



ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
JUNE 24, 2021, 9:00 A.M. – 11:00 A.M.
VIA TEAMS

Present: Carol Aldrich Mark Geib Will Thompson
Mark Bott Jason Gutting Brad Wieferich
Gregg Brunner Tony Kratofil Gorette Yung
Matt Chynoweth Ryan Mitchell Hal Zweng
Mark Dionise Kristin Schuster

Absent: Rebecca Curtis Brandy Solak

Guests: Gilbert Abu David Kent Val Napier
Mike Eacker Ben Krom Dina Tarazi

OLD BUSINESS

1. Approval of the May 27, 2021, Meeting Minutes – Tony Kratofil

ACTION: Approved

2. Michigan Department of Transportation (MDOT) New Materials and Products Report – Jason Gutting

ACTION: For information only.

NEW BUSINESS

1. Safety Topic: Preventing Heat Stroke During Hot Weather – Mark Geib

Take these steps to prevent heatstroke during hot weather:

- **Wear loose-fitting, lightweight clothing.** Wearing excess clothing or clothing that fits tightly will not allow your body to cool properly.
- **Protect against sunburn.** Sunburn affects your body's ability to cool itself, so protect yourself outdoors with a wide-brimmed hat and sunglasses and use a broad-spectrum sunscreen with a sun protection factor, or SPF, of at least 15. Apply sunscreen generously and reapply every two hours — or more often if you are swimming or sweating.
- **Drink plenty of fluids.** Staying hydrated will help your body sweat and maintain a normal body temperature.

- **Take extra precautions with certain medications.** Be on the lookout for heat-related problems if you take medications that can affect your body's ability to stay hydrated and dissipate heat.
- **Never leave anyone in a parked car.** This is a common cause of heat-related deaths in children. When parked in the sun, the temperature in your car can rise 20 degrees Fahrenheit, or more than 6.7 degrees, in 10 minutes. It is not safe to leave a person in a parked car in warm or hot weather, even if the windows are cracked or the car is in shade. When your car is parked, keep it locked to prevent a child from getting inside.
- **Take it easy during the hottest parts of the day.** If you cannot avoid strenuous activity in hot weather, drink fluids and rest frequently in a cool spot. Try to schedule exercise or physical labor for cooler parts of the day, such as early morning or evening.
- **Get acclimated.** Limit time spent working or exercising in heat until you are conditioned to it. People who are not used to hot weather are especially susceptible to heat-related illness. It can take several weeks for your body to adjust to hot weather.
- **Be cautious if you are at increased risk.** If you take medications or have a condition that increases your risk of heat-related problems, avoid the heat and act quickly if you notice symptoms of overheating. If you participate in a strenuous sporting event or activity in hot weather, make sure there are medical services available in case of a heat emergency.

If heatstroke occurs, emergency treatment is required. Untreated heatstroke can quickly damage your brain, heart, kidneys, and muscles. The damage worsens the longer treatment is delayed, increasing your risk of serious complications or death.

Seek medical treatment immediately if you experience these symptoms:

- **High body temperature**
- **Altered mental state or behavior**
Confusion, agitation, slurred speech, irritability, delirium, seizures, and coma can all result from heatstroke.
- **Alteration in sweating**
In heatstroke brought on by hot weather, your skin will feel hot and dry to the touch. However, in heatstroke brought on by strenuous exercise, your skin may feel dry or slightly moist.
- **Nausea and vomiting**
You may feel sick to your stomach or vomit.
- **Flushed skin**
Your skin may turn red as your body temperature increases.
- **Rapid breathing**
Your breathing may become rapid and shallow.
- **Racing heart rate**
Your pulse may significantly increase because heat stress places a tremendous burden on your heart to help cool your body.

- **Headache**
Your head may throb.

ACTION: For Information Only

2. Approval of the updated version of the Pavement Selection Manual – Ben Krom and Mike Eacker

Subject/Issue – Approval of the updated version of the Pavement Selection Manual.

Issue Statement – The Pavement Selection Manual has been revised to reflect the recommendations from previous life-cycle process reviews. The new version of the manual requires approval prior to being released and utilized as an official MDOT manual.

Major Issue(s) – An extensive process review involving internal and external stakeholders was carried out on the Department’s pavement life-cycle cost analysis process. The process started in January 2018 and concluded in June of 2019. All agreed-upon changes to our life-cycle processes have been incorporated into the Pavement Selection Manual. Additionally, the pavement preservation strategies and performance curves were updated or added for the first time. The manual was reviewed by internal and external stakeholders. Very few comments were received, but all comments from stakeholders were addressed and edits to the manual are now complete.

Background/History – There are two versions of the draft manual: One showing all the tracked changes, and the other a ‘clean’ version. The Word version can be provided upon request. The following is a high-level summary of the changes to the Pavement Selection Manual:

- Description of the remaining life value process
- Information for the four additional fix types to be life-cycled and their comparisons
- Numbered all tables and figures
- Brought maintenance of traffic (MOT) review process in alignment with the Work Zone Safety & Mobility Manual (WZSMM)
- Updated sections describing the reuse of existing sand subbase
- Added concrete widened slab information and reference
- Updated the existing four pavement preservation strategies and performance curves
- Added four new pavement preservation strategies and performance curves
- Life Cycle Cost Analysis (LCCA) Unit Prices: Procedure to include concrete prices from up to 48 months ago, and table of common item quantity thresholds
- Updated hot mix asphalt and concrete production rates
- Updated post-LCCA pavement modification process
- Moved the appendix with LCCA MOT flowcharts to the WZSMM

Recommendation(s) – We request that the updated Pavement Selection Manual (June 2021 Edition) be approved.

ACTION: Approved

3. New guidance for user delay caps to be used in pavement life-cycle cost analysis and alternate pavement bidding projects – Mike Eacker and Ben Krom

Issue Statement – New guidance for user delay caps to be used in pavement life-cycle cost analysis and alternate pavement bidding projects.

Major Issue(s) – The per day user delay amounts used in pavement life-cycle cost analysis (LCCA) and alternate pavement bidding (APB) have been significantly different for several projects. This difference has caused both the hot mix asphalt and concrete paving industry groups to bring concerns to MDOT about how this wrongly influences the LCCA and APB outcomes.

Background/History – The Michigan Concrete Association (MCA) and the Asphalt Pavement Association of Michigan (APAM) brought their concerns about the user delay amounts used in APB projects and LCCA, respectively. The concerns were either that user delay amounts in the LCCA were unrealistically high or that the values used in bidding for APB projects were significantly lower than what was calculated in the LCCA.

Due to these concerns, MDOT began to discuss how to create consistency in user delay amounts used in these two processes. An initial team made up of personnel from Construction Field Services (CFS), the Innovative Contracting Unit (ICU), and a few regions discussed the issue and decided that user delay amounts used in the LCCA and in APB should be consistent and that they should be capped to prevent the use of extremely high values in the APB process. Subsequently, the Pavement Management Section (PMS), as owners of the LCCA process, were charged with developing a recommendation for cap values and a process to incorporate those caps.

The investigation by the PMS can be found in the attached document titled “Establishing User Delay Amounts for LCCA and APB projects.” PMS used per day user delay values for all life cycles over the previous four years to see what project characteristics could be used to establish caps amounts. After looking at total traffic (two-way), roadway type (interstate, US route, M route), and Region, it was determined that total traffic was the only one that could be used. Based on a visual examination of the plot of LCCA per day user delay versus total traffic, the following traffic levels and caps are recommended:

Traffic Level (two-way total)	Cap (per day)
Under 20,000	\$25,000
20,001 to 50,000	\$50,000
50,001 and up	\$100,000

The LCCA would use these caps at each construction stage if the stage exceeded the cap value. A per day user delay equivalent will be calculated and will be provided in the life-cycle documents. If the project will be let as an APB, the user delay used to estimate the user costs in bidding will be the same as used in the LCCA. The region, however, can request a reduction of that value to no less than 50% of the LCCA value. The request will go to the ICU before it is discussed by the Innovative Contracting Committee. The Engineering Operations Committee (EOC) has the right to reject any such requests.

The user delay amounts were reviewed by key region staff and comments were received from at least one person in each region. The user delay amounts, and the attached process document, were reviewed by APAM and MCA and comments were received from both. MCA proposed an alternate plan in which the cap would be \$250,000 per day regardless of traffic level, and no allowance for reduction by the Regions.

The law states: (3) Except as otherwise provided in this section, life-cycle cost shall compare equivalent designs and shall be based upon Michigan's actual historic project maintenance, repair, and resurfacing schedules and costs as recorded by the pavement management system and shall include estimates of user costs throughout the entire pavement life.

Recommendation(s) – Approve the process for establishing user delay caps outline in the attachment “Establishing User Delay Amounts for LCCA and APB projects” for use on any project for which the official life cycle has not been approved by the EOC by July 1, 2021, and any APB that has not been let by August 1, 2021.

ACTION: Approved. The EOC directs that the process be modified to clarify whether or not user delay caps for ramps can be assigned separately from mainline.

4. Alternate Pavement Bid in Kent County, Grand Region: M-6 from Rush Creek to Burlingame Avenue – David Kent and Ryan Mitchell

Issue Statement – Alternate Pavement Bid (APB) in Kent County, Grand Region

Route/Location: M-6 from Rush Creek to Burlingame Avenue

Job Number: 200112

Control Section: 41064

Letting Date: September 2023

Total Est. Const. Cost: \$12.7M

Major Issue(s) – Use of APB on M-6 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 0.96%. 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

Carol Aldrich, Secretary
Engineering Operations Committee

RA:lrb

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