

RESULTS SUMMARY

This project developed a comprehensive snowplow operator and supervisor training program that provides flexibility for states to modify or update the content as needed. The 22-module program covers equipment, materials, techniques and procedures.

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PLOW OPERATOR AND SUPERVISOR TRAINING

Dealing with everything from freezing rain to avalanches, winter maintenance agencies depend upon a wide range of equipment and materials combined with workers' knowledge and skills. Training of snowplow operators and supervisors is essential to ensure that winter maintenance is accomplished efficiently, effectively and safely.

Need for Research

While every winter-weather state provides training for its winter maintenance crews, each program has its own strengths and focus areas. Clear Roads recognized the need for a training program covering equipment, materials, techniques, procedures and advances in the field for all member states.

Objectives and Methodology

This project's goal was to develop a comprehensive training program that would allow flexibility for modification and updates by each member state. Researchers initially identified 18 topics to be included in the training, then listed and prioritized the content for each topic. The Clear Roads Technical Advisory Committee (TAC) identified several additional areas, for a total of 22 topics in the program. A TAC member was assigned to each topic area and collaborated closely with the research team.

In developing the content, researchers conducted an extensive literature review of existing training for snowplow operators and supervisors, including AASHTO's computer-based training modules. In addition, many technical experts with decades of experience were consulted.

Results

Through more than two years' work, the research team developed a comprehensive training program for entry-level and experienced snowplow operators and supervisors. Each module is designed to be presented by an instructor, and includes a PowerPoint file with teaching notes and aids, and an instructor's guide with detailed directions, notes, resources, references and suggested activities. A set of pre- and post-assessment tests is also included. The 22 modules contain 1,300 presentation slides and provide over 42 hours of training materials.

The table on the next page summarizes the content and required training time for each of the 22 modules. For more detail on the modules' content, see clearroads.org/project/12-04/.

PROJECT DETAILS

Project Title: Snowplow Operator and Supervisor Training

Project Number: CR12-04

Project Cost: \$99,857

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Snowplow Operator and Supervisor Training Modules

1 Plowing Procedures 1- and 2-person plowing; plow configurations; gang and tandem; speeds; whiteout conditions. Tips from experts. (180 min.)	12 Principles of Ice Formation Traffic compaction/snow-packed ice; black ice; snow glaze; blow ice; freezing rain. (120 min.)
2 Truck Operations Pre- and post-op truck checks; cleaning; maximum operating time; certifications for plow configurations. (90 min.)	13 Science of Freeze Point Depressants Thermodynamics of freeze point depressants; temperatures; effectiveness. (90 min.)
3 Spreaders Types; controllers; calibration; speeds; patterns to reduce scatter; saddle tanks; slurry units. (120 min.)	14 Snow/Ice Control Agents and the Environment Chlorides; organics; abrasives. (120 min.)
4 Material Use Identification of materials; using the right amount at the right time; strategies for using less material. (120 min.)	15 Drift Control Effects of wind on snow; drift control best management practices; case studies. (150 min.)
5 Prewetting Benefits (better performance, reduced bounce and scatter, reduced material use); methods; saddle tanks. (120 min.)	16 Weather Basics Forecasts; tracking; decision making; Road Weather Information Systems; Maintenance Decision Support Systems. (250 min.)
6 Brine Production Basics of brine making; determining whether to produce brine in-house. (90 min.)	17 Bridge Frost Formation of bridge frost and black ice; when bridge frost is possible; when and how to apply anti-icing. (90 min.)
7 Deicing Proactive/reactive strategies; application rates; conditions; using liquids in deicing. (120 min)	18 Avalanche Management Avalanche conditions; formation; likelihood of occurrence; hazard reduction. (120 min.)
8 Anti-icing Advantages of anti-icing vs. deicing; anti-icing materials; anti-icing equipment; when and where to apply anti-icing. (90 min.)	19 Supervisors and Winter Maintenance Level of service goals; required resources; staff development; elements of winter maintenance programs. (90 min.)
9 Safety Safe winter operation; hazards (slippery surfaces, cold weather, poor visibility, night work, long hours). (120 min.)	20 Record Keeping Importance; which records; prep for season; prep for winter storms; how records affect decision-making. (90 min.)
10 Deicer Material Management Policy Storage; quality assurance; good housekeeping; storage inspection. (90 min.)	21 Getting Ready for Winter Training; responsibilities; equipment inspection, repair, calibration; materials; route review; communication. (90 min.)
11 Level of Service Determining acceptable levels of service; guidelines from a range of state DOTs; management approaches. (90 min.)	22 Driver's Education Winter car prep; weather awareness; driving tips; sharing the road with snowplows. (90 min.)

Benefits and Further Research

This project provides materials for consistent training of snowplow operators and supervisors across all winter-weather states. Clear Roads will encourage users to provide feedback and plans to review and revise the modules as the field changes and evolves.

For more information, or for access to the training materials for non-member agencies, please contact Clear Roads Administrator Greg Waidley at 608-490-0552 or greg.waidley@ctcandassociates.com.

“Clear Roads states needed a mechanism to allow everyone to have the same curriculum and training for snowplow operators. With these training modules, now a snowplow operator from Wisconsin can have the same knowledge and training as one from Alaska or Ohio.”

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