

**LRRB**  
**Local Operational Research Assistance Program (OPERA) for**  
**Local Transportation Groups**  
**Field Report**

This report must include the underlined subject areas and supporting resources (i.e. photos, graphs, charts, etc.). The OPERA program will use this information in an annual report that will be shared with other local agencies within the state. We request that a short 5-10 minute demo or presentation be shared at the Spring Maintenance Training Expo, MN Fall Maintenance Expo or with a professional organization.

**Date:** June 29<sup>th</sup>, 2011

**Project Title:** Advanced de-icing product testing

**Project Number:** 2010-10

**Agency:** McLeod County Highway Department

**Person Completing Report:** Chad Hausmann

**Project Leader:** Chad Hausmann

**Phone Number:** 320-484-4353

**Problem:** Reducing costs and minimizing impacts to the environment caused by maintenance activities are key areas constantly being reviewed by highway departments. One of the key areas being reviewed is the type of de-icing materials used in winter road maintenance.

**Solution:** Test the use of IceSlicer granular deicing material.

**Procedure:** The product makes several claims: 1) reduce melting 17 degrees lower 2) reduce the application rate by 30 – 50%, 3) decreased alkalinity which minimizes impact on road-side vegetation, 4) less harmful to aquatic life. Enough product was purchased to apply it to approximately 1,000 total lane miles of roadway. The plan was to apply at rates according to the manufacturers recommendations for colder weather events that need the reduced melting temperature. We proposed to use the material on one truck route per storm so that the performance can be evaluated.

**Results:** (Because of the lack of appropriate extreme cold weather, we were not able to complete half of the proposed procedure, which was increased melting in colder weather down to 17 degrees colder than the melting point of typical road salt (white salt)).

**What worked well:**

1. Reduced material usage: The claim of reduced application held true when tested. We applied the IceSlicer material along a county highway segment and then north of that segment on the same roadway we applied white salt. The IceSlicer rate of application was ½ that of white salt. We then monitored roadway for melting efficiency and longevity. The maintenance superintendent, plow operator and myself all reviewed independently and all came to same conclusion.

2. Evaluating the performance was step one. We also evaluated the cost effectiveness. White salt is delivered right to our sheds for approximately \$70 per ton. IceSlicer must be picked up and was transported by county forces. IceSlicer cost approximately \$140 per ton. (Material costs of \$125 per ton and hauling costs of \$15 per ton.) At this time, the costs break even when applied at half the rate.
3. Additional benefit would be the lower melting point which allows us to improve safety in colder icy conditions compared to white salt.
4. Reduction in application rate would allow us to stay on the road longer during major events. We could double lane miles plowed without having to reload trucks with salt.

What didn't work well:

1. Because of the warmer temperatures, we were not able to test of effectiveness in cold temperatures. We will complete that portion of the study in the 2011/2012 snow and ice season. We will mainly study use at intersections and horizontal curves throughout the county. Include any recommendations, changes or modifications you feel would improve the project.
2. The lack of a separate storage site was also an inconvenience for material storage. With the upcoming construction of a new maintenance shop, we will have the opportunity to construct a separate bunker for storage of material.
3. Cost: At this time it is cost neutral, but does increase our time because we have to haul the material ourselves. If costs were to be reduced slightly or we can find a more efficient delivery system, it can become more cost beneficial.

**Implementation:** When an additional storage location is completed, we would keep material on hand for colder temperature events. Because of commitment and costs of hauling material, we would not replace white salt entirely of IceSlicer.

**Status:** Complete

**Total Duration of Project:** six months

**Project End Date:** June 29<sup>th</sup>, 2011 (with additional evaluation to continue until material is gone.)

**Approximate Cost of Entire Project:** \$5,000 plus county hauling costs.

**Total OPERA Funds used for project:** \$5,000

**Send and Email a completed report with pictures to: Mindy Carlson, CTS - 200 TSB, 511 Washington Ave. SE, Mpls. MN 55455, email [carlson@umn.edu](mailto:carlson@umn.edu).** For questions about this report please contact Mindy Carlson at 612-625-1813.