

## **SEP-14 Work Plan**

### **Missouri Department of Transportation Fixed Price Variable Scope Contracting Job No. J6P3543**

**November 23, 2020**

#### **Introduction**

The Missouri Department of Transportation (MoDOT) proposes to use Fixed Price Variable Scope Contracting (FPVS) on a project for the installation of Seal Coat (also known as “chip seal”) along various routes in Franklin County, Missouri.

#### **Purpose and Scope**

The purpose of the contract is to install Seal Coat on the maximum number of square yards as our budget will allow. The contract will include installation of Seal Coat and Pavement Marking to increase pavement preservation. MoDOT has budgeted \$500,000 of our district funds for the construction of these improvements.

#### **Procurement Process**

MoDOT proposes to use FPVS procurement to accomplish these projects. This contract method will allow MoDOT to vary the amount of work to be completed to match the budget set 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 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 hit the budgeted amount.

#### *Procurement Overview:*

- (a) MoDOT develops estimated quantities for the pay items in the project that will deliver the budget amount that is included in the project specifications.
- (b) Locations of the work are established in priority order in the project specifications.
- (c) MoDOT advertises the project through our traditional bidding processes.

- (d) The contractor will bid unit prices for the pay items and submits their bids through our traditional bidding processes.
- (e) MoDOT awards the contract to the lowest responsive bidder.
- (f) MoDOT manages the contract quantities based on the unit bid prices, work completed and the project budget following the priorities set in the specifications.

MoDOT will not utilize pre-bid meetings or industry meetings with contractors to familiarize them with the FPVS process. The St. Louis District did this type of contracting method last year on a State-funded Seal Coat project and offered a pre-bid meeting for that project. The industry is now familiar with this process.

### **Schedule**

This project is scheduled for a Spring 2021 bid opening date with construction to be completed by the Fall 2021.

### **Evaluation and Reporting**

MoDOT will provide FHWA's Missouri Division Office an evaluation of the contract within 6 months of the project's completion. This evaluation will include any relevant information related to efficiencies realized by the FPVS process including, but not limited to, quicker project delivery, cost savings compared to expected costs using the traditional bidding method, and recommendations for improving the use of FPVS. MoDOT has similar projects that will be bid using our traditional bid approach at the same time and those projects will be used for comparison.

## FPVS - Job No. J6P3543 Attachments

### Example Pay items

Pay Item	Quantity	Unit	Bid Price	Total
Seal Coat, Aggregate Grade A2	304298.8	SY		
Emulsified Asphalt, Seal Coat	85204	Gal		
Construction Signs	2143	SF		
Changeable Message Signs	4	EA		
4" White Pavement Marking, Type P Beads	231591	LF		
4" Yellow Pavement Marking, Type P Beads	231591	LF		
24" White Preformed Thermoplastic Pavement	35	LF		

Note: The amount of work established for bidding is based on spending the estimated budget amount.

### Contract Award and Management

The bidding documents will include set quantities for each pay item that all contractor will be required to bid by entering a unit bid price. The award of the contract will be given to the lowest responsible bidder based on the set quantities and unit bid price. After the project is awarded to the lowest responsible bidder, the contract will be managed by changing the quantities of each pay item to deliver the project budget.

There are two scenarios that could occur. The first scenario is the awarded bidder's total bid is lower than the project budget. The second scenario is the awarded bidder's bid is higher than the project budget. Here is how the scenarios would be handled after the award of the project:

#### **Scenario 1: The awarded Contractor's total bid is less than the project budget.**

Project Budget: \$500,000

Awarded Contractor's Bid: \$480,884

Contractor's Bid:

Pay Item	Quantity	Unit	Bid Price	Total
Seal Coat, Aggregate Grade A2	304298.8	SY	0.63	191708
Emulsified Asphalt, Seal Coat	85204	Gal	1.95	166147
Lump Sum Traffic Control	1	LS	21029.65	21029
Changeable Message Signs	4	EA	2000	8000
4" White Pavement Marking, Type P Beads	231591	LF	0.14	32422
4" Yellow Pavement Marking, Type P Beads	231591	LF	0.13	30107

24" White Preformed Thermoplastic Pavement	35	LF	25.00	875
Mobilization	1	LS	30595	30595

Since the contractor's total bid is less than the budget identified in the project special provisions, MoDOT would look at the priority list of routes identified in the special provisions to add additional quantities of work from the next highest priority. The project is under budget by \$18,915 and therefore MoDOT would need to increase the Seal Coat quantities using MoDOT's standard change order process. The quantity increase at the contractor's bid price would be:

Pay Item	Quantity	Unit	Bid Price	Total
Seal Coat, Aggregate Grade A2	13693	SY	0.77	8626
Emulsified Asphalt, Seal Coat	3834	Gal	2.15	7476
Lump Sum Traffic Control	0	LS	21029.65	0
Changeable Message Signs	0	EA	2000	0
4" White Pavement Marking, Type P Beads	10421	LF	0.14	1459
4" Yellow Pavement Marking, Type P Beads	10421	LF	0.13	1354
24" White Preformed Thermoplastic Pavement	0	LF	25.00	0
Mobilization	0	LS	30595	0

With the additional work, the final contract price would be \$499,799 which is below the project budget amount of \$500,000.

**Scenario 2: The awarded Contractor's total bid is more than the project budget.**

Project Budget: \$500,000

Awarded Contractor's Bid: \$540,526

Contractor's Bid:

Pay Item	Quantity	Unit	Bid Price	Total
Seal Coat, Aggregate Grade A2	304298.8	SY	0.77	183188
Emulsified Asphalt, Seal Coat	85204	Gal	2.15	234310
Lump Sum Traffic Control	1	LS	21029.65	21029
Changeable Message Signs	4	EA	2000	8000
4" White Pavement Marking, Type P Beads	231591	LF	0.14	32422
4" Yellow Pavement Marking, Type P Beads	231591	LF	0.13	30107
24" White Preformed Thermoplastic Pavement	35	LF	25.00	875
Mobilization	1	LS	30595	30595

Since the contractor's total bid is more than the budget identified in the project special provisions, MoDOT would look at the priority list of routes identified in the special provisions to remove quantities of work from the lowest priority included in the bid quantities. The project is

over budget by \$40,526 and therefore MoDOT would need to decrease the Seal Coat quantities using MoDOT’s standard change order process. The quantity decrease at the contractor’s bid price would be:

Pay Item	Quantity	Unit	Bid Price	Total
Seal Coat, Aggregate Grade A2	-25865	SY	0.77	19916
Emulsified Asphalt, Seal Coat	-7242	Gal	2.15	15571
Lump Sum Traffic Control	0	LS	21029.65	0
Changeable Message Signs	0	EA	2000	0
4” White Pavement Marking, Type P Beads	-19685	LF	0.14	2755
4” Yellow Pavement Marking, Type P Beads	-19685	LF	0.13	2559
24” White Preformed Thermoplastic Pavement	0	LF	25.00	0
Mobilization	0	LS	30595	0

With the contract change to reduce the quantities, the final contract price would be \$499,725 which is below the project budget amount of \$500,000.

### **Site Locations**

The following locations are included in the initial bid quantities:

- Route AT (1.8 miles): Starting at M and progressing to Route 50
- Route 185 (9.8 miles): Starting at Route 50 and progressing south to Route AC
- Route H (10.3 miles): Starting at Route 50 and progressing to Route AC

Exception from log mile 12.9 to log mile 13.0 for bridge over Bourbeuse River

The following locations are included as the variable scope portion of the contract:

- Route H (9.7 miles): Starting at Route AC and progressing to Route 185  
Exception from log mile 4.56 to log mile 4.58 for bridge over Boone Creek

## Example FPVS Special Provisions

### Contract Liquidated Damages JSP-13-01B

**1.0 Description.** Liquidated Damages for failure or delay in completing the work on time for this contract shall be in accordance with Sec 108.8. The liquidated damages include separate amounts for road user costs and contract administrative costs incurred by the Commission.

**2.0 Period of Performance.** Prosecution of work is expected to begin on the date specified below in accordance with Sec 108.2. Regardless of when the work is begun on this contract, all work shall be completed on or before the date specified below. Completion by this date shall be in accordance with the requirements of Sec 108.7.1. No extension of the completion time will be granted due to an increase of quantities per the Scope of Work special provision.

Notice to Proceed: March 8, 2021

Completion Date: September 2, 2021

**2.1 Calendar Days.** The count of calendar days will begin on the date the contractor starts any construction operations on the project.

Job Number	Calendar Days	Daily Road User Cost
J6P3543	N/A	\$1,800

**3.0 Liquidated Damages for Contract Administrative Costs.** Should the contractor fail to complete the work on or before the completion date specified in Section 2.0, or within the number of calendar days specified in Section 2.1, whichever occurs first, the contractor will be charged contract administrative liquidated damages in accordance with Sec 108.8 in the amount of \$250 per calendar day for each calendar day, or partial day thereof, that the work is not fully completed. For projects in combination, these damages will be charged in full for failure to complete one or more projects within the above specified completion date or calendar days.

**4.0 Liquidated Damages for Road User Costs.** Should the contractor fail to complete the work on or before the completion date specified in Section 2.0, or within the number of calendar days specified in Section 2.1, whichever occurs first, the contractor will be charged road user costs in accordance with Sec 108.8 in the amount specified in Section 2.1 for each calendar day, or partial day thereof, that the work is not fully completed. These damages are in addition to the contract administrative damages and any other damages as specified elsewhere in this contract.

### Scope of Work

**1.0 Description.** The scope of this project is to provide Seal Coat on the following routes.

**1.1** The following locations are included in the initial bid quantities:

- a) Route AT (1.8 miles): Starting at M and progressing to Route 50
- b) Route 185 (9.8 miles): Starting at Route 50 and progressing south to Route AC
- c) Route H (10.3 miles): Starting at Route 50 and progressing to Route AC

Exception from log mile 12.9 to log mile 13.0 for bridge over Bourbeuse River

**1.2** The following locations, in priority order, are included as the variable scope portion of the contract:

- a) Route H (9.7 miles): Starting at Route AC and progressing to Route 185

Exception from log mile 4.56 to log mile 4.58 for bridge over Boone Creek

**2.0 Fixed Budget.** The above routes are listed in priority order. The Commission has budgeted \$500,000 for installation of Seal Coat. The contractor shall begin installation on the first route and continue down the list until all funds have been used. If the contractor will not be able to complete the entire route, the contractor shall begin at the starting point listed and progress along the route covering entire width as shown in Typical Sections with Seal Coat until the funds are expended. It is the responsibility of the contractor to not exceed the budget listed above. Any contract costs incurred above this amount will be the responsibility of the contractor, unless approved by change order.

**3.0 Basis of Award.** The award of the contract will be based on the lowest responsible bidder based on their total bid for the itemized quantities in the proposal and unit price bid.

**4.0 Variable Scope.** Contract quantities will be adjusted after the award of the contract as necessary to match the budgeted amount stated in Section 2.0 of this JSP. In the event there is an increase in quantities to the contract, an extension of contract time will NOT be granted. There will be no adjustment made to the Mobilization and Traffic Control pay items resulting to any change orders for variable scope.

## **Bonds**

**1.0** The amount of the Bid Bond shall be 5% of the anticipated budget for this project.

**2.0** The amount of the Performance Bond shall be 100% of the anticipated budget for this project.

### **Pavement Marking Log**

**1.0 Description.** The contractor shall log the locations of existing pavement marking prior to any construction operations that may affect the existing pavement marking. The log shall contain all existing pavement marking and shall include center stripes, no passing stripes, lane lines, turn arrows, hash bars, cross walks, and stop bars. The contractor shall provide a copy of the existing pavement marking log to the engineer. The contractor shall place the new pavement marking at the same locations as the existing pavement marking, unless otherwise directed by the engineer or shown on the plans.

**2.0 Basis of Payment.** No direct payment will be made for logging of existing pavement marking.

### **Temporary Traffic Control (Lump Sum)**

**1.0 Description.** All work necessary to maintain safe and efficient traffic flow through the work areas shall be provided by the contractor. This will include furnishing, relocating, and removing temporary traffic control devices, truck mounted attenuators and equipment, and the removal and relocation or covering and uncovering of existing signs and other traffic control devices in accordance with the contract documents or as directed by the engineer.

**2.0 Work requirements.** Work shall be in accordance with Sec 612, 616, 619, 620 and the contract plans.

**3.0 Method of Measurement.** No additional payment will be made if the contractor chooses to add additional work zones at the same time. The quantities shown provided shall be considered an estimate and may be subject to change based on field conditions and the contractor's staging plan and should be bid accordingly. This work will not be measured for payment, but will be considered a lump sum unit. Any Value Engineering proposals to the temporary traffic control will not be paid for through value engineering but will be covered under Temporary Traffic Control, lump sum.



#### **4.0 Basis of Payment.**

##### **4.1 Partial payments will be made as follows:**

- a) The first partial payment will be made when five percent of the original contract amount is earned. This payment will be the lesser of 50 percent of the contract price for the item of temporary traffic control or 5 percent of the original contract price.
- b) The second partial payment will be made when 50 percent of the original contract amount is earned. This payment will be the lesser of 25 percent of the original contract price for the item of temporary traffic control or 2.5 percent of the original contract price.
- c) The third partial payment will be made when 75 percent of the original contract amount is earned. This payment will be the lesser of 20 percent of the original contract price for the item of temporary traffic control or 2 percent of the original contract price.
- d) When the engineer has accepted the contract for maintenance in accordance with Sec 105, the remaining contract price for the item of temporary traffic control will be paid.
- e) The above partial payment schedule may be adjusted by the engineer if proof of invoices submitted by the contractor demonstrate additional temporary traffic control costs were incurred earlier than the above proposed schedule. The total payment for temporary traffic control will not exceed the bid amount for Temporary Traffic Control, lump sum, unless covered by a cost change order as referenced in the following Section 4.2.

**4.1.1** For the purposes of this provision, the term “original contract price” will be construed as the total dollar value of the construction items (excluding temporary traffic control) of the original contract.

##### **4.2 Temporary traffic control will be paid for at the contract lump sum price for Item:**

Item No.	Unit	Description
616-99.01	Lump Sum	Temporary Traffic Control

No direct payment will be made for the following:

- a) Incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.
- b) Installing, operating, maintaining, cleaning, repairing, removing, or replacing traffic

control devices.

- c) Covering and uncovering existing signs and other traffic control devices.
- d) Relocating temporary traffic control devices, including permanent traffic control devices temporarily relocated, unless specifically included as a pay item in the contract.
- e) Providing channelizers, directional indicator barricades, moveable barricades, drums, etc.
- f) Worker apparel.
- g) Flaggers, pilot vehicles, and appurtenances at flagging stations.
- h) Furnishing, installing, operating, maintaining, and removing construction-related vehicle and equipment lighting including.
- i) Providing work zone lighting.
- j) Construction and removal of temporary equipment crossovers, including restoring preexisting crossovers.
- k) Removing existing pavement markings, installing temporary pavement markings, and removing and relocating temporary pavement markings as necessary for staging operations. Removal of pavement markings shall not mar the surface of the pavement.

**4.3** Any additional work deemed necessary by the engineer that requires temporary traffic control and is not covered by the contract plans will be included in the cost change order for the additional work. However, if the added work is required in a stage where temporary traffic control is already in place, no additional traffic control pay will be allowed in this case.

## **Emulsified Asphalt Seal Coat - CRS-2P**

**1.0 Description.** The contractor shall only use CRS-2P oil for the Emulsified Asphalt Seal Coat.

**2.0 Method of Measurement.** Measurement of Emulsified Asphalt Seal Coat shall be per gallon.

**3.0 Basis of Payment.** No additional payment shall be made for compliance with this provision beyond the contract unit price for Emulsified Asphalt Seal Coat.