

Monitoring and Assessing High Friction Surface Treatments Performance in Iowa

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Safety performance is a crucial component of the highway network performance evaluation. Horizontal curves are over-represented, high-frequency, high-severity crash locations. Significant opportunities exist to mitigate these crashes through relatively low-cost safety improvements such as paved shoulders, rumble strips/stripes, and improved signing and delineation. An additional relatively new and innovative, yet somewhat more costly, mitigation strategy is high friction surface treatment (HFST).

The Iowa Department of Transportation (DOT) has an initiative to begin trial implementation of HFST on horizontal curves throughout the state. However, no formal criteria for consideration of HFST application has been established. Additionally, given limited application of HFST to date, knowledge of the effectiveness of HFST is also limited. Due to the high initial cost of HFSTs, there is a need to develop a preliminary HFST candidate site selection criteria and apply this criteria to identify appropriate, candidate high speed, primary and secondary paved horizontal curves for HFST application. Moreover, there is a need to analyze the performance and impacts of HFST application on horizontal curves over a longer period of time.

This presentation will introduce the recent advancement and updates on some of the HFSTs constructed in the state of Iowa. The study includes proposed procedure to develop a preliminary HFST candidate site selection criteria and apply this criteria to identify appropriate, candidate high speed, primary and secondary paved horizontal curves for HFST application. The presentation will discuss the friction demand concepts and its role in the site selection process. Moreover, the second phase of the study focused on performance evaluation through friction measurements of the HFSTs and documentation of the construction process.

Keywords: High Friction Surface Treatment (HFST); Friction Demand; Tire-Pavement Interaction