based on the contractor's bid was 21 working days

Evaluation of Fixed Cost Best Value Bidding Technique

Metric 1 – Cost of Inspection
The cost of inspection (CE) for the project was about $44,986, or about 6.8% of the construction cost. Inspection was efficient and well below the 10% that is typically allotted for construction inspection of a project. All materials testing requirements and Quality Assurance Manual requirements were met by the Contractor.

Metric 2 – Final Construction Cost
The original project budget was $651,500 and the final contract value was $643,079, or 94.8% of the original budget. This percentage of original contract value was well within the percentage required for the project to be a success, or 105%.

Metric 3 – Industry Reaction
Dave Kuisti (D2 District Engineer), Doral Hoff (D2 District Engineering Manager), Joe Schacher (D2 Resident Engineer), and Brian Wood(Project Manager for Woods Crushing, Incorporated) were asked for their input regarding the Fixed Cost Best Value Bidding technique. They did not have concerns about how the bidding technique worked on this project. Brian Wood indicated that the technique was simple and easy. He recommends using it on future projects with a similar scope of work.

Recommendations Using the Fixed Cost Best Value Bidding Technique

The bidding technique worked very well and no recommendations to improve the technique were made.

Conclusion

The District and the contractor did not have any issues with the bidding technique and gave it a positive review after completion of the project. The fixed-cost best value bidding technique worked well and the District and the contractor recommends using on future similar projects.

Final Report regarding Fixed Cost Variable Quantity Contracting
State Funded Project No. KN12012: FY12 D2 Distwide Sealcoats
January 2, 2015

Introduction

This report was written to document the performance of the Fixed Cost Variable Quantity bidding technique on the above-mentioned project. The project was state-funded; therefore, the generation of this report is not required by either the ITD or FHWA.

Project Description

The FY12 D2 Distwide Sealcoat package was a combination of all proposed sealcoats to be constructed at various locations in District 2 during the Summer of 2011. The Fixed Cost Variable Quantity bidding technique required the contractor to bid the total square yardage of sealcoating that could be completed for $735,000. Eleven different prioritized sealcoats totaling 899,972 square yards of proposed sealcoats were available for bidding. Priority 2A required smoothness grinding. The smoothness grinding was prebid by the ITD for the contractor for $125,000.

The scope of work for KN12012 was later changed during construction to include a sealcoat between Cottonwood and Grangeville during August of 2011. This sealcoat was a high priority on a paving job that had rapidly deteriorating plant mix that was placed one year earlier due to an aggregate source that did not meet source testing requirements. KN12012 was used to fund the sealcoat because the paving contractor for the project between Cottonwood and Grangeville was not cooperative and would not include the sealcoat in their project for a reasonable price. Adding extra sealcoats to a contract is rare; however, it was required in this case to preserve the condition of rapidly deteriorating new pavement that was placed a year earlier. Adding this sealcoat did not affect the fixed cost variable quantity bidding technique.

The Contract required a fixed completion date of August 15, 2012.

Bidding Results

Bids were opened on March 8, 2011 and the low bidder, or the bidder that proposed the most quantity for the fixed budget, was Knife River with a bid of 335,616 square yards. One other contractor placed a bid for the work.

Evaluation of Fixed Cost Variable Quantity Bidding Technique

Metric 1 – Cost of Inspection
The cost of inspection (CE) for the project was about $19,040. The cost of inspection was 1.4% of the construction cost. Inspection was very efficient and well below the 10% that is typically allotted for

construction inspection of a project. The project met all required testing and quality control requirements.

Metric 2 – Final Construction Cost

The original project budget was $860,000. After the scope of work changed to add the sealcoat between Cottonwood and Grangeville, the budget increased $443,940 to become $1,303,940. The final cost of construction at closeout was $1,344,921.77, or 103% of the budget. This is within 105% of the budget and the project is considered successful from a budget standpoint. Three change orders added cost to the project budget. One change order added the sealcoat between Grangeville and Cottonwood and one change order paid the contractor $18,973 for asphalt escalation. The remaining change order added $3,033.92 to the Contract to add traffic control for the smoothness grinding operation.

Metric 3 – Industry Reaction

Jim Carpenter(D2 District Engineer), Pat Lightfield(D2 District Engineering Manager), Bob Schumacher(D2 Resident Engineer), and Josh Smith(Project Manager for Knife River) were asked for their input regarding the Fixed Cost Variable Quantity Bidding technique. They all indicated that the technique worked very well to control the budget and reduce administration with inspection forces and did not have major concerns regarding the technique.

Recommendations Using the Fixed Cost Variable Quantity Bidding Technique

The only issue that the District had with the bidding technique was related to the smoothness grinding item. On a typical contract, all traffic control items are paid for separately. On this fixed cost variable quantity contract, the traffic control is paid for under the sealcoating item. When a separate item for smoothness grinding was set up in the contract, traffic control for smoothness grinding was not made incidental to the smoothness grinding pay item; therefore, a small change order for traffic control was generated to cover these costs. The recommendation as a result of this issue is to make sure in future contracts that extra contract items beyond the primary sealcoating item include traffic control.

Conclusion

The fixed-cost variable-quantity bidding technique worked well and the District recommends using it in the future. The contractor did not have any issues with the bidding technique.

Final Report regarding Fixed Cost Variable Quantity Contracting
State Funded Project No. KN12013: FY13 D2 Distwide Sealcoats
January 2, 2015

Introduction

This report was written to document the performance of the Fixed Cost Variable Quantity bidding technique on the above-mentioned project. The project was state-funded; therefore, the generation of this report is not required by either the ITD or FHWA.

Project Description

The FY13 D2 Distwide Sealcoat package was a combination of all proposed sealcoats to be constructed at various locations in District 2 during the Summer of 2012. The Fixed Cost Variable Quantity bidding technique required the contractor to bid the total square yardage of sealcoating that could be completed for $1,725,000. Thirteen different prioritized sealcoats totaling 1,462,373 square yards of proposed sealcoats were available for bidding.

This project required a completion date of August 15, 2013.

Bidding Results

Bids were opened on March 27, 2012 and the low bidder, or the bidder that proposed the most quantity for the fixed budget, was Knife River with a bid of 738,125.8 square yards. Two other contractors placed bids for the work.

Evaluation of Fixed Cost Variable Quantity Bidding Technique

Metric 1 – Cost of Inspection
The cost of inspection (CE) for the project was about $20,898. The cost of inspection was 1.2% of the construction cost. Inspection was very efficient and well below the 10% that is typically allotted for construction inspection of a project. All contract requirements were met regarding testing and material acceptance.

Metric 2 – Final Construction Cost
The original project budget was $1,725,000. The final cost of construction at closeout was $1,735,078, or 100.5% of the budget. This is within 105% of the budget and the project is considered successful from a budget standpoint. No change orders were added to the project and $13,323.86 was paid for asphalt escalation.

Metric 3 – Industry Reaction

Jim Carpenter(D2 District Engineer), Pat Lightfield(D2 District Engineering Manager), Bob Schumacher(D2 Resident Engineer), and Josh Smith(Project Manager for Knife River) were asked for their input regarding the Fixed Cost Variable Quantity Bidding technique. They all indicated that the technique worked very well to control the budget and reduce administration with inspection forces and did not have major concerns regarding the technique.

Recommendations Using the Fixed Cost Variable Quantity Bidding Technique

The bidding technique worked very well and no recommendations to improve the technique were made.

Conclusion

The fixed-cost variable-quantity bidding technique worked well and the District recommends using it for future sealcoat projects. The contractor did not have any issues with the bidding technique.

Final Report regarding Fixed Cost/Variable Quantity Contracting
State-Aid Project No. KN12993: MP251-261 Concrete Slab Repair
January 2, 2015

Introduction

This report was written to document the performance of the Fixed Cost Variable Quantity bidding technique on the above-mentioned project. The project was state-funded; therefore, the generation of this report is not required by either the ITD or FHWA.

Project Description

The project replaced cracked concrete slabs on a concrete highway that is about 30 years old on US-95 between MP 251 and 261 during the summer and fall of 2013. The proposal listed the severity of the slab cracking and listed the slab replacement in a prioritized order. The Contractor then bid the total quantity of slab replacement that could be completed for $1,371,000. The contract allowed 1 working day for every 150 SY of concrete slab replacement and included a 5% contingency similar to standard ITD contracts.

The concrete slab replacement item included concrete slab removal, base preparation, new concrete, tie bars, dowel bars, epoxy, self-leveling concrete joint sealant, and traffic control. In addition to this primary pay item, two other pay items were in the contract. One other pay item was a soft spot repair pay item for a specific location that was “pre-bid” for the contractor at a cost of $7,000. The last pay item was a contingency item for shoulder and deep base repair. This pay item set up funds to repair the plant mix shoulder or slab base if necessary.

A change order was issued for smoothness grinding to make the pavement surface smoother. The work for this change order was completed early in the calendar year of 2014.

Bidding Results

Bids were opened on June 4, 2013 and the low bidder, or the bidder that proposed the most quantity for the fixed budget, was Interstate Improvement Incorporated with a bid of 8,050 square yards. This quantity was about 6% more quantity than the engineers estimate of 7,616 square yards. Six other contractors submitted bids that ranged between 5,020 and 7,410 square yards. The contract gave one working day for every 150 square yards of slab replacement; therefore, the total working days allowed, based on the contractor's bid, was 54 working days.

Evaluation of Fixed Cost Variable Quantity Bidding Technique

Metric 1 – Cost of Inspection

The cost of inspection (CE) for the project was about $68,048, or about 4.5% of the construction cost. Inspection was very efficient and well below the 10% that is typically allotted for construction inspection of a project. All inspection and testing requirements of the contract were met. The inspection and testing requirements did not deviate from the QA Manual.

Metric 2 – Final Construction Cost

The original project budget was $1,428,000 and the final contract value was $1,493,047, or 104.5% of the original budget. Although the contract total was over the original project budget, the project funding was within 105% of the original bid and the Department views the project funding as a success. The reason that the actual cost was higher than the original bid value was because a smoothness grinding change order added $116,220 to the contract value. The change order was not a result of the bidding technique. If the change order was not added, the contract value would have been less than the original contract value. The extra cost due to the change order was the result of the District's commitment to achieve a smoother highway and satisfy Department Performance Measures.

Metric 3 – Industry Reaction

Dave Kuisti(D2 District Engineer), Doral Hoff(D2 District Engineering Manager), Joe Schacher(D2 Resident Engineer), and Paul Cink(Project Manager for Interstate Improvement, Inc.) were asked for their input regarding the Fixed Cost Variable Quantity Bidding technique. They did not have concerns about how the bidding technique worked on this project.

Recommendations Using the Fixed Cost Variable Quantity Bidding Technique

The bidding technique worked very well and no recommendations to improve the technique were made.

Conclusion

The fixed-cost variable-quantity bidding technique worked well and the District recommends using it in the future concrete slab replacement projects. The contractor did not have any issues with the bidding technique.

Final Report regarding Fixed Cost Variable Quantity Contracting
State Funded Project No. KN12994: FY14 D2 Distwide Sealcoats
January 2, 2015

Introduction

This report was written to document the performance of the Fixed Cost Variable Quantity bidding technique on the above-mentioned project. The project was state-funded; therefore, the generation of this report is not required by either the ITD or FHWA.

Project Description

The FY14 D2 Distwide Sealcoat package was a combination of all proposed sealcoats to be constructed at various locations in District 2 during the Summer of 2013. The Fixed Cost Variable Quantity bidding technique required the contractor to bid the total square yardage of sealcoating that could be completed for $1,600,000. Twelve different prioritized sealcoats totaling 1,294,383 square yards of proposed sealcoats were available for bidding. District 2 did not include any contingency for the project.

During project advertisement, the Mayor of Bovill requested to include a sealcoat through the City of Bovill, since one of the sealcoats began at their city limits. The District Engineer responded to the City of Bovill in a letter and informed him that District 2 generally does not sealcoat through towns due to the potential of tracking asphalt during the curing process, but that the Resident Engineer would try to accommodate his request by working with the contractor. After discussions with the Contractor, the extra sealcoat was added in downtown Bovill and quantity was reduced from the lowest priorities to keep the project within budget.

The project scope also changed to have a 1 mile long test strip on US-12 between MP 143.75 and 144.75 using Class A urban chips. The request was initiated by the contractor as a no cost change order. The test strip was performed to determine if the urban chips have better retention on this section of US-12 that has heavy winter conditions.

The contract required a fixed completion date of August 15, 2014.

Bidding Results

Bids were opened on November 6, 2012 and the low bidder, or the bidder that proposed the most quantity for the fixed budget, was Knife River with a bid of 740,113 square yards. Two other contractors placed bids for the work.

Evaluation of Fixed Cost Variable Quantity Bidding Technique

Metric 1 – Cost of Inspection

The cost of inspection (CE) for the project was about $33,079. The cost of inspection was 2.1% of the construction cost. Inspection was very efficient and well below the 10% that is typically allotted for construction inspection of a project. All contract requirements regarding testing and inspection were met.

Metric 2 – Final Construction Cost

The original project budget was $1,600,000. The final cost of construction at closeout was $1,600,000, or 100.0% of the budget. This is within 105% of the budget and the project is considered successful from a budget standpoint. No change orders that added cost to the project were completed.

Metric 3 – Industry Reaction

Jim Carpenter(D2 District Engineer), Pat Lightfield(D2 District Engineering Manager), Bob Schumacher(D2 Resident Engineer), and Josh Smith(Project Manager for Knife River) were asked for their input regarding the Fixed Cost Variable Quantity Bidding technique. They all indicated that the technique worked very well to control the budget and reduce administration with inspection forces and did not have major concerns regarding the technique.

Recommendations Using the Fixed Cost Variable Quantity Bidding Technique

The bidding technique worked very well and no recommendations to improve the technique were made. This contract proved that work within a fixed cost variable quantity project could be flexible and project limits and scope of work could change without financial consequences.

The Resident Engineer and the Project Manager for Knife River both expressed frustration with the decision not to have a contingency for items like asphalt escalation. In order to keep the project within budget, the length of the last priority changed several times during construction adding extra administration. This issue is not related to the fixed cost variable quantity bidding technique.

Conclusion

The fixed-cost variable-quantity bidding technique worked well and the District recommends using it in the future. The contractor did not have any issues with the bidding technique. This contract proved that the bidding technique could be flexible with changes in project limits and scope without financial consequences.

Final Report regarding Fixed Cost Variable Quantity Contracting
State Funded Project No. KN13011: FY15 D2 Distwide Sealcoats
January 2, 2015

Introduction

This report was written to document the performance of the Fixed Cost Variable Quantity bidding technique on the above-mentioned project. The project was state-funded; therefore, the generation of this report is not required by either the ITD or FHWA.

Project Description

The FY15 D2 Distwide Sealcoat package was a combination of all proposed sealcoats to be constructed at various locations in District 2 during the Summer of 2014. The Fixed Cost Variable Quantity bidding technique required the contractor to bid the total square yardage of sealcoating that could be completed for $1,568,000. Twelve different prioritized sealcoats totaling 1,094,478 square yards of proposed sealcoats were available for bidding. District 2 included a 2% contingency for potential asphalt and fuel escalation.

This sealcoat contract required a fixed completion date of August 15, 2015.

Bidding Results

Bids were opened on October 22, 2013 and the low bidder, or the bidder that proposed the most quantity for the fixed budget, was Knife River with a bid of 788,206 square yards. Two other contractors placed competitive bids for the work. Extra quantity was later added to the contract at contract unit prices to complete the entire section of US-12 from Arrow Br to Lenore. This change in scope added 70,231 SY to bring the total SY in the Contract to 858,437 SY. The total cost increased $139,759 for a project total of $1,707,759.

Evaluation of Fixed Cost Variable Quantity Bidding Technique

Metric 1 – Cost of Inspection
The cost of inspection (CE) for the project was about $20,184. The cost of inspection was 1.2% of the construction cost. Inspection was very efficient and well below the 10% that is typically allotted for construction inspection of a project.

Metric 2 – Final Construction Cost
The original project budget was $1,568,000. The budget was increased to $1,707,759 to include additional sealcoat quantity. The final cost of construction at closeout was $1,707,759, or 100.0% of the increased budget and 109% of the original budget. Although the project was above the 105% goal of

the construction cost, the additional cost was not a result of a flaw in the bidding technique. The extra cost was the result of the District's decision to add scope to the project to complete a needed segment.

Metric 3 – Industry Reaction

Dave Kuisti(D2 District Engineer), Doral Hoff(D2 District Engineering Manager), Bob Schumacher(D2 Resident Engineer), and Josh Smith(Project Manager for Knife River) were asked for their input regarding the Fixed Cost Variable Quantity Bidding technique. They did not have concerns about how the bidding technique worked on this project.

Recommendations Using the Fixed Cost Variable Quantity Bidding Technique

The bidding technique worked very well and no recommendations to improve the technique were made.

Conclusion

The fixed-cost variable-quantity bidding technique worked well and the District recommends using it for future sealcoat contracts. The contractor did not have any issues with the bidding technique.

Work Plan

Special Experimental Project No. 14 (SEP-14)
Idaho Transportation Department

Fixed Budget/Variable Quantity Contracting
Statewide Programmatic

February 6, 2014

INTRODUCTION

The Idaho Transportation Department (ITD) submits this work plan for review and programmatic approval under the provisions of Special Experimental Project No. 14 (SEP14) for the use of innovative contracting practices.

PURPOSE

Fixed Budget/Variable Quantity bidding is an innovative bidding technique where a contractor bids a quantity of installed material for a fixed price. The contractor that bids the most quantity wins the bid. In the event of a tie, the contractor that bids the lowest number of working or calendar days will be the winning bidder. Using this Fixed Budget/Variable Quantity contracting technique will help ITD achieve one of its Strategic Goals, to "implement innovative business practices".

Other expected benefits of this contracting method are to reduce administrative work and speed project delivery, while controlling costs to keep the projects within budget.

SCOPE

This contracting method can be applied to the following project types:

Seal Coats	Concrete Panel Replacement
Guardrail	Microsurfacing
Fencing	Scrub Coat
Striping / Pavement Markings	SAFLEA (Stress Absorbing Fiberglass Layer of Emulsified Asphalt)
Guardrail End Treatments	Fog Seal
Sign Upgrades	Sand Seal
Bridge Deck Treatments	Slurry Seal
Crack Sealing	Rumble Strips / Rumble Stripes
Gravel Road Surfacing	ADA Ramps

These project types lend themselves to this type of innovative contracting because their scope is consistent and repetitive in nature throughout the length of the project.

When considering use of this programmatic for ADA ramps, ensure that the ramp types are similar, within the existing right of way and require no utility relocation. This will increase the chances for

contractor efficiencies while limiting the amount of risk they bid into their quantity. Low variability and repetitive scopes are where this methodology is most appropriate. Its recommended that curb ramps be numbered and prioritized for reconstruction.

Traffic Control may be considered incidental to contract lump sum item, where appropriate.

SCHEDULE

Projects utilizing this contracting method will be constructed within a single construction season. A minimum and maximum working day range will be based on the engineer's estimate.

EVALUATION

In order to evaluate the success of this bidding technique, the ITD will measure three metrics:

1. The overall construction engineering and inspection costs will be analyzed and compared with other similar, conventionally contracted projects. Generally, ITD considers construction engineering and inspection costs to be efficient if less than 10% of the bid amount is spent on these activities.

2. The final construction cost, including change orders, will be compared to the bid amount in terms of a percentage, for the proposed versus the conventional contracting method. Generally, ITD considers a project to be successful if it is constructed within 105% of the bid amount.

3. Industry reaction will also be measured by interviewing the Contractor, the Resident Engineer, and District management to obtain their opinions on how well the bidding technique was received by industry.

REPORTING

ITD will prepare and submit a final report to FHWA after project final acceptance by ITD. The report will contain an overall evaluation of the project, along with any suggestions and recommendations for improving the process. To reduce administrative work, each district can elect to produce a single report covering all SEP-14 programmatic projects for each construction season, provided they report project specific findings under the different project category types.