OLD BUSINESS

1. **Approval of the December 5, Meeting Minutes – G. Johnson**

The December 5, 2012, meeting minutes were approved as written.

2. **Pavement Marking Technical Agenda – M. Bott**

On November 1, 2012, EOC directed that the technical agenda team draft proposed goals and objectives for roadway delineation. This includes all roadway features (pavement markings, rumble strip treatments, delineators etc…) affecting roadway delineation both for daytime and nighttime conditions. EOC will review these goals and objectives and determine future action at the next EOC meeting. The recommendations in the technical agenda report are deferred and will be addressed at a future meeting.

**Current Pavement Marking Goal**
To provide a year-round, all-weather retro-reflective marking system.

**Proposed Roadway Delineation Goal**
Deliver a delineation system on MDOT roadways that provides guidance to motorists during normal driving conditions.

**Proposed Roadway Delineation Objectives**
- Establish a roadway delineation system placement strategy which utilizes various pavement marking materials, roadside delineation and rumble strips based on roadway characteristics, pavement type and lighting conditions.

- Adopt the use of various reflective surface profile treatments on new pavements which improve wet nighttime delineation and/or lessen the damage to pavement markings.

Expand roadway delineation design standards that maximize safety investments.
**ACTION:** EOC directs the sponsors of the Pavement Marking Technical Agenda team, Mark Van Port Fleet and Scott Thayer to meet with the technical agenda team members to further develop roadway delineation goals. The team membership will be reviewed to ensure that the membership is appropriate for this additional task. At a minimum, an additional member having maintenance experience should be added to the team.

In developing roadway delineation goals, the team is directed to review existing Department policies regarding roadway lighting, pavement marking, roadway signing including delineator policy and mile marker policies. Context sensitive solutions should also be incorporated into the recommendations.

Recommendations for roadway delineation goals will be reconsidered by EOC following completion of these tasks.

3. **JN 113512 – Roundabout at US-10BR and Patrick Street Crossover – J. Garza**

Due to the severity of crashes at the above intersection, a safety project was approved for FY 2014 consisting of the construction of a modern roundabout. In accordance with the Roundabout guide and the November 2007 EOC meeting minutes, this project is being presented for approval.

The Bay Region presented a proposal at the December 5th EOC meeting and EOC recommended the Bay Region analyze a potential grade separation for the EB US-10 crossover movement to Patrick Road, located east of the proposed roundabout and nearly perpendicular to US-10 and return to the EOC for recommendation at a future date.

**ACTION:** EOC approves the proposed roundabout option.

**NEW BUSINESS**

1. **Use of crushed concrete / environmental concerns – H. Zweng / J. Staton**

Crushed concrete can contain high pH leachate discharge which can be harmful to watercourses and result in MDEQ enforcement action against MDOT.

Crushed concrete used either as embankment or as aggregate base under pavement, has the potential to leach high pH discharge into the surface water or ground water. Since crushed concrete is an economically viable material, we are working to establish practices that allow its use in an environmentally responsible manner.

The MDEQ issued a Notice of violation in 2011 regarding high pH discharge from a crushed concrete installation on the I-275 bike path project. This resulted in MDOT placing a restriction on the use of crushed concrete within 100 feet of any watercourse. This restriction causes constructability issues.

Recommendation to replace the 100 foot restriction with an engineered solution that addresses the most common uses of crushed concrete in our projects.

**ACTION:** EOC approves moving forward with an engineering based solution. EOC directs that the specification be further clarified based on the meeting discussion. A typical cross section that illustrates allowable placement zones should be considered for inclusion in the special provision. The specification will be revised and other revisions to construction and design manuals will be made to
reflect the proposed revisions. The final draft specification will be submitted to EOC for approval at a future meeting.

2. **Use of 16” Open Graded Drainage Course on US-127, Parnell Road northerly to Henry Road, Jackson County (CS 38131, JN 103376) – M. Eacker**

At its July 2007 meeting, EOC approved the use of 16” of Open Graded Drainage Course (OGDC) under concrete and HMA on freeway and non-freeway projects in Metro Region. Consideration of the use of 16” of OGDC in other Regions was not approved at that time. The University Region would like to use 16” of OGDC on this reconstruct project. The pavement life-cycle cost analysis is waiting, to be completed pending approval of this request.

There are very shallow ditches and poor drainage conditions throughout this segment of roadway. The improved drainage and support characteristics of 16” of OGDC would be beneficial to the long-term performance of this reconstructed pavement. The proposed cross-section under the concrete pavement is: 16” of OGDC and a geotextile separator over the existing subgrade. The proposed cross-section under the HMA pavement is: 16” of OGDC, a geotextile separator, and 8” of sand sub-base over the existing subgrade. The use of 16” of OGDC in both pavement designs is the same as approved for Metro Region. Standard depth of granular layers under concrete (16” total) and HMA (24” total) are maintained with these cross-sections.

Using current life-cycle prices for University Region, the 6” OGDC/10” sand sub-base combination for concrete would be $5.75/syd., while the cost for 16” OGDC is $6.56/syd. The 6” aggregate base/18” sand sub-base combination for HMA would be $9.61/syd., but the cost of the 16” OGDC/8” sand sub-base combination would be $8.54/syd.

The Metro Region began using the 16” of OGDC to help with poor soil conditions and the number of depressed freeways. They feel they are getting improved drainage and support from this cross-section. In addition, if conditions exist, that construction traffic will be driving on the base, the 16” results in fewer needed repairs than when only 6” of base is used. There were several instances where contractors requested a no-cost switch from 6” to 16” for this reason.

The Pavement Design Engineer and the University Region Soils Engineer both agree that conditions exist that make the use 16” of OGDC beneficial to the long-term performance of this pavement. It is therefore recommended that EOC approve the use of 16” of OGDC in the designs that will be life-cycled for this project.

**ACTION:** EOC approves the proposed design cross sections for the project.

3. **Freeway 3R Design Speed and Standards – B. Wieferich**

After consulting with their headquarters in Washington, FHWA Michigan Division has determined that the design speed and certain other design values previously established for the original design of an existing freeway may be retained for subsequent 3R projects.

Major reconstruction is beyond the scope and intent of 3R projects. The upward re-assignment of posted freeway speeds has become more common, bringing into question the need for formal design exceptions when the current standards corresponding to the increased posted speeds cannot be met.
Historically, FHWA requirements dictated that new construction standards be indiscriminately applied for all freeway projects regardless of work type (3R and 4R). Since the scope and intent of 3R work (extend service life and enhance safety) is generally not conducive to full reconstruction, processing of many design exceptions have been required with inevitable subsequent approval.

The AASHTO publications “A Policy on Geometric Design of Highways and Streets” and “A Policy on Design Standards Interstate System” both include statements to clarify that the minimum standards published are not intended as policies for 3R projects.

FHWA Michigan Division notified MDOT by letter dated November 7, 2012 of the following change in policy:

- The design speed used for 3R freeway projects may be the design speed established for the original design or latest reconstruction, whichever is most recent.
- The standards used for horizontal alignment, vertical alignment, and widths of median, traveled way and shoulders may be the standards that were in effect at the time of original construction or latest reconstruction.
- Current standards for new construction/reconstruction will apply for 4R projects and 4R segments within 3R projects.

This is an informational item for the EOC. Revisions to MDOT Road Design Manual have been approved by FHWA and are scheduled to be issued in the next update (January 2013) to reflect this current ruling by FHWA.

**ACTION:** This is an informational item for EOC. However, after discussion EOC directs that these new 3R freeway standards be reviewed again for clarity. The Design Alignment Team is directed to further review the guidelines and initiate any necessary changes to design standards, manuals and directives.

Steven Bower, Secretary
Engineering Operations Committee
RA:SB:lsf

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    