1.0 Mission

For over 90 years, Wisconsin's primary mission for winter highway maintenance has been to improve the coefficient of friction between motor vehicle tires and the pavement. To accomplish this mission it is not necessary to completely remove or melt all of the snow or ice. Over the years, many methods have been used to accomplish this goal.

2.0 In Retrospect

1. Historically, snow plowing has been the principle winter maintenance tool. In addition, abrasives such as sand and cinders have been used to improve traction.

2. Wisconsin, like most cold weather states, began in the late 1940s using mixtures of sand and rock salt (sodium chloride) to increase wintertime friction on highway pavements. The chemical was originally added in small amounts primarily to keep stockpiled sand from freezing into a solid mass.

3. Early in the decade of the 1950s, it was discovered that common rock salt by itself could be spread on the pavement to quickly form a brine solution with the snow or ice and effectively lower the freezing point. The rock salt brine would easily melt a thin ice cover or break the bond of thicker ice and packed snow, making the snow/ice accumulation ready for-mechanical removal with a plow.

4. Beginning with the winter of 1956-57, the department adopted a "bare pavement" policy for state highways. This policy meant that efforts would be made to ensure that all state highways were kept essentially clear of ice and snow throughout winter driving season. To achieve this objective, the snowplows operated continuously during a winter storm. The snow plows simultaneously plowed and applied chemicals throughout the storm. The chemicals were used to keep the pavements clear of ice and snow. Sodium and calcium chlorides were the chemicals used.

5. In the winter of 1973-74, the clear roads policy was modified for economical reasons. The first nationwide energy crisis and the high cost of employee overtime demanded this policy change. The department made a conscious decision to reduce the drivability of less traveled state highways. This decision was implemented by creating three classes of highways, each with a different policy for snow plowing and ice control.

6. After the second energy crisis in 1978, the department modified its clear roads policy to place emphasis on the potential environmental hazards associated with the chloride chemicals. This objective was implemented by declaring that the department shall be prudent users of chemicals for winter highway maintenance operations by:

    - Mechanically removing the snow as fast and efficiently as possible.
    - Using chemicals wisely: (1) to prevent the bonding of snow to the pavement and (2) to clean up after the storms.
    - Limiting each application of highway salt at a rate not to exceed 0.15 tons (300 lbs) per lane mile. Placing a very high work priority on the proper handling and storage of chemicals.

7. In 1983, Wisconsin enacted significant laws to protect the ground water for today's and tomorrow's users. The laws mandate that salt be stored inside a building on an impermeable base to prevent dissolved chlorides from leaching into the groundwater. This law is a statement on the importance of good highway salt storage and handling practices. The careless storage of highway salt causes far more environmental problems than the improper spreading of highway salt for snow and ice control.

8. In 2002, the clear roads policy from 1973 was further clarified to give counties and districts a better understanding of the clear road policy expectations. In the clarification process it was agreed that a name change to Passable Roadway – During a Winter Storm guideline was appropriate.

9. In, 2011, the term “impassability” was discontinued and replaced with “Travel not Advised”, “Travel Restricted”, and “Highway Closed”.

10. Throughout the years, Wisconsin has been quick to utilize new technology, methods, and machinery. In the last decade the use of highly sophisticated weather services, multi-band radios, and cellular phones has given storm managers additional tools for improved service and communication.

The tools of anti-icing, pre-wetting, new chemicals, and salt-brine, are expected to reduce the total chemical needs for a storm and still improved the coefficient of friction quickly. Training in this and other winter operation areas has been increased for supervisors and operators, and will continue to be emphasized, in order to provide a much more knowledgeable work force.

New equipment has been developed throughout the world and the States. Wisconsin and its partner counties have picked the best of new plow shapes, truck lighting, chemical spreader and anti-icing systems, on truck computerized controls and reporting, snow fencing and chemical storage facilities, in an effort to improve their outputs of service for the winter highway customer.