



**ENGINEERING OPERATIONS COMMITTEE  
MEETING MINUTES  
MAY 1, 2014 – 9:00 A.M.  
MULTI-MODAL CONFERENCE ROOM**

---

Present:	G. Johnson M. Geib M. Chynoweth	R. Van PortFliet B. Wieferich J. Forster (FHWA)	S. Bower K. Schuster M. Van Port Fleet
Absent:	M. Bott	B. O'Brien	P. Ajegba
Guests:	J. Firman C. Youngs M. Smith T. Burch (FHWA)	D. Juntunen B. Krom M. Townley R. Curtis	Dr. P. Savolainen (Wayne State) C. Bleech M. Pizzo S. Thayer

#### OLD BUSINESS

1. Approval of the April 3rd, Meeting Minutes – G. Johnson

*ACTION: The April 3, 2014 meeting minutes were approved with minor changes.*

#### NEW BUSINESS

1. Evaluating the impacts of both Differential/Non-Differential Vehicle Speed Limits and Increasing Overall Vehicle Speed Limits - J. Firman, Dr. P. Savolainen (Wayne State University)

The legislature, MDOT and the Michigan State Police have been discussing the impacts of differential freeway speed limits for truck and buses versus passenger cars. In addition, several legislative bills have been proposed to raise speed limits on the public roadway system in Michigan. These bills propose raising speed limits on both the freeway and non-freeway trunkline system. The trucking industry has also participated in some of these discussions.

In response, MDOT initiated a research project to evaluate both differential/non-differential speed limits and the impact of raising all speed limits on the state trunkline system. The research project is scheduled for completion in June 2014.

Dr. Savolainen updated EOC on the progress of the research. EOC also provided some additional direction on conducting further analysis of the multi-state data available on this issue. The scope of the research includes,

- Determine safety and speed impacts if truck/bus speed limits increased
- Determine safety and speed impacts that did occur in other states that increased freeway speed limits.
- Determine safety and speed impacts of states that only increased passenger vehicles leaving a speed differential with trucks/buses.
- Determine economic impacts to the state and trucking industry that may occur if truck/bus speed limits increased.
- Document the processes used by other states to raise the speed limit.

- Estimate the probable operational, safety, economic, environmental, legal, and social outcomes of raising the statewide speed limit.

*ACTION: Wayne State University researchers will address EOC comments in the final report.*

## 2. Implementation of Legislatively Proposed Speed Limit Increases – B. Wieferrich

Legislation has been proposed that will raise posted speed limits on the entire state trunkline network (freeway and non-freeway). The legislation proposes the following speed limits:

- Freeway passenger car speed limits set at 80 mph in rural areas and 70 mph in urban areas. (MDOT and MSP will have one year to identify exceptions)
- Non-freeway trunkline speed limits at 65 mph (Blanket requirement, unless otherwise fixed by a crash study)
- Maximum truck speeds set at 70 mph for freeway, 65 mph for non-freeway
- Work Zones Speed Limits
  - 10 mph maximum decrease from posted speed limit
  - 30 mph minimum
  - 60 mph allowed on freeway when only one lane of traffic open
- Require the 85th percentile speed be the basis for Traffic Control Orders (TCOs) (Option for speed limits based on access points eliminated)
- Modifies requirements for posting School Zone speed limits and removes school officials from the decision-making process
- No driver's license infraction points for speed violations that are less than or equal to 5 mph over the posted speed limit

Two draft documents are proposed that provide direction to MDOT staff regarding both the evaluation and implementation steps that are needed when considering a speed limit modification for a state trunkline. MDOT is hopeful that any enacted legislation will allow a Roadway Evaluation phase by MDOT prior to implementation.

EOC is requested to approve both documents.

*ACTION: Approved for potential Pilot Study Corridors only. EOC also directs that Design Division and Operations Field Services Division develop an additional document that addresses evaluation and implementation of new work zone speed limits that will meet the requirements of the proposed legislation.*

## 3. New MDOT Guidance Document on Coding and Managing Bridges for Scour Vulnerability – D. Juntunen

Federal National Bridge Inventory (NBI) Item 113 is the national performance measure used by the Federal Highway Administration (FHWA) and Michigan to manage bridges over waterways for scour vulnerability during extreme flooding events. Establishment of risk based guidance for coding Item 113 is vital to both long range strategic management and implementation of Plan of Actions (POAs) for public safety monitoring during these extreme flooding events.

Conflicting recommendations and directives regarding the coding of Item 113 and subsequent updating of the related plans of action (POA) and scour ratings necessitates clear guidance on the roles and responsibilities of MDOT staff and work groups related to this process.

The Statewide Bridge Alignment Team (Bridge Committee) and its subteam, the Scour committee, recommends approval of the new MDOT Guidance Document on Coding and Managing Bridges for Scour Vulnerability, as presented, effective retroactively

*ACTION: Approved with minor revisions.*

4. Alternate Technical Concepts (ATC's) for Maintaining Traffic/Staging on I-69 Reconstruction Project, Metro Region – C. Youngs

Route: I-69

Location: West of M-19 to east of Taylor Road, St. Clair County

Project Cost: \$50.5M

Letting Date: 2/7/2014

Job Number: 80912A, 88151C, 110441A, 110937A, 121305A & 123133A

Control Section: 77023, 77024

The project will utilize a design-bid-build procurement method. The goal of allowing ATC's prior to bidding is to allow contractors to develop and incorporate their concepts into the project which may result in project savings in cost, time or both. All ATC's are subject to MDOT approval and selection.

The ATC process will require approval by the FHWA utilizing the SEP-14 process. ATCs are part of the FHWA's Everyday Counts II initiative.

*ACTION: Approved.*

5. Fixed Price/Variable Scope (FPVS) Procurement on an US-23 ITS Project, University Region – C. Youngs

Route: US-23

Location: North Warren Road to I-96, Washtenaw/Livingston Counties

Project Cost: \$1,200,000

Letting Date: November 12, 2014

Job Number: TBD

Control Section: 47013

The goal of the FPVS project will be to maximize the amount of work that can be completed using the budgeted amount. The project scope includes installing six (minimum) to eight closed circuit television camera locations including communications equipment needed to integrate the locations into the region's overall ITS infrastructure.

Project funding is limited and an FPVS procurement will allow the maximum amount of work to be constructed with the available funds. The use of FPVS on this project may require approval through the FHWA's SEP-14 process.

*ACTION: Approved*

6. Pavement Selection I-75 Reconstruction, Monroe County, University Region – B. Krom

Pavement Selection: Reconstruct Jointed Plain Concrete Pavement w/a Cement Stabilized Open-Graded Base

Route: I-75

Location: South of Dixie Highway to I-275

Project Cost: 70,000,000.00

Letting Date: December 5, 2014

Job Number: 110616

Control Section: 58151: BMP 14.511 to MP 15.222

58152: MP 0.000 to EMP 4.876

The Region requested that a cement stabilized base be considered for the concrete alternative in the LCCA. The LCCA process steps to analyze and ultimately construct a project with a stabilized base are as follows:

1. Perform the LCCA using the standard MDOT unbound base/subbase thicknesses.  
If the concrete alternative has the lowest EUAC, another LCCA may be developed for the concrete alternative using a stabilized base.  
 *This condition has been met for this project.*
2. The LCCA with a stabilized base for the concrete alternative must have a lower EUAC than the HMA alternative with an unbound base.  
 *This condition has been met for this project as well.*

The EUACs are extremely close for the stabilized base alternative. Alternate Pavement Bidding will not be considered, since the LCCA is comparing the standard HMA section to an enhanced (stabilized) base concrete section.

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.

Therefore, the reconstruction alternatives being considered are a Hot Mix Asphalt Pavement (HMA Alt #1) a Jointed Plain Concrete Pavement (JPCP Alt #2), and a Jointed Plain Concrete Pavement with a cement treated base (CTB) (JPCP Alt #3). For all alternatives, the proposed plan grade will be raised approximately eighteen (18) inches higher than the existing plan grade elevation. The pavement designs being considered are as follows:

Alternative #1a: Reconstruct Mainline with Hot Mix Asphalt Pavement

1.5"	HMA, GGSP, Top Course (mainline)
3.75"	HMA, 3E50, Leveling Course (mainline)
4.25"	HMA, 2E50, Base Course (mainline)
4.25"	HMA, 2E50, Base Course (mainline)
1.5"	HMA, 5E3, Top Course (shoulders)
3.75"	HMA, 3E3, Leveling Course (shoulders)
4.25"	HMA, 2E3, Base Course (shoulders)
4.25"	HMA, 2E3, Base Course (shoulders)
6"	Aggregate Base
18"	Sand Subbase

6" dia. Subbase Underdrain System  
37.75" Total Section Thickness

Alternative #1b: Reconstruct Ramps with Hot Mix Asphalt Pavement

1.75" HMA, 5E03, Top Course  
3.75" HMA, 3E03, Leveling Course  
4" HMA, 2E03, Base Course  
6" Aggregate Base  
18" Sand Subbase  
6" dia. Subbase Underdrain System  
33.5" Total Section Thickness

Present Value Initial Construction Cost \$665,230/lane-mile Present Value Initial User Cost  
\$168,591/lane-mile Present Value Maintenance Cost \$108,458/lane-mile Equivalent Uniform Annual  
Cost (EUAC)\$38,697/lane-mile

Alternative #2a: Reconstruct Mainline with Jointed Plain Concrete Pavement

13" Non-Reinforced Concrete Pavement, P1 Modified, w/ 16' joint spacing  
6" Open Graded Drainage Course Geotextile Separator  
10" Sand Subbase  
6" dia. Open-Graded Underdrain System  
29" Total Thickness

Alternative #2b: Reconstruct Ramps with Jointed Plain Concrete Pavement

10" Non-Reinforced Concrete Pavement, P1 Modified, w/ 14' joint spacing  
6" Open Graded Drainage Course Geotextile Separator  
10" Sand Subbase  
6" dia. Open-Graded Underdrain System  
26" Total Thickness

Present Value Initial Construction Cost \$569,688/lane-mile Present Value Initial User Cost  
\$173,158/lane-mile Present Value Maintenance Cost \$106,573/lane-mile Equivalent Uniform Annual  
Cost (EUAC)\$34,144/lane-mile.

Alternative #3a: Reconstruct Mainline with Jointed Plain Concrete Pavement w/ CTB

12" Non-Reinforced Concrete Pavement, P1 Modified, w/ 16' joint spacing  
6" Open Graded Drainage Course, Stabilized Geotextile Separator  
10" Open Graded Drainage Course Geotextile Separator  
6" dia. Open-Graded Underdrain System  
28" Total Thickness

Alternative #3b: Reconstruct Ramps with Jointed Plain Concrete Pavement w/ CTB

9" Non-Reinforced Concrete Pavement, P1 Modified, w/ 14' joint spacing  
6" Open Graded Drainage Course, Stabilized Geotextile Separator  
10" Open Graded Drainage Course Geotextile Separator  
6" dia. Open-Graded Underdrain System  
25" Total Thickness

Present Value Initial Construction Cost \$673,071/lane-mile Present Value Initial User Cost  
\$181,171/lane-mile Present Value Maintenance Cost \$106,573/lane-mile Equivalent Uniform Annual  
Cost (EUAC)\$38,622/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 #3: Reconstruct with Jointed Plain Concrete Pavement with a Cement Stabilized Open-Graded Base, be selected. Final pavement selection requires approval by the Engineering Operations Committee.

*ACTION: Conditional approval is granted pending resolution of recently received industry comments. Ben Krom will email EOC pending resolution of recently received comments.*

*Subsequent to the May meeting, industry comments were addressed. Item is approved.*

#### 7. 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.

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 life 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 with minor revisions. EOC directs that the updated guidelines be distributed to the Regions and Industry for review and comment.*

8. MDOT ITS Video Sharing Statewide Solution – M. Smith/S. Peplinski

MDOT's current system for sharing our ITS traffic camera video is both outdated and inadequate in many ways. Many of our internal and external stakeholders cannot get video that supports their uses which contribute to MDOT's goals, and not all of MDOT's traffic video is available on the current system.

The ITS program office held several media stakeholder meetings to get input on the needs for the new system. Over the last year, an internal MDOT/DTMB team researched various options and talked to other states to get information on their video sharing systems. User requirements, business models, and cost implications were all discussed. Next a consultant (URS Corp.) was engaged to take all of this information and further research the technical details and viable options available. They contacted many companies across the country that provide video services and developed recommendations for a new video sharing system for MDOT. The internal MDOT/DTMB team has reviewed the recommendations and a summary of the proposal is attached.

The proposed statewide video sharing system solution would seek to create a consistent platform across the state for distributing video internally amongst MDOT users and externally to public/private stakeholders. The system would allow stakeholders to access video streams through a standardized process, while also providing external stakeholders additional options to receive video streams beyond the Mi Drive Web site. Additional options would allow stakeholders to choose, via a subscription-based service, the quantity, resolution and frames per second (fps) desired of the available video streams. Lastly, the system should be cost effective for MDOT and have no to minimal negative impacts on existing MDOT TOCs operations which require priority utilization of the video streams.

The ITS Steering Committee has recommended approval.

*ACTION: EOC grants conditional approval pending review by the Region Bureau Management Team.*

9. Alternate Pavement Bidding on I-75 Reconstruction, Bay Region – C. Youngs

Route: I-75

Location: Dixie Hwy to Hess Road, Saginaw County

Project Cost: \$34,500,000

Letting Date: February, 2015

Job Number: 106858

Control Section: 73111

The LCCA indicated an HMA pavement that is 0.13% less than the concrete option. Both pavement alternates are expected to have similar environmental, right of way, drainage, and utility impacts along with similar maintaining traffic concepts. Paving is the controlling operation for the construction schedule. Alternate bidding is requested based on existing procedures.

*ACTION: Approved*

---

Steven Bower, Secretary  
Engineering Operations Committee



cc:    K. Steudle  
      L. Mester  
      EOC Members  
      Region Engineers  
      TSC Managers  
      Assoc. Region Engineers  
      D. Parker  
      M. DeLong

      D. Jackson  
      W. Tansil  
      D. Wresinski  
      C. Libiran  
      R. Lippert  
      B. Shreck  
      T. Phillips  
      J. Murner (MRPA)

      R. Jorgenson (FHWA)  
      R. Brenke (ACEC)  
      G. Bukoski (MITA)  
      D. DeGraaf (MCA)  
      D. Hollingsworth (MCA)  
      J. Becsey (APAM)  
      M. Newman (MAA)