



Your Local Technology Transfer Newsletter

Message from the Director

Welcome to our first newsletter of 2022!. We are in our 24th year of production! Newsletter content is selected to share information and showcase innovations that are implementable at the municipal, county, and state levels. Our communication efforts, combined with workshop topics, are designed to provide you with resources to improve infrastructure management, safety, and workforce development within your organizations.

The 2022 training season is well underway...please be sure to check online for the most current schedule of workshops (<http://cait.rutgers.edu/cait/training>). While most trainings are being held virtually, there will be several in-person opportunities coming up. We will also be working with several organizations to bring you additional professional development opportunities throughout the year, such as the American Public Works Association, NJ Chapter, NJ State Association of County Engineers, and the County and Municipal Traffic Engineers Association.

We also invite you to participate in this year's Build a Better Mousetrap Competition, which provides a great opportunity to share new ideas with others and across the country. We are looking for submissions from employees of local or state public agencies (municipalities, counties, parks commissions, NJ Department of Transportation, NJ Transit) that have developed new solutions to problems or found better ways of doing things. We will gather the best ideas from around the state and judge them using a 5-point rating system. The highest scoring local public agency entries will be entered into a Build a Better Mousetrap National competition with entries submitted from the national network of Local Technical Assistance Program centers. The highest scoring state entry will be recognized at the NJDOT Annual Research Showcase in October. The deadline is quickly approaching- all submissions must be received by May 1, 2022. Entry forms and additional information may be found on the NJ LTAP website at <https://cait.rutgers.edu/mousetrap/>.



Issue Highlights

Understanding the Safe System Approach

The Safe System Approach is being applied with great success in a growing number of nations and cities around the world and has now taken hold in the United States. Learn more here!



Making Work Zones Safer with Better Data: Introducing the Work Zone Data Exchange

Learn how new technologies and data sharing approaches sponsored by FHWA will help make our work zones safer!



Murphy Administration Announces Grants for Local Projects

The Murphy Administration recently announced funding for bicycle, pedestrian, and transit oriented Local projects.



UHPC Applications in New Jersey

This Q&A article with Pranav Lathia, an NJDOT Supervising Engineer, Structural & RR Engineering Services, discusses current initiatives to test and deploy UHPC on the Garden State's bridges.



The Local Technical Assistance Program (LTAP) and Tribal Technical Assistance Program (TTAP) are composed of a network of 58 Centers – one in every state, Puerto Rico and regional Centers serving tribal governments. 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,

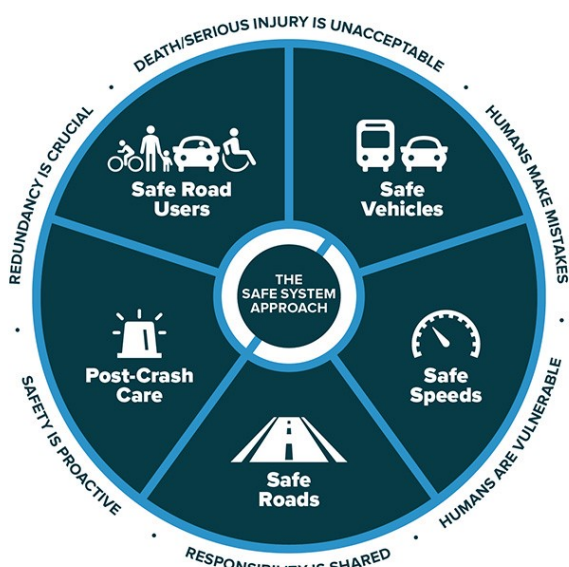
Understanding the Safe System Approach

Achieving the vision of eliminating deaths and serious injuries from the Nation’s roads may seem daunting with traffic fatalities in the United States stubbornly remaining between 32,000 and 39,000 annually for more than a decade. To make meaningful progress, changes are needed in how to think about the traffic safety problem and the approaches to solve the problem. The Safe System Approach is being applied with great success in a growing number of nations and cities around the world and has now taken hold in the United States.

Six Foundational Principles for Understanding and Applying the Safe System Approach:

- Deaths and serious injuries are unacceptable—While no crashes are desirable, the Safe System Approach emphasizes a focus on crashes that result in death and serious injuries. Regardless of road users’ socio-economic backgrounds, their abilities, and the modes they use, no one should experience deaths or serious injuries when using the transportation system.
- Humans make mistakes—Road users will inevitably make mistakes, and those mistakes can lead to crashes. The Safe System Approach expects the road system be planned, designed, and operated to be forgiving of inevitable human mistakes, so that serious injury outcomes are unlikely to occur.
- Humans are vulnerable—Humans have limited ability to tolerate crash impacts before harm occurs. Although the exchange of kinetic energy in collisions among vehicles, objects, and road users has multiple determinants, applying the Safe System Approach involves managing the kinetic energy of crashes to avoid serious injury outcomes.
- Responsibility is shared—All stakeholders (transportation system users and managers, vehicle manufacturers, etc.) must work collaboratively to ensure that crashes don’t lead to fatal or serious injuries.
- Safety is proactive—Transportation agencies should use proactive and data-driven tools to identify and mitigate latent risks in the system, rather than waiting for crashes to occur and reacting afterwards.
- Redundancy is crucial—Reducing the risk of severe crash outcomes requires all parts of the system to be strengthened, so that if one element fails, the others still protect road users.

Creating a Safe System is a journey that will take time, commitment, and collaboration across disciplines. The Federal Highway Administration and its stakeholders across the transportation community are acting now to advance the Safe System Approach, making decisions guided by the underlying principles, and promoting implementation across the Nation. FHWA is making strides to advance the Safe System Approach through publications and outreach materials, including an overview flyer and awareness presentation. Additionally, organizations and initiatives, including the Road to Zero Coalition, Toward Zero Deaths, and Vision Zero Network, offer valuable resources and references. As the United States advances along the journey to implement a Safe System to eliminate traffic deaths and serious injuries, everyone is a stakeholder with an important role.



Source: FHWA.

Build a Better Mousetrap 2021 Award Winners Announced



2021 State Winner: **Tire Centerline Bracket**
Marc Franco, Technical Specialist, NJ TRANSIT Bus Material & Technical Support



2021 Local Winner: **Inlet Repair Trailer**
Art Villano, Montgomery Township, New Jersey

Employees often create innovative solutions to everyday problems or develop alternative ways of doing things in their workplace to improve safety and efficiency, reduce costs, and enhance the quality of transportation. The NJ Build a Better Mousetrap (BABM) Competition seeks entries from employees of local and state public agencies who have created and successfully implemented innovative solutions.

Our 2021 BABM state agency award was given to Marc Franco from NJ TRANSIT. His innovation, the Tire Centerline Bracket, provides a simple means for finding the centerline of the tire when installing the air-operated snow chain systems on the fleet of buses. Our local agency award was given to Art Villano from Montgomery Township who devised a more efficient means to haul all needed equipment and materials to work sites to conduct inlet repairs.

Our 2022 BABM Competition has been launched with a deadline of May 1st, 2022. [Read more about](#) the 2021 BABM winners and see our last competition video announcement.

2022 National Work Zone Safety Awareness Week



2022 National Work Zone Awareness Week (NWZAW) is scheduled for April 11-15. It will be hosted by the Virginia Department of Transportation (VDOT). This year's theme is *Work zones are a sign to slow down*. The kick-off event is scheduled on April 12.

For more information, check out the website below.

[National Work Zone Awareness Week](#)
[National Work Zone Awareness Week](#)



Making Work Zones Safer with Better Data: Introducing the Work Zone Data Exchange

Work zone safety is a national priority. USDOT, FHWA, and transportation agencies are working to reduce fatalities, injuries, and crashes in work zones nationwide. The United States [saw 842 work zone fatalities in 2019](#).

Looking to the future, technology will play a vital role in improving work zone safety. While intelligent transportation system tools such as smart work zone devices are rapidly advancing, the data they collect are much more valuable if everyone can easily access and interpret it. And that's where the [Work Zone Data Exchange \(WZDx\)](#) comes in.

WZDx is a cooperative effort led by USDOT and stakeholders to advance a national data specification—a universal language—for all work zone data. WZDx supports the sharing of all data (and there are a lot of it), making it available for third-party users such as mapping companies, vehicle and vehicle equipment manufacturers, and automated vehicles.

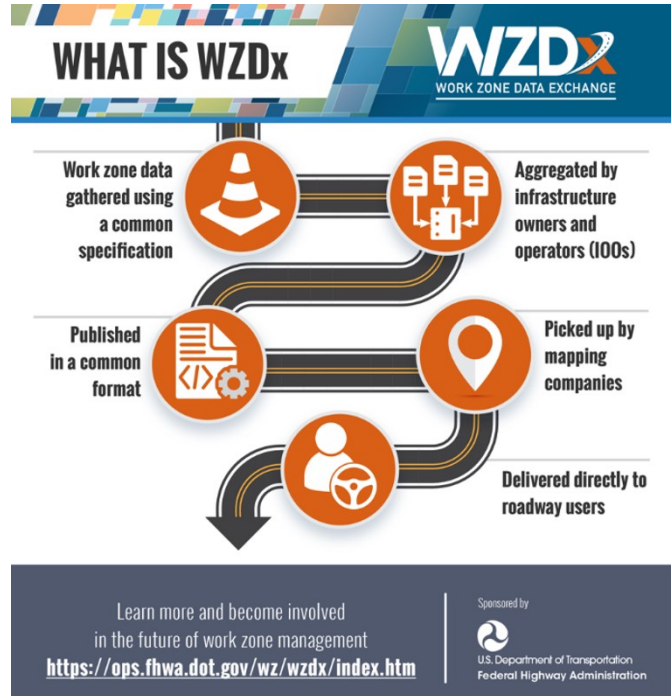
Community-developed data specifications, such as the General Transit Feed Specification for public transportation, are widely used by transportation agencies nationwide. The WZDx specification is the first open specification for sharing information on work zone impacts.

100+ organizations—including State and local DOTs, construction firms, mapping companies, and vehicle technology manufacturers—participate in the [Work Zone Data Working Group](#). Working group members are dedicated to developing and implementing the WZDx specification in work zones nationwide. Any person or organization is welcome to join, and several subcommittees address specific aspects of development and implementation.

Like all new technologies, progress is incremental. In the case of WZDx, things are moving along at a rapid pace. Version 4 of the specification is coming soon, and with each version, the data that the WZDx is capable of communicating become more comprehensive and more precise. And precise data are more useful data.

The first step in accelerating adoption is to get the word out. Earlier this year, FHWA launched a partnership and awareness campaign, called Put Work Zones on the Map, to do just that. The purpose of the campaign is to educate and engage potential partners on the capabilities, benefits, and progress of WZDx. Those interested in helping spread the word can visit the campaign's toolkit web page to find fact sheets, social media content, and links to past webinars.

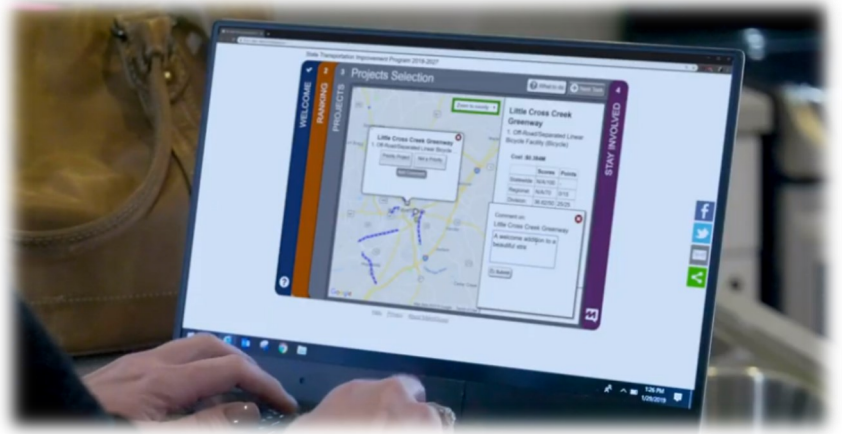
Together we can create smarter and safer roadways by putting work zones on the map and improving the way we navigate work zones daily. For more information on WZDx and Put Work Zones on the Map, visit the [WZDx website](#) or email Martha Kapitanov at martha.kapitanov@dot.gov.



EDC– 6 - Virtual Public Involvement Spotlight

During the COVID-19 Pandemic, perhaps no EDC-6 initiative became utilized more often than Virtual Public Involvement (VPI). Virtual public involvement supports agencies' efforts to engage the public more effectively by supplementing face-to-face information sharing with technology. As the pandemic made in-person meetings impossible for many municipalities across the state, VPI became the go-to procedure with many municipalities, MPO's, and counties forced to learn best practices on the job. The stated benefits of VPI to garner more public input was always apparent, but until the pandemic achieving widespread implementation was difficult.

After all, as daily users of the transportation system, the public has useful opinions, insights, and observations to share with their State DOT and local agencies on the performance and needs of the transportation system or on specific projects. Early and strong public engagement has the potential to accelerate project delivery by helping identify and address public concerns early in the planning process, thereby reducing delays from previously unknown interests late in the project delivery process.



Nearly all State DOTs and most local agencies use websites to post information about their activities. With the increased use of social media tools and mobile applications, the public can access user-friendly features such as online videos, podcasts, crowdsourced maps, and other interactive forums to receive information and provide input. Today most municipalities are still hosting planning and zoning board meetings online, allowing for more members of the public to view, attend, and comment on meetings that were otherwise inconvenient for them. However, those are not the only benefits. Some other are:

- **Efficiency and Low Cost.** Virtual tools and platforms can be made accessible to communities efficiently, many at a lower cost than traditional public engagement methods.
- **Accelerated Project Delivery.** Robust public engagement helps identify issues early in the project planning process, which reduces the need to revisit decisions.
- **Communication and Collaboration.** Virtual public involvement can aid in establishing a common vision for transportation and ensure the opinions and needs of the public are understood and considered during transportation planning and project development.
- **Expanded Engagement.** Virtual tools include stakeholders who do not participate in traditional approaches to public involvement. Greater engagement can improve project quality.

Virtual public involvement is providing State DOTs and local agencies throughout the country with a platform of innovative tools and strategies for making public involvement more accessible, thus providing a better understanding of the public's concerns regarding transportation system performance and needs. You can find more information about the program and best ways to implement it for your organization at the [EDC-VPI Website](#). FHWA also recently [released a video](#) highlighting the effectiveness and benefits of VPI as it has been implemented around the country. Also make sure to check out the NJDOT Tech Transfer website to see a [Lunchtime Tech Talk](#) about how VPI will be handled beyond COVID-19 in NJ.

Nine New Proven Safety Countermeasures Added

The FHWA Office of Safety recently introduced nine NEW countermeasures to the Proven Safety Countermeasures initiative (PSCi). These additions enhance the already diverse set of safety strategies for State, local, regional, and Tribal transportation professionals to consider implementing as part of their efforts to improve safety for all road users on the Nation's roadways.

In addition to nine new countermeasures and crosscutting strategies, this most recent iteration of the PSCi adds recent research and considerations to the existing proven safety countermeasure (PSC) materials. New features have been added to the PSC website, including a filter tool and search function that will help practitioners identify applicable countermeasures that meet their needs.

Widespread implementation of PSCs, where appropriate, can serve to accelerate the achievement of local, State, and national safety goals. The updated PSC website is the one-stop shop for resources and information to advance the now 28 countermeasures for your jurisdiction.



Did You Know?

OSHA has a new video that explains how the inspection process is helping to keep workers safe as well as the reasons for the inspection.

The video is available at on the US Department of Labor YouTube Page in both in [English](#) and [Spanish](#).



Murphy Administration Announces Grants for Local Projects

The Murphy Administration announced eleven Bikeway Grants totaling \$5.9 million as well as 8.6 million for Safe Streets to Transit programs for fiscal year 2022. This year's grants represent the largest amount of funds provided in a single year for the Safe Streets to Transit Program.

The Safe Streets to Transit (SSTT) program is one of several pedestrian safety initiatives funded through the State Transportation Trust Fund (TTF). The SSTT program provides funding to counties and municipalities to improve the overall safety and accessibility for mass transit riders walking to transit facilities. The program encourages transit users to walk to transit stations, and facilitates the implementation of projects and activities that will improve pedestrian conditions within a 1-mile radius of a transit facility or station.



Similarly, the Bikeway Grant Program provides \$1 million in grants annually to counties and municipalities in order to promote bikeways as an alternate mode of transportation that support the State's efforts to add new miles of dedicated bikeways in New Jersey. This year, an additional \$13.5 million was appropriated for Grants-in-Aid programs, specifically for the Transit Village Program, the Safe Streets to Transit Program, and for Bicycle & Pedestrian Facilities/Accommodations. Of the \$13.5 million, \$4.9 million was provided for the Bikeway Grant Program.

"The Murphy administration recognizes transportation infrastructure is more than just roads and bridges," NJDOT Commissioner Diane Gutierrez-Scaccetti said. "Projects funded by the Bikeway Grant Program provide safe transportation alternatives that benefit cyclists and pedestrians and improve the of quality-of life in New Jersey."

These programs, as well as other Local Aid state-funded grant programs, benefit residents by enabling local governments to complete necessary projects on roads under their jurisdiction without burdening local taxpayers.

New Jersey's Build a Better Mousetrap Competition Ready for 2022

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.



**"Build a better mouse trap,
and the world will beat a path
towards your door."**
- Ralph Waldo Emerson

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

Stronger, More Resilient Bridges: Ultra High-Performance Concrete (UHPC) Applications in New Jersey

UHPC for Bridge Preservation and Repair is a model innovation and has been included in the latest round of the FHWA's Every Day Counts Program (EDC-6). UHPC is recognized as an innovative new material that can be used to extend the life of bridges. Its enhanced strength reduces the need for repairs, adding to the service life of a facility. This Q&A article with Pranav Lathia, an NJDOT Supervising Engineer, Structural & RR Engineering Services, discusses current initiatives to test and deploy UHPC on the Garden State's bridges.

Q. What is Ultra High Performance Concrete (UHPC), and why is it particularly useful for bridge preservation and repair (P&R)?

Ultra High Performance Concrete (UHPC) is a new class of concrete which contains extraordinary properties of durability and strength. UHPC is a cement based composite material, which consists of steel fiber reinforcement, cement, fine sand, and other admixtures. UHPC is a useful alternative for bridge repairs and preservation due to its long-term durability, which will minimize repairs to a specific structure over time.

Q. Why, in some cases, is UHPC a better application than traditional treatments?

Due to its chemical properties UHPC has a compressive strength of seven times that of regular concrete. Therefore, UHPC is mostly used for thin overlays, closure pours, link slabs, beam end repairs and joint headers.

Q. What are some advantages of UHPC?

UHPC overlays appear to have many ideal properties for deck surface, including superior bond strength, compressive strength, lower permeability, greater freeze-thaw damage resistance, good abrasion resistance, and rapid cure times, among others.

Q. What are some disadvantages to UHPC?

There are some disadvantages to UHPC. UHPC has higher material costs which has to be a factor in the Department's decision process. A life-cycle cost analysis is appropriate for making a determination of whether it is a cost-effective alternative for the Department. Fresh UHPC does not bond well to hardened UHPC, therefore careful consideration for joint construction is needed, including reinforced staging joints. There is also limited test data for construction materials to determine their ability to perform well with UHPC. In addition, the NJ construction workforce is not very familiar with the use of UHPC as an overlay.

Q. When is UHPC perhaps not an appropriate solution?

UHPC would not be an appropriate solution for a full deck replacement, superstructure replacement, or total replacement.

Read the [full Q&A](#) at the NJDOT Tech Transfer website!



Publication Statement

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Upcoming Events

This spring 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!

Pavement Management - March 10-11, 2022 8:30 a.m. - 12:00 p.m.

This course provides the basics for developing a road surface management program to help local governments manage their pavements by providing an understanding of the concept and importance of road surface inventories and condition surveys. A review of the basic components of flexible and rigid pavements is discussed.

Innovating at the Local Public Works Level - March 23, 2022 1:00 p.m. – 2:00 p.m.

In this webinar, come learn how the network of local technical assistance programs work with the Federal Highway Administration in the Build a Better Mousetrap competition to inspire innovation from local agencies around the country.

Curve Advisory Speeds - April 11, 2022 1:00 p.m. – 2:00 p.m.

In 2021, NJ had 691 fatalities on public roads. Over 60% of these involve roadway departure. Nearly 30% involved a curve. This webinar will cover what you can do to keep the public on the road and how to properly set curve advisory speeds using procedures outlined in the MUTCD.

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

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