OLD BUSINESS
1. Approval of the September 5, Meeting Minutes – G. Johnson

   ACTION: The September 5, 2013 meeting minutes were approved as written.

2. NPDES Permit Follow-Up – H. Zweng

   Hal provided further updates subsequent to the discussion at the September meeting. Hal reviewed the federal regulatory language and confirmed that the MDEQ interpretation is consistent with the language. In addition, he reviewed the position of AASHTO, specifically the AASHTO Environmental Committee, and confirmed that other states have similar concerns about the speed of implementation and the programmatic impacts both short and long term.

   The new NPDES permit will have requirements regarding Post Construction Best Management Practices (PC-BMPs) that are more restrictive than previous permits. MDOT design practices will need to adapt to these changes. The National Pollutant Discharge Elimination System is a Federal program administered by the EPA, and delegated in Michigan to the MDEQ. Part of this program is the issuance of Municipal Separate Storm Sewer System (MS4) permits, MDOT being a permittee under this program.

   The new permit application is due to MDEQ by April 1, 2014 and the new permit must be issued by September 30, 2015 in order to prevent delays to the MDOT construction program.

   ACTION: Further discussion occurred about what steps are needed to prepare for and implement the new requirements into the MDOT construction program. EOC directs the Environmental Section to propose an implementation plan to the MDEQ that will ensure full compliance by the 2018 construction season. EOC also directs the Environmental Section and the Design Division to coordinate and initiate the following interim actions,

   a) Shadow designs will be developed for several “typical” project scopes to gain a better understanding of the programmatic costs of implementing these new requirements.
b) The Regions will conduct a review of the 2015 to 2017 programs to determine if some projects can meet the new requirements with minimal cost impacts to project budgets. The Regions will proceed with early implementation of the new permit requirements, prior to the 2018 construction season, on any projects identified in this minimal cost impact category.

c) A presentation will be conducted at the annual Design conference and the Highway Operations conference regarding the new permit requirements and impacts on the construction program.

d) The Environmental Section will provide a briefing paper to Greg Johnson within one month that further clarifies programmatic impacts. The paper will outline project impacts related to scoping, design, construction and maintenance.

3. Trunkline Non-Competitive Bid Guidance follow up from September EOC Meeting – B. Wieferich

The department will define the process and thresholds for utilizing federal aid for non-competitive bid, or force account, projects.

In 2012, MDOT published the “CONSTRUCTION OF FEDERALLY FUNDED (FEDERAL AID) LOCAL AGENCY PROJECTS BY NON-COMPETITIVE BID CONTRACT (FORCE ACCOUNT)” guidelines, which were subsequently approved by the FWHA in July of 2013. This guidance specifies the process and defines the limits for local projects.

The department is now in the process of developing similar guidance for trunkline work. Attached for review, please find the “CONSTRUCTION OF FEDERALLY FUNDED STATE TRUNKLINE SYSTEM PROJECTS BY NON-COMPETITIVE BID CONTRACT” guideline.

Revisions since 9/5/13 meeting:

- Placed into a GD format.
- Section III; Revised thresholds to include a statewide limit of $5 million. Note that annual targets will be approved by EOC. This way we can change them without affecting the GD.
- Section V; Changed the construction project approver to TSC Manager.

EOC is requested to approve the revised guidance document.

ACTION: Approved

NEW BUSINESS

1. The use of Construction Manager/General Contractor (CMGC) for the reconstruction of the pavement, toll booths and administration buildings in the plaza of the International Bridge in Sault Ste. Marie, Chippewa County. – C. Youngs

The International Bridge Administration (IBA) has limited funds to complete the desired work. In June, 2013 the IBA let this project under a Fixed Price-Variable Scope (FPVS) contract and all 3 bids came in significantly higher than the maximum allowable price of $6,700,000 and all bids were rejected.
The IBA’s board requested the use of CMGC in order to have a contractor team work with the IBA and their project’s architect to review the available design, develop cost saving measures, and construct the project within the available budget while providing a functional facility.

The project was originally let as a FPVS project (Item 601 in the May 8, 2013 letting) and the maximum scope of the project had 4 goals which included the reconstruction of ramps, toll booths, administration and maintenance buildings, parking areas, water main, storm and sanitary sewer, utility systems, exterior lighting, landscaping, signing, and HMA paving between the plaza and the north terminus of I-75. The minimum amount of work that would be accepted was the construction of the IBA administration building, toll booths, and paving of the plaza area and ramps. All Bidders provided a price higher than the $6.7 million for the base scope of work.

The IBA’s desire is to have a team comprised of IBA staff, the IBA’s architect and a CMGC to work together to develop plans and specifications and reconstruct the administration build, ramps, toll booths, concrete paving in the plaza area, and HMA paving between the plaza and north terminus of I-75 for the available budget shown below.

Project Cost: $7,665,000
Letting Date: NA
Control Section: 17034
Job Number: M00216

EOC approval is requested.

ACTION: Approved

2. MDOT’s use of prestressed bulb T girders – M. Chynoweth

MDOT has used prestressed girders in bridge construction since the 1950’s. At that time, the accepted standard prestressed I-beam type was the AASHTO family of prestressed I-beams, as this was evaluated as the industry standard. The MDOT Statewide Alignment Team – Bridge intends to further explore the use and standardization of prestressed Bulb T girders in Michigan bridges, and eventually discontinue the use of the AASHTO prestressed I-beams.

With increased use of prestressed concrete girder bridges, comes the need to for longer spans. The current AASHTO prestressed I-beams used by MDOT are limited, as spans greater than 120’ are not possible unless the Michigan 1800 girder is used, which itself is a Bulb T girder. A Bulb T girder utilizes much larger bottom flanges, and standard top and bottom flange sizes, while adjusting only the web depth. A number of studies and research projects have noted prestressed Bulb T girders have the following advantages over the standard AASHTO prestressed I-beams:

- High load carrying capacity
- More efficient fabrication
- Safer construction
- Larger vertical clearance
- Reduction in overall costs

EOC is requested to approve expanding the use of “bulbed T” girder designs to expand of the use of pre-stressed concrete girders beyond a 120 foot span length.

ACTION: Approved
3. M-3 Reconstruction: CS 50051 JN 85541 – B. Krom

Department Policy requires that a Life Cycle Cost Analysis (LCCA) be used to determine the most cost effective pavement design.

MCA objected to this LCCA on July 30, 2013. Their objections were with regards to not allowing a longitudinal joint in the middle of a lane for the concrete option, and the 3 vs. 7 days of cure time. At our meeting with MCA on September 17, 2013, Greg Johnson was not in favor of reducing the cure time to 3 days on non-freeway projects. Regarding the mid-lane longitudinal joint issue, the LCCA was run with the same MOT for both alternatives (allowing a joint mid-lane for both) and the low cost alternative remains HMA (11.86% for different MOT, 11.56% for the same MOT). Therefore this issue, no matter the outcome, would not change the low-cost alternative.

Pavement selection was determined using the procedures outlined in the MDOT Pavement Design and Selection Manual. Department Policy requires that the pavement alternate with the lowest EUAC be selected. Final pavement selection requires approval by the Engineering Operations Committee.

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

Alternative #1: Reconstruct with Hot Mix Asphalt Pavement
1.5” HMA, 5E3, Top Course
2.5” HMA, 4E3, Leveling Course
3” HMA, 3E3, Base Course
16” Open Graded Drainage Course
Geotextile Separator
8” Sand Subbase
6” dia. Open-Graded Underdrain System
31” Total Section Thickness
Present Value Initial Construction Cost $264,354/lane-mile
Present Value Temp Pavement Cost $69,087/lane-mile
Present Value Initial User Cost $156,882/lane-mile
Present Value Maintenance Cost $140,204/lane-mile
Equivalent Uniform Annual Cost (EUAC) $22,888/lane-mile

Alternative #2: Reconstruct with Jointed Plain Concrete Pavement
8” Non-Reinforced Conc Pavt, High Performance, w/ 12’ joint spacing
16” Open Graded Drainage Course
Geotextile Separator
6” dia. Open-Graded Underdrain System
24” Total Thickness
Present Value Initial Construction Cost $269,212/lane-mile
Present Value Temp Pavement Cost $82,554/lane-mile
Present Value Initial User Cost $226,849/lane-mile
Present Value Maintenance Cost $154,646/lane-mile
Equivalent Uniform Annual Cost (EUAC) $25,967/lane-mile
The pavement designs for both alternatives are based on the 1993 AASHTO “Guide for Design of Pavement Structures” and use the AASHTO pavement software DARWin Version 3.1, 2004. The Equivalent Uniform Annual Cost calculation is based on the revised pavement selection process as approved by the EOC on June 3, 1999.

The estimated construction costs are based on historical averages from similar projects. User costs are calculated using MDOT’s Construction Congestion Cost model, which was developed by the University of Michigan.

Conclusion: Pavement selection was determined using the procedures outlined in the MDOT Pavement Design and Selection Manual. Department policy requires that the pavement alternative with the lowest EUAC, Alternative #1: Reconstruct with Hot Mix Asphalt Pavement, be selected. Final pavement selection requires approval by the Engineering Operations Committee.

ACTION: Approved.

Steven C. Bower, P.E.
Secretary
Engineering Operations Committee
cc:  K. Steudle  D. Jackson  R. Jorgenson (FHWA)
    L. Mester  W. Tansil  R. Brenke (ACEC)
    EOC Members  D. Wresinski  G. Bukoski (MITA)
    Region Engineers  C. Libiran  D. DeGraaf (MCA)
    TSC Managers  R. Lippert  D. Hollingsworth (MCA)
    Assoc. Region Engineers  B. Shreck  J. Becsey (APAM)
    D. Parker  T. Phillips  M. Newman (MAA)
    M. DeLong  J. Murner (MRPA)