



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
JANUARY 23, 2023, 9 A.M. TO 11 A.M.
LOBBY CONFERENCE ROOM
WITH TEAMS OPTION**

Present: Mark Bott Greg Losch Michael Townley
 Gregg Brunner Ryan Mitchell Brad Wagner
 Rebecca Curtis Dee Parker Brad Wieferich
 Mark Dionise Michael Townley Kim Zimmer
 Art Green Will Thompson

Absent: None

Guests: David Harrison Michelle O’Neill Carlos Torres
 Ben Krom Miranda Spare Andrea Wilcox

OLD BUSINESS

1. Approval of the December 8, 2022, meeting minutes – Brad Wieferich

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: Winter driving – Mark Dionise

ACTION: For information only

2. Adoption of new concrete barrier construction tolerances and crack repair specifications – Carlos Torres

Subject/Issue - Adoption of new concrete barrier construction tolerances and crack repair specifications

Major Issue(s) - Requesting to proceed with implementing the new concrete barrier tolerances and specifications, as identified in the proposed version of the concrete barriers,

glare screens, bridge barrier railings, and foundations for light standards and sign supports frequently used special provision (FUSP) and the proposed updates to Section 804 of the MDOT Construction Manual (CM). This is a follow-up to the professional opinion letter regarding single-slope concrete barrier tolerances item that was presented at the 1/14/22 Engineering Operations Committee (EOC) meeting.

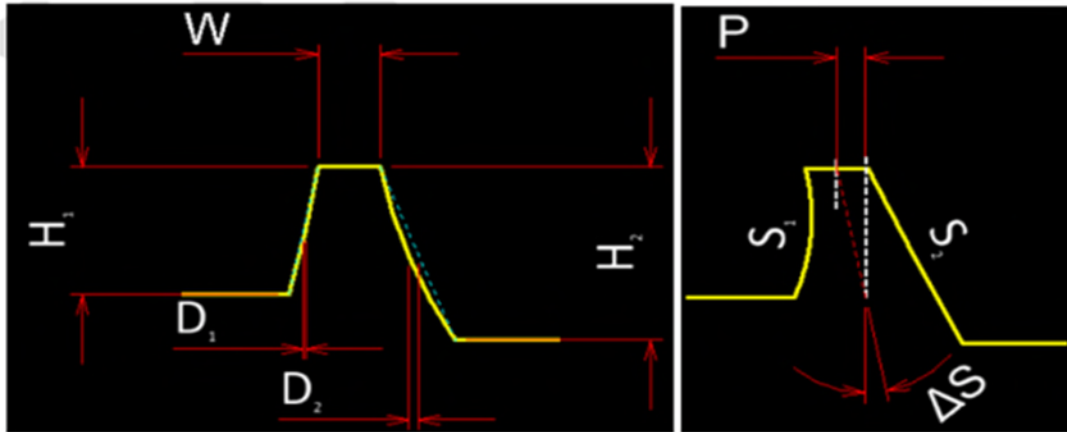
The proposed FUSP defines two new concrete barrier tolerances for slip-formed, single-slope concrete barriers: barrier face slope and barrier face deflection (e.g., sag/swell). The CM updates provide detailed explanations and figures depicting what these tolerances are, the tools required for measuring these dimensions, and instructions for field staff on how to measure barrier face slope and deflection.

The proposed FUSP contains new requirements for repairing and sealing localized cracks in glare screens, bridge barrier railings, and foundations for light standards and sign supports. The FUSP also contains a new pay item for repairing and sealing localized concrete barrier cracks, with a lump sum pay unit.

Background/History - This matter gained attention due to the concrete median barrier deficiencies observed on the I-75 Mega Project in Oakland County, Job Number 201437A, from 13 Mile Road to Coolidge Highway in Madison Heights and Troy. The plans called for construction of a single-slope concrete median barrier with a 10.8-degree barrier face slope, measured from a vertical reference line. Inspectors noticed that some sections of barrier wall had slopes with angles much greater (i.e., flatter) than the target 10.8-degree value. The crashworthiness of the barrier came into question because, to the best of MDOT's knowledge, the largest barrier face angle (i.e., flattest barrier slope) tested under Manual for Assessing Safety Hardware (MASH) criteria was 11.0 degrees.

This matter was discussed internally within MDOT, including the attorney general's office, and it was decided to reach out to an ISO 17025 certified crash testing facility for a professional opinion letter regarding the crashworthiness of the concrete median barrier installed on the I-75 Mega Project. MDOT's Macomb Transportation Service Center had barrier data collected using LiDAR at select points in areas of relatively straight roadway with zero or minimal height differential between opposing bounds of traffic. This data was provided to the Texas A&M University Transportation Institute (TTI), a certified crash testing facility, for analysis and recommendations.

In their professional opinion letter dated 12/20/21, TTI indicated that the most relevant parameters for evaluating crashworthiness were barrier face deflection (D1 and D2) and barrier face slope (S1 and S2).



Based on past testing, their finite element simulations, and analyses, TTI indicated that single-slope barrier installations having a barrier face slope and deflection of less than or equal to 14.25 degrees and 1.5 inches, respectively, may be considered MASH TL-3 compliant.

As a result, MDOT's current single-slope concrete barrier designs with a 10.8-degree barrier face slope, and with a tolerance of +/- 3.4 degrees, would result in a maximum acceptable slope of 14.2 degrees, and this would meet MASH, TL-3 criteria based on TTI's professional opinion letter. Likewise, the proposed barrier face deflection of 1.5 inches (maximum) would also meet MASH, TL-3 criteria based on TTI's professional opinion letter.

Barrier cracking was another issue that was reported on the I-75 Mega Project in Oakland County. MDOT's current concrete barrier specifications in Section 804 of the 2020 standard specifications for construction do not address concrete barrier crack repairs. After a lengthy period of extensive discussions with MDOT Construction Field Services (CFS), Bureau of Bridges and Structures, and others, the proposed concrete barrier crack repair guidelines in the FUSP were developed.

It should be noted that the proposed concrete barrier FUSP and the proposed CM guidelines were shared with industry. In their latest response, industry had no concerns with the proposed barrier slope and deflection tolerances, or the proposed crack repair specifications. Their only concern had to do with MDOT's requirement of using 5,000 psi concrete for constructing concrete barriers, but this is a separate matter from the original discussion of barrier face slope and deflection tolerances, and barrier crack repairs.

Recommendation(s) – Proceed with approving and implementing the updated version of the Concrete Barriers, Glare Screens, Bridge Barrier Railings, and Foundations for Light Standards and Sign Supports FUSP and the proposed updates to Section 804 of the MDOT CM.

Status - New submittal.

ACTION: Approved

3. Alternate Pavement Bid (APB) in Ingham County, University Region, I-496/US-127, from I-96 to the I-496/US-127 split, freeway reconstruction – Ben Krom and David Harrison

Issue Statement - APB in Ingham County, University Region

Route/Location: I-496/US-127, from I-96 to the I-496/US-127 split, Freeway Reconstruction
Job Number: 210069
Control Section: 33045
Letting Date: May 2023
Total Est. Const. Cost: \$152.62M

Major Issue(s) - Use of APB on I-496/US-127 Design-Bid-Build project.

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 0.22%. Hot mix asphalt was the low-cost alternative.

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

4. Formal adoption of the American Association of State Highway and Transportation Officials (AASHTO) load-and-resistance factor design (LRFD) Luminaires and Traffic Signals (LTS), and ANSI/TIA-222-H structural design code manuals – Michelle O’Neill

Issue Statement - Formal Adoption of the following structural design code manuals:

- i. AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st Edition, 2015, with 2017, 2018, 2019 and 2020 Interim Revisions (also referred to as AASHTO LRFD LTS)
- ii. Telecommunications Industry Association Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures (also referred to as ANSI/TIA-222-H)

Major Issue(s) - Updating the Michigan Department of Transportation (MDOT) governing design standards and standard specifications for all project design activities beginning on or after February 2, 2023, per the final rule to amend Title 23, Code of Federal Regulations (CFRs), Part 625. Also, adopting a design standard for towers which has not been done previously.

Background/History – The Ancillary Structures area has taken on the task of updating affected design standards per the amended CFRs. Designers will begin using the subject manuals for all projects obligated for design activities beginning in February 2023. The affected letting date in which updated standard plans and specifications will take effect is tentatively October 2023 letting. MDOT Ancillary Structures staff along with specialty support areas (signing, signals, lighting) are working with industry on the transition and timeline for retooling/restocking of materials needed to meet the updated standards. Structure types affected include strain poles, mast arms, sign cantilevers, sign trusses, bridge sign connections, dynamic message sign support structures, light poles, high mast light towers, and spun concrete poles.

Ancillary Structures in working with the Intelligent Transportation System (ITS) Program Office recognized that the structural design code for tower structures has not been formally adopted by MDOT. This affects ITS communication towers and Environmental Sensor Station towers. Adopting the TIA-222-H, which is the nationally recognized standard for these asset types, will clarify for designers, fabricators, contractors, or those who may be performing maintenance activities the structural design requirements for these structures. This code is currently referenced in several special provisions pertaining to these structure types. The TIA-222-H is referenced in the International Building Code and is accredited by the American National Standards Institute.

Recommendation(s) - Recommend that the EOC adopt the subject manuals as the governing design standards for the associated structure types.

ACTION: Approved

5. Adoption of the program charter for the Ancillary Structure Steering Committee – Michelle O’Neill

Issue Statement - Adopt the program charter for the Ancillary Structure Steering Committee.

Major Issue(s) - Formalize the creation of the Ancillary Structures Steering Committee–A subcommittee of the Statewide Alignment Team–Bridge.

Background/History - Upon the creation of the Ancillary Structures Unit and development of the Program Management Consultant contract, a steering committee is needed to ensure statewide alignment with MDOT’s goals and objectives. The Ancillary Structures Steering Committee will be the principal body providing statewide guidance on ancillary structure issues, actions, and related matters.

Recommendation(s) - Recommend approval of the Ancillary Structures Steering Committee Charter

ACTION: Approved

6. Design-build delivery to reconstruct MDOT-owned AMTRAK rail and intercity bus stations in Detroit - Ryan Mitchell

Issue Statement - Approval is requested for Design-Build-~~Operate-Maintain~~ (DBOM) delivery to reconstruct MDOT-owned AMTRAK rail and intercity bus stations in Detroit into one modern intermodal passenger hub with enhanced passenger amenities at the site of the current Detroit Amtrak station in New Center neighborhood, **utilizing a Best Value procurement.**

Major Issue(s) - The existing intercity bus station at Howard Street in the Corktown neighborhood, opened in 1992, is obsolete. The existing Amtrak rail station at Woodward Avenue and Baltimore Street in the New Center neighborhood, opened in 1994, is well beyond its service life and is no longer compliant with current Amtrak and Americans with Disabilities Act standards. This project will construct new passenger rail and intercity bus facilities to accommodate growing ridership projections and improve intermodal connectivity, leveraging property that MDOT already controls to offset costs. **DBOM** delivery will allow MDOT to capture private sector expertise, innovation and efficiency to design, construct, ~~operate and maintain~~ a new regional transportation hub that will expand connectivity, improve customer experience, enhance the public space, and leverage land value. **Long-term operations and maintenance services are desired for the facility and will be set up similarly to facilities in Pontiac and Dearborn, where tenants pay a proportional amount of the operate and maintain costs.**

Background/History

Region/TSC: Metro Region, Detroit TSC

Control Section: 33014

Job Number(s): 213609

Project Location: The current Amtrak passenger facility parcel is located in New Center at 11 West Baltimore Street, Detroit, 48202; the MDOT-owned parcel south of the rail tracks is bordered by Woodward Avenue, Cass, and Amsterdam. The Detroit bus station is located in Corktown at 1001 Howard Street, Detroit, 48226. The new combined station will be located at the New Center site.

Est. Const Cost: \$55.7M (2021\$); \$57.3M (YOE); **Revised 01/10/23: \$65.2M**

Funding Type and Fiscal Year (Fed/state/local): **\$10M Fed (from RAISE grant)/\$42.3M State/\$0 Local.** If RAISE grant is not awarded, balance of funds will be State. **Additional funding through federal grants, partnership or earmark are being pursued.**

Key Dates:

- RAISE Grant award notice: 11/22/2021
- ~~CRISI grant application due: 11/29/2021~~
- Preliminary Programming & Design supporting NEPA process: Winter 2021-Summer 2022
- Procurement: ~~Fall 2022-Spring 2023~~ **Winter 2022-Fall 2023**
- Letting: ~~Spring 2023~~ **Winter 2023-2024**

- Implementation (design and construction): ~~Spring/Summer 2023~~ **Winter 2023/2024 - December 2025**

MDOT completed a feasibility study of the proposed intermodal station, including a market sounding with interested local and national developers, to determine if real estate development on the site could be used to offset some of the public investment through a public-private partnership. Based on feedback from market participants and a review of financial options, it was determined that near-term construction of the transportation facility will require 100% public funding of capital costs. However, based on preliminary site layouts and massing studies, the design and construction will preserve the opportunity for future commercial development at the site which may offset facility a portion of operating costs.

MDOT has no available forces to operate and maintain the bus and train stations and has historically relied upon outside contractors to perform these services.

Recommendation(s) - The project team and Innovative Contracting Committee recommend **DBOM** delivery of the project to incorporate innovation and efficiency in design and construction, **utilizing a best value procurement.** ~~and ensure consistency and accountability in operations and maintenance.~~ **The Detroit New Center project is unique for the Department, offering opportunities for innovative solutions and aesthetic concepts beyond what our typical roadway and bridge projects can. As the project team refines our specific goals with our stakeholders, we will work to develop the unique criteria that will bring the best value to the Intermodal Facility.**

Status - **The project team has started to draft a work plan for the procurement which includes the steps below:**

- **Develop Selection Criteria – will require approval from CSRT**
 - **Project team is discussing the involvement of key stakeholders in the development of the selection criteria**
- **Develop Evaluation Manual**
- **Determine Selection Team**

ACTION: Approved

RA:lrb

| | | |
|--------------------------------|-------------------------|-----------------------|
| 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) | |