



## 2004 PROGRESS REPORT

**Pooled Fund Project:** TPF-5(092)

**Title:** Test and Evaluation of Materials, Equipment and Methods for Winter Highway Maintenance

**Web site:** <http://www.clearroads.org>

### Summary

Clear Roads is a pooled fund research project aimed at rigorous testing of winter maintenance materials, equipment and methods for use by highway maintenance crews. Created by seasoned winter maintenance engineers in 2004, Clear Roads responds to a need for research based on practical experience. By conducting structured field testing and evaluation across a range of winter conditions and highway maintenance organizational structures, Clear Roads projects will deliver immediately useful data and recommendations on the effectiveness, ease of use, optimum application rates, durability, and more, of many advanced winter operations technologies.

Clear Roads will:

- Work with the nation's premier researchers
- Evaluate winter maintenance materials, equipment and methods under real-world conditions
- Develop specifications and recommendations
- Study and promote innovative techniques and technologies that will save agencies money, improve safety and increase efficiency
- Make results quickly available to interested agencies

### Membership

Clear Roads is an open, cooperative research program aimed at funding highly relevant research to meet the needs of winter operations professionals around the world. The pooled fund was formed by three Midwestern states—Wisconsin, Iowa, and Minnesota. By the end of 2004, Indiana and Missouri had joined the project.

All interested agencies are asked to make a \$25,000 annual commitment to Clear Roads. The project funds cover investigator work, administrative management of the pooled fund, and travel for Technical Advisory Committee members and guests to committee meetings. States may use 100% federal funds to contribute to Clear Roads.

Below are the TAC representatives for Clear Roads from each of the five member states.

- Tom Martinelli, Wisconsin Department of Transportation, Committee Chair
- Dennis Burkheimer, Iowa Department of Transportation
- Sue Lodahl, Minnesota Department of Transportation
- Timothy Jackson, Missouri Department of Transportation
- Dennis Belter, Indiana Department of Transportation

## Meetings

The Clear Roads TAC met six times during 2004, either in person or by conference call.

- February 5, 2004 (Dubuque, Iowa)
- April 8, 2004 (Decorah, Iowa)
- May 11, 2004 (conference call)
- August 4, 2004 (conference call)
- August 16, 2004 (Cedar Rapids, Iowa)
- October 2004 (conference call)

## Budget

Below is an overview of available project funds at the end of 2004.

### Available funds

Funds committed to date:	\$250,000
Funds obligated to date:	\$175,000
<b>Total available funds by 12/05:</b>	<b>\$250,000</b>

### Estimated expenses

Administrative contract for 2005:	?\$30,000
<u>Estimated travel and supplies expenses:</u>	<u>\$13,000</u>
<b>Total estimated expenses:</b>	<b>~\$43,000</b>

### Actual expenses to date

Clear Roads August 2004 Meeting (travel, meeting room)	\$479.92
<u>Ben Zwart attendance at PNS Corrosion Forum</u>	<u>\$868.58</u>
<b>Total expenses to date</b>	<b>\$1,348.50</b>

## Projects

The Clear Roads TAC considered 15 projects for funding in 2004. Based on interest and available budget, the group chose the following three projects to move forward in the RFP process:

### Calibration Accuracy of Ground-Speed-Controlled Salters

Although ground speed controllers have been used on snowplows and salt spreader trucks since the mid-1990s, the accuracy of the equipment in use has never been determined. The goal of this two-year project is to document ground speed controller settings, actual salt usage and prewetting rate information from trucks with various types of ground speed controller units during winter storm events.

### Blade Performance Standards

A number of ASTM standards measure hardness, abrasion resistance, density, etc. for plow cutting edges, but none specifically address performance. This research would develop a standardized testing procedure to measure wear of plow cutting edges and would include performance tests during actual winter operations. The result would be a matrix of performance results from a variety of cutting edges for use in determining the best cutting edge for a specific operation.

### Optimum Snowplow Design

This two-year project would investigate, evaluate and test a plow design that makes use of one multi-purpose, detachable front plow plus equipment that offers a variety of capabilities for varying weather conditions: slush blade for wet snow, broom and blower for light snow, blade for should plowing, etc. The goal is to create equipment that would clean the road down to the bare surface with more finesse and increased snow removal speeds.

The Clear Roads TAC posted Requests for Proposal for all three projects but did not get the response hoped for. Researchers likely did not have enough turnaround time for completing their responses to the RFPs. The TAC decided to reselect projects for funding early in 2005 to that the RFP process could be completed by the end of summer and projects could begin in the fall, well in advance of the winter season.