

Anti-icing Improves Levels of Service

The Need for Higher Service Levels

Municipal officials and residents are usually aware of costs to keep roads clear of snow and ice. They see budget line items for the personnel, equipment, contracts, and chemicals necessary for winter operations. Less obvious are the costs if road crews do not keep roadways open and safe. Businesses close, which results in lost profits and wages. Several studies have shown that lost wages, lost retail sales, and lost local, state and federal taxes dwarf snow removal costs.

The public demands mobility for many reasons:

- Nearly all New Hampshire workers commute to work in personal vehicles.
- Population growth has drastically increased traffic densities on local roads.
- Access to retailers, service establishments, and other businesses often depends on personal vehicles.
- School consolidations have resulted in reliance on motor transport of students.
- “Just-in-time” manufacturing practices depend on predictable schedules for delivery of materials to maintain economic efficiency and competitiveness.

Snow and ice covered roads create havoc for travelers. Driving becomes stressful and dangerous, crashes multiply, and businesses close. These costs and motorist expectations dictate a high level of snow removal services. The public expects bare pavement immediately after a storm. Increasingly, motorists expect bare pavement during a storm. Over the past decade, highway agencies have developed “anti-icing” techniques that provide these high levels of service.

Anti-icing

Traditionally, snow and ice control operations begin with plowing after snow has accumulated. The result is usually a compacted snow layer tightly bonded to the pavement surface. “Deicing” the compacted snow, and often ice, is then necessary

after the storm. Crews often have to spread large quantities of chemical to penetrate the pack to the snow-pavement interface, and to destroy or weaken the bond. Deicing often provides less safety, at higher cost, than anti-icing.

Anti-icing involves applying chemical onto a highway pavement before or at the start of a winter storm. The chemical inhibits the development of a bond between the snow or ice and the pavement surface. Periodic chemical reapplications during the storm continue this effect. It enables a manager to maintain roads in the best conditions possible during a winter storm, and to do so efficiently.

Anti-icing provides higher service levels, such as maintaining bare pavement throughout a storm. At minimum, anti-icing results in bare pavement as soon as possible following a storm. Many highway agencies in the United States have used anti-icing practices for years. They have achieved high service levels and saved money.

Anti-icing can provide increased traffic safety at the lowest cost. To achieve these benefits, road managers must adopt an anti-icing program that includes the following actions:

- Use of analysis and judgment in making decisions,
- Methodically utilize available information sources, and
- Anticipate the necessary actions, and promptly execute them.

The UNH T² Center Anti-icing Manual

This manual provides information for a successful and effective anti-icing program on local New Hampshire roads. It describes the significant factors that managers should understand and address in an anti-icing program.

In recent UNH T² Center workshops, participants received this manual. Others can acquire it online at <http://www.t2.unh.edu/pubs/anti-icing-man.pdf>. They can also order it on the Publications page of this newsletter.