ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
MAY 25, 2023, 9 A.M. TO 11 A.M.
LOBBY CONFERENCE ROOM
WITH TEAMS OPTION

Present:	Mark Bott	Greg Losch	Kim Zimmer
	Mark Dionise	Ryan Mitchell	Hal Zweng
	Art Green	Dee Parker	
	Jason Gutting	Michael Townley	
Absent:	Gregg Brunner	Rebecca Curtis	Brad Wagner
Guests:	Molly Beals	Kevin Kennedy	Carlos Torres
	Nathan Bouvy	Jonathan Loree	Nicole Villarreal
	Katherine Hoensheid	Thomas Sabin	
	Joel Kauppila	Angie Schwab	

OLD BUSINESS

1. Approval of the March 20, 2023, meeting minutes – Dee Parker

   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

3. Reduction in user delay costs to $47,500 per day on project US-127/I-496 in Ingham County – David Harrison and Ben Krom **(April email approval)**

4. Follow-up on 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

   Subject/Issue: Follow-up on new item from 3/20/23 EOC meeting - 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

   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.

This item was presented at the 3/20/23 EOC meeting. Supporting information regarding the Ontario Tall Wall was requested by EOC members. Specifically, the EOC wanted to know if Ontario's Ministry of Transportation had a similar concrete strength rejection limit at the time the Federal Highway Administration (FHWA) issued the most recent eligibility letter for the Ontario Tall Wall. FHWA Eligibility Letter B-64, dated February 14, 2000, identifies the Ontario Tall Wall as eligible for federal-aid reimbursement as a National Cooperative Highway Research 350, TL-5 barrier. In 2000, Ontario's construction specifications had a rejection limit tolerance of 3.5 MPa (~507 psi), as indicated in subsection 1350.08.01.04 of the 1995 Ontario construction specifications. In April 2007, Ontario published new specifications to replace the 1995 specifications, and their new specifications called for a 4.0 MPa (~580 psi) rejection limit tolerance. It is unclear why Ontario increased their rejection limit tolerance from 3.5 to 4.0 MPa in 2007. In any event, their 3.5 MPa (~507 psi) rejection limit tolerance from 2000 is comparable to the proposed 4,500 psi rejection limit with a 28-day compressive strength lower strength limit of 5,000 psi.

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.

The requirements of FUSP 20SP-1003A-01, Quality Index for Portland Cement Concrete, would be applicable. Concrete barriers and light standard foundations would fall under non-percent within limits analysis, and compressive strength would play a role in the price adjustment based on the overall lot pay factor and price adjustment formulas in the FUSP. Also, note that Table 3 on page 4 of FUSP 20SP-1003A-01 identifies rejection limits that are 500 psi below the 28-day compressive strength lower specification limit for all concrete grades used by MDOT. So, the recommendations of this proposal are comparable to those of other concrete grades used by MDOT.

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.

ACTION: Approved

NEW BUSINESS

1. Safety Topic: Safety in Office Environment: Taking precautions to prevent falls – Michael Townley

   ACTION: For information only

2. Revisions to Michigan Test Method (MTM) 105 and 106 – Kevin Kennedy

   Issue Statement: Requesting approval of revisions to the following:

   - MTM 105 (DETERMINING RELATIVE DENSITY (SPECIFIC GRAVITY) AND ABSORPTION OF COARSE AGGREGATES IN PETROGRAPHIC ANALYSIS SAMPLES)
   - MTM 106 (DETERMINING ADSORPTION OF COARSE AGGREGATES IN PETROGRAPHIC ANALYSIS SAMPLES)

   Major Issue(s): MTM 105 – Test used internally by MDOT. Converted from a stand-alone MTM to a modification of ASTM C127 to allow for smaller sample sizes in alignment with MDOT lab sample sizes and the respective petrographic separation from MTM 104 to be tested.

   MTM 106 – Test used internally by MDOT. Updated to align with current ASTM standards.

   Background/History: All MTMs were reviewed by Construction Field Services (CFS), the Regions, Industry (Michigan Aggregate Association), and the FHWA.

   Recommendation(s): Approve revisions to MTM 105 and MTM 106.

   Status: New Submittal.

   ACTION: Approved

3. Revisions to the Procedures for Aggregate Inspection to address audit response – Kevin Kennedy

   Issue Statement: Revisions to the Procedures for Aggregate Inspection (PAI) – Revisions were made to address the audit response, "MDOT will update procedures to include a quality control plan checklist and identify the area(s) responsible for review and completion of the checklist." Other changes include minor edits to update and clarify existing procedures. Future revisions will be made after discussions occur between CFS and the regions, with input from the aggregate industry and the FHWA.

   Major Issue(s): Revisions to update MDOT's PAI to comply with the audit response that MDOT will update procedures to include a quality control plan checklist and identify the area(s) responsible for review and completion of the checklist.

   Background/History: The revisions were reviewed by CFS, the regions, FHWA, and discussed with industry.

Recommendation(s): Approve revisions to the Procedures for Aggregate Inspection.

Status: New Submittal.

ACTION: Approved

4. Proposed roundabout at M-89 (Cedar/Marshall Street)/M-40 (Jenner Drive)/Ely Street/Hubbard Street intersection in the city of Allegan – Thomas Sabin

   Issue Statement: Proposed roundabout at M-89 (Cedar/Marshall Street)/M-40 (Jenner Drive)/Ely Street/Hubbard Street intersection in the city of Allegan.

   Major Issue(s): In 2001 MDOT completed an Access Management Plan in coordination with the M-40/M-89 Steering Committee. That plan identified benefits of realigning Hubbard Street at the M-89 (Cedar/Marshall Street) with M-40 (Jenner Drive). Since then, the city of Allegan has been interested in completing that realignment and making Hubbard Street a 2-way street (currently 1-way into town). The city of Allegan has acquired property east of M-89 to help complete this realignment.

   In early 2020 the MDOT Grand Region staff began coordinating with the city of Allegan to partner the proposed Hubbard Street realignment and 2-way conversion into the upcoming M-89 resurfacing project (JN 128163).

   During early design of the new traffic signal for the proposed 4-way intersection at M-89 (Cedar/Marshall Street)/Hubbard Street/M-40 (Jenner Drive) operational concerns were identified given the proximity of Ely Street to the intersection. The MDOT design team met with the city of Allegan and their engineer to discuss these concerns. This led to the collection of additional traffic counts and a traffic study of the new intersection. This traffic study identified constraints with the northbound M-89 (Cedar Street) left turn to Ely Street and the southbound M-89 (Cedar Street left turn to Hubbard Street). Understanding these constraints, the alternative of a roundabout was brought forward. Note the concept of a roundabout at this intersection dates back to the walkability recommendations Dan Burden provided the city in 2010.

   After further study and analysis by both the MDOT design team and Allegan's engineer, all parties came to an understanding the roundabout was the preferred alternative for this intersection to operate all movements and modes safely/efficiently. MDOT attended multiple Allegan City Council meetings in late 2021 and early 2022 to discuss this analysis with them. In February 2022, the Allegan City Council passed a resolution of support to partner with MDOT to complete this project 5-2.

   Background/History: In early 2022, the Infrastructure Investment and Jobs Act funding provided the Grand Region an opportunity program JN 214905 to construct a roundabout at M-89 (Cedar/Marshall Street)/M-40 (Jenner Drive)/Ely Street/Hubbard Street. The roundabout project would be packaged with a road rehabilitation and reconstruction (R&R) hot mix asphalt resurfacing project to address the pavement condition on M-89 between M-222 (Monroe Street) and 29th Street.

The city of Allegan received two separate local projects from MDOT to help cover the city's portion of this project.

- $500,000 TEDF-B project (50% state/50% local) for the reconstruction of Hubbard Street east of M-89
- $655,332 HSIP (80% federal/20% local) project to cover the local legs of roundabout and pedestrian improvements

Recommendation(s): Construction of a new roundabout will allow MDOT to partner with the city of Allegan to improve the safety/operations of existing intersections, while maintaining all movements.

Status: Working towards final project coordination and Fiscal Year (FY) 2023 letting for 2024 construction.

ACTION: Approved

5. Proposed roundabout at M-89 (Cedar/Marshall Street)/M-40 (Jenner Drive)/Ely Street/Hubbard Street intersection in the city of Allegan – Joel Kauppila

Issue Statement: Perform a road diet (4-to-3 lane conversion) on M-28 in the community of Bergland, Ontonagon County.

Major Issue(s): The existing section as 4–12-foot lanes with no shoulders. The traffic volumes do not require additional through lanes. There is also no shoulders or an area to accommodate non-motorized traffic.

Background/History: The existing section has about 1600' of two through eastbound lanes and approximately 950' of two-through westbound lanes. The current multi-lane is not striped per current standards. This project is the opportunity to convert to a 3-lane section as it involves some minor widening in the westbound direction to be done with JN 204074 which is an R&R resurfacing project.

Recommendation(s): To support the 4-lane to 3-lane conversion.

ACTION: Information only

6. New Traffic Signal Device Product Review Guidelines – Nathan Bouvy

Issue Statement: This is an EOC approval request of the New Traffic Signal Device Product Review Guidelines, which reflect the evaluation process that the MDOT Signals Unit has practiced for several years but was never written into guidelines.

Major Issue(s): The Signals Unit has a past practice of evaluating new traffic products through a committee prior to accepting the product on contracts or specifying the equipment. The reason for this thorough evaluation is to ensure that the equipment functions properly and to ensure that the product has interoperability with existing products utilized by MDOT. Industry would contest this practice because the practice was not supported by guidelines or contract documents such as special provisions.

Background/History: Thorough evaluation of signal equipment is essential for the safety of the motoring public, specifically electronic equipment that directly impacts the operations of the traffic signal. A traffic signal has at least seven different electronic devices (i.e., communications equipment, detection, controller, cabinet, malfunction monitoring unit, etc.) that must operate together to provide a safe and effective signal operation. Due to the number of different components/software applications, interoperability is an ongoing challenge. In addition, other challenges such as the product's reliability to function continuously in extreme environments exist. The purpose of these guidelines is to support the ability for the Signals Unit to adopt its past/current evaluation practice into writing and rectify the issues/expectations that MDOT has with Industry on contracts related to these signal products. The guidelines support a competitive environment and help ensure the safety and functionality of the traffic signal system by ensuring that a thorough evaluation of equipment can be conducted.

Recommendation(s): Approve the new Traffic Signal Device Product Review Guidelines.

ACTION: Approved

7. Construction manager-general contractor delivery method for superstructure repairs – James Ranger and Katie Hoensheid

Issue Statement: Request approval for the use of Construction Manager-General Contractor delivery method for superstructure repairs with complex temporary supports, constrained induces fracture (CIF) retrofits, miscellaneous structural steel repairs, structural steel painting over the railroad, deck patching, join resealing and epoxy overlay on I-75 northbound and southbound over Rouge River (B01- of 82194); SB I-75 Ramp U (B01-6 of 82194); NB I-75 Ramp D (B01-5 of 82194)

Major Issue(s): Procurement and Payment Technique(s) - Qualification Based Selection with pricing component.

This project was originally let in Fall 2021 under JN 200646; however, the bids were rejected due to the low bid being 114.34% over the engineer's estimate. As a result of reviewing the bid tabs, it was determined that the high bids were due to the complexity of the temporary supports and the temporary work platform needed to access substructure repair locations that cannot be accessed from the ground. The I-75 over Fort Street portion of JN 200646 was broken out and let separately in late 2021 with construction occurring during 2022. During construction there was a lot of back-and-forth with the contractor on the review of alternate temporary support design calculations and shop drawings. This process took a considerable amount of time and expense that we would like to avoid on the upcoming I-75 over Rouge River project.

The number of temporary supports required on the I-75 over Rouge River Bridge will be greater and they will be significantly taller than those used on the I-75 over Fort Street project. The temporary supports will also be located within existing railroad right-of-way, adding to the risk associated with this project. Changes to the temporary support systems after letting could likely result in delaying construction work on the project and potentially add to the cost of the project.

The project will include the use of contractor designed temporary work platforms to access the substructure repair locations. The height of the piers on the I-75 over Rouge River Bridge will complicate the design and construction of the temporary work platform system. A special provision was originally written for the temporary work platform that could be revised to meet the needs of the department and the contracting community.

The proposed scope of work will also include an epoxy overlay in addition to all the repairs originally included in the JN 200646 scope. The bridge scoping reports for these bridges are currently being updated, so there might be a few additional repair locations.

The required contractor experience will include complex temporary steel support construction, high-capacity hydraulic jacking and shimming operations, and complex temporary work platform construction.

Identification of Risk

Permits: No risks associated with permits.

Environmental: No risks associated with environmental impacts.

Utilities: No risks associated with utilities on and surrounding the bridge.

Maintaining Traffic: Still under discussion with the Transportation Service Center (TSC). If CIF repairs are needed the bridge will need to be closed for this work to eliminate vibrations. Traffic would need to be detoured. The epoxy overlay will require part-width construction (two lanes open in each direction). For temporary support jacking operations, a single lane closure is anticipated during daytime hours (6 a.m.– 9 p.m.). Three lanes can be closed during nighttime operations (9 p.m.– 6 a.m.) leaving one lane open to traffic.

Third Party Involvement: None

Right of Way: None

Railroad: Project involves four railroads. The railroad approval of any temporary support systems is a risk. A change in the temporary support system after construction letting and after receiving the railroads approval could delay construction and increase the cost of the project.

Background/History:

Region/TSC: Metro/Taylor
Control Section: 82194
Job Number(s): 214269
Route: I-75
Project Location: I-75 northbound and southbound over Rouge River (B01 of 82194); southbound I-75 Ramp U (B01-6 of 82194); northbound I-75 Ramp D (B01-5 of 82194)

Work Description: Substructure repairs with complex temporary supports, CIF retrofits, miscellaneous structural steel repairs, structural steel painting over the railroad, deck patching, joint resealing, and epoxy overlay

Estimated Construction Cost: Currently programmed for $25,121,751, however based on early discussions with the Taylor TSC construction and design consultant, the construction cost could increase to $40-$45 million

Funding Type and FY (federal/state/local): Federal/state and FY 2025

Key Dates
Preliminary plans due: October 2023
FPC plans due: April 2024
Final turn-in: October 2024
Letting: December 6, 2024
Construction: 2025 (possibly 2026 also)

Recommendation(s): The Innovative Contracting Committee recommends the use of Construction Manager-General Contractor

ACTION: Approved

8. Use of progressive design-build for the replacement of the I-375 depressed freeway with an at-grade boulevard and reconfiguration of the I-75/I-375 interchange – James Ranger, Jon Loree, and Mark Dubay

   Issue Statement: Request approval for the use of Progressive Design Build (PDB) for the replacement of the I-375 depressed freeway with an at-grade boulevard and reconfiguration of the I-75/I-375 interchange.

   Major Issue(s): Procurement and Payment Technique(s): One step procurement – Request for Proposal to select Progressive Design Builder based on qualifications. Work packages will be developed and MDOT will participate in negotiations to achieve guaranteed maximum price prior to construction authorization.

   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 I-375 Reconnecting Communities goals are supported by PDB through contractor involvement during the design phase, flexibility in work packaging, better collaboration and efficiency between contractor and designer, and greater opportunity for risk transfer and partnership. The supported project goals include:

   - Minimize traffic disruption during construction, maintaining access to critical businesses, employers, and stadiums downtown.
   - Develop work packages and foster relationships to maximize disadvantaged business enterprise and workforce development for project design and construction.

- Incorporate significant utility relocations to maintain current critical infrastructure and new utility facilities to support future adjacent land use.
- Meet the obligation date for the INFRA grant of 9/30/2025.
- Provide contractor participation in the construction staging to mitigate risks around the earthwork, stakeholder coordination on traffic operations during construction, and other technical challenges.
- Manage high inflationary and cost concerns in the post pandemic environment.

As this will be MDOT's second PDB, we are also recommending solicitation of a Tier I contract for a PDB Advisor to support MDOT through the procurement.

Identification of Risk

Permits: Several permits anticipated, including but not limited to, Environment, Great Lakes, and Energy for National Pollutant Discharge Elimination Systems watermain replacement, and new stormwater outfall; U.S. Army Corps of Engineers general Nationwide Permit 7 for stormwater outfall to Detroit River; and the city of Detroit for reconstruction impacts and detours on city streets.

Environmental: Finding of no significant impact issued March 2022. Green sheet includes robust community engagement during design to develop plans for land use framework and community enhancements to help address historical environmental impacts associated with the original freeway construction.

Utilities: Major impacts to critical utilities serving downtown Detroit. Utilities will need to be relocated and new services and infrastructure will need to be provided. Coordination is ongoing, with major impacts identified and preliminary relocation plans in development.

Maintaining Traffic: The final maintaining traffic scheme will be determined as design develops and construction sequencing is determined. Extreme sensitivity to providing access during construction with major downtown destinations (Ford Field, Comerica Park, Greektown, Eastern Market, East Riverfront) and large employers (Blue Cross Blue Shield, General Motors).

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

Right of Way: Land acquisition will be required, and title work is underway. No relocations are required for the project.

Railroad: N/A

Background/History:

Region/TSC: Metro/Detroit
Control Section: 82111, 82195, 82196, 82251, 82072
Job Number(s): 130035
Route: I-375, I-75, and M-3 (Gratiot Avenue)
Project Location: City of Detroit, Wayne County

Work Description: Replacement of the I-375 depressed freeway with an at-grade boulevard and reconfiguration of the I-75/I-375 interchange.

Estimated Construction Cost: $360M

Funding Type and FY (federal/state/local): INFRA grant of $104.6 M, FY 2025 (federal/state); remaining funds NH, FY 2025 (federal/state/local)

Key Dates: Progressive Design Build (PDB) request for proposal – Fall 2023; construction obligation for the INFRA grant September 2025

Recommendation(s): Innovative Contracting Committee recommends the use of PDB

ACTION: Approved

9. Publishing of the revised Structural Fabrication Quality Manual – Matt Filcek

Issue Statement – Updates were needed to MDOT's 2021 Structural Fabrication Quality Manual (SFQM) due to growth of MDOT's Supplier Qualification Program (Steel Highway Structure Supplier Qualification Standard) and realignment of fabrication inspection procedures.

Major Issue(s) – MDOT's Steel Highway Structure Supplier Qualification Standard (SQS)was approved by EOC at the December 2022 meeting. The SFQM update was needed to incorporate the new SQS and provided an opportunity to include other fabrication inspection updates.

Background/History – This will be the 3rd edition of the SFQM with the last edition released for the August 2021 letting.

Recommendation(s) – Recommend for approval by Brad Wagner, Rick Liptak, and Matt Filcek

Status – Revised SFQM was reviewed by industry and is ready to be published upon feedback and approval by the EOC. Implementation schedule is for the August 2023 letting.

ACTION: Approved

Michael Townley, Secretary
Engineering Operations Committee

RA:lrb

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