

South Dakota Department of Transportation
2017 High Friction Surface Treatment Project
ATA Award Nomination
300 word Summary

The 2017 High Friction Surface Treatment (HFST) project included 15 locations in the Black Hills area of South Dakota. These locations were identified based on an overrepresentation of road departure injury crashes with winter road conditions as a contributing factor. Road departure crashes account for 57% of all fatal and serious injury crashes in South Dakota. One third of these crashes occur in horizontal curves even though horizontal curves account for less than 10% of the system.

In 2014 South Dakota completed a test project using HFST at four horizontal curves as a safety countermeasure to reduce road departure crashes with winter road conditions as a contributing factor. At that time HFST was not known to be a viable treatment for locations with an overrepresentation of that type of crash. A three year before and after crash analysis for the targeted crash type showed an 80% crash reduction. If the Winter Severity Index is applied the total crash reduction is 77%.

The 2017 HFST project is the first demonstration in the country of how the technology of a HFST, which had only been intended to reduce crashes in wet road conditions, is being used in an innovative way to reduce road departure crashes with winter road conditions as a contributing factor. The traveling public will benefit from the 2017 HFST project by reaching their destination safely. The innovative use of HFST in South Dakota is anticipated to save \$88M in societal crash costs. This is cost savings to the residents of South Dakota and those visiting or just passing through.

These 15 sites averaged a total of 21 winter road condition crashes including 7 injury/fatal crashes per year for the five years prior to this project. Through one winter season, there was a total of one crash and zero injuries.