Education and Training Strategies
to
Encourage Traffic Incident Management Best Practices
in
Tennessee

prepared for the
Office of Incident Management
Tennessee Department of Transportation

prepared by the
Vanderbilt Center for Transportation Research

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Introduction

This report summarizes the results of a research project for the Office of Incident Management, Tennessee Department of Transportation. The objective was “to develop a strategy and establish the foundation for a more cost-effective, statewide program to ensure that incident responders in Tennessee have been trained in the ‘best practices’ of traffic incident management and emergency transportation operations.”

The project relied heavily on interviews with personnel from TDOT and other stakeholder organizations in Tennessee and review of materials from other states and from national organizations with interests related to incident management. An iterative process was used with the Office of Incident Management (OIM) and representatives of TDOT’s four Region offices to review and revise the project findings and recommendations at various stages. Presentations were made at six meetings of the OIM and Region representatives during the project period.

The research products include this report, electronic copies of more than 70 documents reviewed during the project, hard copies of material from other sources, four PowerPoint presentations, and an Excel spreadsheet, referred to as the Traffic Incident Management Queue Illustrator (TIMQI). The purpose of TIMQI, an enhanced version of a spreadsheet developed under a previous TDOT-sponsored project, is to help show incident responders the impacts of incident management on the highway system and the costs for highway users.

The following individuals provided valuable information and insight for this project:

- Robert Allen, Region Incident Management Coordinator, TDOT Region 3
- Emerson Boguskie, HELP, TDOT Region 3
- Bob Brown, Region Director, TDOT Region 2
- Mickey Campbell, Region Incident Management Coordinator, TDOT Region 1
- Ali Farhangi, TMC Manager, TDOT Region 3
- Winston Gaffron, Region Director, TDOT Region 3
- Don Gedge, Tennessee Division, Federal Highway Administration
- Luanne Grandinetti, Information Office, TDOT
- John Hall, Information Office, TDOT
- Ray Hallavant, Nashville Transportation Management Center, TDOT
- Frank Horne, Office of Incident Management, TDOT
- Fred Littrell, Nashville Transportation Management Center (Consultant), TDOT
- Eddie Newcomb, HELP Program, TDOT Region 1
- Gary Ogletree, Office of Incident Management, TDOT
- Ken Pence, Assistant Professor of the Practice of Engineering Management, Vanderbilt University (former Metro Nashville police officer)
- John Thomas, Region Incident Management Coordinator, TDOT Region 4
• Carlton Towles, HELP TDOT Region 4
• Mike Tugwell, State Traffic Engineer, TDOT
• Bob VanHorn, Region Incident Management Coordinator, TDOT Region 2
• Lacy Word, HELP, TDOT Region 2
• Mike Wright, Degree Coordinator/Asst. Professor, Police Science Technology Program, Nashville State Community College

The findings and recommendations presented in this report are those of the authors and do not necessarily reflect the opinions of the officials listed above or their respective organizations.
A fundamental objective of the research was to help TDOT identify and express the most important “Best Practices” for traffic incident management (TIM) in Tennessee. In other words, what does TDOT want its partner agencies to do? In working toward an answer to that question, another important question needed to be addressed—why does TDOT want its partner agencies to do those things?

TDOT wants to give concise and compelling answers when those two questions are asked by public safety agencies and other incident responders. What do you want us to do? Why is that important? Figure 1 was used during the research to illustrate the context for those questions. The responsible organizations tend to be hierarchical. TDOT is seeking to influence actions at the operations (scene management) level, but the importance of policies, plans, and operating procedures within each agency cannot be overlooked. Interagency cooperation is essential.

“Quick Clearance” is a phrase that has been used by TDOT and by many others to express concisely the objective of traffic incident management. The phrase has proven effective in promoting more effective incident management, especially when the opportunity is available to elaborate and to offer examples. “Quick Clearance” is concise, reasonably descriptive, and easily remembered.
However, some negative reactions have been observed in Tennessee, primarily among law enforcement officers. Some have expressed concern that quick is inconsistent with a goal perceived as more important—conducting a thorough investigation, especially if a crime may have been committed. Others seem to feel that quick action might compromise safety for incident responders or that quick clearance understates the complexity of incident management.

In response to those concerns, three phrases were used interchangeably during the research project to assess the reactions of law enforcement officers and others:

- Quick clearance
- Safe, quick clearance
- Open as many lanes as possible, as soon as possible

(A fourth phrase, “Open Roads,” was also tested for a short period, but that phrase seemed to confuse rather than focus the conversations with operations-level law enforcement officers. On the other hand, “Open Roads” seemed to be very effective in talking with transportation officials that are not involved with incident management on a daily basis and with policy-level law enforcement officials.)

For the other three phrases listed above, the conclusion was that all three can be effective and that all three can sometimes evoke concerns. Some skepticism and negative reactions should be expected regardless of which phrase is used. Negative reactions indicate that the audience is engaged, and an opportunity has been created to discuss and overcome resistance to new practices, to explain that “quick clearance” does not have to compromise thorough investigations or responder safety. (The researchers’ assessment of reactions by law enforcement officials was entirely subjective, but the TDOT officials who participated in various meetings and interviews agree with the assessment.)

**Best Practices**

The following best practices are recommended as the foundation for education and training efforts to improve traffic incident management in Tennessee. These recommendations are based on interviews, discussions, and work sessions with TDOT officials over a period of several months to identify and clearly articulate the practices that TDOT believes would produce the greatest improvements in traffic incident management in Tennessee. These would answer the question, “What does TDOT want public safety agencies to do?”

Most of the interviews began with responses like “we have made a lot of progress over the past several years, but...” In review, it seems clear that significant progress has been made on several fronts. TDOT has demonstrated its commitments to incident management through the HELP program, investments in ITS in urban and rural areas, the statewide 511 system, and other initiatives. Most public safety agencies and incident responders now seem to view TDOT as a “full partner.” Other states and national organizations have cited some of Tennessee’s initiatives as “models” to be copied or adapted for other
jurisdictions. As noted, however, after citing the improvements that have been made, almost all of the interviewed TDOT personnel suggested that some additional improvements are needed.

The traffic incident management (TIM) Best Practices described below are not generic suggestions that apply to every state or community. Rather, these are the practices that TDOT believes need the most attention in Tennessee in 2008 and beyond. These TIM Best Practices would (1) build on the significant progress made in Tennessee over the past ten years, (2) allow Tennessee to take advantage of national initiatives and resources, and (3) lead to significant reductions in the costs of incidents and secondary crashes.

The original goal was to identify no more than ten practices, but each of these twelve was deemed worthy of separate attention:

1. Follow the principles of NIMS, incident command, and unified command—and help accomplish respective missions
2. Carry out on-scene tasks concurrently (in parallel) and with urgency
3. Open as many lanes as possible as soon as possible
4. Minimize the number of people and vehicles at the scene
5. Be smart in positioning vehicles and equipment
6. Reassess the scene and adjust at least every 30 minutes
7. Wear reflective vests and use other PPE
8. Use cones and other traffic control devices (comply with the MUTCD)
9. Manage traffic proactively (at the scene, across from the scene, and at the back of the queue)
10. Communicate with partners and stakeholders
11. Recognize the impact of your actions—be part of the solution
12. Debrief and improve practices and procedures

The twelve practices are shown in Table 1 along with a listing of three or four key topics to be highlighted for each practice. Each of the TIM Best Practices is described in more detail below.

1. Follow the principles of NIMS, incident command, and unified command—and help accomplish respective missions

The focus here is on cooperation and coordination at the incident scene. Every incident is different in terms of the location, numbers of vehicles and people involved, contributing factors, severity of injuries and property damage, spilled cargo, environmental threats, need for investigation, roadway conditions, traffic volumes, the resources available for response, and sometimes other factors. Even at “routine” scenes, multiple agencies have responsibilities. Each responding agency has a different mission and a
different set of priorities. Failure to work together can be mutually detrimental and usually has unintended, but nonetheless adverse impacts, on highway users and other stakeholders.

The National Incident Management System (NIMS) provides a management framework for all incidents through “a unified approach to incident management, including standard command and management structures.” NIMS training is required by federal law for all public agencies that are involved in emergency management.

The Incident Command System (ICS) and Unified Command (UC) are important components in the NIMS framework and are familiar concepts for fire services, law enforcement, and emergency management agencies. From the perspective of traffic incident management, perhaps the most important concept is Unified Command, sometimes expressed as “Not who’s in charge, but (rather) who’s in charge of what.”

By coming together to share information and coordinate actions all of the agencies can accomplish their respective missions. Each agency can achieve its priorities without unnecessarily harming or delaying the efforts of other agencies. Life and property can be protected, evidence can be preserved and collected, and lanes can be opened quickly without wasting time or effort arguing about “who’s in charge.”

At the policy level, interagency coordination seems to have improved in Tennessee, and TDOT believes that most agencies work together effectively at most incident scenes. But, effective coordination and cooperation are necessary as the foundation for all of the Best Practices. Education and training should cover at least these four topics:

- National cooperative efforts among professional organizations (e.g., the National Traffic Incident Management Coalition (NTIMC) and the National Unified Goal (NUG), the Emergency Responder Safety Institute, joint efforts by the FHWA and the U.S Fire Administration
- TDOT/DOS Memorandum of Understanding
- Different missions and different priorities can be accomplished

2. Carry out on-scene tasks concurrently (in parallel) and with sense of urgency

The costs of traffic incidents (e.g., secondary crashes, wasted time and fuel, hazards for responders) are directly related to the time required to manage the incident and return the roadway to normal conditions. Often the cause-and-effect ratio is much more than one-to-one. Keeping a roadway closed for an additional 15 minutes can easily cause the congestion and backup and the related problems to last for another hour or more. Obviously, each incident responder needs to carry out his/her responsibilities as quickly as possible.

However, time can also be saved in another way. Many different tasks have to be performed at incident scenes, and the tendency is sometimes to carry out those tasks in sequence. Law enforcement may not start their investigation until fire and EMS have finished their work. Special investigation teams may not
be called to the scene until victims have reached the hospital and the seriousness of their injuries has been determined. Towing and recovery or special cleanup or recovery teams may not be called to the scene until the crash investigation is complete. Transportation agencies may not start repairing roadway or sign damage until all of the other responders have left the scene.

Carrying out these tasks in parallel rather than in sequence can be accomplished through cooperation and coordination. Each task may take a little longer or require a little more effort, but the overall time required for incident management can be shortened, and the adverse impacts can be reduced significantly. Education and training should cover at least these four topics:

- Different missions and different priorities can be accomplished
- Need for concurrent (not sequential) activities at the scene
- Importance of responding promptly when special needs arise (e.g., begin fatal investigations ASAP, call for the nearest resources capable of handling problems)
- Give towing and recovery time to reach the scene

3. Open as many lanes as possible as soon as possible—quick clearance

From a transportation perspective, this is perhaps the most important of the recommended practices—to minimize the adverse impacts on the transportation system, the highway users, businesses, the regional economy, and the environment. The idea is simple. Make quick clearance a priority. Not more important than safety for responders or motorists or more important than a thorough investigation, but equally important. Look for opportunities to restore as much of the capacity of the roadway as possible as soon as possible.

Education and training should cover at least these three topics:

- Impact of lane closures on highway capacity, traffic backups, delays, and costs (user and societal costs)
- Importance of minimizing the time that travel is disrupted—to minimize user and societal costs and minimize hazards for responders
- Responsibility for secondary crashes that occur after “reasonable time” has passed for clearance

4. Minimize the number of people and vehicles at the scene

The number of people and vehicles at the scene of a traffic incident is important because any unnecessary resources:

- Are exposed to risks of injury and property damage
- Create poor impressions on motorists
- Distract other responders and slow the work
An incident scene on any highway is a hazardous location, and unneeded resources are “double trouble.” Vehicles and personnel not really needed, for instance, make the scene more distracting (and more hazardous), and those extra people and their vehicles are exposed to the increased risks. If vehicle or equipment might be needed on short notice, try to stage them at a nearby location until actually needed.

Also to reduce distractions, responders should be more disciplined in the use of emergency lights, especially the use of forward-facing headlights, wig wags, and strobes on divided highway. For rear-facing lights, amber is preferable at the scene, and, when multiple emergency vehicles are present, some of the flashing lights can be turned off.

Another aspect of this Best Practice is that motorists can form very negative impressions because of unnecessary resources at the scene, especially personnel that appear to be “just visiting.” Motorists frustrated by long delays are likely to become even more frustrated by the appearance of indifference, lack of urgency, or time being wasted.

Buying advertising along a freeway is expensive. Agencies that respond to traffic incidents get to advertise their products and services for free. But, appearing to have resources to waste is not helpful.

5. Be smart in positioning vehicles and equipment

Education and training for this Best Practice should emphasize these topics:

- Don’t block lanes unnecessarily; stage away from the scene when possible
- Create and use parking, buffer, and work spaces, starting with the first responders on the scene
- Block the lane; or don’t block the lane

Certainly, the use of emergency vehicles to block lanes is sometimes warranted to create a safe work area for responders. Sometimes blocking lanes may be warranted to increase volumes in the lanes still open and thereby reduce the speed of traffic flowing past the incident scene. However, once a safe work area has been established and the scene is under control, emergency vehicles should not block additional lanes for convenient access to the scene, better observation, or other non-critical purposes.

The Manual on Uniform Traffic Control Devices (MUTCD) and other sources cited in the next section provide guidance and examples on how to position vehicles at an incident scene. The key point under this Best Practice is that emergency vehicles do not always arrive at the scene in the order in which they need to be positioned at the scene for effective incident management. Each vehicle operator, beginning with the first to arrive, should try to anticipate where other vehicles will need to be positioned and act accordingly. Likewise, vehicles that arrive later should try to use spaces left open without blocking additional lanes or disrupting the temporary traffic flow that has been established.
Finally, part of the discussion leading to this Best Practice addressed the tendency of some emergency responders to position their vehicles in such a manner as to block only part of a lane for a short period. Usually this involves a motorist needing assistance on the shoulder, checking abandoned vehicles, or administering a traffic law enforcement stop. The Best Practice recommendation is to either position the emergency vehicle to block the entire lane, using all of the vehicle’s emergency lights and all available traffic control devices, or don’t block the lane at all. In other words, block the lane or stay on the shoulder, but don’t straddle the line.

6. Reassess the scene and adjust every 15-30 minutes

This Best Practice is closely related to the previous two, but this one recognizes that circumstances change over time. During the early stages of an incident, especially a multi-vehicle incident with injuries or the release of an unknown substance, the numbers of people and vehicles at the scene and the placement of vehicles and equipment is less important than emergency action to assist victims and protect public health and safety.

However, after the most urgent needs have been met, reassessment of the scene can reduce the adverse impacts of the incident, including secondary crashes and unnecessary delays. It may be possible to open travel lanes, reduce emergency lighting that distracts passing motorists, improve the placement of traffic control devices, and otherwise improve traffic flow. Reassessment can also reveal opportunities to release people and equipment no longer needed.

TDOT’s HELP operators are trained to reassess the scene every 15 minutes, and that is a desirable goal for every agency. Even after the scene is relatively stable, stepping back and reassessing at intervals of 30 minutes or less should be standard practice.

For all incidents, regardless of severity, one of the most important reasons for frequent reassessment is to anticipate the need for towing and recovery services. Those responders need adequate notice to reach the scene in a timely manner; and, often, the tow truck must work its way through traffic when the backup is at its worst. Calling for towing and recovery services in a timely manner is vital.

Education and training for this Best Practice should cover these topics:

- The “right” setup in the beginning can become “wrong” in a few minutes
- Reposition/release vehicles; reduce emergency lighting
- Open lanes/shoulders when possible
- Prepare for recovery/cleanup—call for towing and recovery assistance in advance
7. Wear reflective vests and use other PPE

Wearing reflective clothing and other personal protective equipment at a highway incident scene has always been a good idea, and federal regulations now require that “all workers within the right-of-way of a Federal-aid highway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel.”

Any highway, but especially a freeway, is a hazardous place to work. With wide lanes, shoulders, clear zones, and gradual curves, drivers are often caught off guard when they encounter an incident scene. They are distracted by the aftermath of the incident and by the presence of emergency vehicles with multiple flashing lights. Tragedies occur when incident responders assume that motorist will see them and steer clear.

The situation is even worse at night and during inclement weather. Many freeways, even in urban areas, do not have overhead lights like city streets. Pavement-level reflections from oncoming vehicles and other sources make it even harder to see people working at the incident scene. A flashlight or a reflective strip on a jacket or turnout gear is easily lost in the glare.

In other countries, reflective materials are being used extensively on emergency vehicles, and a number of fire departments and EMS services in the U.S. are experimenting with new markings and with “arrow boards” on the back of fire apparatus. Some are also adding amber lights to use when the vehicle are stationary.

Education and training for this Best Practice should cover these four topics:

- Accept personal responsibility for personal safety
- It’s not the motorists’ fault if they can’t see you or see your hand signals
- Now a federal requirement
- Also promote reflective material on vehicles and apparatus (and light discipline)

8. Use cones and other traffic control devices (comply with the MUTCD)

Using cones and other traffic control devices at incident scenes improves safety for incident responders and helps move traffic around and through the scene more effectively. The Manual on Uniform Traffic Control Devices (MUTCD), published by the Federal Highway Administration, is a national standard that has been adopted in Tennessee. Following the established standards helps ensure that motorist will recognize and respond properly to the temporary traffic flow patterns. Education and training should emphasize these topics:

- Except for the 3Ds (drunk, drowsy, and distracted), motorists will follow guidance—if its visible and understandable (explain the purpose for “uniform” in MUTCD)
9. Manage traffic proactively (at the scene, across from the scene, and at the back of the queue)

Even with MUTCD-designated traffic control devices in place, more active management of traffic flow and safety is often needed, especially on high-volume freeways. Proactive management is especially important at three locations—at the immediate scene, across from scene (opposite direction of travel), and at the back of the queue. The first challenge is to ensure that someone accepts responsibility for traffic management and that sufficient numbers of officers or flaggers are assigned to the tasks.

At the scene and across from the scene, action is needed to deal with rubberneckers. Responders should be encouraged to select a safe location near where motorists are most likely to gawk at the incident scene. By standing in that line of sight, an officer or flagger can try to make eye contact with as many motorists as possible and use hand signals to direct motorists to move ahead without slowing to gawk.

At the back of the queue, which is seldom stationary, motorists need to be warned that traffic is stopped ahead to avoid secondary crashes, which are often more serious than the initial incident. Portable signs can be used, along with slow paddles, emergency lights, CB radio broadcasts, or simply standing by the roadway in a safe location and using “slow down” or other hand signals.

Education and training should cover these topics:

- If not you, then who?
- Use signs, paddles, flashing lights, CB radios, or just wave your arms!
- Try to make eye contact with motorists and use hand signals to reduce rubbernecking at the scene

10. Communicate with partners and stakeholders

Communication among agencies at the scene is obviously important and is a basic element of NIMS/ICS/UC. However, other stakeholders also need to be in the communication chain. For instance, the responders working at the scene need to know about conditions at the back of the queue as well as conditions on designated detour or alternate routes and on other routes in the corridor. In many cases this information will have to come from multiple sources. In turn, these officers and others working away from the scene need to know the status of efforts to manage and clear the incident and allow traffic to return the primary route.

Some relatively new information resources are available for incident management in Tennessee’s four largest cities—TDOT’s Transportation Management Centers (TMCs). The personnel in the TMCs have
immediate access to dozens of camera images, and they can predict from experience how various situations and incident management decisions will impact the entire highway system.

The TMCs are also critical in communicating information to highway users and the public. The overhead Dynamic Message Signs on the urban freeways and the Highway Advisory Radios are controlled by the TMCs. And, the TMCs are a primary source of input for TDOT’s SmartWay Information System (TSIS) which feeds information to the TDOT website and to the statewide 511 system. Unless the TMC operators know what’s happening and what’s expected to happen at the scene of major incidents, that information will not be available to the thousands of motorists and others that are impacted. Without, current information, TDOT and traffic reporters may be making things worse.

Dispatchers also need to know what’s happening at the scene, to share information with involved units away from the immediate scene. Also, THP’s dispatchers are a primary source of information for the TSIS system in rural areas. Protocols may be needed to ensure efficient use of critical frequencies, but dispatchers need to know at least when lanes are opened or closed and the most current projections for when the scene will be cleared.

Education and training for this Best Practice should emphasize:

- Communicate frequently and clearly with partners at the scene and with others who have eyes on the backup
- Keep dispatchers advised of circumstances and expected duration
- Ensure that information is reaching the 511 system
- Keep information current (stale information is frustrating and can be harmful)

11. Recognize the impact of your actions—be part of the solution

This Best Practice applies most directly to law enforcement and TDOT, the agencies that most frequently work within the rights-of-way on the state’s major highways in response to incidents as well as for routine traffic law enforcement and for highway construction, maintenance and operations. The central theme is that these agencies and the individual officers and TDOT workers should be especially sensitive to the impacts of their actions on highway safety and congestion.

Topics that should be addressed through education and training include the following:

- Just being there causes problems(e.g., avoid unnecessary equipment and personnel; reduce on-scene use of emergency lights; don’t do routine paperwork on the shoulder; recognize the impacts of traffic law enforcement on traffic flow; don’t undertake routine maintenance during rush hours)
- Recognize that motorists may be confused about the “Move Over” law (and/or Tennessee’s “Move Over” signs), and erratic responses near the scene can make incident management more difficult; be prepared and try to compensate
• Overcome “not my job”—accept responsibility for the whole system; make decisions and take actions to improve traffic incident management

The last bullet recognizes that every incident is different, and standard operating procedures cannot cover every eventuality. Problems and opportunities often do not fit clearly under the jurisdiction of a single agency. With mutual understanding of the goals, all responders and especially law enforcement and TDOT should be willing to direct traffic, move hoses, rearrange cones, sweep debris, or do whatever else is needed to get the job done and clear the scene.

12. Debrief and improve practices and procedures

The final Best Practice is to systematically look for opportunities to improve for all of the five Reasons identified in the previous section. Debriefings or after-action reviews should occur after every major incident and after minor incidents if severe adverse impacts occur. The purpose of the after-action review should never be to assign blame for mistakes or discredit others. Likewise the review should never “explain away” problems that occurred or “gloss over” any missed opportunities.

The goals for after-action review should include (1) frank assessment of what occurred, (2) open discussion of what could have been done better or quicker, (3) agreement on actions to achieve better results the next time, and (4) a timetable for any changes. The results should be documented and shared.

In addition, the agencies responsible for incident management in every community should work toward objective performance measures for incident management. The measures might include response times, elapsed times from arrival on the scene to “all lanes open,” numbers of after-action reviews conducted, or whatever other aspect of incident management the stakeholders believe need to be measured. The measurement results should be widely reported.

Education and training should emphasize these topics:

• If you always do what you’ve always done, you’ll always get what you always got
• Create performance measures and report to stakeholders
• Recognize, commend, and share examples of success
Why?

The following five Reasons were identified to explain why improvements in incident management are needed in Tennessee. Collectively, these are the answers to “Why do the TIM Best Practices need to be implemented?”

- Reduce delay costs for highway users (e.g., wasted time and fuel) and related costs (e.g., lost productivity, air pollution, road rage) for the entire community
- Improve responder safety
- Reduce the number of secondary crashes (at the back of the “queue” and rubbernecking at the scene)
- Enhance public perception (avoid public criticism) of how incidents are managed
- Gain more effective and efficient use of limited resources for emergency response, investigations, and traffic control

These five are interrelated, but each warrants separate mention. Also, some are more closely aligned than others with the missions of the respective stakeholder groups. Table 2 illustrates the relationships between the Best Practices (What) and the Reasons (Why).
Table 1. Best Practices and Key Topics

<table>
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<tr>
<th>Desired Practice</th>
<th>Key Topics to Cover</th>
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| 1. Follow the principles of NIMS, incident command, and unified command—and help accomplish respective missions | • Not: Who’s in charge? Instead: Who’s in charge of what?!  
• National cooperative efforts among professional organizations (e.g., NTIMC-NUG, Emergency Responder Safety Institute)  
• TDOT/DOS Memorandum of Understanding  
• Different missions and different priorities can be accomplished |
| 2. Carry out on-scene tasks concurrently (in parallel) and with sense of urgency | • Different missions and different priorities can be accomplished  
• Need for concurrent (not sequential) activities at the scene  
• Importance of responding promptly when special needs arise (e.g., begin fatal investigations ASAP, call for the nearest resources capable of handling problems)  
• Give towing and recovery time to reach the scene |
| 3. Open as many lanes as possible as soon as possible—quick clearance | • Impact of lane closures on highway capacity, traffic backups, delays, and costs (user and societal costs)  
• Importance of minimizing the time that travel is disrupted—to minimize user and societal costs and minimize hazards for responders  
• Responsibility for secondary crashes that occur after “reasonable time” has passed for clearance |
| 4. Minimize the number of people and vehicles at the scene | Unnecessary people and equipment at the scene:  
• Are exposed to risks of injury and property damage  
• Create poor impression on motorists  
• Distract other responders and slow the work  
(Also, encourage more discipline in the use of emergency lights at the scene) |
| 5. Be smart in positioning vehicles and equipment | • Don’t block lanes unnecessarily; stage away from the scene when possible  
• Create and use parking, buffer, and work spaces, starting with first responders on scene  
• Block the lane; or don’t block the lane |
| 6. Reassess the scene and adjust at least every 30 minutes | • The “right” setup in the beginning can become “wrong” in a few minutes  
• Reposition/release vehicles; reduce emergency lighting  
• Prepare for recovery/cleanup—call for towing and recovery in advance  
• Open lanes/shoulders when possible |
Table 1 (Continued)

| 7. Wear reflective vests and use other PPE | • Accept personal responsibility for personal safety  
• It’s not the motorists’ fault if they can’t see you or see your hand signals  
• Now a federal requirement  
• Also promote reflective material on vehicles and apparatus |
|---|---|
| 8. Use cones and other traffic control devices (comply with the MUTCD) | • Except for the 3Ds, motorists will follow guidance—if its visible and understandable (explain the purpose for “uniform” in MUTCD)  
• MUTCD Chapter 6I  
• Be aware of glare, reflections, reduced visibility  
• Use all of the tools available (e.g., cones, signs, flares) |
| 9. Manage traffic proactively (at the scene, across from the scene, and at the back of the queue) | • If not you, then who?  
• Use signs, paddles, flashing lights, CB radios, or just wave your arms!  
• Try to make eye contact with motorists and use hand signals to reduce rubbernecking at the scene |
| 10. Communicate with partners and stakeholders | • Communicate frequently and clearly with partners at the scene and with others who have eyes on the backup  
• Keep dispatchers advised of circumstances and expected duration  
• Ensure that information is reaching the 511 system  
• Keep information current (stale information is frustrating and can be harmful) |
| 11. Recognize the impact of your actions—be part of the solution | • Just being there causes problems we’re trying to solve (e.g., see above re: unnecessary equipment and personnel; disciplined use of emergency lights); don’t do routine paperwork on the shoulder; recognize the impact of traffic law enforcement  
• Overcome “not my job”  
• Recognize that “Move Over” laws/signs have complicated scene management |
| 12. Debrief and improve practices and procedures | • If you always do what you’ve always done, you’ll always get what you always got  
• Create performance measures and report to stakeholders  
• Recognize, commend, and share examples of success |
### Table 2. Relationships between Best Practices and Reasons/Expected Benefits

<table>
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<tr>
<th>Best Practices</th>
<th>Reasons/Expected Benefits</th>
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<tbody>
<tr>
<td></td>
<td>Reduce delay costs for highway users</td>
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<tr>
<td>1. Follow the principles of NIMS, incident command, and unified command</td>
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<tr>
<td>2. Carry out on-scene tasks concurrently (in parallel) and with sense of urgency</td>
<td>X</td>
</tr>
<tr>
<td>3. Open as many lanes as possible as soon as possible—quick clearance</td>
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</tr>
<tr>
<td>4. Minimize the number of people and vehicles at the scene</td>
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<tr>
<td>8. Be smart in positioning vehicles and equipment</td>
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</tr>
<tr>
<td>9. Reassess the scene and adjust at least every 30 minutes</td>
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<tr>
<td>5. Wear reflective vests and use other PPE</td>
<td>X</td>
</tr>
<tr>
<td>6. Use cones and other traffic control devices (comply with the MUTCD)</td>
<td>X</td>
</tr>
<tr>
<td>7. Manage traffic proactively</td>
<td>X</td>
</tr>
<tr>
<td>10. Communicate with partners and stakeholders</td>
<td>X</td>
</tr>
<tr>
<td>11. Recognize the impact of your actions—be part of the solution</td>
<td>X</td>
</tr>
<tr>
<td>12. Debrief and improve practices and procedures</td>
<td>X</td>
</tr>
</tbody>
</table>
Section 2

Audience

The audience that TDOT would like to influence through education and training is large and diverse. The list developed at the beginning of the research project included the following agencies that sometimes share responsibilities for traffic incident management:

- Law enforcement (THP, city police, county sheriffs)
- Fire services (paid and volunteer)
- Rescue squads (volunteer)
- Emergency medical services
- Emergency management
- Towing and recovery
- Emergency communications (911 and emergency dispatch)
- Transportation & public works (TDOT headquarters, Regions and field units; local public works, county road superintendents)
- Spill/hazmat cleanup
- Environmental regulators
- News media
- Trucking industry representatives
- Shipper representatives
- Insurance representatives

All of these agencies are important, but the Best Practices identified in the previous section are most important for the first six in the list above, plus TDOT. These represent the primary audience that TDOT needs to reach to promote the identified TIM Best Practices:

- The 2004 Census of State and Local Law Enforcement Agencies (U.S. Department of Justice) identified approximately 350 state and local law enforcement agencies in Tennessee with more than 14,000 sworn officers. This includes the Tennessee Highway Patrol with more than 800 troopers.
- The Tennessee Fire Fighting Commission has certified more than 300 fire departments, with more than 15,000 fire service personnel. The State Fire Department Directory, maintained by the Tennessee Department of Commerce and Insurance, includes a total of more than 750 fire departments statewide.
- The Tennessee Emergency Medical Services Division oversees more than 130 agencies that provide “Advanced Life Support” emergency medical services with a total of approximately 1,000 ambulances. More than 18,000 people are licensed or certified as Paramedics, EMTs, First Responders, or Emergency Medical Dispatchers. (Many of these people are also firefighters and members of volunteer rescue squads.)
• The Tennessee Association of Rescue Squads (TARS) has 115 member squads throughout the state with a total of approximately 5,000 volunteer members.

• Emergency managers from the TEMA headquarters and region offices and from more than 90 local emergency management agencies also respond to major incidents.

• The number of towing and recovery companies in Tennessee is uncertain. Those companies are regulated by local governments, and no special license is required for tow truck drivers in Tennessee. However, the Towing and Recovery Association of America estimates that more than 35,000 companies are in the towing business nationally. Tennessee’s 1/50th share would be 700 companies. In 2003, the Tennessee Highway Patrol’s approved call list included approximately 1,600 towing and recovery vehicles.

• More than 200 local public works agencies and county highway departments are called to assist with highway incidents along with TDOT’s four Region offices, 22 District offices, and 95 County offices.

Thus, the potential audience for TIM education and training includes more than 1,000 organizations and private companies and more than 40,000 individuals.

**Geographic Focus**

TDOT does not have enough resources for TIM education and training through direct interaction with all of the organizations described above and the troopers, police officers, sheriffs’ deputies, firefighters, rescue squad members, EMTs, towing and recovery operators, public works and highway officials. Could TDOT somehow focus its efforts to effectively reach the partner agencies and the respective professionals who most frequently respond to incident on Interstates and other controlled-access roadways?

One possibility is to narrow the focus on a geographic basis—concentrate on the agencies that have responsibilities for Interstate highways and other high-volume, controlled-access roadways. This would cut by about half the number of local agencies that TDOT would have to reach. A total of 49 Tennessee counties are touched by an Interstate highway. These counties are shown on the maps in Appendix A and are listed below in Table 3.

Within these 49 counties, a total of 80 Tennessee cities are touched by an Interstate or high-volume, controlled access roadway. These cities are also shown on the maps in Appendix A and are listed below in Table 4.

Thus, to reach just the agencies responsible for TIM on Tennessee’s freeways TDOT would still have work with public safety agencies and other incident responders in 49 counties and 80 cities. Some groupings of cities and counties might be used to facilitate on-site training, but direct contact with so many agencies and individuals would still be a daunting task.
Table 3. Tennessee Counties Traversed by Interstate Highways

<table>
<thead>
<tr>
<th>County</th>
<th>Coffee</th>
<th>Hamblen</th>
<th>Madison</th>
<th>Sevier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedford</td>
<td>Cumberland</td>
<td>Hamilton</td>
<td>Marion</td>
<td>Shelby</td>
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<tr>
<td>Benton</td>
<td>Davidson</td>
<td>Haywood</td>
<td>Marshall</td>
<td>Smith</td>
</tr>
<tr>
<td>Blount</td>
<td>Decatur</td>
<td>Henderson</td>
<td>Maury</td>
<td>Sullivan</td>
</tr>
<tr>
<td>Bradley</td>
<td>Dickson</td>
<td>Hickman</td>
<td>Monroe</td>
<td>Sumner</td>
</tr>
<tr>
<td>Campbell</td>
<td>Dyer</td>
<td>Humphreys</td>
<td>Montgomery</td>
<td>Unicoi</td>
</tr>
<tr>
<td>Carroll</td>
<td>Fayette</td>
<td>Jefferson</td>
<td>Putnam</td>
<td>Washington</td>
</tr>
<tr>
<td>Carter</td>
<td>Giles</td>
<td>Knox</td>
<td>Roane</td>
<td>Williamson</td>
</tr>
<tr>
<td>Cheatham</td>
<td>Greene</td>
<td>Loudon</td>
<td>Robertson</td>
<td>Wilson</td>
</tr>
<tr>
<td>Cocke</td>
<td>Grundy</td>
<td>McMinn</td>
<td>Rutherford</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Tennessee Cities Traversed by Interstate Highways

<table>
<thead>
<tr>
<th>City</th>
<th>Coopertown</th>
<th>Jellico</th>
<th>Mount Juliet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcoa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algood</td>
<td>Crab Orchard</td>
<td>Johnson City</td>
<td>Murfreesboro</td>
</tr>
<tr>
<td>Ardmore</td>
<td>Cross Plains</td>
<td>Kimball</td>
<td>Nashville-Davidson</td>
</tr>
<tr>
<td>Arlington</td>
<td>Crossville</td>
<td>Kingsport</td>
<td>Newport</td>
</tr>
<tr>
<td>Athens</td>
<td>Dandridge</td>
<td>Kingston</td>
<td>Orlinda</td>
</tr>
<tr>
<td>Baileyton</td>
<td>Dickson</td>
<td>Kingston Springs</td>
<td>Parkers Crossroads</td>
</tr>
<tr>
<td>Bartlett</td>
<td>Dyersburg</td>
<td>Knoxville</td>
<td>Pegram</td>
</tr>
<tr>
<td>Baxter</td>
<td>East Ridge</td>
<td>Lake City</td>
<td>Pleasant View</td>
</tr>
<tr>
<td>Brentwood</td>
<td>Elkton</td>
<td>Lakeland</td>
<td>Red Bank</td>
</tr>
<tr>
<td>Bristol</td>
<td>Erwin</td>
<td>Lebanon</td>
<td>Rockwood</td>
</tr>
<tr>
<td>Brownsville</td>
<td>Fairview</td>
<td>Lenoir City</td>
<td>Sevierville</td>
</tr>
<tr>
<td>Bulls Gap</td>
<td>Farragut</td>
<td>Loudon</td>
<td>Smyrna</td>
</tr>
<tr>
<td>Caryville</td>
<td>Franklin</td>
<td>Manchester</td>
<td>Soddy-Daisy</td>
</tr>
<tr>
<td>Chattanooga</td>
<td>Goodlettsville</td>
<td>Memphis</td>
<td>South Pittsburg</td>
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<tr>
<td>Clarksville</td>
<td>Gordonsville</td>
<td>Midtown</td>
<td>Spring Hill</td>
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<tr>
<td>Cleveland</td>
<td>Harriman</td>
<td>Millersville</td>
<td>Sweetwater</td>
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<tr>
<td>Clinton</td>
<td>Hendersonville</td>
<td>Millington</td>
<td>Thompson's Station</td>
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<td>Collierville</td>
<td>Hickory Withe</td>
<td>Monteagle</td>
<td>Unicoi</td>
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<td>Columbia</td>
<td>Jackson</td>
<td>Monterey</td>
<td>White House</td>
</tr>
<tr>
<td>Cookeville</td>
<td>Jasper</td>
<td>Mosheim</td>
<td>White Pine</td>
</tr>
</tbody>
</table>

An alternative is for TDOT to start with the four largest counties and the cities within those counties. In fact, most of TDOT’s efforts to date to influence public safety agencies have focused on those four areas. However, incident management has statewide significance, and TDOT is seeking a statewide strategy.

Before leaving the geographic considerations, could TDOT also narrow the focus internally and with THP? One of the needs identified during this research is to redouble education and training efforts
within TDOT and within THP. Both are large organizations with personnel spread across the state. It appears that not everyone in TDOT and THP "got the word" about TIM initiatives and priorities and that, even in units that have adopted new approaches, some of the needed changes were not institutionalized. Improvements made by individual leaders have been lost or weakened when those leaders moved to different assignments.

Could TIM initiatives to address these deficiencies focus on just half of the TDOT and THP field offices? Unfortunately, no. TDOT is divided into four Regions and twenty-two Districts. Every Region includes many miles of Interstate highway and every District has at least some Interstate mileage. The most limited include District 12 with just a short section of I-81 in Hamblen County. District 43 has I-40 in just the corner of Fayette County. District 42 has only I-55, the lowest volume Interstate in Tennessee. TDOT also has offices in every county, but most of the TIM education and training efforts would have to be directed to the District level, and every District needs to be included.

THP is divided into eight Districts, and every District includes some Interstate highway mileage. Certainly, some troopers work primarily in counties that are not traversed by Interstates, but education and training efforts would have to include all of THP’s eight Districts.

Integrate TIM in Training Provided by Academies and Organizations

Most of the agencies that share responsibilities for TIM place a high value on training and rely on structured training programs. The training is provided by a relatively small number of sources. Persuading these sources to integrate TIM topics, especially the identified Twelve Best Practices, could be a cost effective way for TDOT to reach the target audience.

For instance, state and local law enforcement officers in Tennessee must graduate from a “basic police academy” approved by the Tennessee Peace Officer Standards and Training (POST) Commission. The POST Rules and Regulations are available at: tn.gov/sos/rules/1110/1110-02.pdf. Only the eleven agencies listed in Figure 2 are certified to provide that training. Those same agencies and the additional agencies included in Figure 2 provide training that helps law enforcement officers comply with annual “in-service” training to meet POST requirements and to qualify for state-funded supplemental training pay.

By working with the agencies shown in Figure 2 and the POST commission, TDOT could develop or pay for the development of materials to be used during the basic academy and during in-service training. The academies do not have much flexibility with the curriculum for the basic academy, and time is limited. So, any TIM material for the basic academy would have to be very concise, and not much time would be available for discussion. In-service training might provide a better opportunity to address the Twelve Best Practices with time for discussion. Since in-service training is an annual requirement, a few of the Best Practices could be addressed each year over a multi-year period.
Basic Police Academies Certified by the Tennessee POST Commission (as of September, 2008)

Tennessee Law Enforcement Training Academy (TLETA)
www.state.tn.us/commerce/let/tleta/index.html

Blount County Sheriff’s Office, Law Enforcement Training Academy
www.bcsso.com/divisions/academy.aspx

Chattanooga Police Department (Chattanooga Police Academy)
www.chattanooga.gov/Police_Department/74_701.htm

Cleveland State Community College, Law Enforcement Training Academy
www.clevelandstatecc.edu/academics/divisions/business_technology/law_enforcement_training/Bpindex.htm

Knox County Sheriff’s Office, Training Division and Basic Police School
www.knoxsheriff.org/content/view/103/26/

Knoxville Police Department Training Academy (Phil E. Keith Training Center)
www.ci.knoxville.tn.us/kpd/training.asp

Memphis Police Department Training Academy (John D. Holt Training Academy)
www.memphispolice.org/training.htm

Metro Nashville Police Department Training Division and Academy
www.police.nashville.org/bureaus/administrative/training.htm

Shelby County Sheriff’s Department Training Academy
www.shelby-sheriff.org/training/index.asp

Tennessee Highway Patrol Training Academy (Department of Safety Training Center)
tennessee.gov/safety/tp.htm

Walters State Community College, East Tennessee Regional Law Enforcement Academy
www.ws.edu/publicsafety/regionalacademy.asp

Other Tennessee Sources of Education and Training for Law Enforcement Officers

Nashville State Community College, Police Science Technology Department
www.nscc.edu/catalog/dpol.html

University of Tennessee Martin, Institute of Professional Development
www.utm.edu/departments/ecce/lawenforcement.php

University of Tennessee Law Enforcement Innovation Center
leic.tennessee.edu/

Figure 2.
Sources of Training for Law Enforcement Officers in Tennessee
Similar opportunities are available to influence training for firefighters by working with the Tennessee Commission on Firefighting, the Tennessee Fire Service and Codes Enforcement Academy (TFACA), and local fire academies. The Firefighters Commission's Personnel Standards and Education rules are available at: www.tennessee.gov/sos/rules/0360/0360.htm. Information about the State Academy is available at www.tennessee.gov/commerce/sfm/tfaca/index.html.

The Tennessee Emergency Medical Services Division (Department of Health) has accredited the following institutions for Emergency Medical Services (EMS) training in Tennessee:

- Chattanooga State Technical Community College
- Cleveland State Community College
- Columbia State Community College
- Dyersburg State Community College
- Jackson State Community College
- Middle Tennessee State University
- Motlow State Community College
- Northeast State Technical Community College
- Roane State Community College
- Southwest State Community College
- Tennessee Technological University
- University of the South
- Walters State Community College
- Volunteer State Community College

health.state.tn.us/ems/trainingfacilities.htm

Most of the training for emergency managers in Tennessee is provided by the Tennessee Emergency Management Agency (TEMA) and the Emergency Managers Association of Tennessee (EMAT), plus the web-based training available through FEMA.

Tennessee’s Rescue Squads are staffed by volunteers, and their training is not prescribed by state law or regulated by a state agency like the POST Commission or the Firefighters Commission. However, the Tennessee Association of Rescue Squads (TARS) is a strong, statewide organization formed in 1955. Courses offered through the TARS “Rescue College” are well attended, and TARS could be a valuable partner for TDOT to help improve TIM.
Section 3

Resources

A number of potentially useful resources were identified for TIM education and training, and those sources are described below under three categories:

- Existing training programs that address some of the Reasons and Best Practices,
- Organizations that have experience in developing TIM training programs, and
- Presentations and documents that could be adapted or used as support

This section ends with a description of resources created during the research project and additional needs and opportunities.

Existing Training Programs

Existing training programs that could be used by TDOT to help explain the Reasons and encourage the Best Practices in Tennessee, include the following:

- The National Highway Institute (NHI) offers a one-day and a two-day version of *Managing Traffic Incidents and Roadway Emergencies* (www.nhi.fhwa.dot.gov/training/train_catalog.aspx). TDOT has sponsored this course at various locations throughout Tennessee.
- The FHWA Resource Center offers an *Incident Management Seminar*, with options as a “2 hour (executive overview) to 1/2-Day session” intended to “explain what incident management is and introduce the key elements which make up an effective incident management program. [www.fhwa.dot.gov/resourcecenter/teams/operations/courses.cfm#cc](http://www.fhwa.dot.gov/resourcecenter/teams/operations/courses.cfm#cc)
- The American Traffic Safety Services Association (ATSSA) has developed a new training course for emergency responders: *Emergency Traffic Control for Emergency Responders*. ATSSA also offers a webinar (available on CD) entitled *New Developments in Emergency Traffic Control*
- The Federal Emergency Management Agency (FEMA) Independent Study Program (ISP) offers web-based training that covers a range of all-hazards incident management, including NIMs and the Incident Command System (ICS). [training.fema.gov/IS/crslist.asp](http://training.fema.gov/IS/crslist.asp)
- A private company, WreckMaster [www.wreckmaster.com](http://www.wreckmaster.com), offers an array of training course for towing and recovery operators. Also, the Towing and Recovery Association of America (TRAA) offers a study guide to help operators prepare for testing to comply with Texas legislation that requires tow operators to be certified.

Experienced Organizations

Many organizations could provide advice and assistance, develop materials, and/or develop courses for TDOT. Potential sources included all of the Tennessee institutions listed in Figure 2 as well as other educational institutions in the state. Potential national sources include the following:
• The I-95 Corridor Coalition has developed a suite of educational and training documents to support traffic incident management and is offering a series of workshops to present Quick Clearance Implementation Best Practices. Normally, two Quick Clearance Workshops are offered in each location—an Executive Forum and a Responder Workshop. www.i95coalition.net/i95/

• The Emergency Responder Safety Institute, created as a Committee of the Cumberland Valley Volunteer Firemen's Association, has developed materials and courses for the fire services and other emergency responders. www.respondersafety.com/

• The International Fire Service Training Association (IFSTA) identifies areas of need for training materials and fosters the development and validation of training materials for the fire service and related areas. Fire Protection Publications, a department of Oklahoma State University, is the headquarters for IFSTA. Fire Protection Publications' primary function is to publish and disseminate training manuals as proposed and validated by IFSTA. IFSTA

• The National Integration Center (NIC) Incident Management Systems Integration Division in FEMA provides "strategic direction for and oversight of the National Incident Management System (NIMS)... supporting both routine maintenance and the continuous refinement of the system and its components." The Center oversees all aspects of NIMS including compliance and implementation activities at federal, state and local levels, and it provides guidance and support to state and local agencies. www.fema.gov/emergency/nims/

• The FHWA Office of Operations is the sponsor of many of the programs and documents described in this report. Their current web site lists six “Major Program Initiatives”: Traffic Incident Management Self Assessment, Traffic Incident Management Performance Measures, Quick Clearance, Incident Command System, Integrated Communications, and Planned Special Events Traffic Management. ops.fhwa.dot.gov/incidentmgmt/index.htm

• As noted above WreckMaster and the Towing and Recovery Association of America (TRAA) have valuable experience with education and training related to towing and recovery: www.wreckmaster.com and www.towserver.net/. Also, Chattanooga is home to both Miller Industries, a leader in the manufacture of towing and recovery equipment, and the International Towing and Recovery Hall of Fame and Museum.

• The two most experienced presenters for the NHI course (Managing Traffic Incidents and Roadway Emergencies) also have experience in delivering a TIM train-the-trainer course. Those two individuals, with the Delcan Corporation, have presented the NHI course many times in Tennessee, and they assisted TDOT with the startup of the HELP program.

Note: the two groups described above (existing programs and experienced organizations) are representative, and these are not exhaustive lists of all available programs or qualified organizations.

Presentations and Documents

A number of education and training documents and training presentations from throughout the U.S. were reviewed as part of this project, and copies were compiled for TDOT’s use. Hard copies of the following documents have been presented to TDOT:

• Emergency Traffic Control and Scene Management Guidelines, Wisconsin Department of Transportation, May 1, 2008
Electronic copies of more than 70 other documents and presentations are listed in Appendix B, and those materials have been provided to TDOT on CDs.

Also, the following were created as part of this project to assist TDOT in explaining one or more of the Reasons and/or to promote one or more of the Best Practices. These have also been provided on CDs:

- Traffic Incident Management Queue Illustrator (TIMQI), an Excel spreadsheet
- Be Smart in Positioning Vehicles (Apparatus) and Equipment (PowerPoint presentation)
- Wear Reflective Vests and Be Visible (PowerPoint presentation)
- Enhance Public Perception of How Incidents Are Managed (PowerPoint presentation)
- Carry Out On-Scene Tasks Concurrently (in Parallel) and with Sense of Urgency (PowerPoint presentation)

Matching Training Materials with Best Practices

Finally, Table 5 illustrates how various materials might be used in training related to each of the twelve Best Practices. Three types of material called for in Table 5 warrant special explanation: Recorded Interviews, Testimonials, and Pictures/Video.

The largest group of people impacted by traffic incident management in Tennessee are not well represented during most TIM discussions, conferences, and training sessions—the highway users. Of course, the agencies that share responsibilities for incident management are concerned about these “customers,” but the “voice of the customer” is muted or seldom heard. To remedy this, TDOT should record interviews with Tennessee motorists, truckers, and businesses so the people responsible for incident management can hear first-hand from the people most directly impacted by decisions made during incident management. The interviews could be played during training to emphasize key points and to add realism in much the same way as traffic-camera videos are used in current TIM training.

Two other stakeholder groups are also missing during many TIM discussions, conferences, and training sessions. One group includes the public information officers, 511 personnel, dispatchers, Traffic Management Center personnel, traffic reporters, and others who process and distribute information about incidents so that highway users can avoid unexpected delays and the associated costs. The other missing or under-represented group is made up of towing and recovery operators who are critical to clearing the roadway but are often the last to be called and sometimes do not receive adequate
information for an effective response. Interviews with representatives of these two groups could be used very effectively during TIM training to ensure a more complete understanding of the perspectives of these stakeholders.

Table 5 also calls for “Testimonials” for a few of the Best Practices where reports of success from a credible source might help overcome skepticism. Even if the instructor has hands-on experience and credibility, hearing from someone outside the classroom can make the overall presentation more convincing.

Another need identified in Table 5 is for “Pictures/Video” to support some of the Best Practices. The TDOT Traffic Management Centers (TMCs) in the four largest cities could be an invaluable source for such materials to support education and training. One of the PowerPoint presentations developed for this research relied heavily on “screen shots” from TMC camera images, displayed on TDOT’s SmartWay page, to illustrate questionable practices as well as Best Practices. However, those images were captured randomly, the quality of the images is not very good, and the single-frame images do not adequately depict the sequence of events and consequences.

TDOT is justifiably concerned that the TMCs not be perceived as “Big Brother” and that the camera images not be used for anything other than traffic management. TDOT is also concerned that actions during incident management that might appear ill-advised based on the images from a camera in affixed location might be entirely appropriate based on all of the information available to responders at the scene.

However, the videos could lead to significant improvements in incident management and significant reductions in unintended adverse effects. The recommendation is that TDOT implement a pilot project to videotape incidents that seem likely to produce long delays or to have other adverse effects. Safeguards should be established to avoid misuse or embarrassment for other stakeholders. The video tapes could then be used in cooperation with other agencies for after-action reviews and for training purposes to illustrate Best Practices as well as the unintended consequences of other practices.
<table>
<thead>
<tr>
<th>Best Practice</th>
<th>Possible Support Materials</th>
</tr>
</thead>
</table>
| 1. Follow the principles of NIMS, incident command, and unified command—and help accomplish respective missions | HATS Video  
TDOT/DOS Memorandum of Understanding (updated)  
Material developed by the National Traffic Incident Management Coalition  
*Simplified Guide to the Incident Command System for Transportation Professionals* |
| 2. Carry out on-scene tasks concurrently (in parallel) and with sense of urgency | TIM Timelines*  
Traffic Incident Management Queue Illustrator (TIMQI)*  
“Testimonials” from officials in Florida, Washington State, and/or Georgia |
| 3. Open as many lanes as possible as soon as possible—quick clearance         | Traffic Incident Management Queue Illustrator (TIMQI)*  
Recorded motorist/trucker interview  
Legal/liability perspective  
Pictures/video from TMCs |
| 4. Minimize the number of people and vehicles at the scene                    | Freeway Advertising PowerPoint*  
NTIMC’s *Multidisciplinary TIM Core Competencies*  
Pictures/videos of emergency vehicles struck at incident scenes  
Pictures/video from TMCs |
| 5. Be smart in positioning vehicles and equipment                             | Be Smart PowerPoint*  
Pictures/video  
Layouts |
| 6. Reassess the scene and adjust at least every 30 minutes                   | Layouts  
Pictures/video  
“Testimonials” from local officials in Tennessee |
Table 5 (Continued)

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>Wear reflective vests and use other PPE</td>
</tr>
<tr>
<td></td>
<td>Reflective Vests and Equipment PowerPoint*</td>
</tr>
<tr>
<td></td>
<td>Pictures/video</td>
</tr>
<tr>
<td></td>
<td>Federal Regulations</td>
</tr>
<tr>
<td></td>
<td>Samples</td>
</tr>
<tr>
<td>8.</td>
<td>Use cones and other traffic control devices (comply with the MUTCD)</td>
</tr>
<tr>
<td></td>
<td>Reaction time info</td>
</tr>
<tr>
<td></td>
<td>Examples from other states/I-95 Coalition/Nova Scotia</td>
</tr>
<tr>
<td></td>
<td>Pictures/video</td>
</tr>
<tr>
<td></td>
<td>MUTCD Chapter 6I</td>
</tr>
<tr>
<td>9.</td>
<td>Manage traffic proactively (at the scene, across from the scene, and at the back of the queue)</td>
</tr>
<tr>
<td></td>
<td>Testimonials from Tennessee officials</td>
</tr>
<tr>
<td></td>
<td>Pictures/video</td>
</tr>
<tr>
<td></td>
<td>Tabletop exercises</td>
</tr>
<tr>
<td>10.</td>
<td>Communicate with partners and stakeholders</td>
</tr>
<tr>
<td></td>
<td>Taped interviews w/traffic reporters, TDOT public information staff, truck dispatchers, others who need accurate, timely information</td>
</tr>
<tr>
<td></td>
<td>Examples</td>
</tr>
<tr>
<td>11.</td>
<td>Recognize the impact of your actions—be part of the solution</td>
</tr>
<tr>
<td></td>
<td>Self assessment tools</td>
</tr>
<tr>
<td></td>
<td>Pictures/video</td>
</tr>
<tr>
<td>12.</td>
<td>Debrief and improve practices and procedures</td>
</tr>
<tr>
<td></td>
<td>Testimonials</td>
</tr>
<tr>
<td></td>
<td>Identify Local/Regional Facilitators for After Action Reviews</td>
</tr>
<tr>
<td></td>
<td>Offer Facilitator Training</td>
</tr>
</tbody>
</table>

* Indicates material developed for TDOT as part of this research project
Section 4

Recommendations

The conceptual model shown in Figure 3 guided the development of a strategy for education and training to improve traffic incident management (TIM) in Tennessee. The recommended strategy has the following components:

1. Build support for TIM Best Practices within TDOT and DOS
2. Develop POST-certified courses on TIM Best Practices
3. Develop a train-the-trainer program to integrate TIM Best Practices with training for all incident responders
4. Create a resource database for TIM Best Practice material
5. Create a contact database for TIM training graduates, trainers, managers, and supervisors
6. Distribute TIM Best Practices materials to stakeholders on a systematic basis
7. Use Internet resources for TIM education
8. Increase involvement with state associations
9. Promote TIM Best Practices with local incident management teams
10. Take advantage of other initiatives and opportunities
11. Assign responsibilities and commit resources within TDOT

Some of these recommendations can be implemented independent of the others, and each is described in more details below. However, they are all interrelated and the recommendations should be considered as a package rather than separate choices.

Build Support within TDOT and the Department of Safety (DOS)

The interviews conducted as part of this research indicated a need to rebuild the level of commitment for improved traffic incident management within TDOT and DOS—the two agencies that have been the most visible supporters of TIM improvements over the past ten years and the two agencies that have encouraged local agencies to adopt new approaches to incident management. Within TDOT, for instance, the popularity of the HELP program in providing “motorist assistance” seems to have obscured the contributions of the program to highway safety and to reducing the traffic impacts of incidents, user costs, wasted fuel, reduced productivity, air pollution, and other societal costs. Both agencies are very large, have many different missions, and have offices and personnel spread across the state. In addition both agencies have experienced retirements and reassignments among key personnel in recent years.
Whatever material and initiatives TDOT adopts to promote TIM Best Practices with other agencies, a companion “internal version” should be produced to also influence TDOT leaders, managers, supervisors, and employees. The same resources should be made available within the DOS. Also, the Office of Incident Management and the Region Incident Management Coordinators should redouble their efforts to explain the five identified Reasons for investing in TIM (i.e., the benefits that can be achieved) to their colleagues within TDOT.

Another effective way to facilitate stronger, more widespread support within TDOT and the Department of Safety would be to update and re-execute their joint TIM Memorandum of Understanding (MOU). The initial MOU between these two agencies relative to TIM was executed in 2001. The current version was executed in December 2004. The two Department of Safety leaders who signed the current (2004) MOU are no longer in office. Further, for many of the 33 items of agreement in the current MOU, the objectives have been accomplished or significant progress is underway, and those items need to be removed or updated. (TDOT and DOS can and should make their stakeholders aware of those accomplishments.)
From the perspective of education and training, however, the most important reason to revisit the MOU is that relatively little progress seems to have been made with these four directly related items:

#9. DOS will include information about safe and efficient traffic incident management and urgent clearance of roadways in the training provided by the Tennessee Law Enforcement Training Academy (TLETA) and the DOS Training Academy.

#18. TDOT will include information about the needs and priorities of law enforcement officers, fire and emergency medical services, towing and recovery operators, and other incident responders in the training provided to HELP operators, traffic management center operators, and maintenance personnel with incident management responsibilities.

#25. DOS and TDOT will meet periodically to discuss experiences with incident management and to work toward improvements. In addition to the after-action reviews described above, periodic working sessions will be held in each of TDOT Region Offices with DOS, TDOT, and other state and local agencies to discuss overall incident management and related issues.

#29. TDOT and DOS will work together to ensure that safe and efficient traffic incident management and urgent clearance of roadways is part of the training provided for all law enforcement, fire and emergency medical services, rescue squads, towing and recovery operators, and other incident responders in Tennessee.

The new MOU should address each of the recommended TIM Best Practices and include actionable items to help implement those best practices through education and training. (For reference, Appendix B includes the Joint Operations Policy Statement between the Washington State Patrol and the Washington State Department of Transportation, updated in July, 2008.)

Once executed, copies of the MOU between TDOT and DOS should be widely distributed in both departments. Unless operations-level people in the field (troopers, maintenance workers, and others) “get the word,” many of the benefits of the MOU will be wasted.

**Develop POST-Approved Course**

TDOT should work with Tennessee’s Peace Officer Standards and Training (POST) Commission to develop a basic, POST approved course that covers the five Reasons and the twelve Best Practices. Two versions should be considered, one for use during “basic academy” instruction and one for in-service training. The course should be developed and tested in cooperation with one or two selected law enforcement agencies and then refined as needed for statewide use.

Subsequently, TDOT should work with TEMA, the Firefighters Commission, and the Tennessee Association of Rescue Squads to adapt the course for their respective constituencies. The course materials could also be adapted for other stakeholder groups.

The State of Louisiana enacted legislation in 2008 to address several aspects of traffic incident management (Act No. 429, Regular Session, 2008), including this provision:

§152. Police [sic] Officer Standards and Training (POST) certified course for Traffic Incident Management
A. Every law enforcement officer in the state shall be trained in a traffic incident management
POST certified course to be taught at a POST certified academy. Any training shall include the basic
process to follow for Unified Command as contained in The National Incident Management
System Law of 2004. The training shall also include a summary of the open roads agreement and
Louisiana laws pertaining to traffic incident management. Such training program shall be
developed by January 1, 2009, and be offered as a course of training to all classes after January 1,
2009.

B. The training program shall also be offered to all other entities that respond to emergencies on
Louisiana roadways.

(This information is not to suggest that legislation is required or even desirable to implement such a
course in Tennessee, but just to illustrate that other states see value in such a course.)

Develop Train-the-Trainer Program

To deliver the POST-approved courses and the adapted versions for other stakeholder groups, TDOT
should conduct or sponsor a comprehensive train-the-trainer program. TDOT can leverage its limited
resources by encouraging other agencies to deliver the needed training directly to their own personnel
using their own qualified trainers. In most cases, these trainers will already be proficient in the delivery
of training and will have credibility with their respective audiences. TDOT’s primary role would be to
provide the content and background and support material for the courses, and then monitor the
effectiveness and develop additions and updates as needed.

However, personnel in the OIM and the Region incident Management Coordinators should sometimes
teach/facilitate some of the courses directly. The direct contact with operations-level trainees will help
ensure that TDOT has a current understanding of TIM issues from the perspective of the other
disciplines. Also, experience indicates that the operations-level personnel from the other disciplines
appreciate the opportunity for direct interaction with TDOT representatives in a non-crisis environment.

Create Resource Database

The Office of Incident Management and the Region Incident Management Coordinators have individual
collections of digital images, presentations, video clips, and documents that can be useful in promoting
the TIM Best Practices. Some additional resources have been acquired or created as part of this
research project. New materials will become available as other state and national organizations
continue to work toward more effective incident management.

The recommendation is to combine and catalogue all of the available electronic resources so that
resources can be quickly identified and accessed when opportunities arise for use in education and
training. TDOT might also give access to the database to other TIM stakeholders to facilitate their
respective internal education and training for TIM.

Also, procedures should be established for routine updates to the database and to identify and rectify
resources gaps such as the need for Recorded Interviews, Testimonials, and Pictures/Videos as
described in the previous Section.
Create Contact Database

TDOT has made significant efforts over the past ten years to reach out to other agencies in many different ways, including sponsoring more than a dozen sessions of the National Highway Institute’s course on Managing Traffic Incident and Roadway Emergencies, conducting the annual Tennessee Highway Safety and Incident Management Conference, providing training and briefings at various law enforcement training academies, and participating in local incident management teams. Sign-up sheets have been completed at most, if not all, of those events. The contact information for the participants in those events, and similar events in the future, can be invaluable to TDOT in encouraging TIM Best Practices through ongoing contacts.

The recommendation is to establish an electronic database along with procedures to ensure that the information from new sign-up sheets is routinely entered into the database. In addition to the basic contact information (name, title, agency, mailing and email addresses, and phone numbers), the database should include fields to facilitate customized mailing lists and other applications. Figure 4 offers examples of categories that might be included in the database to make the information more readily useful. The database should also include fields to record usage of the database.

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Role</th>
<th>Previous Contact (select all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. THP</td>
<td>1. Policy</td>
<td>1. NHI Course</td>
</tr>
<tr>
<td>5. Fire services (paid)</td>
<td>5. Planning/Research</td>
<td>reserved</td>
</tr>
<tr>
<td>6. Fire service (volunteer)</td>
<td>6. Consulting</td>
<td>6. reserved</td>
</tr>
<tr>
<td>7. Rescue squad</td>
<td>7. reserved</td>
<td>7. reserved</td>
</tr>
<tr>
<td>8. Emergency medical services</td>
<td>8. reserved</td>
<td>8. reserved</td>
</tr>
<tr>
<td>10. Towing and recovery</td>
<td>10. Other</td>
<td>10. Other</td>
</tr>
<tr>
<td>11. Emergency communications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Local traffic engineer, public works, or road dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. TDOT Headquarters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. TDOT Region/District/County</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Spill/hazmat cleanup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Environmental agency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. News media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Trucking industry representative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Shipper representative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Insurance representative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Consultant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Educational institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. FHWA/FMCSA/Other Federal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. reserved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4. Examples of Categories for the TIM Contact Database
Multiple users (in headquarters and regions) should have access to the database, so features should be included to track revisions, additions, and deletions. One person should have primary responsibility and authority to set standards and procedures for the database.

**Distribute Materials on a Systematic Basis**

Using the contact database described above along with readily available directories of state and local agencies with responsibilities for incident management, the Office of Incident Management should routinely and systematically distribute materials related to incident management. As described in the previous section, a wealth of material is available. The idea is not to inundate other agencies, but rather to provide periodic reminders of the importance of the TIM Best Practices and to provide selected information to reinforce one or two of the twelve Best Practices or the five Reasons or some other aspect of incident management.

For instance, the following NTIMC-produced documents could be distributed, one each quarter for the next year:

- Benefits of Traffic Incident Management
- Prompt, Reliable Incident Communications
- Responder Safety
- Safe, Quick Clearance

The transmittal could include a few words about how the respective document relates to Tennessee issues and opportunities and to the five Reasons and twelve Best Practices.

Also, several excellent documents are available relative to TIM from the fire services perspective. One example is *Traffic Incident Management Systems*, published in April, 2008 by the U.S. Fire Administration (USFA). FHWA helped sponsor the research, and the report “was developed through a cooperative agreement between the USFA and the International Fire Service Training Association (IFSTA) at Oklahoma State University.” The USFA, ISTA, and Oklahoma State have credibility within the public safety community, so TDOT could effectively promote TIM improvements by just making sure that this document is widely distributed in Tennessee. (A PFD version of the document is available.)

The OIM could also serve as a “clearinghouse” to share information about local efforts in Tennessee. Perhaps twice a year each of the local incident management teams could be asked for a status report to be shared with the teams in other areas. Also, meeting agendas and minutes could be shared along with any major accomplishments.

The central idea is to take advantage of the contact database and the materials produced by others to explain the Reasons and promote the Best Practices in a cost-effective way. This approach will not reach every stakeholder, and some of the material may not be entirely applicable to Tennessee or to the twelve Best Practices. But, the costs will be relatively low.
**Use the Internet**

The internet is a powerful tool that could be used to deliver the TIM messages (Reasons and Best Practices) to other organizations as well as the public. TDOT’s website already provides information about the HELP programs, the Office of Incident Management, and other aspects of incident management. The SmartWay pages provide real-time information for motorists. Some updating of the existing TDOT pages might be warranted to show how all of the SmartWay components are interrelated and contribute to accomplishing the five Reasons. The TDOT website could also include information about the success of interagency efforts to improve incident management. This would let the public know about those interagency efforts and let other agencies know that TDOT appreciates and values such efforts. When TIM performance measures are established, the results should be posted on the TDOT and THP websites.

Also, information could be added to the TDOT website specifically for public safety agencies. The Ohio DOT, for instance, offers on their website a copy of the *Professional Responders Guide for Safe and Effective Highway Incident Management*. The document is “endorsed” by the AAA Ohio, Buckeye State Sheriffs’ Association, Ohio Association of Chiefs of Police, Ohio Department of Commerce- Division of State, Fire Marshal and Ohio Fire Academy, Ohio Department of Public Safety, Ohio Department of Transportation, Ohio Environmental Protection Agency, Ohio Fire Chiefs Association, Ohio State Firefighters Association, Ohio Trucking Association, and the Towing and Recovery Association of Ohio. [www.dot.state.oh.us/Divisions/HighwayOps/Traffic/publications2/Ohioquickclear/Pages/default.aspx](http://www.dot.state.oh.us/Divisions/HighwayOps/Traffic/publications2/Ohioquickclear/Pages/default.aspx)

TDOT’s website and the department’s intranet should also be used to clarify and reinforce the Reasons and Best Practices within TDOT. As noted previously, the “motorist assistance” benefits of the HELP and the positive reactions from the public and the media may have obscured the significant contributions of incident management to highway operations and safety.

Other possibilities to facilitate TIM education and training include the following:

- Allow other agencies to access or download the TIM contacts and resources databases recommended above
- Allow other agencies to download copies of key documents
- Use web-based surveys to solicit advice and opinions from the more than 1,000 agencies and 40,000 individuals with responsibilities and interests related to incident management

Of course, such uses would have to comply with state government and TDOT standards for information technology.

**Increase Involvement with State Associations**

Most of TDOT’s partners in traffic incident management are members of state and national associations, and those associations hold meetings, host websites, publish newsletters and other materials, recommend policies and procedures, and represent their respective professions in legislative and
regulatory matters. To promote the Best Practices, working with these associations is a more cost effective approach than trying to work directly with every agency and the thousands of individuals that respond to traffic incidents. Further, without the “buy in” of key associations, some changes may be harder to accomplish (e.g., gaining POST or Firefighter Commission certification of courses).

Fortunately, many of the key associations at the national level have been involved with the AASHTO-sponsored National Traffic Incident Management Coalition. Also, the Federal Highway Administration (FHWA) and Transportation Research Board (TRB) have recognized the importance of working with other professions and industries. Momentum seems to be building at national level for inter-disciplinary cooperation and support for TIM. TDOT should encourage AASHTO, TRB, and FHWA to continue their efforts to “mainstream” traffic incident management and to work closely with the national organizations that represent public safety agencies.

At the state level, TDOT’s Office of Incident Management needs to be the champion for TIM Best Practices. Many associations and organizations in Tennessee have interests related to traffic incident management, but the following associations are suggested as first priority:

- Tennessee Sheriff’s Association: [www.tnsheriffs.com/](http://www.tnsheriffs.com/)
- Tennessee Association of Rescue Squads: [www.tnars.org/](http://www.tnars.org/)

The towing and recovery industry has at least two organizations that address statewide issues and TDOT needs to work with those groups and local associations as much as possible.

TDOT already interacts frequently with other groups that have related interests and need to be well-informed on TIM issues. These include the Tennessee Municipal League, Tennessee County Services Association, Tennessee Municipal Technical Advisory Service, and the County Technical Assistance Service—all with interests related to local governments and agencies of local government (including law enforcement and fire services). TDOT also interacts routinely with an association that represents a primary stakeholder group for traffic incident management, the Tennessee Trucking Association ([www.tntrucking.org/](http://www.tntrucking.org/)). The Office of Incident Management should seek opportunities to work through other TDOT units and individuals that have established relationships with such groups.

**Local Incident Management Teams**

Over the past ten years TDOT has been a sponsor or member of traffic incident management “committees,” “teams,” or “task forces” in Chattanooga, Jackson, Knoxville, Memphis, Nashville, and other communities. The level of organization, activity, and effectiveness of those teams has fluctuated over the years. Many factors may account for those fluctuations. Certainly, leadership makes a
difference, along with skill in organizing and scheduling of meetings, and whether or not the participants believe that their time is well spent. Part of making good use of the members’ time is to involve them in meaningful work that leads to action. TDOT should involve the local teams in advancing the Best Practices, not just by “briefings” or by informing the team members but by inviting teams to develop actionable recommendations for implementation. Of course, TDOT must be prepared to act on any team recommendations that are within TDOT’s authority.

**Take Advantage of Other Opportunities**

The organizations and individuals that share responsibilities for managing incidents on Tennessee’s highways also share many other responsibilities. TIM education and training can be accomplished in concert with other initiatives, programs, and events not necessarily focused exclusively on traffic incident management. A few examples are offered below:

- The Office of Incident Management sponsors the annual *Tennessee Highway Safety and Incident Management Conference*. Future conferences could highlight the five Reasons and twelve Best Practices. Increasing the number of participants from local agencies would allow the TIM messages to be more widely heard.

- In compliance with the federal Work Zone Safety and Mobility Rule, TDOT is requiring that law enforcement officers be trained before they can work in highway construction/maintenance (on- or off-duty) work zones. The needed work zone training will cover some of the same topics that are important for TIM, particularly related to scene management and traffic control, and other Best Practices could be incorporated without much difficulty. TDOT has an opportunity to improve work zone safety and traffic incident management.

- The federal requirement for high-visibility apparel for all workers “within the rights-of-way” of federal-aid highways has focused the attention of public safety agencies on responder safety at highway incidents. The OIM can take advantage of this focus when interacting with other responders, beginning with “responder safety involves more than just visibility.” From a broader perspective, the federal rule illustrates that highway incidents involve unique challenges and require unique responses, and TDOT can build on that illustration.

- TDOT’s initiatives with “median cable barriers” will create opportunities for interaction with law enforcement, fire services, rescue squads, and emergency medical services. By being proactive in the areas where the new devices are being installed TDOT can explain the expected benefits and address any perceived problems, including issues related to incident management. (TDOT is already considering ways to have a sample cable barrier installed at the Tennessee Fire Services and Codes Enforcement Academy to facilitate training for safe extrication of vehicles that become entangled in the cables without unnecessary damage to the protective cables.)

- The Governor’s Highway Safety Office (GHSO) sponsors an annual “Livesavers Conference,” and that event offers opportunities to highlight the Reasons and Best Practices, focusing perhaps on two of the Reasons—Improve Responder Safety and Reduce Secondary Crashes—and the corresponding Best Practices. The GHSO also has ongoing contacts and working relationships
with law enforcement agencies, and joint efforts between the OIM and the GHSO could be mutually beneficial.

- As mentioned above, technical assistance and training is provided to local governments and agencies in Tennessee by several organizations, and those organizations can influence their clients to at least be receptive to TIM improvements. By communicating about TIM with, for instance, the Transportation Technical Assistance Program (TTAP), the Municipal Technical Advisory Service (MTAS), and the County Technical Advisory Service (CTAS), TDOT could benefit from the already established relationships throughout the state.

- Similarly, another reason to ensure that the Reasons and Best Practices are understood within TDOT is to take advantage of the close working relationships already in place between TDOT field personnel and the THP troopers and local law enforcement officers who patrol the local highways on a daily basis. Those TDOT employees have important roles in incident response, and they can be very effective champions for interagency improvements.

The overarching idea is that the Office of Incident Management has limited resources for TIM education and training. Even with additional resources as suggested below, the OIM should look for opportunities to promote TIM improvements by leveraging related initiatives, programs, and events.

**TDOT Responsibilities and Resources**

The success of TDOT’s efforts to improve traffic incident management in Tennessee depends largely on whether TDOT can influence the policies and practices of other agencies. TDOT owns most of the high-volume highways, but TDOT relies heavily on others effective highway operations and incident management. The success of TDOT’s efforts to influence better practices among other agencies depends largely on the effectiveness of TIM education and training. Unless TDOT takes the lead and commits resources to TIM education and training, not much will change.

Implementing the preceding recommendations will require time, attention, and resources—assigning TDOT personnel or committing funds to employ others. Currently, no one in TDOT has education and training for traffic incident management as a primary responsibility. Two people in the Office of Incident management, the four Region Incident Management Coordinators, and some of the other HELP personnel make occasional presentations at law enforcement academies and as part of workshops and local coordinating efforts. But these are secondary responsibilities, and action is usually in response to a local request rather than TDOT’s initiative. Responsibility for the *Tennessee Highway Safety and Incident Management Conference* is also a secondary responsibility.

Some of the recommendations above can be implemented by assigning additional duties (“secondary responsibilities”) to current staff, and some progress can be made by leveraging other opportunities. However, additional TDOT resources are needed for an effective education and training program to improve incident management on TDOT’s highways.
Appendices
Appendix A

Maps Showing the Tennessee Counties and Cities
Traversed by Interstates and Other High-Volume, Controlled-Access Highways
Cities – Middle Tennessee
Cities – East Tennessee 2
Appendix B
List of Education and Training Materials from Other Sources
Electronic Copies on CDs
(PDF Documents Unless Noted Otherwise)

Interagency & Best Practices

1. Georgia TIME Response Matrix
2. Wisconsin Department of Transportation (WisDOT) Emergency Traffic Control and Scene Management Guidelines
4. Multidisciplinary TIM Core Competencies, I-95 Coalition
8. Best Practices for Traffic Incident Management in Florida
9. Tulsa Traffic Incident Management Guide
12. I-95 Corridor Coalition, Quick Clearance and ‘Move It’ Best Practices, Executive Summary
13. I-95 Corridor Coalition Project 11 – Training, Introduction to Incident Management
15. VDOT NIMS/ICS & Traffic Incident Management (PDF slides)
17. The Many Hats of Highway Incident Management (Video)

Law Enforcement

18. Traffic Incident Management, Wisconsin State Patrol (Sgt. Bard Altman), Training Package (Compressed Folder with PPT slides and six movie clips)
19. Crash Reconstruction & Photogrammetry, Role in Incident Management, Minnesota State Patrol (Sgt. Matt Langer) (Compressed Folder with PPT slides and one movie clip)

21. *Felony Collision Scene – Task List*

**Fire, Rescue, and EMS**


23. Highway Safety Training for Emergency Responders (Minnesota)


27. *Nova Scotia Emergency Responders, Traffic Management Guidelines for Emergency Scenes*


31. *Tennessee Fire Service and Codes Enforcement Academy Credentialed Instructor (ACI) (PDF slides)*

32. *Niagara International Transportation Technology Coalition, Highway Safety Awareness (Western New York and Southern Ontario) (PPT slides)*


**Towing and Recovery**

34. Towing and Recovery Perspective (Text Only), Wisconsin Statewide Traffic Incident Management Conference (July, 2006)

35. *I-95 Corridor Coalition, Scanning Tour of Innovative Towing Programs*, 2007

36. Texas Tow Act, 2007

37. Tow Truck - TRAA Vehicle Identification Guide Card

38. Towing and Recovery Week in Tennessee, 2007
State DOTs and Tollways


41. VDOT Incident Response (Movie Clip)

42. VDOT Safety Service Patrol (Movie Clip)

43. *Washington State DOT, Incident Response Strategic Initiatives* (Word)

44. *Unveiling Kentucky’s Highway Incident Management Program*

45. *Communicating Incident Management*, E-470 Denver (PDF slides)


47. *Rural Traffic Incident: Missouri’s I-70 Corridor Project* (PPT slides)

Reference and Miscellaneous

48. International Scan Trip on Traffic Incident Response (Two sets of PDF slides)

49. *FHWA Tabletop Exercise Instructions for Planned Events and Unplanned Incidents/Emergencies*

50. Multi-Disciplinary Incident Response Training Project (SHRP L12)

51. American Automobile Association (AAA) Summary of Move-Over Laws

52. Pending Changes to the *Manual on Uniform Traffic Control Devices* (current Chapter 6I which will become Chapter 6H) (PDF document and PPT slides)


54. Tennessee Incident Management Checklist

55. Components and Context for Highway Incident Management (Tennessee)

56. Importance of Highway Incident Management (Tennessee)

57. Impact of Incidents on Highway Operations (Tennessee)

58. Highway Incident Management Training slides (Tennessee)


60. Louisiana Act 429, 2008

61. *Hampton Roads Incident Management Plan*

62. FHWA TIM Self-Assessment

63. *NCHRP Guide for Emergency Transportation Operations*
64. NTIMC—Nine Keys to Success for Traffic Incident Management Programs
65. NTIMC—Benefits of Traffic Incident Management
66. NTIMC—Safe, Quick Clearance
67. NTIMC—Responder Safety
68. NTIMC—Prompt, Reliable Traffic Incident Communications
70. Safe and Effective Use of Law Enforcement Personnel in Work Zones, Instructor Guide, FHWA, 2006
71. Safe and Effective Use of Law Enforcement Personnel in Work Zones, Participant Workbook, FHWA, 2006
72. Excerpts from the Tennessee Code Annotated (TCA)