Safety Edge

INTRODUCTION

The safety edge is a beveled pavement edge to help lessen the severity of roadway departures. When a driver drifts off the paved surface, the safety edge provides greater ease re-entering the roadway, and reduces the risk of over steering and loss of control of the vehicle.

Additional information about the safety edge is detailed in the FHWA brochure titled "The Safety Edge" (FHWA Publication Number FHWA-SA-09-023).

At the February 2010 meeting, the Highway Division Management Team decided to incorporate safety edge into DOT projects as detailed in this section effective with the October 2010 letting.

WHERE TO USE

Safety edge is required on all primary highways unless one of the following conditions is met:

- the roadway is an interchange ramp or loop,
- the roadway or shoulder is curbed, or
- the paved shoulder width is 4 foot or greater.

Generally, this criterion will limit the number and types of projects that need safety edge. Most likely, the projects that will need safety edge will be 2 lane, rural highways without paved shoulders. These projects could be either new construction or rehabilitation.

CROSS SECTIONAL DESIGN

The angle of the bevel is critical for the safety edge to function properly. Measured from level, the bevel is 30 degrees with an equivalent run to rise ratio of 10½ to 6.

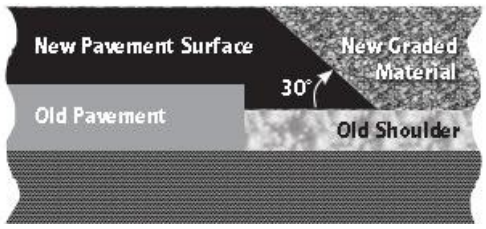

Figure 1: General Safety Edge detail from FHWA.

Note the 30 degree angle *does not* account for surface slope. Existing surface slopes range from 2 to 8 percent, which add an additional 1.1 to 4.6 degrees to the bevel angle when measured from level. The resultant angle is within the 30 to 35 degree recommendation from the FHWA.

It is our expectation that paving equipment will be adapted to furnish the 30 degree bevel.

PCC Paving and Overlays

For PCC pavements with safety edge, the nominal dimensions are as follows:

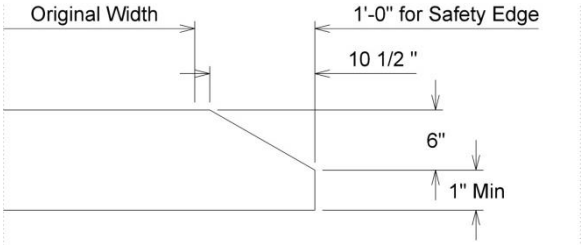

Figure 2: Safety Edge Dimensions for PCC Pavements

These details prescribe a 1 foot widening to accommodate the safety edge, and for the safety edge to be 6 inches deep. To allow proper finishing with a paver, a minimum 1 inch vertical face is required beneath the safety edge.

On the primary highway system, there are no cases where PCC paving is less than 7 inches thick.

HMA Paving and Overlays

For HMA pavements with safety edge, the nominal dimensions are as follows:

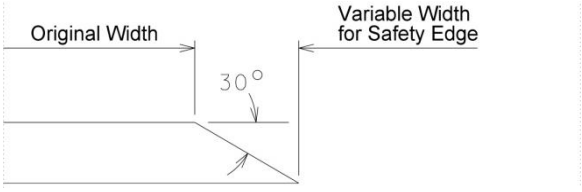

Figure 3: Safety Edge Dimensions for HMA Pavements

These details prescribe a 30 degree safety edge beginning at the edge of the original pavement width for the full depth of the paving.

PLAN DETAILS

Show the safety edge on the appropriate roadway typical when it is required.

On projects that are either new construction or reconstruction, remember that a 14 foot lane width includes 2 foot of paved shoulder. Without any additional paved shoulder, a roadway with 14 foot lanes will need the safety edge.

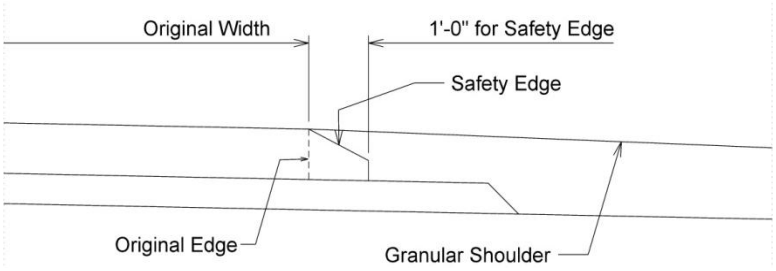

Figure 4: Addition of Safety Edge to a 14' PCC Lane

For PCC pavement, the additional width for the safety edge is included in the paving area computation.

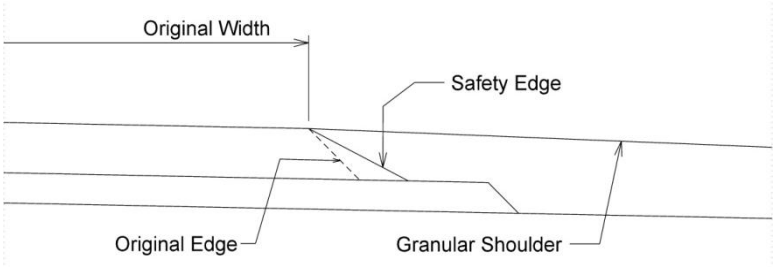

Figure 5: Addition of Safety Edge to a 14' HMA Lane

For HMA pavement, the additional quantity for the safety edge is included in the tonnage computation.

Alternately, when resurfacing an existing roadway that has granular shoulders or paved shoulders less than 4 foot, a safety edge is constructed as shown in Figures 6 and 7. The safety edge may also be used

when the paved shoulder width is 4 foot or more to provide a better construction sequence for the contractor.

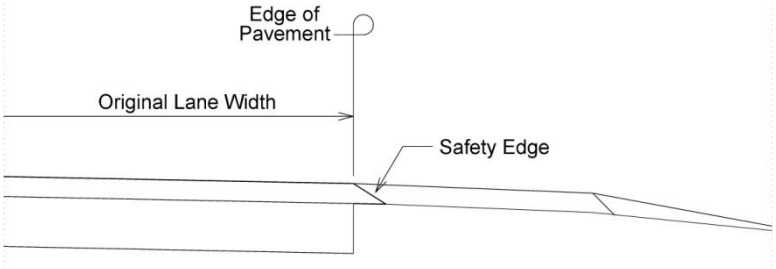

Figure 6: Resurfacing Project without Base Widening

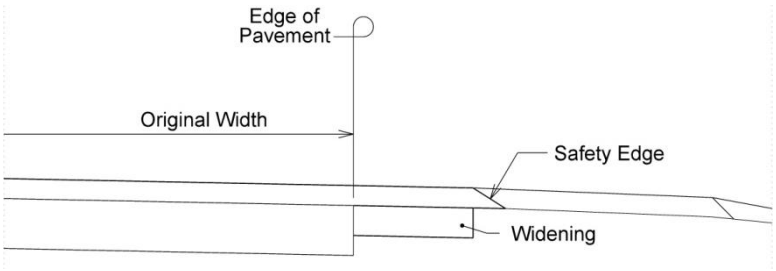

Figure 7: Resurfacing Project with Base Widening

As shown in Figure 7, the safety edge is not required on widening units placed with or prior to a resurfacing project. However, the width of the base widening should be maintained on the surface of the overlay.

It is acceptable to overhang the safety edge onto the existing shoulder, provided it is stable condition. In areas where the shoulders are soft or problematic, support the safety edge with a widening unit to ensure the edge will not deteriorate.

Include Standard PV-3 in the Index of Standard Road Plans tabulation.

Also refer to PV-3 for areas around intersections and interchanges that are not required to have safety edge.