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## Introduction

In December 2015 traffic incident management (TIM) leaders joined together in Phoenix, Arizona for a multi-state summit to discuss common challenges and shared visions. The result transcended this written summary of the meeting by forging new relationships and strengthening old ones. The result of the summit was renewed dedication towards collaboration through sustained effective communication. John Halikowski, Arizona Department of Transportation (ADOT) Director foreshadowed these results when he said the following as part of his opening remarks.

- There is strength in collaboration
- We can improve consistency if we build on our similarities
- We can reduce the time needed to clear the road after a crash, and work towards eliminating secondary crashes

The Arizona Department of Transportation (ADOT), Arizona Department of Public Safety (DPS), and the Maricopa County Department of Transportation were pleased to thank the



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following agencies for their participation in this important Multi-state TIM Summit.

Arizona Department of Health Services  
 Arizona Professional Towing and Recovery Association  
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 City of Seattle, WA  
 City of Surprise  
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 International Association of Chiefs of Police  
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 Maricopa Association of Governments  
 Nevada Department of Public Safety  
 Nevada Department of Transportation  
 New Mexico State Police  
 Pima Association of Governments  
 Tennessee Department of Transportation  
 Tennessee Highway Patrol  
 Towing and Recovery Association of America

In addition, we would like to thank the following sponsors.

- Arizona Council for Transportation Innovation (ACTI)
- National Operations Center of Excellence (NOCOE)
- Federal Highway Administration (FHWA)



Maricopa County  
Department of Transportation



NOCOE  
National Operations Center of Excellence



Federal Highway  
Administration

## Welcome and Importance of the Multi-state TIM Summit

To begin the Multi-state TIM Summit several executive leaders spoke to the group about the importance of this event. The following sections are summaries of their remarks.

### Mr. John Halikowski, Arizona Department of Transportation

Preserving life and improving safety is the primary mission of ADOT. We recognize that we are stronger when we work together and that is why we believed in and support this event. Addressing TIM: reducing secondary crashes, clearing the road faster, and protecting emergency responders all speak directly to the quality of life in Arizona. We must be successful at these activities.

From our perspective, this approach needs to move in two directions. First, we must continue to build on activities happening on a statewide basis in Arizona and extend that to local jurisdictions. Second, we must look beyond the borders of Arizona to our neighboring states so we can build on our similarities.

Performance management is the key to achieving the success we want. Leveraging big data is essential for helping tactical personnel make real-time decisions. Understanding our performance will also be the key to sustaining multidisciplinary partnerships and facilitating the sharing of knowledge.

**FHWA estimates that traffic crashes cause 25% of all highway delay.**

### Mr. John Conrad, National Operations Center of Excellence

During the early 2000's a group of representatives visited Europe to evaluate their approach to TIM. One of the most significant observations from that visit was how fire,

police, and transportation trained and worked together. From that international scan tour, the National Traffic Incident Management Coalition formed – leading to the creation of the National Unified Goal (NUG) for TIM

(<http://timnetwork.org/wp-content/uploads/NUG-Unified-Goal-Nov07.pdf>).

Today, the NUG forms the basis of most active TIM programs and also consists of the base of training and outreach materials used across the nation. This Multi-state TIM Summit represents the third NOCoE sponsored TIM exchange in 2015. The NOCoE supports TIM as part of the Transportation Systems Management & Operations (TSM&O) subject area. TSM&O is a focused program development area for many transportation agencies, representing a new way for transportation agencies to deliver transportation programs.

The NOCoE believes that effective TIM is a cornerstone of TSM&O and applauds the partners and agencies that have come together to discuss how to move forward.

### Ms. Karla Petty, FHWA Arizona Division

The United States cannot build its way out of congestion. Non-recurring congestion, such as the type caused by traffic crashes, continues to be a significant source of delay on the system.

FHWA estimates that traffic crashes cause 25 percent of all congestion on the highway. This type of congestion impacts the quality of life Americans enjoy by effecting the ability to travel from

point A to point B as planned. This impact is severe to the nation's freight distribution and supply chain. When trucks cannot make their deliveries just in time, it affects the price of goods to the consumer.

An efficient approach to TIM holds promise for helping reduce the effect of non-recurring

congestion on Arizona highways. FHWA has partnered with States to make significant investments in TIM over the past few years including the development and implementation of a nationwide TIM training course. Our goal is to train one million responders nationwide. We recognize the importance of strong relationships between fire, law enforcement, emergency medical services, transportation, towing and other partners to clear crashes. We also recognize the importance of measuring what we do so we've worked to create tools that help programs assess their progress and identify areas for improvement. We are committed to helping achieve Zero Deaths, including those that occur because of secondary crashes.

The FHWA Arizona Division is proud to be a sponsor and contributor for this important Multi-state TIM Summit.

### Chief Robert Maynard, California Highway Patrol and International Association of Chiefs of Police (IACP)

The IACP has embraced TIM as an important element of law enforcement. For us, it is not only a matter of highway safety but also of workplace safety. Every year many law enforcement officers die in the line of duty and the majority of those fatalities occur at the scene of a highway crash. The IACP participates in the TIM Executive Leadership Group (ELG). The ELG regularly brings together national level organizations to discuss TIM issues and make

**As a TIM community, we have to participate in multidisciplinary discussions and joint training opportunities at the local level to drive changes in TIM culture.**

decisions about how to improve capability maturity.

TIM starts at the local jurisdiction level where best practices are generated and implemented. As a TIM community, we have to participate in multidisciplinary discussions and joint training opportunities at the local level to drive changes in TIM culture. Including TIM as part of transportation agency strategic highway safety plans (SHSP) is a good first step, but the buy-in of all TIM partners is essential for success. A single discipline or single agency cannot achieve the desired outcome of success alone. Leaders must work to further integrate TIM into the training curriculum of all disciplines in order to sustain TIM over time.

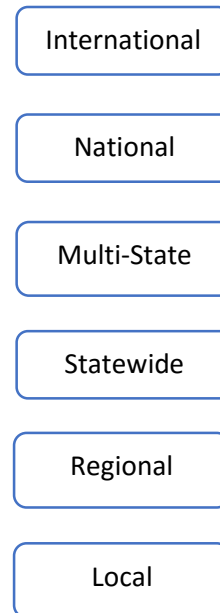
**Mr. Shailen Bhatt, Colorado Department of Transportation and American Association of State Highway Transportation Officials (AASHTO)**

Nationwide, our interstate system is at its maximum capacity. We can't make our highways wider for a variety of reasons. Instead of expansion, we have to identify ways to operate our existing system more effectively. Every successful project or effort consists of strong partnerships, excellent collaboration and implementation of a shared vision.

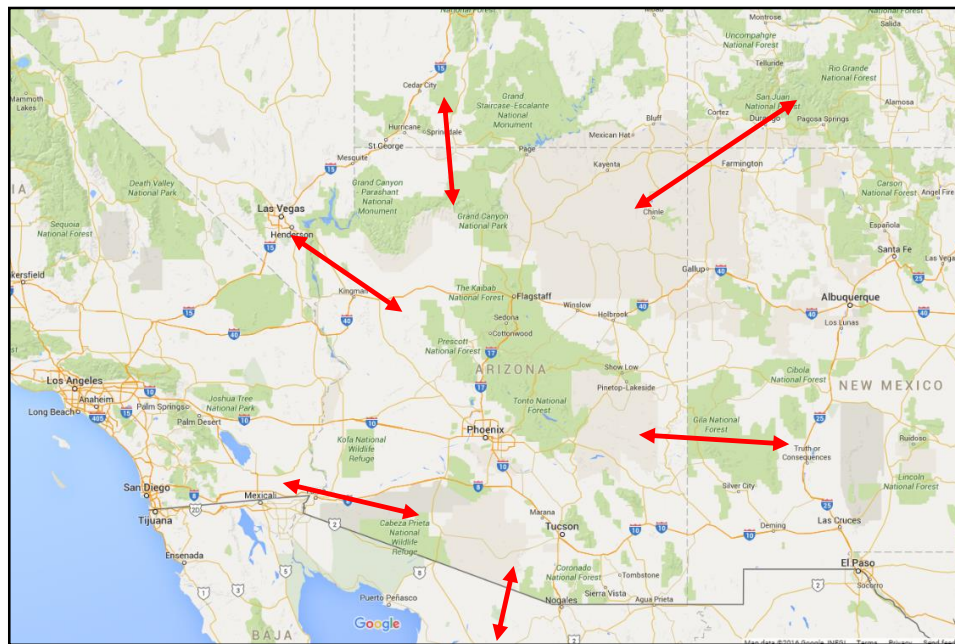
Likewise, while each of us needs to focus on our own jurisdictions we also need to look beyond those jurisdictions because the traveling public expects it. Collaboration at multiple levels, as shown in Figure 2, allows for the most effective use of resources, efficiency of program implementation, and a more consistent driving experience. Having the honor to serve the people of Colorado provides a sense of accomplishment, especially through TIM and other life safety activities. Collaboration within each state and across state boundaries helps improve life safety and deliver a better driving experience for all customers.

Nationally, we lose 33,000 people per year in crashes. TIM is a great safety strategy and it also demonstrates a good return on

investment for taxpayers. The Fixing America's Surface Transportation (FAST) Act passed by Congress in 2015 is a great step for transportation because it emphasizes long-term planning, including planning for operations.



*Figure 2: There are six levels of collaboration for TIM*



*Figure 1: Logical Multi-state TIM Coordination for Arizona includes California, Nevada, Utah, Colorado, New Mexico and Mexico*



## Participant Discussion Summary

The dialog during the course of the Multi-state TIM Summit included a variety of topics which resulted in further action identification. The following sections summarize the dialog and the identified actions.

### Institutionalize TIM

Throughout 2009 and 2010 the FHWA conducted Advanced TIM Workshops in major metropolitan areas across the country. In addition they collect TIM self-assessments from jurisdictions across the nation on an annual basis. As a result of the workshops and self-assessments, FHWA conducted a national Senior Transportation and Law Enforcement Summit in June 2012

([http://ops.fhwa.dot.gov/eto\\_tim\\_pse/publications/publicsafetysummit/](http://ops.fhwa.dot.gov/eto_tim_pse/publications/publicsafetysummit/)).

This 2012 summit resulted in four focus areas for TIM program across the nation:

- National Leadership & Legislation (NLL)
  - There are many categories of laws that apply to TIM, having consistent laws will help interstate multi-state coordination.
- Institutional and Sustainability (I&S)
  - Often, TIM programs conduct business by relying on institutional knowledge of champions and verbal agreements. Implementing performance management strategies and executing written policies helps reduce the risk of champion transition.
- Practitioner Capacity Building (PCB)
  - Since TIM education is not in the curriculum for most emergency responder groups, warrants specific attention to

developing and delivering programs that help the industry self-educate.

- Public Awareness & Education (PA&E)
  - Improving public understanding of the dangers associated with crash clearance and helping change their behavior has to remain as a focus point for TIM.

Use the checklist shown in the table below as a high-level guide towards TIM institutionalization.

TIM Institutionalization Checklist	
Develop local, regional, and statewide TIM committees.	
Harmonize move over laws and quick clearance laws on a multi-state basis.	
Establish a multi-state TIM coordination coalition.	
Adopt consistent TIM performance management programs.	
Collect consistent information on secondary crashes at the interstate multi-state level.	
Collect information on struck-by incidents at the interstate multi-state level.	
Adopt a single interstate multi-state open roads policy.	
Train all responders in TIM and ICS concepts.	
Track progress of institutionalization by using the FHWA TIM capability maturity process	

## Link TIM to Safety

A core reason for integrating TIM into the activities of all responding and supporting agencies is the mission to improve safety. One aspect of efficient TIM practices is improved responder safety. By standardizing practices, ensuring that responders are visible, and by using intelligent transportation systems, the changes in driver behavior result in a safer work environment for those on-scene. Another aspect is driver safety; through reliable traveler information, consistent scene setup, and a strong driver education curriculum drivers are able to make informed decisions about their travel.

Dallas Hammit (ADOT State Engineer), Chief Dan Sharp (Oro Valley Police Department Chief) and Chief Mark Nichols (Daisy Mountain Fire Department Chief) led a panel and audience discussion about linking TIM to safety.

- The ADOT Strategic Highway Safety Plan includes TIM (Figure 3). ADOT's goals for work zone safety include
  - Predicting the impacts that construction activities have on traffic flow.
  - Building processes that allow for dynamic adjustments if changes become necessary during construction.
  - Maximize the use of technology to improve traveler information reliability.
  - Improve early project coordination and collaboration with emergency responders.
- Track struck-by and near miss events to incorporate lessons learned into safety and awareness training for emergency responders. The National Highway Cooperative Research Program completed a study that addressed

struck-by and near-miss events, it is available at this link:

[http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP20-07\(321\)\\_FR.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP20-07(321)_FR.pdf)

- Address secondary crashes. These crash types further degrade the safety situation on the roadway and they strain response resources.
  - All agencies should commit to collecting and analyzing secondary crashes as part of TIM performance management activities.
  - Marking, understanding, training and coordinating alternate routes is a key strategy for reducing secondary crashes. The region should pursue a standardized approach.
- Integrate TIM-related messages into Zero Deaths campaigns to highlight this important topic.
- Focusing on TIM in municipal, rural and tribal areas should become a focus. In those areas, emergency response times can be much higher and TIM is less of an emphasis point.



Figure 3: 2014 Arizona Strategic Highway Safety Plan TIM Focus. Also available on page 35 at this link: <https://azdot.gov/docs/default-source/about/az-shsp-report-121014-reduced.pdf?sfvrsn=2>

## Continually Increase Practitioner Skills and Abilities

Training is an ongoing process. The FHWA utilizes the Kirkpatrick Model to evaluate the National TIM training.

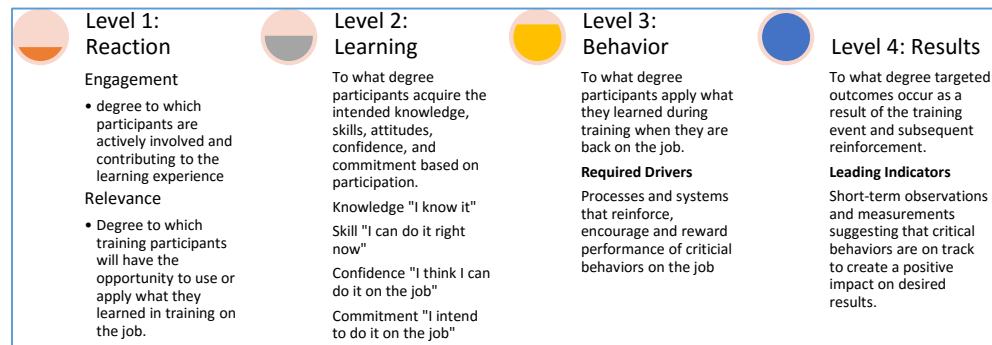


Figure 4: Kirkpatrick Training Evaluation Model,  
<http://www.kirkpatrickpartners.com/OurPhilosophy/TheKirkpatrickModel>

The evaluation work attempts to quantify the amount of observed change between level 2 and level 3 in Figure 4. The process of documenting this change is enormous as the FHWA attempts to train one million responders and compounded by the fact that the group is not static in numbers. This means that as reports of training numbers are collected, some of those trained leave the TIM emergency response community.

Overall many TIM experts have solidified the fact that multi-disciplinary training is best because so much of what is important at a crash scene depends on the ability of everyone

involved to communicate effectively with others from varying backgrounds. Figure 5 shows many of the disciplines that can benefit from joint TIM Training.

The Tennessee Department of Transportation (TDOT) works to modify the existing national emergency responder (SHRP II) training to provide more immersive activities.

According to TDOT's Brad Freeze, adult learning

retention statistics are as follows:

- Lecture – 5%
- Reading – 10%
- Demonstration – 30%
- Learning in groups – 50%
- Practicing and doing – 75%

Continuing to build on the successes of the SHRP II training and evolving the training overtime will be critical. Multi-state focus needs to address group learning and practicing the fundamentals instructed at dedicated locations with measured outcomes. Tim Lane, Assistant Director of Enforcement and

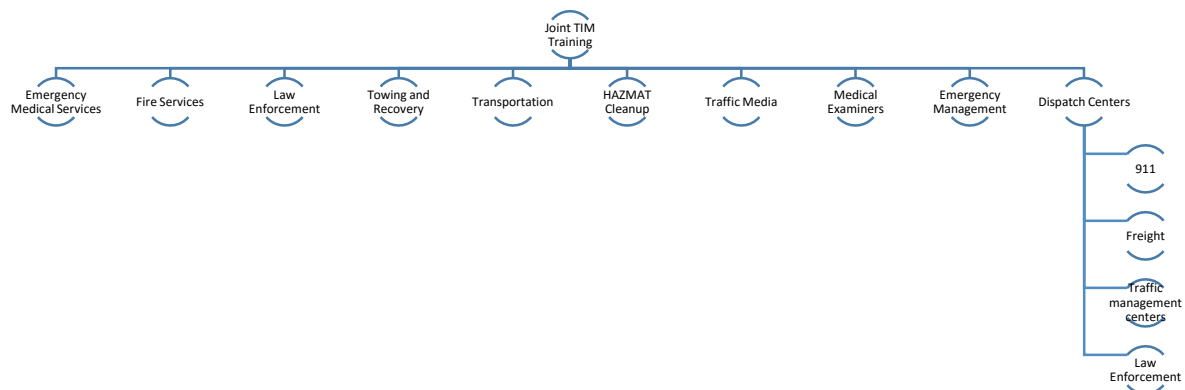


Figure 5: TIM Training Partners to Include



Compliance at ADOT, discussed the need for an immersive transportation public safety executive course. According to Mr. Lane there are four challenges driving the need for the creation of a Transportation Public Safety Executive Training Course.

- Unbalanced access to leadership who must make high magnitude financial investment decisions on a daily basis
- Rapid evolving technology completes a consistently unbalanced playing field
- The amount of time to invest in training personnel in the public sector experiences a constant shortfall
- Progression of reducing lane clearance times plateaus with constantly changing traffic patterns and employee transition

### Implement Effective Multi-state Policies and Procedures

Presenters and attendees participated in a break-out session designed to facilitate discussion about what policies and procedures need the most attention. The list below indicates the results of the discussion.

- The use of push bumpers on public owned equipment
- Tow service requirements and qualifications
- TIM public safety announcements
- The use of dynamic message boards
- Media training and relations
- Local law enforcement and EMS buy-in
- Education of newly elected and appointed executives
- FHWA and NHTSA coordination on guidance
- Using TIM to prepare for expanding incidents, some of which are not highway related

- Resource collocation

### Measure Performance

FHWA has established three core program-level TIM performance measures<sup>1</sup>.

- *Roadway Clearance Time* – The time between first recordable awareness of an incident by a responsible agency and first confirmation that all lanes are available for traffic flow.
- *Incident Clearance Time* – The between the first recordable awareness of an incident by a responsible agency and the time at which the last responder has left the scene.
- *Secondary Crashes* – The number of secondary crashes beginning with the time of detection of the primary incident where a collision occurs either within the incident scene or within the queue, including the opposite direction, resulting from the original incident.

Arizona is the only state in the nation to collect these three performance measures as part of crash investigation by law enforcement. These measures help target training needs, raise awareness of the importance of TIM and quantify the benefit of employing TIM as a safety countermeasure. The Arizona Department of Public Safety (DPS) has been collecting these performance measures for approximately five years and in 2015 the statewide crash form underwent updates to include these reporting fields. The data from the Arizona crash report is entered into TRACs software, a popular crash reporting software used by law enforcement agencies across the nation. These performance measures should be collected across Arizona and across the region.

<sup>1</sup> <http://ops.fhwa.dot.gov/publications/fhwahop10010/presentation.htm>

## Advance TIM on the Local Level

TIM is as important on local streets as it is on freeways. Conference attendees welcomed Mr. Mark Bandy, Director of Transportation Operations for the City of Seattle, Washington courtesy of the National Operations Center of Excellence (NOCOE).

Mr. Bandy discussed the findings from debrief and NOCOE peer-exchanges from a situation that occurred in Seattle.

### Situation

- A commercial motor vehicle overturned and spilled cargo (a load of fish) on a heavily traveled city freeway.
- The road closed for clearance for nearly 9 hours trapping motorists, including the Mayor, in the queue.

### Results of an incident debriefing

- There was a breakdown in communication between responding agencies.
- There was construction equipment nearby that could have cleared the road
- Leadership watched the events on television but offered no assistance to on-scene personnel
- There was no awareness of traffic queues, the focus on the vehicle and saving the load

### Results of NOCOE Peer-Exchange

- Expanded traffic management center hours from 12 hours per day 5 days per week to 16 hours per day 7 days per week
- Jurisdictions will work together to use TIM self-assessment capability maturity model process to implement incremental improvements
- Tow truck contracts are being updated from single tower dispatch

capabilities to multi-tower dispatch capabilities

- Monthly TIM team meetings held between law enforcement, fire, transportation and others.
- Performance measured and used as part of the improvement plan
- For the Seattle Police Department, the daily Chief Brief now includes state DOT information on traffic conditions
- TIM training is now mandatory for new supervisors and sergeants.
- Network communications are being improved between emergency services dispatch and the traffic management center, including video sharing capabilities

After the Seattle example, the group discussed the importance of TIM at the local level in Arizona.

- Many felt that a similar situation could occur in Arizona at the local level and that many of the action items from the NOCOE peer exchange could help.
- There is often a large disconnect between public works and emergency services at the local level
- In cities, TIM needs are different because of immediately available alternate routes. The focus needs to be on traveler information and information flow to adjust signals and move people away from the scene
  - Areas near jurisdictional boundaries are at more risk for miss communication or inadequate communication
- Coordination between local, county and state owned TMCs and dispatch centers is a huge key to success.

## Outcomes for Moving Ahead

The focus on the second day of the summit shifted from examining common challenges and needs to identifying a future direction.

Tim Lane reminded everyone about the need for the TIM Summit:

- Too many lives are being lost in traffic crashes
- There is a need for leadership in this critical public safety area
- There is a need for ongoing cooperation that leads to coordinated action

### Form a Multi-State Executive Leadership Group (MSELG)

Building on the work of the National ELG formed after the June 2012 National TIM Summit, executive leaders are advised to form a multi-state group designed to unify the messages and needs for the ELG and to facilitate consistent dialog and implementation of ELG items.

#### *MSELG Members*

The following agencies should have representation on the MSELG with co-chair responsibilities shared and alternated every two years with transportation and law enforcement senior executives.

- Arizona Department of Transportation
- Arizona Department of Public Safety
- New Mexico Department of Transportation
- New Mexico State Police
- Colorado Department of Transportation
- Colorado State Patrol
- Utah Department of Transportation
- Utah Department of Public Safety
- Nevada Department of Transportation
- Nevada Highway Patrol

- California Department of Transportation
- California Highway Patrol
- One towing executive representative from each state
- One fire representative from each state
- One emergency medical services representative from each state
- One local government representative from each state
- One representative from each states Governors Highway Safety Committee
- One tribal representative from each state, with exceptions for multiple tribes when necessary

### *MSELG Roles and Responsibilities*

- Recommendations for the MSELG are quarterly meetings, one month prior to the National ELG. At least two meetings per year should be in person.
- The MSELG should maintain a standing agenda based on the following four categories that align with the national ELG:
  - Legislation and Leadership
  - Policies and Procedures
  - Training
  - Outreach
- Each MSELG member shall seek to create, participate in, and support a statewide TIM Committee in their home states to promote the flow of information and to maximize benefit.
- The goal of the MSELG is to serve as the guiding entity for a newly established TIM Pooled Fund Study used to achieve consistency and consolidate best practices.

The table on the following page shows initial items for action by the MSELG identified as part of the Arizona Multi-state TIM Summit.

Multi-State Executive Leadership Group Action Items	
Legislation and Leadership	
Establish statewide TIM committees in each participating state.	
Develop a TIM outreach procedure for transitioning executives.	
Conduct a Multi-State TIM Conference every 18 months, rotate the host responsibilities.	
Establish a TIM Pooled Fund Study to address emerging TIM challenges.	
Create a multi-state peer review group to assist participating states with TIM institutionalization activities.	
Establish multi-state consistent towing requirements in collaboration with the Towing and Recovery Association of America.	
Sign a multi-state open roads commitment that includes language that supports FHWA implementation of ELG items.	
Work with TMCs and dispatch centers to develop a local traffic congestion situational awareness report that is distributed on a regular basis. Identify needs for this report to the statewide TIM committee.	
Policies and Procedures	
Modify crash reporting forms and systems to capture three core TIM performance measures of roadway clearance time, incident clearance time, and secondary crashes.	
Develop a multi-state, statewide and local TIM performance measures reporting standard.	
Develop consistent work zone traveler information and TIM guidelines to include social media usage standards for TIM.	
Develop a multi-state concept of operations that considers big data as part of a real-time decision support system to supplement traffic management center operations.	
Training	
Seek to have the national (SHRP2) emergency responder training certified in every law enforcement and fire training academy.	
Develop a series of roll call TIM training opportunities.	
Develop curriculum for a TIM Executive Training Course.	
Provide resources to assist with the establishment of dedicated TIM training facilities in each state.	
Outreach	
Establish a multi-state TIM website with information from each state included to promote coordination and sharing of best practices.	
Develop an outreach campaign targeted at raising awareness about the importance of move over laws for towing and recovery professionals.	
Develop a local agency TIM Outreach and Implementation Playbook.	
Develop a targeted outreach campaign for tribes.	
Develop an outreach campaign that educates drivers on the dangers of secondary crashes.	

Individual State Action Items	
Legislation and Leadership	
Establish a statewide TIM committee and regional supporting TIM committees	
Participate in a Multi-state TIM Summit every 18 months	
Allocate funding for a TIM Pooled Fund Study on an annual basis	
Designate individuals to participate in peer review group to assist states with TIM institutionalization activities.	
Adopt consistent towing requirements in collaboration with the Towing and Recovery Association of America and state towing associations	
Sign a multi-state open roads commitment that includes language that supports FHWA implementation of ELG items.	
Policies and Procedures	
Modify the statewide crash reporting form and system to capture three core TIM performance measures of roadway clearance time, incident clearance time, and secondary crashes.	
Develop a statewide TIM performance measures reporting standard.	
Develop consistent work zone traveler information and TIM guidelines to include social media usage standards for TIM.	
Adopt and integrate a multi-state concept of operations that considers big data as part of a real-time decision support system to supplement traffic management center operations.	
Training	
Assist with certification of the national (SHRP2) emergency responder training in every law enforcement and fire training academy.	
Deliver TIM roll call training.	
Maintain a regional list of TIM trainers, including their home base location.	
Develop curriculum for a TIM Executive Training Course.	
Provide a dedicated TIM training facility.	
Outreach	
Assist with maintaining a multi-state TIM website.	
Work with regional media partners to disseminate and promote an outreach campaign targeted at raising awareness about the importance of move over laws for towing and recovery professionals.	
Disseminate and promote a local agency TIM Outreach and Implementation Playbook.	
Disseminate a targeted outreach campaign for tribes.	
Disseminate outreach campaign materials that educates drivers on the dangers of secondary crashes.	



Local Action Items
Legislation and Leadership
Conduct TIM meetings on a regular basis
Conduct an area-wide annual TIM meeting and designate representatives for TIM Summits
Designate individuals to participate in peer review group to assist regional and statewide efforts to institutionalize TIM.
Adopt consistent towing requirements as developed by the statewide and/or regional TIM committee
Adopt an open roads commitment developed by the multi-state TIM committee and supported by the statewide TIM committee
Policies and Procedures
Adopt the statewide crash reporting form to capture three core TIM performance measures of roadway clearance time, incident clearance time, and secondary crashes.
Where local TMCs exist, be operational for 16 hours per day, 7 days per week and develop coordination policies with regional and statewide TMCs.
Where local TMCs exist, strengthen communications infrastructure and information sharing with dispatch centers.
Adopt work zone traveler information and TIM guidelines to include social media usage standards for TIM.
Adopt and integrate a multi-state concept of operations that considers big data as part of a real-time decision support system to supplement traffic management center operations.
Encourage the use of push bumpers on public owned equipment to clear crashes.
Training
Deliver TIM roll call training.
Maintain a local list of TIM trainers.
Mandate that local agency employees and contractors working in the roadway on behalf of local agencies complete the SHRP2 training.
Use TIM scenarios to help support preparedness activities for emergency management needs.
Outreach
Work with local media partners to disseminate and promote an outreach campaign targeted at raising awareness about the importance of move over laws for towing and recovery professionals.
Adopt the use of a local agency TIM Outreach and Implementation Playbook.
Disseminate outreach campaign materials that educates drivers on the dangers of secondary crashes.