Next-Generation TIM: Technology for Saving Lives

Every Day Counts
Innovation for a Nation on the Move

Next-Generation Traffic Incident Management (NextGen TIM) technologies aim to increase traveler and responder safety, transforming response operations from routine to extraordinary.

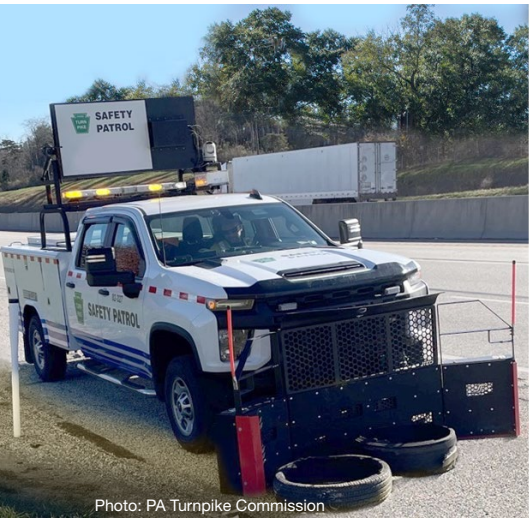

Photo: PA Turnpike Commission


Photo: Utah DOT

Photo: FDOT

More than 6 million reportable crashes occur each year in the United States, resulting in 2 million injuries and more than 30,000 fatalities. Additionally, there are over 32 million disabled vehicles and countless incidents of roadway debris. Each of these events places responders and motorists at risk of secondary crashes. A planned and coordinated approach to handling these incidents is the essence of TIM. FHWA's national TIM responder training program has successfully trained more than 600,000 responders to clear incidents collaboratively, safely, and quickly. In practice, TIM on all types of roadways has been shown to save lives, time, and money.

TECHNOLOGY FOR MORE EFFECTIVE TIM

Today's technology has the potential to leverage TIM responder training and enable incident responders to become more effective and efficient in their response duties. Clearing roadway incidents more quickly reduces exposure for incident responders and restores traffic for commerce, productivity, and quality of life for roadway users.

Technology such as smart emergency vehicle lighting can better inform roadway users about incidents, helping them avoid those locations or navigate around them more safely. Similarly, digital alerts can help responders at the scene of incidents be more aware and protected from the dangers of working near moving traffic. Use of unmanned aerial systems (UAS) is reducing the amount of time responders spend mapping crash scenes. New debris removal tools will enhance the safe removal of dangerous roadway objects.

BENEFITS

Increased Safety. NextGen TIM feeds a larger TIM role in the Safe Systems approach, and more specifically post-crash care, by creating a safe working environment for vital first responders and preventing secondary crashes through robust TIM practices.

Improved Operations. Integrating new and emerging technology, tools, and training can mitigate incident impacts from detection to roadway clearance.

Better Situational Awareness. Technology delivers timely and critical information to on-scene responders, remote support functions like transportation management centers, and roadway users who are approaching traffic incidents.

STATE OF PRACTICE

Examples of NextGen TIM technologies in use by State and local agencies:

- The Indiana Department of Transportation (DOT) has reduced "hard braking" near roadway queues by deploying queue warning trucks equipped with truck-mounted attenuators, arrow boards, and digital alert systems to warn approaching motorists of dangers ahead.

- The Washington State Patrol has reduced the time needed to measure, map, and photograph serious crash scenes by 70 percent with the use of UAS.

- The Pennsylvania Turnpike has installed specialized push bumpers on the front of service patrol and maintenance vehicles to effectively move roadway debris without the need for operators to leave their vehicle.
- The New Jersey DOT uses in-cab electronic logging devices to deliver real-time alerts to trucks and other commercial motor vehicles operating in areas near traffic slowdowns, work zones, and bad weather conditions.
- The North Carolina DOT's Incident Management Assistance Patrol (IMAP) program is using tethered UAS that can fly 150 feet above incident scenes and provide video to the regional Traffic Management Center and responders on the scene, increasing safety for both responders and approaching drivers. In addition, arrow boards on IMAP vehicles can detect which lane is closed and publish alerts to mapping and navigation providers to pass on to users.
- The Illinois State Police uses emergency lighting systems that interface with the vehicle controller area network to change emergency light color, intensity, and pattern based on vehicle settings like motion, braking, and ambient lighting.
- Safety Service Patrols in Missouri are using channelizing devices that synchronize and light sequentially to direct drivers approaching incident scenes where a lane closure is present.

RESOURCES

FHWA Traffic Incident Management

National Operations Center of Excellence Next-Generation TIM

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