A well-trained workforce is critical to completing transportation construction projects throughout the United States, such as this bridge under construction in Louisiana, and to maintaining the transportation system.
From the director:

Greetings to All!

As the year draws to a close, it is good to look back and reflect on what has occurred and to make plans for the future. The LTAP has been very busy this year, with many accomplishments, including:

- 129 Workshops, with:
  - 47 different Workshops offered
  - 11 new Workshops implemented
  - 2 Workshops given again after years off
  - 2,219 Students attended Workshops
- Co-Hosted the 4th Annual NH Salt Symposium, with 183 attendees
- Provided technical assistance to many Municipalities.

We also assisted the NH Public Works Association, NH Public Works Mutual Aid, and the NH State Transportation Innovation Council in their Board meetings and events.

For the future, we intend to keep holding Workshops, hosting events and providing technical assistance to those who request it. However, the LTAP is Grant-funded and our current Grant is ending at the end of this year. We have proposed a new Grant and are hopeful it will be signed by the time you read this letter.

So that you are aware, under the proposed Grant the staff positions for the LTAP are being reclassified and will undergo a hiring process. Therefore, the LTAP may be quiet for a while this winter, but the plan is to have everything up and running for the Spring Session starting in late March!

I am thankful for the opportunity to serve as the LTAP Director for the past three years and as the Training Coordinator for almost three years prior. I offer my best wishes to all the wonderful people I have met during this time, and for the continued success of the LTAP.

Happy Holidays!

Sincerely

Amy Begnoche

LTAP Director

Technology Transfer Center
First steps toward safe and sustainable snowfighting

By Wilfrid Nixon, Vice President, Science and the Environment, Salt Institute, Naples Florida
Published: APWA’s Reporter November 2017, Vol. 84, No. 11

The question arose a few weeks ago—if an agency is currently doing winter maintenance “the old fashioned way” (which in this case meant plowing only after the snow had started to settle on the road, and using a 50-50 salt-sand mix), what would be the first steps that the agency should take to change their current operations to become safe and sustainable snowfighters? It is a really good question, because while it is easy to talk about where an agency should be in terms of their operations, it is not quite as easy for an agency to move from their current position to where they want to be.

As the old saying goes, “the longest journey begins with a single step.” And so I would suggest that the first step an agency should take would be to calibrate your spreader equipment. There are a number of great reasons for doing this.

First, you cannot manage your winter maintenance operations if you do not measure what you are doing in those operations. Knowing how much material you are putting out per lane mile is a pretty basic bit of information, and you may be surprised by how much you are putting out from what you think you are putting out. One agency in Wisconsin attended the APWA Winter Maintenance Supervisor Certificate training in Green Bay in Fall 2016 and they decided to do the calibration when they got back from the training. They discovered that their units were way out of calibration and they estimate that calibrating their units saved them about $30,000 in materials last winter. So the second reason to start with calibration is that it could save you a chunk of change!

And that brings us to the third reason—calibration does not cost a great deal to do. It does take some time (probably two people for one hour for each truck) but you do not have to buy any special equipment to do it; all it really takes is to decide that you should do it. And the fourth reason is that calibration is an “easy win.” Most likely you will end up saving material if you calibrate your trucks (none of us on the Winter Maintenance Subcommittee ever heard of an agency that did calibration and discovered they were under-applying!) and the fact that you have tried something new and been successful is a great way to begin that journey.

So if calibration is your first step, what should be your second step? Of course, every agency is going to begin from a slightly different place, and face somewhat different obstacles to change, so I am going to suggest two directions you might go for step two. That way you can choose whichever one seems better to you!

I think your second step should be either taking a really close look at your cutting edges, or starting the process of measuring pavement temperature and using those

“Leaders become great not because of their power, but because of their ability to empower.”
—John Maxwell

Continued from page 4

Safe and sustainable snowfighting

measurements in your operations. I will explain in turn why I think these two are important.

First, those cutting edges—they are really where “the rubber meets the road” and not having the right tool on the other end of your plow will mean that your plow is not performing as well as it should be. That matters a whole lot, because the way we remove snow and ice from the road is with that plow. If it is not operating at peak performance, then your operations are going to be a long way from being optimal. In particular, if you are still using steel blades (no matter how hardnosed the steel may be) then you are not getting the best out of your plows.

I learned the hard way, back when I was doing field testing on snowplows many years ago, that changing a cutting edge out is one of the less pleasant tasks you can do. It may just have been me, but the snow from the plow and the cutting edge seemed to find the back of my neck with unrelenting regularity and excellent aim. My temper got frayed and the more frayed it got the less such a task I had. All in all it was one of those “learning experiences” that tend to scar the psyche! Having to change out blades mid-way through a storm will likely be even less fun, and of course, if your truck is getting its cutting edges changed, it is not out on the road plowing snow.

There are plenty of cutting edges on the market today that are capable of being tested and of course, if your truck is getting its cutting edges changed, it is not out on the road plowing snow.

You may have heard that Fairfax, VT town employee of more than 30 years, D. J. Leach, 61, was a part of the cleanup effort across V T, following the violent wind storm that knocked down trees and power poles in many communities. While Leach was cutting and removing trees, somehow, one snapped and hit him.

The New England Chapter of APWA is asking Public Works Departments all over the region to send him get well cards and thoughts of encouragement.

Call for SUPPORT!
“You may have heard that Fairfax, VT town employee of more than 30 years, D. J. Leach, 61, was a part of the cleanup effort across V T, following the violent wind storm that knocked down trees and power poles in many communities. While Leach was cutting and removing trees, somehow, one snapped and hit him.

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His mailing address is:
D. J. Leach
273 Fletcher Road,
Fairfax, VT 05454

Safe and sustainable snowfighting

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Help Wanted

Each year, this disparity highlights the gap that the transportation workforce needs to fill. According to the report, the transportation industry will need to hire 4.6 million workers from 2012 to 2022—the equivalent of 1.1 times the size of the current workforce. Of those 4.6 million workers, 510,000 jobs are projected to be related to industry growth and 4.2 million are related to separations, which includes retirements, occupational transfers, and other exits from the industry.

In addition to hiring, the industry must ensure that the new hires are well-trained and prepared to deliver the Nation’s transportation system.

The Demographic Cliff

In 2014, approximately 53 percent of transportation workers were over the age of 45 years. As the majority of the transportation workforce moves closer to retirement age, further workforce challenges emerge. Baby boomers (those born between 1946 and 1964) have already begun leaving the workforce. By 2024, they will be between the ages of 60 and 78.

Not only is the retirement of the baby boomer generation leading to a significant number of job openings, but it will also mean the loss of valuable knowledge and experience. As baby boomers retire, younger workers need to fill their jobs. However, not enough workers are completing the training and educational programs required to fill these positions, posing a challenge for the transportation industry. Without a sufficient number of skilled workers, the industry will have difficulty designing, constructing, and maintaining an efficient, effective, and safe transportation system.

Through its Center for Transportation Workforce Development, FHWA is bringing together key partners to develop and implement a focused effort: the Highway Construction Workforce Pilot. This pilot program is a joint effort with the American Association of State Highway and Transportation Officials (AASHTO), Associated General Contractors of America, American Road & Transportation Builders Association (ARTBA), U.S. Department of Labor’s (DOL) Employment and Training Administration, State and local workforce development boards, and other local labor and workforce development organizations. The effort aims to identify, train, and place individuals in high need highway construction jobs in pilot locations throughout the country. The pilot will support on-the-job training criteria in highway construction occupations and will explore how to more effectively link educational programs required to fill these positions, posing a challenge for the transportation industry. Without a sufficient number of skilled workers, the industry will have difficulty designing, constructing, and maintaining an efficient, effective, and safe transportation system.

“Putting new workforce development measures in place will make it easier for construction firms to keep pace with growing public- and private-sector demand,” says Stephen E. Sandherr, chief executive officer of AGC.

Focused Efforts

To avert a potential crisis, the Federal Highway Administration is working in conjunction with other public agencies and private companies and organizations to attract, educate, train, and retain a qualified highway construction workforce. Many government agencies, local organizations, and employers have formed partnerships, developed training and educational programs, and filed job openings. Continued collaboration and leveraging of resources will be necessary to meet future demands for skilled labor.

Through its Center for Transportation Workforce Development, FHWA is bringing together key partners to develop and implement a focused effort: the Highway Construction Workforce Pilot. This pilot program is a joint effort with the American Association of State Highway and Transportation Officials (AASHTO), Associated General Contractors of America, American Road & Transportation Builders Association (ARTBA), U.S. Department of Labor’s (DOL) Employment and Training Administration, State and local workforce development boards, and other local labor and workforce development organizations. The effort aims to identify, train, and place individuals in high need highway construction jobs in pilot locations throughout the country. The pilot will support on-the-job training criteria in highway construction occupations and will explore how to more effectively link educational programs required to fill these positions, posing a challenge for the transportation industry. Without a sufficient number of skilled workers, the industry will have difficulty designing, constructing, and maintaining an efficient, effective, and safe transportation system.

Through 2022, projected annual job openings are approximately 68 percent greater than the number of individuals who are completing transportation-related education and training programs each year. This disparity highlights the gap that the transportation industry needs to address to meet anticipated industry demand. Without effective action, the industry will continue to experience a shortage of qualified workers with the skills necessary to fill the projected job vacancies.

The highway sector has its own set of workforce challenges. U.S. travelers rely on U.S. highways. The National Highway System has more than 4 million miles (6.4 million kilometers) and slightly more than 144,000 bridges. To better understand the highway construction industry’s workforce challenges, the Associated General Contractors of America (AGC) conducts an annual survey of its member companies. The 2016 survey, which received more than 1,100 responses, showed that construction firms throughout the country are struggling to fill open positions and hire a sufficient number of qualified workers to meet their needs. Difficultly filling positions directly impacts firms’ ability to deliver projects on time and potentially delays repairs needed on the transportation system.

What Was Our Goal?

The goal of this project was to determine how well low-binder asphalt pavements perform and whether current designs make sense in terms of cost–benefit and durability. Researchers would identify any relationship between reduced binder volume and poten- tial for cracking and would suggest changes to specifications for coarse-graded asphalt pavement mixtures to prevent such cracking issues.

What Did We Do?

Researchers worked with MnDOT to identify pavement locations in Minnesota that used 13 coarse-graded, low-binder asphalt mix designs. Investigators extracted data on cracking, rough- ness and other factors for these sites from MnDOT’s pavement manage- ment system. The research team then visited the sites and inspected the pavements.

Researchers developed a coring plan, and field samples were cored for volumetric analysis to determine the binder, aggregate, air void level and other properties of each mixture. They also tested permeability and dynamic modulus, and conducted fracture energy testing to determine cracking resistance.

Researchers used performance modeling to analyze the test results of pavement performance and project durability. Then they compared the projected performance to actual field performance. From this assessment, they drew recommen- dations for modifying specifications for MnDOT low-binder, coarse-graded asphalt mixtures.

What Did We Learn?

This study suggests MnDOT should reduce its use of coarse-graded asphalt mixtures, but the findings did not provide sufficient data to justify prohibiting the use of coarse-graded, low-binder asphalt designs. Low-binder pavements were prone to thermal and transverse cracking. Their high perme- ability left them vulnerable to pre- mature moisture and freeze-thaw damage. Field and laboratory testing and modeling demonstrated that coarse mixtures pro- duce excessive cracking in a short period of time. Thin overlays...
Charles Goodspeed

When Charlie Goodspeed enters a room, his energy and excitement for the work he does is palpable. He sees the possibilities in a project or in a student with limitless potential. Ideas bubble from him constantly and enthusiastically, with never-ending passion about each regardless of its magnitude. And his long list of accomplishments, and those of his students, back his pioneering mind and endless appetite for finding and creating workable solutions to problems that others would walk away from. He is a true visionary.

Because of his belief that every puzzle has a remedy, and every problem has a solution, he is able to find and offer his students real life challenges and timely problem solving opportunities. Together they have had many “firsts” throughout his active and established career.

Let’s take a quick look at some of those remarkable “firsts.” Approximately 20 years ago, the Bristol, NH Bridge project designed the 1st High Performance Concrete exposed deck bridge in New Hampshire.

The Rollinsford, NH Bridge project, nearly 15 years ago, was the 1st bridge with FRP carbon fiber reinforcement in the only reinforcement used.

In 2005, the Mill Street Bridge in Epping, NH. Post-tensioning tests were used in the lab to come up with this Accelerated Bridge Construction. The bridge was installed in 8 days and won the National PCI Design Award for Best All-Precast Solution Bridge with Spans between 65-115 feet.

The Gifford Bridge project in Gifford, NH: This design will utilize a technique that the team initiated: leveling and lifting screws for slab handling and placement and the use of polymer for joint seal testing.

The Bunker Creek bridge project in Durham, NH which is earmarked for a 2019 construction date, is in the research and development stages.

Bridges aren’t the only structures he produces. He has overseen the Senior Project designs and constructions for several buildings including the Masonic Hall in New Hampshire, the Epping, NH Safety Complex, and several private homes.

In 1999, the 1st hyperbolic paraboloid corrugated metal roof in the world was used in a student research project for the Town of Newmarket’s (NH) salt shed which was erected in 1 day.

Charlie’s ground-breaking creativity doesn’t end with physical structures. He has worked with students to prepare a definition for HPC-15. Together they invented and designed the retrofitconverter. He has worked with PhD student projects like NH online Parcel Mapping and has pulled in many grants for programs like the most recent Statewide Asset Data Exchange System (SADES), The Hydroacoustic Project, and the New Hampshire Technology Transfer Center with its LTAP grant, for which he served as the Principle Investigator and founder for 31 years.

What trade associations, foundations, etc. are you affiliated with? He has likely made contributions to them, but his “rap sheet” is too long to list!

Public service also comes in the form of active and eager participation in his community. He sits on Epping’s Harvey-Mitchell Memorial Library Board of Trustees, for which all of his students designed and presented an expansion proposal. He also sits on the Epping Zoning Board of Adjustments and is a Board member for the Leddy Center for Performing Arts.

With no signs of letting up or slowing down, Charlie will continue to fight the good fight for his community, for advancement in technology in his retirement. He is relentless with desire to share his knowledge and engage his students in productive and revolutionary ways, which has only allowed him to grow and explore as an engineer and person.

Charlie, Your passion, insight, and enthusiasm will be missed!

Proper construction techniques, such as the girder setting shown here, require specialized skill sets for the transportation workforce.

Help Wanted

To address anticipated workforce challenges facing the Nation as a whole, the U.S. Department of Labor (DOL) has funded several initiatives.

- American Apprenticeship Grants. To streamline the efforts of employers, organized labor groups, nonprofits, local governments, and educational institutions, in 2015 the White House, through DOL, awarded $157 million in grants to 46 public-private partnerships. The grantees are expected to train and hire at least 34,000 apprentices in high-growth and high-tech industries over 5 years.

- America’s Promise Job-Driven Training Grants. In November 2016, DOL announced $111 million in America’s Promise grants to 23 regional workforce partnerships in 28 States to connect more than 21,000 Americans to education and jobs.

- Trade Adjustment Assistance Community College and Career Training Grant Program. In partnership with the U.S. Department of Education, DOL is helping adults acquire the skills, degrees, and credentials required for high-wage and high-skill employment while also meeting employers’ needs. These multiyear grants provide community colleges and other institutions of higher education in regions suffering from the impacts of trade to expand and improve education and career training programs that can be completed in 2 years or less, are suited for workers who are eligible for training under the TAA [Trade Adjustment Assistance] for Workers program, and prepare participants for employment in high-wage and high-skill occupations.

“Proper construction techniques, such as the girder setting shown here, require specialized skill sets for the transportation workforce.”

“The highway infrastructure is critical to our way of life, and there are a lot of good jobs in the highway industry,” says Byron Zulidema, deputy assistant secretary for the DOL Employment and Training Administration. “Partnering with the industry to make better use of the publicly funded workforce development system will help job seekers receive the skills and training they need to get placed in those jobs.”

How does the pilot program work? At the local level, contractors identify the high-need job occupations they are struggling to fill. Workforce development boards (WDBs) and other local labor organizations identify available training programs and resources, as well as potential participants. Through the pilot program, individuals learn a skill or build on existing skills to begin or enhance a career in the transportation industry, and employers have a larger, more qualified hiring pool to fill their open jobs and complete projects.

Some pathways to highway construction careers are direct referrals of qualified applicants, WDB-provided skills upgrad- ing or training leading to unsubsidized employment, on-the-job training opportunities, apprenticeship programs, and Job Corps or other youth development programs. There may also be incumbent worker training or other customized training for current workers, and pathways to help workers progress further in their careers.

“By connecting industry and DOL resources, and making the pilot project a local effort, the partners can positively impact workforce development in each location,” says Tony Furst, FHWA’s chief innovation officer and director of the Program Office of Innovative Program Delivery. Furst also leads the Highway Construction Workforce Pilot for FHWA. **Through these con-
Nancy Mayville

Nancy Mayville retired May 31, 2017 after a 38+ year career as a civil engineer at New Hampshire Department of Transportation. She has been involved with the Technology Transfer Center (T2) since the late 1980’s, first as an instructor, then as a member of the Advisory Board.

Since 2006, she held the position of Municipal Highways Consultant in the Bureau of Planning and Community Assistance overseeing the state and federal programs that provide funding to municipalities for local transportation projects. Prior to that she was a Project Manager in the Project Development Division and a resident engineer in the Bureau of Construction. She graduated from UNH in 1976 with a degree in civil engineering.

Nancy recently shared with us that, as an engineer, she finds working with municipalities on their transportation projects to be the most interesting and fulfilling part of her career. She enjoyed working with the many great people in the public works world including municipal staff, elected officials, and the many consultants who assist them.

Nancy describes herself as semi-retired since she is working part-time until a replacement is named. She is planning to spend more time at the family camp on Lake Winnipesaukee, traveling, quilting, gardening, and reading. She also plans to complete the reading of things like the history of snowplowing.

Brian Barden

This article is reprinted with the permission from The Dublin Advocate, where it originally appeared in the December 2017 issue.

Brian Barden, Dublin’s Road Agent for nearly 30 years, will be retiring on December 31. His amazing service to the Town will continue, however, as he marks 50 years as a volunteer firefighter.

Brian grew up in Keene and graduated from Keene High School in 1966, the last class to attend the school on Washington Street. After serving in the U.S. Army in Vietnam for 14 months, he returned to the area and got a job plowing snow for the Town of Dublin and later at Arthur Whitcomb in Keene.

In 1967 he met Jean, who was attending Keene State College, and they married in 1968. Brian and Jean moved to Dublin, and Brian began work at Worcester’s Garage in the center of town. While at Worcester’s, Brian was recruited by Selectman John McKenna to be Road Agent in February of 1988. He’s been plowing and grading Dublin’s 42 miles of roads ever since – through torrid summer downpours, ice storms, and blizzards – and every road condition in between.

Dublin’s roads are evenly divided: 21 miles of dirt roads; 21 miles of paved ones, which amount to 84 “lane miles.” Over the years, Brian has figured out how often to do the grading and ditching, and where he and his crew of three work on a given day depends on where the need is. He is accustomed to receiving calls about road emergencies late at night and on weekends. In winter there can be occasional 30-hour shifts; he’s good at “cat naps,” he says.

Over the years, Brian and his crew have not only maintained Dublin’s roads but also tackled big projects, such as the culvert and bridge reconstruction on Pierce Road a few years ago. Not having to hire outside contractors for these projects has saved the Town thousands of dollars.

Brian says he will miss his job and his crew (Mike Howe, David Stone and Roger Trempe) but is looking forward to a more relaxed pace and to having more time to work on his collection of five antique cars. Traveling to “T-Tours” with his beautifully restored Model T Ford is a pastime both he and Jean enjoy, and they have made many friends among fellow antique car enthusiasts.

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Steve Gray

“Steve was Assistant District Engineer in District 2 when I started working for the Department in 1988. Steve’s passion for Highway Maintenance rubbed off on me when I spent time in District 2 as a trainee. Ten years later, I too became the Assistant Engineer in the same District. Steve has always been one of my mentors and I consider him a friend.”

--Doug King, District Engineer, NHDOT

Steve began instructing for the LTAP Grant with the UNH T2 Center in 1996. That first workshop was Cold Mix Asphalt. Since then, he has staked claim to 63 workshops. From Project Planning to Pavement Preservation workshops, he’s covered a wide range of topics.

In 2013, his vast expertise was called upon in the creation and Institutionalization of the Culvert Maintainer Certification Training, covering the basics of the new NH culvert legislation, which went into effect in 2015 in partnership with the NH Department of Environmental Services. He single handedly trained every certified individual in the state (over 600 of you!). Steve also dabbles in lecturing on the transportation history of New Hampshire so keep your eyes open for local presentations of things like the history of snowplowing.

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Exhaustion

How can we achieve a real rest period for our drivers? Some towns and cities have bunk rooms where drivers can truly sleep in a bed. Others allow them to go home for rest. The problem with that is who is plowing if the drivers are sleeping? Sometimes no one or only a skeleton crew. I think it’s time that we seriously consider shift workers for snow and ice operations.

Some compelling arguments against that are “our mayor or selectmen will not allow that.” My response to that is “Why?” Answer, money. Yes, it will cost more to have additional crews hired for winter ops, but it would be much more expensive to pay a lawsuit caused by drowsy driving. As snow fighters we are committed to safety, but we often overlook our own.

I’m not sure how to bring about this much needed change, and I’m sure that some will feel that it is not needed. For those of you who feel this is important I would welcome your comments. You can reach me at mdsmith@umass.edu.

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Important Dates 2018

1/7-11 TRB 97th Annual Meeting, Washington, D.C.
1/23-26 World of Concrete, Las Vegas, NV
1/26-30 STSSA 48th Annual Conference & Traffic Expo, San Antonio, TX
2/7-10 National Pavement Expo, Cleveland, OH
2/12 Discover Girl Day
2/20-24 PCI Convention & National Bridge Conference, Denver, CO
3/6-8 World of Asphalt Show & Conference, Houston, TX
5/6-9 APWA North American Snow & Ice Conference, Indianapolis, IN
5/20-26 National Public Works Week
5/24 Mountain of Demonstrations, Newbury, NH
5/24 NHPWA Plow Rally, Newbury, NH
6/5 NH Emergency Preparedness Conference, Manchester, NH
8/26-29 PWX - Public Works Expo, Kansas City, MO
9/30-10/3 ARTBA National Convention, New York, NY
11/24-25 SHMA Annual Conference, Manchester, NH

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Important Dates Continues

1/23-26 World of Concrete, Las Vegas, NV
1/26-30 STSSA 48th Annual Conference & Traffic Expo, San Antonio, TX
2/7-10 National Pavement Expo, Cleveland, OH
2/12 Discover Girl Day
2/20-24 PCI Convention & National Bridge Conference, Denver, CO
3/6-8 World of Asphalt Show & Conference, Houston, TX
5/6-9 APWA North American Snow & Ice Conference, Indianapolis, IN
5/20-26 National Public Works Week
5/24 Mountain of Demonstrations, Newbury, NH
5/24 NHPWA Plow Rally, Newbury, NH
6/5 NH Emergency Preparedness Conference, Manchester, NH
8/26-29 PWX - Public Works Expo, Kansas City, MO
9/30-10/3 ARTBA National Convention, New York, NY
11/24-25 SHMA Annual Conference, Manchester, NH

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Visit the UNH T2 website today!

Training schedule – Events Calendar
Statewide Asset Data Exchange System (SADES)
Equipment Loan Program
NHDES Certification programs
Green SnowPro –Culvert Maintainer–Flagger

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Help Wanted

Partnering Makes It Possible

Through the Highway Construction Workforce Pilot, FHWA intends to establish effective working relationships between highway construction interests and the workforce system to identify and advance successful workforce development practices and procedures that cities and States throughout the United States can replicate. The National Partners Group will provide direction and oversight of the pilot project, and a National Operations Group will assist coordination with the city and State working groups that will manage program operations in each pilot location.

Jim Tymon, chief operations officer for AASHTO, represents the association in the National Partners Group. “AASHTO and our State DOT member organizations are excited to work with FHWA and the leading highway contractor organizations, ACC and ARTBA, and their member companies on this critical issue,” he says. “AASHTO and State DOTs clearly recognize the importance of a capable highway construction workforce to the timely and efficient delivery of high-way projects. We believe the Highway Construction Workforce Pilot will set a new, better defined approach to workforce development in our business, and AASHTO is committed to the program.”

During the course of the project, the National Operations Group will develop a “playbook” that will include specific project plans, best practices, and challenges to aid other locations in their workforce development programs. The objective is for the pilot project to serve as the foundation to institutionalize relationships in workforce development in the highway construction industry.

“We have highway projects in every State and just about every local area of the country,” says Rich Juliano, senior vice president of strategic initiatives and managing director of the contractors division at ARTBA, who represents the association on the pilot project. “The city/state pilot location approach will be a good opportunity to adjust our efforts to the specific circumstances in each area. We expect to learn a lot from the pilot project that can be applied to workforce development in support of other highway projects throughout the United States.”

Workforce Development At FHWA

In addition to the Highway Construction Workforce Pilot, FHWA is working on other efforts to develop workforce programs and fill the skills gap. In May 2016, FHWA created the Center for Transportation Workforce Development to emphasize workforce issues in the transportation industry. The center provides national leadership, coordination, and assistance to develop and support workforce initiatives throughout the education continuum of K–12, community colleges, universities, and professional development. The workforce center is one of four program-aligned centers that make up the FHWA Office of Innovative Pro- vision Delivery. The other centers are the Center for Accelerating Innovation, the Center for Local Aid Support, and the Center for Innovative Finance Support.

“The Federal Highway Administration will continue to focus leadership on areas most critical to the transportation industry and system,” says FHWA Acting Deputy Admin- istrator Butch Waldiehl. “And with the new workforce center, we have an organization that will provide leadership in working with key partners in transportation, education, and other workforce interests to leverage activities and resources to enhance transporta- tion workforce development.”

The center helps to manage the Highway Construction Workforce Pilot and several other workforce development efforts including the FHWA On-the-Job Supportive Services Program, Eisenhower Fellowship Program, National Summer Transportation Institute Program, Garrett A. Morgan Technology and Transportation Education Program Clearinghouse for K–12 programs, and the five Region Transportation Workforce Centers.

“The increasing focus and leadership on workforce develop- ment that the FHWA workforce center provides will improve workforce development at all levels,” says Virginia “Ginny” Tsu, director of the Center for Transportation Workforce Develop- ment. “Expanding our relationships in workforce development with key partners including DOL through the pilot program, and bringing together the existing FHWA workforce programs pro- Continued from page 12

Pavement Research

The disk-shaped compact tension test determines fracture energy of pavement samplings, a strong predictor of cracking.

What’s Next?

Although the research validates MnDOT engineers’ anecdotal concerns, the pavements evaluated were mostly overlays, which are known to be susceptible to transverse cracking because of flaws in underlying pavement layers. MnDOT may weigh the results and adjust specifications, but would likely require further study of coarse-grained mixture performance before ruling out its use or identifying situations in which coarse-grained mixtures may be the best option. Additional research could consider the use of concrete forms for asphalt pavements, varying mixes for each lift in the structure rather than using a single, uniform mix for every layer in the full depth of the pavement.

Jerry Geib, MnDOT
Jerry.Geib@state.mn.us

Farideh Amiri, MnDOT
Farideh.Amiri@state.mn.us

Eshan Dave, UNH
Eshan.Dave@unh.edu

Everyone thinks of changing the world, but no one thinks of changing himself.

~Leo Tolstoy

Continued from page 7

“With coarser mixtures, excessive cracking will occur in a very short time. We recommend that MnDOT adopt performance-testing specifications and conduct mechanical testing like fracture energy, fracture toughness and modulus measurements, which the agency has already started.”

~Eshan Dave
Assistant Professor, University of New Hampshire
Department of Civil and Environmental Engineering

3 inches of less crack more quickly than thick overlays of 4 to 6 inches. Mechanistic-empirical simulations showed that low-binder asphalt mixtures were significantly inferior to higher-binder mixtures in terms of thermal cracking.

Most of the high-cracking mixtures showed low fracture energy in testing, suggesting the value of fracture energy testing and modeling. Disk shaped compact tension testing showed that higher permeability mixtures correlate reasonably well with lower fracture energy. Eight of the 13 mixtures were more permeable than recommended, and six significantly so. Typical volumetric properties poorly predicted cracking.

To better project pavement performance, researchers recom- mend that MnDOT maintain volumetric testing-based specifi- cations, but add performance-testing-based specifications and testing designs for fracture energy, fracture resistance, modulus and other parameters. For Superpave designs, investigators suggest using a narrower aggregate gradation range, reducing the gradation gap between minimum and maximum aggregates in mixes.

Matthew Collins, University of New Hampshire

“Pavement Research: the construction stage.”

Transportation workforce. This construction crew is preparing the uniform mix for every layer in the full depth of the pavement.

Jerry Geib, MnDOT
Jerry.Geib@state.mn.us

Farideh Amiri, MnDOT
Farideh.Amiri@state.mn.us

Eshan Dave, UNH
Eshan.Dave@unh.edu

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December 2017

UNH Technology Transfer Center Road Business

December 2017

UNH Technology Transfer Center Road Business
On December 13, 2017, NAWIC National President Catherine Schoenenberger and the Acting Assistant Director for OSHA, Loren Sweatt signed the renewal for the alliance with federal OSHA.

The alliance assures that NAWIC and OSHA will work together for the next five years to continue to support women in the construction industry and the issues they face in keeping safe. This includes ongoing monitoring of sanitation issues, ergonomics and issues related to PPE. Additionally, the alliance is studying bullying, harassment and sexism in construction and are in preliminary discussions with NIOSH (the National Institute on Construction Safety & Health) to develop a research model to evaluate, among other items, the relationship between a harassment encounter and subsequent injury or accident.

We have also been in discussions with CPWR (the Center for Construction Research and Training) issues surrounding PPE and may be able to join in a grant to develop a white paper or further research in addressing PPE issues throughout the industry.

Joining Catherine for the ceremonial signing were NAWIC members Romina Byrd, Greater Washington DC Chapter and Kathi Dobson, Detroit Chapter and 2017-2018 OSHA-NAWIC Alliance co-chair.

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.

Funding Resources

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.

The solicitation of STIC incentive projects is open at the beginning of the Federal fiscal year (October 1st) and closes at the end of the Federal fiscal year (September 30th).

Eligible Projects/Activities:
- 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.

Bill Oldenburg, NH DOT Assistant Director of Project Development
Patrick Bauer, FHWA Division Administrator
Yamilee Volcy, NH FHWA (603) 410-5469 Yamilee.Volcy@dot.gov

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

FHWA’s Accelerated Innovation Deployment (AID) Demonstration program

By Kathi Dobson, Safety Director, Alberici Constructors, Inc. OSHA/NAWIC Alliance Co-Chair

The Center for Innovative Finance Support (CIFS), a component of the Federal Highway Administration’s Office of Innovative Program Delivery, providestools and resources to help agencies use alternative financing strategies to deliver projects under the Federal-Aid Highway Program.

Our programs are designed to:
- Deliver real results to enhance our nation’s transportation system.
- Promoting the integration of cutting-edge solutions; and,
- Creating an informed and ambitious workforce.

The Center works collaboratively with a diverse mix of partners, including Local and Tribal Technical Assistance Program Centers. Our programs are designed to:
- Put good policies in place on the ground;
- Promote robust dialogue between policy makers and practitioners; and,
- Inform the federal transportation discussion.

Victoria Peters, Director
Victoria.Peters@dot.gov
720-963-3522

CIFS offers expertise on a variety of innovative finance options, including Grant Anticipation Revenue Vehicles (GARVEES), State Infrastructure banks, revenue tools, and public-private partnerships. Center staff can work with agencies to identify the appropriate approach for their needs and provide technical assistance to guide them through the process.
The most recent disasters in the news with hurricanes hitting Texas, Florida, Puerto Rico, and the US Virgin Islands have made me question, “How prepared are we as first responders for a disaster?” Virtually every town has an Emergency Management Director. Many have an emergency operations center (EOC). Most towns have plans in place for snow and ice management and debris removal. All these plans require employees to get the job done.

The question is in a major disaster will employees report to work or stay home to take care of business at home? Everyone has heard the term, “Family comes first” but the truth is, if public works employees, police officers, firefighters, and utility workers do not respond to work, recovery efforts can be hindered and brought to a standstill.

First responders should have a plan to ensure their families are able to manage without them for extended periods of times during emergencies. This plan may include back up power and heat, child care (and in some cases elder care), pet care and necessities such as food and water. Take the time to prepare a plan and be sure to include anyone who may need to be part of the plan, including family members, neighbors and friends.

Public Works Directors, Managers, Human Resource Directors, Police Chiefs and Fire Chiefs should speak with their employees to be sure they are prepared at home so they can respond when an emergency arises.

A basic emergency supply kit could include:
- Water - one gallon of water per person per day for at least three days, for drinking and sanitation
- Food - at least a three-day supply of non-perishable food
- Battery-powered or hand crank radio and a NOAA Weather Radio with tone alert
- Flashlight
- First aid kit
- Extra batteries
- Manual can opener for food
- Cell phone with chargers and a backup battery

Additional emergency supplies could include:
- Glasses and contact lens solution
- Infant formula, bottles, diapers, wipes, diaper rash cream
- Pet food and extra water for your pet
- Important family documents such as copies of insurance policies, identification and bank account records saved electronically or in a waterproof, portable container
- Sleeping bag or warm blanket for each person
- Complete change of clothing appropriate for your climate and sturdy shoes
- Household chlorine bleach and medicine dropper to disinfect water
- Fire extinguisher
- Matches in a waterproof container
- Feminine supplies and personal hygiene items
- Mess kits, paper cups, plates, paper towels and plastic utensils
- Paper and pencil
- Books, games, puzzles or other activities for children

Make sure to update your emergency kit on a regular basis. Replace expired food and modify your kit as your family’s needs change. Preparing a comprehensive plan on how your family will manage while you are at work will allow you to respond promptly to your job and concentrate on the task at hand.
Help Wanted

vides a valuable combination of resources and assets to make a
real difference in workforce development.”

An Expanded Effort: Region Centers

In 2015, FHWA created five regional transportation workforce
centers—collectively known as the National Network for the
Transportation Workforce—to establish a network—driven
approach to developing and retaining a highly skilled and effec-
tive transportation workforce. Although the regional centers
do not provide training, they engage organizations and
existing programs to establish new strategic partnerships and promote
best practices to educators, employers, and those on the transporta-
tion career pathway. For more information on the National Network for the
Transportation Workforce, see “Connecting the Employment Dots” in the November/December
2015 issue of Public Roads.

“The region workforce centers provide an important network for workforce development that can help identify and facilitate implementation of value-added workforce development programs,” says Glenn McRae, director of the Northeast Region Workforce Center based at the University of Vermont. “We are able to work within a sharp focus and precise workmanship, such as that demonstrated by these workers installing a girder splice, is critical to the Nation’s highway program.

The program also will identify elements necessary to develop a highly skilled workforce in each of the five discipline areas. In collaboration with key stakeholders, the National Network for the Transportation Workforce will develop career pathways at technical schools, community colleges, and universities to help fill the skills gap and train individuals in the key occupations.

The National Network for the Transportation Workforce began its work on the Career Pathways Initiative, a 2-year program, in October 2016. The Southwest Region Workforce Center will lead a demonstration project in at least one technical school, community college, and university for the planning discipline. The other region workforce centers will complete their work on competencies, curriculum, experiential learning, and design demonstration projects for the disciplines they are managing.

“We need to better align the transportation workforce demand of private and public sector transportation organizations with the workforce supply efforts of education, training, and work force development,” says Tom O’Brien, director of the Southwest Transportation Workforce Center. “A lot of work needs to be done, and the National Network for the Transportation Workforce is looking forward to working with key partners across the transportation, education, and workforce communities on the National Transportation Career Pathways Initiative.”

Regional Transportation Workforce Centers

FHWA recently awarded the National Network for the Trans-
portation Workforce, a cooperative agreement for the National Transportation Career Pathways Initiative, to research and develop career pathways in the key discipline areas of environment, safety, operations, planning, and engineering. Led by the Southwest Transportation Workforce Center located at the University of California, Long Beach, the program will identify key occupations, as well as gaps between available training, education, and experiential learning programs.

A Present and Growing Need

With the highway industry bracing for shortages of available workers, now is the time for efficient and effective programs focused on recruiting, training, placing, and retaining workers, as well as efforts to better prepare the next generation of workers for transportation jobs.

Positions in the highway industry can lead to promising careers and opportunities for advancement. Although 4-year degrees often are not required for transportation careers, some training and education is necessary to have the skills required for most positions. Current workers and potential new hires in the transportation industry need to have access to and awareness of the available training programs that can help them develop skills to further their careers.

The need will continue to grow as more baby boomers retire and new technologies emerge. The transportation industry must continue to focus on training younger workers and providing them with the necessary knowledge, skills, and experience to deliver a safe, efficient, and effective highway system.

Clark Martin is a program manager for the FHWA Center for Transportation Workforce Development, part of the Office of Innovative Program Delivery. He is a lead manager for FHWA workforce programs and initiatives including the five FHWA-sponsored Region Transportation Workforce Centers, the Highway Construction Workforce Pilot, and the National Transportation Career Pathways Initiative. Martin is a graduate of the University of Maryland with a B.A. in political science.

Alexandra Dudley is a business analyst in the FHWA Center for Transportation Workforce Development. She is very involved with the FHWA Region Transportation Workforce Development. She is very involved with the Highway Construction Workforce Pilot, Region Transportation Workforce Centers, and the National Transportation Career Pathways Initiative. Martin is a graduate of the University of Maryland with a B.A. in political science.

For more information, contact Clark Martin at:

703-235-0547 or clark.martin@dot.gov.

May 20-26, 2018

The NE APWA is proud to introduce “Fill a Public Works Truck.” What will your municipality be doing to celebrate? This event is an opportunity to give back to those in need by collecting food and household provisions for your local food bank during Public Works Week. Mark your calendars!

Not only will you be giving back, but this will also help raise awareness of public works and what we do for the community.

For more information and further details check http://newengland.apwa.net/PageDetails/13488.

APWA Reporter page 19, "Environmental concerns about chlorides": https://issuu.com/apwa/docs/201710_reporteronline

Winter operation survival lessons: http://www.t2center.uconn.edu/pdfs/2010-1_winter-ops_survival_lessons.pdf

Downed power line safety: http://www.we-energies.com/outages_safety/reporting/powerlines.htm


Solar roadways: https://youtu.be/qlTA3rnpgzU

Downed power lines: https://youtu.be/fLVzvMTgGfY

“Education is the most powerful weapon which you can use to change the world.”
~ Nelson Mandela

The Roads Scholar Program estab-
lishes educational and training re-
quirements for municipal level
highway practitioners, and recog-
nizes 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 Schol-
ars.

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 work-
shop 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 par-
ticipants earn 20 contact hours in the Safety category, they
earn a Safety Champion award.

§ Roads Scholar 1 Requires 25 contact hours

Paul Arguin NH DOT - District 1
Aaron Arsenault Wendell Ruxford & Son
Raymond Beaudoin III NH DOT - District 5
Amy Begnoche UNH T2 Center
Kevin Belanger NH DOT - District 4
Marshall Bennett NH DOT - District 5
Doug Blain Dartmouth Hitchcock MC
Joseph Bolduc NH DOT - District 1
William Boulanger City of Dover
Eric Brand P & L Landscaping
Frank Bryson City of Franklin
Sara Carbonneau Town of Swanzey
Craig Cashman NH DOT - District 4
Stephanie Cottrell UNH T2 Center
Geoff Davis NH DOT - District 4
Jack DeCormier City of Tilton
Thomas Demers Demers Mowing & Landscape
Gerald Dubreuil R & D Paving
Scott Dunn Town of Goffstown
Diane Durgin Durgin & Durgin Landscaping
Michael Durgin Durgin & Durgin Landscaping
Peter Elliot Town of Northwood
Jim Freeman Knott’s Land Care LLC
James Gates Knott’s Land Care LLC
Peter George NH DOT - District 6
Frederick Gilbert NH DOT - District 1
Andrew Giragosian Outdoor Pride, Inc.
Robert Goryea Town of Newport

Bruce Gosselin City of Manchester
Bill Goulet Town of Sanbornton
Rick Govoni Gateway Property Mgmt
Mike Grimes Knott’s Land Care, LLC
Mike Hague Town of Bow
Richard Hanks Town of Wolfeboro
Ken Henderson City of Rochester
Cameron Huntton Town of Danbury
Andrew Johnson Town of Laconia
James MacNichol NH DOT - Bureau of Turnpikes
Brett Martin Town of Hancock
Jennifer Mates Town of Exeter
Christopher Mayer City of Laconia
Barbara McMillan NH DES
William Mitchell Eastern Community Association
Richard J. Niolet Town of Canterbury
Tom Nixon Town of Dover
Mike Nugent City of Concord
Brad Osgood Town of Sunapee
Brandon Ovitt Town of Winchester
Daniel Pare NH DOT - District 4
Kristopher Perreault Town of Bedford
Jim Robbins City of Lebanon
Craig Sartwell Town of Newport
Fred Schaefer City of Concord
Scott Sonia Town of Carroll
Jerome Spooner Town of Bedford
Jeff Stillman Town of Henniker
Shane Stone City of Claremont
Steve Waterstrat City of Nashua
Gretchen Young City of Dover

§ Roads Scholar 2 Requires 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

Dale Bevacqua Eastman Community Association
David Briand Town of Derry
Nick Coursey Town of Rumney
Roger Dandeneau NH DOT - District 1
Joseph Gore Town of Wakefield
Joshua Hamel Town of Raymond
Jason Hayden City of Nashua
Jim Hoffman Town of Pelham
Greg Hogan Town of Carroll
Archibald Jackson Town of Bedford
Gary Marshall Town of Whitefield
George McAllister Town of Exeter
William Rines Town of Whitefield
Carl Ruel NH DOT - District

© Roads Scholar Program
Word Search

NAME
AFFILIATION
E-MAIL
PHONE

Be the first to complete this word search and send it to T2 any of the following ways to win a FREE T2 workshop!
Fax: 603-862-0620
Email: stephanie.cottrell@unh.edu
Mail: Technology Transfer Center
33 Academic Way
Durham, NH 03824

Words can be circled either upward, downward, backward, or diagonally.

“Changing Seasons”

Brain Teaser

Let’s now exercise our frontal lobes (that deal with working memory and attention, among other things) and parietal lobes (visual interpretation).

Quick!

1. Count the number of times the number “6” appears below (you may need to scroll down).

2. Then, count the total of both “3”s and “7”s, trying to add the total number of both as you see either (this is, don’t just count all the “3”s, and then the “7”s, but both at the same time)

The most important thing here is not to get the right answer, but to try. This type of exercise has been used by the military to improve attention for decades (now there are more advanced, computer-based, tools, but this keeps being fun).

Technical Assistance
Local Program
FHWA Proposal
Seasons
Snowflakes
Winter

Asphalt
Brine
Salt Spreaders
Application Rates
Road Scholar
Flagger
Drainage
TIMS

Pavement
Preservation
Public Relations
Operations
Tree Workers
Chainsaw
Curve Advisory
Plan Reading

Roadside Mowing
Asset Management
Hard Road
Employee Safety
Who’s The Boss
Gravel Roads
Accelerated

Bridges
Development
Work Force
Outreach
Retirement
Computers
Outreach
Resources
The T2 Center is working to update your resources web page.

If you have any suggestions on applicable resources or items you would like to see included, please contact us at t2.center@unh.edu

603-862-2826

(Links, book titles, videos, articles, documents, etc)