

## Clear Roads Research Proposals 2010

Page	Title	Description	Estimated Cost	Estimated Duration	Proposer	2009 Peer Exchange Reference
4	Environmental Factors Causing Fatigue in Equipment Operators during Winter Operations	Fatigue can be a major problem for operators, resulting in higher accident rates, lower productivity and increased health issues. This study will identify environmental components that cause operator fatigue and recommend cost effective, realistic changes to the equipment or environment to reduce or eliminate fatigue.	\$100,000	13 months	Allen Williams - Virginia DOT	
5	Enhance AI/RWIS CBT	The original AI/RWIS CBT Training was developed in 2001-2002 and then updated in 2006-2007. This project will update the training with the latest information and practices in a web-based format for easier utilization and tracking by organizations.	\$25,000-35,000	6-12 months	Brian Burne - Maine DOT	Enhance AI/RWIS CBT
6	Development of Standardized Specifications (Carbide Plow Blades)	State DOT specifications for carbide plow blades are inconsistent, making it difficult to negotiate multi-state, bulk purchasing contracts that save money and streamline production. This study will develop a standardized carbide plow blade specification and recommend additional products for potential standardized specification development.	\$10,000 - 15,000 per spec	6 months per spec	Brian Burne - Maine DOT	
7	Best Management Practices for Reducing Corrosion on Maintenance Equipment	This study will investigate methods for effectively and economically reducing corrosion on maintenance equipment.	Phase I \$70,000 - \$90,000 Phase II \$125,000	1 year, Phase II may take 2 years with all the field tests.	Cliff Spoonmore - Wyoming DOT	Best Management Practices for Reducing Corrosion on Maintenance Equipment

9	Right of Way Snow Fence: Evaluate Alternative Types of Short Structural Fence	This project will investigate the cost effectiveness of alternative snow fence types (materials) or configurations (heights or porosities) that can store snow effectively starting at the right of way line.	\$100,000	18-24 months	Cliff Spoonemore - Wyoming DOT	
11	Snow and Ice Control Operations Costs vs Snow Storage	This study will develop a tool states can use to estimate costs and benefits of the available snow removal options (removing by force or with chemicals, storing, or leaving in place). The results will help winter maintenance managers effectively plan snow operations with cost and return on investment in mind.	\$75,000	1 year	Cliff Spoonemore - Wyoming DOT	True Costs of Snow and Ice Control Operations
13	Improved Snowplow Design	New materials are continually being developed that are lighter and stronger than the materials currently used in most plows built today. This project will investigate potential new materials and designs that may be better suited for the more proactive approach to snow removal used in most states' operations.	\$150,000	24-30 months	Dennis Burkheimer - Iowa DOT	
14	Winter Crash Analysis Tool	Every year thousands of people are involved in winter crashes, but the causes and locations of these crashes are often ignored when developing safety plans for the state or when considering the placement of ITS enhancements or geometry changes to the roadway. This project will develop a winter crash analysis tool to support state decision making and resource allocation that will reduce winter crashes.	\$150,000	18-24 months	Dennis Burkheimer - Iowa DOT	
15	Cost/benefit of Snow and Ice Removal Operations	Most agencies can identify the costs of snow and ice removal operations in their state but have a difficult time determining the overall costs savings or benefits to society from their efforts. The study will document the costs of winter storms (due to delayed shipments, crashes, increased fuel consumption, lost wages, etc.) and the economic benefits of snow and ice removal operations.	\$100,000 to \$150,000	12-18 months	Dennis Burkheimer - Iowa DOT	

16	Bringing New Products into Government Run Maintenance	This study will develop a standard process for vendors to follow when submitting new product ideas to DOTs for consideration, saving DOTs time, energy and money.	\$50,000	3 months	Mike Sproul - Wisconsin DOT	
17	Best Management Practices Synthesis for Low Temperature Pavement Maintenance	This study will evaluate a range of deicing chemicals in the lab and in the field for their effectiveness at colder temperatures and over time in storage.	\$300,000	2 years	Monty Mills - Washington DOT	Develop BMP Synthesis for Low Temperature Pavement Surface Management
19	Comparison of Zero Velocity Spreaders	This research will compare the effectiveness of different types of deicing material spreaders at various speeds. These systems are intended to reduce the amount of salt that bounces off the road during application, thus saving DOTs resources, but it's not clear that their significant expense is worth the investment.	\$250,000	24 months	Tim Croze - Michigan DOT	
20	A Study to Compare the Types of Snowplow Blades and Inserts Available for Front Plows and Underbody Plows	This study will compare the performance of a range of snowplow blades of varying costs and materials to help states make the best blade purchasing decisions.	\$200,000	24 months	Tim Croze - Michigan DOT	Comprehensive Comparative Study to Report on Blade Types, Inserts and Fasteners
22	Snow and Ice Control Operations True Cost Phase I and Phase II	This will be a two-phase project that looks first at the costs of snow and ice control to the agency and then at the cost to society when snow and ice control is not applied.	Phase 1 - \$100,000 to \$150,000  Phase 2 - \$75,000 to \$100,000	Phase 1 – 24 months  Phase 2 – 18 to 24 months	Paul Brown – Massachusetts DOT; Cliff Spoonmore – Wyoming DOT; Tina Greenfield – Iowa DOT	True Costs of Snow and Ice Control Operations