



QUARTERLY PROGRESS REPORT

March 31, 2006

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>

Project Description

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.

Activity This Quarter

Meetings

The Clear Roads Technical Advisory Committee met on February 20 and 21, 2006 in Minneapolis, Minnesota to propose and discuss new research projects and to respond to investigator updates on current Clear Roads research projects.

Administration

Clear Roads, through the Wisconsin Department of Transportation, signed a contract extension with CTC & Associates LLC to administer the activities of this pooled fund in 2006. Work under this contract this quarter included meeting planning (agendas, minutes, logistics), communications, Web site updates, RFP development and marketing.

Research in Progress

Calibration of Manual and Ground-Speed-Controlled Salters

With the goal of determining the calibration accuracy of ground-speed-controlled salters, this study will document controller settings, actual salt usage and prewetting rate information from trucks with various types of controller units during winter storm events. Results will include guidelines to help snowplow operators establish and maintain accurate calibration of ground speed controllers, reducing salt usage and improving efficiency.

Blackburn and Associates gave a presentation on the progress of this study at the Clear Roads TAC meeting in late February. The team had completed the literature search and survey and developed an approach to the yard and field testing. Blackburn and Associates continued to work with the Clear Roads TAC after the meeting to address outstanding questions.

This project is expected to be completed by 10/31/07. Refer to project quarterly report at www.clearroads.org for a detailed progress update.

Synthesis of Best Practices for Eliminating Icing and Fogging on Winter Maintenance Vehicles. This study will investigate best practices for eliminating fogging and icing on winter maintenance vehicles. The researcher will conduct a comprehensive survey to identify effective methods for combating or preventing moisture on windows and mirrors while maintaining the comfort and safety of the plow operator. Results will include a compilation of the most effective designs, technologies, materials and practices for keeping snow plow glass and mirror surfaces clean of winter precipitation inside and out.

CTC & Associates LLC gave a presentation on the progress of this study at the Clear Roads TAC meeting in late February. The team had completed the preliminary literature search and phone survey and developed draft surveys and distribution lists. The TAC provided feedback on the materials, and CTC & Associates revised the survey and distribution lists during March.

This project is expected to be completed by 8/31/06. Refer to project quarterly report at www.clearroads.org for detailed progress update.

Proposed Research

At the February 2006 TAC meeting, the group discussed nine proposed research projects (see <http://www.clearroads.org/2006%20Clear%20Roads%20Problem%20Statements.pdf>) and selected several of them to move forward with Clear Roads support:

- **Determining Effectiveness of De-icing Materials and Procedures.** RFP to be issued spring 2006.
- **Ergonomics for Plow Driving.** CTC & Associates will complete a Transportation Synthesis Report on the topic. See <http://www.clearroads.org/resources.htm>.
- **National Snow & Ice Conference.** The TAC agreed to commit 2007 funds to this effort and to begin planning efforts in 2006. This conference will take place in 2007.
- **Snowplow Design.** The Clear Roads TAC will continue to guide research on snowplow design using the remaining funds in the Concept Vehicle pooled fund project. The scope of this work will include, if possible, research related to the following proposed projects: Contour Adjusting Wing, Material Application Sensor, and Field Testing of Carbide Inserts for Underbody Plows.
- **Agricultural Products.** There are several research projects nearing completion on this topic, and the TAC will review the final reports for these projects when available. In addition, testing of agricultural products may be pursued in later phases of the research on de-icer effectiveness (see first bullet above).
- **Computer-Based Training.** Clear Roads is committing \$20,000 to the development of additional modules of the computer-based training.

Work Next Quarter

- Complete and post RFP for the research projects on de-icer effectiveness
- Update Clear Roads Web site
- Plan and hold summer meeting in Madison—June 20 and 21
- Expand recruitment and marketing efforts

Budget Overview

Income to date

State	Total Contribution Amount	Contribution Years
Wisconsin	\$75,000	2004, 2005, 2006
Iowa	\$75,000	2004, 2005, 2006
Minnesota	\$100,000	2004, 2005, 2006, 2007
Missouri	\$50,000	2005, 2006
Indiana	\$50,000	2005, 2006
Ohio	\$75,000	2006, 2007, 2008
Michigan	\$100,000	2006, 2007, 2008, 2009

TOTAL \$525,000

Note: Michigan's \$25,000 contribution in 2005 is not included above.

This amount stayed in the Concept Vehicle fund for use on the snow plow project.

Expenses (incurred and planned through 2006)

Description	Amount
Calibration research project (contract)	\$199,500.00
Anti-fogging survey project (contract)	\$24,430.00
Admin. & marketing 2005 (contract)	\$29,000.00
2004 travel/supplies	\$1,348.50
2005 travel/supplies/printing	\$7,589.02
Admin. & marketing 2006 (contract)	\$29,000.00
2006 travel/supplies/printing estimated	\$12,000.00
De-icer effectiveness project (RFP to be issued)	\$50,000
Computer-based training (planned commitment)	\$20,000

TOTAL \$372,867.52