



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
MARCH 2, 2009 – 9:00 A.M.
MULTI-MODAL CONFERENCE ROOM**

Present: L. Tibbits J. Friend B. O'Brien
J. W. Reincke J. D. Culp T. Kratofil
C. Roberts C. Bleech E. Burns
D. Calabrese

Absent: M. Van Port Fleet

Guests: G. Johnson B. Krom T. Frake (for M. Van Port Fleet)
D. Juntunen B. Curtis B. Kelley

The March EOC meeting was the last one for Larry Tibbits, Chief Operation Officer. Larry will retire from state service on March 31, 2009, after serving for over 39 years. Larry was widely respected for his experience, knowledge, and fairness, and was a true crusader for improving the safety of our transportation system. Under his leadership, many new initiatives were implemented, resulting in many saved lives. His contributions to MDOT and the residents of the State of Michigan are immeasurable. The EOC would like to acknowledge all that Larry has done, and thank him for his years of dedication to the people of Michigan. Larry, congratulations on a wonderful and meaningful career, and good luck in your retirement. You will be missed.

OLD BUSINESS

1. Approval of the February 3, 2009, Meeting Minutes – L. Tibbits

The February 3, 2009, meeting minutes are approved.

2. November 6, 2008, Meeting Minutes, New Business, Item 2.a. – B. Krom

EOC approved the pavement selection at the November 6, 2008, meeting for the US-41 reconstruction project (CS 55011, JN 84193). The minutes indicate this may be a candidate for alternate bid; however, it is not an alternate bid project.

NEW BUSINESS

1. Interim Update to 2005 MDOT *Bridge Analysis Guide* – D. Juntunen, B. Kelley, and R. Curtis

Michigan's *Bridge Analysis Guide* has been published since 1941, is a key reference for local agencies and their consultants, and is needed to achieve uniformity of load posting and assure public safety. EOC approved the last revision in 2005. To remain current with the state of

practice, periodic updates are required. A 2009 interim update to the *Bridge Analysis Guide* was created to address this need.

The interim update to the Bridge Analysis Guide includes three major issues:

- A. The Load and Resistance Factor Design code for designing bridges is now required for the design of all new bridges. The Load and Resistance Factor Rating (LRFR) code will be required to determine the operational capacity of these new structures. Revised LRFR live load factors and other LRFR recommendations were created by the Construction and Technology Division’s Bridge Operations Section and approved by EOC on April 10, 2008, to meet the operational needs of MDOT. This information is presented in the 2009 interim update as Chapter 4a.
- B. Examples are required to demonstrate how to apply the above recommendations. Chapter 9 of the 2009 interim update provides this information.
- C. The 2005 edition of the *Bridge Analysis Guide* does not identify the proper procedure for posting routes with multiple posted bridges. There are changes in Chapter 7 of the 2009 interim update to address this issue.

The Construction and Technology Division is recommending EOC approve the 2009 interim update to the 2005 edition of the *Bridge Analysis Guide*.

ACTION: EOC approves the recommendation. The 2009 interim update to the 2005 edition of the *Bridge Analysis Guide* will be posted on the Bridge Operations Web site.

2. Pavement Selections – B. Krom

The following projects were originally identified as candidates for alternative pavement bidding. At the base plan review, it was determined that the alternative pavement bid process would not result in competitive bids for the two pavement types due to the significant estimated cost differences between the HMA and concrete pavement alternatives. After discussions with the Asphalt Pavement Association of Michigan and the Michigan Concrete Paving Association, it was agreed that the pavement selection for both projects would be determined using the Life Cycle Cost Analysis procedures outlined in MDOT’s *Pavement Design and Selection Manual*. Department policy requires the pavement alternative with the lowest equivalent uniform annual cost (EUAC) be selected.

a. I-96 Reconstruction: CS 33084, JN 84130

The rehabilitation alternatives considered were a hot mix asphalt (HMA) (Alternative 1 – EUAC \$95,604/directional mile) and a jointed plain concrete pavement (Alternative 2 - EUAC \$60,928/directional mile). A life cycle cost analysis was performed and Alternative 2 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

- 12”Non-Reinforced Conc Pavt, P1 Modified, w/16’ jt spacing (mainline & shldrs)
- 6”Open Graded Drainage Course (mainline & shoulders)
- Geotextile Separator (mainline & shoulders)
- Existing Sand Subbase

6" dia.....	Open-Graded Underdrain System
18".....	Total Thickness
Present Value Initial Construction Cost.....	\$828,846/directional mile
Present Value Initial User Cost.....	\$220,999/directional mile
Present Value Maintenance Cost.....	\$77,937/directional mile
Equivalent Uniform Annual Cost.....	\$60,928/directional mile

b. M-140 Reconstruction: CS 11071 & 11072, JN 87321

The reconstruction alternatives considered were a HMA pavement (Alternative 1 – EUAC \$48,382/mile) and a jointed plain concrete pavement (Alternative 2 - EUAC \$57,326/mile). A life cycle cost analysis was performed and Alternative 1 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

1.5".....	HMA, 5E3, Top Course (mainline)
2.0".....	HMA, 4E3, Leveling Course (mainline)
3.25".....	HMA, 3E3, Base Course (mainline)
1.5".....	HMA, 5E03, Top Course (shoulders)
2.0".....	HMA, 4E03, Leveling Course (shoulders)
3.25".....	HMA, 3E03, Base Course (shoulders)
6".....	Aggregate Base (mainline & shoulders)
18".....	Sand Subbase (mainline & shoulders)
	Underdrain System
30.75".....	Total Section Thickness

Present Value Initial Construction Cost.....	\$756,732/mile
Present Value Initial User Cost.....	\$87,984/mile
Present Value Maintenance Cost.....	\$128,582/mile
Equivalent Uniform Annual Cost.....	\$48,382/mile

 (Signed Copy on File at C&T)
 Brenda J. O'Brien, Secretary
 Engineering Operations Committee

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|-----|-------------------------|--------------------|------------------------|
| cc: | K. Steudle | S. Mortel | J. Steele (FHWA) |
| | J. Shinn | D. Jackson | R. Brenke (ACEC) |
| | L. Hank | W. Tansil | G. Bukoski (MITA) |
| | EOC Members | D. Wresinski | D. DeGraaf (MCPA) |
| | Region Engineers | C. Libiran | D. Hollingsworth (MCA) |
| | TSC Managers | R. J. Lippert, Jr. | J. Becsey (APAM) |
| | Assoc. Region Engineers | T. L. Nelson | M. Newman (MAA) |
| | P. Ajegba | T. Phillips | J. Murner (MRPA) |
| | M. DeLong | K. Peters | G. Naeyaert (ATSSA) |
| | B. Shreck | J. Ingle | C&T Staff |