



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
JUNE 10, 2014 – 9:00 A.M.
MULTI-MODAL CONFERENCE ROOM**

Present: G. Johnson R. Van PortFliet M. Bott
B. Wieferich K. Schuster B. O'Brien
J. Forster (FHWA) M. Van Port Fleet

Absent: S. Bower M. Geib P. Ajegba
M. Chynoweth

Guests: C. Youngs B. Krom M. Pizzo
C. Bleech P. Schafer D. Thompson
T. Burch

OLD BUSINESS

1. Approval of the May 1st, Meeting Minutes – G. Johnson

ACTION: The May 1, 2014 meeting minutes were approved with a minor revision.

2. The use of Indefinite Delivery / Indefinite Quantity (IDIQ) contracting on a Bridge Maintenance Project in Southwest Region – C. Youngs

Project Cost: \$1,000,000
Letting Date: August 1, 2014
Job Number: M51404
Control Section: 84915 (Various Routes, see ICC Submission Form)

EOC is requested to approve the use of Indefinite Delivery / Indefinite Quantity (IDIQ) contracting on a Bridge Maintenance Project in Southwest Region. IDIQ has been used by MDOT on Lighting and Traffic Signal projects in the past, but has not been used on Bridge Maintenance projects.

IDIQ contracting is a method used when the work at various locations is consistent and an overall estimate of the contract value is known. Under this method, contractors competitively bid on estimated quantities of work items based for a specific contract term with the locations and final design are determined through future work orders. Once the contract is awarded, the department (usually through the project manager) will issue work orders for specific locations as services are needed. The unit prices bid are used for payment purposes. IDIQ contracting is suitable for projects that have work items that are standardized or repetitive. IDIQ contracts have flexibility in final quantities, final cost, and delivery schedule.

This project will have an initial design provided for each bridge location during the advertisement period. The pay items and quantities bid on will be based on these designs. Work Orders will be issued to authorize work on individual structures with a schedule that is acceptable to the Region. Work orders are not expected to be issued once the contract reaches \$1,000,000. If bids are favorable, maintenance work at other locations may be added to the project.

A bid review should be conducted after the letting to verify that unbalanced bidding has not occurred.

This project is 100% state funded so approval from the FHWA is not required.

ACTION: Approved

3. Clarification for Diverging Diamond Interchange at University Drive over I-75 (April EOC Agenda Item) – L. Swanson

Based on a bridge inspection in January 2014, the University Drive Bridge over I-75 is in poor condition. Vehicular traffic over the bridge was temporarily closed to allow for temporary supports to be installed.

Due to the condition of the bridge, the city of Auburn Hills has applied for Tiger Grant funding to replace the I-75 and University Dr. interchange. As part of the Tiger Grant application process, the City's consultant provided an operational analysis of different interchange alternatives which included a streamlined parclo interchange with University being a 5 lane cross section, a diverging diamond interchange, and a diamond interchange with roundabouts at the ramp terminals. The report also included an analysis of no build scenario. The no build scenario shows failing levels of service while the proposed interchange types showed improved operation with the future traffic levels.

The report also includes preliminary cost estimates and right-of-way impacts. The DDI and roundabout options do not have ROW impacts while the parclo option does. The DDI and roundabout options are both estimated to cost approximately \$12 million (without engineering costs) while the parclo option is estimated at \$21 million.

The safety benefit of the proposed interchanges was also reviewed. The DDI reduces the crossing conflict points to two per interchange. In the existing DDI's across the nation, a reduction in crashes has been realized. The MoDOT's DDI's have shown a 50% reduction in crash rates. It is expected that a DDI at University Dr. and I-75 would follow suit.

ACTION: Approved

NEW BUSINESS

1. M-29 Reconstruction: CS 50072 & 77051 JN 110678 – B. Krom

Pavement Selection: Reconstruct Hot Mix Asphalt Pavement

CS 50072 & 77051, JN 110678

Reconstruct M-29: From County Line Rd to Palms Rd in St. Clair County.

CS 50072: BMP 4.886 to MP 6.046

CS 77051: MP 0.000 – EMP 4.468

Letting Date: December 2014

Department Policy requires that a Life Cycle Cost Analysis (LCCA) be used to determine the most cost effective pavement design.

The Michigan Concrete Association (MCA) raised several objections to this LCCA, which staff has addressed.

Pavement selection was determined using the procedures outlined in the MDOT Pavement Design and Selection Manual. Department Policy requires that the pavement alternate with the lowest EUAC be selected. Final pavement selection requires approval by the Engineering Operations Committee.

The reconstruction alternatives being considered are a Hot Mix Asphalt Pavement (HMA Alt #1) and a Jointed Plain Concrete Pavement (JPCP Alt #2). For both alternatives, the proposed plan grade will be raised approximately one and half (1.5) inches higher than the existing plan grade elevation. The pavement designs being considered are as follows:

Alternative #1: Reconstruct with Hot Mix Asphalt Pavement

1.5"	HMA, 5E1, Top Course (mainline & outside shoulder)
2"	HMA, 4E1, Leveling Course (mainline & outside shoulder)
3"	HMA, 3E1, Base Course (mainline & outside shoulder)
1.5"	HMA, 5E1, Top Course (4.5' - 6' inside shoulder)
2"	HMA, 4E1, Leveling Course (4.5' - 6' inside shoulder)
3"	HMA, 3E1, Base Course (4.5' - 6' inside shoulder)
1.5"	HMA, 5E03, Top Course (8' inside shoulder)
2"	HMA, 4E03, Leveling Course (8' inside shoulder)
3"	HMA, 3E03, Base Course (8' inside shoulder)
16"	Open Graded Drainage Course
	Geotextile Separator Layer
8"	Sand Subbase
6"	dia. Underdrain System
30.5"	Total Section Thickness

Present Value Initial Construction Cost \$331,504/ lane-mile

Present Value Initial User Cost \$53,328/ lane-mile

Present Value Maintenance Cost \$109,119/ lane-mile

Equivalent Uniform Annual Cost (EUAC) \$20,285/ lane-mile

Alternative #2: Reconstruct with Jointed Plain Concrete Pavement

8"	Non-Reinforced Conc Pavt, P1 Modified, w/ 12' jt spacing (mainline & shoulders)
16"	Open Graded Drainage Course (mainline & shoulders)
	Geotextile Separator
6"	dia. Open-Graded Underdrain System
24"	Total Thickness

Present Value Initial Construction Cost \$394,593/ lane-mile

Present Value Initial User Cost \$78,439/ lane-mile

Present Value Maintenance Cost \$107,707/ lane-mile

Equivalent Uniform Annual Cost (EUAC)\$23,344/ lane-mile

The pavement designs for both alternatives are based on the 1993 AASHTO "Guide for Design of Pavement Structures" and use the AASHTO pavement software DARWin Version 3.1, 2004. The Equivalent Uniform Annual Cost calculation is based on the revised pavement selection process as approved by the EOC on June 3, 1999. The estimated construction costs are based on historical averages from similar projects. User costs are calculated using MDOT's Construction Congestion Cost model, which was developed by the University of Michigan.

Conclusion

Pavement selection was determined using the procedures outlined in the MDOT Pavement Design and Selection Manual. Department policy requires that the pavement alternative with the lowest

EUAC, Alternative #1: Reconstruct with Hot Mix Asphalt Pavement, be selected. Final pavement selection requires approval by the Engineering Operations Committee.

ACTION: Approved

2. Fix Life Guidelines – B. Krom

Updates to the Fix Life Guidelines are being recommended, incorporating the most recent data available for multi-course HMA overlays (with & without milling), concrete pavement patching and concrete pavement restoration.

At EOC's May 1, 2014 meeting, members gave preliminary approval of the draft Guidelines, along with approval to seek stakeholder input. Since that time, stakeholders within the Department have reviewed the updates, and have had an opportunity to comment. Included in that group were the Region System Managers, who had no concerns with the proposed lives for these four fix types. The paving industries also have had a chance to review the updated guidelines. Only the Michigan Concrete Association provided comments; which will be addressed as part of the current LCCA process review, per the attached correspondence.

The Fix Life Guidelines provide an estimate of the number of years a particular pavement fix type is expected to provide, excluding any future preventive maintenance treatments, and are traditionally found in the Michigan Department of Transportation's (MDOT) annual Call for Projects instructions. In accordance with these guidelines, fix lives are assigned to projects when they are programmed. These fix lives are then used in statewide Remaining Service Life generation and when each region develops its Road Quality Forecasting System reconstruction and rehabilitation strategy. This, in turn, is reflected in MDOT's network wide system condition forecast. The Fix Life Guidelines were last updated in 2012, when fix lives for six fixes were updated (crush & shape w/ HMA overlay, rubblize w/ HMA overlay, unbonded concrete overlay, aggregate lift w/ HMA overlay, HMA reconstruction, and concrete reconstruction). Two major changes to the presentation of fix lives were implemented for those fixes: Commercial Average Daily Traffic was eliminated as part of the table and only one value for the estimated fix life was listed rather than a range. No changes to these fix lives is being proposed at this time. With this update, the fix lives for the remaining fix types is proposed (multi-course HMA overlay, milling w/ multi-course HMA overlay, concrete pavement patching, and concrete pavement restoration). Pavement Management staff has estimated the lives of these fixes by using MDOT's Distress Index data for the fix life modeling. The values are weighted average fix lives, where each performance "family" (good, fair, poor performing pavements) was weighted based on the number of pavement sections it contained, and is not broken down by CADT range.

It is recommended to go with a range of fix life values for these fix types, since these fix lives are dependent upon the condition of the existing pavement structure, which will mostly be left in-place. These fix life ranges will allow Region staff to account for variable existing pavement condition. The upper limit of 14 coincides with the fix life for other major fixes, while the lower limit is based on fix life averages for the family of poor performing pavements.

ACTION: Approved

3. Updating Guidelines for Alternate Pavement (APB) Bidding – C. Youngs

MDOT staff are reviewing the existing APB guidelines and staff will provide an update on this activity.

A guide for APB projects was developed as part of a Technical Agenda and approved by the EOC on 09/1/2011. Staff from the Innovative Contracting Unit (ICU) and Construction Field Services (CFS) have been reviewing the existing guide and believe several areas can be updated to reflect current practice. These areas include:

- Initial criteria used to identify potential APB Projects including the percent difference between pavement options, size of the project, clarifications on paving controlling the schedule
- The option of using of a single set of plans
- Guidelines for setting up the project in Transport
- Additional design considerations based on recent experiences
- Direction on establishing incentives
- Providing flow charts for various processes
- Providing direction on requesting to use APB on projects outside of the initial criteria
- Providing direction for requesting to not use APB on projects that meet the criteria, but have components that may not lend the project to an APB procurement

ACTION: The Innovative Contracting Unit will develop recommended changes and bring to a future EOC meeting.

4. The use of Alternate Technical Concepts (ATC) and Lump Sum bidding on a bridge replacement project on M-222 over US-131, near the village of Martin, Allegan County, in the Southwest Region – C. Youngs

Job Number: 73748

Control Section: 03112

Project Cost: \$4,300,000

Letting Date: December, 2014

The project scope is to replace the existing M-222 bridge over US-131, and approximately 1000 feet of approach work on each side of the bridge. This is a rural diamond type interchange.

Previous ATC projects limited changes to maintaining traffic and staging. This project's ATC process is expected to be much broader. Contractors will have the ability to propose changes that reduce cost or construction duration while providing a product that is equal or better than the MDOT proposed design.

A complete base design will be provided at time of advertisement. Contractors may propose no ATC and bid as planned. Those electing to use ATCs will be required to first receive conceptual approval, then perform detailed design and receive final approval before incorporating the ideas into their bid. The ATC discussions are strictly confidential.

It is also proposed that the project will be bid as a Lump Sum. A milestone payment schedule would be determined after award, similar to Design-Build projects. This would apply to both the MDOT provided design and an ATC bid.

This project will also need to be approved by the FHWA through the SEP-14 process. The use of ATCs is part of the FHWA's EDC II initiative, and may be eligible for increased federal participation through MAP-21 section 1304.

ACTION: Approved

5. Guidance for Installation of Pedestrian Crosswalks on Michigan State Trunkline Highways – M. Bott/D. Thompson

The objective of this guidance document is to establish a step-by-step procedure to evaluate the use of various pedestrian crossing treatments.

The Michigan Department of Transportation's (MDOT) overall mission includes the provision of safe and efficient transportation facilities for all road users. Determining when and where to provide appropriate treatments such as marked crosswalks and pedestrian signing is often complicated. Elements that can affect decisions on whether to install crossing treatments and what type include:

- Posted speed limit of the roadway
- Volumes of vehicular and pedestrian traffic
- Number of travel lanes and geometry of the roadway at the crossing location
- Profile of pedestrian traffic (proportion of crosswalk used by elderly or children)
- Type of roadway
- Setting (urban or rural)

All of the elements listed above can influence decision making on whether a crosswalk should be installed at a given location and if additional treatments should be considered. Not providing a uniform approach to pedestrian crossing treatments can create confusion for both motorists and pedestrians, resulting in a potential to lessen the effectiveness of pedestrian crossings.

This guidance is expected to provide crosswalk treatments, in particular at uncontrolled locations, that meet both motorist and pedestrian expectations and consistency on state trunkline routes. Recent pedestrian research studies, existing crosswalk guidelines used by other governmental agencies, manuals on traffic control devices, and state statute were reviewed in order to establish this guidance document.

The document has been vetted through the Traffic Statewide Alignment Team twice for comments. In addition, a draft version of the document has been introduced at the ACEC/MDOT Annual Conference and the Operations/Traffic and Safety Conference for potential feedback and awareness of the need for guidance for pedestrian crossing treatments in particular uncontrolled crossings.

ACTION: Approved pending presentation of the new guidance to the Region Bureau Management Team at their June 23, 2014 meeting.

6. Sponsorship/Advertising Program for the Freeway Courtesy Patrol – C. Youngs

The Metro Region is investigating ways to offset some of the costs associated with the Freeway Courtesy Patrol (FCP) through advertising and/or sponsorship. The FCP is currently funded with state and federal funds (Congestion, Mitigation, and Air Quality). The Region's goal is to have a vendor selected in fiscal year 2014, prior to having the 2015 contract executed.

There is currently a statewide initiative to develop general MDOT policy for sponsorship/advertising. The policy is in draft form and has not yet been approved by MDOT or the FHWA.

ACTION: This item is deferred pending approval by MDOT and the FHWA of the MDOT policy on sponsorships and advertising.

Steven Bower, Secretary
Engineering Operations Committee

cc: K. Steudle D. Jackson R. Jorgenson (FHWA)
 L. Mester W. Tansil R. Brenke (ACEC)
 EOC Members D. Wresinski G. Bukoski (MITA)
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