

NCHRP 20-68A – “US Domestic Scan Program”
Scan 07-03 Best Practices in Winter Maintenance

Description of Scan

Recent history indicates that the field of winter maintenance has advanced significantly in the United States during the past two decades. This advance began at least partly as a result of the Strategic Highway Research Program (SHRP). SHRP began in the mid-1980s, and it featured a number of projects directly related to winter maintenance. From the work of SHRP grew the realization that U.S. technology in the field of winter maintenance lagged behind the technology used overseas. This realization led to two international scanning tours. The first, in 1994, visited Japan and several countries in Europe. The second, in 1998, visited additional European countries. These visits led to a renaissance of technology in the area of winter maintenance in the United States. Two specific areas examined during these international scans included anti-icing strategies; and unique tools, equipment, and techniques for snow removal.

One of the major changes to come from the SHRP studies was the implementation of anti-icing as a strategy for winter maintenance. The typical approach to dealing with snow and ice on the road has been to wait until an event has occurred and then go out and treat the road by plowing and applying de-icing chemicals. This reactive approach often gave rise to road conditions that were less than optimal at the onset of a storm. Snow-melting chemicals had to work on accumulated precipitation before reaching the road surface. New anti-icing strategies require an agency to place chemicals on the road surface just before the start of precipitation. These chemicals prevent the formation of a bond between snow and pavement. Therefore, snow plowing is easier and more effective, and the effects are immediate.

A great deal of new equipment has appeared in the area of winter maintenance during recent years. A major study to investigate the effectiveness of these new pieces of equipment is the Concept Vehicle Project, undertaken by Iowa, Minnesota, and Michigan. Each of the three states built and equipped a truck to test innovative equipment in field conditions. Equipment tested includes friction-measuring devices, Global Positioning System (GPS) locators, engine power boosters, and special chemical application systems. The possibility of knowing where all trucks are at a point in time - as well as where they have been and what they have done - is of enormous value to dispatchers and others who must deal with the public during a storm. It also raises the possibility of being able to adjust winter maintenance activities during a storm in response to data from the field.

This scan will include operating methods, equipment and materials that improve the efficiency and effectiveness of snow and ice control operations, considering local government, as well as State DOT experience. It will include a review of different aspects of snow and ice control and removal methods and procedures by various DOTs. Topics will include: different uses of technology in snow removal activities; avalanche control methods and procedures; different pre-wetting and de-icing methods for bridges and traveled ways; and chain control procedures for safe installation and removal of chains and safe movement of traffic through chain control areas.

Original Scan Proposal Title(s):

1. Winter Maintenance Operations
2. Best Management Practices in Snow and Ice Control

Last Reviewed/Revised October 26, 2010

Scan Team Membership

William H. Hoffman, ASSHTO Co-Chair
Chief Maintenance and Operations Engineer
Nevada Department of Transportation
1263 South Stewart Street
Carson City, NV 89712
Telephone: 775 888-7854 (Direct) or 7050
Fax: 775 888-7211
Cell: 775 443-7873
E-mail: whoffman@dot.state.nv.us

Michael D. Schwartz
Program Analyst
Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219
Telephone: 804 786-0856
Fax: 804 786-0652

Steven M. Lund
State Maintenance Engineer
Minnesota Department of Transportation
Central Office, Transportation Building
Mail Stop 700
395 John Ireland Boulevard
Saint Paul, MN 55155-1899
Telephone: 651 366-3566
Fax: 651 366-3555

Terry J. Nye, PE
Assistant District Executive Maintenance
Pennsylvania Department of Transportation
Engineering District 1-0
255 Elm Street, P. O. Box 398
Oil City, PA 16301
Phone(s): Office 814-678-7140
Cell 814-673-6103
Email: tenye@state.pa.us

Benjamin B. McKeever, P.E., FHWA Co-Chair
Program Manager, Traveler Information and
Road Weather Management
ITS Joint Program Office, RITA, USDOT
1200 New Jersey Ave., SE, Washington DC
20590,
Phone: 202-366-4876
Email: ben.mckeever@dot.gov

David Ray
Administrator, Office of Maintenance
Administration
Ohio Department of Transportation
1980 West Broad Street
Columbus, OH 43223
Phone(s): (614) 466-3264
(614)-644-7105
Email: David.Ray@dot.state.oh.us

Rodney A. Pletan, P.E., SME
7414 West Broadway
Forest Lake, MN 55025
Phone: (651) 464-6636
Mobile: (651) 245-6292
Fax: (651) 464-6636
Email: rodpletan@mywdo.com

Execution Schedule

Milestone	Anticipated Date
Chairs and Team Members Identified	July, 2008
Desk Scan Completed	October, 2008
Prescan Meeting Held	October, 2008
Scan Conducted	March-April, 2008
Draft PowerPoint submitted by SME	June, 2009
Draft Report Delivered to NCHRP and Panel	July, 2009
Final Report Delivered to NCHRP	December, 2009

Estimated Scan Cost and Funding

Actual cost and duration: \$ 170,800; 2 weeks
Anticipated fund from FHWA \$50,000.

Last Reviewed/Revised October 26, 2010