

Work Zone Accident Reduction Deployment

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This presentation will describe an ongoing MnDOT project that concerns Work Zone Accident Reduction Deployment (WZARD) along the eastbound I-94 corridor between TH 101 in Rogers and TH 15 in St. Cloud, Minnesota. The eastbound direction transitions from rural to urban at TH 101 where the ADT's substantially increase and prevailing speeds are sometimes unexpectedly reduced. This project will provide innovative dynamic systems to improve traffic safety during snow and ice operations and other work zones caused by planned maintenance operations or in response to incidents or traffic enforcement activities.

During snow events visibility is reduced along this corridor and road surfaces have reduced friction. Many drivers are unaware of the extent of these conditions resulting in them driving too fast for the existing conditions or being unprepared for the existing conditions to change suddenly. This inappropriate driving can lead to run-off-the-road and multiple vehicle crashes. Snow and ice maintenance operations improve the safety on the highway by removing snow and ice from the driving surface. Unfortunately, these operations are usually done at speeds less than the speed of prevailing traffic and can further reduce visibility directly behind the plows. The presence and lower speed of the snow plows, especially in the left lane, often violates drivers' expectations. This can lead to additional run-off-the road crashes and often involves crashes with snow plows.

Phase 1 of the project included the installation of thirteen (13) 3 foot by 14 foot full color matrix side-mount Dynamic Message Signs (DMS) within the project limits. These signs provide the traveling public with information regarding snow plow and/or maintenance operations activities immediately ahead of them on the roadway. All snow and ice equipment used on this section of the I-94 corridor have been equipped with automatic vehicle location (AVL). Geofenced areas were created along the corridor and the signs are triggered when snow and ice equipment enters a geofence area. Also included was the installation of detection and CCTV cameras.

Phase 2 of this project includes system engineering documents to facilitate the integration and operation of the system. Some of these documents are:

- Concept of Operations
- System Requirements
- Detailed System Design
- Operations and Maintenance Plan
- System acceptance Test Design
- Final Report