

Volume 24 Issue 6

December 2022

Message from the Director

Hello readers!

Thank you for being part of another successful year for the New Jersey Local Technical Assistance Program. We were able to reach about 6,000 people through our webinars and inperson workshops during 2022. Happily, we've been able to see more of you in-person and we were able to return to the NJ League of Municipalities Conference this fall.



As 2022 is wrapping up, we are just about finished with training for the year. NJLTAP will be back in full swing after the holidays, with trainings offered as a mix of in-person and online.

We will be offering a few new courses in 2023- these include an Introduction to Crash Analysis, Grant Writing, Title VI training, and more. Our mini-webinar series will continue as well.

In this issue of the newsletter you will read about Every Day Counts Round 7. These are initiatives worth taking a look at it if you have transportation challenges you are looking to address. Please continue to keep an eye on new funding programs being announced by the US Department of Transportation. by monitoring the United States Department of Transportation (USDOT) and New Jersey Department of Transportation (NJDOT). If you are looking for federal and state funding opportunities through NJDOT, please check all of the information available through the NJDOT Local Aid Resource Center.

The NJLTAP team wishes all of you a happy and healthy holiday season and we are enthusiastically planning for a busy 2023!

- Janet Leli

Issue Highlights

The latest round of Every Day Counts Initiatives has been released. Read the full list here and check out all the resources available for download.

FHWA has released brand new resources for communities to help reduces crashes, including a new Pedestrian Lighting Primer, High Friction Surface Treatment, and much more. Download the manuals here!

Come read about the latest funding opportunities that have been awarded all across the state of New Jersey!

Learn how nondestructive testing are widely used by engineers to evaluate the structural integrity and characteristic differences in material properties, defects, and discontinuities of bridge structures.











The Local Technical Assistance Program (LTAP) and Tribal Technical Assistance Program (TTAP) are composed of a network of 57 Centers – one in every state and Puerto Rico, as well as 6 serving Tribal Agencies. The LTAP/TTAP Centers enable local counties, parishes, townships, cities and towns to improve their roads and bridges by supplying them with a variety of training programs, an information clearinghouse, new and existing technology updates, personalized technical assistance and newsletters.

FHWA's Complete Streets Initiative Releases Report and New Website

EDC is a State-based model that identifies and rapidly deploys proven, yet underutilized innovations that make our transportation system adaptable, sustainable, equitable and safer for all. Proven innovations promoted through EDC facilitate greater efficiency at the State, Local and Tribal levels, saving time, money and resources to ensure our infrastructure is built better, faster, and smarter. FHWA has just announced the 7th round of initiatives, known as EDC-7, this month.



Nighttime Visibility for Safety: The nighttime crash fatality rate is three times the daytime rate. Enhancing visibility along corridors, intersections, and pedestrian crossings can help reduce fatalities. This initiative promotes traffic control devices and properly designed lighting to improve safety for all users, including pedestrians, cyclists, and people who use public transportation and passenger rail services.

Next-Generation Traffic Incident Management: Over six million crashes a year in the U.S. put responders and other vulnerable road users at risk. Next-Generation Traffic Incident Management programs promote emerging technologies such as emergency vehicle lighting and queue warning solutions. These and other tools can advance safety and operations to help keep crash responders safe and mitigate traffic impacts after a crash.

Integrating Greenhouse Gas Assessment and Reduction Targets in Transportation Planning: Transportation is the largest emitter of greenhouse gases in the U.S. This initiative provides resources to help agencies, regardless of transportation mode, quantify greenhouse gases, and set goals to decrease motor vehicle, construction, and lifecycle emissions through planning and project development.

Enhancing Performance with Internally Cured Concrete or EPIC: Cracking in concrete is a limiting factor in achieving long-term concrete performance. Such internal curing can mitigate shrinkage, and cracking, and extend the service life of concrete bridge decks, as well.

Environmental Product Declarations or EPDs for Sustainable Project Delivery: Construction materials such as concrete and asphalt have environmental impacts during their life cycle, whether the transportation facility supports passenger vehicles, transit vehicles, or railroad cars. EPDs document those impacts.

Rethinking Disadvantaged Business Enterprises or DBEs in Design-Build: Many design-build contracts do not adequately provide opportunities for disadvantaged businesses. New practices are available to support the effective integration of program requirements to help DBEs compete for design-build contracts for highway and transit projects.

Strategic Workforce Development or SWD: The demand for highway workers is growing due to the \$1.2 trillion Infrastructure Investment and Jobs Act or IIJA, and emerging technologies require new skills. Thirty-two states are using SWD protocols to promote career opportunities in transportation, with six of those states having institutionalized SWD processes in their workforce programs.

For a complete list with fact sheets, videos, and handouts, visit FHWA's EDC 7 Page here.

New FHWA Resources for Crash Reduction

FHWA has recently created the report <u>Street Lighting for Pedestrian Safety</u> to provide lighting recommendations for pedestrian safety. In developing the lighting recommendations, FHWA considered the ability of pedestrians to detect hazards on walkways and crosswalks, visibility of pedestrians to motorists, and impacts of lighting on pedestrian decisions about whether or not to cross a roadway.

FHWA also recently published the user-friendly companion document <u>Pedestrian Lighting Primer</u> as a resource for transportation practitioners interested in lighting. The primer provides information for the safety and

security of pedestrians. The primer highlights how the results from *Street Lighting for Pedestrian Safety* can complement commonly used lighting design guides. The primer presents an overview of a four-step process that involves selecting design criteria, selecting equipment, determining the control strategy, and conducting lighting design and verification. As the primer illustrates, lighting of pedestrian facilities is key to increasing the safety performance of the roadway network for all users. Effective pedestrian lighting is a means of addressing the vulnerability of pedestrians during dark conditions and improving the safety and security of all road users spanning different ages and abilities. The *Pedestrian Lighting Primer*, along with *Street Lighting for Pedestrian Safety*, can help transportation practitioners realize the benefits of lighting designs and provide safer facilities for pedestrians at night.



An additional resource related to the primer is <u>Lighting for Pedestrian Safety</u>. This two-pager summarizes key elements from the primer and brings to the forefront all other impacts on providing a well-lit street environment.

In addition to the pedestrian safety primers, FHWA has also released several reports highlighting the importance of High Friction Surface Treatment (HFST). It is a Proven Safety Countermeasure for reducing friction-related crashes at curves, ramps, intersections, and locations with high friction demand. Over the past 15 years, more than 44 States have deployed HFST for the first time, with many States currently implementing HFST systemically on a large scale. The state of the practice for HFST site selection, materials, installation, and performance monitoring has changed significantly since HFST first became an Every Day Counts safety initiative.

<u>High Friction Surface Treatment Site Selection and Installation Guide</u> is a new resource that reflects these changes. This guide assists agencies implementing HFST for the first time that may be limited in their ability to expand and improve their programs, and that may have mature programs they would like to further refine. The guide highlights key practices from agencies that have realized the greatest benefit from HFST deployment (including data-driven approaches for site selection); addresses testing requirements; and provides recommendations on contracting practices, installation methods, and performance monitoring.

<u>HFST Installation and Inspection Pocket Guide</u> summarizes chapter 6 of the *High Friction Surface Treatment Site* Selection and Installation Guide. This pocket guide may be downloaded, printed, or viewed on mobile devices in the field. The pocket guide includes an inspection checklist that steps through preconstruction, materials, surface preparation, pre-application, resin binder application, aggregate application, aggregate removal, traffic and testing acceptance opening, and post-installation items.

<u>FHWA High Friction Surface Treatments: Frequently Asked Questions – 2022 Update</u> has been updated from the 2017 HFST FAQs. It provides concise answers to the more commonly asked questions related to HFST. This includes questions about safety, maintenance and operations, cost, environmental impacts, material specifications/durability, lessons learned, and installation.

APWA - New England Chapter Webinar—

Environmentally-Conscious Winter Operations

Storm response depends upon the obvious elements: weather forecast, precipitation, and temperature, but many other factors shape the response, such as staffing levels, budgets, rising material costs, and increasingly, awareness to the environmental impacts of "salt" and sand in winter operations. Public works departments in communities of all sizes are considering environmental factors when planning and executing snow and ice-fighting strategy, including integrating innovative practices, training, and technologies to reduce chloride and sand use in winter operations.



<u>Register for this webinar</u> on September 22nd to learn how your organizations can adapt its winter operations. In this panel, public works peers from

throughout New England will discuss how their teams integrated technologies such as AVL and geofencing for prescriptive snowfighting, tested material and application changes, and built a culture of training and commitment to excellence in the winter operations profession. The panelists will share how their teams reduced salt or sand use in storm response, while maximizing materials and supporting the workforce – a win-win for budgets, staff, and communities' quality of life!

24th Annual NJDOT Research Showcase Recap

The 24th Annual NJDOT Research Showcase provided an opportunity for the New Jersey transportation community to learn about the broad scope of academic research initiatives underway and share technology transfer activities being conducted by institutions of higher education partners and their associates. The annual event serves as a showcase to present the ongoing initiatives and benefits of the NJDOT Research program. This event was an inperson event with a livestreaming option with sessions held from 9:00am-2:45pm on October 26, 2022.

This year's Showcase theme, "Advancing Equity in Transportation" served as the organizing framework for the keynote speaker and panelists during the morning plenary session. Throughout the day the Research Showcase featured presentations on infrastructure, safety, mobility and equity topics being performed by research faculty, staff, and students and NJ agencies. Several awards were presented in



24th Annual NJDOT Research Showcase

October 26, 2022

The Conference Center at Mercer 1200 Old Trenton Road West Windsor, NJ 08550

recognition of research and implemented innovations.

You can find a full recap of the event, with an agenda and video recordings on the NJDOT Tech Transfer Website.

Winter Weather: Plan, Equip, Train

Winter driving can mean fog, rain, ice, snow, slippery roads, and poor visibility. It's a time that can be dangerous for pedestrians, drivers, and other vehicle operators. There are some simple precautions you can take to minimize the risk of accidents and injuries.

Although employers cannot control roadway conditions, they can promote safe driving behavior by ensuring

workers recognize the hazards of winter weather driving, for example, driving on snow/ice covered roads; are properly trained for driving in winter weather conditions; and are licensed (as applicable) for the vehicles they operate. For information about driving safely during the winter, <u>visit OSHA's Safe</u> <u>Winter Driving page.</u>

Employers should set and enforce driver safety policies. Employers should also implement an effective maintenance program for all vehicles and mechanized equipment that workers are required to operate. Crashes can be avoided. Learn more at: Motor Vehicle Safety (OSHA Safety and Health Topic's Page).



Employers should ensure that properly trained workers inspect the following vehicle systems to determine if they are working properly Systems that should be examined are:

Brakes: Brakes should provide even and balanced braking. Also check that brake fluid is at the proper level. **Cooling System:** Ensure a proper mixture of 50/50 antifreeze and water in the cooling system at the proper level.

Electrical System: Check the ignition system and make sure that the battery is fully charged and that the connections are clean. Check that the alternator belt is in good condition with proper tension. **Engine:** Inspect all engine systems.

Exhaust System: Check exhaust for leaks and that all clamps and hangers are snug.

Tires: Check for proper tread depth and no signs of damage or uneven wear. Check for proper tire inflation. **Oil:** Check that oil is at proper level.

Visibility Systems: Inspect all exterior lights, defrosters (windshield and rear window), and wipers. Install winter windshield wipers.

Work Zone Traffic Safety in Winter

Workers being struck by vehicles or mobile equipment lead to many work zone fatalities or injuries annually. Drivers may skid, or lose control of their vehicles more easily when driving on snow and/or ice covered roads. It is therefore, important to properly set up work zones with the traffic controls identified by signs, cones, barrels, and barriers, to protect workers. Workers exposed to vehicular traffic should wear the appropriate high visibility vest at all times, so that they can be visible to motorists. Similarly, due to reduced visibility it is essential to ensure all signage is clearly visible to give oncoming traffic the most time to react.

For more information of Winter Hazards and Precautions to take while working, <u>visit OSHA's Winter Related</u> <u>Hazards Page</u>

GOVERNOR MURPHY ANNOUNCES MORE THAN \$24 MILLION TO EXPAND ACCESS TO PUBLIC TRANSPORTATION AND SPUR TRANSIT-ORIENTED DEVELOPMENT

Governor Phil Murphy announced this December that critical funding to expand access to safe transportation and enhance areas around public transit facilities across the state. The awards total more than \$24 million across three programs as part of Governor Murphy's Fiscal Year 2023 budget. Funding for the Local Aid and Economic Development Grants line-item increased by nearly 50% over the last fiscal year, representing the Murphy Administration's commitment to a wide range of transportation options and smart, transit-oriented development.

The Safe Streets to Transit Program will provide \$13.4 million in funding to improve access to transit facilities and

public transportation in counties and municipalities, including Dover, which will utilize its nearly \$800,000 award to improve traffic signals that will help protect pedestrians and school children. Additionally, the Local Bikeway Program will provide \$8.4 million to promote bicycling as an alternate mode of transportation, while the Transit Village Program will provide \$2.9 million toward the revitalization and redevelopment of areas around transit facilities into mixed-use neighborhoods.



"In order to maximize the impact of our considerable

public transportation upgrades, we must ensure that our transit facilities are linked not just to economically thriving neighborhoods, but to streets that bring our community members to their destination reliably and efficiently," said Governor Murphy. "For many New Jerseyans, commutes or daily travels do not begin and end at the train station. That's why my Administration is doubling down on its efforts to promote active transportation alternatives and ensure that – whether you're a pedestrian or cyclist – you can safely and affordably access our nation-leading public transportation network."

"Too many New Jerseyans do not have safe walking or biking access to our transit system, often limiting access to job and educational opportunities and increasing traffic congestion," said U.S. Congresswoman Mikie Sherrill. "I also proudly voted for the Bipartisan Infrastructure Law, which established the Safe Streets and Roads for All program, so that we can work in tandem and create better streets in NJ-11 and across the state. I want to thank Governor Phil Murphy for this important investment, which will improve the quality of life for New Jersey residents."

"The Department of Transportation is proud to support Governor Murphy's vision to make New Jersey more fair, equitable, and environmentally friendly. We appreciate the Governor and the Legislature providing an additional \$20 million this year for Bikeways, Safe Streets to Transit and Transit Village grants," said New Jersey Department of Transportation Commissioner Diane Gutierrez-Scaccetti. "The increased funding means a record number of towns, including Dover, are receiving grants to create safer, more walkable and bikeable communities, and promote the use of public transportation."

"Coming at a critical time of rising traffic fatalities and serious injuries across our state this significant increase in funding will help ensure better access to public transit for vulnerable road users and create more walkable and bikeable roads, an essential part of building a safer and more equitable transportation system for New Jersey." said Debra Kagan, Executive Director of the New Jersey Bike & Walk Coalition.

New Intersection Informational Guide for Pedestrians and Bicyclists

The share of bicyclist and pedestrian fatalities and serious injuries that occurs at intersections is notable. <u>Based</u> <u>on data from the National Highway Traffic Safety Administration</u>, from 2015 to 2019, an estimated 57 percent of bicyclist and 39 percent of pedestrian fatalities and incapacitating injuries occurred at intersections or were related to intersections.

Compared to people traveling in motor vehicles, pedestrians and bicyclists are typically at greater risk of casualty in the event of a crash. Therefore, it is even more critical that planning, design, and operation of intersections account for the most vulnerable. When designed with pedestrians and bicyclists explicitly in mind, all types of intersections can facilitate safe, accessible, convenient, and comfortable walking and bicycling.

This was the motivation for a new guide, Improving Intersections for Pedestrians and Bicyclists, recently published

by FHWA. This guide is a supplement to the preceding series of informational intersection guides and makes direct connections to other bikeway and pedestrian facility selection guides.

The pursuit of eliminating deaths and serious injuries on our Nation's roads relies on the Safe System Approach as an integral tool for reaching this goal. At intersections, this involves minimizing risks to all road users by applying a kinetic energy management model. The model relies on design features that lower vehicle speeds, separate road users, remove conflict points, and reduce conflict point severity. To varying degrees, both traditional and innovative/alternative intersection designs may exhibit

some or all of these kinetic energy management model characteristics. The new guide represents a holistic approach to combining innovative/alternative intersection designs with the Safe System Approach, complete streets, Proven Safety Countermeasures, and facility selection best practices to help agencies create walkable and bikeable intersections that are safer for all users.

New Jersey's Build a Better Mousetrap Competition Open for Entries!

People involved in the transportation industry often find better ways to do their jobs. Whether it's a new gadget that improves the quality and safety of a project, or an innovative process that reduces costs and improves efficiency, it is typically the people on the front lines that often realize the latest and best practices.

Now is the time to share those new ideas with others in New Jersey's **Build a Better Mousetrap Competition.** We are looking for submissions from any employee of a local or state public agency (municipalities, counties, parks commissions, NJ Department of Transportation, NJ Transit) that has create an alternate or better way of doing something in a transportation project. We will gather the best ideas from around the state and judge them using a 5 point rating system. As a reminder, this competition is open to any local, county, or state transportation

agency, including New Jersey Department of Transportation and New Jersey Transit employees. Two winners will be selected; one for the best local agency and another for the NJDOT/NJT Submission.

Visit https://cait.rutgers.edu/mousetrap/ for more information and to download the entry form today!



- Ralph Waldo Emerson

Are you looking for resources tailored towards rural roads? Visit the <u>National</u> <u>Center for Rural Road Safety</u>, which has a large library of monthly recorded webinars. You can find everything from webinars on Roundabouts, learning about the Safe System Approach, Local Funding Opportunities, Rural Roadway Departure Countermeasures, and much more!

Nondestructive Evaluation of Concrete Bridge Deck with Overlays

Overlay systems have been used by State departments of transportation (DOTs) since the 1960s to extend the service life of deteriorated concrete bridge decks by protecting the underlying concrete substrate. An overlay is a thin layer of material—such as asphalt concrete, portland cement-based concrete, latex modified concrete, epoxy polymer concrete, or polyester polymer concrete—that is placed over existing concrete. A bridge deck overlay system can improve the ride quality for drivers, add protection for embedded reinforcement, and/or modify the transverse profile and vertical alignment of the existing roadway to improve deck drainage. More than 10,000 bridges in the United States have been successfully rehabilitated using overlays. However, the overlays on bridge decks can deteriorate and debond from the underlaying concrete decks.

Destructive and nondestructive testing are widely used by engineers to evaluate the structural integrity and characteristic differences in material properties, defects, and discontinuities of bridge structures. The sampling required for destructive testing damages a structure. In contrast, nondestructive evaluation (NDE) technologies enable assessment of structures without causing damage. Nondestructive testing also enables more comprehensive inspection since the tests can be repeated, and several technologies can be used together to better identify and characterize underlying defects.

"NDE technologies provide data not otherwise available to bridge owners to support well-founded decisions concerning investments in preservation, maintenance and rehabilitation," says Hari Kalla, associate administrator, Federal Highway Administration (FHWA) Office of Infrastructure.

Through laboratory specimens under controlled conditions and in the field under actual conditions, FHWA's NDE Laboratory at the Turner-Fairbank Highway Research Center identified promising technologies for assessing concrete bridge decks with different types of overlays. The following nine technologies were considered for investigation:

- Sounding
- Impact echo (IE)
- Ultrasonic surface waves (USW)
- Ultrasonic shear-wave tomography (Ultrasonic Testing (UT)-MIRA and UT-EyeCon)
- Infrared thermography (IRT)
- Ground-penetrating radar (GPR)
- Electrical resistivity (ER)
- Half-cell potential (HCP)
- Impulse response (IR)



Source: FHWA.

The researchers designed and manufactured eight identical specimens with various artificial defects. The artificial defects included delamination at upper and lower rebar levels, honeycombing, voids, vertical cracks, and precorroded rebars within an elevated chloride content environment. After fabrication, the researchers first tested bare concrete specimens with nine NDE technologies to assess their performances in detecting defects before placing the overlays.

Find out the results of the testing methods and read the full article at FHWA's Safety Compass.

Publication Statement

This newsletter is published biannually by the New Jersey Local Technical Assistance Program, Center for Advanced Infrastructure and Transportation, Rutgers University, using funds from the Federal Highway Administration and the New Jersey Department of Transportation. The opinions, findings, or recommendations expressed in this newsletter are those of the New Jersey Local Technical Assistance Program and do not necessarily reflect the views of the Federal Highway Administration nor the New Jersey Department of **Transportation nor Rutgers** University. Any product mentioned in this newsletter is for information purposes only and should not be considered a product endorsement.

Upcoming Events

Heading into the winter we would like to remind you of some available courses in the LTAP catalogue. Whether you're a seasoned veteran or new to the job, LTAP's courses will provide you with the best instruction on what you need to know. Register today!

NJLTAP - Highway Inspections Procedures for Federal-Aid Projects

February 7, 9:00 am-12:00 pm

This course is designed specifically for project engineers, project inspectors, supervisors and those in responsible charge of federal aid construction projects. It presents essential requirements and procedures for insuring conformance with contract plans and specifications including records and documentation necessary to conduct inspections.

NJLTAP - Grant Management for Federal-Aid Projects

February 9, 9:00 am-12:00 pm

Are you a recipient of a Federal Aid grant? Effective and efficient "management" of the funds received from such a grant is critical to insuring future eligibility and reimbursement. This course highlights key requirements and responsibilities that must be met as a condition to the grant.

Our full online catalogue of courses can be found at our website, <u>https://</u> <u>cait.rutgers.edu/cait/events</u> or email Shane Mott at <u>caitregistrar@soe.rutgers.edu</u> for more information!

NJLTAP Contact Information

Comments may be addressed to :

100 Brett Road

Piscataway, New Jersey 08854

http://cait.rutgers.edu/njltap

NJ LTAP Staff

Janet Leli jleli@soe.rutgers.edu Ted Green tngreen@soe.rutgers.edu Jessica Brown job32@soe.rutgers.edu David Maruca dem200@soe.rutgers.edu

Omid Sarmad

sarmad@soe.rutgers.edu Lloyd Jacobs ljacobspe@verizon.net Workshop Inquiries caitregistrar@soe.rutgers.edu



Local Technical Assistance Program