

RAL SEMINAR SERIES

Truck Blowover Algorithm for the Pikalert® System

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Various weather phenomena impact the safety of vehicles on the roadway by way of sudden changes in crash risk and vehicle operation. This causes weather-related crashes to account for 22 percent of all U.S crashes. These incidents occur frequently along Wyoming's 402-mile long Interstate 80 (I-80) corridor. Here, severe winds occur year-round and preferentially affect freight traffic, resulting in 1000 blowovers a year. Severe winds impact roadway safety, road closure frequency, and economic stability, making it vital to warn drivers of blowover risks. To help mitigate the impact of severe winds, a blowover algorithm was developed for the Wyoming Department of Transportation's (WYDOT) Pikalert® system.

The algorithm underwent verification testing during the 2017 to 2018 winter season. The results determined that the algorithm needed further tuning by way of a missed crash analysis. As a result of this analysis, a fourth vehicle category for vehicles hauling trailers was added, allowing other functions to be refined. A sensitivity analysis was performed on the algorithm's weights and functions to assess values that fit the dataset. These updates will aid in increasing the accuracy of the algorithm.

This version of the algorithm will provide effective aid in route planning and issuing driver advisories or restrictions seeking to reduce the number of blowovers. The algorithm will also help with advisory issuance and road closures along I-80. Updates to this algorithm will be available to the community as part of the open source code developed for the WYDOT Connected Vehicle Pilot Deployment (CVP).