

**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: 2-17-11

Project Title: CAD Drawing of a Simple Salter/Sander Chute

Project Number: 209-13

Agency: Washington County

Person Completing Report: Paul Springstroh

Project Leader: Wayne Sandberg/Paul Springstroh

Phone Number: 651-430-4300

Problem: As the need continues for more accurate and precise salt and sand placement, the equipment has to progress also. There needs to be a drawing of a simple chute that can be fabricated easily and cost effectively. Any road authority can and should make use of the chutes to control their salt/sand usage.

Solution: CAD Drawing made available

Procedure: Our primary criteria were to develop a simple design and accompanying CAD drawing.

Results: Three chute designs were fabricated, all to be placed below the spinner to allow the spinner to disperse material when necessary. All three designs worked well and could be used. One of the three designs was chosen to be drawn based on ease of installation (attached to spinner motor with a clamp), and ease of adjustment to deliver material at different angles depending on the type of roads on a particular route. This design also allowed the chute to remain centered under the spinner when pivoted thus ensuring all material coming off the spinner would fall into the chute.

No wear edge was installed on the chute which caused roughly 2"-3" of the plastic chute to wear away where it was in contact with the pavement. A wear edge, 2"3" wide, of heavy rubber, such as mudflap, could be bolted to the bottom of the chute and changed out periodically as it wears away. The lack of a wear edge did not affect the performance, but could increase the life of the plastic chute.

This design was attached to one truck for the entire 2010-2011 winter. The driver noticed more accurate material placement, minimal loss of material off the road and enjoyed the ease of adjustment of the angle when it was necessary to apply material along center line or further to the right where there were turn lanes.

It is estimated that 25% less material was used on the route with the chute due to reduced bounce and more accurate placement of material. However, 2010-2011

was not an average winter and a longer trial is needed for accurate numbers on material savings.

**Using purchased and scrap metal, plastic forms for pavement markings, and nuts and bolts, the chute can be fabricated in-shop for roughly \$50.00-\$100.00. The estimated time for fabrication using the drawings would be about 3-4 hours.**

The design chosen for a CAD drawing is now available for use.

Mn/DOT has done extensive testing of the chutes with excellent results at speeds between 20mph and 30 mph. The chute allows the deicing material to be placed at the most effective location without the loss of material due to the higher forward speed.

**Implementation:** Washington County is now using chutes on a trial basis. Will install chutes on more trucks in the fleet. Will also install chutes on dual-spinner trucks for more accurate placement of material on roads with multiple turn lanes

**Status:** Completed

**Total Duration of Project:** Six Months

**Project End Date:** April 1, 2011

**Approximate Cost of Entire Project:** \$2,000.00

**Total OPERA Funds used for project:** \$2,000.00

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.