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Levels of Service for Winter Operations

Marc F. Valenti, *Manager of Operations*

Town of Lexington, Massachusetts

Member, APWA Winter Maintenance Subcommittee

[APWA Reporter, October 2018](#)

The public works industry is in the service business. When we as organizations reflect on how our organizations are performing, it comes down to the level of service (LOS) that we are providing to our customers. This applies to a community in Western Massachusetts that has a population of less than 600, major metropolis like New York City, or a state DOT. And, every level of service is different.



Photo courtesy of Town of Alton

It's my opinion, but I think most people like a nice, warm summer instead of a cool, snowy winter unless you ski or plow snow, or both! Snow is more of a nuisance to the public which drives organizations to be on their "A" game when it comes to winter operations. When you introduce the "nuisance" factor to your typical LOS, your customers are more sensitive to the winter ops.

Over the years, I have had numerous conversations with my colleagues across the country and I have heard everything from plowing residential streets at ¾" of snow accumulation to no plowing unless there is 12" on the side streets and everything in between. These are the two extremes of the LOS spectrum, but they are out there.

It's always a great exercise to perform a self-assessment of an operation. In this case, a few questions that need to be answered are, who developed your LOS for snow operations? Elected officials? Public Safety? Is it documented somewhere? Is it published for the public to see? Do you have a Snow & Ice Policy? If so, it's probably in there, but is it current? Snow & Ice Policies are live working documents and should change as the technology and operations evolve. The APWA Winter Maintenance Subcommittee can provide you with an example if your organization doesn't have one. They do work and it helps provide a baseline for performance of the operation.

Do your elected officials understand your LOS? Have they been educated in what your capabilities are? Have you made a point to meet with them and discuss what's to be expected for the

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Hello from UNH T2!

The UNH Technology Transfer Center (UNH T²) provides training and services to municipal employees, public and private road associations, and citizens, regarding new technologies and the management of roads and bridges. Established at UNH in 1986 by the Federal Local Technological Assistance Program (LTAP), the center is funded by the Federal Highway Administration and the N.H. Department of Transportation and sponsored by the University of New Hampshire, and the National LTAP and TTAP Program.

Staff

Erin Bell, Principal Investigator, UNH Associate Professor

Robert Henry, Financial Advisor, UNH Associate Professor

Marilee LaFond, T2 Manager

Chris Dowd, SADES Manager

Butch Leel, Senior Training Instructor

Stephanie Cottrell, LTAP Coordinator &

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By the time you read this, we'll know what a certain celebrity rodent predicted for spring's arrival, although it's likely few people in public works use the groundhog's forecast to plan their workforce and resource needs these last several weeks of winter! Regardless of how near or far spring is, I know that these cold, snowy days are a testament to the commitment of public works professionals in New Hampshire. You worked through the slush from our recent snow/rain event, the sting of our recent cold snap, and countless hours into the night keeping New Hampshire's roads safe and passable. As we look towards spring's arrival, we thank you for your dedication, not only this winter, but year round.

The UNH T2 office has been busy since returning from our holiday break! We're well underway in planning our 2019 Workshop Calendar and have a few host spots available if you'd like to bring a T2 workshop closer to you. This year, we're excited to offer hosts 4 free seats, as well as to allow up to 2 unused free seats to be applied to another UNH T2 workshop of equal or lesser value. See our "How to Host" document on t2.unh.edu for full details and restrictions. While you're waiting for the UNH T2 2019 Workshop Calendar to be released, don't forget about some of the other great training resources available to you! We are adding new Tailgate Talks to the library at <https://t2.unh.edu/tailgate-talks> and local road agencies have free access to the AASHTO Transportation Curriculum Coordination Council (TC3) library of online training- see <https://t2.unh.edu/TC3training> for details.

We're also busy preparing for our move to Learnforlife.unh.edu, our new online registration and payment portal. Learnforlife.unh.edu will allow users to register online and pay for T2 workshops with a credit card. It also allows us to streamline your organization's registration process by creating your team as a "Group" with a Group Administrator who is able to register multiple people to a course (rather than register each individual separately). We highly recommend this option if you are a town or organization with an administrator or other single point of contact for workshop registration or if you'd like to consolidate registration requests under one approver. While we know that rolling out new software has its challenges, we're really excited for the enhanced functionality, user experience, and payment options that Learnforlife.unh.edu will allow. We're working to finish our transition as quickly as possible, so we can release the 2019 Workshop Calendar and open the 2019 registration process. Watch for more info soon, and connect with me at marilee.lafond@unh.edu if you'd like to set your organization up for "Group" registration functionality with Learnforlife.unh.edu.

We invite your input on a couple initiatives. As you may know, effective February 7, 2020, drivers applying for an initial CDL, upgrading an existing CDL, or obtaining an endorsement will need to complete Entry-Level Driver Training (ELDT) with a Training Provider listed on FMCSA's Training Provider Registry (TPR). We'd like to understand New Hampshire municipalities' current CDL needs, including hiring and training practices for CDL positions, in order to consider what support municipalities may benefit from in regards to the ELDT rule. We appreciate if one member of each municipalities' public works leadership team completes our brief 7 question survey, which is found at [Survey Monkey](https://www.surveymonkey.com/r/5XHHZPg) (click here or copy and paste this link into a browser window <https://www.surveymonkey.com/r/5XHHZPg>). For more information on the ELDT rule: <https://www.fmcsa.dot.gov/registration/commercial-drivers-license/eldt/faqs>.

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Photo courtesy of Dennis Ford, NHDOT

upcoming season? A simple meeting to explain the LOS will provide the critical information that's needed when the phone calls start coming in. Have you met with Police, Fire & EMS to make sure that everyone understands what acceptable road conditions are?

Is your LOS published in a flyer, on the internet, etc.? Public education prior to the winter season helps the support staff who answer the daily calls about winter-related issues. The staff benefit the most from the public education component.

Are the expectations of your organization achievable when it comes to the snow operations LOS? Before this question is answered, it's best to perform an internal

audit of your resources which includes staff, equipment, contracted services and materials. Make sure that your LOS is attainable with your current staff. Does your staff understand the expected LOS? Make no assumptions about whether or not they know it; make it a point to articulate the expectations of the operation.

A good starting point with staff is to bring them in and debrief them relatively soon after a season has ended. And, follow up with the same staff prior to the start of the upcoming winter season to recap, again. This is a great time to discuss the LOS and spark discussion about what is expected of them to maintain the current LOS. This is also a great time to discuss whether the LOS needs to be adjusted. With current personnel issues like employee retirements, promotions, and departures due to other opportunities available in other public works organizations, it's always good to make sure that everyone understands their responsibilities.

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Butch Says - Silent Heroes are Everywhere

The word "Hero" has many definitions.

"An ordinary individual who finds the strength to persevere and endure in spite of overwhelming obstacles"

"One who shows great courage"

"Selfless, passionate, and intentional in services performed to others"

There are silent heroes all across New Hampshire doing extraordinary things every day that many wouldn't do for any amount of money or that the general public may not even be aware of.

Quite often the heroes of public works face dangerous situations, work long hours and long weekends, through holidays, proudly and humbly maintaining our roads so that the public can get to their destinations safely.

They are the people who collect your garbage and maintain your streets, bridges, ditches, culverts, parks and more, all to keep your town roads clean, safe, and beautiful.

They treat your water to make it safe to drink and treat your sewage so that you don't have to think about it. They plow the roads during snowstorms, clearing the way for Fire, EMS, and police. And sometimes they even save lives.

As I think about my life and those who've worked by my side over the years, my wish for the public works professionals is that every resident in their communities takes the opportunity to meet them. These amazing and generous people, who perform with grace under sometimes tight budgets, in sometimes hazardous places, using ingenuity and creativity, do so for the common good of their towns' people. I hope that the taxpayers will recognize the level of commitment, creativity, determination and ethics displayed every day in their work efforts.

The people who make up the public works community are outstanding in their passion and pride for doing an exceptional job without the desire for fanfare or glory. However, they deserve the recognition and appreciation for their admirable efforts.



graphic credit: creepypasta wiki

History of Winter Maintenance in New Hampshire

Stephen Gray
NHDOT Maintenance Engineer

With cold weather at our doorstep, highway crews across NH are scrambling to finish up summer activities and prep for winter. It is also a good time to reflect on those who have preceded us and how they have influenced our current winter maintenance practices.

New Hampshire has a long and proud history when it comes to performing snow and ice control activities. Today this difficult and strenuous job is performed by dedicated municipal and state employees who can now utilize equipment, materials and technology that was unavailable when winter maintenance was in its' infancy. The early employees' work ethic, dedication to the task and ingenuity serve as the cornerstone for the successful programs we have today.



Plow Truck in Lancaster 1933, photo courtesy of NHDOT files

The earliest days of snow removal utilized horses or oxen who pulled primitive wooden plows, which in some cases consisted of two large logs bolted together to form a "V". Also popular were the horse drawn road graders which could also be used in the warmer months. As time passed crawler type tractors started to be purchased by communities to open up their roads. The problem with the tractors was that they were very slow (2-3 mph), pushed snow continually in front of the tractor due to its bulldozer blade and offered no protection from the weather for the tractor's operator. As trucks became more popular for snow removal, several manufacturers started developing snowplow blades that fit onto the trucks. One company, Frink, from Clayton, NY worked with NH on a prototype plow, calling it the New Hampshire plow. Frink also developed a push frame that would accept either a V plow or a one-way plow. Sargent Manufacturing in Maine also was an early producer of plow equipment. The development of these plows allowed crews to clear additional miles of roadways in a shorter time frame than was possible before their introduction.



Snow Roller early 1900s, photo courtesy of NHDOT files

Winter in New England has never been an easy time for motorists or highway maintainers. In the early 1900s car owners in rural areas would often block up their Model A or T in their garages for the winter months as they did not anticipate that roads would be suitable for travel. Transportation was restricted to walking or the use of horse drawn devices in lieu of motorized vehicles. Motorists' expectations have changed considerably over the years as they now are demanding bare pavement even in the middle of severe nor'easter.

Some communities decided that rolling the snow was an easier and quicker way to maintain their roads rather than trying to plow them. This led to the era of snow rollers which were popular from the 1890's to around 1918. The devices were approximately 7 feet wide and about 11 to 12 feet tall. They were pulled by horses, oxen and in some cases cattle. The rollers made walking and travel by sleight easier but left a real mess in the spring as the compacted snow was slow to melt and prone to pot holes which made traveling extremely difficult. Several communities-Alexandria, Bartlett, Bow, Canaan, Colebrook, along with NHDOT in Concord-have restored snow rollers on display.

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Please make note of these changes to our workshop information.

Breakfast foods and coffee will not be served- bring your own favorite iced or hot, tea or joe! We'll have light snacks available.

Full day workshop check-in will now begin at 8:15am. Please check the flyer for specific details as some workshops may vary.

New Online Registration and payment platform coming soon! Watch PW.net and Facebook for details.



UNH Showcases at the 2019 Transportation Research Board Annual Meeting

Over 25 faculty members, students and alumni of the Civil and Environmental Engineering Department at the University of New Hampshire, gathered for lunch at the 2019 TRB Annual Meeting in Washington, D.C. last month. This gathering helped kick-off a great week of technical presentations and knowledge sharing. Twelve podium and poster presentations were made by UNH graduate students and faculty in areas ranging from pavement design to asphalt mixtures to using neural networks for bridge condition assessment.



photo Courtesy of Erin Bell

UNH Faculty members, Erin Bell, Jo Sais, Eshan Dave and Kyle Kwiatkowski, are active members of several TRB committees, including the Pavement Maintenance Committee (AHD20), the Characterization of Asphalt Paving Mixtures Committee (AFK50) and the Field Testing and Monitoring of Transportation Structures Committee (AFF40).

Update courtesy of Erin Bell, Principal Investigator of UNH T2 Center, and Associate Professor at UNH.



Build a Better Mousetrap 2019

Have you or a colleague recently built an innovative gadget, improved how you do a certain job or task, or otherwise implemented a change that has a positive impact to your workplace or community? Your innovative success can be anything from the development of tools, equipment modifications, and/or processes that increase safety, reduce cost, improve efficiency, or improve the quality of transportation. Build a Better Mousetrap Competition is your opportunity to show off the innovative projects that have improved your work environment or efficiencies.

The winning NH public works, municipality, or other state road agency will receive five (5) T2 workshop certificates, with a total value up to \$500, and will also be submitted to the National LTAP competition for consideration and potential recognition at the national level! Equally important- this is a great way to share your ideas with and inspire others.

Be on the look out for details about this year's competition. <https://t2.unh.edu/build-better-mousetrap>

We look forward to receiving your entries – best of luck to everyone!

Lastly, we'll soon release submission details for the 2019 Build a Better Mousetrap competition. Please take a look around your garages and sheds, and think back on the changes in tooling, process, safety efforts, and other innovations your team created. We look forward to many towns sharing their stories of creativity and problem solving with us!

We'll soon see piles of snow stop growing and start shrinking. The sunlight will last a bit longer each day, and the sights and sounds of spring will fade into view. Our public works professionals will shift focus from plowing and clearing roads to spring cleanup, repairing winter-worn roadways, and planning for summer projects. We look forward to workshop season starting back up then and seeing many of you shortly!

Best regards,

Marilee

Marilee LaFond
Technology Transfer Center Manager

“Don’t be afraid to change. You may lose something good, but you may gain something even better.”

~Unknown

COMING SOON



Facebook GoLive Tailgate Talks! Starting in March, UNH T2's very own Butch Leel will bring you live Tailgate Talks on the first Monday of each month. These videos will be available on our Facebook page <https://www.facebook.com/UNHT2CenterLTAP>. Accompanying materials are available now at our website at <https://t2.unh.edu/tailgate-talks>.

We hope your team will use these documents to create ongoing dialogue around working safely.

Do you have the equipment to achieve the current LOS? If so, great! If not, think about what it would take to adjust the LOS and tailor it to what can be accomplished. Start planning to replace the equipment to get your operation to the point where you need to be. Correct, where you need to be, not where you want to be. It's all about progression; plan for success! There's a lot of new technology out there that will enhance your LOS—everything from composite plow edges, expandable snowplows, tow plows, slurry (“oatmeal”) salt spreaders, ground speed and central hydraulics systems, winter liquids, etc. Communicate with staff and see what kind of equipment challenges are inside the organization and make the changes as best as you can.

If you use them, make sure that the contracted services are briefed before the season starts, especially if they are new to the contract. It's always good to have a point of contact that understands the contract requirements and performance measures. They should also have a good understanding of the agency's organizational structure when they need to communicate with the agency staff. Keep the dialogue in the forefront to make your operation successful.



*Lexington, MA residential side street goes down to one lane.
photo by Marc Valenti*

Materials... why should they be included in LOS considerations? Can the current storage facility for the materials that you use sustain the LOS? Is your agency using more materials more than your facility can store? Can your supplier replenish your supply as quickly as it's applied? Now is the time to reconsider that your expectation may not be attainable. A “bare” pavement policy may deplete your salt supply too quickly. Bare pavement policies are a slippery slope; they are very expensive for the taxpayer, the environment and your storage facility.

In closing, a winter operations Level of Service must be sustainable for the customers, budget, personnel and environment. Each of these holds serious weight in the equation of LOS development and they should always be balanced as best as possible.

Marc Valenti can be reached at (781) 274-8350 or mvalenti@lexingtonma.gov.



Tractor from 1930s photo courtesy of NHDOT files

While local communities started snow removal in the 1905- 1915 period, State roads were not touched until the winter of 1925-1926 when the Legislature appropriated \$36,700 to plow 620 miles of recently designated trunk lines. Costs were to be shared 50/50 between the state and communities which the roads passed through. Some of the state funds came from the recently enacted \$.01 gas tax. Another requirement was that at least two abutting communities had to partake in the agreement.

Up until this time the northern part of NH (above the notches) was effectively cut off from services or goods in the lower reaches of NH, except for train service. NH citizens were quick to recognize the benefits of year-round travel and the winter of 1926-1927 saw an almost 100% increase in plowed mileage. One interesting note was the law authorizing the snow removal stipulated that 4 inches of snow was to remain on the roadway for sleigh travel. This proved to be a disaster and the law was quickly amended.

Due to its geography, several unique winter operations were developed in the mid-1900s. Because of rapid weather changes in the mountain notches, it became necessary to have men and equipment in close proximity to these roads. As no one was residing in these mountainous areas during the winter months, the state highway department provided year-round road camps in Dixville, Franconia, Crawford, Pinkham and Kinsman notch. Usually three men lived in these camps one whom had a wife who performed the duties of a housekeeper. These men, besides performing snow clearing efforts, were also required to make a trip through each notch every hour during those nights that the temperature was -10F or below. The development of winter sports in the north country made this patrolling a necessity and rescued many motorists who had broken down.

Perhaps New Hampshire's greatest contribution to winter maintenance occurred in 1941 when the state pioneered

Continued from page 4 **History of Winter**

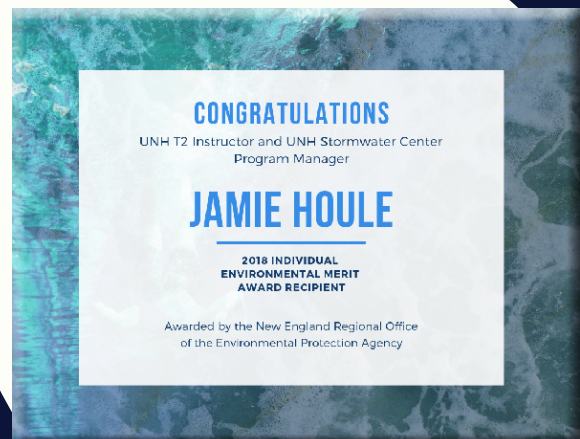
the application of straight salt at the beginning of a storm. Prior to this, the usual practice was to plow and then treat the roads with sand, which often resulted in hardpacked snow on the roadway if it was a snow storm and ice if it was freezing rain. NH State Maintenance Engineer Johnson worked with salt producers to obtain a coarse grain salt (still in today's specification) that when applied to the centerline of the road created a long-lasting brine which prevented hard pack and allowed for removal of most of the accumulated snow with the plow. The road returned to a bare or near bare condition quite quickly following cessation of the storm. Those of you who are following the "new anti-icing techniques" will recognize that this treatment is comparable to what is currently being promoted.

NH also developed a means to discharge the salt onto the roadway by welding two- and one-half inch steel tubes in truck bodies directly in front of the rear tires. Men in the truck body rodged the salt down the tubes resulting in an application rate of about 300 lbs. per mile at 18mph. Reducers were available to be inserted when truck speeds were limited due to icy driving conditions. Swenson fertilizer spreaders attached to the tailgate also saw limited use as did homemade tow behind spreaders.

Today, snow and ice operations continue to be a critical responsibility of all road maintenance crews. Cost efficiency, effective treatments and customer service are as important today as they were in 1900. To be successful it is important to recognize and appreciate the contributions made by past employees and to continue their legacy.

Appreciation is extended to Robert A. Hogan, State Maintenance Engineer 1970-1996, for his assistance in preparing this article.

Stephen Gray, a retired State Maintenance Engineer, began his career in 1970. He also offered his expertise to UNH T2 for over 15 years as an instructor and consultant.



Tracking Innovation Across New Hampshire

By: Stephanie Cottrell

The NHDOT has recently released a new website viewer that provides information on the Department's innovative initiatives that have been put into practice statewide. The viewer, developed by the Research Unit in the NHDOT's Bureau of Materials and Research, maps the locations and benefit of new ideas, practices, materials, or activity used.

Use the viewer for motivation to think outside the box on a future project. Has your agency made improvements to productivity, lengthened service life of an asset, or reduced cost on construction or maintenance? Did your newly installed roundabout incorporate safety improvements? What about that pipe rehabilitation project that used new materials? (No slip-lining, please.) Has your agency implemented an Every Day Counts initiative during the last 10 years? If so, the NHDOT would like to add those innovations to the viewer. The categories of interest include:

- Aeronautics
- Bridge
- Contracting
- Environmental
- Hydraulics
- Materials
- Pavement Preservation
- Plow Rally (past Winners)
- Traffic Control Device



At each location, four of the most appropriate benefit areas are identified.

- Improved Productivity and Work Efficiency: includes expedited project delivery and customer satisfaction
- Increase Service Life: includes materials, pavements, and performance quality
- Reduced Costs: includes reduction in administration, user, construction, operation, and maintenance costs
- Safety and Mobility: includes traffic and pedestrian control measures

Find the **Decades of Innovation Viewer** at <https://www.nh.gov/dot/projects/>

The NHDOT would appreciate any feedback or input you may have regarding this new tool. Please contact Ann Scholz, Research Engineer at the Bureau of Materials & Research Ann.Scholz@dot.nh.gov

If you need a little help generating the innovation spirit among your team, you may find some useful tools in a report that TRB's National Cooperative Highway Research Program (NCHRP) filed on how to develop and sustain a culture of innovation in your agency. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w248.pdf

Memorial to Public Works Employees Construction Update!



As of November, 2018 the memorial site was buttoned up for the winter with all major components in place. Between April and June of 2019, plantings, granite benches, 24 shovels, flag poles, landscaping, pavement imprinting and 4 granite stones for name engravings will be installed. A dedication will be planned for a date in June or July depending on progress. Donations made to the project through a **GoFundMe page** (<https://www.gofundme.com/nh-public-works-memorial>) and contributions made via purchases at **Amazon Smile** (smile.amazon.com and select New Hampshire Public Works Association as your charity of choice) are greatly appreciated!

To see a list of In Kind Donations received to date, and to learn more about the project visit the NHDOT's

Public Works Employee Memorial page <https://www.nh.gov/dot/org/operations/highway-maintenance/memorial.htm>. Thank you to all those who've given their time, skills, materials, and more to the project thus far!



*Curb installation and Paving, Fall 2018
Photos courtesy of NHDOT*



www.t2.unh.edu

Extending Road Service Life Goal of Study

Published in [Pavement Preservation Journal, Fall 2018](#)

Editor's Note: This is the seventh of a continuing series of profiles of civil engineering students who are undertaking pavement preservation as a course of study. These students bring a different perspective of why a young civil engineer would pursue preservation study. **Katie Haslett** is a graduate student at the University of New Hampshire who is pursuing an M.S. in civil engineering.

WHAT GOT YOU INTERESTED IN PAVEMENT PRESERVATION?

My passion and interest in the asphalt field was sparked four years ago when I had the opportunity to work in the materials research lab at the University of New Hampshire. What began as a summer job quickly became more than just a job.

I soon wanted to learn more about one of the largest pieces of infrastructure that we often take for granted—our roads. I began taking more classes and working on more research projects related to pavement performance and preservation. While under the guidance of my academic advisors, Dr. Jo Sias Daniel and Dr. Eshan V. Dave, and through practical industry experience from internships during my undergrad period, I was hooked.

HOW IS YOUR RESEARCH RELATED TO PAVEMENT PRESERVATION?

One of the most common maintenance and rehabilitation techniques is an asphalt overlay. As infrastructure ages, it's critical that agencies use the most cost-effective tools and methods to maintain and preserve our roadways within the available amount of funding.

In 2018, I am working on an asphalt concrete overlay reflective cracking study for Minnesota DOT. One of its primary goals is to develop a simple decision tree-based tool to be used by agencies to select appropriate asphalt mixtures and overlay designs to extend service lives via lowering reflective cracking and improving in-situ density. As part of the project, a life cycle cost-benefit analysis will be performed to evaluate the most cost-effective alternatives, while incorporating cost, constructability, and performance over time.



Laboratory testing—as well as field data from 12 MnROAD test sections (eight reflective cracking sections and four density compaction enhancement sections) will be utilized to characterize the asphalt overlays.

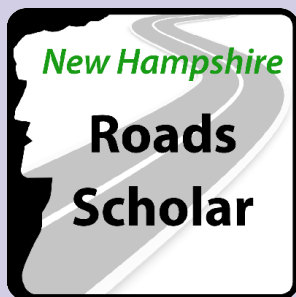
Two approaches are being investigated in this study to evaluate the impact of in-situ density: modifying the design air voids (Superpave5), and the regressed air void method. Overlay thicknesses range from an ultra-thin bonded wearing course (0.75 in.), to a total overlay thickness of 4 in. The use of bond or tack coat application, type and rate are also being investigated as part of this study in context of delaying and or minimizing reflective cracking. A total of eight different mixtures are being evaluated by a range of laboratory tests including:

- Disk-shaped Compact Tension (DCT)
- Semi-Circular Bend (SCB)
- Texas Overlay Tester (OT)
- Indirect Tensile Strength and Creep (IDT)
- Dynamic Modulus
- IDEAL-CT
- Direct Tension Cyclic Fatigue (S-VECD)
- Hamburg Wheel Tracking Test. and
- Mix Bending Beam Rheometer Test

HOW HAS YOUR PERSPECTIVE CHANGED ABOUT OUR ROAD INFRASTRUCTURE SINCE BEGINNING OF THE RESEARCH?

Before studying or performing any research in the pavement field, I would overlook the complexity, importance and impact of studying pavement preservation. As many other road users, I took for granted the piece of infrastructure that we all use daily to get from one point to another and keeps us connected with family and friends. I was always

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Roads Scholar Program

The Roads Scholar Program establishes educational and training requirements for municipal level highway practitioners, and recognizes those who have successfully completed

specified T2 Center workshops. Annually, the T2 Center publishes a directory to acknowledge those who have earned an achievement level among our Roads Scholars.

Since January 1, 2015, there are six levels in the NH Roads Scholar Program, plus an additional "side award." Each Level has a defined number of contact hours, and Level 2 requires attendance at workshops in specific subject areas. A contact hour is an hour of actual instruction. A typical one day workshop includes 5 hours of instruction in a specific subject area to ensure that training covers a range of subjects essential to local road management. In addition, if Roads Scholar participants earn 20 contact hours in the Safety category, they earn a Safety Champion award.

§ Roads Scholar 1 Completion of 25 contact hours

Steve Albrecht	NHDOT District 2
Alec Bass	City of Concord
Nick Bishop	Town of Whitefield
Tony Bishop	Town of Enfield
Henry Boucher	City of Nashua
William Boulanger	City of Dover
Erik Bournival	Certified Maintenance Services
Nick Brown	Town of Derry
Robert Brule	City of Manchester
Mike Cahalane	Town of Effingham
Christopher Cantara	NHDOT District 2
Daniel Cloutier	NHDOT District 4
Rob Coates	Town of Hampton
Jon Collins	NHDOT District 1
Ray Cornish	NHDOT District 2
Eric Costello	NHDOT District 5
Charlie Cotton	Town of Wakefield
Chris Davies	Town of Bennington
Ron DeDucca	Town of Moultonborough
Jeffrey DeMartino	Vill. District of Eidelweiss
Thomas Demers	Demers Mowing & Land.
Bryan Dodier	Town of Barrington
George Drew	Town of Chichester
Gerald DuBreuil	R&D Paving, Inc.
Shane Elliot	Town of Barrington
Trevor Field	NHDOT District 2
Bryan Flanders	Town of Goffstown

Bruce Gosselin	City of Manchester
Charles Goulet	Town of Stratford
Wayne Gray	Town of Cornish
Craig Hale	Town of Meredith
Benjamin Hatch	Town of Meredith
Robert Hutchins	Town of Epsom
Jonathan Ibarra	City of Nashua
Brian Jean	Certified Maintenance Services
Scott Johnson	Town of Enfield
Justin Kimball	City of Concord
Kevin King	NHDOT District 5
Colin Laverty	Town of Stratham
Calvin Linden	NHDOT District 3
Greg Lingley	NHDOT District 5
Jay Lorenz	City of Manchester
Dan Lyons	Town of Colebrook
Clayton MacDonald	Town of Stratford
Steve Marquis	Town of Conway
Nick Mathieu	Town of Pittsburg
Shawn Maurice	City of Manchester
Warren Merrill	NHDOT District 3
Christopher Milligan	NHDOT District 1
Jim Morris	Town of Greenfield
William Muse	Town of Pittsburg
Brian Nault	Town of New Boston
Steve Opett	Certified Maintenance Services
Anthony Paveglio	NHDOT District 5
Kristpher Perreault	Town of Bedford
Peter Reed	Town of Hampton
Christopher Rose	NHDOT District 5
Ryan Salmon	Town of Bridgewater
Nick Sanders	NHDOT Traffic Bureau
Jonathon Sawyer	Town of New Ipswich
Brian Schipmann	NHDOT District 6
Adam Shackford	NHDOT District 3
Mark Shearholdt	Certified Maintenance Services
Brian Sicard	Town of Plainfield
Nicholas St. Cyr	NHDOT District 1
Dan Steagald	NHDOT District 5
Wyatt Stockman	Town of Tilton
Steven Tallman	Town of Rumney
Kyle Tie	NHDOT District 2
Richard Turcotte	NHDOT District 3
James Tyler	Town of Milford
Chris Valliere	NHDOT District 1
Keith Wells	Town of Meredith
Michael Wenrich	Town of Brookline
Corey Wike	Town of Goffstown
Peter York	NHDOT District 3

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Funding Resources



Call for Submissions!

Applications for federal fiscal year 2019 STIC Incentive funding are still be accepted. Applications can be found on the NHDOT STIC webpage <https://www.nh.gov/dot/programs/stic/index.htm>

The requirements for eligibility of a project or activity are as follows:

- The project must have a statewide impact in fostering a culture for innovation or in making an innovation a standard practice.
- The project/activity for which incentive funding is requested must align with TIDP goals.
- The project/activity must be eligible for Federal-aid assistance and adhere to applicable federal requirements.
- The proposed project/activity must be started as soon as practical (preferably within 6 months, but no later than 1 year) after notification of approval for STIC Incentive funding and the funds must be expended within 2 years.

Visit <https://www.fhwa.dot.gov/innovation/stic/guidance.cfm> for greater details about the guidelines for submission.

For more details and information on the NH STIC council: <https://www.nh.gov/dot/programs/stic/index.htm>

The NH STIC council is a partnership of public and private transportation industry stakeholders that work together to evaluate innovative products and practices and to lead their incorporation into the next generation of New Hampshire's transportation network.

The mission of the council is to identify projects, apply for federal funding, develop or evaluate new products and technologies, and to transfer the innovations into the construction projects of the future.

Bill Oldenburg, STIC Co-Chair, NHDOT Assistant Director of Project Development

Patrick Bauer, STIC Co-Chair, FHWA Division Administrator



Every Day Counts (EDC) is a Federal Highway Administration's (FHWA) Center for Accelerating Innovation (CAI) program. Round 5's list of innovations was launched at the start of the federal fiscal year 2019 with 10 focus topics. The CAI website offers many tools to help navigate and understand these innovations, including orientation webinars. Visit https://www.fhwa.dot.gov/innovation/every-daycounts/edc_5/index.cfm to learn more about this program.

The NHDOT submitted implementation plans to FHWA on the following EDC-5 innovations. The selected innovations will be implemented at various stages over the next two years.

- Advanced Geotechnical Exploration Methods - Development
- Collaborative Hydraulics: Advancing to the Next Generation (CHANGE) - Assessment
- Reducing Rural Departures - Development
- Safe Transportation for Every Pedestrian (STEP) - Demonstration
- Unmanned Aerial Systems (UAS) - Assessment
- Use of Crowdsourcing to Advance Operations - Demonstration
- Virtual Public Involvement - Development
- Weather-Responsive Management Strategies – Development

Yamilee Volcy, FHWA EDC Coordinator (603) 410-4842 Yamilee.Volcy@dot.gov



The NH Department of Environmental Service's (NHDES) Grants Management Section offers three financial assistance programs to communities for the design and construction of eligible stormwater and wastewater projects.

1. Clean Water State Revolving Fund (CWSRF)
2. State Aid Grant (SAG) Program
3. State Aid Grant Plus (SAG Plus)

For details, applications, loan calculators, guidelines and more, visit <https://www.des.nh.gov/organization/divisions/water/web/grants.htm>

Continued from page 10 **Extending Road Service**

quick to notice when there were construction delays or poor ride-quality roads, but never put much thought into it past the inconvenience of those issues, to understand the underlying cause and what can be done to improve our road network. After performing research in pavement preservation and related fields, I have developed a greater appreciation for the impact that small improvements in pavement preservation can make for agencies, users and our environment.

DO YOU HAVE PLANS TO CONTINUE IN THE FIELD OF PAVEMENT PRESERVATION UPON GRADUATION?

After completing my graduate studies at UNH I plan to continue to work in the field of pavement preservation. Through my educational and work experience, I've come to appreciate the need to develop sustainable and cost-effective maintenance and rehabilitation techniques to achieve longer service lives of roadways. I look forward to following where the next road leads me in my pavement career.

Reprinted with permission from the Fall 2018 issue of Pavement Preservation Journal magazine of FP2 Inc. To subscribe or current or past issues, visit <https://fp2.org/pavement-preservation-journal/>

Thanks to Andrew Braham Ph.D. • University of Arkansas - Fayetteville, Eshan Dave. Ph.D. • and Jo Sias Daniel. Ph.D. • University of New Hampshire, and Jerry Geib, P.E., MnDOT, for their assistance with this article.



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**Contact marilee.lafond@unh.edu to consolidate
your organization's workshop registration under
one administrator/approver!**

**Watch for further details, and our
2019 workshop calendar soon!**



There's a new face in the office! **Bettina Sietz** joined us at the beginning of the year as a new LTAP Program Assistant.

We are so happy to have her on board. She's made great strides so far, and we are certain that before long she will be settled in.

This is what Bettina had to say about joining the team:

What made me apply for this position is, that I truly enjoy networking with people, exchanging ideas and serving training programs that support your teams in safety, professional development, and the environment, as well as NH roadway users. I am excited to be a part of the mission of LTAP, and to learn about supporting New Hampshire's roadways.

Bettina came to New Hampshire 13 years ago from Munich, Germany. She and her husband, David, reside in Durham with their two kids and dog. She is looking forward to meeting and working with you.

Solution to Dec. 2018 Word Scramble

visibility	green snowpro	brine
pre-wetting	application rate	plow
calibration	temperature	freezing
public relations	safety	forecast
blizzard	proactive	ice
adequate sleep	spreader	storm
salt reduction	blade	wind
	snow	

Roads Scholar

§ **Roads Scholar 2** Completion of 50 contact hours in specific subject areas: 5 hours of Environmental, 10 hours of Safety, 5 hours of Supervisory, 20 hours of Technical, 10 additional hours

Andy Brackett	Town of Landaff
Charlie Cotton	Town of Wakefield
James Eddy	Town of Jaffrey
Kevin Gilbert	Town of Wentworth
Mark Green	NHDOT District 2
David Heald	Town of Conway
Ralph Lucas	Town of Littleton
Marc Moore	City of Concord
Tom Nixon	Town of Derry
Richard Rae	Town of Amherst
Anthony Rossitto	Town of Colebrook
Chris Rouleau	Town of Conway
Nate St. Cyr	Town of Whitefield
Jim Taylor	Town of Enfield

§ **Senior Roads Scholar** Completion of 75 contact hours

Dale Bevilacqua	Eastman Community Assoc.
David Briand	Town of Derry
Scott Brown	Town of Colebrook
Richard Collins	Town of Plainfield
Nick Coursey	Town of Rumney
Jay Davini	City of Manchester
Joseph Gore	Town of Wakefield
David Heald	Town of Conway
Jason Lemere	Town of Plainfield
Ralph Lucas	Town of Littleton
Marc Moore	City of Concord
Chris Rouleau	Town of Conway
William Sargent	Town of Littleton
Nate St. Cyr	Town of Whitefield
Jeffrey Storey	City of Laconia

§ **Master Roads Scholar** Completion of 100 contact hours

Steven Boyd	Town of Derry
Daniel Camire	City of Laconia
Raymond Dodier	NHDOT District 3
Kevin Hodgdon	Town of Bedford
Michael Kelly	City of Laconia
Michael Laughy Sr.	Town of Wakefield
George Miller	City of Claremont
James Nave	Town of Moultonborough
Bryan Pease	NHDOT District 3

§ **Master Roads Scholar 2** Completion of 150 contact hours and individual must be a Safety Champion

Neal Beauregard	Town of Jaffrey
Randy Borelli	Town of Derry
Louis Lapointe	Town of Merrimack
Dennis McCarthy	Town of Rye
Richard Schofield	Town of Derry
William Shoemaker	Town of Enfield
Douglas Starr	Town of Jaffrey
Jeff Strong	Town of Merrimack

§ **Advanced Master Roads Scholar** Completion of 200 contact hours and must meet specific program requirements determined on an individual basis.

Gordon Ellis	Town of Epsom
Craig Sykes	Town of Raymond

§ **Safety Champions** Completion of 20 Safety contact hours

Mark Allen	City of Keene
Myron Beaulieu	Town of Goffstown
Craig Blais	Town of Bedford
Joseph Gore	Town of Wakefield
Archibald Jackson	Town of Bedford
Brandon James	Town of Conway
Greg Lingley	NHDOT District 5
Dennis McCarthy	Town of Rye
Frank McGrath	Town of Derry
Jack Meaney	Town of Weare
Greg Messenger	Radford Messenger, Inc.
Marc Moore	City of Concord
Brian Morway	City of Claremont
Steve Paro	Town of Milford
Jeffrey Storey	City of Laconia
Jim Taylor	Town of Enfield
Dawn Tuomala	Town of Merrimack
James Tyler	Town of Milford
Glen Vulner	Town of Pittsfield



Congratulations to the 2018 Master Roads Scholars!

Word Scramble

NAME _____

AFFILIATION _____

E-MAIL _____

Submit your completed word scramble by March 15th, 2019 to be entered to win a FREE T² workshop!

Fax: 603-862-0620

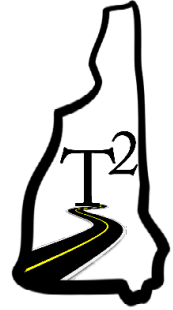
Email: t2.center@unh.edu

Mail: Technology Transfer Center

33 Academic Way

Durham, NH 03824

Word Scramble answers from December 2018 edition found on page 13



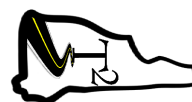
Road Business Winter 2019 Word Scramble

Created on TheTeachersCorner.net Word Scramble Maker

1. oswn rthfige
2. fciotaecirnit
3. trmeginpit
4. ercutvl ianramntei
5. tsleni eroh
6. dtoekwne
7. arteyohphmi
8. itlaaetg tlkas
9. sofrt etbi
10. inotanal cpuilb owrsk weke
11. owpl llyra
12. pot eolsh
13. wsah uot
14. dcaedvna treams sdrao csalroh
15. ibldu a tertbe eutspmrro
16. eidgraan
17. emtidli eusre olis
18. utvigefi stud
19. icnnfeod ssepca
20. larevg darso

CONGRATULATIONS!! Winners of a \$100 UNH T² workshop coupon for the December 2018 issue of Road Business Newsletter:

Michael Cahalane-Town of Effingham; Thomas Demers- Demers Mowing & Landscaping



University of
New Hampshire

UNH Technology Transfer Center

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Durham, NH 03824

603-862-2826

800-423-0060 (NH only)

Fax: 603-862-0620

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