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14. Supplementary Notes

15. Abstract

Purpose and Need

The focus of FHWA's *"Every Day Counts (EDC) "initiatives* are to identify and deploy innovative techniques targeted at shortening project delivery, enhancing the safety of roadways, and protecting the environment.

Drivers who drift from the roadway need a method to safely transition back onto the paved surface. It is reported that some states construct their asphalt pavements using a vertical edge at the outside edges of the pavement. An errant driver leaving the paved surface may find it difficult to return to the paved surface, and the attempt may result in a serious accident. Soil or granular materials may be brought up to the top of the pavement to create a transition; however, erosion or vehicular damage to this area may re-expose the vertical pavement edge – creating a maintenance and ultimately safety issue.

The construction of a wedge-shaped transition at the pavement edge has been shown to be effective in allowing an errant driver to safely return to the paved surface. FHWA sponsored research has shown the 30-degree angle of the "*Safety Edge*" to be the optimal angle to allow drivers to return to the roadway safely.

Objective

The objective of this project is to evaluate the construction of the *Safety Edge* using a FHWA provided "safety shoe" device that forms and consolidates the pavement edge.

Scope

The NDDOT Design Division has identified five asphalt paving projects scheduled for construction in the Valley City District during the 2011-2012 seasons. Requirements for the construction of the *Safety Edge* and use of the "safety shoe" were incorporated into the bid and construction documents by plan details and special provision. The "safety shoe" being provided by FHWA is the *Ramp Champ* manufactured by Advant-Edge Paving Equipment, LLC

Summary

Over the 2011-2012 construction seasons NDDOT has constructed five projects totaling 3.795 miles of roadway with the 30° Safety Edge design. The Pavement Ramp Champ device was used on all 5 projects by the same contractor BSP to successfully produce a safe traversable pavement edge. Average Angle produced with the Ramp Champ device on all five projects combined was 26.2° with a standard deviation of 4.0°.
The three control projects were emergency grade raises constructed allowing the contractor to install the edge by their own methods. The contractor chose to use a slough box. Average Angle produced with this method was 20.9° with a standard deviation of 4.5°.
Both methods of producing the 30° Safety edge had comparable results.

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