

Standard Plan M-400-1 SafetyEdge Information Sheet

References:

- FHWA Safety EdgesSM Design and Construction Guide, Final Report January 5, 2012
- “Safety Edge” for Improved Road Safety and Pavement Performance, Technical Paper Abstract
- Evaluation of Safety Edge Benefits in Iowa, Technical Brief, March 2011
- California Department of Transportation Memorandum Implementation of Pavement Safety Edge, June 1, 2012
- CDOT Roadway Design Guide, 2023

Bid Items Associated with this Drawing:

Item Number	Description	Unit
403-XXXXX	Hot Mix Asphalt.....	TON
403- 40000	HMA Safety Edge.....	LF
412-02000	Concrete Safety Edge.....	LF
621-00450	Detour Pavement.....	SY
621-00451	Detour Pavement.....	TON

Standardized Special Provisions Associated with this Drawing:

- Section 101 Definitions And Terms
 - 101.02 Definitions, alphabetically.
- Section 401 Plant Mix Pavements-General
 - 401.08 Asphalt Mixing Plant
 - 401.10 Asphalt Pavers
 - 401.22 Basis of Payment
- Section 412 Portland Cement Concrete Pavement
 - 412.07 Equipment.

Other M Standard Drawings Associated with this Drawing:

None

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Design Notes:

The Safety Edge_{SM} is a relatively simple but effective solution that can help save lives by allowing drivers who drift off highways to safely return to the road.

The recommended practice of bringing the adjacent soil or aggregate material (unpaved shoulder or modified soil) flush with the top of the pavement often requires frequent maintenance. When the vertical edge is exposed

due to wear/erosion, it can contribute to drivers losing control of the vehicle when attempting to recover from a roadway departure. The Safety Edge_{SM} concept is when drop-offs along the pavement edge occur, the edge will not be vertical, but has a shape that will not induce tire scrubbing. By including the Safety Edge_{SM} detail while paving, this safety countermeasure can be implemented system-wide at little or no cost.

The Safety Edge_{SM} provides a strong, durable transition for all vehicles and helps prevent pavement edge raveling. Many states also are reporting better pavement performance near a safety edge. Some of the pavement benefits are a decline of edge line cracking, better compaction, and less damage from construction traffic.

Safety edge can be installed on HMA and concrete pavements.

Per CDOT Roadside Design Guide:

The use of a pavement safety edge is required on all projects having roadway pavement. The pavement safety edge shall be included on all resurfacing or reconstruction projects. Vertical pavement edge drop-off on highways has been linked to many serious crashes when errant vehicles attempt to steer back onto the roadway. Instead of a vertical drop-off, the safety edge shapes the edge of the pavement to 30 to 35 degrees.



Figure 1. Safety Edge placed on AC and PCC

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Where Safety Edge Should Not Be Used:

A site condition where the Safety Edge_{SM} should not be used is where the foreslope/embankment or ground surface has a steeper slope than the slope of the Safety Edge_{SM}. The Safety Edge_{SM} should be excluded in areas where curb and gutter have been or will be placed as the Safety Edge_{SM} is appropriate for the interface of a paved material and an unpaved/unbound material. In areas where there is a restriction for vehicles leaving the paved surface (for example; guardrails and other safety features) whether or not to use the Safety Edge_{SM} must be assessed on a case-by-case situation. There may be value in using the Safety Edge_{SM} for its pavement quality benefit, and thus may want to use it in these applications.