

Utilizing Fixed Price Variable Scope Contracting for Design-Bid-Build Construction of Project J6P3543 (SEP-14) Final Report

Purpose and Scope

The Missouri Department of Transportation (MoDOT) and the Federal Highway Administration (FHWA) have entered into this SEP-14 agreement to approve the use of Fixed Price Variable Scope Contracting (FPVS) on preventive maintenance seal coat project J6P3543 with this agreement MoDOT and FHWA agreed to approve the use of FPVS as a form of “alternative contracting” identified under the FHWA’s SEP-14 program and followed a work plan for project.

Introduction

FPVS is a competitive Alternative Contracting Method (ACM) that allows an agency to maximize the amount of work completed for a fixed budget amount. The benefit of this contract method allows MoDOT to vary the amount of work to be completed to match the budget programmed for the project. MoDOT has successfully used FPVS contracting on numerous projects over the last couple of years. An advantage to contractors will be the ability to calculate bids knowing the locations of work, based on priorities established in the bid proposal.

This contract method allows MoDOT to vary the amount of work to be completed to match the budget programmed for the projects. The work included in the bid proposal is established in priority order to be completed and will exceed the amount of work that is expected to be completed by the budget in order to capitalize on getting better than expected bids. This procurement method will have the contractor bid a unit price for the estimated bid quantities for each item of work in the contract. The estimated quantities included in the contract represent the amount of work than can be completed for the budgeted amount. Once the project has been awarded, the MoDOT construction office would then manage the contract by adjusting the contract quantities to deliver the budgeted amount.

One of the goals of using FPVS is to reduce the amount of work required by staff to manage MoDOT’s program. A project with a constrained budget reduces the burden on staff to reallocate funds from projects if the cost estimate is exceeded or reduced. By using a fixed amount of funds, MoDOT did not have to search for additional projects to allocate any bid savings to, or conversely find additional funds from un-let projects. This also results in not having to prepare additional proposals and bid letting packages. The FPVS process saves the Department staff time and effort.

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Missouri Report: On this project , Missouri received bids through the traditional bidding process. The Contractor provided unit prices for the pay items provided in the schedule of items. The selected contractor was determined by the lowest submitted bid. The project was awarded at the lowest bid price. The bid book was made up of the normal pay items and quantities estimated by the Engineer that were included in the bid quantities. MoDOT provided the Contractors with the available budget of \$500,000 for the project in the Job Special Provisions. The portion of the project that was not included in the bid book

was considered the variable scope and was shown in the plans and Job Special Provisions in priority order after the bid quantities for removal or addition based on the bid price. Both the bid quantities and the variable scope quantities were included in the design and the environmental clearance document.

MoDOT's Engineer's estimate was over the anticipated amount available to complete all of the bid quantities shown on the plans. Through the use of this innovative delivery method, MoDOT was able to complete more pavement seal coat treatment than expected.

Project Development Considerations

This project was environmentally classified as a categorical exclusion. The project was cleared through the environmental process and all permits obtained for the entire project limits and not just what is estimated to be constructed. Work did not exceed what was environmentally cleared.

The project and scope was approved in the State Transportation Improvement Plan (STIP). The portions of the project that were not constructed were included in a later project (J6P3605) and completed as the top priority.

Bid Process and Results

MoDOT receives bids electronically on all DBB projects. Appendix A contains the bidding results for this project, and includes the scope of work, number of bidders, the bids from all bidders, the engineer's estimate of work and the additional work gained beyond the engineer's estimate.

The engineer's estimate of work on FPVS projects is based on historical average unit prices from a geographic area. The letting results from this FPVS project indicates that the FPVS contracting method on FPVS with seal coat is cost effective, and that more work is being performed to preserve MoDOT's roads than through the use of conventional Design-Bid-Build contracts.

Performance Measures and Reporting

Tracker Measure 3f – Innovative Contracting Methods and Value Engineering is MoDOT's performance measure that captures use of Design-Build, Fixed Price Variable Scope, A+B Contracting, and Design-Bid-Build ATC at MoDOT. The target is 10% of MoDOT's total program be used on innovative contracting. MoDOT's Tracker can be found at <https://www.modot.org/innovative-contracting-and-value-engineering-3f>. Measure 3f is located in the Deliver Transportation Solutions of Great Value section.

Cost and Time Savings

With preventative maintenance as the target for using FPVS, there is a substantial savings in both cost and time by delaying major improvements to assets and efficiently putting programmed resources to use. Additionally, by bundling many routes into one contract with a guaranteed price, MoDOT has realized lower bids on many of the projects compared other projects in the same area delivered traditionally. Using this method also provides the ability to get under contract efficiently and mitigate market fluctuations in real time.

Lessons Learned and Industry Reaction (To Date):

- With the addition of scope on this project, the contractor made a statement that they needed extra “fresh oil, loose gravel” and “no center line” signs to follow the requirements shown in the plans. With traffic control being paid per lump sum, the contractor had to pay for more signs than expected. Future projects have added more signs to compensate.

Appendix A

J6P3543 and State Funded only Bid Results:

Job Number	Letting	Scope of Work	Funding	Budget	Engineer's Estimate	Number of Bidders	Contractor	Bid	Scope Change
J6P3543	19-Feb-21	Seal Coat	Federally	\$500,000	\$540,529.03	4	Blevins Asphalt	\$484,600.00	-3.18%
							Missouri Petroleum	\$489,902.85	
							N.B. West Contracting	\$509,999.00	
							Emery Sapp & Sons	\$587,853.35	
J6S3591	19-Feb-21	Seal Coat	State Only	\$351,000	\$318,508.83	4	Missouri Petroleum	\$318,519.32	-10.20%
							Blevins Asphalt	\$321,500.00	
							N.B. West Contracting	\$328,500.00	
							Emery Sapp & Sons	\$397,888.06	