The ABCs of ADA for local agencies

The federal Americans with Disabilities Act (ADA) passed in 1990, requires all public agencies to develop a transition plan to identify physical obstacles that limit accessibility and then identify and schedule necessary improvements. In a session at the 23rd Annual CTS Transportation Research Conference in May, several speakers gave presentations geared to help local agencies comply with the law.

Creating an iPad app for field inventory

ADA requirements state that prior to developing a transition plan, public agencies first must complete a self-evaluation of their facilities, programs, and services to determine those that are not accessible under the ADA rules. For the City of Minneapolis, this process involved, in part, inventorying its approximately 16,000 sidewalk curb ramps to determine the ADA compliance status of each. Minneapolis made the bold decision to use iPad technology to complete this task rather than rely on traditional paper forms and survey tools, explained Don Elwood, engineering director for the city’s public works department.

Road safety plans aim to guide local investments

To improve safety on Minnesota’s local road system, the Minnesota Department of Transportation (MnDOT) funded the development of road safety plans for each county in the state—a three-year effort completed in late 2012. At the 23rd Annual CTS Transportation Research Conference in May, Howard Preston, senior engineer with CH2M HILL Inc., gave an overview of the process and outcomes.

“We can’t use the presence or absence of a crash to infer risk,” Preston said. “We had to invent a new analytical technique to help us understand rural road safety.”

The new approach aggregates data from many rural crash sites into a large pool to determine shared characteristics and then identifies places most at risk.

The safety plan process identified each county’s priority crash types, mitigation strategies, and candidate locations for investment. Prior to this effort, the safety planning process used across the country was to look at locations with high numbers of crashes—usually urban intersections. Such locations are almost nonexistent, however, on county systems in the state, where severe crashes at any one site are rare.

About two-thirds of rural crashes result from road departure, and about half of those occur on horizontal curves, Preston said. For urban areas, pedestrian-bike crashes, signalized intersections, and angle crashes are most common.

Because 94 percent of crashes statewide occur on the 56 percent of the county road system that is paved, only paved roads were evaluated, Preston said. On these 21,700 miles of road, 1,056 severe road departure crashes occurred. The team found that higher levels of access density are associated with more and more severe crashes.

For the 19,730 curves evaluated, 482 severe curve crashes occurred. Ninety-five percent of curves had no severe crashes, and only 2 percent had one severe crash.

Road safety plans continued on page 4

New bridge technology featured at demo in Luverne

It’s an unlikely spot for a fancy new bridge. But the farmers who’ve been driving a two-mile detour for the past 20 years are quite pleased. Smack in the middle of the farm fields and prairie that blanket windy Rock County just east of Luverne in the far southwestern corner of Minnesota, you can find the state’s first Geosynthetic Reinforced Soil Integrated Bridge System (GRS-IBS).

The Federal Highway Administration (FHWA) teamed up with MnDOT and Rock County to build the bridge between snowstorms this past spring as a way to introduce the technology to wary public works officials in the state and to

The state’s first Geosynthetic Reinforced Soil Integrated Bridge System was built in Luverne.

The ABCs of ADA continued on page 6

The City of Minneapolis used an iPad app to catalog every pedestrian curb ramp in the city.

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Road safety plans continued on page 4
Safe ‘N’ Tell system warns drivers when trucks slow down

Truck drivers don’t slow down the same way other drivers do. “Small vehicle drivers step on their brakes, but truck drivers pop the brake, downshift, or coast to reduce speed,” says Scott Ault, president of Deceleration Technologies.

Without brake lights to warn them, following motorists may not realize the truck ahead is slowing down. Ault’s company has developed a system—Safe ‘N’ Tell—that reads truck speed and activates the brake lights when the driver slows down. “It does not depend on the driver stepping on the brake pedal to illuminate the brake lights,” Ault explains.

By “instinctively” activating the brake lights, Safe ‘N’ Tell alerts following motorists of the truck driver’s intentions. This allows drivers to avoid rear-end collisions and use less aggressive braking action, retaining more control of their car.

The system is easily installed, Ault says, and there’s nothing new for truck driver to learn. The control module consists of an integrated circuit enclosed in a custom enclosure, allowing flexible mounting of the unit under the dashboard of the truck. A wire harness plugs into the receptacle on the side of the control module and links the speed sensor to the brake light switch. An optional LED control module consists of an integrated circuit

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The system has the potential to save money by reducing crash downtime and increasing productivity. And, Ault says, “fewer crashes mean fewer head-aches involving insurance companies, DOTs, and lawsuits.”

Safe ‘N’ Tell also helps reduce road rage. Some drivers become upset when they suddenly are face to face with a truck’s rear bumper and had received no warning that the truck was slowing down. “They often react rudely,” Ault says. “Flashing lights, shaking fists, honking horns, ‘saluting,’ or even cutting the truck driver off in traffic.” Reports from truck drivers using Safe ‘N’ Tell indicate that when they warn other drivers of their intentions when decelerating, they do not only avoid road rage, they help avoid traffic “accordions,” since drivers up to several cars back know that the truck is slowing down and have time to react properly.

Safe ‘N’ Tell was developed in 2008 by Deceleration Technologies, a North Dakota company. It has been installed 44 trucks in several states and Canada, including six trucks in use by the Polk County, Minnesota, highway department.

“Safety on our roadways is of utmost importance,” says Rich Sanders, Polk County highway engineer and a member of Minnesota LTAP’s Steering Committee. “If we aren’t willing to do the little things to make our roadways safer, how can we expect the public to do the same?”

Details about Safe ‘N’ Tell, including a brochure and video, are online at slowtell.com. LTAP

There are more than

450,000 TRUCK CRASHES

in the United States each year.

Of those, more than

80,000

are rear-ending trucks.

Source: Scott Ault, Deceleration Technologies

Toolbox provides countermeasures for rural two-lane curves

To help agencies address crashes at rural curves, the Institute for Transportation at Iowa State University has developed a toolbox that summarizes the effectiveness of 14 known curve countermeasures, such as advance curve warning and advisory speed signs, chevrons, and high-friction treatments. For each countermeasure covered, the 61-page toolbox includes the following information: description, application, effectiveness, advantages, and disadvantages. It also includes illustrative color photos of the countermeasures.

The toolbox was sponsored by the Iowa DOT, Iowa Highway Research Board, and Midwestern Transportation Consortium. A link to the Toolbox of Countermeasures for Rural Two-Lane Curves is available on the LTAP Technical Topics Safety page: mtltap.umn.edu/topics/safety. LTAP

The FHWA estimates that

58% OF ROADWAY FATALITIES

are lane departures.

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Nominations sought for highway safety award

The Minnesota County Engineers Association is seeking nominations for its annual Highway Safety Achievement Award. The award recognizes highway safety projects or programs within Minnesota counties that result in a positive impact on highway safety. It also recognizes the county and its partners that have combined strengths to achieve results. The award will be presented at the MCEA Annual Meeting in January 2014.

Awards can be submitted for individual counties or groups of counties within Minnesota. Submissions can fall within one or more of the following types of projects: infrastructure improvements, operational improvements, and program planning and evaluation.

The focus of the award is to improve safety through better execution of practices and programs. Submissions will be judged in three categories: effectiveness, innovation, and efficient use of resources.

The submission deadline is November 30, 2013.

Announce the availability of the Highway Safety Achievement Award

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**OPERA Spotlight: Road/weather information system**

**Project leader:** Tom Tesch  
**Agency:** City of Eden Prairie

**Problem:** During night and weekend weather events, staff at the City of Eden Prairie had a difficult time determining when a full deployment of personnel was needed for snow and ice removal. Limited information about weather and roadway conditions was available to key decision makers who live outside of the city, which made it difficult for them to determine what type of precipitation was falling (snow, ice, sleet, rain), if an immediate response was needed, and what would be the most appropriate treatment (plowing, sanding, salting).

**Procedure:** The Vaisala system was installed on Viking Drive near I-494 in November 2012. During the 2012-2013 snow removal season, the data provided by the system were compared to data collected at the nearby Minnesota Department of Transportation (MnDOT) Road Weather Information System (RWIS) station at Minnetonka Boulevard and I-494. The data were also compared to weather information from the National Oceanic and Atmospheric Administration (NOAA) office in Chanhassen.

**Results:** The initial evaluation demonstrated that the data collected by the Vaisala system were comparable to the MnDOT RWIS station and to weather data reported by NOAA. The Vaisala system was also a more affordable option for the city than a full RWIS. Overall, city personnel have successfully used the system to help monitor winter weather events and make timely callouts for snow removal, which has led to improved customer service for those traveling in Eden Prairie.

**Approximate cost:** $30,000  
**OPERA funding:** $10,000

**Implementation:** The system has provided accurate, reliable data for the City of Eden Prairie. The city plans to continue using the system as a decision-making tool during winter weather events.

**Status:** Complete LTAP

**Fact sheets online**  
The Exchange regularly highlights projects completed under the LRRB’s Local Operational Research Assistance Program (Local OPERA). Project fact sheets, along with the full project reports, are posted on the OPERA website as they are completed throughout the year. All are available at mnltap.umn.edu/opera.

Build a Better Mousetrap Award winners: get ideas, save money

The LRRB’s Local OPERA program promotes creative ideas from Minnesota agencies, such as the example from Eden Prairie above. On a national level, the FHWA and the national LTAP/TTAP program hold an annual competition to collect and share ideas from across the country.

**The Build a Better Mousetrap National Competition highlights innovative solutions to everyday problems and issues that local and county transportation workers and other LTAP/TTAP clients encounter. The ideas can be anything tools, equipment modifications, or processes that increase safety, reduce cost, improve efficiency, and improve the quality of transportation.**

The 2013 National Entry Booklet is now online with all the entries. Following are the top three.

**First place: Dyed hydraulic fluid, Michigan**

**Contact:** Daniel Gard, City of Wyoming Department of Public Works

**Problem:** Finding hydraulic leaks on snow-covered vehicles was difficult.

**Solution:** Dan Gard worked with a local oil distributor to find a blue, mineral-based dye to color the hydraulic fluid on City of Wyoming trucks. He chose blue because it stands out; most other colors can be confused with other truck fluids. To experiment with the dye, Dan added 1/2 to 1 cup to the 40- to 60-gallon hydraulic fluid tank on a few trucks. After experiencing no adverse effects, he added it to the rest of the trucks and also added about 3/4 gallon of dye to his agency’s 300-gallon bulk hydraulic fluid tank. He has used the dye for three years. Dying the hydraulic fluid for the city’s entire fleet requires about 4 gallons of dye per year.

**Labor/materials/cost:** $35 per gallon

**Savings/benefits to the community:** With the dye, hydraulic leaks are much easier to spot, which speeds up problem diagnosis and also simplifies the pre-and post-trip checks for drivers.

**Second place: Asphalt spray-bar system, Colorado**

**Contact:** John McMinn, El Paso County Public Services

**Problem:** When patching larger areas, workers used truck-mounted spray wands to apply tack oil so the asphalt would adhere properly to the existing asphalt surface. Doing this by hand resulted in uneven application and the use of too much product, and on windy days, the operator getting covered with tack oil—ruining clothing, getting into the trucks, and worse, at times getting into eyes and faces of employees. Using a distributor truck for these relatively small jobs was overkill and was too problematic with the amount of tack oil involved.

**Solution:** A pair of employee/operators came up with a simple, cheap, and effective solution. Using their own time and money for the prototype, they developed a spray bar that hung on the back of the asphalt patch truck, on the lift arms for the patch roller. The hand wand can be quickly disconnected, and the hose attached to the spray bar. The bar has several valves that can control the width of the area being sprayed, and the roller lift can raise or lower the bar, changing the thickness of the pattern. This can all be turned on and off from inside the cab while on the move.

**Labor/materials/cost:** Total cost was about $40.

**Savings/benefits to the community:** The effect on the job was immediate and dramatic. Workers were seeing a more even application of the tack oil, resulting in a better final product using about a third less oil—saving money at the onset. To top it all off, operators were no longer going home wearing a layer of tack oil, keeping it out of their eyes and off their clothes.

**Third place: Brine-making totes, Pennsylvania**

**Contact:** Robert Reimer, Nazareth Borough, Northampton County

**Problem:** This municipality, like many across Pennsylvania, wanted to apply brine to its winter maintenance program but did not have funds to purchase the necessary equipment.

**Solution:** The public works director, Robert Reimer, contacted a neighboring municipality that had been doing this for a couple of years. That municipality purchased the spray set-up along with a brine maker. Reimer, along with his highway crew, had to find a way to make the brine and apply it at minimal cost. They came up with an idea to use palletized totes to make, apply, and store the brine. The highway crew took a day to cut the totes, drill the holes, and install the pipe and valves along with the wooden hopper.

**Labor/materials/cost:** $300 for spray bar with hose, solenoid valve, and camlock fittings; $150 for brine-making tote; $90 for application tote; $540 in total costs

**Savings/benefits to the community:** Savings are abundant as a manufactured system can cost up to $20,000. Savings for salt increase with each weather event: the first salting would take about 12 to 16 tons of salt for the city’s streets; with brine, it takes about 1 ton.

More about the award, including entry booklets for 2009 through 2013, are at itap.org/resources/mousetrap.php.
M A I N T E N A N C E

conduct further testing. A daylong showcase event in June, which included a tour of the project site, drew around 40 participants from five states, mostly engineers. The event was the third demo nationally of GRS-IBS as part of the FHWA’s Every Day Counts initiative.

There are now more than 100 of these bridge systems around the country. The GRS-IBS technology uses alternating layers of compacted granular fill material and fabric sheets of geotextile reinforcement to provide support for the bridge instead of conventional supports. The simple construction method can lower costs, slash construction time, improve durability, and increase worker safety (see details at fhwa.dot.gov/everdaycounts).

“We’ve always had this location on our list of projects to do, but we never had the funding to do it,” said Rock County Engineer Mark Sehr. “With the assistance of Federal Highway and the Minnesota DOT, we were able to fund this project and, therefore, we’ll get one of our roadways open that’s been closed for a number of years.”

And if everything works out as planned, there’ll be no bump between the bridge and approaching roadway caused by uneven settlement. Eliminating that characteristic of conventional bridge systems is a key feature of the new technology. LTAP — Michael McCarthy, LTAP editor

25 TO 30 PERCENT LESS
than standard pile-capped abutment.

Microwaves and taconite improve pothole repair

In a sense, we’re still living in the olden days of pothole repair, when most are fixed by the “throw and go” process. Its name says it all—just throw in the hot mix of fill material and move on to the next hole. And you’ll probably have to do the same thing with the same potholes next year—if not next week.

But with a little help from microwaves and magnetite, the olden days may soon give way to a golden age of long-lasting pothole repairs. Research led by Lawrence Zanko, a senior research fellow at the University of Minnesota Duluth’s Natural Resources Research Institute, indicates that mixing ground magnetite—an iron mineral found in taconite ore—into the asphalt patch material and then "nuking" it with microwaves will seal the patch far more securely than conventional methods.

Zanko got the idea for using microwaves and magnetite about 10 years ago from his colleague David Hopstock, who had worked in the U.S. Bureau of Mines in the Twin Cities. The research project gradually grew, and the two eventually contacted Microwave Utilities Inc. (MUI), a Monticello-based company that had a prototype mobile technology that uses microwaves to thaw frozen ground.

Working with MUI designers and engineers, the researchers pursued a project with Anoka and St. Louis Counties to test the microwave and magnetite technology for pothole repair. Results were impressive.

“We did some repairs in an Anoka main street in April 2011, and they were holding up a year later,” says Zanko. Current side-by-side studies with conventional repairs indicate improved durability and longevity, but it’s too early to calculate the full lifetime of the repair.

The process includes removing excess water and debris from a pothole and adding a mix of ground-up recycled asphalt pavement and shingles and powdered magnetite. A generator then produces microwaves that travel through an aluminum tube to a stainless steel box placed over the pothole and surrounding pavement. Within minutes, microwave heating raises the repair area temperature. With mixing and compacting, the fill binds well to the existing pavement.

“What I like about it is that it’s particularly effective in winter, when so many other repair options don’t work too well,” Zanko says. “A week later those other repairs may be failing or gone.”

Zanko and his colleagues are also working on a new taconite-containing repair mix formula that sets in 10 to 15 minutes—without any microwaves.

The microwave equipment is used to heat the pothole repair and surrounding pavement.

The method uses alternating layers of granular fill and sheets of geotextile reinforcement.

The new project is sponsored by the Minnesota Department of Transportation. Zanko is optimistic that at least one of the repair methods involving taconite will become standard for all seasons.

“We consider this to be semi-permanent to permanent,” he says. “Currently, if a repair lasts the season, it’s considered a success. But we think that when these [microwave and magnetite] repairs are done, they’re done.” LTAP — Adapted from a UMNews article by Deane Morrison.
New Complete Streets materials highlight best practices

Complete Streets—roads that are designed and operated to enable safe access for all users—offer many benefits, including improved safety, mobility, accessibility, public health, and quality of life. However, much of the work surrounding Complete Streets has focused on creating policies and guidelines rather than investigating the processes and action steps needed to successfully implement projects.

In an effort to fill this knowledge gap, researchers from the Humphrey School of Public Affairs at the University of Minnesota have conducted a study on the planning and implementation of successful Complete Streets projects. Associate Professor Carissa Schively Slotterback and research fellow Cindy Zerger examined projects from 11 locations across the nation, including efforts at the regional, community, corridor, and project level.

“The goal was to look at what it takes to move a community from Complete Streets concept to Complete Streets project,” Slotterback says. “We wanted to identify the critical factors that need to be addressed to advance implementation while also acknowledging diverse contexts, goals, and constraints.”

The study, sponsored by the Minnesota Department of Transportation (MnDOT) and the Minnesota Local Road Research Board (LRRB), included an investigation of six specific areas of best practices related to Complete Streets: framing and positioning, institutionalizing, analysis and evaluation, project delivery and construction, promotion and education, and funding.

One of the most important overall findings, Slotterback says, is that thinking strategically about context is essential for success. “There’s really no silver bullet or perfect recipe that works in all communities or all organizations,” she says. “The unique characteristics of a place need to inform how we make decisions and implement Complete Streets.”

Other key findings resulted in the following recommendations:

- **Policy (if one exists) is just the start.**
  - Institutional and cultural changes that facilitate implementation are also necessary.
  - Be rationally opportunistic. Communities should know what they would most like to do but also be willing to take advantage of other opportunities that may arise.
  - Engage advocates. They can be especially important in education and outreach efforts.
  - Make the most of project champions. Whether they are elected officials, advocates, or staff, champions often push the hardest to get projects done.

Slotterback and Zerger are creating 11 case studies and a practitioner-oriented guidebook based on the study’s findings. The case studies provide detailed information on context, documentation, tools, timelines, and examples from each project community.

The guidebook, a Guide to Complete Streets, is online at lrrb.org.

For More Information:
- MnDOT and the LRRB have published a guide to assist local agencies interested in developing their own Complete Streets policy. The Complete Streets Resource for Minnesota Local Agencies (2013RICO2) includes an overview on Complete Streets concepts, a brief synthesis of local and national practices, an understanding of the various terms and definitions, guidance on implementation, a summary of Minnesota agencies with Complete Streets policies or other guidance, and projects in the state related to Complete Streets. You can find it at lrrb.org.

Half of all severe crashes in Minnesota occur on county road systems. In efforts to follow through with commitments made in its 2008 Strategic Highway Safety Plan to better address these crashes, the Minnesota Department of Transportation set out to more fully engage and include local highway agencies in the state’s highway safety process.

Part of this involved funding the development of county road safety plans for each of Minnesota’s 87 counties to help local engineers better analyze and understand their system. These safety plans were the first statewide application of the systematic risk assessment process, which, rather than focus solely on number of crashes, identifies locations across the network having the greatest risk for severe crashes and then prioritizes those locations for investments in safety improvements. The goal is to develop a specific set of low-cost systematic safety projects that are linked directly to causation factors associated with the most severe crashes on the road system.

Specifically, this approach was used to address urban pedestrian and bicycle safety. Howard Preston explained in a presentation at the 23rd Annual CTS Transportation Research Conference in May.

Researchers studied pedestrian/bicycle-related crashes occurring in the Twin Cities’ metropolitan area between 2007 and 2011. While data showed that approximately 70 percent of the pedestrian/bicycle crashes occurred at intersections, none of the intersections averaged even a single pedestrian/bicycle crash per year, reported Preston, a consultant with CH2M HILL. So instead of looking only at the number of crashes, researchers studied various intersection characteristics—including the type of intersection and intersection control, the posted speed limit, the number of lanes, and traffic volume—where the pedestrian/bicycle crashes occurred. They also considered whether or not there were bus stops and/or other types of pedestrian generators such as restaurants, gas stations, or other retail establishments.

The research team then evaluated county highway corridors based on the presence of the various surrogate factors and identified priority locations where safety could be improved. They then suggested a set of low-cost improvement strategies that would be most effective in preventing severe pedestrian/bicycle crashes in the future.

In this case, the system-wide risk assessments identified corridors that contained multiple intersections with several of the risk factors as candidates for the implementation of strategies, Preston said. The suggested countermeasures include:

- The addition of an advance walk interval (which allows the pedestrian to begin crossing before the vehicle traffic on the parallel street is given the green light) and countdown timers at signalized intersections.
- The installation of curb extensions and median islands, and refuge islands at unsignalized intersections.
- In total, the systemic risk assessment process identified approximately $3.7 million of pedestrian/bicycle safety improvements for the county highway system in the Minneapolis-St. Paul metropolitan area. From here, Preston pointed out, it is up to each county to secure funding (all of the suggested projects are considered eligible for funding through the state’s Highway Safety Improvement Program) and then implement any of the suggested safety improvement projects as they choose.

—Christine Anderson, LTAP editor

For More Information:
- MnDOT and the LRRB have published a 51-page guidebook illustrated with photos and graphics. Minnesota’s Best Practices for Pedestrian/Bicycle Safety is online at lrrb.org.
- FHWA’s Office of Safety launched a website (http://safety.fhwa.dot.gov/completestreets) that provides information for agencies looking to initiate or expand implementation of a systemic safety approach.

**Minnesota’s best practices for pedestrian safety**

**LRRB’s complete streets resource aimed at local agencies**

Earlier this year, the LRRB published a guide to assist local agencies interested in developing their own Complete Streets policy. The Complete Streets Resource for Minnesota Local Agencies (2013RICO2) includes an overview on Complete Streets concepts, a brief synthesis of local and national practices, an understanding of the various terms and definitions, guidance on implementation, a summary of Minnesota agencies with Complete Streets policies or other guidance, and projects in the state related to Complete Streets.

You can find it at lrrb.org.
crash. “There’s no ‘dead man’s curve,’” Preston said, as no one curve averaged a severe crash per year. Crashes are overrepresented, however, in curves with radii between 500 and 1,200 feet. The researchers evaluated 12,690 rural intersections, where 470 severe crashes and 317 severe right-angle crashes occurred. Of these intersections, 95 percent had no severe crashes, and none averaged one severe crash per year. Crash risk did increase with the presence of development or a railroad crossing, or when the intersection was more than five miles from the previous stop sign. Among the plans’ recommended strategies:

- Improved delineators and additional chevrons for curves. Chevrons can typically be installed on a curve for $3,000, Preston said.
- More rumble strips and stripes, edge lines, chevrons, and in-ground reflective markings to prevent road departures.
- Streetlights, dynamic warning signs (at 189 locations), and directional medians for rural intersections. A roundabout was also recommended for one location.
- Confirmation lights to reduce red-light running for urban intersections.

Overall, the project identified almost $240 million worth of safety projects on the county system. “Clearly there’s not that amount of money available,” Preston said. “Now you can make investments without any crash having occurred based on the presence of these risk factors.”

—Amy Friebe, CTS senior editor

**Results of a case study in Breckenridge helped MnDOT create a set of standard plans for pedestrian ramps.**

In March of 2012, the city began working with a consultant to develop an iPad application (app) field workers could use for the rapid inventorying process. Throughout the summer of 2012, a team of college interns and public works staff then used iPads installed with the custom app to catalog every pedestrian curb ramp in the city. The team collected detailed information about each of the ramps including elements such as ramp location, dimensions, slopes, cracks, texture, and obstructions. City staff then used this edge enhance
develop a transition plan to upgrade its curb ramps.

“We analyzed the data [collected on each ramp] over the winter of 2012 and 2013 and began prioritizing the ramp replacements. We were in the construction phase to upgrade the ramps within 12 months of starting this initiative,” Elwood said. “That is lightning-fast for a city this size.” Initially this project was estimated to cost the city a half a million dollars and take eight months spread over several summers to complete. By using iPads and interns, the cost was cut in half. The project took three and a half months and saved the city a quarter million dollars.

**Implementation of ADA transition plan in Sherburne County**

The Sherburne County Board adopted an ADA transition plan in May, reported John Menter, the county’s public works director, in opening remarks. Sherburne County first set out to work with MnDOT’s State Aid for Local Transportation (SALT) division to create an ADA transition plan template that other counties in Minnesota also could use. SALT agreed to fund two-thirds of the cost of hiring a consultant to help with this effort.

“As work began on the project, we realized that the Local Road Research Board was working on a similar initiative,” explained Tim Arvidson of Stonebrook Engineering. “We didn’t want to duplicate efforts, so we decided to use the LRBB ADA tool with Sherburne County as a test case.”

Initially, there was an overall reluctance by the Sherburne County Board to invest in ADA upgrades, Arvidson said. “We needed to provide some education to both board members and county staff to help them understand the importance of the ADA and the need for compliance.

Their first step to developing a transition plan was to identify the ADA requirements, which are all clearly outlined in the LRBB ADA tool. The county then completed an inventory of all of its facilities and streets and looked at options on how to systematically upgrade any non-ADA-compliant pedestrian facilities.

According to Arvidson, board members and other county staff were adamant that the transition plan provide flexibility and not tie the agency into specific goals of replacing specific ramps or other elements by specific dates. The newly adopted transition plan states that the county will upgrade pedestrian facilities as part of any full reconstruction project and will evaluate and replace, as necessary, pedestrian facilities on overlay or rehabilitation projects. The county’s goal is to have 80 percent of the pedestrian facilities constructed in accordance with recommended guidelines within 20 years. Over its 20-year replacement cycle, the expense of replacing these pedestrian facilities is approximately 1 percent of the county’s annual budget.

**ADA retrofit and construction management: Richfield and Breckenridge**

When it comes to ADA pedestrian ramp design, just how detailed should the plan be? Last year, Menter and Lamkin explained. “The second case study involved a Complete Streets construction project on 75th and 76th Streets in Richfield, Minnesota, that added sidewalks, regional trails, and bike lanes. The project also connected pedestrian ramps to the bike trail and sidewalks. This provided a few construction challenges primarily because the jumps between the bitumi
dous trails and concrete pedestrian ramps have to be smooth to prevent introducing a tripping hazard. “We found that overpaving the trail and saw-cutting the extra pavement to form the concrete for the pedestrian ramp accomplished the smooth connec
tion required.”

A second challenge was maintaining a 2 percent maximum cross slope on the bituminous trails.
“Bituminous paving is not an exact science,” Lamkin said. “When the base is graded for a 2 percent cross slope, it’s not uncommon to see cross slopes in the final trail exceed 2 percent. We found that the best way to address this was to design the trails with a 1 percent cross slope to ensure that the final product would not exceed a 2 percent slope. 

“We also had trouble ensuring that the pedestrian ramp landing cross slope is less than 2 percent,” Lamkin said. “Our experience has shown that cross slopes in general are typically cheaper than concrete, so initially we paved as much trail as we could. During the second year, we found it too hard to keep those landing cross slopes under 2 percent and actually had to reconstruct a few. The extra costs to install the landings using concrete gave the contractor much more flexibility, which ultimately saved construction time and gave the city a much better product.” 

Richfield “is a small city of about 36,000 people without the resources larger cities have,” added Liz Finnegan, a civil engineer with the city. “We use our pavement management program as the best resource to meeting ADA requirements…the challenge is that the ADA standards keep changing every year. If we use mill and overlay to fix a ramp one year, the next year that ramp is no longer in compliance.” 

Despite the resource challenges, getting the city into ADA compliance is a Richfield City Council priority, and the city is now in the process of completing its ADA transition plan. “Since 2005, we have spent $16,000 per year replacing ramps…we have spent more money in recent years,” Finnegan continued. “The transition plan for our 85 miles of residential streets—not including our county roads—requires mill and overlay. We do an average of two miles of mill and overlay each year. At this rate, it would take 43 years to get all of our ramps into ADA compliance, and that is really not acceptable. So, overall we’re hoping to get our franchise fees raised so we can update the ramps within our 20-year plan.” 

Richfield currently has about $20,000 per year in franchise fees to spend on sidewalks and other ADA-related projects including the ADA pedestrian ramp upgrades. Each pedestrian ramp costs an average of $1,000 per ramp; Richfield is responsible for more than 1,200 ramps, with 267 of those currently unprogrammed within the city, meaning they are not part of the city’s capital improvement plan. “We’ll have to spend $267,000 just to get into ADA compliance,” Finnegan said. “This is a funding issue for us…we just hope the City Council will increase our franchise fees above the current $20,000 a year.” 

—Nancy Strege, LTAP freelancer

Resources for a low-salt diet

A companion document is the Winter Parking Lot and Sidewalk Maintenance Manual, published by the Minnesota Pollution Control Agency (MPCA) in 2010. It delivers practical advice for improving operating efficiency and reducing environmental impacts to those who manage parking lots and sidewalks.

They’re both great resources. But don’t just take our word for it. Last November the snow and ice control handbook was used as the course material for the Winter Maintenance Supervisor Certificate Workshop held by the American Public Works Association-Minnesota chapter. And the parking lot/sidewalk manual is helping users beyond our borders. Rick West, the county engineer in Otter Tail County and a member of the LTAP Steering Committee, tipped us off to a post on the AASHTO Snow and Ice Pooled Fund Cooperative Program list-serve. “Great work gets around,” West says.

Marc Beaulieu, who works in the engineering services unit of a hospital in Meaford, Ontario, has been using the parking lot and sidewalk manual. “It has a wealth of information,” he says.

In an April 2, 2013, post, Beaulieu wrote about his efforts to go on a low-salt diet. “A month ago I started using 23% salt brine on the hospital sidewalks and pre-wetted rock salt in our parking lots…A typical application ranged from 9 to 21 bags of 22 kg (44 lbs.) of rock salt per snow event. Pre-wetted rock salt reduced the amount to 3 bags for one event, and less then 2 bags for the second snow event.” Beaulieu noted that he took pavement temperature vs. air temperature into consideration. On August 23 post, Beaulieu added that his hospital “has decided to go all out with the use of 23% salt brine.” He also noted that a large regional hospital in Owen Sound, Ontario, is moving beyond our borders. Rick West, the county engineer in Otter Tail County and a member of the LTAP Steering Committee, tipped us off to a post on the AASHTO Snow and Ice Pooled Fund Cooperative Program list-serve. “Great work gets around,” West says.

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“After reading the Minnesota manual, I received continued support from the authors (Connie Fortin for one) and from those who have taken the course,” Beaulieu says. “Without this continued support, I would not have moved forward as quickly as I did. It’s been difficult to find information about application rates and equipment related to winter maintenance of sidewalks and parking lots here in Canada—the Minnesota manual gave me a starting point.” 

More resources:

Go to Minnesota LTAP’s Snow and Ice Technical Topic web page for links to the following resources and much more:

- Minnesota Snow and Ice Control: Field Handbook for Snowplow Operators
- Winter Parking Lot and Sidewalk Maintenance Manual
- AASHTO Snow and Ice Pooled Fund Cooperative Program list-serve and archive
- FHWA’s Best Practices for Road Weather Management
- Snow Removal at Extreme Temperatures (Clear Roads Program, March 2013)
- Potential for Natural Brine for Anti-Icing and De-Icing (University Transportation Research Center Region 2, Sept. 2012)

Another great resource is MnDOT Library’s catalog, which includes resources from CTS, Bookmark dot.state.mn.us/library, LTAP. 

Resources for a low-salt diet

Last year Minnesota LTAP and MnDOT updated the Minnesota Snow and Ice Control: Field Handbook for Snowplow Operators. The handbook helps promote the understanding of the tools, best practices, and limitations for snow and ice control. It also encourages progressive changes in snow and ice control practices that will help agencies reduce salt/sand use and environmental impacts while meeting the safety and mobility needs of roadway users. It is published by Minnesota LTAP, MnDOT, and the LRRB.
Pavement and dust conferences back to back

The annual TERRA Pavement Conference will take place February 5 in a new location: the Earle Brown Heritage Center in Minneapolis. It will be held in conjunction with the Road Dust Institute’s 3rd Road Dust Best Management Practices Conference, scheduled for February 4, also at the Earle Brown Heritage Center.

Special rates will be available for individuals attending both conferences. The joint events will also include a vendor show and reception. Details at mnltap.umn.edu/Events. LTAP

Roads Scholar credit

You can earn credits in Minnesota LTAP’s Roads Scholar (RS) program by attending LTAP and CTAP workshops and other cosponsored events. To learn more or enroll in the program, visit mnltap.umn.edu/roadscholar

LTAP workshops

LTAP workshops, along with events cosponsored by Minnesota LTAP, are marked with an (RS) at left. Check the web for details and to register online: mnltap.umn.edu/training. To be added to our print or electronic mailing lists, e-mail mnltap@umn.edu or call 612-625-1813.

CTAP workshops

CTAP workshops offer a variety of training courses and special presentations that can be used to meet the requirements for the Roads Scholar (RS) program. Each CTAP workshop earns 0.5 RS elective credit. Current CTAP training courses and special presentations are:

- Asphalt Pavement Maintenance and Prevention
- Culvert Installation and Maintenance
- Gravel Road Maintenance and Dust Control
- Roadside Vegetation Management and Erosion Control
- Snow and Ice Control Material Application
- Snowplow Controller Hands-on Workshop
- Work-Zone Traffic Control and Flagger Training

For more information or to schedule classes, call the CTAP instructor, Kathy Schaefer, at 651-366-3575, or e-mail Kathleen.Schaefer@state.mn.us. LTAP

Nominations sought for Road Salt Symposium award

The 13th annual Road Salt Symposium will be held February 6 at the Minnesota Landscape Arboretum in Chaska. A highlight of the symposium, which is worth one Roads Scholar elective credit, is the presentation of the Environmental Leadership Awards.

We need your help! Please tell us about innovative organizations or individuals who have taken steps to reduce the amount of salt used during winter maintenance.

Nominations are informal and should be sent to connie@fortinconsulting.com. Send an e-mail by November 30 describing why this individual or organization deserves to be recognized for salt reductions, and we will gather the necessary details for our selection committee. Visit the Freshwater Society’s website for more details on the symposium and to view last year’s winners. Thank you!

LTAP

ONLINE TRAINING

Gravel Road Maintenance and Design—Online (1 required credit) LTAP Anytime, anywhere!

Work-Zone Safety Tutorial—Online LTAP Anytime, anywhere!

8 Fall 2013