



## Implementation of an Anti-Icing Calibration Unit

**Project Number** 2011-03

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**Problem** For the City of Golden Valley, protecting its watershed while effectively providing snow and ice control on its streets is an important priority. Ensuring the appropriate application of anti-icing materials is one way to accomplish this goal. However, the city's plow trucks did not have a method for accurately quantifying the application rate of materials on city streets.

**Solution** The city purchased an anti-icing calibration unit so its trucks could be calibrated for consistent salt and sand application. A goal of this consistent calibration was to reduce the city's material use, resulting in both a cost savings to the city and benefits to the watershed and surrounding environment.

**Procedure** After the calibration of the plow trucks, drivers recorded the start and end mileage and the amount of material spread every time a vehicle left the city shop. The information was combined for all plows to determine how much material was used during each snow event. The city then compared the amount of anti-icing material spread during the 2011–2012 season with the amount used during the 2010–2011 season.

**Results** Overall analysis results indicate that the calibration unit reduced the amount of material applied. Specifically, salt/sand usage in the 2011–2012 season was down 62 percent compared to the 2010–2011 season. However, there were approximately 50 percent fewer events in 2011–2012—the season was very warm and there was significantly less snow. Looking at individual events, the median deployment of sand/salt mixtures decreased 42.8 percent, suggesting that the calibration unit significantly decreased the amount of material deployed for a typical event. For salt-only applications, there was no significant change.

One challenge was that mileage information collected during the 2011–2012 season was estimated to exceed the actual distance over which material was applied. This is because plow routes do not start immediately upon leaving the city shop, and drivers do not apply material during the entire trip.

**Approximate Cost** \$3,200

**OPERA Funding** \$3,200

**Implementation** The City of Golden Valley will continue using the calibration unit to ensure appropriate anti-icing material application rates. To fully realize the benefits of the unit, the city will also continue to add automated vehicle locating systems on its plows and other anti-icing vehicles. This will allow the city to track more precisely when and where material is being applied.

**Status** Complete

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