Snow and ice control: Tips for effective winter maintenance

Early winter maintenance preparation is key. Things like forecasting, equipment, personnel, materials (e.g., salt and sand supplies), and available funds affect how an effective operation is accomplished within individual organizations.

This article is not meant to be a comprehensive list, but serves as a starting point for successful snow removal procedures.

Tips for rural roads

Rural roads, both paved and unpaved, can bring unique challenges with blowing and drifting snow.

1. In the fall, mowing shoulders along the roadway can help prevent snow drifts from forming within travel lanes. Tall vegetation along road shoulders can act as a snow fence and enable snow to accumulate within the lanes instead of blowing across the road.

2. Keep gravel roads properly crowned prior to winter, which will aid in the drainage of melting snow and ice from the road service.

3. It is imperative that operators are familiar with snow routes within their responsibilities.

4. Look for areas where visibility may be a concern or is limited, such as at intersections and curves.

5. Be mindful of obstacles, drop offs, and utilities within the right-of-way that could be damaged by snow removal operations.

6. Railroad crossings, bridges, and intersections can bring added challenges and should be recognized prior to winter operations for snow placement and storage.

7. Take note of mailbox locations along the route that are not in compliance with postal codes or not attached firmly to the post. Tag them to make residents aware of the concern and that possible damage could occur due to nonconformity.

8. Make note of school bus stops along the route or other areas where children may gather close to the roadway. If there are questions concerning these locations, local school districts can be contacted to obtain a complete list.

9. Lastly, if operators are unfamiliar with the route, contact coworkers that have knowledge with the area to gain additional insight pertaining to special precautions that may be needed or difficult areas that may be encountered along the route.

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**From the director:**

**“It’s all about perspective”**

You may have noticed that my director’s columns have become, for lack of a better word, more philosophical and maybe a little more personal. Last quarter I discussed my visit to New Mexico. This past week I also visited another favorite haunt of mine—San Antonio and the Texas Hill Country. A friend and I stopped by Luckenbach on our way to the National Museum of the Pacific in Fredericksburg. It has been interesting to see who remembers the song that refers to the “city” of Luckenbach (Population: 3) and who doesn’t. Yes, it’s the one with “Waylon and Willy” right out there in the Texas Hill Country. A few days later I was in a theater venue in downtown San Antonio listening to an old alternative band called the Psychedelic Furs. I was reminded that I’d attended a similar concert of theirs 31 years ago in Kansas City. Time certainly does fly. I’m not sure what this story says, if anything, about me except that I have a wide range of musical interests, and that I have been pretty fortunate to be able to do these things and meet a lot of great people throughout the United States.

But, it was the trip to the National Museum of the Pacific, though, that drove home these thoughts. The sacrifices made in the Pacific and in so many other battles, both past and current, were front and center at the museum and again when Veteran’s Day rolled around a few days later. It all certainly puts things in perspective. Somehow, when I flew home thatVeteran’s Day, through the November storms, those travel delays just didn’t mean much in the whole scheme of things. Perspective is such an important part of everything we do. Consider perspective and its impact on the effectiveness of communication.

Through the past couple of years, the Iowa LTAP has been through a pretty significant staffing and funding transition. These transitions are not entirely unusual and will evolve until things settle out. New people on staff, though, add many opportunities and a “new” perspective. The Iowa LTAP won’t be the same, but we are still here to serve your needs. The team member answering questions or visiting your site may just be different. But, you will also start seeing some requests for information as the new staff explore different ideas and approaches. For example, we are exploring how to better deliver our newsletter and asking for possible improvements. In addition, we are looking at whether the purchase of a license to provide access to existing online training videos would be useful. And, we hope to put out another training survey sometime soon. Your responses to these efforts are appreciated.

Finally, don’t forget to register for the Bridge Inspection Refresher Training in February 2016 if you need it. The next one won’t be for a full year. Also, if you have people that want to begin the process, we are offering the two week course in May. Please register early; we’ve been lucky and haven’t had to cancel any yet. Also, if you do register for a course or event please make every attempt to attend (or send a substitute). Even the “free” events we offer have a pre-session cost to them (e.g., foods, materials, etc.), and if we reach the capacity the chair goes to waste when there is a “no-show.”

Thanks.

Everyone have a great holiday season and a safe winter.

Keith
Truck inspections
To be certain that equipment will perform to standards, pre-trip inspections are a necessity. A systematic, documented approach to the walk-around inspection can ensure a comprehensive review of the equipment used in snow removal operations. These are some of the items that should be included in the inspection:

- Lights
- Windows
- Mirrors
- Grease fittings
- Tires and Rims
- Hydraulic and electrical lines
- Plow components
- Fluid levels
- In-cab controls
- Air system/emergency brakes

Snow policies and procedures
Know your organization's snow and ice policy prior to any winter event. Most cities, states, and counties have snow policies that state what time snow removal operations will begin and end. They also state the amount of snow required to initiate operations. Contained within the policy should be relevant codes or ordinances pertaining to residents blowing or plowing snow onto the roadway and prioritization of roadways to be plowed.

Rest
Winter maintenance operations may require long hours with some organizations running a full 24 hours each day until snow removal is complete. Operators need to be aware of the dangers of sleep deprivation and prepare for the long days and nights that effective winter operations demand to maintain safe streets and roads.

For more information
For additional questions regarding winter maintenance, contact the Iowa LTAP Technical Training Coordinator, Paul Albritton, at palbritt@iastate.edu or 515-294-1231.

Clinton County, Iowa, finds a stabilized road resurfacing solution
Clinton County, Iowa, engineer Todd Kinney was looking for a solution for 250th Street, a two mile aggregate surfaced road that serves mainly residential and agricultural property. The road connects to two county farm-to-market paved roads and U.S. Highway 30. The 2010 traffic count was 70 ADT (average daily traffic). The road is relatively flat with a traveled way width of 26 ft and typical shoulder and ditch cross sections.

In 2009, a large sand quarry opened and began operations. 250th Street is the only access road to the quarry site. The quarry generated an additional 20-30 trucks per day in comparison to the other daily traffic load of normal residential traffic and agricultural vehicle traffic. Due to the large increase in truck traffic, the road became difficult to maintain to the level of service expected by the mixture of road users.

Clinton County considered constructing an aggregate base and paving the road with hot mix asphalt, or increasing the aggregate replacement cycles and placement densities to support the increased truck traffic loading. The traffic count did not warrant paving and the funding was not available for a paving type of improvement.

The increased truck traffic on the road section was already requiring the county to increase aggregate resurfacing cycles and increase road grading activity. Clinton County began researching for an intermediate level of service between a paved road surface and a typical aggregate surface that would support significant truck traffic on a year-round basis. Clinton County selected Team Laboratory Chemical Corporation’s Base One as a treatment method to increase the level of service without the cost of paving.

The existing aggregate surface was scarified and then blade mixed with a Base One/water mixture. Additional water was also added to reach optimum moisture for compaction. The treated mix material was bladed to proper slope and then compacted with rubber tired rollers. Three additional 1-1/2 in. lifts of new aggregate were placed, stabilized, mixed, and compacted in the same manner. All construction work was completed using existing county labor and equipment. The finished stabilized road was then treated with calcium chloride for dust mitigation.

“The Base One stabilization method was selected because it offers a higher level of service than a ‘normal’ aggregate road on a year-round basis, without the cost of paving the road,” states Kinney.

“The Base One stabilization of the road has eliminated the need to reapply aggregate to the road over the last four years. The road only requires blading twice a year—once in the spring and once in the fall. Ten maintenance blading cycles per year have been eliminated due to the stabilization of the road,” says Kinney.

Based on the unstabilized annual maintenance cost of the road and the current annual maintenance cost of the Base One stabilized road, the Base One stabilization has a rate of return of 8-10 years. The Base One stabilization is providing the county long-term maintenance cost savings, as well as providing a better year-round driving surface to the traveling public.

Adapted from original article appearing in Roads & Bridges online.
InTrans welcomes program manager/ MDST facilitator

Theresa Litteral was appointed on October 1, 2015, to the position of program manager for the Iowa LTAP.

She will assist state and local transportation agency safety partners with the development, application, and implementation of local road safety improvements, along with related ongoing activities like facilitating communication between participating entities and conducting evaluation studies.

Another key element of Litteral’s position will be to provide statewide coordination and assistance to existing Multi-Disciplinary Safety Teams (MDSTs). This coordination/assistance will include helping local agency staff engage safety partners, facilitating active discussions, developing and/or providing safety-related team training, and providing aid in other ways to encourage roadway safety activities.

**Background**

Litteral has a Bachelor of Science degree in geology from Anglia Ruskin University in Cambridge, England. Her Master of Science degree in physical science was earned at Marshall University in Huntington, West Virginia.

Litteral has 15 years of technical research experience, where she focused on technology transfer, technical research, and training, while identifying future needs and opportunities throughout the Appalachian region.

“I have been fortunate to attend numerous national conferences each year where I have had the opportunity to present technical work and presentations on the projects I have been involved with.”

Litteral has focused on safety in almost all of the projects she has been involved with, particularly when working with trail construction, ADA compliance and multi-modal transportation, and economic development and recreation, with special attention to railroad safety, bike, and pedestrian projects.

“I have been on the Transportation Research Board’s Bike and Pedestrian Standing Committee discussing such issues. I have demonstrated the importance of safety to numerous audiences and developed technical solutions to safety issues across the Appalachian region.”

Her track record has included serving as the principal investigator and technology lead on over 10 projects, covering everything from small community-based projects to large multi-state applied research initiatives.

**A look into the future**

Before coming to the Iowa LTAP, Litteral assisted in the development of methodologies for accomplishing success on regionally-important projects. Now, as the program manager and MDST facilitator, she wants to further apply what she has learned and improve traffic safety in Iowa through locally building trusted relationships between county engineers.

“My objectives with the MDST are to facilitate interagency coordinated multidisciplinary efforts and cooperation in addressing traffic safety and mobility concerns as well as to identify and mitigate the cause of crashes on Iowa roadways and to improve crash response practices.”

Litteral moved to Iowa after her husband was relocated due to a promotion at the Federal Highway Administration and feels her new position is a perfect fit.

“Coming from a family working in the transportation field, talking ‘shop’ has become part of our daily dinner conversations.”

**Contact**

Theresa Litteral, 515-294-7465, litteral@iastate.edu
Q&A with David Veneziano, safety circuit rider

Q: What is the Iowa LTAP safety circuit rider program?
A: The safety circuit rider (SCR) program is, broadly speaking, an LTAP staff member who serves as a dedicated safety resource for counties and cities. This includes providing technical assistance, training, and technology transfer on a variety of safety-related subjects to agencies responsible for local roadway safety. Since many local agencies lack the resources or technical expertise to properly identify, diagnose, and treat safety problems, the SCR serves as a dedicated resource that they can go to for information, training, and assistance when it comes to local road safety.

Q: What are some of the services/training offered by the SCR?
A: There are a number of services offered by the SCR, including conducting roadway safety assessments and providing technical advice and assistance on specific questions. Similarly, the SCR also provides training (in conjunction with other LTAP staff like the technical training coordinator), such as work zone safety and flagger training, MUTCD signing review, and low-cost safety solutions, among other topics. Some training, such as work zone and flagger training is on-call, and we can come out on request to conduct it for any number of attendees.

Q: What is a road safety assessment?
A: A road safety assessment (RSA) is a review of the safety performance of an existing (or planned/proposed) roadway or intersection to identify safety issues and a range of prospective treatments/countermeasures to address them. The assessment can look at one or multiple sites. A county or city engineer can contact the SCR with specific sites that they want to have looked at or ask that potential sites be identified through a review of crash data. The SCR gathers together a multidisciplinary team consisting of engineering, law enforcement, and others with a safety background to look at the crash data and perform a field visit to review the site(s) once they are identified. Based on the field visit, a range of prospective treatments/countermeasures are identified and documented in a memorandum to the engineer that requested the assessment. The assessment is a bit more abbreviated than a road safety audit, because it is completed during the day and does not include a nighttime component. We can complete these at any time, so if an agency is interested in having an assessment done please give me a call.

Q: What are some other activities SCR conducts?
A: The SCR assists in various local road-related research efforts, such as developing guidance for local road agencies on the effectiveness, installation, and removal of traffic signs. Another activity is participation in local safety initiatives such as the Governor’s Traffic Safety Bureau’s High Five program, where LTAP provides safety assessment assistance. Finally, the SCR also organizes and coordinates (or assists other LTAP staff) with different workshops throughout the year, including the annual Local Road Safety Workshops, which are held throughout the state each October.

Q: What kinds of things could I learn by attending a Local Road Safety Workshop?
A: The workshops are multi-disciplinary, so an attendee can expect to learn a little bit of everything from engineering to enforcement to topics in between, such as available safety-related funding. For example, this past year the workshop topics included local safety plans for counties, incident responder training programs, low-cost safety countermeasures, and programs to assist in funding safety improvements. So based on those items, an attendee would learn about how county safety plans have been developed, programs that are available for training first responders and transportation agency staff to manage incidents on roadways, safety treatments that can be quickly implemented at a low cost, and mechanisms available to fund those treatments. One goal is to provide attendees with information that gets them thinking about what they can do to help improve safety on the local roads that they work with. Another goal is to provide an opportunity for networking with attendees from other agencies and the Iowa DOT and generate discussion that can lead to an exchange of ideas, experiences, and so forth.

Q: What are the workshops like? Where are they held?
A: The workshops are a day-long event, running from 8:30 a.m. to 3:00 p.m., with the agenda broken up with break periods for conversation between attendees and presenters. Lunch is provided, and the entire workshop is free. All we ask is that attendees register in advance so we can get a headcount. The workshops are held in different locations throughout the state, depending on the year. That way we are providing an opportunity for attendees from different areas to make it to the workshops. Typically we visit locations in the northwest, southwest, center, southeast, east-central, and north-central parts of Iowa each year. The LTAP website posts the upcoming dates and locations well in advance of the October workshops, so readers are encouraged to keep an eye out for these postings and other training events.

Q: How can I contact you with additional questions?
A: I can be reached at dvenez@iastate.edu or 515-294-5480.

Iowa-focused safety resources

http://www.ctre.iastate.edu/research-synthesis/ - The Synthesis of Safety-Related Research, which brings together information relevant to Iowa’s needs, including roadway departures, rural intersections, and rural speed management.


http://www.ctre.iastate.edu/tsds/ - The Iowa Traffic Safety Data Service, which provides agencies with the most readily available crash data analysis resources in Iowa.
Technology and communicating go hand-in-hand

It has been said time and time again that in public works, as with any government organization, one of the most vital aspects is communication. And when dealing with communication, it is important to know how to reach your audience—from fellow employees to other departments, from city officials, to citizens.

Susan Gwisada, the public relations officer for the City of Ames, offers some insight into this complex and often tedious process and how the Ames Public Relations Office works in partnership with Ames Public Works to ensure timely, consistent, effective communication with their citizens.

The goal

“Many of our public works projects have a direct impact on Ames residents, and it’s our responsibility to share the information citizens need to know in the formats they’ve come to expect,” says Gwisada.

To do this, they use a variety of tools to educate and inform citizens, but also to encourage two-way communication.

The goal, according to Gwisada, is to continue to experiment with new tools and technology in an ongoing effort to improve public outreach.

Social media

“Social media should absolutely be included in any community’s communication toolbox,” says Gwisada. “We no longer live in an era when a newspaper article, television broadcast, or radio news item will reach the majority of residents.”

Communication experts must constantly be adding new tools and tactics to connect with residents. Traditional methods shouldn’t be abandoned, but instead supplemented with more modern initiatives like digital newsletters, emails, and social media.

In Ames, the residents are “busy, mobile, and tech-savvy.” Because of this, they not only appreciate Facebook construction updates and Twitter water main break notices—they expect it.

Social media tools like Facebook and Twitter are ideal tools for public works messages, according to Gwisada.

“These platforms allow nearly instant alerts to traffic detours, traffic light malfunctions, water main breaks, electric outages, and more. If street construction is delayed due to rain, we are able to show muddy conditions and ponding water. We use words and pictures and video to not only tell our story, but show our residents what’s actually happening out there.”

This technology also allows residents to initiate the conversation. It is not uncommon anymore to have the first alert of a traffic signal malfunction or electrical outage come to public works through Twitter.

Other forms of communication

“We are constantly looking for ways to incorporate new technology into our communications toolbox,” says Gwisada. “Keeping residents informed and involved in city programs, projects, and services is important for maintaining a strong, successful community.”

To do this, besides social media, the City of Ames has experimented with virtual open houses, web surveys, and targeted mailings.

“There are times when one tool has been successful with one project, but the same tool doesn’t work as well with another. When doing community-wide outreach, such as closing a major arterial street, we use every tool available. When our audience is smaller or limited by geography, it’s possible to select just a few targeted communication tools that are effective.”

Every tool is a valuable tool, according to Gwisada.

“Even very traditional methods, such as sending letters by U.S. mail, still work well today for some residents. We also experiment with new methods, and we constantly partner with other organizations to take advantage of their ability to help us with public outreach.”

For any given project, the Ames Public Works Department could use press releases, direct mail, website updates, Twitter notices, message boards placed near a project site, door hangers, Facebook updates, e-notification, TV advertisements, radio, speaking engagements, or neighborhood newsletters.

Tips for success

“The first tip is easy – just do it,” says Gwisada. “When communicating with residents, experiment with all types of methods to find tools that work.”

The important thing to remember is not to only focus on the latest technology. Low-tech tools are important and can be very effective. Door hangers are a great way to notify a small number of residents. Tapping into civic groups, student groups, religious affiliations, and sports clubs can work too. Asking residents to forward messages to their neighbors through newsletters, emails, or phone trees can also be effective.

“Never underestimate the power of word of mouth, either!”

Contact

Susan Gwisada, sgwisada@city.ames.ia.us
### Conference calendar

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### Contact information

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Paul Albritton, 515-294-1231, palbritt@iastate.edu

### Event details and online registration

Watch for details and online registration information, by specific dates and events, on the online calendar, [www.intrans.iastate.edu/mors/calendar/](http://www.intrans.iastate.edu/mors/calendar/).

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