MDOT Innovative Contracting
Fixed Price-Variable Scope (FPVS)
County Engineers Workshop, Feb. 3, 2016

Charlie Stein
MDOT Innovative Contracting Unit
SteinC@Michigan.gov
OUTLINE FOR TODAY’S DISCUSSION

• FPVS Projects Overview
• Project Selection, Approval, Project Management
• Project Development
• Construction Considerations
• Example Projects
• Questions
Fixed Price-Variable Scope projects are intended to maximize the amount of work constructed within a pre-established budget.

- This method is most effective for projects where need far outweighs available funding.
- MDOT has developed three primary types of FPVS procurements.
TRADITIONAL VS. FPVS

**Traditional**

- The Project **Scope** is Fixed
- Rejection limit is bid 10% more than Estimate of **COST**

**FPVS**

- The Project **Budget** is Fixed
- Rejection Limit is 10% less work bid than estimate of **WORK**
FPVS PROS/CONS

• **Advantages**
  - Will not exceed programmed budget
  - Possible opportunity to get more work done than originally planned

• **Disadvantages**
  - Potential to get less work done than originally planned in the current year
  - Developing contract language on new projects can add time to the design schedule
  - Commitment to complete the Project
RECOMMENDATIONS FOR USE

• Preferred candidates for FPVS projects include:
  • Projects that can be split into definable elements for bidding
  • CPM work
  • Resurfacing projects
  • Projects with the desired scope or limits of work with estimates that exceed the budget
FPVS TYPE 1

- Type 1 FPVS: Bidding by Amount of Work
- Has been used for:
  - HMA Crack Seal
  - Chip Seal
  - Fog Seal Projects
**FPVS TYPE 1 EXAMPLE**

**Project:** HMA Crack Treatment  
**Locations:** 20 Locations/Priorities, 5 miles each for a total project length of 100 miles  
**Budget:** $200,000

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- **Bidder 1 - 82 miles**
- **Bidder 2 - 92 miles**
- **Bidder 3 - 78 miles**
- **Bidder 4 - 75 miles**

Consider Rejecting Bids - 10% Less

- **4th Place**
- **3rd Place**
- **2nd Place**
- **Winning Bid**

What we want to accomplish
FPVS TYPE 2

• Type 2 FPVS Projects: Bidding by Work and Price

• Has been used for:  
  • Bridge Deck Epoxy Overlays  
  • ITS Projects
FPVS TYPE 2 EXAMPLE

Project: Installation of ITS devices
Locations: 10 Locations/Priorities
Budget: $1,000,000

Bidder 1 - 8 Locations for $950,000
Consider Rejecting
Bidder 2 - 9 Locations for $900,000

Bidder 3 - 9 Locations for $875,000
Winning Bid - Max Work, Lowest Cost

Bidder 4 - 7 Locations for $600,000
Type 3 FPVS Projects: Traditional Bidding Process and Managing the Project to a fixed price

- Priority 1 should include enough work to complete approximately 90% of the construction budget.
- Additional work in Priority 2 is not included in the schedule of items.
- Priority 2 is included in the design and contains “informational” pay items and quantities.
• Work should be relatively uniform throughout the entire project.

• Has been used for:
  • HMA Cold Milling and Resurfacing
  • HMA Crush and Shape
**Project:** HMA Cold Milling and Resurfacing  
**Location:** From Point A to I  
**Budget:** $5,000,000  

**Base Bid:** Bids received for pay items and quantities in Priority 1  
**Selected Contractor:** Low Bid, with careful review of bids for any unbalanced bidding
**Project:** HMA Cold Milling and Resurfacing  
**Location:** From Point A to I  
**Budget:** $5,000,000

- **Low Bid is less than $5,000,000:** 
  - Add work from Priority 2 until construction cost equals $5,000,000

- **Low Bid is greater than $5,000,000:** 
  - Complete Priority 1
FPVS PROJECT APPROVAL

• Local Agency submits project information to MDOTLAP Staff Engineer
• MDOTLAP Review
• Innovative Contracting Committee Review
• Engineering Operations Committee Review
• FHWA Review through SEP-14 Program
  • Initial Work Plan Review (MI and D.C.)
  • Evaluation Report
  • Completion of the Project
**FHWA SEP-14 PROCESS**

- Active Project List: [http://www.fhwa.dot.gov/programadmin/contracts/sep14list.cfm](http://www.fhwa.dot.gov/programadmin/contracts/sep14list.cfm) (OR just Google FHWA SEP-14 Project list)

<table>
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<tr>
<th>State</th>
<th>Contracting / Project Delivery Technique</th>
<th>Brief Description / Location</th>
<th>Workplan</th>
<th>FHWA Approval</th>
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<td>AK</td>
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<td>Parks Highway MP 237 Riley Creek Bridge Replacement</td>
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FHWA CONSIDERATIONS

• FHWA views FPVS as a single project with multiple phases.
  - Phase 1 – Portion completed based on the contractor's bid
  - Phase 2 – Remainder of work advertised, but included in bid
  - Current direction from FHWA is to complete Phase 2 work within 3 years.
• Failure to complete all work may jeopardize federal funding
FPVS DEVELOPMENT

• Project Timing
  • Approval Process
  • Development of Contract Provisions
  • Letting Date (Wednesday after normal letting)
  • Completion of the Project

• Development Considerations
  • Early Coordination with ICU
  • Project Limits and Scope (±25% more work than budget is typical)
  • Determine the type of FPVS Procurement
• Environmental Clearance
  • Cleared for entire project
• Permits and ROW
  • Obtain for the entire Project
• Completion of the Project
  • Within 3 years
• STIP
  • See Examples in Innovative Contracting Guide
  • Coordination recommended with ICU and Planning
  • Development of Contracts Provisions
**Plan and Specification Development**

- **Special Provisions**
  - Some Previously Approved SPs are available
  - New SPs may need MDOT and/or FHWA approval

- **Design Plans**
  - Plans include the entire project
  - Priorities need to be clearly defined
  - Logical termini

- **Progress Clause**
  - Accounts for completion of the entire project

- **Maintaining Traffic SP**
  - Accounts for all priorities
Fixed Price Variable Scope

- Capital Preventive Maintenance Work on Fixed Price Variable Scope Projects-12DS102(G030)
- Extension of Time on Calendar Date Fixed Price-Variable Scope Projects-12DS108(F620)
- Fixed Price Variable Scope Project for Road And Bridge Concrete Joint Resealing And Penetrating Sealer-12DS102(I755)Rev
- Foq Seal On Fixed Price-Variable Scope Projects-12TM500(A250)-01-16-14
- Hot Mix Asphalt Crack Treatment and Overband Crack Fill on Fixed Prive Variable Scope Projects, 12TM502(A255)-01-27-14
- Overband Crack Fill on Fixed Price-Variable Scope Projects-12DS502(G035)
- Performance Warranty, Thin Epoxy Bridge Deck Overlay-12RC712(A410)
- Preparation Delivery and Consideration of Bid on Fixed Price Variable Scope Projects-12DS102(H330)
- Preparation Delivery and Consideration of Bid on Fixed Price Variable Scope Projects-12TM102-A260-02_03-24-15
- Significant Changes in the Character of Work on Fixed Price-Variable Scope Projects-12DS103(F510)
- Slope Restoration For Fixed Cost Variable Scope Projects-12DS816(G675)
- Warranty Work Requirements for Double Chip Seals On Fixed Price-Variable Scope Projects-12DS505(G085)
- Warranty Work Requirements for Hot Mix Asphalt Crack Treatment On Fixed Price Variable Scope Projects-12TM502(A240)
  -11-26-13
**TRNS*PORT–TYPE 1**

- *Tmstop – must include each priority segment in one category*

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<thead>
<tr>
<th>Line Num</th>
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- **TRNS*PORT-TYPE 2**

- *Tms*port – must include all the applicable pay items for each priority in a Section.

### Section Information

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### Item Prices

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<td>$45.19</td>
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• Includes only the pay items and quantities for Priority 1
• Priority 1 is typically ±10% less $$$ than available funding
• Developed similar to traditional design-bid-build projects.
ADVERTISING/BIDDING

• **Letting Date**
  • Wednesday after normal monthly MDOT letting

• **Bidding:**
  • Paper Bids – Type 1
  • Electronic Bids – Type 3
  • Paper or Electronic – Type 2, depending on the project

• **Pre-Bid Meetings**
  • May be used only if necessary

• **RID Data**
  • Example of acceptable and non-responsive paper bids
CONSTRUCTION ACTIVITIES

• Construction Engineering and Inspection
  • Typical oversight still required

• Payments (Type 1, 2 and 3)
  • Payment is made based on the verifiable work completed.
  • Construction Staff need to be involved in the development so they are aware of differences in the project and payment mechanism.

• Type 3 Projects: Managing to a budget
  • Construction staff will work closely with designers after letting to establish final construction limits.
  • Contract Modification to revise work limits, to meet the project budget/fixed price.
EXAMPLE PROJECTS

• Kent County / Newaygo County C&S -- Type 3
• Cypress Avenue in Newaygo County
  • Approximately 4.4 miles of needed work
• Engineer’s Estimate / Budget = $1,106,250
  • Expected to only complete 3.4 miles
• Low Bid = $1,126,400
• Pros and cons
EXAMPLE PROJECTS

• University Region – ITS Camera Project -- Type 2
• Budget = $950,000
• Results – wanted 6, hoped for 8, got 7
• Pros and cons
EXAMPLE PROJECTS

- Superior Region Crack Seal -- Type 1
- Budget = $1,272,731 (estimated 637.952 miles)
- Results – 647.7 miles bid
- Pros and cons
2014 FPVS OVERVIEW

- **Type 1**: Eight Type 1 FPVS projects let (7 HMA Crack Treatment Projects, 1 Chip Seal Project)
  - 61.9 miles of additional crack sealing than estimated
  - Chips seal and bridge rehab was very close to estimated amount of work

- **Type 2**: ITS Project – obtained one more site for $909,627

- **Type 3**: Six Type 3 FPVS projects let (two crush and shape and HMA overlay, three HMA mill and resurface, and one bridge epoxy overlay/approaches)
  - Four of the projects the limits were extended and more work was completed than if the traditional process was used
  - 2 of the projects were over engineer’s estimate and they either found the funds to complete the original work or reduced the limits
• Innovative Contracting Unit Staff
  • Charlie Stein, steinc@Michigan.gov
  • Phil Grotenhuis, grotenhuisp@Michigan.gov
  • Dina Tarazi, tarazid@Michigan.gov
  • Mark Dubay, dubaym@Michigan.gov

• Innovative Contracting Guide: On MDOT Website and at: