



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
MARCH 20, 2023, 9 A.M. TO 11 A.M.
LOBBY CONFERENCE ROOM
WITH TEAMS OPTION**

Present: Mark Bott Jason Gutting Michael Townley
Gregg Brunner Greg Losch Brad Wagner
Rebecca Curtis Ryan Mitchell Kim Zimmer
Mark Dionise Dee Parker Hal Zweng

Absent: Art Green

Guests: Michael Bellini Ben Krom Sam Sorensen
Warren D’Souza David Pawelec Miranda Spare
Sarah Fedders Jack Rick Carlos Torres
Annjanette Kremer Mark Shulick Dharmesh Valsadia

OLD BUSINESS

1. Approval of the February 23, 2023, meeting minutes – Gregg Brunner

ACTION: Approved

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

A new development sub-committee is being added and setting up guidance.

ACTION: For information only

NEW BUSINESS

1. Safety Topic: *Burnout – It Happens, Symptoms, Strategies by MDOT*. The PowerPoint presentation covers identifying burn out, prevention, and recovery – Ryan Mitchell

ACTION: For information only

2. Lack of technical expertise to review rest area building special provisions, pump house buildings and operator house buildings on bascule and lift bridges – Mark Shulick and Dave Pawelec

Issue Statement – Lack of technical expertise to review rest area building special provisions, pump house buildings and operator house buildings on bascule and lift bridges.

Major Issue(s) – MDOT does not have any technical reviewers with the knowledge to review these building special provisions. Our current policy requires central office review of all special provisions with the exemptions made previously by the Engineering Operations Committee (EOC).

Background/History – Previously rest area building special provisions have not been submitted for central office review and they were used and updated as changes were required or issues in the field were addressed. The loss of certain key employees has drained the knowledge base that allowed central office review of rest area buildings, pump house buildings and operator house buildings.

Recommendation(s) – Nathan Miller already has an as-needed consultant contract to review upcoming rest area buildings, so we are requesting to add pump house and operator house buildings to that contract.

Status – At the December 8th meeting this item was tabled to determine whether these reviews could be handled in house. After discussion with Kim Zimmer, Diane Sevigny, and Jason Bodell of Transportation Systems Management and Operations, it was determined that they do not currently have the expertise to do these building reviews in house. So, we are again requesting the recommendations above be approved.

Note: Discussion supported the use of as needed consultant contractor to review special provisions. It was noted that the Transportation Systems Management and Operations area of MDOT would like to be included in reviews in the future with the goal of building knowledge and skills in the department and possible employee support.

ACTION: Approved

3. Road Diet of approximately 1600 feet on US-12 in Union, Porter Township, Cass County – Dharmesh Valsadia, Athira Jayadevan

Issue Statement – Road Diet (four to three lane) of approximately 1600 feet on US-12 in Union, Porter Township, Cass County.

Route: US-12

Job Number: 207365 (Pavement Marking)

Construction: May 2023

Major Issue(s) – Through Cass County, US-12 is a two-lane roadway with 55 mph speed limit, sandwiched by a short four lane stretch through Union. The existing speed limit through Union is 50 mph. This stretch of roadway acts as a passing lane and thus excessive speeding has been recorded. Recent crashes at the intersection of Union Road have resulted in public outcry and locals demanding a speed reduction and safety improvement.

Background/History – Convert US-12 through the town of Union from its current four lane section to a three-lane section with center left turn lane to address safety concerns. There is a pattern of rear-end left turn, sideswipe and angle crashes in the study period which can be reduced with the addition of center turn lane and the reduction of thru lanes from two to one

in each direction. A safety and operational analysis of the corridor concludes that road diet will mitigate the existing crash pattern, and that impacts to traffic operations from removing a through lane in each direction were predicted to be insignificant. The transportation service center (TSC) then proposed the road diet to Porter Township and received a resolution of support on December 13, 2022. The TSC hosted a public informational session on February 14, 2023. The TSC received comments in favor of the proposed restriping.

Per the completed Road Diet Checklist, the proposed lane conversion does not present any significant operational or geometric concerns. The proposal is expected to improve the safety of the corridor by reducing the speed differential and eliminate high-speed passing maneuvers, improving overall safety.

Recommendation(s) – The proposed project meets the requirements of the Road Diet Checklist, and the Kalamazoo TSC recommends implementing the road diet on US-12.

ACTION: For information only

4. Pavement Type Selection: I-94 from east of I-196 to east of Hennessey Road, Berrien County – Ben Krom

Issue Statement – Pavement Type Selection

Route/Location: I-94 from east of I-196 to east of Hennessey Road, Berrien County
Job Number: 128907
Control Section: 11017
Letting Date: 12/6/2024
Total Est. Const. Cost: \$30.6M

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

Major Issue(s) – This project is a combination of reconstruction and rehabilitation, and the Michigan Concrete Association expressed concerns regarding differences between the proposed shoulders for both pavement types, a possible calculation error for the hot mix asphalt (HMA) alternative and questioned the concrete rehabilitation fix type. The calculation error was confirmed and corrected, and in conjunction with the region, the other concerns were addressed. 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

5. Pavement Type Selection: US-2 from east of Great Lakes Road to Gogebic Station, Gogebic County – Ben Krom

Issue Statement – Pavement Type Selection

Route/Location: US-2 from east of Great Lakes Road to Gogebic Station, Gogebic County

Job Number: 208412

Control Section: 27022, 27023

Letting Date: 10/6/2023

Total Est. Const. Cost: \$12.7M

Department policy requires that a LCCA be used to determine the most cost-effective pavement design.

0Major Issue(s) – None. The paving industries had no comments on this LCCA.

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

6. Alternate Pavement Bid: M-14 from Sheldon Road to Newburgh Road, Freeway Recon, Wayne County – Ben Krom and Mike Billini

Issue Statement – Alternate Pavement Bid (APB) in Wayne County, Metro Region

Route/Location: M-14 from Sheldon Road to Newburgh Road, Freeway Recon

Job Number: 208481

Control Section: 82102, 82122

Letting Date: 10/6/2023

Total Est. Const. Cost: \$145.6M

Major Issue(s) – The use of APB on this M-14 Design-Bid-Build project.

Construction Field Services 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 1.56%. Concrete was the low-cost alternative.

The LCCA was ran following the new user delay cost ‘capping’ policy, and the TSC is in support of the current \$100,000/day user delay cost and does not plan to pursue a reduction.

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 – The project appears to meet the criteria for the use of APB.

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

ACTION: Approved

7. Exempt bridge project from Life Cycle Cost Analysis: I-96 and Grand River Interchange in Brighton, Livingston County – Jack Rick and Warren D’Souza

ACTION: Withdrawn

8. Adoption of 28-day concrete compressive strength rejection limit for concrete barriers, glare screens, bridge barrier railings, and concrete barrier foundations for light standards and sign supports – Carlos Torres

Major Issue(s) – The Michigan Infrastructure & Transportation Association (MITA) requested that MDOT include a 28-day compressive strength rejection limit of 4,500 pounds per square inch (psi) in the concrete barriers, glare screens, bridge barrier railings, and foundations for light standards and sign supports frequently used special provision (FUSP). The minimum 28-day compressive strength (i.e., lower strength limit) of 5,000 psi, as currently specified in the concrete barriers, glare screens, bridge barrier railings, and foundations for light standards and sign supports FUSP, would not be changed. Industry indicated that introducing a 4,500-psi rejection limit would make it easier for contractors to find concrete suppliers capable of meeting MDOT’s specifications.

Background/History – MDOT’s current concrete barrier designs are based on the Ontario Tall Wall design. Ontario’s Ministry of Transportation (MTO) specifications require the use of concrete with a minimum 28-day compressive strength of 35 MPa (~5,076 psi) for concrete barriers. Therefore, MDOT requires the use of 5,000 psi concrete for concrete barriers and related features. However, MTO’s Specification 1350.08.01.03 Acceptance Method B contains a stipulation indicating that no individual strength shall be more than 4.0 MPa (~580 psi) below the specified strength. Therefore, introducing a 28-day compressive strength rejection limit of 4,500 psi is comparable to the rejection limit established by MTO.

MDOT’s Barrier Advisory Committee is supportive of introducing a 28-day compressive strength rejection limit of 4,500 psi for concrete barriers, glare screens, bridge barrier railings, and foundations for light standards and sign supports.

Recommendation(s) – Proceed with including a 28-day compressive strength rejection limit of 4,500 psi in the concrete barriers, glare screens, bridge barrier railings, and foundations for light standards and sign supports FUSP.

Status – New submittal.

ACTION: This item was tabled to obtain more background information on the Ontario MOT specification. Specifically, there is interest in understanding the compressive strength used during crash testing.

9. Use of Progressive Design Build (PDB) for the development and implementation of transportation improvements necessary for site preparation of the Marshall Megasite – Miranda Spare, Angie Kremer, Ryan Mitchell

Issue Statement – Request approval for the use of PDB for the development and implementation of transportation improvements necessary for site preparation of the Marshall Megasite in association with Ford Motor Company’s recently announced 2.5 million square foot electric vehicle (EV) battery manufacturing facility in Marshall. The project funds will be passed through the Marshall Area Economic Development Alliance (MAEDA) to the state. No federal funding is anticipated as part of the project.

PDB is a newer delivery method that is gaining popularity across the country and within the transportation infrastructure industry. It offers early collaboration between Owner and Developer/Design-Builder allowing the owner to maintain a higher level of control of the overall design, while getting immediate input on cost and schedule impacts from considered changes. The Marshall Megasite is a fast-paced development that will require effective collaboration to initiate and complete the environmental process and select the best alternative to provide access to the site.

Identification of Risk

Permits: Several permits anticipated, including but not limited to the Department of Environment, Great Lakes & Energy (EGLE), and the Department of Natural Resources.

Environmental: A high level traffic study and scope review has been completed, but the detailed environmental review will be necessary to identify elements within the project area that may be impacted. An environmental assessment will need to be completed.

Utilities: As part of the site development, utilities will need to be relocated and new services and infrastructure will need to be provided. Effective utility coordination will be required throughout early preliminary engineering, development of improvements and during construction.

Maintaining Traffic: The final maintaining traffic scheme will be determined as design develops and construction sequencing is determined. Upgrades to the I-94 corridor may be considered significant. Maintaining traffic concepts will need to accommodate the construction traffic of the Ford EV Battery Plant.

Third Party Involvement: Coordination with the developer, local stakeholders and other agencies assisting in the project will be critical for a successful delivery.

Right of Way: Land acquisition will be required both for the private site as well as improvements to MDOT’s infrastructure. This process has been started by the MAEDA. MDOT will then purchase the required right of way from the MAEDA and additional identified property owners once the final alternative has been determined.

Railroad: N/A

Other: Tribal consultation with Nottawaseppi Huron Band of the Potawatomi

Job Number: To be determined

Work Description: Development and implementation of transportation improvements necessary for site preparation of the Marshall Megasite in association with Ford Motor Company's recently announced 2.5 million square foot EV battery manufacturing facility in Marshall.

The project funds will be passed through the MAEDA to the state. No federal funding is anticipated as part of the project.

Location: Emmett and Marshall Townships, City of Marshall, Calhoun County

Route: I-94, I-69, M-96, M-311

Project Cost: \$330MTBD

Key Dates: Progressive Design Builder RFP – Fall 2023

Ford Battery Plant to be operational in 2026

The Innovating Contract Unit (ICU) recommends solicitation of a General Engineering Consultant for the National Environmental Policy Act and engineering support. As this will be MDOT's first PDB, we are also recommending solicitation of a Tier I contract for a Progressive Design Build Advisor to support MDOT through the procurement. To accelerate the procurement, development, and implantation timelines, reduce project risk, increase cost, and schedule certainty, and encourage design and construction innovation and efficiency, the ICU recommends PDB delivery for the project.

ACTION: Approved

10. Use of Construction Manager-General Contractor delivery method to replace existing single track railroad structure over the Muskegon River, in Redding Township, Clare County – James Ranger and David Neubauer

Issue Statement – Request approval for the use of Construction Manager-General Contractor (CMGC) delivery method for the replace existing single track railroad structure (B01-18201.10) over the Muskegon River, in Redding Township, Clare County.

Major Issues – Contractor input during design is desired to manage the identified risks, which are strongly affected by a contractor's means and methods. The CMGC contractor would benefit the project by providing recommendations for working within a limited-access, constrained site, identifying potential construction staging areas, contingency planning for critical construction operations, evaluating complex steel erection specifications (if necessary), and proposing and evaluating accelerated bridge construction methods. The CMGC contractor's evaluation of in-progress design plans for cost and schedule implications will be critical to project development. Additionally, including the CMGC contractor in coordination with the railroad and the EGLE during design will greatly benefit the project.

Background/History:

Job Number: To be determined

Work Description: Replace existing single track railroad structure (B01-18201.10) over the Muskegon River

County: Clair County, Redding Township

Project Cost: \$13,100,000

Letting Date: Q3/2026

Project Risks**Permits**

The bridge will require a permit from EGLE to replace the existing structure.

Additionally, the existing structure is a steel girder bridge. Depending on the requirements from EGLE for the abutment and pier replacement, the new structure could potentially become a truss type structure that will span the Muskegon River. Complex steel erection methods may be required.

Environmental

The bridge crosses with Muskegon River with potential wetland impacts around the abutments of the bridge. Additionally, there is the potential for endangered species to present with in area that will be impacted by construction, depending on the necessary construction staging areas.

Third Party Involvement

Heavy coordination will be required with the Great Lakes Central on the closure (outage) of the railroad line for the installation of the new structure.

Right of Way

The existing right of way (ROW) along the railroad tracks is 100 feet wide, access to the site is very limited and will require, at minimum, temporary access to the adjacent property owners will be required to access work site.

Railroad

The work is to replace an active railroad bridge over the Muskegon River, that see 2 trains per day. Coordination of the bridge replacement schedule will need to take place with Great Lakes Central operations. A rapid bridge installment method will need to be utilized to minimize the impacts to the railroad's freight customers north of the Muskegon River.

Other

Site access is limited. Along ROW, the closest public grade crossing is 2.1 miles to the north (M-61) and 0.5 miles to the south (North Cook Avenue).

Recommendations(s) - Use of Construction Manager-General Contractor (CMGC)

ACTION: Approved

11. Approval of the reduced daily user delay cost amount of \$72,500 per day to \$36,250 per day – Saran Fedders and Ben Krom (Walk-on item)

Issue Statement: Reduce the daily user delay cost in half to \$36,250/day.

Major Issue(s) – The daily user delay cost of \$72,500/day is extravagant because of the length and complexity of the project, causing the liquidated damages to be really large. This high amount builds unnecessary risk into the project which will be passed on as increased costs in the bids. This cost and concern was brought up during the industry review with the original November 2022 letting.

Background/History – This project is on I-94 in Berrien County; it was doubled in length when the south half was added with Rebuilding Michigan funds for a total of 8.45 miles. The project is a mix of reconstruction and rehabilitation, with two interchange reconstructs, eight bridge rehabs, three large box culverts, and five noise abatement walls. The current estimate is \$173.7M. The reconstruction areas of the project will be bid using Alternative Pavement Bidding. The LCCA was performed following the EOC approved (June 24, 2021) “capping process” for determining user delay costs. The original estimate from the LCCA came in at \$93,500/day, and it was determined to delay the letting and shift the maintenance of traffic into three years to make it more manageable and reduce the user delays. The LCCA was updated accordingly, and the updated daily user delay cost estimate is \$72,500/day. The “capping process” states that this daily user delay cost value can be reduced by up to 50% with approval from the EOC.

Recommendation(s) – Request approval of the reduced daily user delay cost amount of \$36,250/day.

ACTION: Approved with modification; the user delay cost will be \$50,000 per day.



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)	