



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
JUNE 22, 2023, 9 A.M. TO 11 A.M.
LAKESHORE CONFERENCE ROOM
WITH TEAMS OPTION**

Present: Mark Bott Jason Gutting Kim Zimmer
 Gregg Brunner Michael Townley Hal Zweng
 Mark Dionise Brad Wagner

Absent: Rebecca Curtis Greg Losch Dee Parker
 Art Green Ryan Mitchell

Guests: Niles Annelin Kevin Kennedy Justin Schenkel
 Molly Beals Kyle Kopper Dina Tarazi
 Matt Block Ben Krom Brian Ulman
 Tim Croze Clint Mayoral Vlad Zokvic
 Mike Eacker James Ranger

OLD BUSINESS

1. Approval of the May 25, 2023, meeting minutes – Gregg Brunner

ACTION: Approved

2. Michigan Department of Transportation (MDOT) new materials and products – Jason Gutting

New Material Monthly Report of Data

- Number of Submittals Received
- Number of Submittals Accepted
- Number of Submittals Not Accepted

ACTION: For information only

NEW BUSINESS

1. Safety Topic: Beginning June 30, 2023, Michigan’s new law prohibits use of a cellphone while driving, unless it's being used hands-free – Gregg Brunner

ACTION: For information only

2. American Association of State Highway and Transportation Officials (AASHTO) Load and Resistant Factor Design (LRFD), Section 3.6.5.1 – Kyle Kopper and Vlad Zokvic

Issue Statement: AASHTO LRFD Section 3.6.5.1 states that abutments and piers located within the clear zone defined by the AASHTO Roadside Design Guide shall be investigated for vehicle collisions. The specifications permit the vehicle collision to be addressed in one of two ways:

1. Providing structural resistance
2. Redirecting or absorbing the collision load

Major Issue(s): Where the choice is to provide structural resistance, the pier must be designed to resist a static force of 600 kips, which is assumed to act in a direction of zero to 15 degrees relative to the edge of the pavement at a distance between two feet and five feet above the ground adjacent to the pier. This is a significant force that could have a major impact on the design and detailing of bridge piers in Michigan.

Background/History: Starting in 1992, AASHTO's bridge design specifications have included a requirement for the bridge designer to consider a vehicle impacting a bridge. The specific requirements included in the specifications have evolved over the years. The 1992 specification included a simple provision that calls for appropriate structural resistance when the possibility of a collision exists. The latest LRFD specifications include a much greater level of detail that considers factors such as when the load is to be applied, the magnitude of the load to be applied, the location the load is to be applied, and the allowable area to distribute the load over. The latest version of the AASHTO LRFD Bridge Design Specifications also define elements that have adequate structural resistance to the collapse of the bridge and are not required to be designed based on the vehicle collision force.

Recommendation(s): For projects that include the replacement of an existing bridge, or the construction of a new bridge, and the pier(s) cannot be located outside of the clear zone:

1. Construct the pier with dimensions meeting the requirements for a component considered to have adequate structural resistance to bridge collapse outlined in the AASHTO LRFD.
2. Shield the pier with Type C single face concrete barrier.
3. Design the pier to resist the 600-kip AASHTO LRFD vehicle collision force.

For rehabilitation projects that include either 3R or 4R work on the bridge or on the roadway under the bridge, retrofit any piers located within the clear zone that have a configuration that is at a high risk of leading to the collapse of the structure if impacted. The proposed retrofit could include:

1. Construction of a pier strut between columns designed and detailed as a Manual for Assessing Safety Hardware TL-5 traffic barrier.
2. Shield the pier with either a Type C or Type B single face concrete barrier.

A designer may also demonstrate through calculations that the existing pier has sufficient capacity to resist the vehicle collision force or that the superstructure will not collapse with one column missing as outlined in the AASHTO LRFD Bridge Design Specifications.

If the existing pier columns have a diameter/width of 36 inches or greater and there are filler walls in place, the filler walls should be left in place and serve as adequate mitigation.

Status: New Item

Supporting attachments:

[AASHTO LRFD Collision Load - EOC Part 1.pptx](#)

[AASHTO LRFD Collision Load - EOC Part 2.pptx](#)

ACTION: Approved

3. Bridge Design Manual (BDM) Updates – Kyle Kopper and Brad Wagner

Issue Statement: The MDOT Bridge Design Manual requires shoulder widths of 14 feet-10 inches on two-lane freeway and interstate new bridge construction and reconstruction projects. “Reconstruction” includes superstructure replacement and deck replacement projects. The wider shoulder is required to provide increased safety and mobility for future maintenance of traffic (MOT) by providing adequate width to accommodate two temporary 11-foot lanes, one-foot shy distance and anchored temporary concrete barrier. If the 14 feet-10-inch-wide shoulder is not provided, a design exception request is required.

Major Issue(s): The MDOT Bureau of Bridges and Structures has completed an analysis of the impacts associated with implementing the 14 feet-10-inch shoulder requirement on deck replacement projects. A summary of the findings is included below:

- Back when this policy was approved in 2008, it doesn’t appear that the cost of a deck replacement with widening was considered. Two options were estimated: the cost (in 2008 dollars) of an additional eight feet of width for new bridges (\$190k), and the additional cost of a superstructure with widening (\$200k), both for a representative 150-foot-long bridge.
- Based on current estimates, the initial cost increase for a new structure to add the wider shoulders is 20.4%, or about \$475k for a 150-foot bridge. However, the cost of a deck replacement with widening is much more significant (34%), or about \$800k for a 150-foot bridge. Neither of these numbers factor in approach widening, which would be minor in comparison to the structure cost, but significant, nonetheless.
- When a bridge deck is replaced, the structure has already lived out half of its useful life. So not only are we adding widened substructure and girder lines that are probably not going to see their full potential due to having to be replaced based on the life of the rest of the structure, but the widened portion, which is being added for future MOT, impacts far fewer future rehabilitation activities that it would with a new structure.

Background/History: In 2008, the EOC approved the recommendation to increase the standard bridge shoulder width to 14 feet on two-lane freeway new bridge construction and reconstruction, including superstructure replacements and deck replacements. The recommendation was to be effective beginning with projects let for construction in fiscal year 2013. After approval of the recommendation to increase the bridge shoulder width to 14 feet, it was determined that this width would only accommodate a four-inch shy distance between the edge of the temporary lanes and the concrete barriers during construction. To provide for

a more reasonable one-foot shy distance the standard bridge shoulder width on two-lane freeway bridges incorporated into MDOT's standards was increased to 14 feet 10 inches.

While this recommendation is typically followed for bridge replacements and superstructure replacements, for deck replacements designers have been generally following the deck replacement section (7.02.31) of the BDM and using median and outside shoulders widths of eight feet and 12 feet, respectively.

Recommendation(s): Update the 14 foot 10-inch-wide shoulder policy to remove the requirement to provide the extra wide shoulders on deck replacement projects. Continue to require 14 foot 10-inch-wide shoulders on projects that include superstructure replacements, complete replacements, and new bridge projects.

Status: New submittal

Supporting attachments:

[14-10 Shoulders on Deck Replacements.pptx](#)

ACTION: Tabled for a future meeting to get input on MOT staff and to include considerations for future projects

4. Request for Exemption from Life Cycle Cost Analysis (LCCA) Requirements: M-46 from east of Shonat Drive to east of Maple Island Road – Matt Block

Issue Statement: Request for exemption from LCCA requirements

Route/Location: M-46 from east of Shonat Drive to east of Maple Island Road

Job Number: 207967

Control Section: 61023

Letting Date: 10/04/2024

Total Est. Const. Cost: \$12.25M

Department Policy requires that a LCCA be performed where the total paving costs exceed \$1.5 million dollars.

Major Issue(s): The MDOT Grand Region is requesting the exemption of the LCCA process since there would be extraordinarily high costs associated with the equivalent concrete fix type alternative that would widely contrast with the costs of the Hot Mix Asphalt (HMA) fix type alternative given in the budgeted scope of work for this project.

Background/History: The original scope of work for this project was set as Milling and Two-course Asphalt Resurfacing. Per MDOT, LCCA New Fix Type Design, Comparisons, and Requirements, pages 8, 9, and 15, the minimum remaining existing HMA thickness after milling must be three inches, which, for the outside lanes on this project, would not be possible if more than 1.25 inches of existing HMA is milled. In order to achieve a proper five and one-half inches of Portland Cement Concrete, a grade raise would need to be approximately four and one-quarter inches; therefore, the existing curb & gutter would need to be replaced throughout the entire project limits, including driveway curb & gutter and re-

grading existing commercial / private driveways which would be impacted by right-of-way limits.

Recommendation(s): Exemption of the LCCA process and approval of using a two-course HMA with milling design on the project.

ACTION: Approved

5. Annual Revision to Materials Quality Assurance Procedure (MQAP) Manual – Kevin Kennedy

Issue Statement: Annual revisions to MQAP Manual.

Requesting approval of annual revisions to the MQAP Manual. A summary of changes document has been provided for review prior to approval.

Major Issue(s): Revisions to update MDOT's MQAP Manual.

Background/History: Proposed revisions have been reviewed by Construction Field Services, the regions, industry, and approved by the Federal Highway Administration.

Recommendation(s): Approve revisions to the MQAP Manual.

Status: New Submittal

ACTION: Approved

6. Pavement Type Selection: M-91 from Kendaville Road to M-46, Montcalm County – Ben Krom

Issue Statement: Pavement Type Selection

Route/Location: M-91 from Kendaville Road to M-46, Montcalm County

Job Number: 204218

Control Section(s): 59032

Letting Date: 11/3/2023

Total Est. Const. Cost: \$7.0M

State law and department policy requires that a LCCA be used to determine the most cost-effective pavement design.

Major Issue(s): This is a rehabilitation project, and the Michigan Concrete Association (MCA) expressed concerns regarding differences between the proposed shoulders for both pavement types, and their continued disagreement with the crush and shape performance curve. The concrete shoulder design was slightly adjusted, and the paving industries were given an additional week to review the updated LCCA, and no further comments were received.

Background/History: Pavement selection was determined using the procedures outlined in the MDOT Pavement Selection Manual. Department policy requires that the pavement alternate with the lowest Equivalent Uniform Annual Cost (EUAC) be selected. Final pavement selection requires approval by the Engineering Operations Committee.

Recommendation(s): Approve the HMA pavement alternate, which has the lowest EUAC.

ACTION: Approved

7. Pavement Type Selection: I-196 Business Loop from US-31 to 106th Avenue, Ottawa County – Ben Krom

Issue Statement: Pavement Type Selection

Route/Location: I-196 Business Loop from US-31 to 106th Avenue, Ottawa County

Job Number: 210058

Control Section(s): 70023

Letting Date: 9/1/2023

Total Est. Const. Cost: \$24.0M

State Law and Department Policy requires that a LCCA be used to determine the most cost-effective pavement design.

Major Issue(s): This is a non-freeway, divided-highway, reconstruction project of a 1957 concrete pavement. Because of the divided nature of this route, the MCA requested that freeway production rates be used in the LCCA, and that this project should be let using Alternative Pavement Bidding because of the exceptional inflationary time we are facing. Both of these requests go against current department policy and procedures and were rejected.

Background/History: Pavement selection was determined using the procedures outlined in the MDOT Pavement Selection Manual. Department Policy requires that the pavement alternate with the lowest EUAC be selected. Final pavement selection requires approval by the EOC.

Recommendation(s): Approve the HMA pavement alternate, which has the lowest EUAC.

ACTION: Approved

8. The use of Design-Build-Operate-Maintain (DBOM) for the Statewide deployment of National Electric Vehicle Infrastructure (NEVI) compliant charging infrastructure along Michigan's Alternative Fuel Corridors (AFC) – Clint Mayoral and Tim Croze

Issue Statement: Request approval for the use of DBOM for the statewide deployment of NEVI compliant charging infrastructure along Michigan's AFCs.

Procurement and Payment Technique(s) - Competitive, two-step request for qualifications/request for proposals (RFPs), best value, and DBOM.

Recommendation(s): A DBOM contracting approach is required for Michigan to secure federal NEVI funding for statewide deployment of electric vehicle charging infrastructure along Michigan's AFCs. The scope of work includes the design, construction, operations, and maintenance of electric vehicle (EV) charging sites deployed as part of this project. A typical NEVI site includes a minimum of four network-connected direct current 150-kilowatt (kW) charging ports capable of simultaneously and continuously charging four EVs, located within one mile driving distance of a Michigan AFC, and available for use by the public. Operations and maintenance of the EV charging infrastructure must be provided for at least five years following the date when the EV charging station is commissioned.

Identification of Risk

Permits: Final plans will require submittal to the Michigan Department of Licensing and Regulatory Affairs (LARA) for electrical code review. LARA is a partner agency and has been involved throughout project development. Permits may be required from cities/counties where chargers are sited.

Environmental: Minor impact anticipated.

Utilities: Close coordination with utilities by: MDOT; the Michigan Department of Environment, Great Lakes, and Energy; LARA; and contractor teams will be necessary.

Maintaining Traffic: Little or no MOT impact anticipated.

Third Party Involvement: Third parties will include cities, counties, and site hosts. Much of the risk of coordination and communicating with third parties is transferred to the contractor through the DBOM contract.

Right of Way: No impacts are anticipated. All sites will be on private property.

Railroad: No impacts are anticipated.

Other

- Interagency and partner agency coordination, as well as monitoring/oversight will be challenging with up to 46 sites across the entire state.
- LARA electrical code review of final plans could take up to 45-60 days to receive approval.
- Industry supply chain issues could impact an expedited construction schedule.

Background/History

Region/Transportation Service Center (TSC): Statewide

Control Section: Varies

Job Number(s): 217941

Route: Varies

Project Location: Statewide

Work Description: Statewide deployment of National Electric Vehicle Infrastructure (NEVI) compliant charging infrastructure along Michigan's Alternative Fuel Corridors (AFC). The scope of work includes the design, construction, operations, and maintenance of electric vehicle (EV) charging sites deployed as part of this project.

Estimated Construction Cost: \$39,000,000

Funding type and Fiscal Year (Fed/state/local): Federal/private (80/20)

Key Dates:

- Issue the Request for Quotes: May 4, 2023
- Statement of Qualifications Due: June 6, 2023
- Shortlisting: June 16, 2023
- Issue the Request for Proposal (RFP): July 2023
- Proposals Due: 60 days after the RFP
- Anticipated Award: October 2023

Recommendation(s): The Innovative Contracting Committee recommends the use of Design-Build-Operate-Maintain.

ACTION: Approved

9. 2022 Fixed Price Variable Scope (FPVS) Annual Special Experimental Project No. 14 (SEP-14) programmatic report for Type 1, Type 2, and Type 3 contracting approaches on Capital Preventive Maintenance projects – Dina Tarazi

Issue Statement: 2022 FPVS Annual Special Experimental Project No. 14 (SEP-14) programmatic report for Type 1, Type 2, and Type 3 FPVS Contracting Approaches on Capital Preventive Maintenance Projects.

Major Issue(s): Annual report provided for information only.

Background/History: Per the FHWA SEP-14 work plan for programmatic use of FPVS contracting, MDOT will prepare and submit an annual report to the FHWA that will include an evaluation of all projects completed within the last calendar year. The report will contain an overall evaluation of the projects along with any suggestions and recommendations for improving the process.

Recommendation(s): This report is presented to the EOC for information only. The report is approved by the FHWA.

ACTION: Information only

10. Change the authority to approve a reduction in per day user delay costs/liquidated damages for alternate pavement bidding projects from the EOC to the region engineer – Mike Eacker and Ben Krom

Issue Statement: Change the authority to approve a reduction in per day user delay costs/liquidated damages for alternate pavement bidding (APB) projects from EOC to the region engineer.

Major Issue(s): During the life-cycle process review meetings with the paving industries, the HMA paving industry requested a reduction in the liquidated damage (LD) amounts used in APB projects. They claim that the new liquidated damage amounts, which are now higher

than they have been historically, are causing issues with sub-contractors not wanting to bid projects. They also claim that the higher amounts increase contractor risk, which results in contractors increasing bid amounts to compensate for this risk.

We asked region personnel for feedback on the increased user delay/LD amounts. There was some belief that these increased amounts were causing project bid amounts to go up and is at least partly to blame for the recent spike in bid amount overages. While there is no definitive evidence that this is causing the bid overages, we believe that it is probable that it is causing some portion of the bid increases.

Background/History - In June of 2021, the EOC approved a new process for establishing the user delay bidding and liquidated damage amounts on APB projects. This process caps the user delay amounts in the life cycle and then directs that the average per-day user delay amount from the life cycle be used in the APB project for bidding and liquidated damages. The region may request a change to the amount established from the life cycle. A reduction of no more than 50% can be requested. Currently, the reduced amount must be approved by the EOC.

On almost all APB projects since this process began, the region has requested a 50% reduction in the user delay/LD amounts. Since the regions appear to generally want reduced amounts, we proposed to the Life-Cycle Impasse Panel that the decision to reduce the user delay/LD amounts for APB, reside with the region engineer rather than the EOC. The Impasse Panel agreed with this proposal but wanted final approval of this change to go through the EOC. Keeping the cap amounts at each traffic level rather than permanently reducing these amounts, will allow the Regions the flexibility to utilize a higher amount if it makes sense for a particular project.

Recommendation(s): Approve the change to make the region engineer as having the final decision on altering the APB per-day user delay/liquidated damage amounts from the life cycle.

ACTION: Approved

11. Alternate Pavement Bid: I-475 from the Flint River to Carpenter Road, Freeway Reconstruction, Genesee County – Ben Krom and Brian Ulman

Issue Statement: APB in Genesee County, Bay Region

Route/Location: I-475 from the Flint River to Carpenter Road, Freeway Reconstruction

Job Number: 210054

Control Section: 25132

Letting Date: 11/3/2023

Total Estimated Construction Cost: \$125.85M

Major Issue(s): CFS coordinated with the project office and calculated a preliminary life cycle costs analysis on this project and determined that the difference between the pavement options was 10.96%. HMA was the low-cost alternative.

This project has undergone a Planning and Environmental Linkages (PEL) study that sought significant community and stakeholder input and engagement over the last two years. The

PEL promoted a transparent and collaborative process that considered environmental, community, and economic impacts. The construction of I-475 in the 1970's negatively impacted minority businesses and residents in the city of Flint. By delivering this project as an APB project, the Bay Region is supporting the equity and inclusion process promoted by the PEL and provides potential opportunities for more businesses.

The LCCA was ran following the new user delay cost 'capping' policy, and the TSC is not in support of the current \$49,500/day user delay cost and plans to pursue a reduction down to \$25,000.

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.

Background/History: Other than the LCCA outcome not being within the 10% threshold, the project appears to meet all the other criteria for the use of Alternate Pavement Bidding.

Recommendation(s): The Innovative Contracting Committee recommends approval of the use of APB on this Design-Bid-Build project.

ACTION: Approved



Michael Townley, Secretary
Engineering Operations Committee

RA:lr

cc: EOC Members	C. Libiran (MDOT)	D. DeGraaf (MCA)
Meeting Guests	L. Mester (MDOT)	C. Mills (APAM)
Region Engineers (MDOT)	C. Newell (MDOT)	D. Needham (MAA)
Assoc. Region Engineers (MDOT)	M. Ackerson-Ware (MRPA)	R. Vandeventer (MITA)
TSC Managers (MDOT)	T. Burch (FHWA)	
L. Doyle (MDOT)	R. Brenke (ACEC)	