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## DESIGN MEMORANDUM

**TO:** Design Consultants and Design-Build Strike Teams

**FROM:** Stephen Nichols, PE – Turnpike Roadway Design Engineer

**COPIES:** Will Sloup, Mike Shannon, Bob Alderman, Nathan Silva, Kathy Alexander, Christina Colon

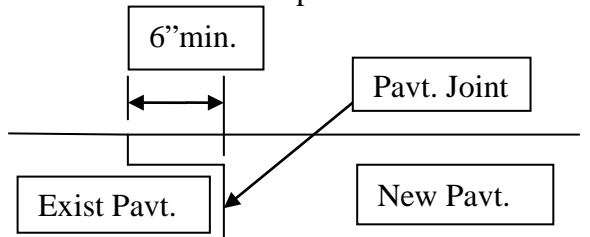
**DATE:** July 10, 2013

**SUBJECT:** Longitudinal Asphalt Pavement Joints

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**Problem:** When a saw-cut is made to create a joint for new pavement to join to existing pavement, the saw blade develops a smooth vertical surface. This surface is difficult for asphalt to adhere to and becomes a plane of weakness in the pavement structure. As traffic loadings accumulate, this plane of weakness can fail and form a crack that reflects up through the wearing surface of the pavement structure. Since the original saw-cut extended to the base, the open crack allows water to reach the base. Excess moisture weakens the base, causing it to fail. This weakness in the base creates deformation in the pavement and opens the crack further.

**Solution:** Whenever new pavement is proposed to be joined to existing pavement such as widening, auxiliary lanes, ramps, turn lanes, etc., a minimum 6" wide shelf will be created by milling to receive the final lift(s) of structural course in the new pavement structure. This will create a milled offset in the pavement joint from preceding lifts of asphalt structural course. Tack coat is to be used in these areas to aid in adhesion and imperviousness.



**Implementation:** A detail of the longitudinal joint will be developed and placed in the project Typical Section details. The designer will position the traffic control devices in the TMP to allow room for the milling to take place and will sequence the work within the phasing notes.

Plan notes or a table of dimensions will describe the limits of the milled shelf and the depth.

On Design-Build projects, the longitudinal joint requirements will be verbalized in the RFP.

**Schedule:** All applicable Design-Bid-Build projects approaching 90% (Phase III) Plans and all applicable Design-Build projects approaching Final RFP will incorporate this memorandum.