



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
APRIL 14, 2016 – 9:00 A.M.
MULTI-MODAL CONFERENCE ROOM**

Present: M. Van Port Fleet J. Gutting C. Rogers
R. VanPortfliet B. Wieferich H. Zweng
K. Schuster M. Bott M. Sweeney
T. Marshall (FHWA)

Absent: R. Ranck S. Bower M. Geib

Guests: C. Bleech L. Lynwood J. Myers D. Morena (FHWA)
B. Krom M. Eacker J. Rick

OLD BUSINESS

1. Approval of the March 3, 2016 Meeting Minutes – M. Van Port Fleet

ACTION: Approved

NEW BUSINESS

1. US-127BR/Mission Road Roundabout, Mt. Pleasant - J. Myers

Scope: Roundabout Construction
Route/Location: US-127BR at the Mission Rd intersection
Job Number: 116402
Control Section: 37012
Letting Date: 12/2/16

In 2012, the project was approved for safety funds due to the number of serious crashes at the intersection of US-127BR and Mission Road. A consultant was hired to design the roundabout and is currently at the preliminary planning stage. A Road Safety Audit (RSA) was held in November 2014 at this intersection. There have been a few interim safety improvements based on the RSA recommendations. Other improvements will be incorporated into the project design.

Transportation Service Center (TSC) staff met with the staff from the city of Mt. Pleasant and Isabella County multiple times to discuss the design and other issues. The first public open house is tentatively scheduled for March 17, 2016. Two more open houses are planned.

The current layout has been reviewed and modified based on comments/concerns from the Mt. Pleasant TSC, the Bay Region (T&S and the Region Engineer), Lansing Geometrics, and the city of Mt. Pleasant staff.

Due to the severity of crashes at the above intersection, a safety project was approved for FY 2017 for the construction of a modern roundabout. This location is in a transition area to Limited Access ROW and therefore only has a sidewalk along the west side, which will be maintained during construction. Pedestrians do not need to cross any leg of the roundabout.

In accordance with the Roundabout Guide, this project is being presented for approval by the Engineering Operations Committee (EOC).

ACTION: Approved

2. Hot Mix Asphalt (HMA) Material Transfer Device (MTD) Usage Policy – C. Bleech

The policy on the use of an MTD was established at the October 1, 2009 EOC meeting. The policy states, in part, that an MTD must be used on all mainline paving of rehabilitation and reconstruction projects on Interstate routes, limited access U.S. routes, and limited access M routes when there is more than 10,000 tons of HMA for an individual paving course. Base course mixes placed on a rubblized pavement or a shoulder paved separately do not require the use of an MTD. This is applicable to Interstate routes, limited access U.S. routes, and limited access M routes.

- a. In certain instances, the policy is being applied to M routes which have limited access right-of-way for stretches, but also have intersections and turnarounds. Industry members believe that the presence of intersections and turnarounds would prevent a route from being categorized as limited access. Industry members request clarification from the EOC; what constitutes a limited access route? It should be noted that maintaining traffic schemes for these routes have included closing down intersections and turnarounds to allow continual paving.
- b. The Grand Region had a project that did not meet the policy, specifically the language regarding a shoulder paved separately, for use of an MTD. The Grand Region originally included the MTD due to poor shoulder conditions and the desire to limit the amount of construction equipment running on the shoulders. Grand Region received a contractor inquiry regarding the use of an MTD when MDOT policy did not warrant its inclusion in the job. MDOT removed the requirement by addendum based on the inquiry and Department policy. The Grand Region would like to see a change in policy to allow this innovation in the future.

There are two (2) major issues related to the current policy:

- a. The Asphalt Pavement Association of Michigan requested clarification on the definition of a limited access route.
- b. Current policy does not allow for use on shoulders paved in a separate operation. This prevented the Grand Region from using an MTD on a project where they wanted to require an MTD to limit shoulder traffic on a job with poor shoulder conditions.

The EOC is requested to approve the following revisions to the policy:

Limited Access Routes - “An MTD must be used on all mainline paving of rehabilitation and reconstruction projects on Interstate routes, limited access U.S. routes, and limited access M routes when there is more than 10,000 tons of Hot Mix Asphalt for an individual paving course. In those instances when the limited access route has intersections and turnarounds the maintenance of traffic must require that these be closed during paving operations to allow for continual paving.”

Shoulder Use - The Engineer may require the use of an MTD for shoulders paved separately if conditions exist that require the limiting of construction equipment on the shoulder and practical target density is being used on the shoulder.

ACTION: Returned to the Hot Mix Asphalt Operations Committee (HMAOC) for clarification and industry input. Parameters will need to be established for shoulder conditions that warrant the use of an MTD in order to minimize impacts from construction equipment. A definition of limited access routes will also be included as part of the clarification.

3. Trunk Line/Local Funding Participation Technical Agenda – B. Wiefelich

Proposed a technical agenda to create a team that will establish protocols and procedures for the delivery of projects that utilize a combination of state trunk line funds with local agency infrastructure funds. This agenda will engage with other agencies responsible for providing local infrastructure funding including the Michigan Department of Environmental Quality (MDEQ) and the USDA. This technical agenda is to be completed by July 1, 2016.

The EOC is requested to approve this technical agenda.

ACTION: Approved via email.

4. NACTO Urban Street and Bikeway Design Guides – B. Wiefelich

In January 2015, MDOT finalized the Multi-Modal Development and Delivery (M2D2) Work Plan. This plan includes discussion on geometric flexibility within the current standards and other national accepted guidance.

The National Association of City Transportation Officials (NACTO) has developed two documents that have been part of this discussion. First, the Urban Street Design Guide emphasizes city street design as a unique practice with its own set of design goals, parameters, and tools. Second, the Urban Bikeway Design Guide incorporates new principles for bicycle facility design, providing innovative options for safer bicycling on integrated urban streets. Although the FHWA design standard is still based on AASHTO (23CFR, Part 625), these new design guides will give MDOT staff ideas for greater flexibility to solve transportation problems in ways that recognize context and help address the unique needs of the local community.

The M2D2 plan also identifies many MDOT documents, manuals, and processes that could be revised to better facilitate the planning, design, construction, operation, and maintenance of multi modal facilities within MDOT right-of-way. During this process, MDOT staff will continue to engage our stakeholders on multi-modal needs and accommodation in our projects, utilizing the Context Sensitive Solution (CSS) project development process and in compliance with the principles and requirements under the State Transportation Commission Policy on Complete Streets.

The NACTO design guides should be used in conjunction with the appropriate AASHTO standards in order to provide innovative solutions to unique urban street needs.

The EOC is requested to review and consider a White Paper developed for the NACTO guides and a draft Statement of Flexibility.

ACTION: Additional information is needed. Policy to be developed related to level of services and impacts. Geometrics Design Unit will review NACTO guides and provide discussion on differences. Identification of training needs.

5. Gateway Guidance Document – L. Lynwood

There is an increased interest in community placemaking and identification opportunities in trunkline roadway right-of-way. Using the principles of Context Sensitive Solutions (CSS), the department encourages and promotes partnership opportunities that enrich communities and improve the visual image of transportation projects. As a result, there is a need for statewide guidance to assign roles and responsibilities and to provide for a consistent review and approval process for permitting proposed gateway designations including signing, monuments and other landscape architectural features. The draft Gateway Guidance Document has been reviewed by the FHWA and their comments have been addressed.

The EOC is requested to approve the guidance document.

ACTION: Approved with general edits for clarification.

6. National Pollutant Discharge Elimination System (NPDES) Permit – H. Zweng

MDOT applied for a new NPDES permit in April 2014. The NPDES MS4 permit application was submitted with the expectation that there would be an 18 month DEQ review and comment period, with permit issuance expected September 30, 2015.

The DEQ review has taken longer than anticipated and permit issuance is now expected in January 2017. Under the original agreed upon timeframe, MDOT had committed to full implementation in the 2018 construction season.

The longer than anticipated DEQ review period necessitates a delay in implementation at MDOT. DEQ has suggested that the compliance date be delayed since the permit details are not finalized yet.

The EOC is requested to approve a revised implementation schedule that will result in full compliance by the 2020 construction season.

ACTION: Approved.

7. Pavement Selection M-59 - B. Krom

Route/Location: M-59, East of M-53 to Hayes Road, Macomb County

Job Number: 111361

Control Section: 50022

Letting Date: 12/6/2016

Department policy requires that Life Cycle Cost Analysis (LCCA) be used to determine the lowest cost pavement design alternative following the procedures outlined in the MDOT Pavement Design and Selection Manual. Final pavement selection requires approval by the Engineering Operations Committee.

The reconstruction alternatives being considered are a Hot Mix Asphalt Pavement (HMA Alternative #1) and a Jointed Plain Concrete Pavement (JPCP Alternative #2). It is recommended that a combination of existing and new sand subbase be used for the HMA alternative. For both alternatives, the proposed plan grade will be raised approximately 2.5 inches higher than the existing plan grade elevation. The pavement designs being considered are as follows:

Alternative #1: Reconstruct with Hot Mix Asphalt Pavement

1.5"	HMA, 5E10, Top Course, High Stress, PG 70-22P
3"	HMA, 3E10, Leveling Course, High Stress, PG 70-22P
3"	HMA, 3E10, Base Course PG 58-22P
16"	Open Graded Drainage Course
	Geotextile Separator
8"	Sand Subbase (6.85" existing, 1.15" new)
6" dia.	Subbase Underdrain System
31.5"	Total Section Thickness

Present Value Initial Construction Cost	\$302,585/lane-mile
Present Value Initial User Cost	\$101,339/lane-mile
Present Value Maintenance Cost	\$130,132/lane-mile
Equivalent Uniform Annual Cost (EUAC)	\$20,637/lane-mile

Alternative #2: Reconstruct with Jointed Plain Concrete Pavement

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

Present Value Initial Construction Cost	\$357,344/lane-mile
Present Value Initial User Cost	\$137,275/lane-mile
Present Value Maintenance Cost	\$140,566/lane-mile
Equivalent Uniform Annual Cost (EUAC)	\$23,986/lane-mile

Pavement designs are based on the 1993 AASHTO “Guide for Design of Pavement Structures” and the AASHTO pavement design software, DARWin Version 3.1, 2004.

The Equivalent Uniform Annual Cost calculation is based on the pavement selection process as approved by the EOC on June 3, 1999. Construction costs are derived from historical averages on similar projects while user costs are calculated using the MDOT Construction Congestion Cost model.

ACTION: EOC approves the selection of Alternative#1, Reconstruct with Hot Mix Asphalt Pavement, which has the lowest life cycle cost.

8. Pavement Selection US-23 - B. Krom

Route/Location: US-23: from the M-14 Tri-Level to M-36, Washtenaw & Livingston Counties

Job Number: 123268, 115398, 115399, 118461

Control Sections: 81103, 81075, 47013

Letting Date: 10/7/2016

Department policy requires that Life Cycle Cost Analysis (LCCA) be used to determine the lowest cost pavement design alternative as outlined in the MDOT Pavement Design and Selection Manual. Final pavement selection requires approval by the Engineering Operations Committee.

The reconstruction alternatives being considered are a Hot Mix Asphalt Pavement (HMA Alternative #1) and a Jointed Plain Concrete Pavement (JPCP Alternative #2). The pavement designs being considered are as follows:

Alternative #1a: Reconstruct US-23 with Hot Mix Asphalt Pavement

1.5”	HMA, 5E30, Top Course, PG 70-28P (mainline & inside shoulder)
3.75”	HMA, 3E30, Leveling Course, PG 70-28P (mainline & inside shoulder)
5”	HMA, 2E30, Base Course, PG 64-22 (mainline)
1.5”	HMA, 5E3, Top Course, PG 64-28 (outside shoulder)
2”	HMA, 4E3, Leveling Course, PG 64-28 (outside shoulder)
3”	HMA, 3E3, Base Course, PG 64-22 (outside shoulder)
6”	Aggregate Base (mainline)
11”	Aggregate Base (inside shoulder)
9.75”	Aggregate Base (outside shoulder)
18”	Sand Subbase
6” dia.	Subbase Underdrain System
34.25”	Total Section Thickness

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

1.5"	HMA, 5E3, Top Course, PG 64-28
2"	HMA, 4E3, Leveling Course, PG 64-28
3"	HMA, 3E3, Base Course, PG 64-22
6"	Aggregate Base
18"	Sand Subbase
6" dia.	Subbase Underdrain System
30.5"	Total Section Thickness

Present Value Initial Construction Cost	\$546,239/lane-mile
Present Value Initial User Cost	\$25,608/lane-mile
Present Value Maintenance Cost	\$142,045/lane-mile
Equivalent Uniform Annual Cost (EUAC)	\$27,586/lane-mile

Alternative #2a: Reconstruct US-23 with Jointed Plain Concrete Pavement

10.5"	Non-Reinf Conc Pavt, P1 Modified, w/ 14' jt spacing (mainline & 4' inside shldr)
6"	Open Graded Drainage Course (mainline & 4' inside shoulder)
10.5"-8"	Tapered Non-Reinf Conc Pavt, P1 Modified, w/ 14' jt spacing (6.84' inside shldr)
6"-8.5"	Open Graded Drainage Course (6.84' inside shoulder)
10.5"-7.5"	Tapered Non-Reinf Conc Pavt, P1 Modified, w/ 14' jt spacing (outside shoulder)
6"-9"	Open Graded Drainage Course (outside shoulder) Geotextile Separator
10"	Sand Subbase
6" dia.	Open-Graded Underdrain System
26.5"	Total Thickness

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

8"	Non-Reinforced Concrete Pavement, P1 Modified, with 12' joint spacing
6"	Open Graded Drainage Course Geotextile Separator
10"	Sand Subbase
6" dia.	Open-Graded Underdrain System
24"	Total Thickness

Present Value Initial Construction Cost	\$604,628/lane-mile
Present Value Initial User Cost	\$27,892/lane-mile
Present Value Maintenance Cost	\$160,352/lane-mile
Equivalent Uniform Annual Cost (EUAC)	\$29,940/lane-mile

The pavement designs for both alternatives are based on the 1993 AASHTO "Guide for Design of Pavement Structures", using the AASHTO pavement software DARWin Version 3.1, 2004, and the 2008 AASHTO "Mechanistic-Empirical Pavement Design Guide" and use the software AASHTOWare Pavement ME Design 2.0, 2014.

The Equivalent Uniform Annual Cost calculation is based on the pavement selection process as approved by the EOC on June 3, 1999. Construction costs are derived from historical averages on similar projects while user costs are calculated using the MDOT Construction Congestion Cost model.

ACTION: EOC approves the selection of Alternative#1, Reconstruct with Hot Mix Asphalt Pavement, which has the lowest life cycle cost.

9. Clearview Font – M. Bott

On January 25, 2016, the FHWA published a notice in the Federal Register, effective 30 days from publication, terminating the use of an alternative letter style, Clearview™, on traffic control devices. On March 14, 2016, the FHWA issued a memo that allows for a transition plan.

Based on signing contracts, including those already let for 2016, 93 percent of freeways and 40 percent of non-freeways have Clearview font in place.

The use of this alternative letter style for highway signs was authorized on September 2, 2004, under the provisions of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) for Interim Approval. Agencies wishing to use the alternative letter style were required to request approval from the FHWA. All roadway agencies in the state of Michigan were given approval to participate in the use of Clearview font on December 23, 2004. Attached is a map showing roadways under the jurisdiction of the MDOT where Clearview has been implemented. This interim font was introduced on freeways in 2006 and non-freeways in 2010.

Research conducted on the evaluation of engineering improvements for older drivers showed a reduction of fatal and serious injury crashes (7% rural non-freeway, 29% urban non-freeway) when both Clearview and Fluorescent Yellow sign sheet was used. Through use of the Highway Safety Manual, the benefits of Clearview font were isolated to a reduction in fatal and injury crashes of 5% for rural non-freeway and 23% for urban non-freeways.

The greatest reductions were realized at night for all crash types. These reduction are 26%, 34% and 31% for freeways, urban non-freeways and rural non-freeways respectfully.

Based on the percentage of roadways with Clearview font guide signs currently in place, switching back to Standard Highway font will create guide sign inconsistency in the State of Michigan for the next 20 years.

Considerable time and funding has been devoted in developing Sign Standards in Clearview for sign sizing programs, Micro-Station sign cells and the Michigan Standard Highway Signs Book. If such a change is necessary, the State FHWA Division Offices should be permitted to develop a reasonable time table for conversion.

ACTION: Letter will be drafted to Greg Nadeau, FHWA Administrator, from Director Steudle. Draft Resolution for AASHTO Standing Committee on Highways meeting; shared with other AASHTO committees as needed. Prepare background information including research results for support and dialog. Draft transition plan including advisories and maintenance considerations. Coordinate communications plan.

Steven Bower, Secretary
Engineering Operations Committee

RA:SB

cc: EOC Members D. Parker D. DeGraaf (MCA)
Meeting Guests M. DeLong J. Becsey (APAM)
K. Steudle D. Jackson D. Needham (MAA)
L. Mester W. Tansil Monica Ackerson Ware (MRPA)
D. Wresinski C. Libiran
M. Chaput R. Jorgenson (FHWA)
Region Engineers R. Brenke (ACEC Michigan)
Assoc. Region Engineers G. Bukoski (MITA)
TSC Managers