Geosynthetic Reinforced Soil Integrated Bridge System

by Michael Adams, Joseph Hartmann, Jennifer Nicks, Warren Schlatter, Tom Stabile, and Jonathan Wu

Geosynthetic Reinforced Soil (GRS) Integrated Bridge System (IBS) is a fast, cost-effective method of bridge support that blends the roadway into the superstructure to create a jointless interface between the bridge and the approach (see figure 1). It consists of three main components: the reinforced soil foundation (RSF), the abutment, and the integrated approach. The RSF is composed of granular fill that is

NHPWA Scholarship Sends a NH Public Works Director to the APWA-North American Snow Conference

by Scott Kinmond, Public Works Director, Moultonborough

As a Public Works Director of a Lakes Region community, the region which I serve encompasses the northerly shore of Lake Winnipesaukee, with its 62 miles of shore frontage and many streams and brooks which feed the big lake, coupled with its 77 miles
As the long summer days begin to shorten, we have already starting looking into the beautiful New England autumn season. The LTAP at the Technology Transfer Center has already planned dozens of courses to be held this fall, with courses like Sign Retroreflectivity Summit, Confined Space Training, Land Use Planning & Highway Departments, Workzone Traffic Control and much more! Please take some time to visit our training calendar online for the most up-to-date schedule of courses at www.t2.unh.edu/training-calendar.

Though we have had quite the summer, I’d like to take a look forward to the coming fall. This fall there are some wonderful opportunities for Public Works employees in New Hampshire. There is the Ken Ward Memorial Snow Plow Rally to be held September 18, 2013 at the Hopkinton Fairgrounds. The following two days are also Construction Career Days, where high school aged kids come from all over the state to learn about career opportunities in construction. For more information on either of these events, please call the office at 603-862-2826. There is also the New England Public Works Expo on September 25-26 in Fitchburg, MA. For more information on the expo, please visit the website at www.nepublicworksexpo.org.

At the Technology Transfer Center we are always working to improve our program and better cater to your needs. In the coming months, we will be sending you an assessment of our program. Please take the time to fill it out, so we can better serve you in the future. Also be looking out in 2014, we plan to add a new award level in the Roads Scholar Program to reflect those who have concentrated in our safety workshops. Take care and be safe!

Sincerely,
Beth Hamilton
Training Program Manager
Technology Transfer Center


This past June, we celebrated the graduation of our newest Master Roads Scholars. As of June 2013, we have had 15 new people achieve Master Roads Scholar. To all of you, congratulations! Your dedication to your job, continuing education, and our program is appreciated by the citizens driving on our roads, our staff, and the people of your community.

The Technology Transfer Center will be releasing a Roads Scholar Directory in early 2014 to highlight all of our Roads Scholars level of achievement. We’ve had more than 70 people achieve new levels in our program in 2013. We are proud of all our students’ achievements and hope to see even more in the future!

If you have a question about what level you are at, what the levels are or what is printed on your transcript, please do not hesitate to call Amy Begnoche at the office at 603-862-2826.

Master Roads Scholar Luncheon in Manchester on June 26, 2013
**New Hampshire Roads Scholars**

Master Roads Scholar is the fourth and highest achieving level of the UNH T² Center Roads Scholar Training Program. To be a Master Roads Scholar, the participant must have completed 100 training hours, including the requirements for Roads Scholar Level II. The third achievement level of the program is becoming a Senior Roads Scholar. Senior Roads Scholars have completed 75 hours of training including the requirements for Roads Scholar Level II. Roads Scholar Level II requires 50 hours total, including 25 hours in technical training, 5 hours of supervisory training, 5 hours of tort/liability or safety, and 5 hours dedicated to environmental training. The first achievement level is Roads Scholar Level I. To achieve Level I, participants must complete 25 hours of training. We congratulate all those who have reached new achievement levels and encourage further training in the future.

### Roads Scholar I

**25 training hours in the Roads Scholar Program**

- Jason Alrich, NHDOT
- Marcus Beuregard, Keene
- Andre Brasseur, NHDOT
- Scott Brown, Colebrook
- Steven Bullek, NHDOT
- Charlie Byam, New Boston
- Ralph Campbell, Walpole
- Peter Constantine, Hollis
- Bill Cote, McGregor Memorial EMS
- Kenneth Crowther, NHDOT
- Shawn Cummings, NHDOT
- Roger Dandeneau, NHDOT
- George Dionne, NHDOT
- Will Douroudonas, Keene
- Kenneth Dufour, NHDOT
- Mia Gagliardi, Gilford
- Dennis Gilmore, Concord
- Douglas Graham, NHDOT
- Mark Green, NHDOT
- Damian Hetzel, Croydon
- Ronald A. Madan, Groton
- Brian Ordway, NHDOT
- Tom Parker, NHDOT
- John Rooney, NHDOT
- Nicole Sawyer, Merrimack
- Angelo Silva, Hollis
- Doug Smith, New Boston
- Russell Smith, NHDOT
- Michael Tatro, Antrim
- Jim Taylor, Enfield
- Mark Vaillancourt, NHDOT
- John Vatalaro, Wolfeboro
- David Welch, Concord
- Richard Wheldon, Weare

### Roads Scholar II

**50 training hours and Roads Scholar II requirements**

- Kepper Brown, Keene
- Thomas Cummings, Deering
- Donnie Lashua, Enfield
- Greg Meagher, Concord
- James M. Plourde, Antrim
- Norman Ruel, Enfield
- Leon Smith, New Durham
- Dennis E. White, NHDOT

### Senior Roads Scholar

**75 training hours and Roads Scholar II requirements**

- Bruce Caillouette, Danville
- Scott Cook, Exeter
- Derrick Corbin, Enfield
- Craig Dunn, Moultonborough
- Jeffrey Haines, Center Harbor

### Master Roads Scholar

**100 training hours and Roads Scholar II requirements**

- Neal Beauregard, Greenfield
- Matt Bumford, Henniker
- Benjamin Daley, Raymond
- Kevin Demers, Concord
- Gregg EAstman, Greenville
- Frank Ferreira, Pelham
- Brad Harriman, Ossipee
- Patrick Holland, NHDOT
- Bill Holt, Goffstown
- Brian Houghton, Deering
- Ryan Sharpe, Hampton
- William L. Shoemaker, Enfield
- Ames, Sorell, Laconia
- Scott Sykes, Concord
- Frederick Wallace, NHDOT

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*Have a question about what level you have achieved or what workshops you have taken? Contact Beth Hamilton at 603-862-1362 or e-mail t2.center@unh.edu to request information regarding your Roads Scholar transcript.*
Geosynthetic Reinforced Soil Integrated Bridge System

compacted and encapsulated with a geotextile fabric. It provides embedment and increases the bearing width and capacity of the GRS abutment. The abutment uses alternating layers of compacted fill and closely spaced geosynthetic reinforcement to provide support for the bridge. This is placed directly on the GRS abutment without a joint and without cast-in-place concrete. GRS is also used to construct the integrated approach to transition to the superstructure. This bridge system therefore alleviates the “bump at the bridge” problem caused by differential settlement between bridge abutments and approach roadways.

Background

Reinforced soil technology is not modern. The ancients used native material such as straw, tree branches, and plant material to reinforce the earth. The reinforcement provides tensile resistance to soil that is weak in tension, but relatively strong in compression and shear.

Modern reinforced soil technology has evolved into two primary methods for the stabilization of earth: Mechanically Stabilized Earth (MSE) and GRS. Today the predominant method of building reinforced soil is MSE. MSE technology has branched off into two primary pathways: proprietary structures built with metallic (inextensible) reinforcements and proprietary structures built with geosynthetic (extensible) reinforcements.

MSE structures built with inextensible reinforcement, such as discrete metallic strips or welded wire mats, have a unique combination of precast panels, reinforcement, and connection details. The vertical spacing of the reinforcement is typically about 30 inches, and the typical size of the precast panel is about 5 feet high by 5 to 10 feet wide.

MSE structures built with extensible reinforcement such as geosynthetics were introduced in the mid-1980’s. During this time, geogrids were used to reinforce or stabilize the fill behind structures constructed with concrete modular blocks. Today, these proprietary modular block structures are typically built with a unique combination of the block, geogrids, and connection details. The vertical spacing of the reinforcement is typically 24 inches.

The first documented use of alternating layers of geosynthetic and soil, referred to as GRS technology, was by the U.S. Forest Service in the 1970’s. The Forest Service used the technology to build logging roads on steep mountain terrain. These GRS structures utilized a wrapped face – the geosynthetic was wrapped up and around the face of the individual soil layers and anchored by the overburden of the subsequent layer of soil.

Later, the Colorado Department of transportation
(CDOT) developed a low-cost generic wall system using lightweight concrete blocks. Rather than securing the blocks to the reinforcement with connections, as in MSE technology, the concrete facing blocks were frictionally connected to the GRS mass. The interface between the blocks and the geosynthetic provided enough friction to resist block movement. This method of connection in combination with closely spaced reinforcement layers created a facing system that adjusts to relieve stress without transferring loads to the facing. The Federal Highway Administration (FHWA) refined the CDOT method to account for vertical load-bearing applications, resulting in the development of GRS abutments, followed by GRS-IBS (see figure 1). GRS-IBS was initially developed by FHWA during the Bridge of the Future initiative to help meet the demand for the next generation of small, single span bridges in the United States. GRS-IBS can be built with lower cost, faster construction and potential improved durability and can be used to build bridges on all types of roads, on or off the National Highway System. GRS-IBS was recently used to rebuild a bridge in North Haven, Maine. This is believed to be the first use of GRS-IBS in New England.

**Composite Behavior**

**Reinforcement Spacing**

GRS abutments built with a reinforcement spacing less than or equal to 12 inches behave as a composite mass with predictable behavior. A degree of composite behavior results from close reinforcement spacing. For larger-spaced reinforced soils systems, the composite behavior diminishes with increased reinforcement spacing. It is important to note that the transition into GRS behavior is not dependent solely on reinforcement spacing; the aggregate size and friction angle are also contributing factors.

Closer reinforcement spacing creates more soil-geosynthetic interaction. In GRS, the reinforcement not only serves to resist tensile forces but also functions to restrain lateral deformation of the soil, increase lateral confinement of the soil, generate apparent cohesion in a granular soil (while maintaining all desirable characteristics of granular soil), enhance compaction-induced stresses, increase ductility of the soil mass, and reduce migration of fines, depending on the reinforcement selected. These added benefits develop because of the close reinforcement spacing.

The closeness of reinforcement spacing in GRS allows for compaction of the soil directly behind the facing, producing the capacity for load bearing at this location. The spacing of the reinforcement also has a significant impact on the strength and behavior of GRS performance. The ultimate capacity of GRS is a function of the reinforcement spacing, the reinforcement strength, and the soil conditions, including maximum particle size and friction angle. The ultimate capacity of GRS is influenced more by the reinforcement spacing than by the reinforcement strength.

**Reinforcement Strength**

In addition to calculating the required reinforcement strength, a factor of safety (or reduction factor) is necessary to reduce the ultimate strength of the reinforcement used in design. Because a GRS structure is a composite mass, the use of cumulative reduction factors for the long-term strength of the reinforcement is unnecessary. A single factor of safety of 3.5 (or resistance factor of 0.4) for ultimate reinforcement should be used, which accounts for long-term degradation (creep, durability, and installation damage). This recommended value is derived from the cumulative long-term reduction factors for a GRS mass in conjunction with an overall uncertainty factor of 2.0. This factor of safety is based on the results of several tests conducted on different reinforcement materials within soil, including accelerated creep tests.

Note that creep deformation of a GRS wall is the result of soil-geosynthetic interaction. If the backfill has a tendency to creep faster than the geosynthetic
reinforcement, the creep rate of the geosynthetic reinforcement will accelerate. Conversely, if the backfill has a tendency to creep slower than the geosynthetic reinforcement, the creep rate of the geosynthetic reinforcement will become smaller. For a GRS wall with a well-compacted granular backfill, the time-dependent deformation will be very small, and the rate of deformation will typically decrease rapidly with time (the geosynthetic cannot creep by itself). This means that creep will cease soon after construction. Moreover, the tensile forces induced in geosynthetic reinforcement at working stresses are typically very small due to stress redistribution. The very small tensile forces also contribute to very small creep deformation. GRS tests have shown that the soil and reinforcement strain together because the lower spacing confines the soil.

For granular fill, damage to the reinforcement is usually not a concern. If large aggregate particles (greater than 3 inches in diameter) are used, however, considerable damage to the reinforcement may occur. This would require reevaluation of the combined effects and may necessitate the use of a heavier reinforcement with a greater tensile strength.

**Reinforcement Length**

The base-to-height ratio can be reduced to as low as 0.3 as long as external stability is satisfied. This is because a GRS mass is freestanding and internally stable. Internally supported systems stabilize a soil mass by the inclusion of the reinforcement alone.

The facing elements of a GRS abutment are not required for structural support and do not carry any appreciable load. GRS facing blocks are primarily a construction aid to provide a form for each lift of compacted fill, a protective barrier, and a façade for aesthetic purposes. To ensure that the face is not loaded the superstructure is placed with a setback and clear space.

**Conclusion**

Geosynthetic Reinforced Soil (GRS) technology consists of closely-spaced layers of geosynthetic reinforcement and compacted granular fill material. GRS has been used for a variety of earthwork applications since the U.S. Forest Service first used it to build walls for roads in steep mountain terrain in the 1970’s. Since then, the technology has evolved into the GRS Integrated Bridge System (IBS), a fast, cost-effective method of bridge support that blends the roadway into the superstructure. GRS-IBS includes a reinforced soil foundation, a GRS abutment, and a GRS integrated approach. The application of IBS has several advantages. The system is easy to design and economically construct. It can be built in variable weather conditions with readily available labor, materials, and equipment and can be easily be modified in the field. This method has significant value when employed for small, single span structures.

NHPWA Scholarship Sends a NH Public Works Director to the 2013 APWA-North American Snow Conference

continued from page 1

of Town roads, and 177 miles of private roads (which the Town provides winter maintenance.) The community for which I serve has a year round population of approximately 4,900 residents, and a large second home base which raises the community’s population on weekends, holidays, school vacation weeks and the summer months to approximately 25,000, which ultimately evolves into a diverse community.

As a Public Works Director of a diverse community it means trying to find the happy medium with winter maintenance operations with a high concern toward safety and environmental impacts. As you can imagine, when you have some ‘ole time Yankees’ in a community, they are critical of use of chlorides and keeping the budget level or less. Then you have the jet setter; commuters that own a multi-million dollar home on the lake shore, and need to make it to the airport for an early morning flight. This group is looking for roadways clear of snow and ice for safe, swift travel. Both of these residents are also concerned for the environment, with its preservation of the beautiful landscapes, trees and water bodies.

So that said, I felt the need to see how other Public Works Directors handle winter maintenance operations, applying best management practices and their concern for the environmental impacts in mind. As a member of the American Public Works Association, I have always followed the promotion of the North American Snow Conference, and the articles written about them, all which I have found very informative. But reading about it is not like attending and interacting with instructors, speakers, venders and networking with other attendees.

During my 2013 budget process I obtained permission from the Board of Selectmen to apply for a continuing education scholarship from the NHPWA, to enable me to attend the 2013 APWA North American Snow Conference in Charlotte, North Carolina, April 7-10. At the April NHPWA Board of Directors meeting I was awarded a scholarship for “Professionals in the Field, continuing education.” The scholarship provided financial support for conference registration, travel, lodging and meals.

I was fortunate to have a colleague from a neighboring Lakes Region community attend the conference with me, and my scholarship was also able to help support his travel with sharing lodging, making it more feasible for his community to fund his conference attendance. As we arrived in the City of Charlotte, we found early spring time weather, warm sunshine and sprouting trees and flowers. The venue at the Charlotte Conference center was convenient, comfortable and very appropriate for the needs of the APWA group. The first day, (Sunday) was spent attending a certificate training program, titled “Winter Maintenance Supervisor Workshop.” This training was assembled by the APWA Winter Maintenance Committee, and covered subject areas on Policy and Planning, Weather, Materials, Equipment, Snow Control, and Ice Control. After each module attendees were quizzed, and upon successful completion were issued a certificate. After attending this training, I hope to assist NHPWA and UNH T² to develop a training class for New Hampshire Public Works folks, which will cover similar topic areas.

On day two (Monday) I attended a General Session talk show on Public Works and Emergency Response. This session showed how the different emergency
response disciplines handle their place at the table, and how public works still has not earned the same level of respect as an emergency response collaborator or at the Emergency Management table. Although we have seen improvement, there is still a ways to go to be considered by some as at the same level as Fire and Police. The remainder of the day was spent attending sessions on “Solving Winter Challenges,” “Minimizing the Impacts of Winter Operations,” “High Performance Salt Pre-Wetting Agents- Solution to Melting More Ice with Less Salt” and “Fighting a Historic Flood in a Snow Storm.”

On Monday afternoon the vendor exhibit floor opened and I started visiting the hundreds of vendors who brought the latest and greatest snow and ice fighting technology, with snow removal equipment, trucks, plows, spreaders, salt brine sprayers, salt brine makers, treated salt manufactures, loader scales, side-walk maintenance equipment, pot hole asphalt patching equipment, and snow removal equipment up-fitters for equipment controls and metering.

On day three (Tuesday), I attended sessions on “The best defense is a strong offense”-Managing public trees, “Blizzards & Hurricanes- How they compare,” “Deicing science for non-scientist- how do deicers work anyway,” and “Disaster Anthropology: A case study of Blanc-Sablon, Canada- Where extreme weather events are a common thing.” The day wrapped up with an inspirational keynote speaker NASCAR Legend Jeff Hammond, who spoke of teamwork and respect of others within the team to achieve common goals.

The evening was a networking dinner at the NASCAR Hall of Fame, where we were able to network with attendees and try some teamwork and competition the NASCAR way. This event was a fun and interactive opportunity for all.

On the final day of the Conference (Wednesday) attendees toured the City of Charlotte’s DPW facility which was built in the past two years, Freightliner Truck manufacturing Plant, or Michael Waltrip Racing shop. I attended the Michael Waltrip Racing facility, which was just amazing to see what actually goes into the building of these quarter of a million dollar race cars, and the mechanical workings and teamwork support that keeps them a competitive race team for Michael Waltrip, Clint Boyer and Mark Martin.

The experience of the conference was excellent and I came away with greater knowledge in the construction of a comprehensive snow and ice policy, and how the trends of most all in attendance are the reduction of chlorides by the use of liquid deicers, such as salt brine as a pre-wetting liquid with salt and/or direct application for pre-treatment and post-treatment. It was noted that the use of salt brine has also reduced direct salt applications by 20-30% and 30-40% if they add calcium/magnesium chloride liquids and/or high sugar liquids such as beet juice, molasses or distilling by-products. These additional liquids added to the salt reduce salt bounce and scatter, and help lower freezing points of the liquids for better low-temperature activation of the salt chloride and help reduce refreeze. These techniques coupled with weather monitoring all help reduce environmental impacts and gain better deicing, but general don’t initially save money, but may in the long run.

Overall, this was a great conference and a great opportunity. It’s nice to know that we in New APWA Snow Conference Vendor Exhibit  
Nascar Racetrack
Hampshire are like many other states and communities in the country, striving to manage our winter maintenance operations efficiently with safety, environmental, and economic impacts in the forefront. Thanks again to the NHPWA Scholarship committee and NHPWA Board of Directors.

Scott D. Kinmond is an elected Highway/Road Agent- Public Works Director for the Town of Moultonborough, NH. Scott was elected to office in 2009, while he was still serving as Police Chief, a position held for 11 years of his 24 year Law Enforcement Career. Scott has served nearly 20 years as an Assistant Emergency Management Director for the Towns of Moultonborough and Ossipee. Scott has operated as a private snow removal contractor for over 25 years, and has been instrumental in reducing the use of salt applications by 30%, and sand/salt application by nearly 60% on paved roadways to reduce silica’s from the water sheds. Scott currently serves on the NHPWA Board of Directors, and is a life member of the NHACOP, and still serves on the Cadet Academy Training committee. Scott and his wife, Anne, have two daughters.

Public Works Departments and Social Media

The information for this article has been provided by AASHTO’s “Third Annual State DOT Social Media Survey” (September 2012) and from The Bridge’s “Road Commissions ‘Like’ Facebook” (June 2013).

This is the American Association of State Highway and Transportation Officials’ third annual survey of social media usage by state departments of transportation. Forty-one states and the District of Columbia participated in this year’s survey, which this year showed an increased interest on the part of state DOTs in how to improve the effectiveness of their social media programs. In addition, the survey shows that states are on the leading edge of government agencies experimenting with newer social media tools like Pinterest and Storify, while also increasing their capabilities to serve a mobile audience that depends on wireless devices like smart phones and tablet computers for information.

“...We used to be very rigid and formal in all our responses. Now, we’re trying to humanize the feed. We post pictures of ourselves and answer the feed as people (saying I and we) instead of an agency (DOT says...). It has helped tremendously and we’ve received really good public feedback!”

— Survey Comment

Old Tools, New Tools

This year’s survey points to a downward trend in usage for some social media tools, and hinted at potential growth in two newer tools. Again this year, fewer states reported using podcasts—recorded audio programs that can be downloaded to a smart phone, tablet computer, or mobile music player. Just 7 state DOTs said they regularly produce a podcast. In 2010, 10 states had active podcasts.

LinkedIn also appeared to be dropping in interest for state DOTs with less than 10 reporting a LinkedIn Third Annual State DOT Social Media Survey account, a significant drop from 2011 when 19 state DOTs had some kind of LinkedIn account. Those that have accounts said those accounts were mostly used for advertising job openings and recruiting new employees.

Pinterest, one of the newest and fastest growing social media sites in the past year, is now being used by seven state DOTs. The site functions as an electronic bulletin board. Users to “pin” images, video and other social media content to virtual boards. State DOTs say...
that for now they primarily are posting transportation images and videos to their boards.

Meanwhile, four state DOTs reported using Storify, a newer social media channel that allows the integration of Twitter, Facebook, video and other social feeds into a single story.

“We’re seeing a slow and steady gain in Twitter and Facebook followers. We’re seeing more and more people asking questions, sharing comments or airing concerns via these two medium.”

— Survey Comment

**Twitter, Facebook, and Video**

There is little doubt that Twitter remains the most used social media outreach tool for state DOTs with 88% (37 of 42) of state DOTs saying they use Twitter in some way to share information. Nearly half of respondents said their state was using Twitter differently than they did a year ago. Primarily, states report a stronger emphasis on personal messages that help build an online connection with the people who follow their Twitter accounts.

One state shared, “We’ve tried to ‘lighten’ our tweets and avoid just tweets of crashes and lane closures.” Another describes their shift this way, “Changed the traffic account to allow it to be more human. They respond much with a much more personal flavor now.”

While Twitter content is generally focused on traffic, weather and project information, state DOTs are using Facebook to explore more feature stories and human interest topics. Seventy-six percent of states (32 of 42) reported having some kind of Facebook account, a significant increase from 2010, when only 14 state DOTs had a Facebook account. Half of the state DOTs said they were shifting how they use their Facebook pages to make them more personable.

States that had automated news feeds on their Facebook pages are now manually updating the pages with project information, special events and more video and photos.

One state reports its Facebook page has become a key customer service tool. “We use Facebook for recruiting, and for featuring the more human interest side of (DOT). However, we are finding that we are getting more and more people posting questions and comments about highway projects on Facebook. So, we’re using it more and more for citizen representative/customer service type things.”

Another describes it this way, “We have been making an effort to keep the content fresh and to post more multimedia content. It does seem to have engaged more people.”

States also reported that they are using more photos and video on their Facebook pages as a way to help people understand programs and highlight special events.

Nearly 80% of state DOTs said they were using some kind of online video service (YouTube, Vimeo or similar site), with 40% saying their usage had changed in the past year. While some states said tools they had reduced their video capabilities, several states said they had increased their emphasis on video.

The state DOTs report using video to communicate more with employees, as well as the public. The videos are shorter and attempt show another side of transportation operations and projects. One state DOT said, “Have done many more personal interviews with the guys on the road, learning the challenges they deal with as they do their job.” And another state DOT said, “We’ve started using video to highlight all of the great things (DOT) is doing. We also use it for project updates.”

“We are producing and editing our own videos, such as ribbon cuttings, employee events, highway dedications, press conferences and etc. We are making available to the media (once approved by the Director) events and press conference information that the media may be interested in. We shoot the video and edit and once approved upload it for the media.”

— Survey Comment
States seemingly recognize their audience is increasingly on the move. The proliferation of smart phones, tablet computers, and other wireless internet-capable devices is among the reasons more states are looking to make their information more accessible to mobile devices. Sixty-two percent of state DOTs said their information is available in mobile-friendly formats. Nearly a third of states offer some kind of mobile device “app,” either for Apple devices or Android devices or both. However, 38% of state DOTs offer content that is optimized for mobile web browsers. Mostly the mobile information—in the apps and in the mobile web format—is aimed at travelers, offering access to traffic information and 5-1-1 systems.

**Challenges Ahead**

State DOTs overwhelmingly agreed (69%) that they anticipate challenges for their social media programs. Primary among those challenges is the pressure put on communication teams to shift their focus toward more social media outreach while still maintaining traditional outreach efforts.

Time was a noted concern for several of the respondents, as well as ensuring they had access to employees with the right skill set to manage and work in social media programs. One state said they were concerned about “too many (social media) to handle effectively.” Another state DOT described it this way: “Already we are spread kind of thin, so I anticipate we will have to make a choice at some point: either we shrink our social media presence and focus on the most successful/useful tools, or we hire someone to manage all of them full-time. Not sure our current approach is sustainable long-term, at least not effectively.”

Thirty state DOTs reported there had been a shift or re-distribution of responsibilities in the last year due to social media. Several state DOTs said their existing staff were given the added responsibilities of managing one or more social media tool. In one case, the organization’s web coordinator position was changed to an “interactive” communications manager responsible for social media as well as the web site.

With limited resources and growing responsibilities, state DOTs are putting a greater emphasis on measuring their social media efforts. Nearly 70% of respondents said they used some kind of analytics or measurement tools. And, from their analysis, state DOTs reported their audiences are steadily increasing and their levels of interaction are growing.

Measurement was identified by several state DOTs as a challenge in the coming year as way of knowing more about their audience. “We always need to be smarter about our content. We need to figure out how to engage our audience better,” said one state DOT.

And that emphasis on the end user—an emphasis expressed by several state DOTs—has raised the profile for social media tools within state DOTs. One state DOT described that awareness this way, “Now that people see social media is here to stay, everybody wants to use it and they want their own page. I spend a lot of time trying to sift through valid proposals versus someone wanting a new FB page because it’s ‘cool.’”

“A year ago, we did have someone dedicated to social media, but in the course of “right-sizing” our entire organization, we have had to spread those duties among several people, and are considering what role out-sourcing could play for us in the future.”

— Survey Comment

**Formulating a Policy**

With any social media platform, it is very important and helpful to have a policy regarding responses to comments from posts on the respective page. The following article illustrates the differences in
approach to social media by two road commissions in Michigan.

**Configuration**

Among Michigan road commissions with Facebook pages, Van Buren (941 Likes since September 2009) and Grand Traverse (1,324 Likes since May 2010) are two of the most active and well-established. However, they take different approaches in allowing the general public to post on their page.

Van Buren CRC’s Facebook page is set up to allow any user to create a new post. This configuration encourages the public to become more involved on the page. “Conversations must be two-sided to be worth-to a Facebook page does little to quell distracting posts, since a user with an axe to grind with the road commission may post in the “Recommendations” section of the Facebook page.

**Policy**

Another area where Grand Traverse and Van Buren differ is in official written policies. Grand Traverse CRC has a formal written policy governing their Facebook page, whereas Van Buren CRC puts much of the responsibility for the page in the judgment of the moderator. In the case of Grand Traverse CRC, configuration of the Facebook page regarding user comments is board policy, and not in the hands of the moderator. The board for Grand Traverse CRC also drafted a document that specifically establishes guidelines for using social media. The guidelines include the goal of social media utilization; rules for what posts are considered appropriate; duties of the page’s moderator; and other details. Anyone within the road commission can read the document to understand the overall goals and protocol of the Facebook page. (Grand Traverse CRC’s social media policy is available at www.michiganltap.org/bridge_27-1).

Van Buren CRC does not have a specific written policy, but rather places much of the decision-making in the hands of their Facebook moderator. Rader’s directive from her supervisor is to “respectfully educate” public audiences. Explaining how she responds to posts, she said, “If they are an easy fix, a misconception or issue, I handle it myself, but if it’s a more difficult or hostile post, I’ll draft the response and share it with my superiors for approval.” This ensures that the moderator is free to use their judgment in dealing with common posts, and that responses to difficult topics are collectively decided upon.
New Hampshire Public Works Mutual Aid

With record storms, flooding, and most recently Hurricane Irene and the October Noreaster, the need for mutual aid is ever increasing. In times of crisis, a mutual aid agreement allows neighboring communities to provide assistance in the form of labor and equipment to help each other through the disaster. Mutual aid is a FEMA-approved contract and will make the assisting municipality eligible for federal reimbursement.

Mutual Aid is available for only $25 per year and the benefits are innumerable. For more information, visit the T² website at www.t2.unh.edu/ma or contact Beth Hamilton at 603-862-1362.

Retroreflectometer Loan Program

NH LTAP has three retroreflectometers available to rent to NH municipalities. The retroreflectometers are able to accurately measure the retroreflectivity of road signs from a distance. Use one to meet the MUTCD Retroreflectivity Standards by loaning one today!

The fee for the equipment loan is $25, and municipalities may keep the retroreflectometer for up to six weeks (additional time may be requested).

For more information
www.t2.unh.edu/retroreflectometer
t2.center@unh.edu
603-862-2826

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Want to stay informed of our activities? Want to connect with other professionals who attend our training? Want to look at pictures from our training classes and other events? Then “like” us on Facebook or “follow” us on Twitter to stay connected! We are posting information daily on our activities, new programs, training, local news, and services.

www.facebook.com/nhltap
www.twitter.com/nhltap
Crossword Puzzle

Be the first to complete this crossword and fax it (603-862-0620) to win a FREE T² workshop!

NAME

AFFILIATION

E-MAIL

PHONE

ACROSS
6  This Michigan road commission has a written policy regarding the use of social media
9  Liquid deicers are used to help reduce these in snow removal processes
10  Adding this sugary thick syrup to salt can help reduce the bounce and scatter of salt during winter operations
12  Geosynthetic __ Soil

DOWN
1  Where GRS-IBS was first used in New England
2  As of June 2013, this many people had achieved Master Roads Scholar
3  The reinforcement in the GRS system helps resist tensile forces and decrease this type of deformation
4  This person was the keynote speaker on day 3 of the Snow Conference
5  The most popular social media platform used by DPW's
7  About a third of states offer this kind of program that can be downloaded to your phone
8  The 2013 North American Snow Conference was held in this city
11  Reinforcement provides resistance to soil that is weak in tension but generally strong in compression and this
## Fall 2013 Training Calendar

Classes starting at the end of August!

Check out our website for the most up-to-date calendar
www.t2.unh.edu/training-calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Roads Scholar</th>
<th>Hours</th>
<th>Location</th>
<th>Cost (Town/Private)</th>
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<tbody>
<tr>
<td>8/21/2013</td>
<td>Gravel Road Maintenance</td>
<td>5 Technical</td>
<td>5</td>
<td>Lyme</td>
<td>$60/$120</td>
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<tr>
<td>8/22/2013</td>
<td>Chainsaw Safety &amp; Maintenance</td>
<td>5 Technical</td>
<td>5</td>
<td>Raymond</td>
<td>$60/$120</td>
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<tr>
<td>8/23/2013</td>
<td>Invasive Plants</td>
<td>5 Environmental</td>
<td>5</td>
<td>Concord</td>
<td>$60/$120</td>
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<td>8/27/2013</td>
<td>Workzone Traffic Control</td>
<td>5 Safety</td>
<td>5</td>
<td>Colebrook</td>
<td>$60/$120</td>
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<tr>
<td>8/28/2013</td>
<td>Installation &amp; Maintenance of Culverts</td>
<td>5 Technical</td>
<td>5</td>
<td>Deerfield</td>
<td>$60/$120</td>
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<td>Guardrail Installation &amp; Maintenance</td>
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<td>First Aid, CPR &amp; AED Training</td>
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<td>5</td>
<td>Manchester</td>
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<td>Confined Space &amp; Trench Safety</td>
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<td>5</td>
<td>Derry</td>
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<td>Grader Operation &amp; Maintenance Day 1</td>
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<td>5</td>
<td>Canaan</td>
<td>$75/$150</td>
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<td>9/25/2013</td>
<td>Lines, Levels, &amp; Layouts</td>
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<td>5</td>
<td>Weare</td>
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