



Summary of Results
Six-month Survey of Team Members
And Follow-up Webinar
Scan 07-03: Winter Maintenance

(This memorandum is part of the work of NCHRP 20-68B(02): *Accelerating Innovation*
– *Tracing Domestic Scan Impacts*)

CTC & Associates LLC
November 30, 2010

Scan 07-03: Winter Maintenance

The purpose of the Winter Maintenance Domestic Scan was to seek out and observe the progress that state and local highway agencies are making in advancing today's technology in the area of winter roadway maintenance. The scan was tailored after previous scanning tours in European and Asian countries in 1994 and 2002. Much of what was learned from these earlier international scans became a new benchmark to several U.S. counterparts, inspiring them to pursue similar advances.

This scan examined 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. Members reviewed many different aspects of snow and ice control and removal methods and procedures by DOTs from five selected states: Minnesota, Colorado, Utah, Indiana, and Virginia. Topics included: different uses of technology in snow removal activities; avalanche control methods and procedures; different pre-wetting and de-icing methods for bridges and travel-ways; and chain control procedures for safe installation and removal of chains and safe movement of traffic through chain control areas.

Scan Team Members

Benjamin McKeever, USDOT (scan co-chair)
 William Hoffman, Nevada DOT (scan co-chair)
 Steven Lund, Minnesota DOT
 Terry Nye, Pennsylvania DOT
 Dave Ray, Ohio DOT
 Michael Schwartz, Virginia DOT
 Rodney Pletan (Subject Matter Expert)

Sites Visited

State transportation agencies in:
 Minnesota, Colorado, Utah, Indiana, Virginia
 Local transportation agency in Cities of Denver, Fort Collins, and Grand
 Junctions; the E-740 Public Highway Authority; Eisenhower/Johnson
 Memorial Tunnels and Hanging Lake Tunnel Operations Centers

Scan Dates

March 25 – April 7, 2009

Final Report Published

December 2009

Survey Results

Scan 07-03: Winter Maintenance had seven team members, including two co-chairs and a subject matter expert (SME). Of the seven original members, five responded to the survey.

Conduct of Scan. Please rank each of the following scan program features in terms of its contribution to the overall value of this particular scan tour, where 1 is “not important” and 5 is “extremely important.” If it did not apply to your scan, please pick N/A (Not Applicable).							
Answer Options	Not Important			Extremely Important		N/A	Response Count
Preparatory materials and meetings in advance of the scan tour	0	0	0	1	3	1	5
On-site visits to view the subject technology or practice	0	0	0	0	5	0	5
Face-to-face technical exchange with host state personnel and other scan participants	0	0	0	1	4	0	5
Final report of scan findings	0	0	0	1	4	0	5
Post-scan consultation with host state personnel and other scan participants	0	0	0	0	3	2	5

Scan Outcomes. Please rank each of the following scan program outcomes in terms of its contribution to the overall value of this particular scan tour, where 1 is “not important” and 5 is “extremely important.”							
Answer Options	Not Important				Extremely Important		Response Count
Introduction to a new technology or practice	0	0	0	1	4		5
Clearer understanding of a new technology or practice	0	0	0	0	5		5
Identification of one or more individuals at a host state to call on as a future resource	0	0	1	1	3		5
Identification of one or more scan participants to call on as a future resource	0	0	0	2	3		5
Information with which to <u>begin</u> implementation of a technology or practice at your agency	0	0	0	1	4		5
Information with which to <u>continue</u> implementation of a technology or practice at your agency	0	0	1	1	3		5

General comments regarding the overall value and benefits of the NCHRP Domestic Scan Program:

In Ohio we began using what was learned from the scan and we had the ability to push this information out to our districts. Also, several times I have been able to get help and advice for winter maintenance practices from Nevada, Pa., Va., or Minnesota because of contact the scan provided from other scan members.

Identifying effective practice/technology but providing "how [our] organization got there" and the missteps/decision-making process is very helpful for sharing agencies.

Did your participation in the scan facilitate the implementation of any new practices or technologies?

Yes – 3

No – 1

Completed Implementations:

Started a GPS/AVL pilot program in Ohio for our snowplow fleet.

Use of weather services - sharing information - better prepared

MDSS pilot implementation for this winter for PennDOT. Savings TBD

Reinforces some activities that were ongoing including: explore expanded tow plow opportunities, continue with deployment of maintenance decision support system, and increase use of flexible plow blades

Made budget recommendations in Ohio for field research programs as we saw in other states.

Double walled Brine Tank vs. Containment Facility \$5K savings in one facility

Started to evaluate the tow plow in Ohio that we saw in other states.

V box Truck Slide in Unit for pre-wetting and salt spreading. Savings/Efficiency TBD

The Scan reinforced procedures for winter snow and ice control that we were already doing in Ohio by demonstrating in several other states that they were also successful.

Automated Vehicle Locator. Savings/Efficiency TBD

Joma Rubber mounted carbide cutting edges for snow plow. Savings \$1100/trk/year"

Are any implementations planned within the next year?

Yes – 3

No – 1

Planned Implementations (within the next year):

Yes [as noted in the current implementations].

Use of MDSS

Expanded pre-wetting program

Consideration of the use of wing plows

Additional/New Brine Manufacturing Facilities

Calcium Chloride Brine Solution anti icing

Beet Juice, Ice Bite/Brine solution for pre-wetting/anti-icing

Number of respondents who attempted an implementation without success: *none*

Number of contacts provided regarding current or planned implementation activities: 5

Number of contacts outside the agency provided: *one*

Dissemination Activities (from three respondents):

Organization – APWA

Event – National Congress

Date – Sept. 2009

Title/Subject - Innovative Winter Maintenance Practices of High Performing Agencies

Used Scan PowerPoint? (Yes/No) – Yes

Organization – PA Dept of Transportation

Event – Expanded Staff Meeting

Date – 11/01/2009

Title/Subject - Winter Scan

Used Scan PowerPoint? (Yes/No) – Yes, Portions of the PowerPoint

Organization – internal Department presentations

Event – District Engineers

Date – spring/summer 2009

Title/Subject - general overview

Used Scan PowerPoint? (Yes/No) – Yes

Organization – Ohio Department of Transportation District Leadership Event – Monthly meeting

Date – 2009

Title/Subject - Results of the winter scan tour

Used Scan PowerPoint? (Yes/No) – No but used report

Organization – N/E Ohio Snow and Ice Technologies, Solon, OH

Event – Winter Symposium

Date – 05/13/2010

Title/Subject - Winter Services in PA/Winter Scan

Used Scan PowerPoint? (Yes/No) – Yes, portions of the PowerPoint

Organization – internal Department presentations

Event – District Maintenance Engineer

Date – Spring/summer 2009

Title/Subject - General overview

Used Scan PowerPoint? (Yes/No) – Yes

Organization – PIARC

Event – International Winter Road Congress, Quebec

Date – 02/01/2010

Title/Subject - Scan overview

Used Scan PowerPoint? (Yes/No) – Yes

Webinar Summary

Date

Wednesday, November 17, 2010

Attendees

Facilitators:

Dylan Casey, CTC & Associates LLC
Patrick Casey, CTC & Associates, LLC

Scan Team Members:

Bill Hoffman, Nevada DOT, scan co-chair
Terry Nye, Pennsylvania DOT
Dave Ray, Ohio DOT
Michael Schwartz, Virginia DOT
Rodney Pletan, SME

Panel Members:

Skip Paul, Director LTRC (panel chair)
Andy Lemer, TRB
Rick Kreider, Kansas DOT
Amy Schutzbach, Illinois DOT

Summary

Draft survey results were provided to scan team members prior to the webinar. Following introductions and a review of the results, each team member discussed some of their implementation efforts and their view of the impact of the scan. All of them praised the scan process and work done on the scan, finding it important to both their own specific work and to their profession.

Bill Hoffman commented that the states on the scan, both participants and hosts, benefited tremendously from it. In his own implementation/dissemination efforts, he was interviewed for a [Better Roads article](#) that “generated lots of interest in the technologies” especially the route-by-route iPod technology. Additionally, Nevada DOT had “injected scan results into the LTAP education and training programs” since the completion of the scan. Bill initiated a discussion regarding the challenges of implementing the results of the scan upon returning home, saying that it was one thing to spread the word regarding the scan technologies and another to get them implemented in an agency. He “hit a ceiling in [his] implementation activities” due to institutional resistance, much of it centered on chief engineers not being comfortable with the proposed technologies and how they would be implemented. He said that it would help states if there was an implementation plan template for each specific technology to facilitate the implementation itself. “It’s tough to take the next step” of getting the technologies implemented.

Terry Nye said that he’d been able to implement eight or nine of the technologies from the scan, but also echoed Bill Hoffman’s observation of institutional resistance to changing technologies and practices. He suggested working toward a “champions approach” to fostering implementation by designating specific people for specific implementation tasks. He commented that “the lessons learned were huge” and that the condensing of information that occurs during the scan “saves lots of money, development, and [on-the-job] learning.”

Mike Schwartz commented that implementation discussions were ongoing regionally (mid-Atlantic area) and that last year’s challenging snows had prompted many discussions, including a five-state conference on winter maintenance.

Dave Ray¹ agreed with all that had been said, but wanted to emphasize the benefits of the scan in building relationships between the scan members. “It was more than just getting information.” He felt that the members of the scan “really clicked” and worked together particularly well. To him, this underlined the importance of giving thought to the make-up of the scan teams.

Rodney Pletan (SME for the scan) attended the webinar “primarily to listen,” but also noted that he’d used some of the scan material to educate himself.

Following the comments from the scan team members, the Panel members each made some comments, leading off with Skip Paul. They clarified some of the panel’s interest in the scans, particularly their interest in how the scan as an effort is working to get new technologies into practice. Skip Paul noted that it is clear that the scan is good for

¹ Due to some technical difficulties, Dave Ray was only able to hear the conversation during the webinar, but could not fully participate. His comments were obtained in a follow-up phone conversation.

the participants and the host sites, but the Panel is very interested in how the knowledge from the scan spreads and what can be done to facilitate such spreading: “How many states *not* on the team got engaged and tried to use some of this information?” He also inquired about any future plans for dissemination at other programs or meetings. Bill Hoffman replied that he didn’t know about any particular plans, but that many of the technologies from the scan have been wrapped up in a recent AASHTO Technology Implementation Group project.

Amy Schutzbach suggested that getting the scan results into the hands of AASHTO RAC (Research Advisory Committee) members would be an effective way of “getting the word out.”

Andy Lemer commented that the Domestic Scan is part of a general effort “to get research out there,” moving results from researchers into the hands of transportation agencies where they can be put to use making safer, more efficient, and less expensive transportation systems.