



Ministry of Municipal Affairs & Housing



Association of Municipalities of Ontario

## **ONTARIO CENTRE FOR MUNICIPAL BEST PRACTICES**

393 University Ave., Suite 1701, Toronto, Ontario M5G 1E6

### **BEST PRACTICE SUMMARY REPORT**

**May 2003**

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#### **Roads – Winter Control – Ice Blade Treatment**

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**Practice Identification:** Roads Winter Control – Ice Blade Treatment

**Case Study Municipality:** Magnetawan

**Key Word:** Operational Procedures

**Benefits which resulted from adoption of the Practice;**

- **Reduction in use of de-icing salts**
- **Reduction in severity of ice lenses (frost heaves) and the resulting impact on winter ride quality**
- **Improved road surface friction**

**Description of the Practice in the Case-study Municipality**

The Municipality of Magnetawan is a single-tier municipality in Parry Sound District with a population of 1,301 in 2000. Its 1,794 households include a significant number of seasonal-use properties. Summer cottage use predominates but there is also significant winter weekend use due to the area's popularity for snowmobiling.

On low-volume gravel roads, the municipality allows winter snow fall events < 5cm to become packed down by vehicular traffic, in lieu of snow ploughing. Because of their very low traffic demand (survey information advised that the average traffic demand was < 50 vehicles per day), these roads often provide acceptable service without having a well-drained base.

The lack of a well-drained base makes the roads susceptible to ice lens (frost heave) formations and the resultant surface distortions. Very low-volume roads are generally susceptible to the formation of ice within the road base material as a result of poor subsurface drainage. These frost heave distortions disappear in the spring. By using

ice blades, the snow-packed road surface can be graded to a smooth profile. Not only does this eliminate the impact of ice lenses, it has the additional benefit of eliminating the polished nature of a snow-packed road surface. An ice blade for a grader is a toothed steel cutting face that leaves the surface of the road with a series of longitudinal grooves some ½ inch wide with roughened edges. Such grooves significantly increase tire friction at slower speeds.

## **Evaluation of Practice**

### Efficiency

The cost of snow ploughing after each winter storm event and the cost of de-icing chemicals are reduced. The practice of ice-blading improves vehicular surface friction without the use of chemicals and where necessary mitigates surface distortions caused by ice lenses (frost heaves), with a single operation.

### Effectiveness

Gravel roads do not tolerate the application of anti-icing chemical material because the temporary thawing of the frozen surface creates potholes. Ice blading leaves a grooved pattern on the road surface that provides significantly better tire friction than a smooth and polished ice surface.

### Statutory requirement

The use of ice blades on a potentially slippery road constitutes “treatment” in accordance with the performance requirement of the Minimum Maintenance Standard, as set out in Regulation 239/02.

## **Replication of the Practice**

The procedure is best suited to low-volume gravel roads where the roadway is susceptible to the formation of ice lenses (frost heaves) and where successive snow events, without intermittent melting, tend to accumulate sufficient packed snow. Ice blades suitable to the municipality’s motor grader are required.

### Contact:

Municipality of Magnetawan  
Attention: Ron Catcher  
1-705-387-3947  
[magnettp@vianet.on.ca](mailto:magnettp@vianet.on.ca)