

# MINNESOTA TECHNOLOGY EXCHANGE

A Newsletter of the Minnesota Technology Transfer (T<sup>2</sup>)/Local Technical Assistance Program (LTAP)



Fall 2002 Vol. 10, No. 4

## Transportation workforce: A call to action

The transportation industry in Minnesota and across the nation is finding it increasingly difficult to attract and retain a qualified, and well-trained, workforce. Five major factors are contributing to this growing concern: retiring baby boomers, increasing demand for transportation, changing public values, demands to "do it faster with less," and tightening budgets for education and training (see page 3 for details).

These challenges require the transportation community to address workforce development on a national level in a coordinated, comprehensive manner. To this end, representatives from 75 transportation workforce stakeholders were invited to participate in the National Transportation Workforce Summit held May 13 in Washington, D.C.

Cheri Marti, director of Minnesota T<sup>2</sup>/LTAP, joined leaders from transportation agencies, academia, industry, labor unions, professional associations, and consulting firms at this first-ever national meeting. The summit was developed under the direction of Joe Toole of the Federal Highway Administration (FHWA) Office of Professional Development, and included U.S. Department of Transportation leaders and



Michael Jackson, USDOT deputy secretary, and Cheri Marti during interactive discussion group

Workforce continued on page 2

## Another successful year for motor grader operator workshops

Judging from the comments received from those attending this year's motor grader operator workshops, the training was again a resounding success. A few of the comments received from class evaluations include:

- "Field training was helpful because it fit our road conditions."
- "Great to get hands-on training."
- "The best class I've ever had."
- "Good hands-on training. It's nice to have someone that knows what he's doing."
- "I had my doubts, but overall I enjoyed the class, I would take it again."
- "Method of training worked very well."

Overall, 97 percent of those who attended the training rated it very good to excellent.

Minnesota T<sup>2</sup>/LTAP offered the motor grader training series for the first time in 2001, but limited it to counties as a pilot program. Participation in the 2002 workshops was broadened to include townships, cities, and counties. This year's training schedule encompassed ten weeks, beginning



Call Minnesota LTAP to schedule your training for next year. (See page 6.)

in southeastern Minnesota on May 19 and concluding in northeastern Minnesota on July 26. A total of 175 motor grader operators from across the state participated: 90 operators from counties, 59 from townships, and 25 from cities in Minnesota. Also, the new CTAP instructor, Kathleen Schaeffer, participated in the training.

Each operator who attended the workshops spent one day in the classroom and one day in field training that included motor grader operation. In the classroom portion, participants were

Motor grader workshops continued on page 6

## Good neighbor policies:

### Make way for mobility by sharing roadway rights-of-way with public utilities

by John Rodeberg, City of Hutchinson, and Kathryn Knutson and Mike Marti, SRF

A paradox of the information age is this: the infrastructure of information highways often resides in the rights-of-way of "old-fashioned" physical highways and roadways. In other words, as information speeds on its way, so do the raw materials, the finished products, and the people that must all come together to make our economy work. Ensuring that all pieces of this infrastructure work compatibly and act as "good neighbors" is essential to keeping Minnesota moving.

The sharing of roadway rights-of-way with public utilities is not a new story. It's one that has been around for quite some time. What has changed is the intensity to which these rights-of-way are being put to use in a business environment where

the need for communications capacity and the energy that makes it all possible increase year by year. What remains the same are the stakes if utility relocation does not go smoothly: namely, costly project delays and aggravation to the traveling public.

The Research Implementation Committee of the Minnesota Local Road Research Board (LRRB) recently concluded an investigation defining process-

The key recommendation of the LRRB study is to hold an annual utility relocation coordination meeting to share construction plans with all parties in the process.

es to improve utility relocation as part of highway maintenance and construction in Minnesota cities and counties. The panel of experts convened to guide this research implementation task was made up of county and city engineers, contractors, utility company representatives, and personnel from Mn/DOT. Getting everyone around the same table was an invaluable exercise in opening lines of communication. It allowed for frustrations to be aired and, just as important, to be heard. In fact, it was improved communication rather than any technical aspect of utility relocation that emerged as the most notable issue of the investigation.

In analyzing the results of surveys administered to city and county engineers, contractors, and utility companies, the panel found that many of the responses stressed the need for more effective communication and coordination among all parties in the relocation process. However, as was stressed in an FHWA-produced video *CCC: Making the Effort*

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administrators.

The summit reflected on three critical components:

1. **"Fill the pipeline."** Make a sustained and proactive commitment to ensure that young people as well as mid-career individuals are attracted to and choose transportation careers. As chair of a national workforce framework committee, Marti presented the committee's initial work in creating a framework to illustrate the career life-cycle continuum and the opportunities for the transportation community to intervene to create awareness, influence career choice, and retain valued employees.

2. **Invest in skills development.**

Continuously invest in employee training and development to help attract and retain the best workers for the future and to ensure that workers are applying the latest transportation technologies and practices and using broad-based skills to carry out their work most effectively. Tony Giancola, executive director of the National Association of County Engineers, challenged the attendees to find creative ways to help local road agencies, which maintain the majority of the nation's roadways. He emphasized the success of LTAP in meeting that role and the importance of expanding the program under TEA-21 reauthorization.

3. **Institutionalize workforce development.** Coordinate workforce development efforts among stakeholders on a national level by institutionalizing procedures and resources to prepare a skilled, technically proficient, and motivated workforce. A strong, coordinated collaboration must exist across government, industry, and academia to share and pool resources and workforce data.

The summit was designed to create an industry-wide partnership and foster the cooperative spirit that will carry summit results to implementation. It concluded with each partner—agencies, industry and association representatives, academics, and union representatives—signing "A Partnership for Educating, Training and Developing the Nation's Transportation Workforce." With this charter, the participants committed their support to the effort that will improve workforce development through new initiatives in the academic and transportation communities—an effort that may have implications for TEA-21 reauthorization.

As follow-up to the summit, a steering committee of partner organizations is being formed to further define workforce development efforts and address the workforce needs identified at the summit.

**Minnesota efforts**

In Minnesota, the Minnesota Local Road Research Board's Research Implementation Committee pioneered the concept of bringing together transportation workforce stakeholders with the August 2000 "Minnesota Summit on Civil Engineering Workforce Development." (For a summary of this meeting, call Mn/DOT's Office of Research Services at 651-282-2274.)

A first of its kind, the Minnesota summit served as a catalyst to other similar

national efforts. Some of you may recall the January 2002 memo from Dick Hansen, chair of the Minnesota Summit Advisory Panel and St. Louis County Engineer, discussing the status of the Minnesota Workforce Initiative. Hansen reported on the goal to raise an initial \$50,000 in seed money to fund the first six months of the initiative's operations, including the hiring of a project manager, the establishment of a steering committee, and the development of initial tools to aid Minnesota local agencies in workforce development efforts.



Summit moderator Tom Warne and USDOT administrators Mary Peters (RSPA), Jennifer Dorn (FTA), and Ellen Engleman (FHWA)

We are grateful for the funding commitments and interest received from the Minnesota County Engineers Association, City Engineers Association, Public Works Association, and Asphalt Paving Technologists, together with the partner contributions of Mn/DOT, the Consulting Engineers Council, and CTS/LTAP. However, the funds raised were insufficient to launch the initiative. Mn/DOT and CTS have pursued other funding alternatives and will continue these efforts, of which the most promising is supporting the National Transportation Workforce Initiative.

In addition, the LRRB's Research Implementation Committee is developing a set of workforce-related materials. Plans are to create Powerpoint presentations highlighting the transportation field; brochures showing job opportunities, locations, and pay schedules along with the educational institutions that offer classes needed for those jobs; and a video that county and city engineers could use for recruitment and for educating county commissioners, council members, and the general public. City and county engineers could also use the materials at their local high school career days.

**Next steps**

As this article has highlighted, the national efforts resulting from the National Workforce Summit reflect the priority of this issue in the USDOT agenda. This issue is far from being resolved; as Tom Warne, former executive director of the Utah DOT and moderator of the National Workforce Summit concluded, "Together, we've taken the first of many thousands of steps." However, we need to continue to try to coordinate and pool stakeholder efforts on a state, regional, and national level to have the necessary impact in ensuring the workforce we need.

For further information on the National Workforce Summit and other workforce activities, please contact Arlene Mathison, Minnesota LTAP librarian, at library@cts.umn.edu or 612-624-3646. T<sup>2</sup>

—Cheri Marti

(Adapted from an article provided by the FHWA's Office of Professional Development.)

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Transportation workforce development resources

**TRB Study**—The Transportation Research Board is conducting a study titled "Future Surface Transportation Agency Human Resources Needs" to assess the workforce needs of transportation agencies over the next two decades. The study will make recommendations for recruiting, training, and retaining employees, and will consider both professional and non-professional staffing needs for state and local highway and transit agencies, and for private-sector transportation organizations.

**Domestic Scan**—This is a cooperative effort by the AASHTO Subcommittee on Human Resources, the National Transportation Training Directors, and FHWA to identify successful state workforce policies, programs, and practices. Scan results have been provided to the states and are currently under review to identify specific policies and practices that would be included in the FHWA/AASHTO innovative practices program.

**International Scan**—A team of 10 federal and state transportation executives along with representatives from the academic community met with officials of Sweden, Germany, France, and Great Britain to identify innovative practices for recruiting, developing, and retaining qualified transportation workers. The findings were shared with the U.S. transportation community in July and will be included in the discussions of the National Workforce Development Steering Committee

to effect improvements in U.S. policies and programs.  
**NCHRP Synthesis**—The National Cooperative Highway Research Program is currently developing a synthesis of recruitment and retention practices for the state DOTs. The synthesis will review key literature sources, survey state transportation agencies, and summarize the reported experience. Areas to be addressed include organization culture, compensation package, education reimbursement, schedule flexibility, training programs, recognition programs, professional development, assistance with employment issues, reclassification of job title and salaries, succession planning, recruitment programs, and diversity/under-represented groups.

**National organizations studying workforce issues include TRB, AASHTO, FHWA, and NCHRP.**

**Innovative Practices**—In cooperation with AASHTO, the FHWA has compiled 16 innovative practices that focus on progressive state DOT workforce development policies and programs. The innovative practices have been distributed to the states and are available on the Transportation Workforce Development web site at www.nhi.fhwa.dot.gov/transworkforce. In addition to the innovative practices, the web site includes material on the international scan, the domestic scan, copies of workforce studies, and policy decisions and other topics affecting transportation workforce development. T<sup>2</sup>

(Provided by FHWA Office of Professional Development.)

## Recycling: It's not just for newspapers anymore

by Mike Sheehan, Olmsted County

Resources are usually recycled to meet two goals: to save money and preserve natural resources. For many years, road authorities have recycled asphalt paving materials as a tool to accomplish these goals. Over the past 10 years, research defining asphalt-recycling best practices has indicated that asphalt recycling can be used effectively in road maintenance and construction. However, because the amount of research over the past 10 years has been so voluminous and because new modifications to the process frequently occur, it can be quite difficult for practitioners to identify the technique that is most suited to their needs.

The Minnesota Local Road Research Board's Research Implementation Committee recently completed a study examining the asphalt recycling practices and experiences of Minnesota counties and cities. The purpose of this study was to provide practitioners with a reference guide on asphalt recycling and a resource for practitioners to turn to in understanding their peers' experience.

This report, written by SRF Consulting Group and chaired by myself, is a synthesis of a manual produced by the Asphalt Recycling and Reclaiming Association (ARRA) and endorsed by the Federal Highway Administration (FHWA) titled the *Basic Asphalt Recycling Manual (BARM)*. The BARM provides a complete summary of various

recycling techniques and the process for conducting a recycling project, and is one of the most current and comprehensive manuals on asphalt recycling.

Also included in the report is a summary of a survey distributed to cities and counties throughout Minnesota to gather input on asphalt recycling practices and experiences. From the survey



A cold in-place recycling construction site in Olmsted County

results, it appears that most agencies are pleased with their recycling experience. Project assessment/selection emerged as the single most important factor in achieving success in asphalt recycling; the majority of perceived premature road paving failures are likely caused by misguided project selection rather than the recycling practice

itself. The main factors in identifying a good candidate project for selection are:

- Existing pavement condition
- Availability of construction material
- Economics
- Time constraints compared to other rehabilitation materials

Additional information regarding Minnesota's experience with recycling asphalt paving materials can be obtained by visiting the LRRB web site ([www.lrrb.gen.mn.us](http://www.lrrb.gen.mn.us)) or by requesting a copy of the study report, *Synthesis of Asphalt Recycling in Minnesota* (no. 2002-32), from Mn/DOT ORS at 651-282-2274. T<sup>2</sup>

## Low-volume road research report: Cities, counties advised to use MnPAVE to calculate thickness

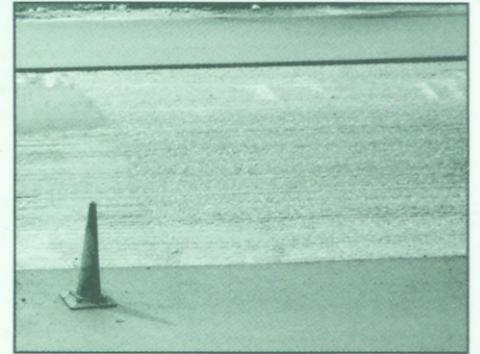
A new report, *Best Practices for the Design and Construction of Low Volume Roads*, provides information on methods for design and construction of hot-mix asphalt (HMA) pavements in Minnesota. It was written by researchers in the University's Department of Civil Engineering and sponsored by the Minnesota Local Road Research Board.

Currently, hot-mix asphalt pavements in Minnesota are designed using one of three thickness design procedures: the Soil Factor, the R-Value, or the Mechanistic-Empirical Procedure (MnPAVE). The Soil Factor procedure uses two-way Annual Design Average Daily Traffic (AADT) and Heavy Commercial Average Daily Traffic (HCADT) to define loading, while the R-Value and MnPAVE procedures use Equivalent Standard Axle Loads (ESALs) to define traffic loading. It is now recommended that city and county agencies use MnPAVE, in addition to their existing procedure, to calculate thickness designs.

Researchers developed MnPAVE, a software application, with information from the Minnesota Road Research Project (Mn/ROAD) test facility and 40-year-old test sections from around the state. The significant advantage of using a mechanistic-empirical design procedure like MnPAVE is that the properties of various materials and conditions can be entered into the software.

In addition, the report highlights subgrade soils for each thickness design procedure listed above, Mn/DOT's specifications for embankment soil construction and construction of pavement section materials, and best practices for setting up projects most effectively to follow specifications.

For a copy of the report, call Arlene Mathison, Minnesota LTAP librarian, at 612-624-3646, or send e-mail to [library@cts.umn.edu](mailto:library@cts.umn.edu). The report is also on the LRRB web site, report number 2002-17. T<sup>2</sup>



## Factors influencing the workforce crisis

### Retiring baby boomers

As much as 40 to 50 percent of the existing local, state, and federal transportation workforce will be eligible to retire in the next 5 to 15 years. These post-World War II, baby-boom generation retirees will take their transportation knowledge, expertise, and institutional memory with them.

The Rockefeller Institute of Government estimates that 42 percent of the 15.7 million state and local government employees are between 45 and 64 years

old, and that 40 percent of the state and local government employees will be eligible to retire in the next 15 years. There are similar projections for the private sector.

### Increasing demand for transportation

An expanding economy fueled by large gains in the information technology and service industries is increasing the demand for business and personal travel. The U.S. population has increased by 25 million since 1990 and is expected to reach 300 million by 2010. Vehicle miles traveled (VMT) is growing twice as fast as the population, and freight transportation is increasing rapidly with the growth of just-in-time inventory systems and e-commerce. This growth in demand for our transportation system is met with the challenge of maintaining an aging infrastructure.

### Changing public values

Infrastructure development must be balanced with the public's growing concern for land use, air and water quality, and historic preservation. Transportation security and safety is of paramount concern today. Such shifts in public values and concerns require new skills and competencies of the transportation workforce.



They may be among the 40 to 50 percent of the transportation workforce retiring in the next 5 to 15 years.

### Demands to "do it faster with less"

Over the past decade, state DOTs have experienced an average decrease in full-time employment of 5.3 percent, while department program delivery budgets have increased 56 percent. State DOTs are turning to the private sector to help meet the demands of the increasing workload. This changing public policy and business environment requires the states to expand workforce skills to include a broader range of abilities necessary to effectively manage their proj-

ects and programs. Outsourcing, privatization, and program delivery streamlining are continuing trends in response to increased program delivery demands as well as the drive for efficiency—all of which have considerable impacts on our transportation workforce needs.

### Tightening budgets for education and training

Anticipated financial constraints can affect critical employee training and development opportunities that make our workforce more productive as well as help retain experienced employees by enhancing their job satisfaction. The mass exodus of retiring experienced employees, the rapid speed of technological change, the multimodal/multidisciplinary nature of today's transportation needs and solutions, the changing workforce demographics...all highlight the importance of strong education programs and continuous employee training. Transportation agencies must be creative in a time of limited funding and reluctance by legislators to raise taxes or impose user fees. In addition, transportation education providers—particularly vocational/technical programs—are experiencing significant shortfalls in expected budgets due to reduced student enrollments in programs such as civil technology. In Minnesota, more than half the civil technician vocational education programs have closed. T<sup>2</sup>

—Cheri Marti

(Adapted from FHWA materials.)

**MAINTENANCE**

## Collaboration expands living snow fence program

By Daniel Gullickson, Mn/DOT Living Snow Fence Program

Closed roads...reduced visibility...whiteout conditions...farmsteads without access to emergency services...travel delays...dumped milk...stranded motorists...schools closed. These are real challenges that affect all residents traveling and working through the winter season.

Are there sections of roadway that continually require the use of snow blowers and bulldozers and cut into your snow removal budget? Are you concerned about the safety of your snowplow operators and the traveling public through these problem sections of roadway? Do you know that something can be done to stop blowing snow?

The Living Snow Fence Program offers an environmentally sound solution for making transportation safer and more efficient during Minnesota winters. Living snow fences are designed plantings that create a vegetative barrier 150 to 300 feet from the highway right-of-way line to contain blowing and drifting snow. A high-density twin-shrub row that is 10 feet high is capable of capturing 24 tons of snow per lineal foot of snow fence. During an average winter a 1,000-foot-long high-density twin-shrub-row living snow fence can capture 224,000 tons of snow. This is snow that does not need to be touched by a snowplow.

### Research shows benefits for agricultural regions

Scientific research supports the creation of living snow fences. "Recent winter field studies have shown that living snow fences can be a highly effective method of controlling blowing and drifting snow on Minnesota roads and highways," said Dr. Mark Seeley, a University of Minnesota climatologist. "University climate research shows that since pioneer settlement, most areas of the state are witnessing an increase in annual seasonal snowfall. In this context, it is imperative that some consideration be given to using living snow fences."

Living snow fences reduce wind speed and redirect the wind, thus improving driver visibility and road conditions. The wind action behind a living snow fence creates a region of turbulence and eddying approximately 10 times the height of the fence downwind that causes the snow to be sucked down in a vacuum-like manner and deposited away from the road. This is why living snow fences need to be placed somewhere between 150 to 300 feet upwind of the road, to avoid creating drifts on the driving lane.

The need for living snow fences is greatest in the agricultural regions of Minnesota, where open expanses of land create opportunities for the wind to pick up speed and carry with it tons of blowing and drifting snow. Although the fences generate public benefits, their placement frequently occurs on privately owned land. Consequently, living snow fence plantings require voluntary cooperation and participation from the farmer, along with special sensitivity in their extension and promotion.

### Program involves state, federal compensation for farmers

On July 16, 2002, local, county, state, and federal officials announced the expansion of the Living Snow Fence Program to better connect with the farmers. This program pays farmers for designating part of their land for living snow fences under the Conservation Reserve Program, part of the 2002 federal Farm Bill. "Farmers can now receive payments under the Conservation Reserve Program as well as support from the Minnesota Department of Transportation for living snow fences, which save lives, money, and time by keeping highways open for travelers," said then-commissioner Elwyn Tinklenberg. This new living snow fence partner-

ship program is needed to coordinate the two diverse government incentive and cost-share programs currently in effect to encourage living snow fence planting.

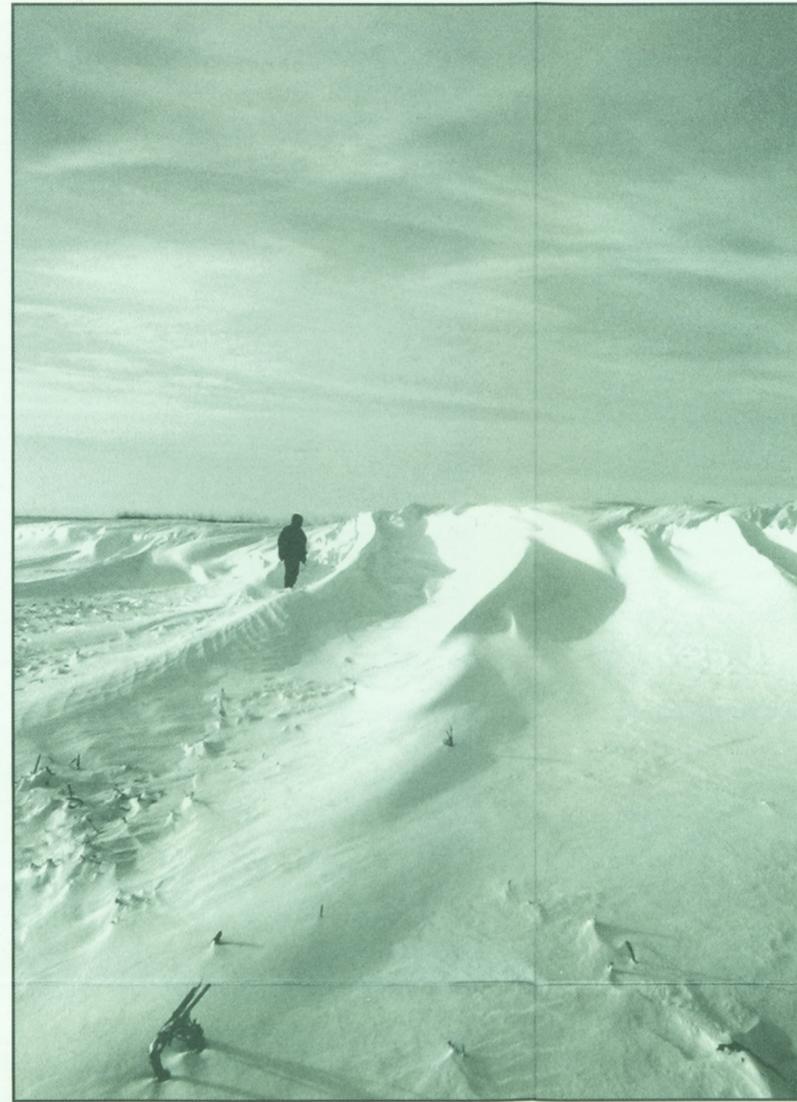
The federal Conservation Reserve Program is a voluntary program that offers annual rental payments, cost-share assistance, and incentives to establish long-term resource conservation on eligible land. The U.S. Department of Agriculture Farm Service Agency (FSA) is responsible for administering the Conservation Reserve Program. To be a participant in the living snow fence program, a farmer must be enrolled in the CP-17A Living Snow Fence Practice and the land must meet certain eligibility requirements. Annual rental payments to the farmer are based on the agriculture rental value of the land. The duration of the contracts ranges from 10 to 15 years.

Along state highways Mn/DOT partners with FSA and annually compensates farmers for the inconvenience and lost efficiency of having to farm around a living snow fence. To ensure the fence remains healthy and vigorous, enabling it to perform its intended function, farmers also receive annual compensation for growing and maintaining the living snow fence. The duration of Mn/DOT's living snow fence contract ranges from 10 to 15 years.

Coordinating both these government incentive and cost-share programs requires a joint effort by all parties to raise public awareness, create local living snow fence work groups, and maintain momentum so that communities will continue to support this effort for snow management.

### For more information

To learn how your county, township, or city can also partner with the U.S. Department of Agriculture and benefit from the Conservation Reserve Program, contact your county Soil and Water Conservation District Office or me (Daniel Gullickson) at 651-284-3763, daniel.gullickson@dot.state.mn.us. There are no easements involved with this program.



This 2,000-foot-long fence captured 18.6 tons of snow per meter length of snow fence, for a total of over 12,400 tons during the course of the 2000-2001 winter. Before the living snow fence was planted, this section of highway would drift shut and require the use of snowblowers and bulldozers to reopen. The 8-foot-tall living snow fence consists of freedom honeysuckle and eastern red cedar. The planting is set back 300 feet from the highway. Photo courtesy Martha Shulski, University of Minnesota researcher, who was collecting site data.

However, a farmer does sign a contract with the U.S. Department of Agriculture and an agreement with Mn/DOT. To get a copy of Mn/DOT's agreement contact either your Mn/DOT District Living Snow Fence Program Coordinator or me.

If you would like to learn more about living snow fences and designing drift-free roads, visit [www.livingsnowfence.dot.state.mn.us](http://www.livingsnowfence.dot.state.mn.us). This site has a direct link to agency partners and to the University of Minnesota winter climate web site. **T**

## Think snow. Update your winter maintenance plans

September is the time many agencies begin their winter preparations. It may seem early, but it is actually late if you want to make significant changes to your policies, equipment, or operations.

Start by reviewing last winter's operations. What went well? Where did you have problems? If last winter was mild, don't let it lull you into complacency.

Next, think about what will be different this winter. Do you have any new people, or people in new jobs? How about new equipment? Are there any changes in your road system that could impact your plowing or parking ordinances or did you log public complaints that may merit a change? Will the budget allow you to operate in the same way, or will modified staffing or overtime require changes? What are your plans for major storms? Have you arranged for back-up equipment from contractors or planned with other agencies for assistance? Who has authority to close roads due to severe driving conditions and how do you communicate this to the public?

After reviewing operations and updating your procedures, it is time to communicate with your staff and your winter partners. Review your plans with the other organizations that work with you—law enforcement and emergency services, other public works departments, and your neighboring road maintenance agencies. Don't forget local schools and major employers. They all need to know what will be the same and what you may be changing. It is helpful to update contact names, cell phone numbers, etc.

Law enforcement staff can be your best partners or can cause you challenges. They are your eyes for much of the winter and should be able to help in spotting poor road conditions. They can work to control and educate the driving public and can provide traffic control during special road-clearing operations. The wording they use in accident reports can have a bearing on liability suits.

Their help is sometimes hampered by their limited knowledge of your policies and operational limits. It is your job to keep them informed and to help them appreciate the limits of your operations. Fall

coordination meetings are a good start. Some agencies have also found it helpful to invite law officers for a "ride along" in your plows. They can see firsthand the difficulties involved in plowing operations and observe how vehicle drivers behave around plows.

Finally, don't forget the public and elected officials. It helps to place stories in the local media covering your plans and operations. Most winter maintenance agencies have a high level of frustration with the driving public and abutting property owners. Now is the time to communicate clearly what your agency will be doing and offer suggestions about how they can help make it a safe and cost-effective year for snow removal! Even if you don't plan major changes, everyone needs to be reminded about good winter driving habits. **T**

(Reprinted with permission from fall 2002 Crossroads, Wisconsin Transportation Information Center—LTAP.)



**TRAFFIC CONTROL**

## Minnesota MUTCD is now available

The Minnesota Department of Transportation released a new edition of the *Minnesota Manual on Uniform Traffic Control Devices* (MN MUTCD) on August 5, 2002. The 850-page manual outlines standards for traffic control devices (signs, signals, and pavement markings) across the entire state. Minnesota is one of ten states that adopted its own version of FHWA's new millennium edition of the *Manual on Uniform Traffic Control Devices* (MUTCD).

"Using federal MUTCD as a basis, Minnesota has elected to add additional standards and guidelines, putting an increased emphasis on both motorist and worker safety," said then-commissioner Elwyn Tinklenberg. He cited work zone construction signs as an example of one Minnesota addition. The federal minimum size for work zone construction signs is 36 inches, while Minnesota's minimum size is 48 inches. The larger size increases the visibility of the signs and gives motorists additional time to react to road conditions ahead.

The 2001 MN MUTCD is the first new manual in 10 years on traffic control devices in Minnesota. New items in the manual include standards such as audible pedestrian signals (an audible tone is emitted alerting visually impaired pedestrians when it is safe to cross a roadway), roundabouts (a traffic circle with entrances and exits), and mandatory 4-WAY or ALL WAY signs beneath all STOP signs at four-way stop intersections. Currently, the audible pedestrian technology is being used at various locations throughout Minnesota, including two locations in St. Paul: University Ave. at Hampden Ave. and Wabasha St. at Plato Blvd.

The MN MUTCD is used by a variety of public and private officials. They include state and local transportation planners and traffic engineers who design roads, public works department employees who install and maintain traffic control devices, construction and engineering contractors, and businesses that design, test, manufacture, and market traffic control devices.

### How was MN MUTCD created?

The MN MUTCD Committee of the North Central Chapter of the Institute of Transportation Engineers (NCITE), consisting of representatives from cities, counties, FHWA, and Mn/DOT, has been meeting regularly for the past year and a half. During their monthly meetings they reviewed the new federal MUTCD. The process consisted of the committee reviewing each part of the federal MUTCD in detail and making changes and modifications appropriate for Minnesota. The committee completed its review, and a new 2001 MN MUTCD evolved.

Tinklenberg adopted the 2001 MN MUTCD on April 15, 2002. The committee is now devoting its attention to developing and delivering MN MUTCD orientation and training to the potential users of the 2001 MN MUTCD.

### When does it become effective?

On April 15, Tinklenberg ordered that the provisions of the 2001 MN MUTCD "shall be implemented and applied to all traffic

Mn/DOT will distribute one free manual to county engineers and city engineers in cities with populations over 5,000. Others can purchase the manual from Mn/DOT's Manual Sales Office for \$80 or view it at: [www.dot.state.mn.us/trafficeng/otepubl/index.html](http://www.dot.state.mn.us/trafficeng/otepubl/index.html).

control devices installed on or after July 1, 2002, upon highways within Minnesota except for pavement markings which shall be in compliance as of the first application after January 1, 2003, and except for those traffic control devices which conform to the 1991 edition of the MN MUTCD and are on order or under contract prior to July 1, 2002. All existing traffic control devices or installations not in conformance with standards in the 2001 MN MUTCD shall be changed to conform to the new standards when replacement occurs."

The 2001 MN MUTCD supersedes and replaces the 1991 MN MUTCD in its entirety (the original manual and all of its revisions). The 2001 MN MUTCD will be updated annually, typically near the beginning of each calendar year. The latest version will be available on the web after the Commissioner of Transportation has adopted it.

### How's the format?

Mn/DOT has worked closely with its public and private sector partners in this rewrite effort. The 2001 MN MUTCD was reformatted to improve the overall organization and discussion of the MN MUTCD content. This is important because the MN MUTCD audience encompasses more than the highway community. For example, it includes the insurance industry, law enforcement agencies, academic institutions, private industry, and construction and engineering concerns.

The new manual is very useful because it contains important new research that has been conducted by experts and is reflected in studies and reports that FHWA has produced, funded, collected, or compiled. While the significant new findings have improved the ways in which traffic is guided on Minnesota's highways, they demanded massive revisions and in some cases entirely new chapters in the updated manual. The new additions include sizable new parts on rural roads and light rail.

The title of Part 6 has changed to "Temporary Traffic Control," which replaces "Standards and Guides for Street and Highway Construction, Maintenance, Utility and Incident Management Operations." This new definition refers to areas of a highway in which traffic conditions are changed because of a work zone or other incident involving the use of temporary traffic control devices. Potential "other incidents" include accidents, natural disasters, or special events, all of which are specific instances in which temporary changes are made to the standard control procedures for that specific road.

One of the major benefits of the new manual is the clearer language of the definitions. The new language makes the new requirements and guidelines easier to follow. In fact, one of the most important new revisions is the redefinition of the road user. Previous editions of the MN MUTCD dealt exclusively with motorized vehicles. The new definition includes a vehicle operator, bicyclist, or pedestrian within the highway,

### Compliance periods

2001 MN MUTCD Appendix A2 sets forth the following phase-in compliance periods:

- Part 2B.04—STOP sign compliance by January 17, 2004
- Part 2B.16—Reduced Speed Ahead sign compliance by January 17, 2008
- Part 2B.32—ONE WAY sign compliance by January 17, 2008
- Part 2B.49—High Occupancy Vehicle Lanes compliance by January 17, 2007
- Part 2B.50—High Occupancy Vehicle sign applications and placement compliance by January 17, 2007
- Part 2C.2—Application of warning signs compliance by January 17, 2008
- Part 2C.24—Shoulder signs compliance by January 17, 2011
- Part 2C.37—Crossing signs compliance by January 17, 2011
- Part 2E.29—Interchange exit numbering compliance by January 17, 2008
- Part 2E.31—Advance guide signs compliance by January 17, 2008
- Part 2F.5—Size of lettering compliance by January 17, 2011
- Part 4E.6—Accessible pedestrian signals compliance by January 17, 2005
- Part 4E.8—Accessible pedestrian signal detectors compliance by January 17, 2005
- Part 8B.2—Highway-rail grade crossing (crossbuck) sign compliance by January 17, 2011
- Part 9B.4—Bicycle lane signs compliance by January 17, 2006
- Part 9B.15—Bicycle crossing warning signs compliance by January 17, 2008
- Part 9—Deletion of preferential lane symbol (diamond) for bicycles and pavement markings compliance by January 17, 2007
- Part 10—Automatic gates, flashing-light signals, and blank-out signs compliance by January 17, 2006
- Part 10C.11—Highway-rail advance warning signs: removal of existing W10-6 series signs compliance by January 17, 2006

including workers in temporary traffic control zones.

The manual's new user-friendly wording is extremely helpful in day-to-day traffic control operations. The text is written with category headings that clearly define appropriate intent of the MN MUTCD provision. For example:

- Standard statements are mandatory practices. The verb "shall" is typically used.
- Guidance statements are recommended practices, and the verb "should" is typically used.
- Option statements are permissive and carry no requirement or recommendation. The verb "may" is typically used.
- Support statements contain general and descriptive information.

### It's big—would you like a partial manual?

The 850-page MN MUTCD weighs approximately 7 pounds and is contained in a three-ring binder with dimensions of 13" x 11" x 4.5." Due to the comprehensiveness and large size of the manual, Minnesota LTAP is considering producing a partial manual consisting of Part 1 (General), Part 5 (Traffic Control Devices for Low Volume Roads), and Part 6 (Temporary Traffic Control). Please furnish your thoughts regarding the advisability of producing a partial manual to me at 651-436-7007, or e-mail comments to grothaus@aol.com. **T**

—Henry S. Grothaus, **T**/LTAP Support Engineer

(Editor's note: Stay tuned to the Exchange for an itemized summary of the major changes between the old and the new MN MUTCD.)

**WORKSHOPS & TRAINING**

**Coming T<sup>2</sup> Attractions**

<b>Bridge Maintenance</b>	Feb. 19	Grand Rapids
Nov. 6	Grand Rapids	Feb. 20
Nov. 12	St. Paul	Feb. 26
Nov. 13	Rochester	Mar. 5
		Mar. 11
		Mar. 12
<b>Design, Construction, and Maintenance of Storm Water Treatment Basins &amp; Erosion Control Measures</b>	Call Mike Leaf of United Rentals Highway Technologies, 612-521-4200 or 800-766-5483.	
Nov. 19	Duluth	
Dec. 17	Mankato	
		<b>Asphalt Pavement Maintenance</b>
<b>Reducing Risk and Liability in Design, Construction, and Maintenance</b>	Feb. 3	Rochester
Dec. 4	Rochester	Feb. 5
Dec. 5	St. Paul	Feb. 7
Jan. 9	Brainerd	St. Paul
		<b>Traffic Engineering Fundamentals</b>
<b>Work Zone Traffic Control Seminar</b>	Feb. 5	Rochester
Jan. 8	Marshall	
Jan. 15	Alexandria	
Jan. 22	Thief River Falls	
Jan. 29	Willmar	
Feb. 6	Brooklyn Center	
Feb. 12	St. Cloud	
		<b>Gravel Road Maintenance and Design</b>
		Mar. 26
		Mar. 27
		Apr. 2
		St. Cloud
		Owatonna
		Thief River Falls
		<b>Minnesota Spring Maintenance Expo</b>
		Apr. 22-23
		St. Cloud

Unless otherwise noted, for further information call Teresa Washington at 612-624-3745 or e-mail [twashing@cce.umn.edu](mailto:twashing@cce.umn.edu). Disability accommodations are provided upon request. Check the T<sup>2</sup> web site for a full listing of workshops and other transportation events at [www.cts.umn.edu/events](http://www.cts.umn.edu/events). T<sup>2</sup>

**ATSSA announces 2003 "How To" conference, local workshops**

The Northland Chapter of American Traffic Safety Services Association (NCATSSA) will hold its 11th annual "How To" conference March 18-19, 2003, in Fargo. The "How To" conference is open to all city, county, state, and federal agencies as well as contractors.

This two-day conference is intended for field-level installers, supervisors, and designers who work in the areas of work zone traffic control, permanent signing, and pavement marking. State and local road authorities, local and regional utilities, consulting engineers, and contractors involved in the selection, inspection, installation, or maintenance of permanent signs, temporary work zone traffic control, or pavement marking will find this conference beneficial.

Tentative workshops led by state, federal, and local industry professionals will include the following topics:

- speed monitoring in work zones
- accident reconstruction and road rage
- low- and high-volume traffic control needs
- OSHA standards/safety
- crash testing of sign supports
- pavement marking basics
- new technologies in signing and pavement marking
- night-time work zones
- railroad crossing signing
- 911 maintenance
- funding resources
- tort liability
- flagging

The exhibit hall will also feature over 45 displays and representatives for material and equipment suppliers nationwide.

Mark your calendars now for next spring's conference. Advance registration will be mailed out in November or can be made this fall by visiting [www.atssa.com](http://www.atssa.com). For additional questions contact Ken Russell, "How To" committee member, 3D Specialties Inc., 701-293-8599. T<sup>2</sup>

**Other upcoming ATSSA workshops**

- Dec. 2-3 Guardrail Training Level I  
Shoreview, Minn.
  - Dec. 4-5 Traffic Control Design Specialist  
Shoreview, Minn.
- To register visit [www.atssa.com/rsti/courses.htm](http://www.atssa.com/rsti/courses.htm)

**Motor grader workshops**

*from page 1*

scheduled in a one- to two-week block at a central location in the local area. The instructor then traveled to a different location each day to provide the scheduled field training to four to five operators at a time. The host county, township, or city for that day furnished a motor grader and roadway for the participants' practice time.

Bruce Higgins was this year's training instructor as he was in 2001. Higgins is a retired motor grader oper-

ator from Genesee County, Mich. He offered this class for several years through the Michigan LTAP program. Over the last few years he has provided this training in Wisconsin and Florida as well as Minnesota.

A total of 324 motor grader operators have attended this motor grader training during its first two years. It will be offered again in 2003 if there appears to be sufficient interest (see below).

**It's time to plan for next year's motor grader workshops**

Although it seems this year's motor grader workshops only recently ended, it is already time to begin planning for next year's workshops. In order to minimize travel for the attendees as well as the instructor, Minnesota LTAP will use a different method to determine interest and schedule the 2003 training.

Counties will be contacted this fall to inquire about who will be interested in "sponsoring" the training in their area. Interested

counties will need to identify 16 to 20 operators for a one-week block, or 35 to 40 operators for a two-week block. Counties can find operators from their county or neighboring counties, townships, and cities. Identifying workshop participants is the primary role of sponsoring counties.

Interested counties should contact the Minnesota LTAP Program by **November 15** if they propose to sponsor 2003 training. Counties will need to know if they have

enough operators identified for a one- or two-week training block. The Minnesota LTAP Program can then contact the instructor and coordinate the scheduling arrangements with the sponsoring counties. Registration and fees for the workshops will be handled by LTAP. For more information or questions, contact Mindy Jones, Minnesota LTAP, 612-625-1813, or e-mail [jones154@cts.umn.edu](mailto:jones154@cts.umn.edu). T<sup>2</sup>

—Pat Murphy, T<sup>2</sup>/LTAP Support Engineer

**Local officials learn about context sensitive design at new LTAP workshop**

*By Charleen Zimmer, Zan Associates*

Today's transportation manager is being challenged to do much more with much less on a daily basis. Budgets are tighter. Timelines are shorter. Costs are increasing. Travel demands are growing. Property owners are more outspoken. Advocates are more informed. The space envelope for transportation is shrinking. The public expects transportation projects to be done differently. What is the transportation manager to do?

Minnesota T<sup>2</sup>/LTAP introduced "Context Sensitive Design (CSD) for Local Units of Government" this summer, a one-day workshop to help local transportation managers balance these conflicting demands. During the workshops, funded in part by Mn/DOT's State Aid for Local Transportation Group, participants had an opportunity to apply CSD principles by doing a "working case study" using a real-life project.

**CSD principles**

Context sensitive design is not a new concept—creative designers have always found ways to address community concerns, avoid or minimize environmental impacts, and make their projects attractive and appropriate to the physical context. But both public expectations and transportation needs are even greater today. CSD embraces six principles of design:

- Balance safety, mobility, community, and environmental goals in all projects.
- Involve the public and affected agencies early and continuously.
- Address all modes of travel.
- Apply flexibility inherent in design standards.
- Use an interdisciplinary team tailored to project needs.
- Incorporate aesthetics as an integral part of good design.

Applying the principles of CSD encourages clear identification of issues and use of creative design solutions to balance the often-conflicting interests and concerns of key stakeholders. CSD integrates projects into their physical context, environmental setting, or cultural community through careful planning, consideration of different perspectives, and tailoring of designs to particular project circumstances. CSD uses a collaborative, interdisciplinary approach that includes early involvement of key stakeholders and an early identification of critical issues. This early involvement may help to reduce rework later on and thus contribute to more efficient program delivery.

CSD relies on skills in many disciplines to address the diverse problems that tend to arise during complex projects and to bring broader creativity to solving those problems. The end result of CSD is a more pleasing, mutually acceptable transportation facility that leaves a lasting public works legacy.

**Minnesota training opportunities**

Training in context sensitive design began in 1998 when the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO) cosponsored a national workshop called "Thinking Beyond the Pavement." Following that workshop, FHWA selected Minnesota as one of five states to pilot education and outreach related to CSD. The Center for Transportation Studies, with assistance from Zan Associates and SRF Consulting Group, Inc., prepared and hosted four three-day CSD workshops for Mn/DOT project managers and will be hosting a fifth workshop in December. The one-day workshop on CSD for local units of government was based on materials prepared for the three-day Mn/DOT workshop.

The "Context Sensitive Design for Local Units of Government" workshops were held in four locations: Detroit Lakes, Rochester, Duluth, and St. Paul, and were targeted toward city and county engineers and other professionals involved in transportation project development at the local level. Ninety-one people attended the workshops, including four people who traveled all the way from Winnipeg. Charleen Zimmer, Zan Associates, taught the workshops with assistance from Scott Bradley, Minnesota Department of Transportation.

Some of the things people said they liked best about the workshop were:

- A pace that kept things moving and interesting.
- Lots of examples from various communities.
- Hands-on work in the case studies.
- Practical information.
- Interactive.
- Good instructors.
- Intriguing topic.

CTS hopes to incorporate "Context Sensitive Design for Local Units of Government" as a regular part of the annual T<sup>2</sup>/LTAP training. For additional information on upcoming classes, contact Jim Grothaus, 612-625-8373, [jgrothaus@cts.umn.edu](mailto:jgrothaus@cts.umn.edu). T<sup>2</sup>



# The Shelf

To borrow these materials, call Arlene Mathison, Minnesota LTAP librarian, at 612-624-3646.

## CD-ROMs

**Pedestrian/Bicycle Safety Resource Set.** USDOT: Federal Highway Administration.

This CD-ROM contains information on pedestrian/bicycle safety guidelines, crash types, countermeasures, outreach tools, and technology to increase awareness and provide helpful information on how to make communities safer for pedestrians and bicyclists.

**Safer Journey: Interactive Pedestrian Safety Awareness.** USDOT: Federal Highway Administration.

This CD-ROM was developed to improve awareness of pedestrian knowledge among all motorists, road users, and safety practitioners. It is an interactive tool that includes a "virtual" journey, quiz, and library of information about pedestrian safety.

**Technologies to Improve Consideration of Environmental Concerns in Transportation Decisions.** National Cooperative Highway Research Program.

This CD-ROM is intended to improve the use of current and new technologies

to achieve improved transportation decisions and consideration of environmental concerns. The CD includes a report presenting 21 different technologies, a fictional case study demonstrating how these technologies are applicable to the transportation decision-making process, and a diagram showing where to apply the featured technologies in the process.

## Reports

**Maintenance of Signs and Sign Supports for Local Roads and Streets.** USDOT: Federal Highway Administration.

This guide provides basic information regarding the proper maintenance of small signs and sign supports, the ability to determine serviceability, appropriateness of common signs, and the correction of substandard situations. It is designed to easily fit in a glove compartment as a reference for common safety concerns, and can also be used as a training document for local personnel or as class material for students in transportation.

**ITS/Operations Resource Guide 2002.** USDOT: Federal Highway Administration.

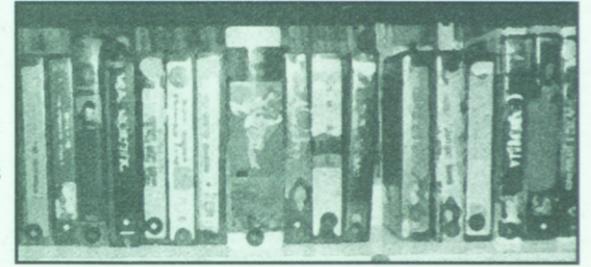
tion.

This updated resource guide is a tool that can help identify innovative strategies to improve transportation operations. The 2002 guide organizes the many ITS operations resources by topic area. Over 300 documents, videos, web sites, training courses, software tools, points-of-contact, and other important ITS references are discussed.

**Guidelines for Geometric Design of Very Low-Volume Local Roads.** AASHTO.

This report presents design guidelines for very low-volume local roads, which are roads functionally classified as local roads and have an average daily traffic volume of 400 vehicles per day or less. The report includes an introduction, framework for design guidelines, design philosophy, design guidelines, and design examples.

**Wildlife Habitat Connectivity Across European Highways.** USDOT: Federal Highway Administration.



The impact of transportation systems on habitat and wildlife resources in the U.S. is a growing concern. As a result, the FHWA, AASHTO, and NCHRP sponsored an international technology scan to learn what actions are currently being taken in Europe to protect these resources. This report was produced as a result of the trip to present conclusions and recommendations for U.S. applications in policy, communications, guidance manuals, and research. The report is composed of five detailed recommendations to protect habitat and wildlife resources in the U.S.

**NCHRP Report 473: Recommended Specifications for Large-Span Culverts.**

This report presents the recommended design and construction specifications for metal and concrete large-span culverts. T<sup>2</sup>

## New FHWA video makes "retroreflectivity" easy to understand

**N**ight Lights is an important must-see video for all motorists. The 10-minute educational video, funded by the FHWA, takes the very technical issue of retroreflectivity and puts it into easy-to-understand terms for those outside of the roadway safety industry. The video clearly explains the benefits of "retroreflectivity"—the quality of roadway signs and other lifesaving materials and products along our nation's roadways to function in both daytime and nighttime conditions. Retroreflectivity allows light from vehicles' headlights to be redirected back to drivers, enabling them to see the signs at night.

A range of driving scenarios is presented in the video to help illustrate the necessity of this important safety feature. The video also explains the technology involved in the retroreflective process in easy-to-understand, non-technical terms. Additionally, the importance of wearing reflective

clothing while engaged in outdoor activities such as roadwork, jogging, walking, and bike riding is also addressed in the video.

Night Lights is an ideal educational tool for use in classrooms, within law enforcement and emergency assistance agencies, and at local civic group or community gatherings. The video is already making an impact on audiences nationwide and is helping to save lives on our nation's roadways.

To borrow this video, call Arlene Mathison, Minnesota LTAP librarian, at 612-624-3646, or e-mail her at library@cts.umn.edu. A copy of Night Lights is available at the Products Link at www.atssa.com. The cost is \$4.95 each plus shipping. For additional roadway safety information visit www.safety.fhwa.dot.gov. T<sup>2</sup>

## Need traffic info? Dial or click 511

**C**ommuters and travelers in Minnesota are now able to access weather-related road conditions, construction, and congestion information by calling 511 from any phone (even mobile) anytime, 24 hours a day, or logging on to www.511mn.org. The free service is part of an effort to provide consistent and reliable traveler information nationwide. T<sup>2</sup>

## Midwest Conference on Library & Information Services for Transportation—Partners in Information

**T**ransportation librarians, researchers, and practitioners from throughout the Midwest as well as national leaders gathered at the University of Wisconsin in Madison August 14–16 for the Midwest Conference on Library & Information Services for Transportation. The primary purpose of the conference was to build partnerships by bringing together users and providers of information and library services to identify needs and plan future steps to improve coordination and sharing of data and information.

The Midwest Regional University Transportation Center (MRUTC), WisDOT, CTS, and Mn/DOT were among the cosponsors of the conference. Participants discussed existing problems in accessing transportation information resources, opportunities for librarians to address these problems, and the role a regional network and greater federal support could play in improving access to transportation-related information resources.

The speaker for the opening reception was Roberta I. Shaffer, founder and principal, The KnowLedge Group. She galvanized the attendees by describing the ways successful organizations today differ from successful organizations in the 20th century. We are in a knowledge era, she said, and organizations must structure themselves to learn and to change. For example, Toyota does not define itself as

an automobile manufacturer, but as a service company, a "Total Mobility Services Provider," which encompasses the research, design, and manufacture of automobiles; vehicle maintenance; financial services; and more. The goal is to build a lifelong relationship with each customer. In a similar way, information professionals in the knowledge age need to evaluate how users' information and knowledge needs have changed, and ensure their information services meet those needs as creatively and efficiently as possible.

Brad Mallory, secretary of PENNDOT and president of AASHTO, emphasized that the nature of the transportation industry means that state DOTs and other transportation agencies must be "learning organizations." And he believes that transportation libraries are "more of an investment than an expense" in that effort, or a "force multiplier."

"Organizations rarely fail due to technological incompetence but rather [because of] established competencies

that become rigidities," Mallory said. "It's the role of libraries and information services to keep modern 'transportationists' from becoming rigid in [their] thoughts and practices."

Several speakers talked about the knowledge and information needs of transportation professionals. Practitioners



and managers have very little time available to keep up with new developments in the field, yet the need for both technical and planning/strategic information is high. There is also a need

for current awareness services to help users "know what they don't know." Dick Larson, county engineer for Mille Lacs County, spoke about the challenges facing county engineers, and stated that "information is an opportunity" to meet those challenges. Other speakers discussed the need for disseminating research results and the challenges in obtaining information, such as heavy staff workloads and lack of training for new employees.

Barbara Post, manager of information services for the TRB, detailed the prod-

ucts and services of the TRB, including TRIS (Transportation Research Information Service), the world's largest database of transportation resources. Jerry Baldwin, director of the Mn/DOT Library, described the department's collections and services as well as plans for meeting future information needs.

Participants concluded that library and information services within the transportation industry need leadership, coordination, and funding at the federal level to meet the growing needs of transportation professionals. Roberto Sarmiento, director of the transportation library at Northwestern University, is working with the National Transportation Library to create the Midwest Transportation Library Consortium, which could prove to be a model for a national transportation library consortium, under the leadership and coordination of the National Transportation Library, headed by Nelda Bravo.

If you would like further information about the conference or about the Midwest Transportation Library Consortium, please visit the MRUTC web site at www.mrutc.org/libraryinfo/ or contact Jerry Baldwin, Mn/DOT Library, 651-297-4532, jerry.baldwin@dot.state.mn.us, or Arlene Mathison, CTS librarian, 612-624-3646, library@cts.umn.edu. T<sup>2</sup>

—Arlene Mathison

# CALENDAR

If your professional organization meets on a regular basis, let us include the information here. Contact Editor, *Technology Exchange*. For an up-to-date list of events in Minnesota and elsewhere, please see the CTS/T<sup>2</sup> events web page: [www.cts.umn.edu/events](http://www.cts.umn.edu/events).

DATE	EVENT	LOCATION	CONTACT
Nov. 19-21	Minnesota Public Engineers Technology Conference & Tradeshow	St. Cloud	Brian Smith, 651-222-7409 (ext. 207), 800-500-4157 (ext. 119), brismith@mngts.org
Nov. 21-22	Minnesota Public Works Association Fall Conference	Bloomington	Ruth Martin, 612-624-3492, rmartin@cce.umn.edu
Dec. 3	Minnesota Association of Asphalt Paving Technologists 49th Annual Asphalt Conference	Brooklyn Park	Ann Johnson, 612-275-8190
Dec. 5	52nd Annual Concrete Conference	St. Paul	Kay Syme, 612-354-4938, ksyme@cce.umn.edu
Dec. 6	CTS Annual Freight and Logistics Symposium	St. Paul	Shirley Mueffelman, 612-624-4754, smueffel@cce.umn.edu
Jan. 21-24	Minnesota County Engineers Association Annual Conference	Brainerd	Ruth Martin, 612-624-3492, rmartin@cce.umn.edu
Jan. 29-31	City Engineers Association of Minnesota Annual Conference	Brooklyn Center	Ruth Martin, 612-624-3492, rmartin@cce.umn.edu
Feb. 19 Feb. 20	Third Annual Mn/ROAD Workshop Seventh Annual Minnesota Pavement Conference	St. Paul	Teresa Washington, 612-624-3745, twashing@cce.umn.edu
March 12	CTS Transportation Career Expo	Minneapolis	Mindy Jones, 612-625-1813, jones154@cts.umn.edu
March-Apr.	Structural Engineering Seminar Series	St. Paul	Kay Syme, 612-624-4938, ksyme@cce.umn.edu
Apr. 13-14	Second Asphalt Shingle Recycling Forum	Bloomington	Teresa Washington, 612-624-3745, twashing@cce.umn.edu
Apr. 29-30	Fourteenth Annual CTS Transportation Research Conference	St. Paul	Shirley Mueffelman, 612-624-4754, smueffel@cce.umn.edu

## Utilities

from page 1

Works!, communication alone is not enough; there must be a commitment from all parties to make the process truly effective.

Many resources have been developed to facilitate a commitment for communication, coordination, and cooperation (the "CCC" in the FHWA video) when relocating public utilities as part of roadway project development. Some of these resources, including a brochure giving an overview of steps in the coordination process and a reasonable timeline based on project and utility type, are available at Mn/DOT's web site, [www.dot.state.mn.us/tecsup/utility/index.html](http://www.dot.state.mn.us/tecsup/utility/index.html). Another valuable resource available to cities and counties is a Model Right-of-Way Ordinance produced by the League of Minnesota Cities (in cooperation with other agencies



and organizations) and later modified by the Association of Minnesota Counties. For more information on this model ordinance, access the *Exchange* online at [www.cts.umn.edu/T2/TechExch/2001/Dec/row-ord.html](http://www.cts.umn.edu/T2/TechExch/2001/Dec/row-ord.html) or contact the League of Minnesota Cities at 651-281-1200, or the Association of Minnesota Counties at 651-224-3344.

In the end, however, no matter how advanced our telecommunications and other information systems become, the Utility Relocation Task Force determined that nothing can yet replace meeting and hearing about

upcoming projects, issues, and concerns face-to-face. Therefore, the key recommendation of the LRRB study was to hold an Annual Utility Relocation Coordination Meeting to comprehensively communicate roadway construction plans to all parties in the process. This annual meeting would be hosted by a local government and could be coordinated with neighboring local governments. If the activity were undertaken at the countywide level, the county could host the annual meeting, which could include all cities within the county. *Utility Relocation: A Communication and Coordination Process for Local Governments* (2002-33), available online at [www.lrrb.gen.mn.us](http://www.lrrb.gen.mn.us), provides an outline for this annual meeting as well as resource materials including forms to update utility contact databases with current contacts, and forms for communicating roadway and utility construction and maintenance projects.

In the end, successful utility relocation means making a commitment to communication, coordination, and cooperation on the part of all those involved in the process, including the local road authorities. This commitment to being good neighbors will benefit all parties involved in sharing Minnesota's public rights-of-way, resulting in timely project delivery and efficient business practices. T<sup>2</sup>

## Reader Response Form

Please help the *Exchange* become more effective by filling out this form and returning it to

Minnesota T<sup>2</sup>/LTAP Program  
Center for Transportation Studies  
University of Minnesota  
511 Washington Ave. S.E.  
Minneapolis, MN 55455  
Fax: 612-625-6381  
E-mail: [snopl001@tc.umn.edu](mailto:snopl001@tc.umn.edu)  
Web: [www.cts.umn.edu/T2/index](http://www.cts.umn.edu/T2/index)

The following is a(n):

addition  change  deletion

Name \_\_\_\_\_

Title \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

Phone/Fax \_\_\_\_\_

E-mail \_\_\_\_\_

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## State public safety commissioner says preparation won't prevent terrorist attacks

"If we would have reacted to Pearl Harbor like we have to September 11," observed Minnesota public safety commissioner Charlie Weaver, "we'd all be speaking German."

Though Weaver characterized the terrorist threat to America as "very real," he explained that, unlike the nation as a whole, Minnesota is prepared. "I think Paul Bunyanland is probably safe," he said. "We're ahead of most other states."

Weaver made the remarks September 4, 2002, as the featured speaker about transportation security in Minnesota at a luncheon hosted jointly by the Intelligent Transportation Society of Minnesota, the North Central Institute of Transportation Engineers, and the Minnesota Women's Transportation Seminar.

"From a response perspective, I feel very good," Weaver said. But prevention is another matter. "If we don't start sharing information [at the federal level]," he added, "we can't be successful."

Specifically, he took the feds to task for huge gaps in intelligence gathering, poor intra-agency communications, and the fact that more than 98 percent of all incoming container shipments pass uninspected. Cyberterrorism, moreover, has become a major concern that has received little attention.

"It's not a question of 'if,' but of 'when,'" Weaver concluded. The most likely scenario, he said, would probably involve a so-called "dirty bomb" because the relative ease of building one compared to much more complicated and expensive chemical, biological, and conventional nuclear weapons. In addition, though the actual harm caused by a conventional bomb containing radioactive material would be lower, he theorized that the psychological impact from such an attack would be very high.

Weaver pointed to the state's experience and training stemming from several weather-related disasters and Y2K planning as good prepara-

tion for coping with possible incidents of terrorism. Communication, coordination, and local partnerships are key to success, he said.

In addition, he identified five critical areas that have received much of the focus as the state has prepared for trouble: food, water, fuel, phones, and transportation. Emphasis, he said, has been placed on developing redundant systems and better managing sensitive information about critical infrastructure assets.

"We need to be attentive. We need to do better," Weaver said. "It's an issue that's going to be solved block by block, neighborhood by neighborhood." T<sup>2</sup>

—Michael McCarthy

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