

State Planning and Research Program Quarterly Report

PROJECT TITLE: *Defensive Driving for Snowplow Operators*

OBJECTIVES: Develop two comprehensive and engaging winter maintenance operator training modules on defensive driving and safe driving.

PERIOD COVERED: October 1, 2019 to December 31, 2019

PARTICIPATING AGENCIES: Minnesota Department of Transportation and the Clear Roads Technical Advisory Committee

PROJECT MANAGER:
Debbie Sinclair/Tom Peters

LEAD AGENCY: MnDOT

PRINCIPAL INVESTIGATOR:
Matthew Camden, VTTI

SP&R PROJECT NO:
MnDOT Contract No.:
1031541

Federal Project Number:
TPF-5(353)

PROJECT IS:

Planning
 Research & Development

ANNUAL BUDGET: \$70,000 (total project budget)

PROJECT EXPENDITURES TO DATE: \$42,804

WORK COMPLETED:

- Task 6: Analysis and Recommendations.** VTTI analyzed the data obtained from the questionnaire, interviews, and state crash data sets. Based on these data, the VTTI team identified common crash causes and operator actions that may reduce the likelihood of crashes. VTTI recommended the following topics to be included in the defensive driving training to be developed in Task 7: basic defensive driving strategies (i.e., visual scanning, anticipating hazards, responding to hazards, preventing snow clouds, safe operating speeds, aggressive driving, and safe following distance), vehicle conspicuity (i.e., checking and cleaning equipment and the use of turn signals), and snowplow operating characteristics (i.e., safe use of a wing plow, reducing a snow cloud, safe turning, identifying turnarounds, and sharing the road with the public). VTTI recommended the following topics to be included in the safe driving training to be developed in Task 7: hazard identification (visual scanning related to fixed objects, identifying hidden hazards, safe speeds, and pre-marking hazards), proper backing (i.e., the use of spotters and looking before backing), limiting distractions (i.e., risk of distraction and minimizing distractions), and fatigue management (i.e., signs of fatigue, assessing fatigue, and countermeasures to fatigue). The Task 6 draft report was submitted on 10/31/2019. The revised Task 6 report received final approval on 12/6/2019.
- Task 7: Draft Modules.** VTTI began to develop the two draft training modules based on the recommendations developed in Task 6. It was agreed each module will last approximately 60 minutes with short quizzes throughout.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

- Task 7: Draft Modules.** VTTI will continue developing the two draft training modules based on the recommendations developed in Task 6. One training will include general safe driving strategies that snowplow operators may use to prevent crashes (e.g., reducing distraction, fatigue management, wearing a seat belt, etc.). A second training will include defensive driving strategies that snowplow operators may use to prevent crashes (e.g., hazard identification, situational awareness, visual scanning, etc.). Additionally, VTTI will begin to develop the instructional guides for instructors and learners and post-training evaluations. The instructional guides will include written explanations and illustrations needed to explain the subject matter to the learners beyond what is available in the PPT slides.
- Task 8: Develop Draft Video of Safe and Defensive Driving Strategies.** The VTTI team will create draft videos to accompany both training modules. These videos will be designed to recreate the common crash types and recommended safe and defensive driving strategies that winter maintenance operators

should use to prevent these crashes. These crash scenario simulations will be tailored to match roadway and environmental conditions identified in Task 6. The videos will ultimately be integrated into the training modules.

STATUS AND COMPLETION DATE:

This project is ongoing and ends on August 31, 2020.