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Digital alerts warn drivers of incidents ahead.
Emergency Vehicle Alerts Boost Driver Awareness

Every day, police, fire, emergency medical services (EMS), transportation, and towing professionals are working on or near the Nation's roadways, clearing roadway incidents and helping ensure the safe and efficient flow of traffic. Their familiar amber, blue, and red emergency lights are meant to alert drivers to their presence and cue them to use greater caution. New technologies promoted by Every Day Counts round six (EDC-6) Next-Generation Traffic Incident Management (NextGen TIM) are helping boost driver awareness even more.

Motorist alert systems work to inform drivers of first responder activity on roadways where they travel. The underlying premise is that alerting motorists to downstream traffic incidents sooner may increase compliance with State move over laws, allowing for more time to safely change lanes and/or slow down. Timely awareness of incident activity ahead can increase driver attentiveness and responsiveness, making safer conditions for responders and other road users.

Motorist alert systems, also referred to as digital alert systems or responder-to-vehicle alerts, rely on Global Positioning System (GPS) technology that knows the responder's location. This can be accomplished with a small transponder specifically for this purpose, separate vehicle location systems, or by connecting with vehicle manufacturer systems. Roadway maintenance vehicles, responder vehicles, and temporary traffic control devices are geolocated and shared with drivers.

Motorist alerts are one of several technologies promoted as part of EDC-6 NextGen TIM. Roadway maintenance vehicles, clearing roadway incidents and helping to tabulate and visualize the number of deployments, duration of stops, and the number of motorists potentially warned. In addition, since responder vehicle location is an important part of the technology, some agencies are able to use the dashboards for better resource management.

According to Pennsylvania Turnpike Commission TIM Coordinator Todd Leiss, crashes involving roadway vehicles were reduced from 30 in 2018 to zero in 2020. He attributes much of the credit for that reduction to emergency vehicle alerts. Similarly, around the country, private companies such as towing operators are realizing the safety impacts and are installing equipment on tow trucks to help warn drivers of the trucks' roadside presence. This is important because towing companies frequently act as single responders to disabled vehicles, often without the knowledge or support of other agencies like law enforcement or transportation. Emergency alert technology can be used on any incident response vehicle, including police, fire, EMS, transportation, towing, and others.

Vehicle telematics and summary dashboards are sometimes part of the alert system deployment, helping to tabulate and visualize the number of deployments, duration of stops, and the number of motorists potentially warned. In addition, since responder vehicle location is an important part of the technology, some agencies are able to use the dashboards for better resource management.

Leiss estimates that in just over 1.5 years, the system has alerted 2.8 million Waze® users to Pennsylvania Turnpike incidents. “Aware drivers are potentially safer drivers when passing roadway incidents, work zones, and responders,” said EDC-6 NextGen TIM Co-Leader Paul Jodoin, “Next-generation TIM technology like digital alerts is proving to be a great way to help create better awareness among road users.”

Pennsylvania Reduces Roadside Vehicle Crashes
Many public safety, transportation, and private sector agencies are using motorist alerts to improve situational awareness among drivers. The Pennsylvania Turnpike Commission has equipped 158 maintenance and service patrol vehicles with the ability to broadcast emergency alerts. When the service vehicle activates its amber emergency warning lights, a signal is sent to a mapping provider (Waze®), which pushes an alert to subscribers in the vicinity.

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MORE INFORMATION

View the “Talking TIM” webinar series for examples of how agencies apply strategies to improve TIM programs.

Contact Paul Jodoin or Jim Austrich of the FHWA Office of Operations for NextGen TIM information, technical assistance, and training, including workshops and peer exchanges.

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EDC Outtakes: NextGen TIM

EDC's Next-Generation TIM promotes new technologies to help local agencies better manage incidents. In this EDC Outtake, Texas Department of Transportation TIM Coordinator David McDonald talks about his experience incorporating TIM while working for the city of Austin.

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Free Workforce Development Marketing Toolkit

It is no secret that many industries across the United States are experiencing worker shortages. This problem is especially critical in highway construction.

According to a 2021 survey by the Associated General Contractors of America, 90 percent of construction firms said they have open positions and 89 percent said they are having a hard time filling them. Seventy-two percent of respondents said the reason they were having a hard time filling positions is because potential employees “are not qualified to work in the industry.”

The Federal Highway Administration (FHWA) formed the Strategic Workforce Development implementation team as part of Every Day Counts round six (EDC-6) to help remedy this massive problem. The group’s mantra and central theme is “Identify, Train, Place.” Attract applicants, get them the training they need, and place them in long-term career opportunities.

“We as a Nation have to fill the pipeline with qualified workers,” said Karen Bobo, Director of the FHWA Center for Transportation Workforce Development and co-lead of the EDC-6 strategic workforce development team. “That means not only attracting applicants but being intentional about improving their skills and getting them right into jobs.”

Marketing the Industry

Identifying and attracting workers means marketing the highway construction industry to them. Many construction firms and local agencies cannot afford the time or money to create outreach campaigns, so FHWA created a toolkit of communication assets that are free to download, customize, and use in their communities. The toolkit includes posters, flyers, postcard mailers, exhibit banners, and talking points to use in public meetings and presentations. The toolkit provides a complete, consistent package of materials firms and agencies can use, even if they do not have professional marketing experience. Many of the items can be customized with local contact information.

“We at FHWA can work with the highway construction industry and serve as a hub of information and materials,” said Joe Conway, Director of the FHWA Center for Local Aid Support and the other co-lead of the EDC-6 strategic workforce development team. “We created this marketing package for them to download and use for free as one way to help them address their highway construction workforce crisis.”

Stories from the Field

The toolkit also has case studies from around the country detailing how others are working to solve their workforce shortages. States and cities have formed what FHWA calls Highway Construction Workforce Partnerships (HCWPs) to bring interested parties together to find solutions. Many HCWPs are finding that potential workers have the will to pursue highway construction but lack the practical means of doing so.

In Rhode Island, case managers meet with individuals at the time they express interest in joining a workforce training program. They discuss employment barriers as well as career goals to determine what resources will help ensure success for each applicant. According to Andrew Cortes of Rhode Island’s HCWP, their working group establishes a budget around helping people make the transition into the workforce.

“We do a lot to remove barriers so individuals can go to work,” said Cortes. “We’ll help reissue driver’s licenses, provide health and nutritional benefits, or offer language support services.”

Cortes also emphasized the importance of continued support once individuals graduate from the training programs. “We’ll hold alumni gatherings and have 200 people show up to connect with each other.”

The Dallas HCWP is a collaboration between the Texas Department of Transportation and other partners to develop a new program called ConnectU2Jobs that will remove youthful offenders arrested for felony crimes out of the criminal justice system and prepare and train them for careers in the heavy highway construction industry. The program is based on an “earn-while-you-learn” concept that allows participants to earn income while receiving classroom-based training and on-the-job training.

In Los Angeles, prospective highway construction workers first learn about the levels of support offered to help them succeed. This gives the HCWP an opportunity to home in on specific needs for each cohort, so they can find community partners willing to provide the resources that will eliminate barriers to program completion.

“Participation in our program not only affects individuals, but also their families,” said Robert Chavez, a member of the Los Angeles HCWP. “We can provide housing, rental assistance, or childcare to help people meet their training requirements.”

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“Once a person’s home life is stable enough for them to get to the job, we can work on career development,” said Jimenez. “We start with a basic list of stabilizing resources. As we get to know an individual, we’re able to cover other needs they have.”

No Silver Bullets

Bobo and Conway know it will take time and many collaborators to solve the highway construction workforce shortage. They will keep celebrating and promoting successes from across the country.

“There is no ‘one thing’ people can do to solve the highway construction workforce shortage,” Bobo said. “It will take an integrated, holistic approach to identify, train, and place the next generation of skilled builders. We are honored to play our part.”

For the Denver HCWP, making sure program participants know what support services are available is key to taking them to their first day on the job and beyond. Alena Jimenez, Navigator and Business Services Coordinator for the Center for Workforce Initiatives, said stabilizing an individual at the beginning of the program is important to retaining them on the job.

“The highway construction workforce labor gap impacts all businesses looking to grow and expand,” said Wendi Secrist, executive director of the Idaho Workforce Development Council, explains the expected gap in her State and the challenges it brings.
Michigan and North Carolina Win STIC Excellence Awards

State Transportation Innovation Councils (STICs) in Michigan and North Carolina recently received 2021 STIC Excellence Awards for demonstrating success in fostering a strong culture of innovation in their transportation communities.

The American Association of State Highway and Transportation Officials and Federal Highway Administration sponsor the annual award to promote innovation nationwide. Acting FHWA Administrator Stephanie Pollock announced the 2021 recipients at the National STIC Network Meeting in October.

“Both of these STICs have exhibited strong leadership, involvement by diverse groups, innovation in performance tracking, and promotion of innovation implementation,” Pollock said. She asked attendees to keep sharing ideas, trying new things, and encouraging staff to think outside the box.

“We have big challenges on our plate, but the good news is we also have a lot of opportunities to address those challenges, and we have processes and tools in place like STICs to do that.”

Michigan’s STIC Expands Its Reach

The Michigan STIC (MI-STIC) has evolved to enhance representation from leadership at various levels of the State’s highway community. It recently expanded to include individuals from the State’s asphalt pavement, concrete, aggregates, and road preservation associations and the State House and Senate.

Ted Burch, deputy division administrator for FHWA’s Michigan Division, noted that this addition to MI-STIC’s already diverse membership has created a robust group of highway leaders and strong partnerships to implement innovation across the State. “Those partnerships have evolved in a number of outreach events,” said Burch. “They’ve really brought innovation from all aspects of the transportation industry to the table.”

MI-STIC is also continuously evolving the processes and procedures it uses to educate stakeholders on available innovations. A recent concept, which was developed based on ideas shared during a multi-State peer exchange, is Transportation Highlights. Open to all stakeholders, these events allow participants to present and learn about accomplishments, new practices, and emerging topics in transportation and to ask questions and highlight solutions.

Tony Kratofil, chief operations officer and chief engineer for the Michigan Department of Transportation (MDOT), said the sessions have proven valuable. “They are really key to the ability to share innovation and promote innovative practices across the whole industry,” he said.

MI-STIC’s engaged leadership has helped get various innovation initiatives adopted and achieve local impacts. Among these is virtual public involvement (VPI). MDOT used VPI to expand its reach to larger target audiences, increasing participation and transparency while decreasing costs from staff time and project delays. MDOT’s VPI tools have been employed on local pilot projects and are being incorporated into the State’s long-range plan.

These and other innovations are captured in an external facing Innovations Dashboard that highlights areas of research, new products, innovative contracts, digital data, and traffic flow and mobility advancements.

North Carolina Diversifies Ideas, Expertise

North Carolina’s STIC expanded over the last few years from a single committee focused on annual projects and Every Day Counts updates to a major program centered on multiple innovation efforts between the North Carolina DOT (NCDOT) and its partners.

The STIC was rechartered in 2019 as the North Carolina Transportation Innovation Council (NC-TIC), with an executive committee led by the State’s Secretary of Transportation. Supporting groups were formed focusing on three areas: internal innovation, academic partnerships, and industry partnerships. Each of these is supported by multi-disciplinary committees with stakeholders from industry, academia, and government.

The NC-TIC holds an annual Research & Innovation Summit, now in its third year, to bring the three groups together.

North Carolina FHWA Division Administrator John Sullivan said NCDOT launched the Transportation Centers of Excellence program in 2020 to enhance its academic partnerships. The three Centers of Excellence involve eight universities across the State.

“These academic partnerships built through NCDOT are intended to expand our research capability by being more inclusive, enhancing the relationships between our universities, and including more of our historically black universities in doing highway research for NCDOT,” he said.

Another focus area of the NC-TIC is how to better leverage internal innovation within NCDOT. The agency launched a program called CLEAR (Communicate Lessons, Exchange Advice, Record) to expand its use of knowledge management and innovation tracking tools. Originally conceived to track lessons learned on construction projects, CLEAR is now capturing innovative ideas, solutions, and challenges throughout NCDOT.

NCDOT Secretary Eric Boyette said the NC-TIC has benefited from its efforts to diversify and expand its innovation partnerships and knowledge base. “The biggest thing is when you diversify, when you look around the table and make sure you have good diversity, it actually helps drive things like we’re trying to do here with innovation,” he said. “The more we can do that, the better off we are as an agency.”

New FHWA Innovation and Workforce Office

During the 2021 National STIC Network Meeting, Amy Lucero, FHWA’s Associate Administrator for the Office of Transportation Workforce Development and Technology Deployment, introduced participants to her office’s new structure, which is aimed at strengthening the agency’s focus on innovation.

The recent re-organization united the FHWA offices that manage innovation, workforce programs, deployment training, and technical assistance efforts.

“The goal of this new office is to strengthen innovation deployment and workforce development by bringing all the right people to the same table, providing the best coordinated resources in all of these areas for customers, stakeholders, and partners,” Lucero said.

Read more about the new office in FHWA’s Public Roads magazine.

MORE INFORMATION

Visit FHWA’s STIC Excellence Award webpage.

Contact Sara Lowry of FHWA’s Office of Transportation Workforce Development and Technology Deployment for information on the STIC Excellence Award.

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Hear more from Michigan and North Carolina in this video recording of the 2021 National STIC Network Meeting. Learn about the first seven projects awarded under FHWA’s Accelerating Market Readiness program, as well as an overview of the National Cooperative Highway Research Program.
Utah Creates Reinvestment Zones

Since 1980, Utah’s population has more than doubled, increasing from 1.5 million residents to over 3.3 million in 2020. That growth is expected to continue, with the population projected to reach 5.3 million by 2050. To help address the financial challenges that will accompany this growth, Utah passed two pieces of legislation allowing for the creation of reinvestment zones, a form of value capture that can provide revenue to support the long-term costs associated with housing and transportation projects.

In 2018, Utah became the second State (after Texas) to adopt a bill allowing transportation reinvestment zones (TRZs). In 2021, Utah became the first State to adopt a companion bill allowing for the creation of housing and transit reinvestment zones (HTRZs). Together, the two pieces of legislation allow for areas within the State where two or more public agencies can establish an interlocal agreement to capture increased property or sales tax revenue generated by a transportation infrastructure project. Both pieces of legislation resulted from extensive collaboration and deliberation among Utah’s transportation agencies (Utah Department of Transportation, Utah Transit Authority), the State’s metropolitan planning organizations (MPOs), including the Wasatch Front Regional Council; cities and counties; key public and private sector stakeholders; and legislative champions.

Transportation Reinvestment Zones

TRZs are designed to generate revenue for road and transit projects, stimulate well-planned development coordinated with transportation, encourage collaboration across city and county boundaries, and encourage coordination between municipalities and transportation agencies. To be eligible for a TRZ, transportation projects must be a part of Utah’s Unified Transportation Plan or a local general plan. Proposed projects can provide funding for improvements including a State or local highway, public transportation facility or nonmotorized transportation facility, or parking facilities that support intermodal regional transportation.

To establish a TRZ, Utah’s public agencies must follow a specific process. The steps include defining the transportation need, proposed improvements, and boundaries of the zone; establishing a base year to calculate the increase in property tax revenue within the zone; and establishing the terms for sharing any increase in property or sales tax revenue within the zone. To help with development and construction costs, the anticipated revenue collected can be paired with bonding, revolving loans, or other funding associated with project costs to address gaps in the timing of the capital expenditure and revenue generation.

Housing and Transit Reinvestment Zones

Utah’s Housing and Transit Reinvestment Zone Act allows municipalities to create HTRZs to capture tax increment revenue around certain public transit facilities. This builds on the existing TRZ legislation, enabling municipalities to create mixed-use, multifamily, and affordable housing developments within a one-mile radius of the State’s 15 Utah Transit Authority FrontRunner commuter rail stations.

The HTRZ approach is aimed at helping alleviate the housing affordability crisis along the Wasatch Front, the State’s most populous urbanized area. The legislation is intended to improve existing and planned transit infrastructure and investment, as well as encourage transit-oriented development through tax increment financing and integrated city and agency planning.

Similar to the TRZ legislation, the HTRZ enables a portion of incremental tax revenue growth to be captured over a period of time to support housing and other development costs. The State intends for the HTRZs to promote the use of public transportation, increase affordable housing availability, help conserve water, improve air quality by reducing fuel consumption, encourage mixed-use development and investment in transportation and transit, use strategic land and municipal planning in major transit corridor development, and increase access to employment and educational opportunities.

Comparing Funding: TRZs versus HTRZs

A few fundamental differences exist between TRZs and HTRZs. HTRZs are created by a single municipality, but the creation is overseen and approved by a committee that includes affected taxing entities, county officials, MPOs, the transit district, the State DOT, the governor’s economic development office, and education entities. TRZs are multijurisdictional and governed by an interlocal agreement that includes municipalities and transportation agencies to ensure alignment on project funding, financing, timing, and design. The shared structure between public agencies is designed to enable equity in revenue generation and distribution.

Benefits Beyond Transportation

During FHWA’s value capture webinar series, Andrew Gruber, executive director of the Wasatch Front Regional Council, noted that TRZs and HTRZs are tools that Utah has created to help implement what the State’s Unified Transportation Plan contemplates is needed, but they are about more than transportation. “TRZs and HTRZs are not just tools for building transportation, by definition, they get to the relationship between transportation, land use, housing, and economic development,” said Gruber. "By coordinating land use with transportation, you can develop terrific communities centered around transportation, which is very helpful as you’re absorbing growth and then capitalizing on that growth.”

MORE INFORMATION

Read about Utah’s reinvestment zones on the Spotlights on Value Capture Strategies in Practice webpage.

Listen to presentations from Utah and other States as part of FHWA’s value capture webinar series.

Contact Thay Bishop or Stephan Natzke of FHWA’s Center for Innovative Finance Support for details on value capture tools.

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EDC Outtakes: Value Capture

In this EDC Outtake, Rafael Aldrete, Senior Research Scientist for the Texas A&M Transportation Institute, discusses the importance of choosing the right project for value capture and how the program has gained public acceptance in his State as a means to raise revenue for projects without raising taxes.
Crowdsourced Data Helps Kentucky Clear Vehicles on Shoulders

Vehicles remaining on shoulders increase crash risk, particularly when present for extended periods. The Kentucky Transportation Center used free data from a navigation app provider to confirm that more than 35 percent of vehicle-on-shoulder alerts stayed active for at least 30 minutes, and another 12 percent for at least 1 hour. The study also found a strong correlation between vehicles on the shoulder, congestion, and crashes. The Kentucky Transportation Cabinet’s traffic management center operators are using the same free data to view real-time heatmaps of vehicle-on-shoulder events, detect likely abandoned vehicles, and share this information with law enforcement patrols. This effort helps clear vehicles from the shoulder and improve travel safety.

States Take Steps to Improve Pedestrian Safety

The Alabama Local Technical Assistance Program (LTAP) Center is working with underserved communities to identify pedestrian facility improvement needs that will lead to safer walking environments. The Alabama Transportation Assistance Program at Auburn University, which manages Alabama’s LTAP Center, partnered with a nonprofit organization called The Fifty Fund, the Alabama Department of Transportation, and FHWA’s Alabama Division to form the Safe Transportation for Every Pedestrian (STEP) team. Members of the STEP-UC team conduct walkthroughs to identify areas where improvements are needed, such as gaps in sidewalk continuity, potential crosswalk locations, and traffic control devices. The resulting report is then provided to local governments. Read more about STEP-UC in the FHWA Center for Local Aid Support Newsletter.

According to an ODOT news release, the agency started using RRFBs on roads in the Portland area a decade ago and has found them to be an effective tool for improving safety on busy corridors, especially in areas with long distances between traffic signals. ODOT said the RRFBs provide an additional layer of safety and assurance for anyone crossing a busy road, and they play an especially important role in economically disadvantaged neighborhoods, which are areas with typically higher rates of pedestrian injuries.

The Oregon Department of Transportation (ODOT) plans to install more than two dozen rectangular rapid flashing beacons (RRFB) devices over the next 2 years. RRFBs, one of the seven safety countermeasures included in the STEP initiative, allow pedestrians, bikers, etc. to activate flashing lights that alert oncoming motorists to their presence. ODOT created three videos to explain the advantages of RRFBs, how the agency chooses the sites for their installation, and how to use them.

Build a Better Mousetrap 2021 Booklet Available for Download

The Federal Highway Administration’s Local Aid Support team continues to recognize local agencies who have successfully used innovation to solve transportation challenges through the Build a Better Mousetrap program. The 2021 Booklet of Local Innovations is a showcase of innovations that improved safety, saved time and money, and improved efficiency for communities across the country.
Help Determine the Next Round of EDC Innovations

Do you have experience with a proven innovation that is currently underutilized but has game-changing potential for the highway community? If so, we want to know!

FHWA will seek suggestions for market-ready innovations to deploy in 2023 in round seven of Every Day Counts (EDC-7). State, local, Tribal, and industry partners, as well as the public, are encouraged to submit innovative technologies or practices that can help provide safer roads for all users, address equity as part of project planning and delivery, and support sustainable and resilient infrastructure nationwide.

Your ideas can help make every day count to ensure the Nation’s infrastructure is built better, faster, and smarter. Check the website for details.

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