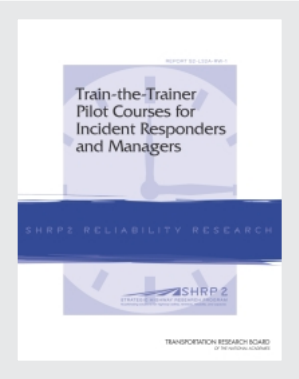

Train-the-Trainer Pilot Courses for Incident Responders and Managers

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The Second
STRATEGIC HIGHWAY RESEARCH PROGRAM

SHRP 2 REPORT S2-L32A-RW-1

Train-the-Trainer Pilot Courses for Incident Responders and Managers

SAIC
American Transportation Research Institute
Delcan
RESQUE-1
K2Share

TRANSPORTATION RESEARCH BOARD
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Subject Areas

Education and Training
Highways
Operations and Traffic Management

The Second Strategic Highway Research Program

America's highway system is critical to meeting the mobility and economic needs of local communities, regions, and the nation. Developments in research and technology—such as advanced materials, communications technology, new data collection technologies, and human factors science—offer a new opportunity to improve the safety and reliability of this important national resource. Breakthrough resolution of significant transportation problems, however, requires concentrated resources over a short time frame. Reflecting this need, the second Strategic Highway Research Program (SHRP 2) has an intense, large-scale focus, integrates multiple fields of research and technology, and is fundamentally different from the broad, mission-oriented, discipline-based research programs that have been the mainstay of the highway research industry for half a century.

The need for SHRP 2 was identified in *TRB Special Report 260: Strategic Highway Research: Saving Lives, Reducing Congestion, Improving Quality of Life,* published in 2001 and based on a study sponsored by Congress through the Transportation Equity Act for the 21st Century (TEA-21). SHRP 2, modeled after the first Strategic Highway Research Program, is a focused, time-constrained, management-driven program designed to complement existing highway research programs. SHRP 2 focuses on applied research in four areas: Safety, to prevent or reduce the severity of highway crashes by understanding driver behavior; Renewal, to address the aging infrastructure through rapid design and construction methods that cause minimal disruptions and produce lasting facilities; Reliability, to reduce congestion through incident reduction, management, response, and mitigation; and Capacity, to integrate mobility, economic, environmental, and community needs in the planning and designing of new transportation capacity.

SHRP 2 was authorized in August 2005 as part of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The program is managed by the Transportation Research Board (TRB) on behalf of the National Research Council (NRC). SHRP 2 is conducted under a memorandum of understanding among the American Association of State Highway and Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), and the National Academy of Sciences, parent organization of TRB and NRC. The program provides for competitive, merit-based selection of research contractors; independent research project oversight; and dissemination of research results.

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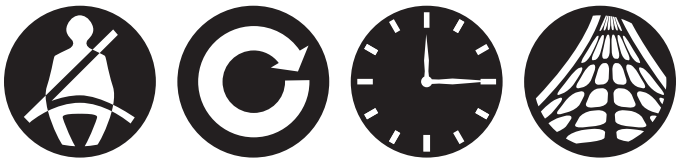

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FOREWORD

David Plazak, *SHRP 2 Senior Program Officer, Capacity and Reliability*
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One of the seven causes of nonrecurrent congestion is traffic incidents. Incidents, which include traffic crashes, cargo spills, vehicle breakdowns, and debris in the roadway, are a major cause of unreliability in travel times. Incidents may be related to other significant causes of nonrecurrent congestion, including inclement weather, work zones, and malfunctioning traffic control devices. Literature on the causes of congestion by source indicates that incidents (including crashes) may account for more than half of nonrecurrent congestion.

In addition to their profoundly negative effect on traffic congestion and reliability of travel times, incidents have a very significant safety dimension. Traffic queues caused by incidents often produce secondary crashes; the longer the incident clearance time, the more likely it is that a secondary crash will occur. Poorly managed incident clearance puts motorists at increased crash risk. It also puts traffic incident responders of all types—police, fire and rescue, transportation, emergency medical, towing specialists, and others—at high risk for injury and death. It is no wonder that state transportation agencies and local government agencies are now putting a great deal of effort into improving traffic incident management (TIM) to achieve the goal of safe, quick clearance.

This report documents the process used to test and refine the National Traffic Incident Management (TIM) Responder Training curriculum originally developed through SHRP 2 Project L12 so that it could be implemented. The improvement process involved hundreds of responders in four states: Florida, Montana, Tennessee, and Virginia. Over the life of the project, the train-the-trainer course was delivered to a multidisciplinary group of TIM trainers with the results observed by a panel of experts. Between deliveries, hundreds of improvements were made to the course materials. Once the project was completed, the revised curriculum was delivered to the Federal Highway Administration, U.S. Department of Transportation. The course is now being rolled out on a nationwide basis, making this one of the first products of the SHRP 2 program to be implemented.

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CHAPTER 1

Background

The costs associated with traffic congestion are high and continue to rise. The *2012 Urban Mobility Report,* published by the Texas A&M Transportation Institute, cites the following facts:

- The total financial cost of congestion in 2011 was $121 billion, up $1 billion from the year before and translating to $818 per U.S. commuter and 5.5 billion h in additional travel time.
- Of that $121 billion, about $27 billion represents wasted time and diesel fuel from trucks moving goods on the system.
- Fuel wasted in congested traffic reached 2.9 billion gallons—enough to fill the New Orleans Superdome four times.
- In 2012, carbon dioxide emissions attributed to traffic congestion were 56 billion pounds or about 380 pounds per automobile commuter (*1*).

Traffic experts describe traffic as being either "recurring" or "nonrecurring." Recurring congestion is predictable, associated for example with rush hour. Recurring congestion is both the plague and a hallmark of economically thriving regions. Nonrecurring congestion describes unexpected traffic jams that develop as a result of unpredictable events such as weather or traffic incidents. Nonrecurring congestion accounts for nearly half of all traffic congestion. Furthermore, nonrecurring congestion negatively impacts travel time reliability or predictability on roadways. Motorists, including commuters and freight road users, continue to affirm that they value travel time reliability of roadways more highly than travel time itself. This observation is based on interviews with commuters and large and small freight carriers at metropolitan/regional planning organizations in Atlanta, Georgia, and Minneapolis/St. Paul, Minnesota, in 2009 and 2010. The interviews were conducted in conjunction with the Federal Highway Administration Office of Freight, Management and Operations, Peer-to-Peer Program.

Traffic incidents—which include anything that happens on a roadway that impacts traffic ranging from disabled vehicles to fender-benders to vehicle crashes—account for up to 25% of all congestion and 40% of nonrecurring congestion (*2*). Bottlenecks caused by "rubbernecking" alone can drop a highway's capacity an additional 12.7%, even if a lane is not closed (*3*). Finally, reliability and safety problems on roadways are inextricably interlinked. Every minute an incident is not cleared endangers other motorists and responders through an increasing risk of secondary incidents, which further propagate traffic congestion. Faster incident clearance means safer roadways for motorists and incident responders who are in harm's way while attending to an incident; it can also improve the reliability of our nation's roadways by restoring travel lanes more quickly to pre-incident conditions.

The Need for National TIM Responder Training

Improving traffic incident management (TIM) practices offers regions a highly cost-effective and sustainable opportunity to improve the reliability of their roadways. While minor traffic incidents may be routinely handled by a single responder—in fact, the rapid response and clearance of these minor traffic incidents helps prevent them from becoming more serious incidents—traffic incidents frequently require a multidisciplinary response. For example, law enforcement personnel manage traffic control and lane closures; transportation personnel help implement and oversee traffic control; towing and recovery firms are often needed to move disabled cars out of the roadway; and transportation management centers help minimize collateral impacts on reliability on related roadways. Fire and emergency management personnel and equipment are also crucial partners. Most incident response functions are executed through responder agencies, which may not have institutional structures that support working together or training multidisciplinary teams together.

A significant body of research has shown that improving incident response activities offers substantial benefits for

reducing the adverse impact of traffic incidents—congestion, travel delays, responder safety (*4*). This research has also shown that a key component for improving TIM is the establishment of multidisciplinary TIM programs that enable the development of coordinated operational policies, interoperable communications, and interdisciplinary training.

The Role of SHRP 2

In recognition of the importance of improving TIM, the National Traffic Incident Management Coalition (NTIMC) was established in 2004 with support from FHWA and AASHTO. The NTIMC is a multidisciplinary group committed to congestion relief, enhanced responder safety, and emergency preparedness.

The NTIMC, working with FHWA, played a key role in establishing the National Unified Goal (NUG) for TIM. The NUG was developed to help encourage state and local government agencies to adopt the unified, multidisciplinary programs and policies that have enabled other state and local governments to realize the benefits of improved TIM. The NUG is a unified national policy organized around three objectives:

1. Responder safety;
2. Safe, quick clearance; and
3. Prompt, reliable, and interoperable communications.

Congress authorized SHRP 2 to provide accelerated, focused, multifaceted solutions to advance significant transportation problems, as a complement to longer-term highway research. The program executed research in four areas, one of which was Reliability (the others are Safety, Renewal, and Capacity). Under the Reliability program, Project L12 developed one of the first comprehensive, multidisciplinary, peer-validated national incident responder training curriculum and materials for use by TIM programs in jurisdictions large and small across the country. A corresponding train-the-trainer curriculum was also developed to support the cost-effective grassroots delivery of this core curriculum by TIM organizations. The curriculum is designed to be flexible and modular in order to accommodate different delivery options, such as an intensive two-day format or a weekly or monthly modular format, and to enable regions to customize the curriculum and case studies to their policies and challenges.

The objective of the SHRP 2 L32A project, which built on Project L12, was to validate the train-the-trainer model as a first step toward nationwide implementation and a key path to transforming TIM practice across the country. FHWA, AASHTO, and the SHRP 2 program share a commitment to improving the reliability of our nation's roadways by systematically transforming TIM programs on a national scale within a decade. The fully validated National TIM Responder Training program will facilitate this by elevating the state of the practice across the country so that, regardless of which state or region one is traveling through, responders are prepared to provide similar "standards of care" to motorists in traffic incident response.

SHRP 2 Projects L12/L32A: National TIM Responder Training, Train-the-Trainer Pilots

The focus of the L32A research was to validate and improve this crucial underpinning of the national TIM training program's eventual success. Project L32A trained nearly 200 new TIM responders to improve the reliability and safety of the roadways in four states through the National TIM Responder Training course, developed and originally pilot-tested through the L12 Project. Having taken the train-the-trainer course, more than 150 of these TIM responders are qualified to train their multidisciplinary TIM partners in the curriculum. Note that the alumni-led pilot course was not a train-the-trainer delivery but was the first evaluated delivery of the National TIM Responder Training by first-generation graduates of the train-the-trainer course. Student-trainers from a diverse mix of primary TIM disciplines participated in the four train-the-trainer pilot workshops, as shown in Figure 1.1.

The team conducted four train-the-trainer pilot courses and one alumni-led pilot course taught by graduates of the train-the-trainer course. The pilots were conducted at the following locations and dates:

- Pilot 1: Nashville, Tennessee — June 19–20, 2012
- Pilot 2: Richmond, Virginia — June 27–28, 2012
- Pilot 3: Helena, Montana — July 11–12, 2012
- Pilot 4: Fort Lauderdale, Florida — August 8–9, 2012
- Alumni-Led Pilot: Knoxville, Tennessee — September 12–13, 2012

Feedback from the five pilot workshops conducted through the L32A project resulted in nearly 1,500 discrete improvements to the curriculum, as well as materials enhancements, including a pacer guide to help instructors pace themselves throughout the training; materials checklists; and photographic enhancements to activity setup instructions.

The results of Project L32A speak for themselves: FHWA and AASHTO have formally adopted this training program and are conducting workshops across the country with a vision toward training one million TIM responders in all 50 states within 10 years. More than 95% of graduates of the train-the-trainer course affirmed they would recommend this course to others. Of equal importance, 95% of graduates

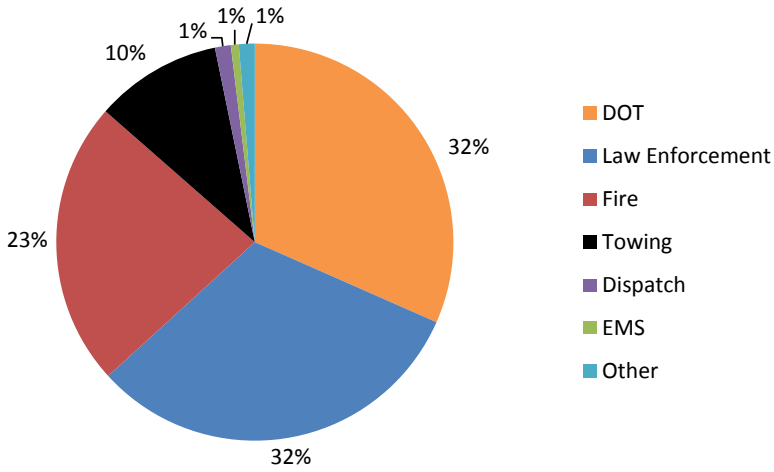


Figure 1.1. Attendance by discipline (four train-the-trainer pilots).

reported the course left them with a greater appreciation of the importance of safe, quick clearance (SQC) principles, and 98% reported believing the course saved them research time when preparing to teach their own course. Examples of testimonials from responder participants include the following:

- "All of our participants came away with [a] new perspective of our job at the scene and a new understanding of how all the players need to work together to be safe."—Towing Attendee (Montana Pilot)
- "The main thing I've learned taking this course is there's more than just the law enforcement aspect of it. Actually also having the fire and rescue, and being able to use those as one big component, instead of you trying to do everything yourself."—Law Enforcement Attendee (Nashville, Tennessee Pilot)
- "This course has driven home the importance of agencies working together toward a common goal—'Quick Clearance'—to prevent further incidents."—Attendee (Virginia Pilot)
- "I now understand that by communicating to the other departments that are responding to a scene will greatly reduce the time my guys and I will spend on the pavement in harm's way."—Law Enforcement Attendee (Montana Pilot)

The following sections summarize the research approach used for the SHRP 2 Project L32A, findings, and conclusions.

CHAPTER 2

Research Approach

The research approach for the L32A project was designed to accomplish the following objectives:

- Pilot-test National TIM Responder train-the-trainer curriculum and support material developed in SHRP 2 L12.
- Revise and finalize curriculum and train-the-trainer support material based on input from Technical Expert Task Group (TETG) and feedback from training participants.
- Evaluate effectiveness of train-the-trainer course and materials for preparing trainers to deliver training through FHWA-sponsored national roll-out.

Figure 2.1 illustrates the research approach for L32A. A TETG provided input and helped to shape the research approach, which the research team initiated with the kickoff (KO) meeting (Task 2), conducted in December 2011. The approach involved the following activities:

- The Research Team ("the team") maintained an **amplified work plan** (Task 1).
- **The team adjusted the training curriculum** (Task 3), based on TETG and pilot participant feedback.
- **The team provided a series of four pilot train-the-trainer workshops** (Task 6A) to multidisciplinary student-trainer audiences by a pair of subject matter expert (SME) trainers in Tennessee, Virginia, and Montana. A **Transitional Workshop** (Task 9) was originally envisioned to occur at the end of the task and to not have an evaluation component. FHWA requested, and the team agreed to conduct, the Transitional Workshop earlier. The team conducted this workshop in Florida and treated it as an additional fully evaluated pilot, even though this was not originally scoped.
- The team conducted an **Alumni-Led Pilot** (Task 6B) in Tennessee, led by a team of selected student-trainers who satisfactorily completed the train-the-trainer course. The alumni-led pilot allowed the team to examine full delivery of the training program by graduates of one of the preceding train-the-trainer pilots.
- **The team oversaw logistical arrangements** for the pilot workshops (Task 4).
- The team developed a **feedback tool** for obtaining participant feedback (Task 5)
- **The team developed an evaluation plan** (Task 6C) to assess the train-the-trainer curriculum and materials.
- The team developed a **Final Report** (Tasks 7 and 8).

The research approach solicited extensive student input and feedback on every aspect of the train-the-trainer program, including proposed selection criteria for candidate trainers, and cross-referenced all feedback and the evaluation results with student profiles (e.g., discipline, years of training, and field experience). These results are summarized in Chapter 3, Findings and Applications.

The following sections summarize each subtask of the project.

Amplified Work Plan (Task 1)

The team maintained an amplified work plan throughout the project's duration. A full explanation of the work plan can be found in Appendix A. The work plan involved the following adjustments:

- The National Academy of Sciences issued a limited authorization to proceed with Task 2 in early November 2011. The team coordinated, prepared for, and conducted the project KO meeting in December 2011, before receiving approval to develop the Amplified Work Plan (Task 1).
- In April 2012, 4 months later, the team received authorization to proceed and immediately commenced scheduling of the five pilots within a 4-month period of time.
- In response to requests from FHWA and the accelerated workshop delivery cycle, the team made changes to the

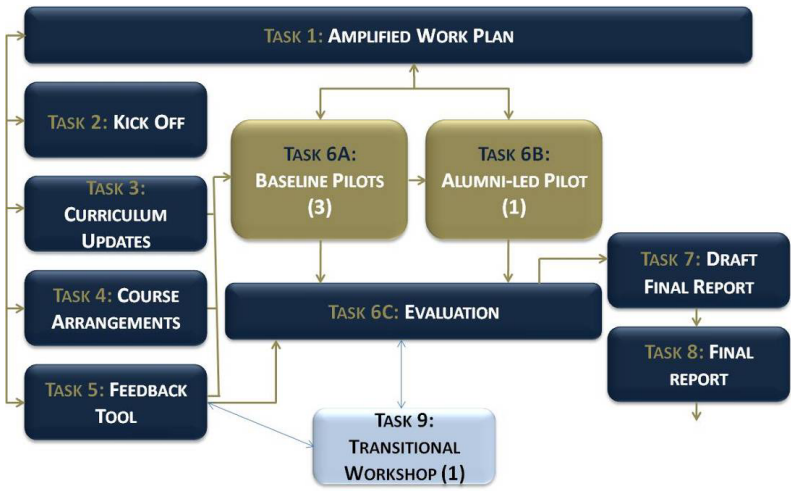


Figure 2.1. Summary of research approach for SHRP 2 Reliability Project L32A. The numbers within parentheses are the number of pilots by category.

curriculum and materials progressively, rather than sticking to two curriculum change cycles originally scoped in the work plan.

- The team received and processed feedback from the transitional workshop (conducted in Florida) at FHWA's request, although this workshop was not originally scoped to have an evaluation component.

Figure 2.2 illustrates the overall project time line.

Kickoff Meeting (Task 2)

The team conducted the project KO meeting at the Transportation Research Board in Washington, D.C., on December 20 and 21, 2012. On the first day the team focused on an overview of the L32A project and scope and a discussion of candidate training locations and criteria for train-the-trainer students. Twelve members of the TETG and four additional team TIM SMEs participated in a detailed curriculum review on the second day (December 21).

Key outcomes of this meeting are summarized as follows:

1. The TETG approved the research approach and criteria for selecting pilot locations, which included
   - Mix of well-established and emerging TIM programs;
   - Geographical diversity;
   - Mix of TIM program leadership models (DOT-led versus law enforcement-led programs);
   - Presence of a multidisciplinary TIM program in the state;
   - Support of a strong agency champion for TIM in the state;
   - Demonstrated commitment to training;
   - State's expressed willingness to commit necessary resources and personnel to training; and
   - Ability to accommodate the training in the required time frame.

   In Figure 2.3, the final selected pilot workshop locations are highlighted in red, finalized after the project KO meeting (the states shaded in beige are the locations of the original pilot locations from Project L12).

   Table 2.1 summarizes the locations and the rationale for choosing each. As the project unfolded and the first pilots were held, the team (SHRP 2 staff and FHWA) decided to convert the transitional workshop (Task 9) into a fourth pilot course, held in Florida and led by master instructors.
2. The TETG agreed to formally name the course the "National TIM Responder Training." Outside the SHRP 2 Project L32A project group, the training from this point forward was referred to by this name.
3. The TETG approved an initial list of consensus-based change requests to the curriculum. The team conducted a meticulous review of the curriculum and supporting materials. The team documented approximately 160 TETG and SME comments in a change log. Participants then reviewed the lessons sequentially, moving segment by segment within lessons. Two note takers recorded comments and change agreements, and the meeting was also recorded to ensure accuracy. Consensus was defined as either full agreement by all participants or the absence of expressed objection or concern by any participant to a proposed change agreement.

   Figure 2.4 depicts the structure of the change log that the team used throughout the project to track changes

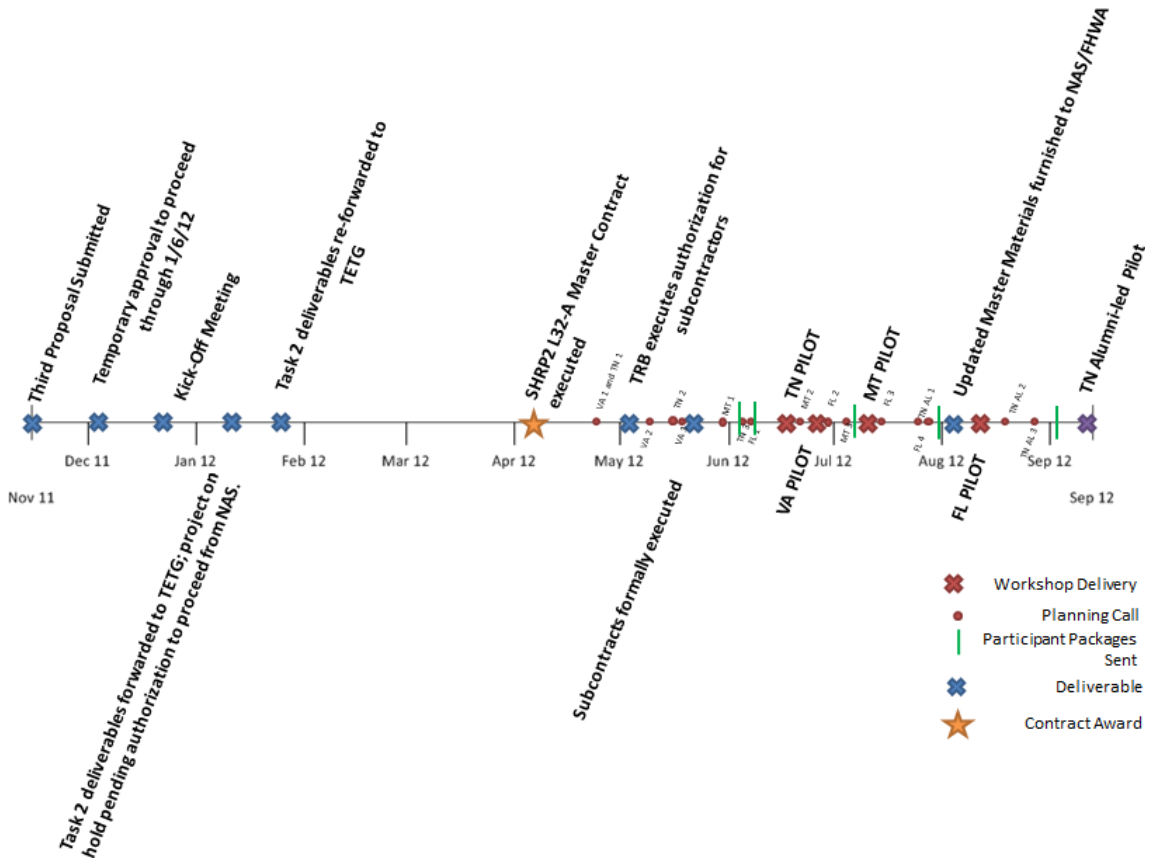


Figure 2.2. Project timeline.

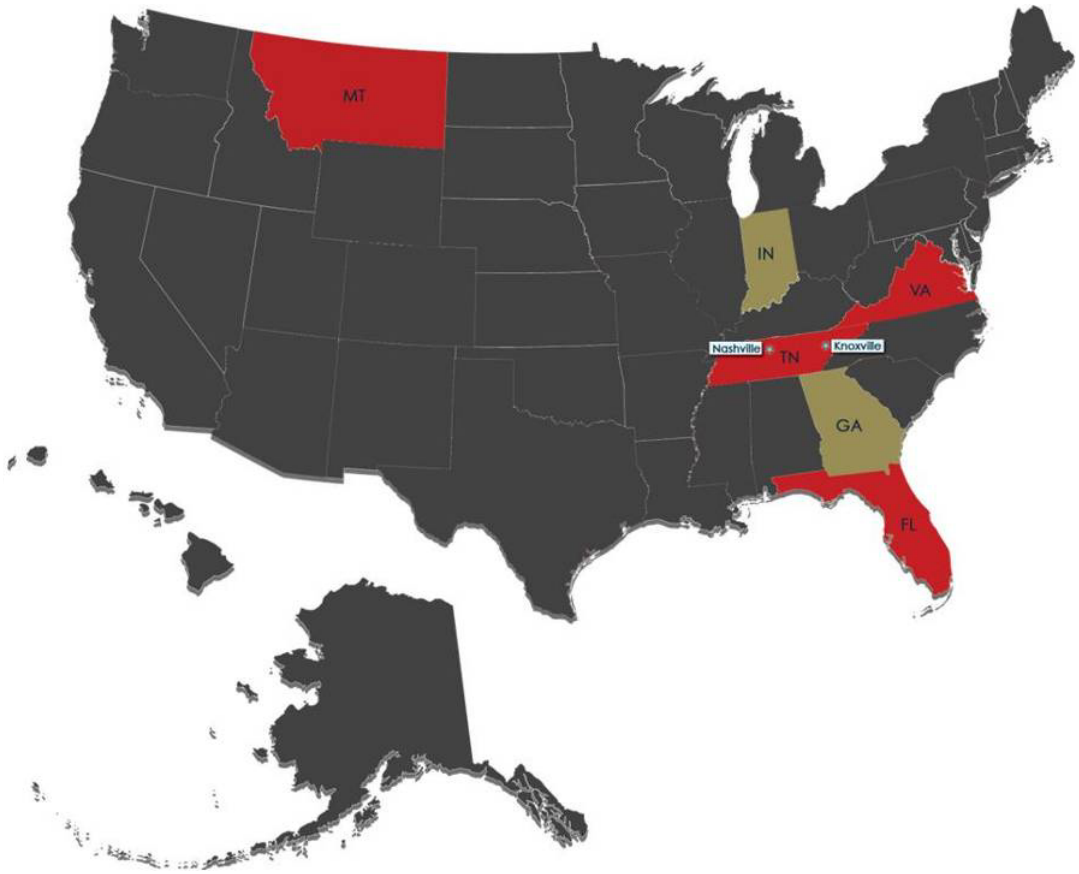


Figure 2.3. Final Project L32A pilot locations (in red). (The L12 pilots were in Georgia and Indiana.)

Table 2.1. Summary of Rationale for Selection of SHRP 2 Project L32A Pilot Locations

Location	Rationale
Tennessee	• Opportunity to test the L32A curriculum in an area with a mature TIM program interested in innovations • State Patrol interested in implementing a more comprehensive TIM training program across the state • Ability to attract multidisciplinary participants from across four regions of the state
Virginia	• Strong TIM champion in the form of the statewide TIM Committee, chaired by law enforcement • Renewed emphasis on roadside incident management from a service-patrol perspective • Incident management coordinators with backgrounds in both law enforcement and fire provide multiagency collaborative infrastructure to support the multidisciplinary TIM approach of the L32A curriculum • Ability to attract multidisciplinary participants from across the state
Montana	• Opportunity to pilot-test the training in a more rural state with less structured TIM activities to date • Ability to attract multidisciplinary participants from across four regions of the state
Florida	• Statewide commitment to TIM • Strong law enforcement interest in TIM resulting from FHWA's initial outreach • Ability to attract multidisciplinary participants from across four regions of the state

made to the curriculum across each of the pilots. For each comment, the log documented comment, proposed resolution, comment source, lesson and slide reference of the comment, and products affected (training PowerPoint presentation, instructor guide, or student workbook).

4. The TETG agreed with recommended student-trainer criteria proposed by the team, as noted in Table 2.2.

Curriculum Changes

The National TIM Responder Training curriculum and train-the-trainer materials consist of two packages: the Core Training course (presentation covering 12 lessons [two of which are practicum], accompanying student workbook, and instructor guide); and the train-the-trainer course (presentation covering five lessons, accompanying student Workbook, and instructor guide). The curriculum and materials underwent more than 1,500 discrete improvement adjustments through the course of the KO meeting and the five pilot workshops conducted. As noted earlier, rather than collect, adjudicate, and implement approved changes in two change cycles, the team collected and made progressive changes throughout. Figure 2.5 depicts the categories of adjustments made to the curriculum. Table 2.3 summarizes the sources of the changes over the course of the research approach. Types of changes were refined content, expansion of instructor notes, new or updated imagery,

Comment Number	Lesson Name	Slide #	Slide Name	Comment	Proposed Resolution	Comment Made By	PPT	IG	SW
1	Global	Global		Can we delete hidden slides permanently?	Delete unused hidden slides		*		
2	Global	Global		TIM Timeline does not have a title on the handout. Need to include the title "TIM Timeline" on the card.	Add title of "TIM Timeline" to handout		*	*	*
3	Global	Global		Time says 70 minutes- all the lesson times need to update	Update lesson times based on pacing experience		*	*	*
4	Lesson 3	157-158 (PPT), 3-18,		There needs to be some terminology explanation in	Add definitions of various components of TIM work area to pg 3-18 or 3-19 in IG			*	*

Figure 2.4. Comment log snapshot.

Table 2.2. Recommended Student–Trainer Criteria for the Train-the-Trainer Course

Criteria	Metric
TIM-related field experience	Minimum of 5 years in field
Willing to participate in full course	Agreement to participate in course
Experience as instructor	Recognized as instructor in his or her specific discipline
Commitment to multi-disciplinary TIM	*Desirable/Preferred:* • Member of multidisciplinary TIM task force, working group, or committee • National Incident Management System (NIMS) Training, particularly Incident Command System (ICS) 100, 200, and 700

Table 2.3. Curriculum Modification Sources

Location	Quantity
KO Meeting	169
Nashville, Tennessee	112
Virginia	156
Montana	153
Florida	302
Alumni-led pilot (Knoxville, Tennessee)	80
Other	512
Total	1,484

updated or refined messaging (i.e., emphasis on quick clearance to balance safety-related messaging in the training) or typographical.

Course Planning and Logistics

Planning for each confirmed pilot workshop began 4 to 6 weeks before the course because of the schedule (up to 8 weeks lead time is recommended). The team provided the following logistical support to each pilot workshop:

- Conducted a minimum of three conference calls with local planning point-of-contact (POC) teams:
  - Initial planning call;
  - Mid-term planning call; and
  - Final planning call.
  - Optional: a call with master instructors to support customization of training delivery to regional needs.
- Established online registration to capture training participant demographics.
  - In addition to pertinent contact information, registrants were asked to provide other professional details, such as agency, role, years of TIM experience, years of training experience, and NIMS and ICS course experience. This information was critical for obtaining the necessary data to properly evaluate course effectiveness relative to the different experiential perspectives of student-trainers. With the added professional information, the team was able to correlate perspectives on the course as well as course performance by discipline, level of expertise, and level of experience as a trainer.
- Developed invitational language that workshop hosts could use as the basis for initial and follow-up or reminder correspondence to recruit participants for the training.
- Developed and sent welcome package to registered attendees.

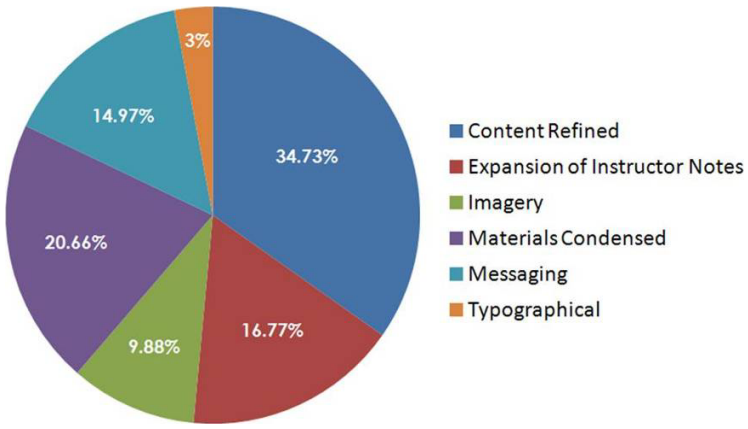


Figure 2.5. Curriculum modification profile.

- Provided registrants logistical support correspondence:
  - Two weeks before the course, registrants received an e-mail confirming their participation in the 2-day course and were provided with hotel lodging information, if necessary.
  - One week before the course, a full participant package was e-mailed to registrants, including course location and directions, items to bring, and draft agenda. A sample participant package is provided in Appendix B.
  - Two days before the course, a final reminder e-mail was sent to attendees.
- Arranged catering as needed for breakfast, lunch, and snacks.
- Shipped training materials 1 week before training.

During the planning calls, the team completed a workshop planning checklist shown in Table 2.4.

Figure 2.6 depicts the recommended course logistics timetable.

Evaluation Methodology

The team structured the evaluation methodology and tools used for L32A project to assess the sufficiency of materials and instructional methods employed to prepare candidate instructors (train-the-trainer students) to deliver the National TIM Responder Training effectively. The team employed a multilevel feedback approach with participants in train-the-trainer classes, as well as student audiences trained by novice instructors. The approach invited students to provide feedback on four aspects of the training, at multiple points in the training experience. The four aspects of feedback included

1. Units and lessons—content and visuals, including specific slides;
2. Training delivery;
3. Course structure and teaching methods (presentation, interaction, experiential, duration); and
4. Self-assessment of preparedness (i.e., both in terms of trainer's criteria and sense of readiness and preparedness on training completion).

Participants were invited to provide feedback at the following intervals:

- Before the start of training (regarding sufficiency of advanced information shaping expectations);
- During any mid-day breaks; and
- Completion of each day.

The L32A team employed a methodology for testing and evaluating similar to that of the original L12 training program. This methodology was based on the application of Levels 1 and 2 of the Kirkpatrick four-level assessment model.

Table 2.4. Pilot Workshop Planning Checklist

Planning Area	Status
General	
Workshop dates	
Workshop location	
Instructors	(SAIC provided)
Desired participant mix (agencies and student-trainer criteria)	(SAIC helped coordinate/provide)
Background on TIM program and history (including sensitivities)	
Pre-Workshop Coordination	
Invitation list and contacts	
Invitational language	(SAIC provided)
Participant recruitment support or status (registration database)	(SAIC helped coordinate/provide)
Meeting space	(SAIC helped coordinate/provide)
Refreshments	(SAIC helped coordinate/provide)
Lodging arrangements	(SAIC helped coordinate where needed)
Customization desires	(SAIC helped coordinate)
Participant package and read-ahead materials	(SAIC provided)
Workshop Execution	
Event setup	(SAIC provided)
Meeting materials	(SAIC provided)
Feedback	(SAIC provided)
Exam	(SAIC provided)
Meeting recording	(SAIC provided)
Post-Workshop	
Follow-up report	(SAIC provided)
Certificates of Completion and Professional Development Unit Support	(SAIC provided)

The Kirkpatrick four-level assessment model is provided in Table 2.5.

This methodology accomplished Kirkpatrick Levels 1 and 2 assessments as follows:

- Identified any variables affecting participant attitude toward learning, that is, student reaction and response to the instructional flow, instructor, facilities, equipment, resources, and so forth, and perceptions of the extent to which the instructional techniques and materials prepared the student to perform as an instructor and lead the training.

Timeframe	Planning Events	Planning Activity	Attendee Communication
Eight Weeks Prior	Initial Planning Call		
Seven Weeks Prior		Venue Confirmed	
Six Weeks Prior		Initial Participant List Generated	
Five Weeks Prior	Midterm Planning Call	Classroom needs assigned	
Four Weeks Prior			Invitations Sent
Three Weeks Prior	*Optional* – Course Customization Call		
Two Weeks Prior			Registration Confirmation Sent
One Week Prior	Final Planning Call	Course Materials Sent	Participant Package Sent
Week of Event	Pre-event Meeting	Classroom Props Obtained	Final Reminder Sent

Figure 2.6. Course logistics timetable.

- Identified where, through test item analysis, there may be discrepancies in testing relative to course delivery such that testing is not providing meaningful results; that is, testing is
  - Not testing against the instructional content;
  - Not specifically testing against the learning objectives;
  - Not effectively constructed; or
  - Any combination of the above.
- Identified areas of instruction that are not accomplishing the learning objectives for specific segments of the learning populations.

Table 2.5. Kirkpatrick Four-Level Assessment Model

Level	Description
1	Student Reaction: Measurement of student's response to training.
2	Demonstrated Learning: Measurement of student's acquisition of required skills, attitudes, and knowledge obtained through training.
3	Transfer of Learning to the Workplace, that is, Behavior: Measurement of student's ability to implement new skills and attitudes in the workplace.
4	Workplace Results: Measurement of impact training had on key business strategies or indices.

Reaction or Level 1 evaluation instruments are typically used to determine how students felt about the training course they just received. These types of assessments are used to obtain subjective input about training design, delivery, and logistics. Level 2 data, the exam results, measure the degree of change related to learning. Learning occurs when the specific training objectives are met: a change in skills, knowledge, or attitudes is demonstrated through either academic- or performance-based testing. Learning can be defined as the extent to which participants change attitudes, improve knowledge, increase skill as a result of attending the program, or any combination thereof.

Finally, the team also created a tool to solicit feedback from novice instructors based on their experiences of teaching the alumni-led pilot course (this is a second Level 1 [Reaction] tool). This tool helped identify any areas in which, for example, candidate instructors were consistently experiencing difficulty teaching or would benefit from additional instructor direction or clarification.

The evaluation tools, in addition to observer input, served as the source of insights in the following seven areas: (1) sufficiency of materials and instructional methods to prepare instructors; (2) course length; (3) instructor criteria; (4) achievement of learning objectives; (5) multidisciplinary emphasis of training; (6) curriculum changes; and (7) logistical lessons learned.

Evaluation Tools

The team employed the three tools described as follows to accomplish the evaluation. Each of these tools is provided in Appendix D. Results of the evaluation are summarized in Appendix E.

- Two Kirkpatrick Level 1 (Reaction) Tools:
  - A. Participant/Student Feedback Form: This is a Kirkpatrick Level 1 (Reaction) evaluation that is completed by students at the end of class and measures how the student feels or reacts to the training. The 36-question form, presented in Appendix D, was distributed to course attendees at the completion of the course. This form solicited participant feedback on course scheduling, instructor quality, overall training satisfaction, time saving potential, and instructor materials.
  - B. Novice Instructor Feedback Form (used during alumni-led pilot only): This is a Kirkpatrick Level 1 (Reaction) evaluation that is completed by novice instructors upon completion of their first training in the role of instructor (after completing the train-the-trainer course). This tool assessed how prepared the novice instructor felt to lead the training.
- One Kirkpatrick Level 2 (Learning) Tool:
  - C. Student Assessment: This is a Kirkpatrick Level 2 (Learning) assessment consisting of a bank of questions that tie directly into the course objectives and measure student knowledge at the end of instruction.

A. Participant/Student Feedback Form

The Participant/Student Feedback Form consisted of 36 questions on specific training components described in Table 2.6. Participants were asked to provide input on each question using a 5-point Likert scale ranging from Strongly Agree to Strongly Disagree.

Table 2.6. Participant/Student Feedback Form Profile

Feedback Component	Number of Questions
Scheduling	3 plus 1 open-ended question for comments or explanation
Instructors	6 plus 1 open-ended question for comments or explanation
Overall Training	12 plus 1 open-ended question for comments or explanation
Time-Saving Measures	1 plus 1 open-ended question for comments or explanation
Instructor Materials	6 plus 1 open-ended question for comments or explanation

Three additional questions asked participants to provide input on any potential gaps or omissions in the training, any shortcomings of the training, and the most valuable takeaway from the training. Participants completed the feedback form at the conclusion of the training course. This tool can be found in Appendix D, and participant feedback on individual pilot deliveries can be found in the individual pilot summary reports in Appendix C. The data from the course evaluations were analyzed following each course to identify potential trends that could be addressed before the next course offering. For instance, feedback from the first Tennessee pilot that some of the content felt "rushed" led the team to develop the instructor pacer guide.

B. Novice Instructor Feedback Form

This eight-question feedback form was administered to the novice instructors who led the alumni pilot course. The form solicited feedback from the novice instructors as to how prepared they felt to lead the course, based on their completion of the train-the-trainer course and the preparation instructions and materials they will use. It invited their feedback on how well the structure, content, and organization of trainer materials would enable instructors to help students achieve the learning objectives. It also invited their feedback and suggestions on time allocated to the various lessons in terms of achieving the learning objectives. Finally, it invited their unconstrained suggestions on altering the structure or format of the course to improve its effectiveness in preparing trainers to help students achieve the learning objectives.

C. Student Assessment

The student assessment provided data on the extent to which (1) the lesson design satisfied the learning objectives and (2) the training changed participant attitudes, improved their knowledge, increased their skills, or any combination thereof. The student assessment questions were based on specific content in each of the training lessons, as described in Table 2.7.

Instructional Methods

Each pilot course, with the exception of the alumni-led pilot in Knoxville, Tennessee, was led by two instructors from different disciplines—one with a fire background, the other with either a law enforcement or a state DOT background. The instructors alternated who led each lesson, although both provided input on the content or responded to student questions where appropriate. At the alumni-led pilot, there were nine instructors: four from the Tennessee DOT, three from fire departments, and two from law enforcement. Two instructors taught each lesson, and the instructors decided in

Table 2.7. Curriculum Lessons

Lesson Number	Approximate Lesson Length (from Pacer Guide) (minutes)	Number of Questions
0 – Course Introduction	47–49	na
1 – Statistics, Terminology, and Structure	39–55	12
2 – Notification and Response	20–23	3
3 – Arrival	73–96	12
4 – Initial Size-Up	30–32	8
5 – Command Responsibilities	18–24	10
6 – Safety, Patient Care, and Investigation	57–68	17
7 – Traffic Management	85–99	15
8 – Removal	50–60	9
9 – Termination	5–10	7

Note: na = not applicable.

Table 2.8. Classroom Instructional Materials

Instructor *(Four Train-the-Trainer pilots)*	Student *(Alumni-led pilot)*	Classroom *(All pilots)*
Core Instructor Guide	Core Student Workbook	Tabletop Roadways
Core PowerPoint	Train-the-Trainer Student Workbook	Staging Pads
Train-the-Trainer Instructor Guide	Assessment	Best Practice Sheets
Train-the-Trainer PowerPoint	Participant Feedback Form	Model Vehicles
Assessment Answer Key		Classroom Poster
Classroom Roster		Responder Actions Checklists

advance what lessons they would teach so they could focus their preparation time accordingly.

In all of the pilots, the instructors followed the core content of the SHRP 2 Project L12 curriculum materials so that students could follow along in their workbooks. However, they also emphasized key teaching points to aid future trainers of the course, such as important messages that need to be reinforced to students or certain questions or concerns that students may raise in specific parts of the course. The team observers captured these comments for incorporation into the updated instructor guide. To facilitate cross-disciplinary discussion, student seating was assigned so that no two responders from the same agency or organization sat next to each other (e.g., two law enforcement students were not seated next to each other). For the hands-on tabletop activity, the class was divided into groups so that each group had a diverse assortment of responder types represented. In addition, students received name tags color-coded by discipline so that both the instructors and other students could easily identify the backgrounds of their fellow responders.

A full suite of classroom instructional materials (listed in Table 2.8) was provided to both instructors and students. Having such a suite available ensures consistent delivery of the core training content; when a course is intended to be delivered by multiple instructors in multiple locations, this approach ensures that all instructors can follow a cohesive course outline and students receive a consistent course delivery and set of training materials, regardless of where they receive the training.

Instructor Materials

- *Core Instructor Guide:* This guide helps the instructor set up the classroom, provides practical tips to make the learning process more engaging, and includes the course lessons and exercises with step-by-step instructions that enable the instructor to provide the material in the appropriate manner. It also includes answer keys for all classroom activities to ensure consistent delivery across all training sites. It also has a place for instructor notes.
- *Core PowerPoint Presentation:* The presentation is designed to aid, enhance, and guide the instructor's presentation to the classroom. It serves to focus the students on the key objectives of the training by using a combination of text, video, and graphic elements, such as images, charts, and diagrams. The presentation is designed in Microsoft PowerPoint 2010 with associated video files.
- *Train-the-Trainer Instructor Guide:* Specific to the train-the-trainer portion of the course, this guide helps the instructor set up the classroom, provides practical tips to make the learning process more engaging, and includes the course lessons with step-by-step instructions to enable the instructor to provide the material in the appropriate manner. It also includes answer keys for all classroom activities to ensure consistent delivery across all training sites. It also has a place for instructor notes.
- *Train-the-Trainer PowerPoint Presentation:* The presentation aids, enhances, and guides the instructor's presentation

to the classroom. It serves to focus the students on the key objectives of the training by using a combination of text, video, and graphic elements, such as images, charts, diagrams, and so forth. The presentation is designed in Microsoft PowerPoint 2010 with associated video files.
- *Assessment Answer Key:* This includes the answers to the student assessment questions and is used to grade student performance.
- *Classroom Roster:* This tool enables the instructor to track classroom attendance easily. It also captures participant information, such as years of TIM field experience and agency or organization so that instructors can easily see the breakdown of their class by experience level and discipline.

Student Materials (for Train-the-Trainer Pilots)

- *Core Instructor Guide:* Students were provided with this guide in the train-the-trainer pilots so they could follow along in the guide as the instructors led the course and see how the content in the guide translated into the presentation of the materials.
- *Train-the-Trainer Instructor Guide:* See Core Instructor Guide description. Students were provided with this guide in the train-the-trainer pilots so they could follow along in the guide as the instructors led the course and see how the content in the guide translated into the presentation of the materials.
- *Train-the-Trainer Student Workbook:* This workbook contains all student-related lessons content, including exercises, case studies, and scenarios. It also contains a full bibliography of reference materials used to create the content as well as copies of peripheral third party items, such as brochures and reference cards. It also includes a place for student notes.
- *Assessment:* This is a Kirkpatrick Level 2 (Learning) assessment consisting of a bank of questions that tie directly into the course objectives and measure student knowledge at the end of instruction.
- *Participant/Student Feedback Form:* This is a Kirkpatrick Level 1 (Reaction) evaluation that is completed by students at the end of class and measures how the student feels or reacts to the training.

Student Materials (Alumni-led Pilot)

- *Core Student Workbook:* This workbook contains all student-related lessons content, including exercises, case studies, and scenarios. It also contains a full bibliography of reference materials used to create the content as well as copies of peripheral third-party items, such as brochures and reference cards. It also includes a place for student notes.
- *Assessment:* See preceding description.
- *Participant/Student Feedback Form:* See preceding description.

Classroom Materials

- *Tabletop Roadway Scenes:* These consist of five different roadway scenes—city surface street, rural road, limited-access highway, high-occupancy vehicle (HOV) lanes, and an overpass ramp—that are used to create incident scenes during the hands-on tabletop activity.
- *Staging Pads:* Staging pads are used as a holding area for responder model vehicles during the hands-on tabletop activity.
- *Model Vehicles:* These are civilian and responder vehicles, such as matchbox cars, used to simulate accidents and response steps during the hands-on tabletop activity.
- *Responder Action Best-Practice Sheets:* These sheets offer best practices in incident response and are placed on each table during the hands-on tabletop activity (Lesson 11) for each group's reference.
- *Quick Clearance Time Line Classroom Poster:* This Quick Clearance Time Line visual is used in the classroom to help provide a reference point for students regarding key incident response phases, showcasing how minutes saved in quick clearance contributes to both travel time reliability and safety objectives.

Added Materials

As a result of observations and feedback from the pilot deliveries, the team added the following to the suite of materials:

- *Pacer Guide:* After the first pilot delivery in Nashville, Tennessee, the team developed a pacer guide (Figure 2.7). It provides timing guidance to instructors by lesson and subsection so they can monitor how much time they can afford to spend on a certain lesson, or where they will have to make up time later if they have spent too much time on an earlier lesson.
- *Photography of Setups:* The team added photographs to help instructors set up key course activities—specifically snapshots of the large group lecture forum; the hands-on tabletop activity; and the outdoor or field situational awareness activity. Figure 2.8 depicts an example of the photographic support to activity setup instructions.
- *Quick Clearance Time Line:* At the Virginia pilot, students noted that it would be helpful to have a printout of the

Lesson	Section	Slide Range	Coverage	Timing Guidance (minutes)	Pacing Guidance *("Finish not later than")*
Instructor Introductions					Start time – 8:15 (4 mins)
	Congestion & Travel Reliability	1-6	Facts and statistics plus Crane video	5	8.16 - 8.26 10 mins
	LAX exercise	8-15	Large group interactive exercise **(customizable to location)**	5	8.27 – 8.30 (3.5 mins)
0: Course Introduction **TOTAL ESTIMATED LESSON TIME-47**	Imagine A Future Where ... NASCAR Timeline	17-22		10	8.30 – 8.37 (6.43 mins)
	NTIMC	21, 27 and 28		2	1.00 min
	[illegible] introductions	29-32	Course	5	8.38 – 8.61

Figure 2.7. Screenshot of pacer guide developed by the team.

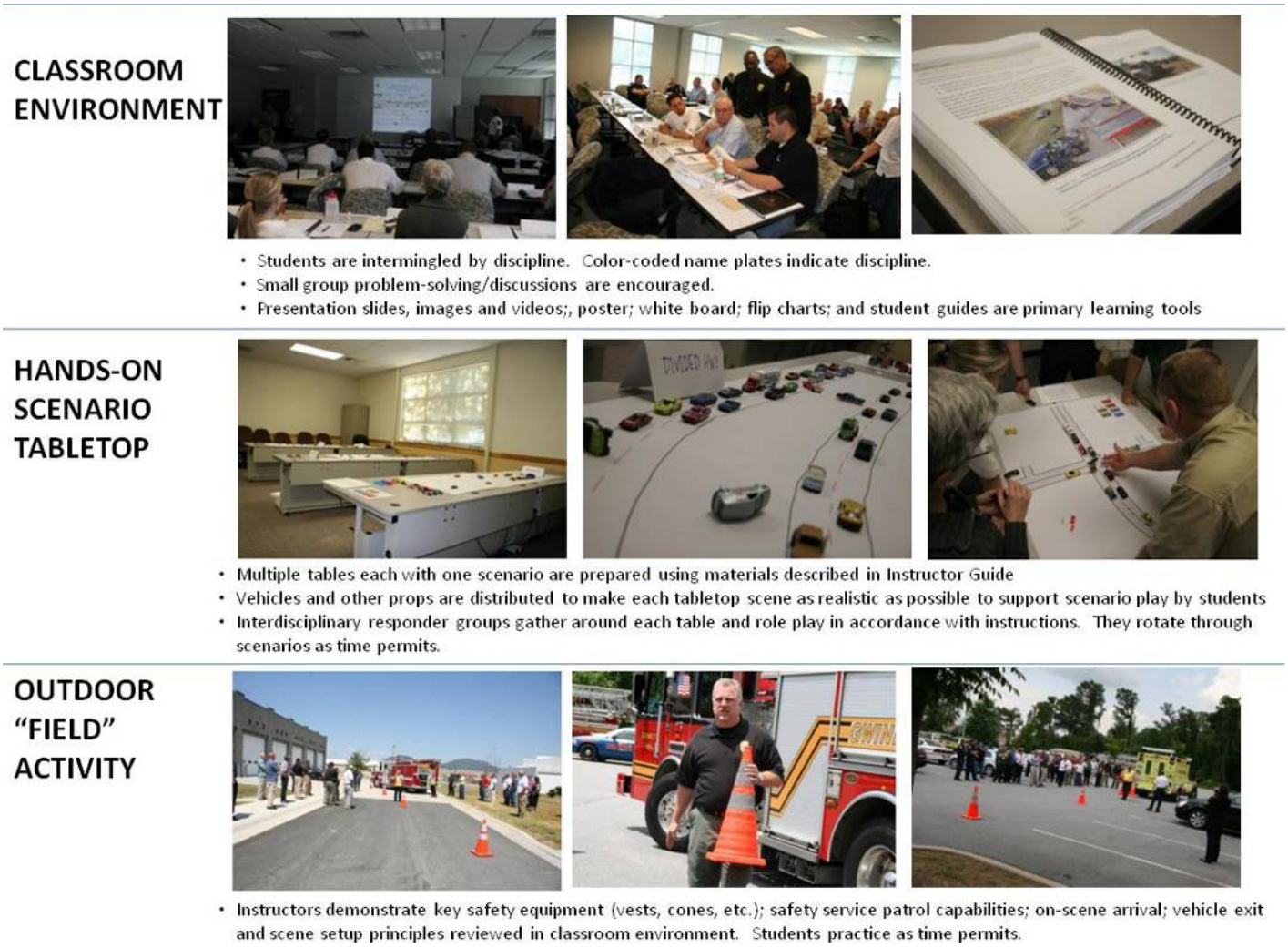


Figure 2.8. Example of photographic enhancement to activity setup instructions.

quick clearance time line graphic placed where they could easily see it when the instructors referenced it throughout the course. Therefore, at subsequent training deliveries, the team provided printouts.

Pilot Course Deliveries

The team conducted four train-the-trainer pilot courses and one alumni-led pilot course taught by graduates of the train-the-trainer course. Summary reports of each course are located in Appendix C. The participant mix for each course is presented in Figure 2.9. The pilots were conducted at the following locations and dates:

- Pilot 1: Nashville, Tennessee June 19–20, 2012
- Pilot 2: Richmond, Virginia June 27–28, 2012
- Pilot 3: Helena, Montana July 11–12, 2012
- Pilot 4: Fort Lauderdale, Florida August 8–9, 2012
- Alumni-led Pilot: Knoxville, Tennessee September 12–13, 2012

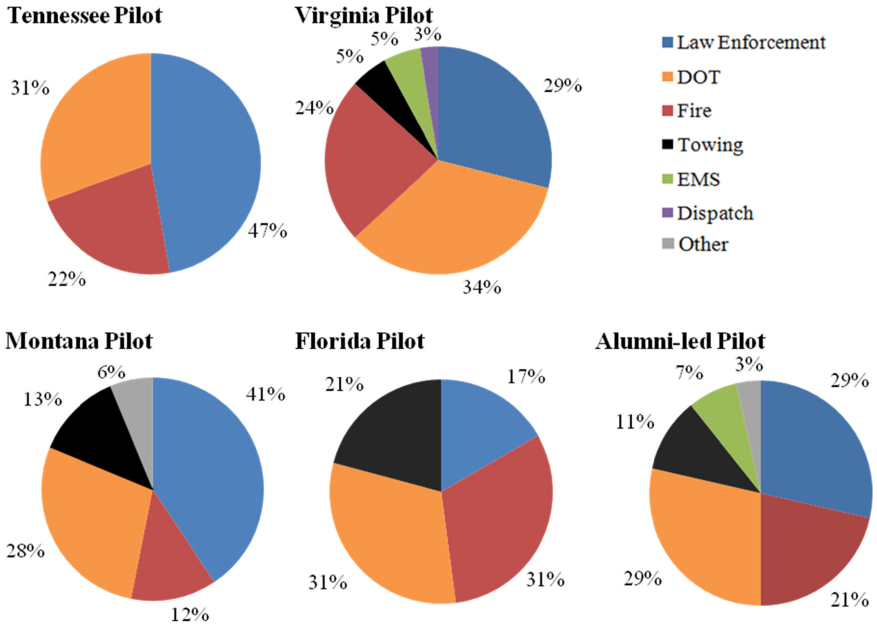


Figure 2.9. Participant mix by responder discipline for each pilot delivery.

CHAPTER 3

Findings and Applications

This section presents the findings of a comprehensive analysis of the SHRP 2 train-the-trainer pilot courses, based on the results of the (1) Course Reaction Analysis (post-course participant and instructor feedback forms); (2) participant assessments; and (3) curriculum modification recommendations from the team based on observer, SHRP 2 team, FHWA, and student feedback. Findings are summarized in the following areas: (1) sufficiency of materials and instructional methods to prepare instructors; (2) course length; (3) instructor criteria; (4) achievement of learning objectives; (5) multidisciplinary emphasis of training; (6) curriculum changes; and (7) logistical lessons learned.

Sufficiency of Materials and Instructional Methods to Prepare Instructors

The team reviewed participant feedback forms from the first four pilot courses to assess this area. One key indicator of a successful course is word-of-mouth recommendation from colleague to colleague. Figure 3.1 illustrates the responses to Question 16 of the feedback form: "Would you recommend this course to others?" The response was overwhelmingly positive, with 95% of attendees indicating they would recommend this course (139 out of 146 respondents). Of the seven individuals who would not recommend the course, the responses were relatively evenly distributed across the disciplines in attendance (two transportation, two fire, and three law enforcement), indicating any negative feelings were not concentrated within a single discipline. There also did not appear to be any correlation with experience, with no negative responses among those with more than 20 years' experience, three responses from those with 16 to 20 years, one response with 11 to 15 years, one response with 6 to 10 years, and one response with 1 to 5 years (the remaining negative or neutral response did not provide an experience level).

Another critical indicator of success in the course is the ability to connect with students regarding the importance of safe, quick clearance (SQC) principles. When asked if they gained an appreciation of SQC, 95% of respondents answered positively (139 out of 146 responses). The appreciation was spread uniformly among disciplines, as shown in Figure 3.2. Furthermore, increased appreciation of SQC principles occurred at all experience levels.

Attendees also viewed the course as a valuable time-saving exercise as it relates to training other TIM professionals. Fully 98% of respondents indicated attending the course saved them research time. As shown in Figure 3.3, when asked how many hours of research time were saved by attending the course, more than half (54%) of respondents reported a large time savings of 6 hours or more. Both TIM experts and novices reported time savings.

Finally, given that these were train-the-trainer pilots, an important evaluation area was the extent to which the attendees felt confident they could teach the curriculum to other TIM professionals after completion of the train-the-trainer course, based on materials and instruction. As shown by Figure 3.4, the vast majority of attendees, 85%, felt confident they could lead the course. Again, these responses were relatively consistent across discipline, TIM experience, and training experience.

The team offers the following additional findings based on participant feedback forms, as well as observer feedback.

Course Length

The team reviewed participant feedback forms from the first four pilot courses to assess this area. While this course was originally designed to be 2.5 days, based on feedback received from the TETG in the KO meeting, the team condensed it to 2 days based on participant feedback and TETG input—1.5 days for the core TIM curriculum and 0.5 day for the train-the-trainer component of the course. However, it is important to note that,

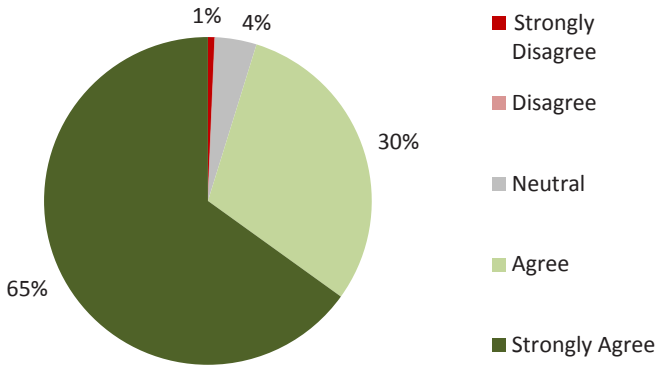


Figure 3.1. "I would recommend this course to others."

even though the train-the-trainer lessons were reserved to the end of the course, the instructors provided trainer-specific insights on the material throughout the course; for example, they alerted students to key teaching points or to issues that may arise in future classes.

In response to the question "The duration of the training was sufficient for learning the subject matter," 135 out of 147 respondents from the four train-the-trainer pilots agreed (Figures 3.5 and 3.6). Most concerns surrounding the sufficiency of the course length came from towing participants, which may reflect the fact that these participants have likely received less formal training on TIM principles than DOT, fire, and law enforcement participants.

In free responses to the evaluation, many students felt the training was rushed and, for example, "could go another ½ day . . . a little overwhelming." Others wrote that the course was too long and expressed concerned that responders from

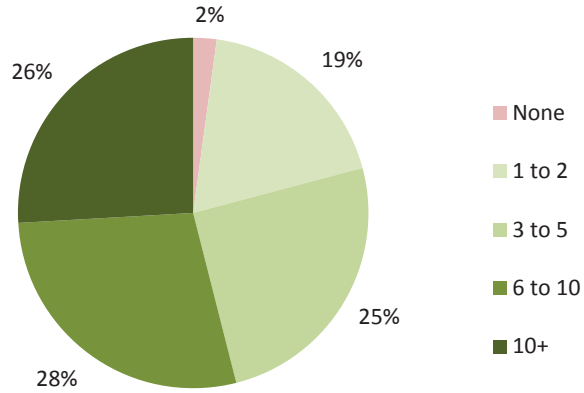


Figure 3.3. "Estimate the time (in hours) this training may save you on research information."

their discipline would not be able to devote 16 hours to a training course; one wrote "For the course to have an impact on firefighters, it needs to be shortened to 3 to 4 hours."

The divide in reactions to course length reinforces the need for instructors to tailor the course to their students. If a class is targeted to individuals with extensive field experience, less time may be required. However, if experience levels are more mixed (as they were in the four train-the-trainer pilots conducted), then the full 2 days may be necessary. In addition, instructors have the option to modularize the course so that material can be given in shorter periods and responders do not have to devote 2 full days to the course, but the content can still be covered in detail.

Throughout the train-the-trainer pilots, the instructors reinforced the potential for future trainers to present the

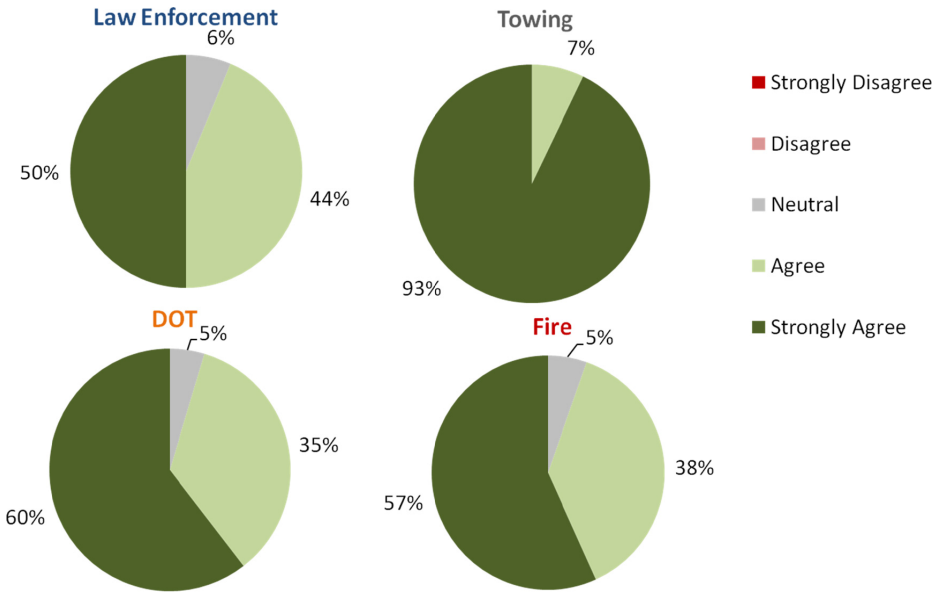


Figure 3.2. "I gained an appreciation of why quick clearance is important."

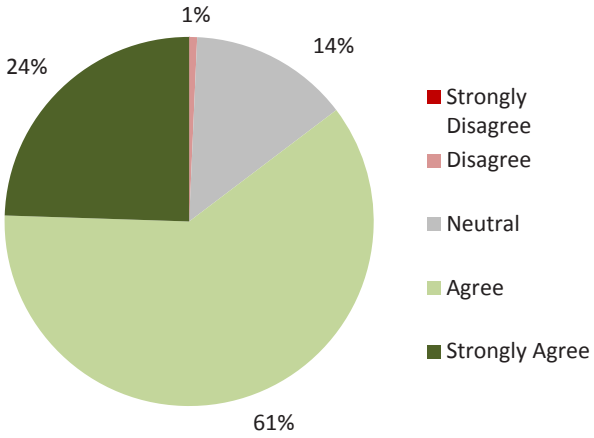


Figure 3.4. "Based on the training and materials I received, I am confident that I can lead all classroom activities."

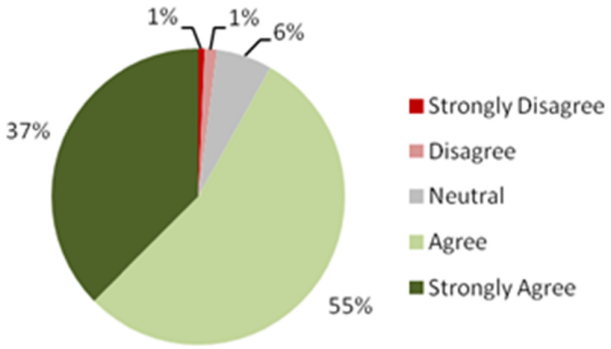


Figure 3.5. "92% of participants report the duration of the training was sufficient for learning the subject matter" (four train-the-trainer pilots overall).

course using a modular concept by selecting specific lessons to teach rather than the entire course. In addition, they provided students with examples on how the structure of the course could be rearranged. For example, at the alumni-led pilot, the "Situational Awareness" lesson (currently Lesson 11) was moved to a position after Lesson 3 ("Arrival") so that students had an opportunity to leave the classroom and break up the time spent on in-class lecture during the first day.

Several students noted that they would use the modular concept when delivering the training; for example, one planned "to implement the modules in 1–2 hour training meetings with local [fire departments], tow companies, etc." The modular nature of the course provides trainers with more flexibility. It decreases the concern of many responders that they cannot afford to spend a full 1.5 days on training, and it enables instructors to target lessons based on the specific needs of their region.

Instructor Criteria

At the four train-the-trainer pilot deliveries, the instructors represented two backgrounds—one from a fire background coupled with one trainer from a law enforcement or DOT background. At the alumni-led pilot, there were nine instructors representing each of these major responder disciplines.

The mix of instructor backgrounds reinforced the multidisciplinary nature of the course and ensured that multiple perspectives were heard. Students appreciated the diversity of experience instructors brought to the pilot deliveries, with

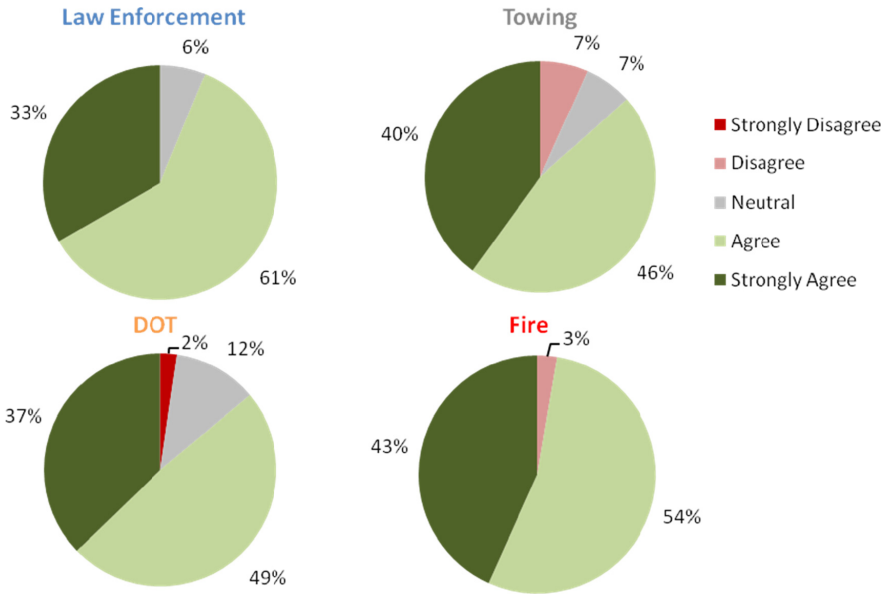


Figure 3.6. "The duration of the training was sufficient for learning the subject matter" (four train-the-trainer pilots by discipline).

Table 3.1. Recommended Student Eligibility Criteria to Participate in Train-the-Trainer Course

Criteria	Metric
TIM-related field experience	Minimum of 5 years in field
Willing to participate in full course	Agreement to participate in course
Experience as instructor	Recognized as instructor in his or her specific discipline
Commitment to multidisciplinary TIM	*Desirable/Preferred:* • Member of multidisciplinary TIM task force, working group, or committee • National Incident Management System (NIMS) Training, particularly Incident Command System (ICS) 100, 200, and 700

one student noting that "representation of two different disciplines . . . was well balanced and added significantly to the delivery and acceptance of the information."

Another important aspect of instructor background was their real-world field experience, which not only enabled them to speak knowledgeably about the subject matter but also increased their legitimacy as voices of authority on the topic of TIM because they had "lived" the content of the course. For example, one student said "The instructors gained my respect on Day One because they were 'real.' They had managed incidents. They had seen the results of mismanaged incidents firsthand."

For the train-the-trainer course, the team recommended (but did not require) that invited participants meet certain eligibility criteria, shown in Table 3.1. These criteria are meant to ensure that participants have a baseline understanding of TIM concepts and terminology and that they are experienced instructors with the ability to pass the course on to future students. Participants who did not have experience in adult training affirmed that having this background would have enriched the value of the class. It is important for potential students to recognize that the train-the-trainer course does not teach them how to be an instructor in general, but how to instruct this course in particular. Students should leave the course feeling confident that with adequate preparation time to familiarize themselves with the content, they have enough background knowledge as an instructor to teach the course effectively.

Achievement of Learning Objectives

The second level of evaluation analyzed the results of the post-course student assessment to determine whether instructional strategies supported learning objectives and if the minimum knowledge requirements were met across responder disciplines and experience levels. A full review of the course assessments can be located in Appendix E.

The exam was distributed to 162 incident responders participating in one of the five pilot courses. The team primarily targeted incident responders from six separate disciplines to participate in the course: law enforcement, fire/rescue, Department of Towing and Recovery, emergency medical services (EMS), dispatch, and DOT. Each participant, under the guidance of the instructor, was issued a test with specific instructions. However, the test was informally proctored; the instructors were in the room while the students were taking the exams. The exam was not held to a specific time limit.

The respondents consisted of 51 representatives of law enforcement, 42 from fire/rescue, 18 from Department of Towing and Recovery, two from EMS, two from dispatch, 46 from a state DOT, and one other. Table 3.2 provides a demographic profile of the total respondents.

The respondents were asked to provide their years of experience. Of the 162 respondents, 137 answered the question. Table 3.3 provides the experience profile based on the answers received.

Table 3.2. Respondents by Discipline

Discipline	Number of Respondents
Law enforcement	51
Fire	42
Towing	18
EMS	2
Dispatch	2
DOT	46
Other	1
Total	162

Table 3.3. Respondents by Discipline and Years of Experience

Discipline	0–5	6–10	11–15	16–20	21+	Total
Law enforcement	12	5	12	7	7	43
Fire	7	4	7	2	19	39
Towing	3	2	4	2	2	13
EMS	0	0	1	0	1	2
Dispatch	0	0	0	0	1	1
DOT	9	4	9	7	9	38
Other	0	0	1	0	0	1
Total	31	15	34	18	39	137

Figure 3.7 illustrates the overall student performance, compared pilot to pilot. There was minimal variation among locations. Virginia's students achieved the highest score (85.0%). Alumni-led students achieved the lowest scoring (80.4%). The lower alumni-led score was anticipated, given that (1) the alumni-led pilot was marketed to less-experienced responders than the four train-the-trainer pilot courses and (2) the alumni-led pilot was taught by recent graduates of the train-the-trainer course, whereas the train-the-trainer pilots were taught by master instructors from the team who were very familiar with the curriculum.

One purpose of this assessment was to determine whether the instructional strategies supported the learning objectives. Learning for each lesson was evaluated separately. Figure 3.8 presents overall student performance by lesson, and it demonstrates that learning remained relatively consistent across the lessons. Student scores for the alumni-led pilot were generally lowest in all lessons. Lesson 2 has modest variation in scores, most likely because there were only three questions for this section. Given that, after modifications were made throughout the pilots, Lesson 2 is now designed for 20 minutes of instruction time, it may be necessary to add more questions to that lesson. Scores generally trend downward after Lesson 3, likely due to fatigue. It is important to note that the course is designed to be delivered in its entirety or in modules. In instances where the course is broken into several modules, assessment fatigue is anticipated to be less of an issue. Should the course be delivered in its entirety, it is recommended to move the Field

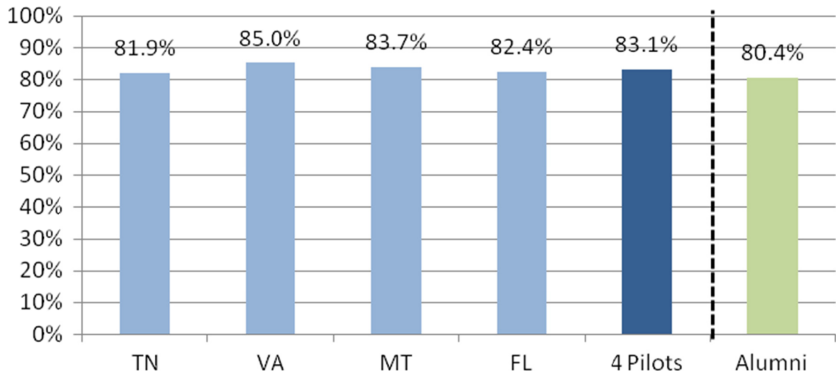


Figure 3.7. Average student assessment scores across pilot locations.

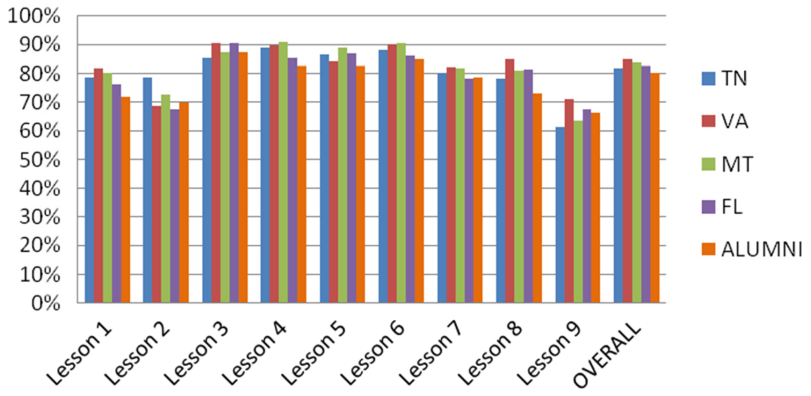


Figure 3.8. Average assessment scores by lesson and pilot location.

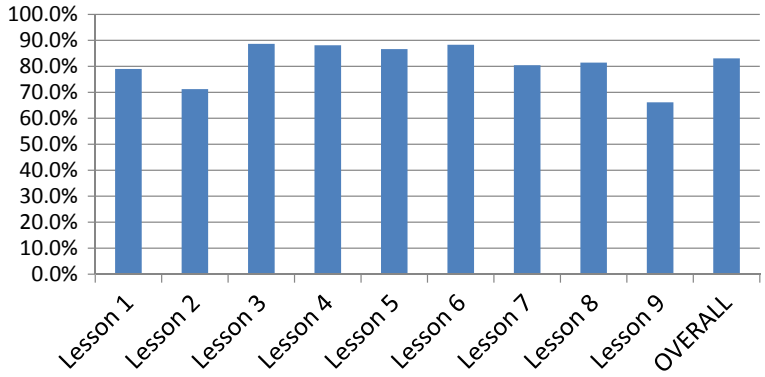


Figure 3.9. Average assessment scores for all train-the-trainer pilots (variation in absorption).

Activity (Lesson 11) from Day 2 to Day 1 to provide an extended classroom break on the 1st day. This move will also keep students in the classroom before the exam and should provide better continuity (i.e., students will not have to transition from classroom curriculum to the field activity and then back to the classroom for assessment).

Variation in absorption was evaluated to determine if content presentation had an impact on students' learning. Figure 3.9 presents the average lesson scores for those that attended one of the four train-the-trainer pilots and demonstrates there is some variability in the absorption of learning at the start and end of the class. Lesson 3 received the highest score (88.7%); Lesson 9 the lowest (66.1%). Several respondents skipped Lesson 9 (skipped sections are not included in the analysis). Due to the volatility of curriculum modifications throughout the pilot deliveries, some imbalance resulted between the curriculum and parallel exam questions for the various lessons. Figure 3.10 depicts the relative distribution of time and number of exam questions for each lesson (lessons are noted in pie slices as well as in the key to the right).

For example, Lesson 9 was designed for only 10 minutes (3%) of instruction time, yet contains seven assessment questions (7% of the exam questions). Likewise, Lesson 2 currently accounts for approximately 5% of total instructional time yet 3% of exam questions, and Lesson 5 represents approximately 5% of total instruction time yet 11% of the exam question bank. A recommendation is to rebalance the exam question bank to more closely reflect the approximate "weight" of the lessons as measured by approximate lesson time. In addition, it is recommended that additional questions be added to Lesson 2 to provide a more balanced ratio of instruction time to number of assessment questions.

A secondary purpose of this assessment is to determine whether the minimum knowledge requirements were met

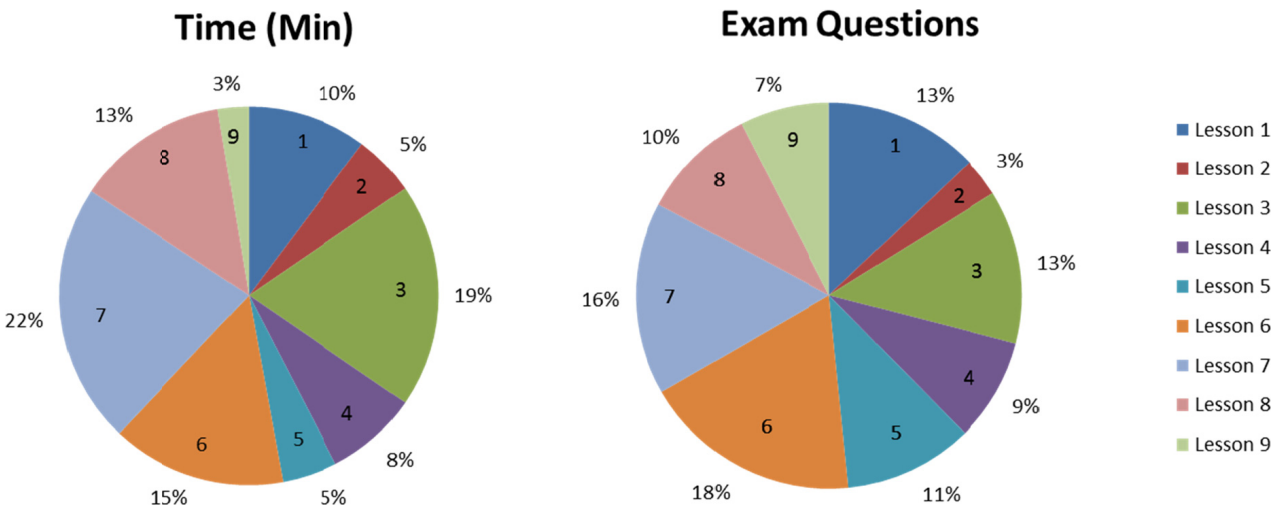


Figure 3.10. Comparison of lesson lengths and associated relative proportion of questions in exam by lesson.

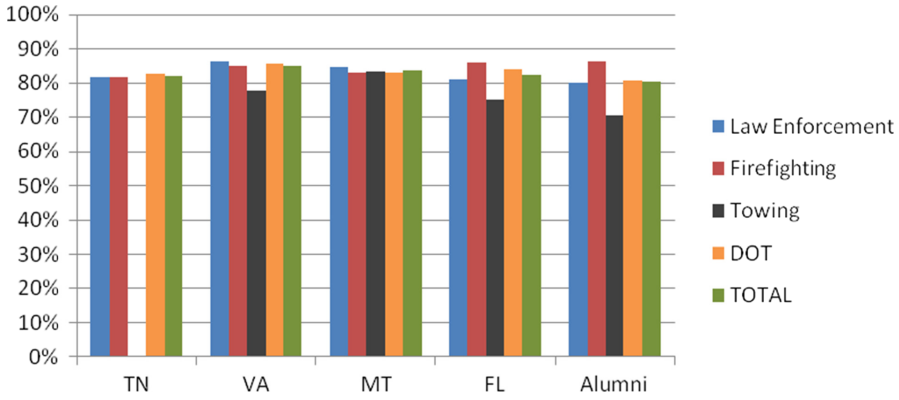


Figure 3.11. Average assessment scores by location and discipline (multidisciplinary learning).

across incident responder types and experience levels. Figure 3.11 illustrates that learning is occurring across the various responder types. (Only law enforcement, fire, towing, and DOT are shown; EMS and dispatch are excluded due to smaller sample size.) It demonstrates that learning remains relatively consistent across the four disciplines. There is little variation among discipline scores in Tennessee and Montana. Student scores for the alumni-led pilot course had the largest spread between high and low discipline score (15.6 points).

Figure 3.12 illustrates that learning occurred across the various experience levels in on-scene TIM response and demonstrates that learning remained relatively consistent across the continuum of experience in the field. The 25 students who did not identify their level of experience scored within the same level as those who did. In summary, there is a small difference in scores based on years of experience, as demonstrated by the lowest score of 79.6% for those with 6 to 10 years and the highest score of 84.4% for those with more than 21 years of experience.

Overall the assessment successfully measured course performance. Learning occurred across incident responder types and experience levels. There was no major difference in student performance based on training or testing location. It is apparent from performance on the assessment that the instructional strategies supported the learning objectives.

Multidisciplinary Emphasis of Training

A common theme across all five pilots in response to the question "What do you consider to be the most valuable information that you will take away from this class?" was that students understood the importance of inter-agency communication and cooperation in TIM. The overwhelming appreciation for the interdisciplinary aspect of the training course reflects that the value of inter-agency collaboration comes through strongly in the course materials and resonates with participants. The team recommends that instructors continue to emphasize the

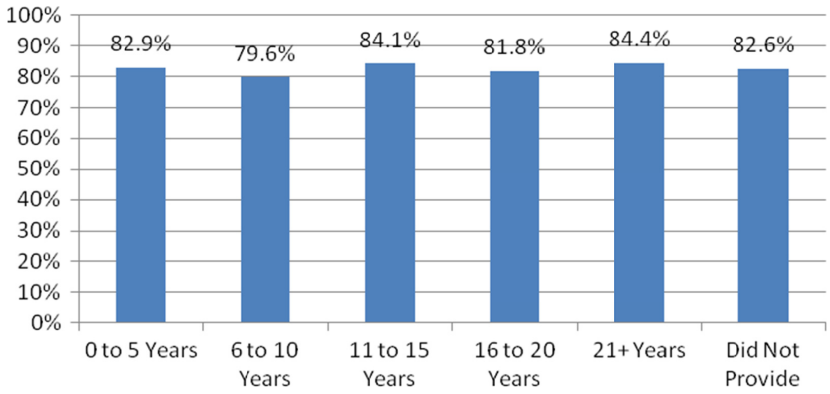


Figure 3.12. Average assessment scores across the continuum of TIM experience.

multidisciplinary aspect of the course and try to gather responders from diverse backgrounds in their training sessions.

Sample student responses to the question, "What do you consider to be the most valuable information that you will take away from this class?" include the following:

- "The value of interdisciplinary training and cooperation."
- "From a fire rescue standpoint, the integration of multiple disciplines on the scene that typically in the past has not been in the forefront."
- "Been doing this training for a few years. It helps to have multidiscipline setup."
- "Each discipline's response role from dispatch to scene to clearing."
- "Every department has assets and resources that contribute to TIM. This class shows how to merge all assets and resources together for the best possible TIM scene."

Curriculum Changes

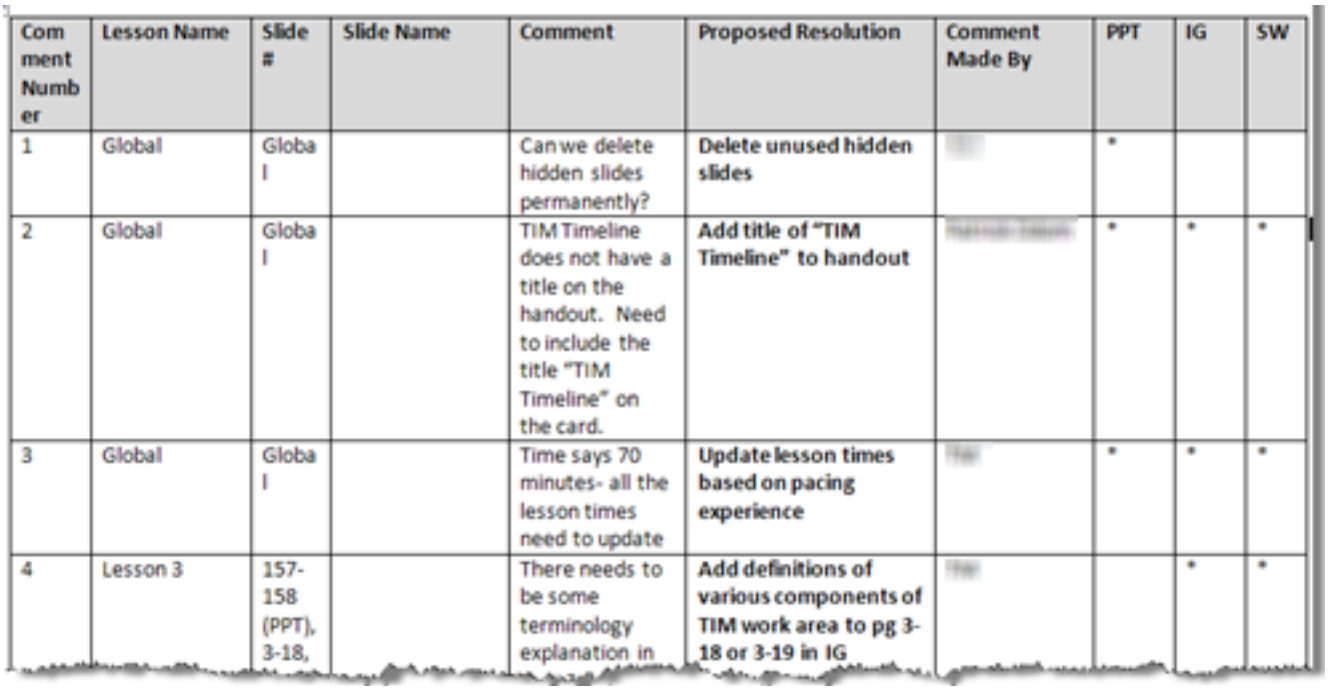
At the conclusion of each pilot course delivery, feedback from attendees and observers was consolidated into a list of curriculum and delivery changes. While each course resulted in hundreds of comments, a review of the primary changes from each pilot delivery effectively illustrates the evolution of the course across the five pilots.

Each of the five pilot deliveries resulted in specific recommended changes to consider for future deliveries. These comments were made by observers and instructors from the team, class participants, and members of the project management team (SHRP 2/FHWA) who attended the training. Every discrete comment was saved into a comment log with specific details regarding the lesson and slide to which the comment referred, the proposed resolution to the comment, the name of the commenter, as well the curriculum materials to which the resolution to the comment would need to be applied—the PowerPoint presentation, the instructor guide, and/or the student workbook. The team developed a comment log for each pilot delivery, which was adjudicated with the project management team. In addition, the comments were maintained in an ongoing master comment log that traced comments received, starting with the KO meeting and continuing through all pilot deliveries, as shown in Figure 3.13.

The team implemented changes to the course materials resulting from the comments as time permitted. Due to the short time lapse between the courses (particularly between the Tennessee, Virginia, and Montana deliveries), the team prioritized comments so that those considered the most important were addressed before the next training delivery, while others were addressed on an ongoing basis.

In total, the team collected and implemented nearly 1,500 discrete content changes as a result of comments collected in the KO meeting and across the five training deliveries.

A description of the type and substance of comments gathered from each pilot follows.



Comment Number	Lesson Name	Slide #	Slide Name	Comment	Proposed Resolution	Comment Made By	PPT	IG	SW
1	Global	Global		Can we delete hidden slides permanently?	**Delete unused hidden slides**		*		
2	Global	Global		TIM Timeline does not have a title on the handout. Need to include the title "TIM Timeline" on the card.	**Add title of "TIM Timeline" to handout**		*	*	*
3	Global	Global		Time says 70 minutes- all the lesson times need to update	**Update lesson times based on pacing experience**		*	*	*
4	Lesson 3	157-158 (PPT), 3-18,		There needs to be some terminology explanation in	**Add definitions of various components of TIM work area to pg 3-18 or 3-19 in IG**			*	*

Figure 3.13. Screenshot of course comment log from Florida pilot delivery.

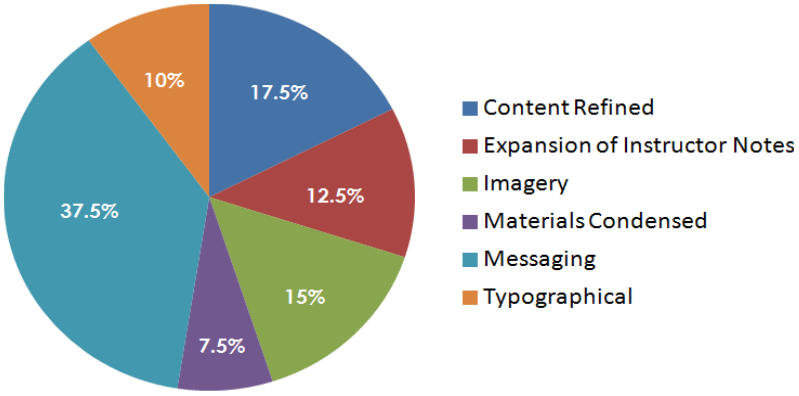


Figure 3.14. Change profile for Nashville, Tennessee, pilot delivery.

Tennessee (Nashville)

As a result of comments received during the training delivered in Nashville, Tennessee, the team made 112 changes to the course curriculum. The types of changes implemented are outlined in Figure 3.14.

Key curriculum modifications implemented by the team as a result of the Nashville training include

- Addressed inconsistencies between the core and train-the-trainer instructor guides and the presentations.
- In response to feedback that the course felt "rushed," developed a pacer guide to aid instructors by providing them timing guidance by lesson and subsection.
- Further balanced quick clearance and safety messaging.
- Added TIM time line graphic and NASCAR "pit stop" video to promote SQC messaging.
- Advanced sources of congestion and quick clearance laws (to Lesson 0) to address these topics earlier in the course.
- Added an instructor customization checklist to beginning of the instructor guide.

Virginia (Richmond)

As a result of comments received during the training delivered in Richmond, Virginia, the team made 156 changes to the course curriculum. The types of changes implemented are outlined in Figure 3.15.

Key curriculum modifications implemented by the team as a result of the Virginia training include the following:

- Refreshed imagery to show more highway and fewer city street scenes, more mixed discipline scenes, and updated accident scenes.
- Updated terminology to ensure it is discipline-neutral.
- Removed or made recommendations for substitution of duplicative case studies or examples.

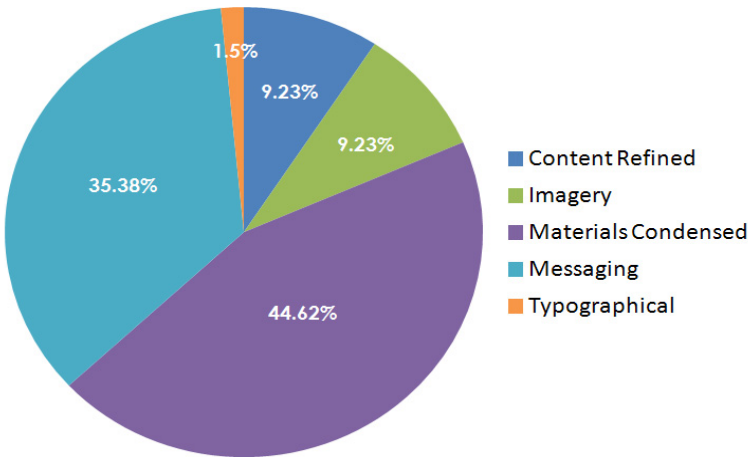


Figure 3.15. Change profile for Virginia pilot delivery.

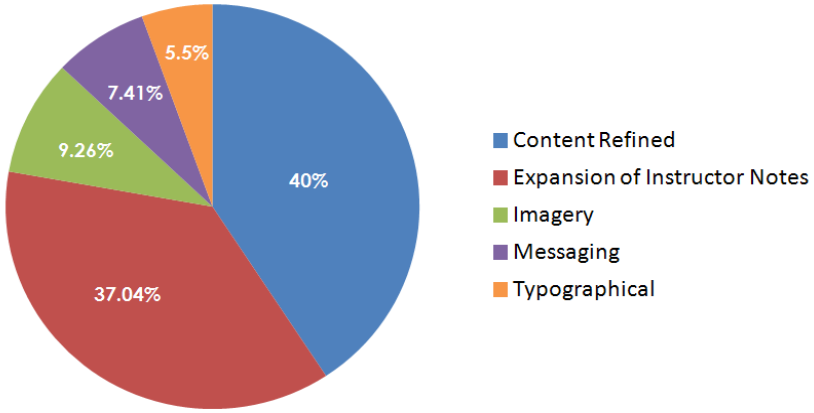


Figure 3.16. Change profile for Montana pilot delivery.

Montana (Helena)

As a result of comments received during the training delivered in Helena, Montana, the team made 153 changes to the course curriculum. The types of changes implemented are outlined in Figure 3.16.

Key curriculum modifications implemented by the team as a result of the Montana training include the following:

- Reinforced SQC terminology throughout.
- Added instructor notes that provide context for the course content, promote uniformity of delivery, and enhance messaging.
- Updated instructor guide and student workbook to match presentation.

Florida (Fort Lauderdale)

As a result of comments received during the training delivered in Fort Lauderdale, Florida, the team made 302 changes to the course curriculum. The types of changes implemented are outlined in Figure 3.17.

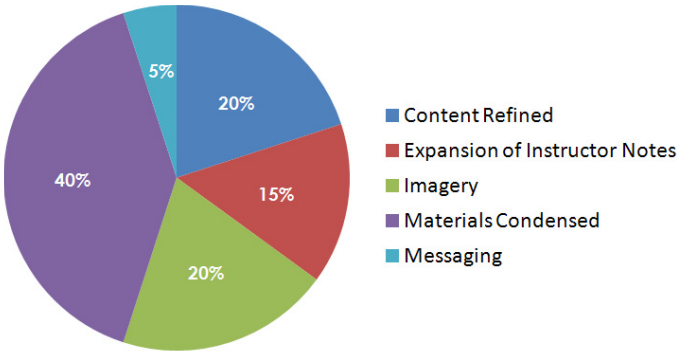


Figure 3.17. Change profile for Florida pilot delivery.

Key curriculum modifications implemented by the team as a result of the Florida training include

- Added "Kerri Crane (Indiana State Police)" secondary incident video to the beginning segment of the course to reinforce quick clearance messaging.
- Revised TIM diagram and expanded instructor manual guidance to better align with the *Manual on Uniform Traffic Control Devices.*
- Included printed scenario instructions at each table for the hands-on tabletop activity.
- Updated imagery (i.e., arrow board, deployable sign).

Tennessee (Knoxville)—Alumni-led Pilot

As a result of comments received during the training delivered in Knoxville, Tennessee, the team made 80 changes to the course curriculum. The types of changes implemented are outlined in Figure 3.18.

Key curriculum modifications implemented by the team as a result of the Knoxville training include the following:

- Refreshed data such as line-of-duty death statistics.
- Moved the "Situational Awareness" lesson so it follows Lesson 3 ("Arrival") to break up lecture delivery on the 1st day with a more hands-on lesson.
- Reinforced instructor notes based on observed experience with new instructors.
- Created a chart to assist instructors with tabletop assignments.
- Added photography to provide visual instruction on setting up activities.
- Inserted thumbnail PowerPoint images into instructor guide so students could more easily trace the content in the guide to the presentation.

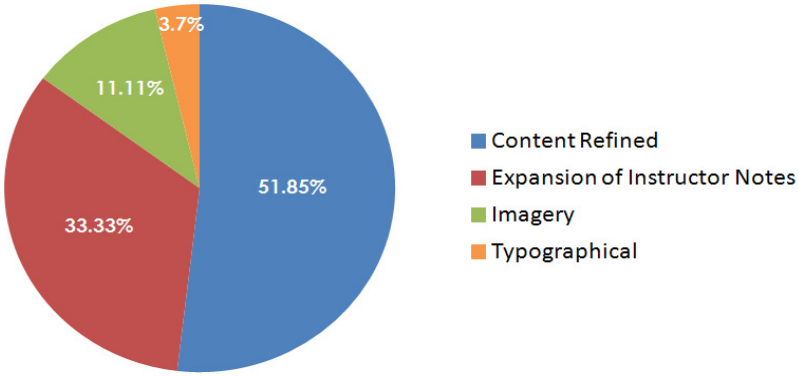


Figure 3.18. Change profile for Knoxville, Tennessee, pilot delivery.

Logistical Lessons Learned

The team identified the following recommendations and lessons learned regarding workshop logistics:

- *Planning.* A minimum of three phone calls are recommended for workshop planning: an initial call, a midterm call, and a final planning call. Ideally, the initial planning call should be held at least 8 weeks before the planned training event. Outcomes of this call include securing the venue for the training; confirming event sponsors; confirming trainers; and creating participant recruitment strategy, time line, and roles. The midterm call focuses on creating strategies to secure desired participant mix; preparing instructors; assigning roles for preparing and distributing participant packages; and initiating logistical arrangements. The final planning call involves any final recruitment actions that need to be taken to secure the desired participant mix; finalizing logistical arrangements with the venue; and assuring instructor preparation.
- *Participant Recruitment.* As soon as possible, get involvement from the various local organizations because this is critical for obtaining a balanced pool of qualified attendees. The most successful pilot courses had strong local leadership that effectively conveyed the purpose and importance of the training to potential attendees. The L32A research affirmed the value of a minimum of three e-mail correspondence touch points with candidate participants as well as person-to-person phone calls to support recruitment of participants. Sample invitational language is provided in Appendix B. The local points of contact should feel free to customize the invitational language to the local audience, provided the modifications retain the key logistical points. Reminder and follow-up correspondence by e-mail and telephone are required to secure the desired participation. Finally, having at least one high-ranking member of state or regional organizations representing transportation, law enforcement, and fire be involved in the planning process helps champion and secure participation by students in the training.
- *Pre-Event Setup.* A pre-event meeting, ideally held the afternoon before the course delivery, is also necessary to ensure that the classroom is prepared. Of particular importance is setup for the tabletop activity (Lesson 11), which can take 1–3 hours. Other planning activities outside of conference calls are also required throughout the course planning process. A final planning activity is to obtain the needed classroom learning materials and teaching props. The instructor guide provided in this curriculum delineates the checklist of needed items, and organizers are encouraged to review this well in advance of the training date.

CHAPTER 4

Conclusions

The SHRP 2 Project L32A has helped to advance the shared vision of the National Academy of Sciences, AASHTO, and FHWA to improve the reliability of the nation's roadways by pilot-testing the multidisciplinary, peer-validated National TIM Responder Training course. Beyond training a first-generation set of trained trainers to begin to promulgate these competencies in four states, the five pilot workshops conducted as part of Project L32A validated and improved the foundation of this vision: the materials and approach required to support a successful national-level, train-the-trainer delivery model for this training. Conclusions across the seven areas of assessment follow.

Area 1: Sufficiency of Materials and Instructional Methods to Prepare Instructors

The five pilot deliveries, concluding with the alumni-led delivery, affirmed that course materials are sufficient to prepare instructors to lead the National TIM Responder Course, presuming that the instructors invest the recommended time (as described in the instructor materials) to prepare so there is successful training delivery. Enhanced support materials added as a result of Project L32A help to prepare instructors for successful training delivery. The enhancements include an augmented instructor guide (with preparation instructions for instructors), customization checklists, photographic supplements to the instructions for setting up activities, and a pacer guide to help instructors remain on schedule while giving sufficient time and weighting to each lesson.

Area 2: Course Length

The TETG and previous pilot participants suggested condensing the delivery of the main course to 1.5 days with a total train-the-trainer length of 2 days. The course has been designed to support modular delivery over a period of time or via online learning formats; however, the L32A train-the-trainer deliveries were all in-person intensive formats. Based on the five pilots, the 1.5-day/2-day train-the-trainer length appears to be an appropriate length for the in-person, intensive delivery format. The team recommends encouraging instructors to consider conducting the outdoor field activity on Day 1 to break up the indoor classroom learning.

Area 3: Instructor Criteria

The L32A project affirmed the value of minimum suggested criteria for candidate trainers, particularly the importance of field experience in assuring perceptions of credibility, and the recommendation that instructors have previous training experience.

Area 4: Achievement of Learning Objectives

Student performance across disciplines and training locations (i.e., under tutelage of a range of instructors) were sufficiently consistent and strong to suggest that the fundamental structure, content organization and presentation of curriculum, and instructional methods are sufficient to support the achievement of the learning objectives. The master curriculum and, by extension, the exam question bank, should be periodically reviewed and updated to assure it remains consistent with current and emerging best practices in the domain.

Area 5: Multidisciplinary Emphasis of Training

Participants affirm that this is one of the most valuable aspects of the learning experience offered by the National TIM Responder Training. As a key guiding principle of the original vision for this training, the curriculum and materials seem to appropriately and sufficiently convey the transformational value and benefits of regions embracing a multidisciplinary approach to TIM.

Area 6: Curriculum Changes

The L32A project resulted in nearly 1,500 adjustments to the master curriculum and support materials. Content consolidation to eliminate redundant material; enhancements to quick clearance messaging to balance this with related safety messaging; updated statistics and imagery; and enhanced talking points for instructors represented the majority of curriculum updates. A final recommendation is to rebalance the exam question bank to more closely reflect the approximate weight of the lessons as measured by approximate lesson time.

Area 7: Logistical Lessons Learned

The ultimate success of the train-the-trainer model as a foundation for achieving the long-term vision of transformation in the state of the practice in TIM field response depends on attracting a qualified pool of candidate instructors. This depends on effective pre-event invitational and recruitment strategies. Host locations are urged to treat this aspect of the training experience as equally as important as the quality of the in-class learning experience.

With nearly 1,500 adjustments to the training product based on feedback from nearly 200 additional field responders across seven TIM disciplines, a field-tested participant recruitment model and supporting tools (such as invitational language and welcome packages), and materials enhancements such as a pacer guide and photographic support to activity set-ups, the L32A project has refined and improved the train-the-trainer model on which the vision for nationwide delivery of this important training depends. The L32A project is delivering a comprehensive, sound, and, most important, peer-validated training product that has the potential to benefit thousands of responders across the country, as well as road users and communities, through more reliable, safer roadways and by promoting a higher national-level standard of TIM.

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APPENDIX A

Work Plan

Objectives

The stated objective of the L32A project is to "use the train-the-trainer full course and curriculum material developed in the L12 project, as amended during the course of this project delivery, to conduct pilot training workshops for incident responders and managers such that the trained trainers will become familiar with the training material and implement the lessons learned into their daily Traffic Incident Management (TIM) activities and meet their respective individual agency expectations." The research team (SAIC, American Transportation Research Institute, Delcan, RESQUE-1, and K2Share) understands, however, that this is also a "living" research project: The training delivery approach depends on an effective train-the-trainer model, which means that trainers from a range of disciplinary backgrounds and experiences will need to be able to impart learning to diverse audiences to a roughly equivalent minimum level to achieve the vision of this national TIM training. The focus of the L32A research is to validate and improve this crucial underpinning of the National TIM Training program's eventual success.

To this end, the research team engaged in an approach that, like the L12 project that developed the curriculum, was based on extensive TIM practitioner engagement. The approach assumed four initial baseline pilot deliveries to multidisciplinary student-trainer audiences by two master instructors to test and validate the train-the-trainer curriculum and materials. The approach was strategically selected and sequenced to obtain comprehensive practitioner feedback on all aspects of the train-the-trainer materials and structure in terms of sufficiency to prepare trainers for successful delivery of the core learning to students. One alumni-led pilot was also conducted; it was led solely by a team of selected student-trainers who satisfactorily completed the train-the-trainer course and it examined full delivery of the training program by graduates of one of the three preceding train-the-trainer pilots.

Research Plan

At the request of the SHRP 2 staff, the research team was asked to commence work in preparation for the project kick-off (KO) meeting to be held in December 2011 in advance of contract execution and prior to commencing any other tasks. SHRP 2 issued to the research team a provisional notice to proceed at risk for activity associated with Task 2. During the KO meeting, all elements of the L12 training materials were meticulously reviewed by the research team, project team (SHRP 2 staff and FHWA) and the Technical Expert Task Group (TETG). Curriculum changes were recorded in a comment log to be used once the project began in earnest in the spring of 2012 at the direction of SHRP 2 staff and the TETG. Also as part of the KO meeting, criteria for the training locations were determined. Virginia and Tennessee were selected as the first locations to hold pilot courses. Other locations identified for pilots after the KO meeting were Florida and Montana. Table A.1 summarizes the locations and the rationale for choosing each.

As the project unfolded, the project team (SHRP 2 staff, FHWA) decided to convert the transitional workshop into a fourth pilot course.

Task 1. Amplified Work Plan—Delivery Approach for Train-the-Trainer Pilot Courses for Incident Responders and Managers

A contract between SHRP 2 and the research team was executed in April 2012. Given the short timeline before the first pilot course in mid-June, coupled with the many requested changes to the L12 training curriculum stemming from the KO meeting, the research team focused on delivering the pilot courses as opposed to creating a lengthy work plan. This document is intended to satisfy the requirements of Deliverable 1.1, which the team will deliver as shown in Table A.2.

Table A.1. Training Locations and Rationale for Selection

Location	Rationale
Tennessee	Tennessee has a mature, multifaceted TIM program, and has expressed an interest in innovative approaches to training. Much of the TIM training in Tennessee has been conducted in urban areas, and the state patrol is now becoming interested in implementing a more comprehensive state-wide TIM training program as well. Tennessee is divided into four different regions and has an overarching statewide program, so the TETG and project team believe the pilot would be able to draw on participants from different areas of the state.
Virginia	The state has a strong TIM champion in the form of the statewide TIM Committee, which is chaired by law enforcement and has placed renewed emphasis on roadside incident management from a service patrol perspective. Virginia Department of Transportation's (VDOT's) central office and Virginia's five regions have incident management coordinators with backgrounds in both law enforcement and fire, so these groups already collaborate and the infrastructure is in place to support the multidisciplinary TIM approach of the L32A curriculum. Virginia is also home to large urban areas as well as rural areas.
Montana	Montana provides the opportunity to pilot-test the training in a more rural state with less structured TIM activities to date.
Florida	Following the KO meeting, SHRP 2 staff and FHWA identified Florida as a location for the pilot testing based on strong law enforcement interest in Florida resulting from FHWA's initial outreach.

Table A.2. Deliverable 1.1

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
1.1 Amplified Work Plan	**November 21, 2012**

Task 2. Conduct L32A Project KickOff Meeting

At the direction of SHRP 2 staff, the project KO meeting was held in advance of all other tasks on December 20–21, 2011, and was attended by the research team, project team, and the TETG. The participants meticulously reviewed all elements of the L12 training materials. Curriculum changes were recorded in a comment log and will be addressed in Task 3. The outcomes of the KO meeting are as follows:

- Agreement on course name.
- Agreements on pilot locations:
  - Baseline;
  - Alumni-led; and
  - Transitional.
- Agreement on train-the-trainer candidate criteria.
- Support to students for attaining Professional Education Credit.
- Editorial process for training materials.
- Agreements on changes to be made to the baseline curriculum and materials.

Table A.3 Deliverables 2.1–2.5 and KO Meeting

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
2.1 Proposed KO meeting agenda for project team review	**December 2011**
2.2 List of proposed TIM experts to invite to KO meeting	**December 2011**
2.3 L12 Materials—in advance of KO meeting	**December 2011**
KO Meeting	**December 2011**
2.4 Meeting notes reflecting any proposed changes to Work Plan and Revised Work Plan	**December 2011**
2.5 Technical Memorandum No. 1 containing detailed comment log and recommendations for how each comment will be addressed, reflecting collaborative agreements made in the meeting	**December 2011**

The deliverables associated with the KO meeting are listed in Table A.3.

Task 3. Preparation of Curriculum and Materials

The research team conducted a conference call with the project team to receive guidance regarding the changes to be made to the baseline curriculum that resulted from the KO meeting. During this call, the project team was presented with an extensive list of proposed curriculum changes organized into three tiers. Given the limited time before the first pilot courses in Tennessee and Virginia, only the Tier 1 (highest priority) curriculum changes were addressed first as part of Deliverable 3.1. The remaining changes were completed after the initial pilot courses in Tennessee and Virginia as part of Tier 2 and Tier 3 changes in Task 6A and Task 7. Table A.4 reflects the Tier 1 change implementation time line.

Task 4. Logistics: Identification of Pilot Locations, Recommended Qualifications of Pilot Course Attendees, and Training Course Arrangements

As part of the December 2011 KO meeting, elements of the Task 4 deliverables were completed as shown in Table A.5.

Table A.4. Interim Steps 3.A–3.E and Deliverables 3.1–3.3

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
3.A Evaluate urgency and complexity of requested changes to L12 materials, establish Tier 1, 2, and 3 changes	May 2012
3.B Establish document configuration control procedures	May 2012
3.C Brief SHRP 2 staff and FHWA on proposed priority changes to make in advance of first pilot course to obtain preliminary concurrence	June 11, 2012
3.D Prepare L12 materials and incorporate priority changes	June 2012
3.E Review modified L12 materials for quality control purposes	June 2012
3.1 Final training material and course curriculum to be submitted to project team for review, concurrence, and approval	**June 11, 2012**
3.2 Project team provides approval for revised training material and course curriculum	**June 11, 2012**
3.3 Final training material produced for use in Task 6A pilot courses	**June 13, 2012**

The criteria for trainer and student candidates were established and included in the December meeting minutes. Additionally, the list of pilot course locations was created, including alternate sites should the ideal locations be unavailable. The list of prospective attendees for each pilot location was determined by local TIM professionals at each pilot location and was recorded by the research team. The research team also developed an online registration form to capture the information for all registered attendees, particularly as it pertained to the student criteria. Once prospective attendees registered, a confirmation e-mail and a registrant information package were delivered to the confirmed attendees that included agenda, directions, and other pertinent details.

Task 5. Tool to Capture Instructor and Participant Feedback

In this task, the research team developed a feedback tool for use by participants and instructors, certificates of completion for the training, and a process for issuing these certificates, in accordance with the research objectives of establishing an accepted national TIM training curriculum, as shown in Table A.6.

Task 6A. Delivery of Phase 1 "Train-the-Trainer" Pilot Courses for Incident Responders and Managers

The research team provided organizational support during the course planning phase as well as during the actual training course. A summary report was produced at the conclusion of each pilot course and was included as an appendix to the final report (Tasks 7 and 8). Also as part of the final report, the pilot summary reports were synthesized into one report, revealing overriding themes from the pilots (Technical Memorandum No. 3). Tier 2 and 3 curriculum changes (as identified in Task 3) were implemented on an ongoing basis after the conclusion of each pilot course. These curriculum changes included the original changes generated from the KO meeting

Table A.5. Steps 4.A–4.C and Deliverable 4.1

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
4.A Develop course invitation and registration form	May 2012
4.B Draft attendee information package	June 2012
4.C Finalize attendee information package	June 2012
4.1 Technical Memorandum No. 2 consisting of	
• Attendees' profile	**December 2011**
• A comprehensive list of prospective attendees	**Four weeks before each course**
• Preliminary list of pilot locations	**December 2011**
• Pertinent point of contacts, complete training agenda, and all other pertinent details	**Four weeks before each course**

Table A.6. Interim Steps 5.A–5.C and Deliverables 5.1–5.3

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
5.A Hold internal evaluation meeting to refine the tool developed in L12 for capturing instructor and participant feedback	June 7, 2012
5.B Present the evaluation tool to Project Team during Task 3 curriculum review process	June 11, 2012
5.C Incorporate comments on the proposed evaluation tool into the final version	June 11, 2012
5.1 Tool to capture instructor and participant feedback	**June 11, 2012**
5.2 Certificates of completion for workshop participants	**June 11, 2012**
5.3 Guidelines for issuing certificates to responders completing training	**June 11, 2012**

Table A.7. Deliverables 6A.1–6A.3, 9.1, 6B.1, and 6A.6–6A.9

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
6A.1 Pilot Course 1—Tennessee	**June 19–20, 2012**
6A.2 Pilot Course 2—Virginia	**June 27–28, 2012**
6A.3 Pilot Course 3—Montana	**July 11–12, 2012**
9.1 Pilot Course 4—Florida	**See Task 9**
6B.1 Pilot Course 5—Alumni-led	**See Task 6B**
6A.6 Individual Workshop Summary Reports (3)	**November 21, 2012**
6A.7 Technical Memorandum No. 3	**November 21, 2012**
6A.8 Summary of Revisions to the Training Materials	**November 21, 2012**
6A.9 Revised Training Material (Tier 2 changes)	**June–September 2012**

as well as new changes identified after the completion of each pilot. A summary of all changes to the course curriculum, structure, materials or trainer notes was also incorporated into the final report. Table A.7 presents the time line for pilot course delivery and related deliverables.

Task 6B. Delivery of Alumni-led "Train-the-Trainer" Pilot Course

The research team designed and oversaw completion of a final pilot for the train-the-trainer course (as shown in Table A.8), whereby student trainers selected from Phase 1 participants were chosen to lead the full training to a new student body. The alumni-led pilot provided a first opportunity to evaluate the sufficiency of the trainer materials to prepare graduates to effectively teach the course. This occurred in Knoxville, Tennessee, using graduates of the first train-the-trainer pilot course in Nashville, Tennessee.

Task 6C. Development of Evaluation Plans

The research team developed an evaluation plan for the entire train-the-trainer pilot course, as well as the alumni-led pilot,

Table A.8. Deliverables 6B.1 and 6B.2

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
6B.1 Alumni-led Workshop	**September 12–13, 2012**
6B.2 Alumni-led Workshop Summary Report	**November 21, 2012**

Table A.9. Deliverables 6C.1 and 6C.2

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
6C.1 Evaluation Plan	**June 11, 2012**
6C.2 Evaluation Data Analysis Reports (included as part of each workshop summary report)	**November 21, 2012**

as shown in Table A.9. The evaluation plan included an evaluation of all training material, students' reactions to training, instructor proficiency, proposed trainer selection criteria (required and suggested), and the respective evaluation criteria used.

Task 7. Draft Final Report and Training Products

After delivering the final pilot workshop, the research team documented the lessons learned from the five pilot sessions and identified final updates to the training materials based on the findings from all five pilot sessions completed in Tasks 6A, 6B, and 9 of this project. The research team prepared a draft final project report and modified training materials based on the evaluation reports and the findings from the pilot sessions and debriefing meetings with the project team, as shown in Table A.10.

Task 8. Project Final Report and Training Products

After the project team reviewed the draft curriculum materials and the draft final report, the research team updated the materials and report based on the comments and recommendations of the project team, as shown in Table A.11.

Table A.10. Deliverables 7.1 and 7.2 and Interim Step 7.A

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
7.1 Draft of Final Report for L32A Project	**November 21, 2012**
7.2 Updated training course and curriculum material reflecting Tier 3 changes	**November 21, 2012**
7.A Project team reviews draft of final report and updated course curriculum	November 21–December 7, 2012

Table A.11. Deliverables 8.1 and 8.2

Deliverables and Interim Steps: Deliverables in Bold	Completed Date
8.1 Final Report for L32A Project (Task 8)	**December 14, 2012**
8.2 Updated final training course and curriculum material (Task 8)	**December 14, 2012**

Task 9. Transitional Support Pilot

Originally, the project team intended to hold a transitional training session on completing the final pilot to support continuity of the program as it transitioned into FHWA implementation. However, given the delay between the KO meeting in December 2011 and the first pilot in June 2012, a transition workshop was no longer needed because implementation of the curriculum began in late summer 2012. Therefore, the Task 9 session was reconfigured into a fourth Task 6A pilot course, as shown in Table A.12.

Table A.12. Deliverable 9.1

Deliverable	Completed Date
9.1 Delivery of transitional workshop—Florida (Task 9)	**August 8–9, 2012**

APPENDIX B

Workshop Logistics

Sample Invitational Language

As a leader in Florida's efforts to save lives and keep roadways moving through traffic incident management, you are invited to participate in one of the first pilot deliveries of a new National Traffic Incident Management (TIM) Responder Train-the-Trainer course. Not only will this course provide you with training on the core competencies of multidisciplinary TIM, you will also be equipped with the knowledge and tools you need to train other responders. Once you complete the pilot course, you will become part of a group of trainers asked to deliver the training to other responders in Florida, creating a multiplier effect of the training throughout the state. You should be willing and able to work as part of a multidisciplinary instructor team to present this program to audiences of responders representing multiple disciplines such as fire, rescue, medical, law enforcement, towing and recovery, and transportation department professionals.

The TIM Responder Train-the-Trainer course was developed as part of the Strategic Highway Research Program 2 (SHRP 2), which was designed to establish the foundation for responders to meet the TIM National Unified Goal objectives of responder safety; safe, quick clearance (SQC); and prompt, reliable, interoperable communications. The core curriculum has been extensively peer-reviewed on a national level and was pilot-tested in several locations. The Train-the-Trainer program is currently being pilot-tested.

The state of Florida has been selected as a top priority location to receive a pilot delivery of this highly interactive, multidisciplinary Train-the-Trainer course at the [insert training center: name and address], on **[insert training date and time].** The pilot training will include participation in

- The delivery of the 1.5-day responder training course to provide feedback on course content, instructional design, training materials, and any other relevant feedback necessary to improve the course.
- A 0.5-day assessment of the Train-the-Trainer component of the course to provide feedback.

Space is limited in this course. Click here to register to confirm your spot in the course (or copy and paste [insert registration URL] into your browser). A registration package will be forwarded to you via e-mail upon receipt of your preregistration information; the package will include an agenda and logistics information, including directions to the training location. Please note that students are expected to participate in the full 2-day experience, and will be asked to provide feedback during and upon completion of the training. A detailed lesson outline with approximate lesson lengths will be provided to support continuing education credit where possible.

Sample Participant Package

Subject Line: National Traffic Incident Management Responder Training and Train-the-Trainer Workshop Welcome Package

Thank you for registering for the National Traffic Incident Management Responder Training and Train-the-Trainer Workshop on [insert date and time of training], at the [insert training location address].

In the attached Welcome Package, you will find the following items to help you prepare for the workshop:

- Overview of the National Traffic Incident Management Responder Training and the Train-the-Trainer Pilot Workshop in which you will participate (Page 1);
- Workshop Agenda (Page 2);
- Directions to the training location (Page 3);
- Recommended pre-workshop reading and items to bring (Page 4); and
- Information on hotel accommodations in the immediate area (Page 5).

Training materials will be furnished at no charge to participants and there is no fee to attend this training. Participant agencies are responsible, however, for covering any travel and per diem costs. A continental breakfast and a lunch will be provided each day.

We look forward to meeting you in person and having an informative and meaningful workshop experience.

Please contact me by telephone or e-mail if you have any questions.

Thank you,
[Training Coordinator]
[Training Coordinator Contact Details]

Overview of the National Traffic Incident Management Responder Training and the Train-the-Trainer Pilot Workshop

The National TIM Responder training and Train-the-Trainer course was developed as part of the Strategic Highway Research Program 2 (SHRP 2), designed to establish the foundation for responders to meet the TIM National Unified Goal (NUG) objectives of responder safety; safe, quick clearance (SQC); and prompt, reliable, interoperable communications. The core curriculum has been extensively peer-reviewed on a national level and was pilot tested in several locations. The Train-the-Trainer program is currently being pilot-tested, and Florida has been selected as a top priority location to receive a pilot delivery.

This is a single, interdisciplinary course that introduces, teaches, and provides participants with hands-on, scenario-based opportunities to acquire and demonstrate common core competencies among the following identified responder types:

- Law enforcement;
- Fire and rescue;
- Emergency Medical Services (EMS);
- DOT;
- Tow and Recovery; and
- Communications Center.

The pilot training will include participation in

- The 1.5-day responder training course and assessment; and
- The 0.5-day Train-the-Trainer component of the course.

You will also be invited to provide feedback on course content, instructional design, training materials, and any other relevant feedback you deem necessary to improve the course.

As a participant, you will be provided with the content and materials that you will need to facilitate and instruct the National TIM Responder Training course. You will be equipped and expected to deliver this course to a multidisciplinary group of your peers to pass the vision of safer, more efficient roadways through improved incident response on throughout the state of Florida and our nation.

Draft Agenda: National Traffic Incident Management Responder Training and Train-the-Trainer Workshop

Day 1: August 8, 8:00 a.m.–5:00 p.m.

Approximate Time	Lesson
7:45–8:00 a.m.	Continental Breakfast *(provided)*
8:00 a.m.–12:00 p.m.	Welcome and Introductions
	Lesson 0: Course Introduction
	Lesson 1: Statistics, Terminology, and Standards
	Lesson 2: Notification and Response
	Lesson 3: Arrival
	Lesson 4: Initial Size-Up
12:00–1:00 p.m.	Lunch *(Lunch will be provided)*
1:00–5:00 p.m.	Lesson 5: Command Responsibilities
	Lesson 6: Safety, Patient Care, and Investigation
	Lesson 7: Traffic Management

Day 2: August 9, 8:00 a.m.–5:00 p.m.

Approximate Time	Lesson
7:45–8:00 a.m.	Continental Breakfast *(provided)*
8:00–11:30 a.m.	Lesson 8: Clearance
	Lesson 9: Termination
	Lesson 10: Hands-On Tabletop Activity
	Lesson 11: Situational Awareness
11:30 a.m.–12:30 p.m.	Lunch *(Lunch will be provided)*
12:30–5:00 p.m.	Assessment
	Train-the-Trainer Content:
	Lesson 1: Legal Guidelines and Considerations
	Lesson 2: Best Practices, Resources, and Real-World Scenarios
	Lesson 3: Hands-On Activity Setup
	Lesson 4: Situational Awareness Activity Setup
	Lesson 5: Course Logistics and Orientation
	Course Evaluation

Directions to [Name of building where training will be conducted]:

Location:

[of training center]

Directions:

Google Maps Link to the Training Center: [enter URL]

Training Center Contact Information:

Telephone: [enter phone number]
E-mail: [enter email address]

Recommended Reading:

We suggest that you read the following materials in advance, and, if possible, bring a copy with you to facilitate discussion during the workshop:

- *Manual on Uniform Traffic Control Devices (MUTCD),* Chapter 6 (especially Section 6I).
- Fire Department participants—the National Fire Protection Standard covering chevron markings on fire department vehicles and the requirement for using deployable signs when fire department vehicles are used for blocking at an incident scene.

Items to Bring:

All of the training materials will be provided as part of your participation in the course. However, please bring the following items to fully take advantage of the training.

- A pen or pencil.
- A copy of the 2008 or 2012 *Emergency Response Guidebook* (ERG) (if you do not have an ERG, there will be copies to share at the training).

Hotel Lodging Options:

Participant agencies are responsible for covering travel and per diem costs to attend the training. There are several hotels in the immediate area for those who will need to stay overnight. A small selection of hotels that offer reduced government and government contractor rates is listed below.

Most Convenient to Training Location:
[**Enter hotel contact details**]
[**Enter hotel contact details**]

Most Convenient to Airport:
[**Enter hotel contact details**]
[**Enter hotel contact details**]

APPENDIX C

Individual Pilot Summaries

Tennessee Train-The-Trainer Pilot Summary

Introduction

The first of the train-the-trainer pilot courses was held in Tennessee on June 19–20, 2012, at the Tennessee Highway Patrol Training Center. The course was led by two master instructors. The course was also observed by two members of the research team. There was representation from the three core disciplines of law enforcement, fire, and transportation as shown in Figure C.1. Table C.1 contains a list of all participants' and observers' organizations.

Agenda

The pilot course began with introductions from top-level officials of the three core disciplines: a representative of the Tennessee Highway Patrol; the Executive Director of the Tennessee Fire and Codes Academy; and the Deputy Commissioner and Chief Engineer for the Tennessee Department of Transportation. Additionally, with a representative from FHWA provided opening remarks about FHWA's role in training implementation.

After these introductions, the course curriculum was introduced. The Master Instructors rotated responsibility for teaching the individual course modules. Tables C.2 and C.3 reflect the actual timing of each lesson and any breaks.

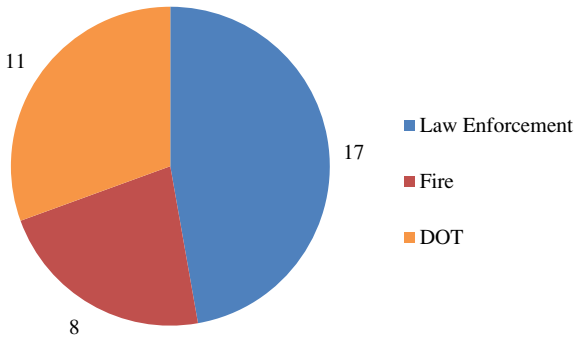

Figure C.1. Tennessee course attendees by discipline.

Evaluation Results

At the conclusion of the 2-day pilot course, the participants were given a course evaluation form to complete. The feedback was overwhelmingly positive. Of the respondents, 79% "strongly agreed" that they would recommend this training to others. An additional 18% "agreed" that they would recommend this training to others, meaning 33 participants out of 34 would recommend the training to other responders. At least 90% of respondents responded positively to all 28 evaluation questions. The only negative response came from one individual on Question 2, who felt there was too much information covered during the 2-day course. Figure C.2 provides the responses for all 28 questions.

The evaluation responses were also analyzed by discipline (Figure C.3), years of TIM experience (Figure C.4), and years of training experience (Figure C.5). The training appears to have been well received across all three of the disciplines in attendance. According to the responses to Question 16, 100% of fire attendees, 100% of law enforcement attendees, and 89% of Department of Transportation (DOT) attendees would recommend this course to others.

The importance of safe, quick clearance (SQC) appeared to resonate with nearly all attendees, regardless of TIM experience. An analysis of Question 23 reveals that all but one attendee (11- to 15-year experience range) reported a gain in SQC appreciation.

Many of the respondents reported that they felt confident in their ability to subsequently teach the curriculum to other responders. As shown by the responses to Question 28, this confidence generally did not appear to be affected by years of training experience. Only one attendee did not express confidence and, not surprisingly, that individual had no prior experience with training.

Table C.1. Tennessee Course Attendees

First Name	Last Name	Organization
Attendees		
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Department of Transportation
First Name	Last Name	Tennessee Department of Transportation
First Name	Last Name	Tennessee Fire and Codes Academy
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Fire and Codes Academy
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Federal Highway Administration (FHWA)
First Name	Last Name	Tennessee Department of Transportation
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Fire and Codes Academy
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Department of Transportation
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Fire and Codes Academy
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Department of Transportation
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Fire and Codes Academy
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Department of Transportation
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Fire and Codes Academy

First Name	Last Name	Organization
First Name	Last Name	Tennessee Department of Transportation
First Name	Last Name	Tennessee Fire and Codes Academy
First Name	Last Name	Tennessee Fire and Codes Academy
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Fire and Codes Academy
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Department of Transportation
First Name	Last Name	Tennessee Department of Transportation
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Highway Patrol
First Name	Last Name	Tennessee Highway Patrol
Instructors/Observers		
First Name	Last Name	SHRP 2 Technical Expert Task Group (TETG)
First Name	Last Name	Senior Observer, Research Team
First Name	Last Name	Visiting Professional, SHRP 2
First Name	Last Name	FHWA
First Name	Last Name	Master Instructor, Research Team
First Name	Last Name	Master Instructor, Research Team
First Name	Last Name	Junior Observer, Research Team

Table C.2. Day 1: June 19, 8:00 a.m.–5:00 p.m.

Time	Lesson	Time	Lesson
7:45–8:00 a.m.	Breakfast *(provided)*	Noon–12:50 p.m.	Lesson 3: Arrival *(cont'd)*
8:00–8:35 a.m.	Welcome and Introductions	12:50–1:30 p.m.	Lesson 4: Initial Size-Up
8:35–9:25 a.m.	Lesson 0: Course Introduction	1:30–1:40 p.m.	Break
9:25–9:35 a.m.	Break	1:40–2:00 p.m.	Lesson 5: Command Responsibilities
9:35–10:15 a.m.	Lesson 1: Statistics, Terminology, and Standards	2:00–2:30 p.m.	Lesson 6: Safety, Patient Care, and Investigation
10:15–10:30 a.m.	Lesson 2: Notification and Response	2:30–2:40 p.m.	Break
10:30–10:40 a.m.	Break	2:40–3:40 p.m.	Lesson 7: Traffic Management
10:40–11:30 a.m.	Lesson 3: Arrival	3:40–3:50 p.m.	Break
11:30 a.m.–Noon	Lunch *(provided)*	3:50–4:50 p.m.	Lesson 7: Traffic Management

Table C.3. Day 2: June 20, 8:00 a.m.–4:00 p.m.

Time	Lesson	Time	Lesson
7:45–8:00 a.m.	Breakfast *(provided)*	**Train-the-Trainer Content**	
8:00–8:40 a.m.	Lesson 8: Clearance	Noon–1:05 p.m.	Lesson 1: Legal Guidelines and Considerations
8:40–8:50 a.m.	Lesson 9: Termination	1:05–1:15 p.m.	Break
8:50–9:10 a.m.	Break	1:15–2:05 p.m.	Lessons 2–5: Best Practices, Resources, and Real-World Scenarios
9:10–10:30 a.m.	Lesson 10: Hands-On Tabletop Activity		
10:30–11:00 a.m.	Lesson 11: Situational Awareness	2:05–2:25 p.m.	Group Discussion
11:00 a.m.–Noon	Lunch *(provided)*	2:25–4:00 p.m.	Assessment and Course Evaluation

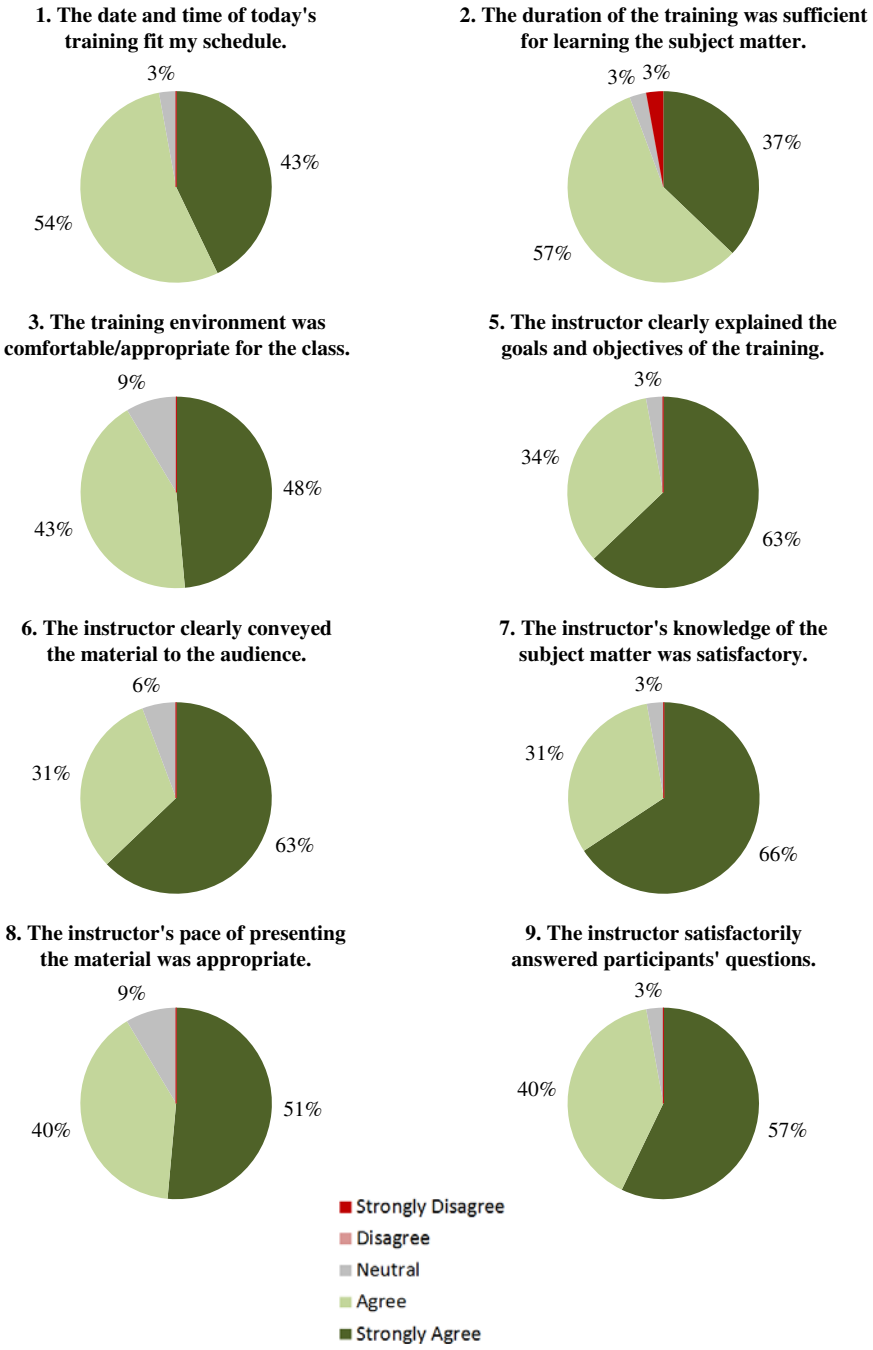

Figure C.2. Evaluation results for the Tennessee train-the-trainer pilot (continued on next page).

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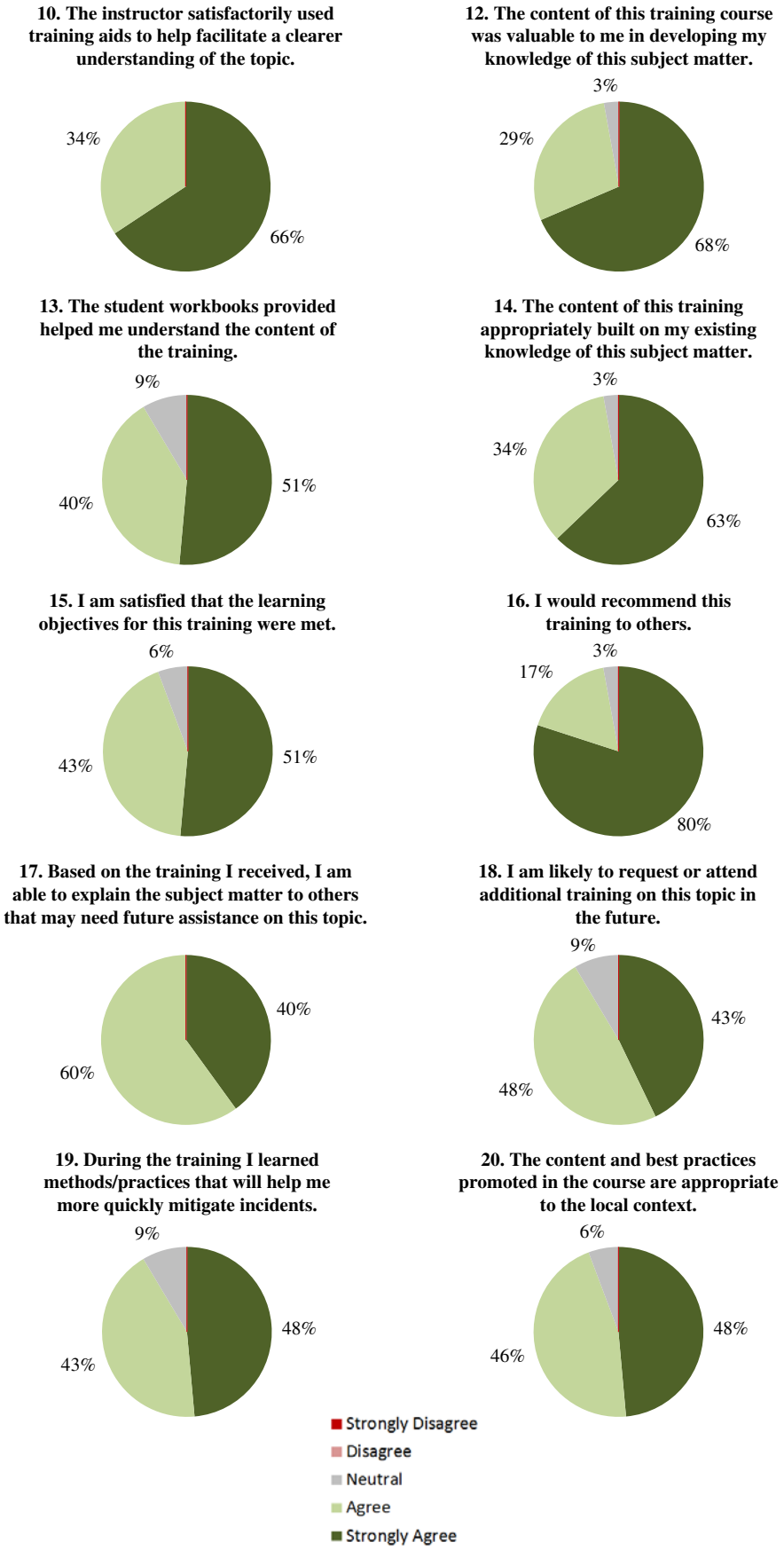

Figure C.2. Evaluation results for the Tennessee train-the-trainer pilot (continued on next page).

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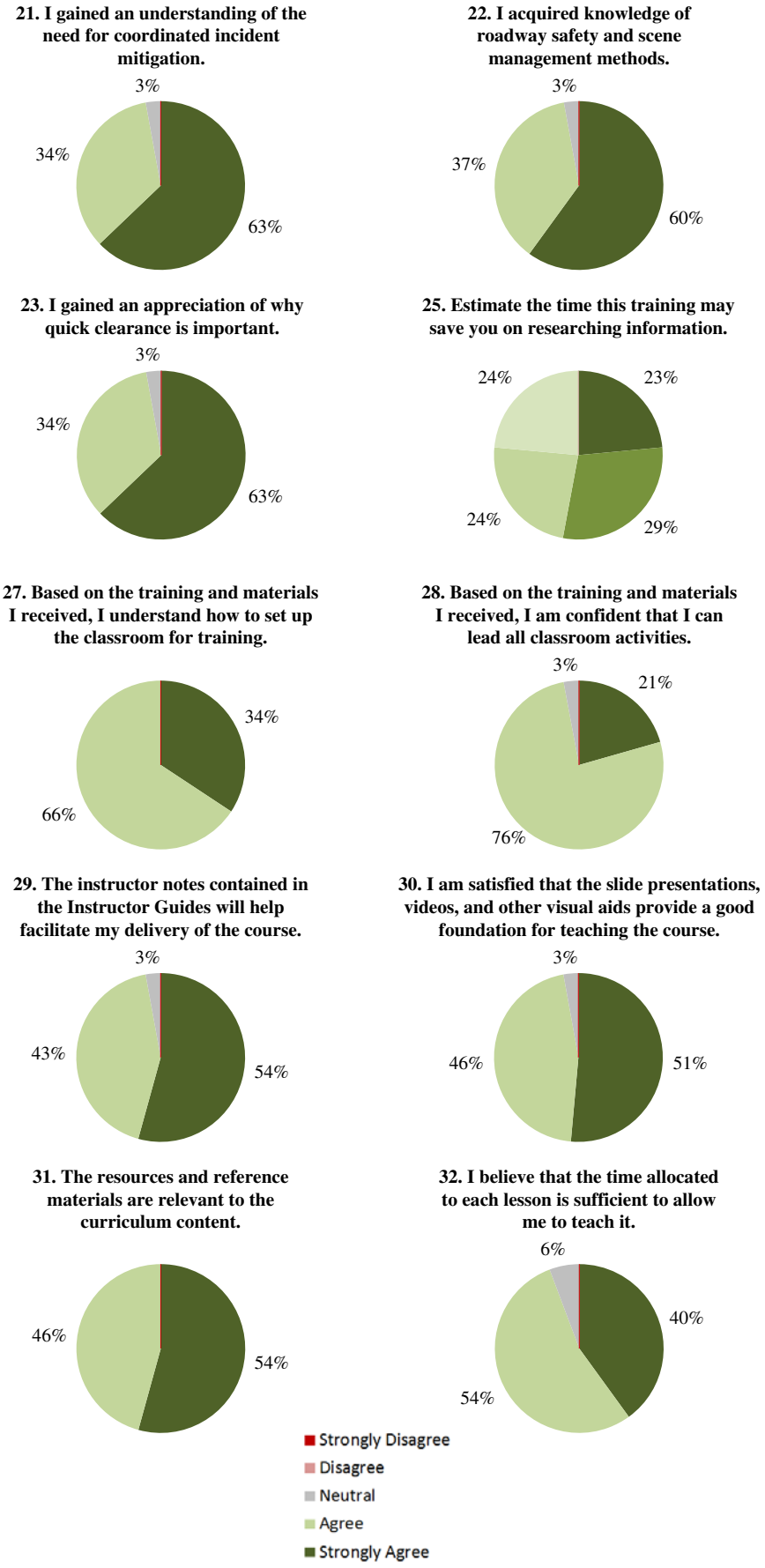

Figure C.2. Evaluation results for the Tennessee train-the-trainer pilot.

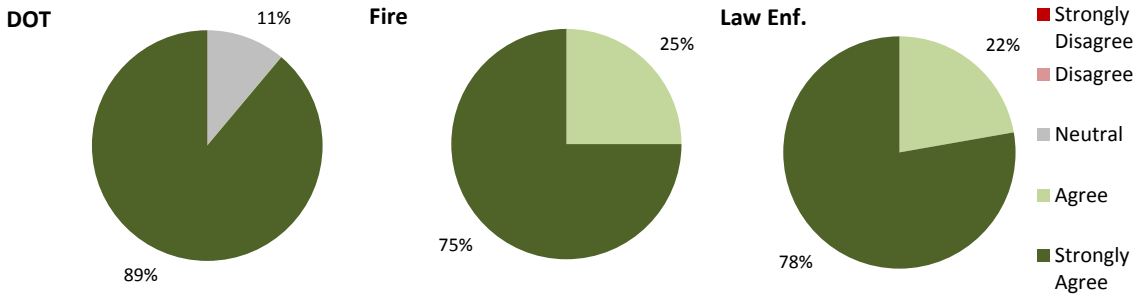

Figure C.3. Tennessee course responses to Question 16 stratified by TIM discipline.

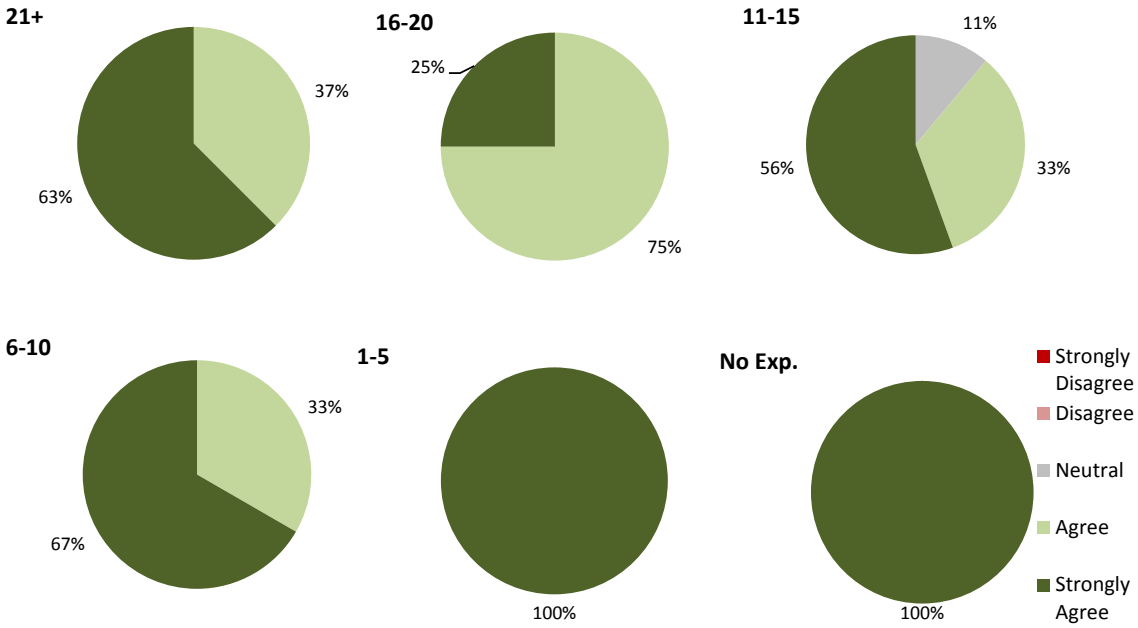

Figure C.4. Tennessee course responses to Question 23 stratified by years of TIM experience.

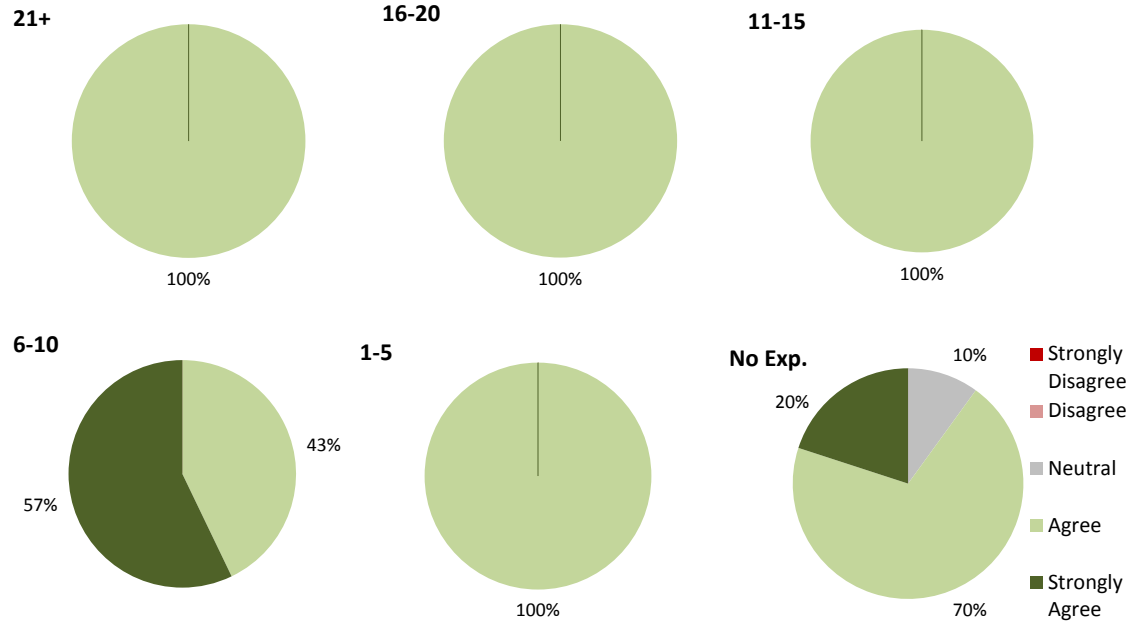

Figure C.5. Tennessee course responses to Question 28 stratified by years of training experience.

Question 16—I would recommend this training to others.

Figure C.3 provides the responses to Question 16 stratified by TIM discipline.

Question 23—I gained an appreciation of why quick clearance is important.

Figure C.3 presents the responses to Question 23 stratified by years of TIM experience.

Question 28—I am confident that I can lead all classroom activities.

Figure C.5 provides the responses to Question 28 stratified by years of training experience.

While nearly all participants had a positive experience, the qualitative feedback provided the team with insight into areas of potential improvement. Most of the feedback dealt with inconsistencies between the workbooks and the presentation, but this was anticipated given the "pilot" nature of the course and the evolving curriculum. One helpful item of feedback received was that there were too many scenarios discussed in some lesson sections. Participants felt that two or three scenarios were enough to relay the concepts without being redundant. In related comments, several participants felt the course seemed "rushed". Reducing the time spent on scenarios could alleviate some of those concerns. Finally, some also observed that quick clearance was an "afterthought" compared to safety, when in reality the two should carry equal weight in the course delivery.

All of the comments to the qualitative feedback sections are presented in Tables C.4 through C.11, along with the resolution to each comment (if applicable).

Observer Comments and Next Steps

Overall, the observer team felt the training went very well. The lack of focus on quick clearance, as noted by participants, should be remedied for subsequent pilots. A series of quick clearance slides consistently woven into the narrative of the training would have helped reinforce the "quick clearance" portion of "safe, quick clearance." With this in mind, the team updated the curriculum to better weave in the quick clearance message. Part of that was achieved by using a TIM timeline graphic throughout the curriculum.

The observers agreed that too many scenarios were presented in certain sections of the curriculum. This became redundant at

Table C.4. Question 4—Scheduling Comments

Comment	Resolution
Very appropriate	na
Either additional bathrooms or extra time at breaks.	This facility only had one main restroom. Ideally the training facilities should have sufficient restroom capacity. Facility checklist should be amended.

Note: In Appendix C tables, na denotes not applicable.

Table C.5. Question 11—Instructor Comments

Comment	Resolution
Some scenarios (video examples) need to be updated. I realize this project has been on the table for some time.	The team would argue that although some video examples are more than 10 years old, the principles of SQC taught by the scenarios are still relevant.
Lengthy training sessions with few and short breaks.	Difficult to address given the amount of content that needs to be delivered in 2 days. The alumni pilot will experiment with 15 minute breaks, as opposed to 10 minute breaks.
Instructors did not give whole picture as scenes were discussed. Scene safety to quick clearance treated as two different topics. They both should [be] considered at a scene.	Observer team agreed with this statement. As part of the curriculum review after this course, the quick clearance content was expanded and better linked to scene safety.
Some material was a little redundant.	Observer team agreed with this statement. As part of the curriculum review after this course, several slides and scenarios were taken out of the curriculum to address this comment.
Though there were too many scenarios two or three would have kept everyone's attention.	Please see resolution from previous comment
The instructor created a good learning environment. There were times of argument and times of humor but both were handled professionally.	na
The pace of a few of the lessons could have been a little slower. With all the training material not yet complete and available it does seem confusing. After I received the material I believe it will come along better.	None. As this was the first pilot, this comment should address itself.

Table C.6. Question 24—Overall Training Comments

Comment	Resolution
Would like to receive the electronic version as soon as possible.	Revised training materials will be provided to all trainers as soon as they are finalized.
Set scenarios for table crashes.	Observer team agrees. The alumni-led pilot will have the scenario printouts at each tabletop.
I am blessed in the fact that I work in an area that practices what was taught in this course.	na
In the instructor guide there were a few diagrams set that appeared backwards.	These were noted by the observer team and were corrected as part of the post-course curriculum update.

Table C.7. Question 26—Time-Saving Measures Comments

Comment	Resolution
Like stated, some of this material is used with other programs but put together well.	na
Providing links and resources is very helpful.	na
Many of the materials were in my possession already since it is part of my job to disseminate materials and provide training.	na

Table C.8. Question 33—Instructor Materials Comments

Comment	Resolution
Varying times/blocks of instruction should be pre-developed—2-hour, 4-hour, 6-hour, 8-hour	It was explained to participants that each module can be taught independently. Examples of varying instruction blocks should be provided to further explain.
A+	na
Guide is straightforward and easily followed.	na

Table C.9. Question 34—"If you believe that the course contains gaps or omits any content which would be valuable, please provide an explanation."

Comment	Resolution
I would need to see the final edit of material to make a fair assessment, but make sure the instructor manual follows the PowerPoint.	This has been addressed through multiple curriculum updates.
Instructors did not work to cover all disciplines on the scene. Material given from a fire department standpoint quick clearance was treated more as an afterthought.	Observer team agreed with this statement. As part of the curriculum review after this course, the quick clearance content was expanded and better linked to scene safety.
Some guidance on responding to the incident scenes instead of only actions at the scene.	There were no course participants from 911/Dispatch. Adding these perspectives in the future would enrich the class experience.
Lengthy test maybe shorten it.	Some questions on the test were redundant. The test was modified after the Tennessee pilot course.
More reminder/emphasis of SAFE quick removals.	Again, subsequent courses will do a better job of explaining that safety and quick clearance are not mutually exclusive.
Perhaps add a short component on state or local resources and intelligent transportation system (ITS) components—message boards, cameras, DOT resources—personnel and equipment in each county.	Observer team agrees, and will recommend that these materials be included in course curriculum updates.
I would like to see more reference why quick clearance benefits safety to the responders but also the traveling public.	Observer team agreed with this statement. As part of the curriculum review after this course, the quick clearance content was expanded and better linked to scene safety.

Table C.10. Question 35—"If you feel that the training presentation contains any shortcomings, please list them."

Comment	Resolution
Seemed that everything was rushed a little. Maybe certain modules should be allowed more time for instruction.	Unfortunately, the course time restrictions do not allow any modules to be extended. However, each attendee was given a copy of the instructor guide that he or she can use for self-study.
Scene safety is most important but the quicker everyone leaves a scene the safer we all are.	Observer team agreed with this statement. As part of the curriculum review after this course, the quick clearance content was expanded and better linked to scene safety.
More details should be given during tabletop exercises. Extent of injuries, extent of vehicle damage, debris, weather conditions, spillage, etc.	Observer team agrees. The alumni-led pilot will have the scenario printouts at each tabletop.
None; good job!!	na
No shortcomings for me.	na

Table C.11. Question 36—"What do you consider to be the most valuable information that you will take away from this class?"

Comment
The emphasis and importance of all agencies working together for a common goal and to keep traffic ways flowing.
Fire and Emergency Medical Services (EMS) thoughts and reasoning on incident response and vehicle location.
Importance of quickly clearing incidents. Knowledge of cones and vests gained, importance of.
Emphasize the role we play and the common goals we have.
Everyone needs to work as one unit, assisting and helping each other on situational scenes.
A better understanding of other agencies' operations. A better understanding of how much one incident can affect a large area and large population.
Interaction with different agency members and creating dialogue.
Each discipline's response role from dispatch to scene to clearing.
Need for communication.
The need to make other[s] aware of the importance of effective traffic incident management.
Roadway safety and scene management methods.
A better understanding of the roles of other organizations.
Better understanding of why other agencies do what they do.
Bringing all the disciplines together for the tabletop.
Interoperability.
The importance of team concept with all agencies at a highway incident.
The collective cooperation between disciplines.
The value of interdisciplinary training and cooperation.
Information gained from the different agencies that participated, by listening and participating in conversations during break. Also the interaction during tabletop exercise most beneficial to myself.
Cooperation with other agencies.

points and took away valuable time to introduce new content. In the future, the instructors should limit themselves to two or three scenarios, but explain there are additional scenarios in the curriculum that can be used as needed. Furthermore, during the curriculum update, several scenarios and slides were eliminated from the presentation to reduce redundancy.

Another potential area of improvement noted by the observers was the curriculum pacing. Many of the lessons went significantly longer or shorter than the allotted time. A more detailed pacing script that times each content section within a lesson could have reduced some of these fluctuations. After the Tennessee pilot course was completed, a detailed pacing script was created to help guide the instructors on how quickly to cover a particular content section within a lesson. This script was tested in the Virginia and Montana pilot courses and subsequently refined.

Due to the fact that the Virginia pilot was only one week after the Tennessee pilot, some measures discussed above could only be implemented in the presentation because the hard copies of the workbooks for Virginia were printed before the Tennessee pilot occurred. Regardless, all changes were made in the master electronic versions of the presentation and workbook and were reflected in future printings of the workbooks.

Virginia Train-the-Trainer Pilot Summary

Introduction

The second train-the-trainer pilot course was held in Richmond, Virginia, on June 27–28, 2012, at the Virginia State Police Administrative Headquarters. The course was led by two master instructors and observed by two members of the research team. There were 38 students at the training, representing law enforcement, fire, transportation, towing, dispatch, and EMS, as shown in Figure C.6. Table C.12 contains a list of participants' and observers' organization or discipline.

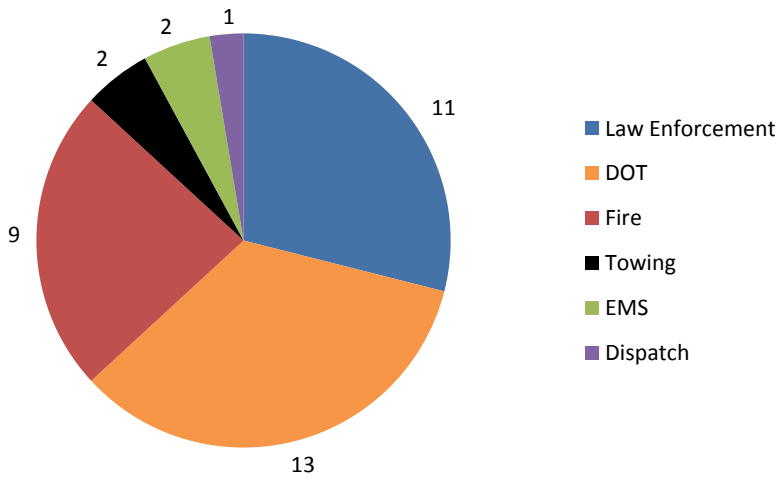

Figure C.6. Virginia course attendees by discipline.

Table C.12. Virginia Course Attendees and Observers

Name	Organization/Discipline
Participants	
Attendee First and Last Name	FHWA
Attendee First and Last Name	Fire/EMS
Attendee First and Last Name	Roanoke County Police Department
Attendee First and Last Name	Towing/Recovery
Attendee First and Last Name	Fire/EMS
Attendee First and Last Name	Hanover County Emergency Communications
Attendee First and Last Name	Towing/Recovery
Attendee First and Last Name	Fire/EMS
Attendee First and Last Name	Virginia State Police
Attendee First and Last Name	EMS/Virginia Department of Health
Attendee First and Last Name	VDOT–Hampton Roads
Attendee First and Last Name	Stafford County Sheriff's Office
Attendee First and Last Name	Virginia State Police
Attendee First and Last Name	Fire/EMS
Attendee First and Last Name	VDOT–Central Office
Attendee First and Last Name	Fire/EMS
Attendee First and Last Name	Virginia DOT (VDOT)–Central Office
Attendee First and Last Name	Fire/EMS
Attendee First and Last Name	VDOT–Central Region
Attendee First and Last Name	VDOT–Southwest Region
Attendee First and Last Name	Fire/EMS
Attendee First and Last Name	FHWA
Attendee First and Last Name	Virginia State Police
Attendee First and Last Name	Virginia State Police Training
Attendee First and Last Name	VDOT–Southwest Region
Attendee First and Last Name	Virginia Beach Police Department
Attendee First and Last Name	Fire/EMS
Attendee First and Last Name	Virginia State Police
Attendee First and Last Name	Fire/EMS
Attendee First and Last Name	VDOT–Northwest Region
Attendee First and Last Name	FHWA
Attendee First and Last Name	Virginia State Police
Attendee First and Last Name	Virginia State Police
Attendee First and Last Name	Virginia State Police
Attendee First and Last Name	VDOT–Hampton Roads
Attendee First and Last Name	Roanoke County Emergency Communications
Attendee First and Last Name	VDOT–Northwest Region
Observers	
Observer First and Last Name	Observer, FHWA Team
Observer First and Last Name	Junior Observer, Research Team
Observer First and Last Name	Observer, TETG
Observer First and Last Name	Observer, FHWA
Instructor First and Last Name	Master Instructor, Research Team
Instructor First and Last Name	Master Instructor, Research Team

Agenda

The pilot course began with welcoming a representative of the Virginia State Police Training Academy and an introduction to the training facility building and rules. A representative from the research team then gave a brief introduction about FHWA's role in training implementation. A representative from FHWA provided a brief welcome on the morning of Day 2 and presented FHWA's role in training implementation in the afternoon. After the FHWA introduction, one of the instructors gave a brief introduction to the course and the seating arrangements before introducing the curriculum. The master instructors rotated responsibility for teaching the individual course modules. Tables C.13 and C.14 reflect the actual timing of each lesson and any breaks.

Evaluation Results

At the conclusion of the 2-day pilot course, the participants were given a course evaluation form to complete. The feedback from the Virginia pilot was positive. More than half (57%) of respondents "strongly agreed" that they would recommend this training to others, and an additional 38% "agreed" with that statement. Only two questions garnered any "disagree" responses: One was whether students would seek out additional training on the topic, and the other was whether students would feel confident leading classroom activities. Although some students said they would not seek out additional training, 94% said the course built on their current knowledge of the subject matter, and 97% said it was valuable in developing their knowledge of the subject matter, indicating that students did find this training to be thorough and successful. The 3% who did not feel confident about leading activities and the 11% who felt neutral could reflect the opinions of trainers with less experience or those who felt they would need more time to review the materials before assessing their confidence.

Figure C.7 provides evaluation results for all 28 questions.

The evaluation responses were also analyzed by discipline, years of TIM experience, and years of training experience. The training appears to have been well received across all four of the disciplines in attendance, with DOT participants rating the training the highest. In addition, the message of SQC appeared to resonate with nearly all attendees, regardless of TIM experience. Many of the respondents reported that they felt confident in their ability to subsequently teach the

(*text continues on page 52*)

Table C.13. Day 1: June 27, 8:00 a.m.–4:25 p.m.

Time	Lesson
7:45–8:00 a.m.	Breakfast *(provided)*
8:00–8:33 a.m.	Welcome and Introductions
8:33–8:52 a.m.	Lesson 0: Course Introduction
8:52–9:03 a.m.	Break
9:03–9:36 a.m.	Lesson 0: Course Introduction *(cont'd)*
9:36–10:41 a.m.	Lesson 1: Statistics, Terminology, and Standards
10:16–10:29 a.m.	Break
10:29–10:41 a.m.	Lesson 1: Statistics, Terminology, and Standards *(cont'd)*
10:41–11:01 a.m.	Lesson 2: Notification and Response
11:01–11:13 a.m.	Break
11:13 a.m.–12:03 p.m.	Lesson 3: Arrival
12:03–12:51 p.m.	Lunch *(provided)*
12:51–1:19 p.m.	Lesson 3: Arrival *(cont'd)*
1:19–1:43 p.m.	Lesson 4: Initial Size-Up
1:43–1:59 p.m.	Break
1:59–2:37 p.m.	Lesson 5: Command Responsibilities
2:37–3:55 p.m.	Lesson 6: Safety, Patient Care, and Investigation
3:26–3:35 p.m.	Break
3:35–3:55 p.m.	Lesson 6: Safety, Patient Care, and Investigation *(cont'd)*
3:55–4:25 p.m.	Lesson 7: Traffic Management

Table C.14. Day 2: June 28, 8:00 a.m.–3:15 p.m.

Time	Lesson
7:45–8:00 a.m.	Breakfast *(provided)*
8:00–8:05 a.m.	Welcome (Representative, FHWA)
8:05–9:15 a.m.	Lesson 7: Traffic Management *(cont'd)*
9:15–9:36 a.m.	Break
9:36–9:46 a.m.	Lesson 7: Traffic Management *(cont'd)*
9:46–10:52 a.m.	Lesson 8: Removal
10:52–10:58 a.m.	Lesson 9: Termination
10:58–11:15 a.m.	Break
11:15–11:30 a.m.	Lesson 11: Situational Awareness *(flipped with Lesson 10)*
11:30 a.m.–12:15 p.m.	Lunch
12:15–1:21 p.m.	Lesson 10: Hands-On Tabletop Activity *(flipped with Lesson 11)*
1:21–1:36 p.m.	Break
1:36–2:08 p.m.	FHWA's role in training implementation (Representative, FHWA)
2:08–2:13 p.m.	Introduction to Train-the-Trainer Instructor Guide
2:13–3:15 p.m.	Assessment and Evaluation

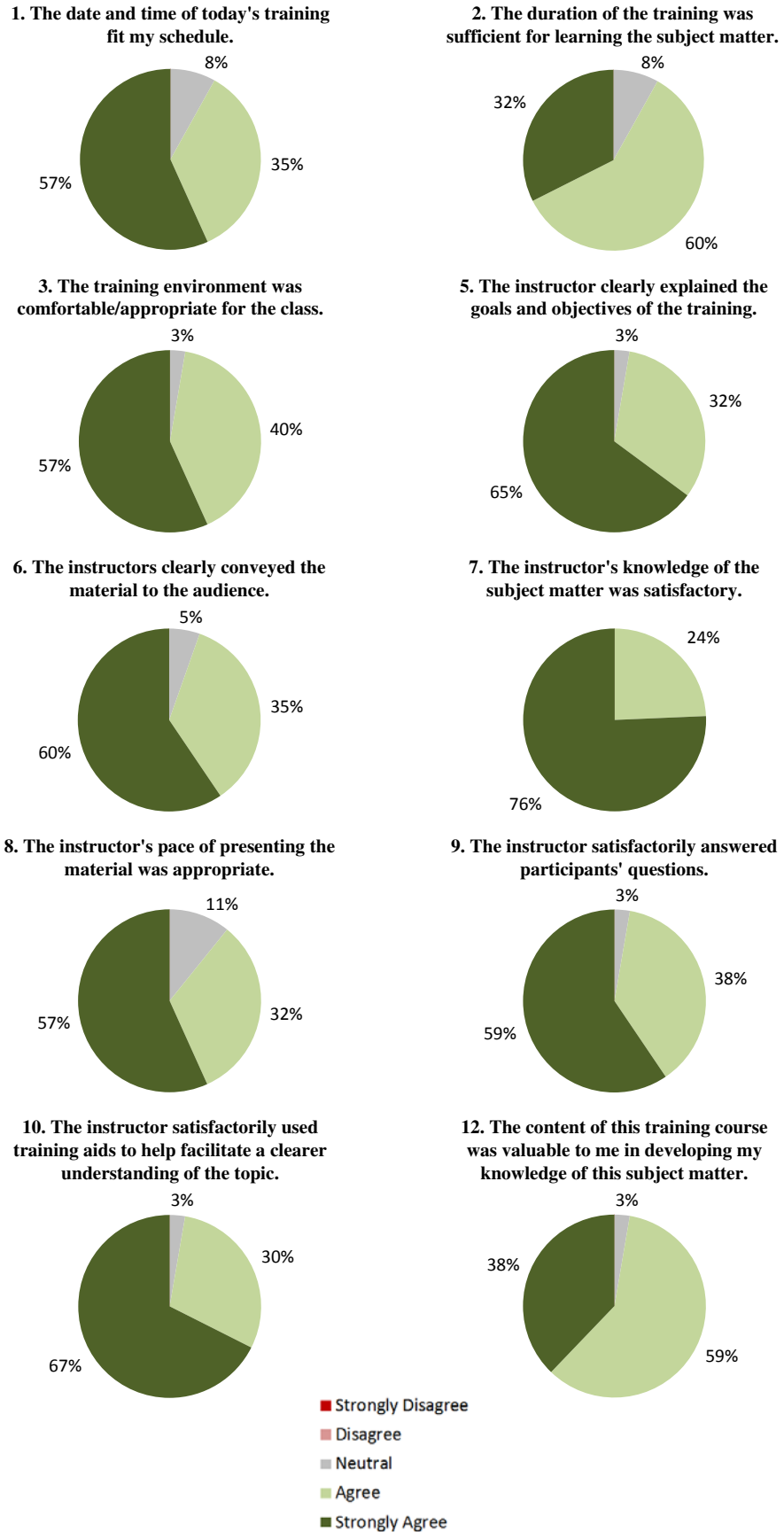

Figure C.7. Evaluation results for the Virginia train-the-trainer pilot (continued on next page).

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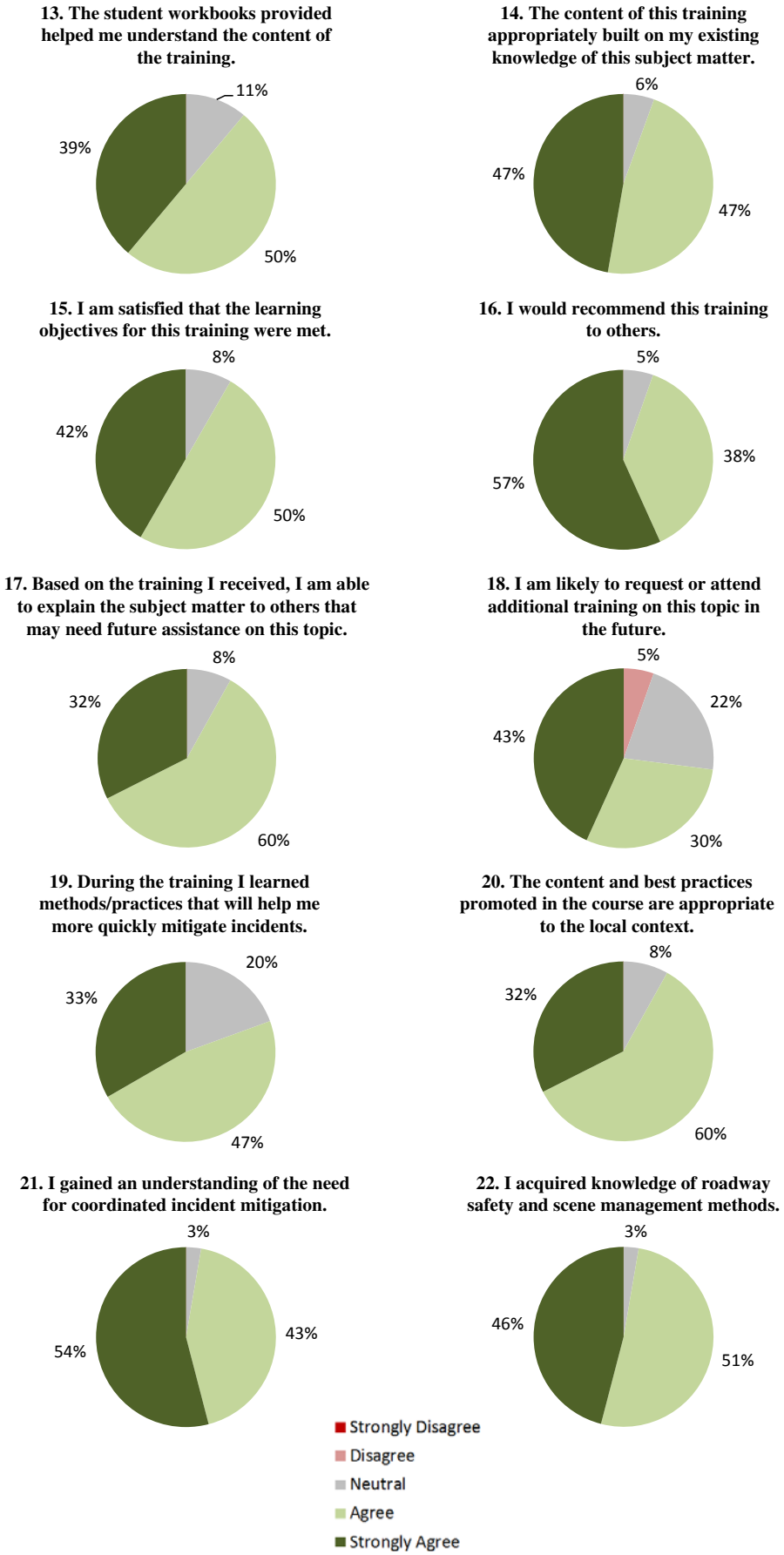

Figure C.7. Evaluation results for the Virginia train-the-trainer pilot (continued on next page).

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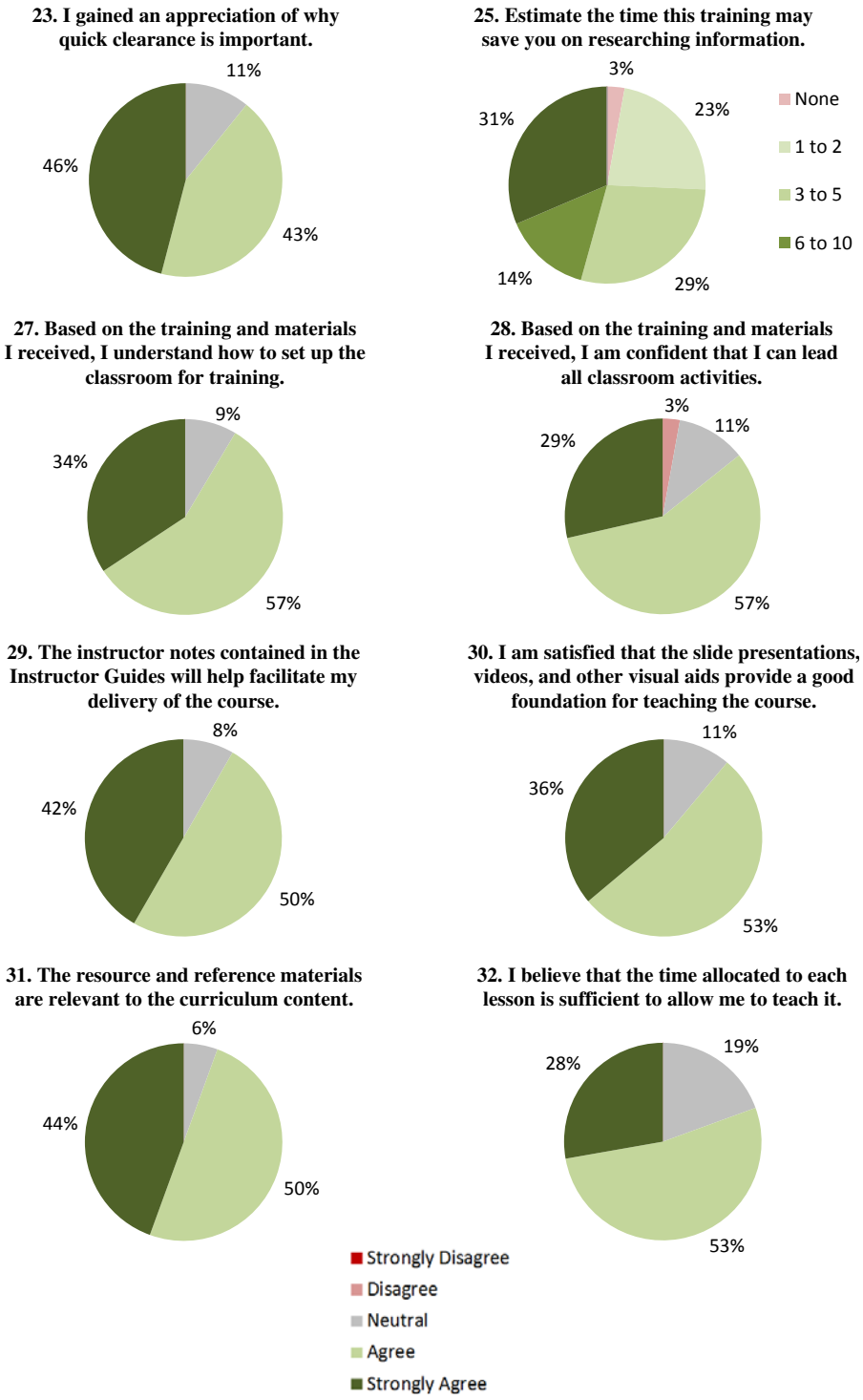

Figure C.7. Evaluation results for the Virginia train-the-trainer pilot.

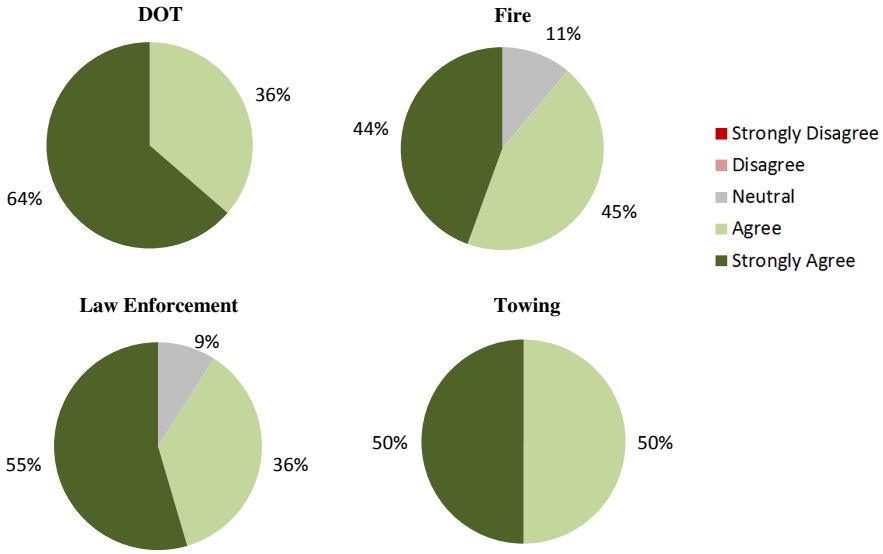

Figure C.8. Virginia course responses to Question 16 stratified by TIM discipline.

(*text continued from page 48*)
curriculum to other responders. However, not surprisingly, students with no training experience were less confident.

Question 16—I would recommend this training to others.

Figure C.8 provides responses to Question 16 stratified by TIM discipline.

Question 23—I gained an appreciation of why quick clearance is important.

Figure C.9 provides responses to Question 23 stratified by years of TIM experience.

Question 28—I am confident that I can lead all classroom activities.

Figure C.10 provides responses to Question 28 stratified by years of training experience.

All of the comments to the qualitative feedback sections are presented in Tables C.15 through C.22, along with the resolution to each comment (if applicable). Key themes from the qualitative feedback sections include the following:

- The importance of SQC. (Note: Based on feedback from the Tennessee pilot, the research team enhanced SQC messaging in advance of the Virginia pilot.)

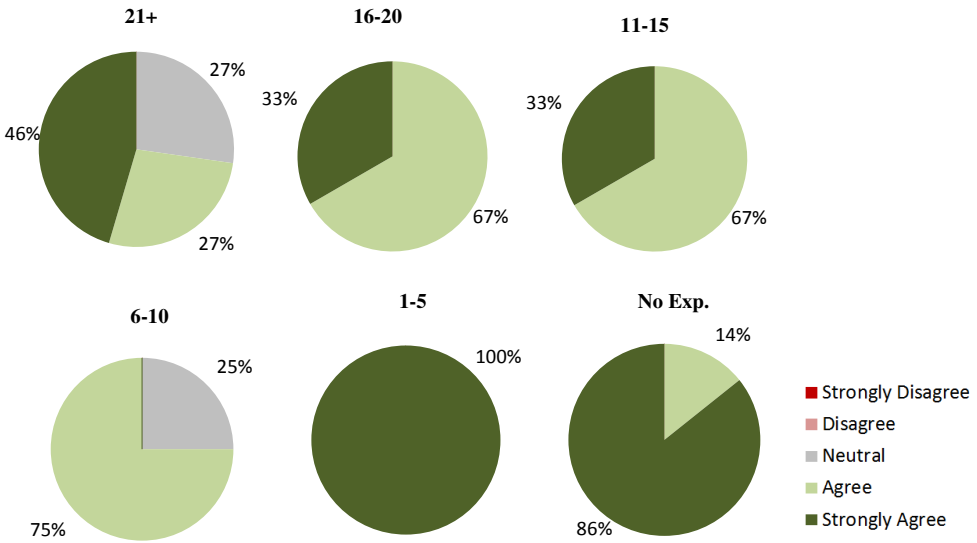

Figure C.9. Virginia course responses to Question 23 stratified by years of TIM experience.

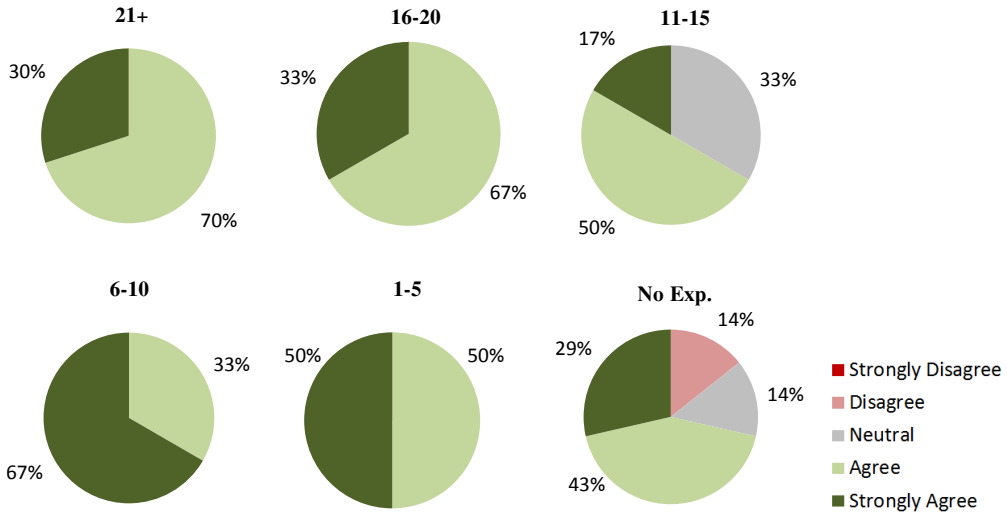

Figure C.10. Virginia course responses to Question 28 stratified by years of training experience.

Table C.15. Question 4—Scheduling Comments

Comment
Given the expectation of having to teach or instruct the provided information, I feel this training should have been an extra day. I am pretty familiar with the content, but I feel those that aren't familiar will be short-changed.
For a full program, it was a good time frame. I think it will be challenging to get a responder to get 2 days of this.
Breakfast and lunch very good! Helps get conversations going and staying on site.
The Virginia State Patrol folks are always very accommodating when it comes to training evolutions here.
Could move faster. Should try to get it done in 8 hours.
Sufficient time granted to classroom instruction.
Could be added 1 day after final version to allow instructors an update and chance to review and read over material.
My only concern with timing of the training is that we only glanced over the manual. We (this course) are trying to turn the titanic and there will be many issues that will extend the course.
Climate control issue (cold).
Excellent instructors.
More training time is never a bad thing, so a 3-day Train-the-Trainer course would be appropriate, but the basics can be learned in two.

Table C.16. Question 11—Instructor Comments

Comment
Representation of two different disciplines, Ron (EMS) and Gary (DOT), was well balanced and adds significantly to the delivery and acceptance of the information.
Instructors are very knowledgeable on the content of the topic. They bring real-world experience to the table.
Good instructor group. Although there were instructors from fire, law, and DOT, it had a DOT feel.
Gave good examples of how to insert locale- and state-specific info.
Training is very straightforward. Easy to learn and will be easy to teach.
The instructors were very well prepared and worked seamlessly with each other.
Video [Kerri Crane]—too long. Over 5 min will be too much.
Instructors were obviously subject matter experts and delivered material effectively.
Instructors are very knowledgeable of material. Nice to see using Incident Command System/National Incident Management System and multidiscipline.
Would have been good to have a draft view of presentation PowerPoint. Would suggest lessening instructor remarks to specific groups or types of people. If trainers hear it coming from presenters, they think it is okay to say when they get in the classroom, especially those that do not teach on a routine basis.
Instructors made a good effort to educate themselves on Virginia's protocols.
The instructors did a great job. Took this topic seriously and it showed!
A bit slower pace may be beneficial.

Table C.17. Question 24—Overall Training Comments

Comment
Most of the course content included training and operational principles I have already had many times and "attempt" to use.
The instructor book should more mirror the slides. It was cumbersome to extract information from the book compared to the slides.
It had a DOT feel. From a local standpoint, to make some of this happen, DOT will need to be more responsive and timely in response.
I have been a traffic officer and supervisor for many years, as well as a crash reconstructionist, so many of the concepts of TIM are not foreign to me. However, the importance of combining disciplines working the same incident is always good training.
This is a great foundation on a great "only class" for both the departments with a program and those without. I feel that the Kerri story had no relevance other than the trooper interview. All of the personal part should be omitted.
Being new to incident management, I feel I would need extra time to go over the material and teach with a more knowledgeable instructor on the subject matter before facilitating a class. I would be okay with my discipline, but not very helpful with others.
Great training—should've been done years ago.
Very good.
Can use some materials and info in our training program.
This course provided sufficient information and resources for me to be part of an instructional team; however, due to my role in public safety, I lack the on-scene TIM knowledge to be a true subject matter expert. I look forward to building on what I have learned here to change this.
Thorough training material.
I strongly agree with reason for quick/safe clearance.
Excellent subject matter.

Table C.18. Question 26—Time-Saving Measures Comments

Comment
The key resource will come from connecting this manual to an e-learning environment and home page of information sharing.
Having a Virginia-specific PowerPoint [presentation] would be vital to assist with training expectations.
Good listing of additional resources.
VDOT has a similar training we are currently teaching.
The manual itself is great and will look forward to the online material.
This foundation will greatly speed up the process of producing a local venue.
Initially I didn't know much about the subject and how many manuals cover this area. I wasn't looking to further myself in this area, but understand the need for TIM. I believe this topic is something the Stafford Sheriff's Office needs to incorporate and this class has saved a lot of time for the department in development of a TIM protocol.
It is good to have all the information in one place. This is the strong suit of the program.
Very good.
Need to use current videos and stories, but can localize.
As stated in [Question] 24, I would still feel the need to study/research/prep somewhat more than others to compensate for my lack of field experience.
The research would take a few hours. I never heard of MUTCD or complementing Virginia's manual.
I am not sure—I will be researching this subject to be better informed and able to answer questions, especially Virginia-based questions.

- Conflicting responses on course length: some students felt an extra day of training would be beneficial, while others thought it would be too long and it would be difficult to ask responders to take 2 days away from their jobs for training.
- The need to swap in Virginia-specific examples and protocols for future deliveries.
- The length of the Kerri Crane video. (Note: The full 16-minute video was shown in this pilot to gauge students' reactions, but was significantly shortened for subsequent deliveries in response to the feedback received in Virginia.)
- Ability to use this training as a foundation to build TIM training programs at Virginia agencies or to bolster pre-existing TIM training programs.

Curriculum Modifications

As a result of comments received during the training delivered in Virginia, the research team made 156 discrete changes to the course curriculum. The types of changes implemented are outlined in Figure C.11.

Key curriculum modifications implemented by the research team as a result of the Virginia training include

- Refreshed imagery to show more highway and fewer city street scenes, more mixed discipline scenes, and updated accident scenes.
- Updated terminology to ensure it is discipline-neutral.
- Removed and/or made recommendations for substitution of duplicative case studies or examples.

Table C.19. Question 33—Instructor Materials Comments

Comment
Kerri Crane video: appropriate to put the section leading up to secondary incidents/crashes.
A more formal, standardized tabletop exercise kit is available and would be good to use in a formalized Train-the-Trainer course.
I believe that prior to the instructors receiving their teaching materials, the PowerPoint [presentation should] be changed to allow for Virginia information to be changed out/inserted. This is in an effort so that all instructors are on the same page and teaching the same information across the Commonwealth. Possible conducted by the Virginia State Police Academy/VDOT? VDOT diagram inserted into PowerPoint (traffic control zones).
The length of the course is going to be a deterrent if offered over 2 days. One day or one-half day is good.
This training generates a lot of discussion; sometimes time frames slip a bit.
The Kerri Crane video can stay or a similar video for the emotional aspect.
Excellent Train-the-Trainer. The final test is extremely too long.
I feel confident I could lead all classroom activities, but would like to be able to spend time with the material to gain more expertise.
The video can be reduced in time.
32—This depends on the group size and topic that may need more time.
Again, 16 hours is a bit long.
Instructor materials—hard to read captions and charts not clear. Should be in color for contrast.
My only issue here is making this Virginia-specific. Also, concerned with multidisciplinary training and its possibility.
The video was good if used in Chapter 2/7, but cut out all the rehab information, which is not relevant to the course. I would suggest stopping the tape right after the first mother interview. Pictures in instructor manual need to be lightened up to see pictures clearly.
The "Seattle wave" video sums up the need for this training and could be moved forward in the curriculum.
I would've liked to see the slides/PowerPoint bubbles or teaching points to appear the same way in the book as they do on the PowerPoint. I found myself searching for the corresponding info in the book to highlight for my own record or attention.
It is difficult for any one person to teach it all in my opinion. Just as I know what to do in some scenarios, it is quite unrealistic for me to believe I could teach police or fire in a different way. I think stressing that this should be a dual or triple session for each discipline.
Kerri Crane video length was sufficient and informative.
Would like to see a 1-day refresher course after training material is finalized.

Table C.20. Question 34—If you believe that the course contains gaps or omits any content which would be valuable, please provide an explanation.

Comment
Need to improve flow of delivery.
Intro material that emphasizes the impact of incident duration on areas like Los Angeles Airport should be presented in a way that does not lessen the quick clearance goals in less populated areas. It will be easy for folks to say it is not important here because I am not at an LA Airport area.
Add the "Virginia Highway Incident Management: Safe, Quick Clearance Strategies Interactive video" as a resource. Located on VDOT external website on incident management homepage.
Virginia-only specific material to be inserted into the PowerPoint [presentation] so that there is the same material being instructed across the Commonwealth. We also need a main facilitator for the state that we would report to.
No, but I get the feeling that it is primarily driven to open roads quicker. I do not agree we always need to shut it down, but clearance times had too much emphasis.
Could provide these trainers with more state and local examples that could be used.
The videos were great at driving home the point for personnel safety. The video of the girl was a little long, but it also helped push the need for improvement of clearing up incidents. I was amazed to learn how a long-term road closure could affect the entire world as far as commerce goes.
As explained, the addition of local protocols will enhance the program.
Well covered.
Need better instructor manual with color graphs, not black and white. May separate lesson plan/PowerPoint/modules. Easier to use than book.
From the communications (dispatch) perspective, I think there needs to be a module or an enhancement that addresses interoperable solutions.
Need additional information added to Chapter 5 about ICS. Most law enforcement (street-level) and towing do not understand ICS.
No, it is thorough.
I think much more should include towing and recovery. Letting towers know about SOP expected. Linear situation for room needed for tow truck. Why are towers killed more than any other responder or incident person?
Add Kerri Crane story.
I will have to wait and see final materials.

Table C.21. Question 35—If you feel that the training presentation contains any shortcomings, please list them.

Comment
As the program grows and the need for updating materials develops, cost is a variable in relation to delivery.
It would be great if we could have key points boiled down to fit into a pocket guide for practitioners. Quick reference sheet would also work, especially in the work zone traffic control section.
There is still apparent resistance of some participants to adopt philosophies of quick clearance. Some partners in the Fire Service refuse to reduce the mindset of unnecessary lane blockages and demanding "in-charge" attitudes. Until the core group changes, these concepts will not change current problems.
The course needs an early attention grabber. The Kerri story should be played after introductions, get it out first and get people's attention. She can become the "face" of this course. Also, potentially integrate the North Carolina video or some of it, again to grab attention of the students. I hope that with so many instructors the content will not be compromised or watered down.
Would there be any public service messages or television (TV) ads be available to broadcast on radio and/or TV?
No, I am comfortable with the program.
This training is good to set up trainers to teach incident management. A point in the correct direction.
While I understand the need to clear the road quickly, my area fire department (FD) is not going to allow units to leave hazardous materials (HAZMAT) alongside the roadway. They have to wait until either the wrecker or a cleanup crew arrives to handle the incident cleanup.
Instructor Guide—some of the tables and figures are hard to read (ex: page 7–29).
Shorten the 16 minute video.
Seems to be inclusive of all elements.
Short version of Kerri Crane video—not entire 16 min.
Getting the five disciplines to work and train together. I believe after the initial push it will end up being single type training.
Very limited number of people trained as trainers. Going forward, it is a lot of work to be championed by a small group of people.
Need to talk to towers and understand challenges in our industry. How knowing more info about who you work with (tower) then you can better work an incident.
Video is fine as far as time.
A few more videos is always a nice break for adult learners. Kerri video could be a bit shorter. Make a pocketsize guide for all the stats. Need color guides—the black and white is hard to see.
Quality of instructor manual copy; source of information.
The only issue that I have is that I am still unclear as to how we manage or coordinate multi-agency joint training. I know that I can do this in my area with some if not most, but until we have a unified plan from each agency mandating this, it will, at best, be hit or miss.
The 16 minute video is too long—edit to show the crash, trooper speaking, victim's mother, back to crash would be sufficient in 5–6 minutes.
Reduce video by half to 8–9 minutes.

Table C.22. Question 36—What do you consider to be the most valuable information that you will take away from this class?

Comment
New course for delivery throughout the Commonwealth via multiple disciplines.
Multidisciplinary messages like room needed to load a person on a straight board and other details like that.
Safe quick clearance! "D" driver.
It was a great refresher from what I learned in other programs I have taken.
All good points. Been doing this training for a few years. It helps to have multidisciplinary setup. Like the reference to the shortening of the timeline.
The importance of getting things cleaned up quickly and efficiently.
SAFE + Quick clearance
That TIM is a collaborative effort. Everyone has an important job to do.
How the different disciplines can better work together to clear an incident.
Inter-agency cooperation and communication.
Officer safety when dealing with a traffic incident and understanding the need for quick clearance.
Its need.
Sixteen minute video should stay.
Eight and 9 [are the] best units. Terms best help for responders. Tabletop worked great.
Overall very informative.
Reinforce safety and use of technologies.
It has driven home the importance of agencies working together toward a common goal—"quick clearance"—in order to prevent further incidents. It also supports the need for multi-agency and multidisciplinary training.
Explaining category of incidents, cone placement, and setting up for initial activities, coordinating with other agencies. Shorten 16-minute video to 5–6 minutes.
National standard information, networking.
Other perspectives from different agencies and disciplines.
Awareness of how complicated it is to coordinate.
Quick, safe mitigation of accidents prevents secondary collisions.
Interfacing with each other—we need to stress more about egos not being important. Having relationships before you are "in action."
Instructor guide. I love the stats. I think it brings things into perspective.
I liked the time lines for quick clearance.
Quick and safe clearance instruction and learning how to reduce secondary incidents.
The program as a whole is excellent.
The desire of program to be multidisciplinary in delivery.
Quick clearance—new to me and will definitely be presenting at my local FD first. Thanks!
Knowledge of resources, personnel contacts, a well laid-out program.

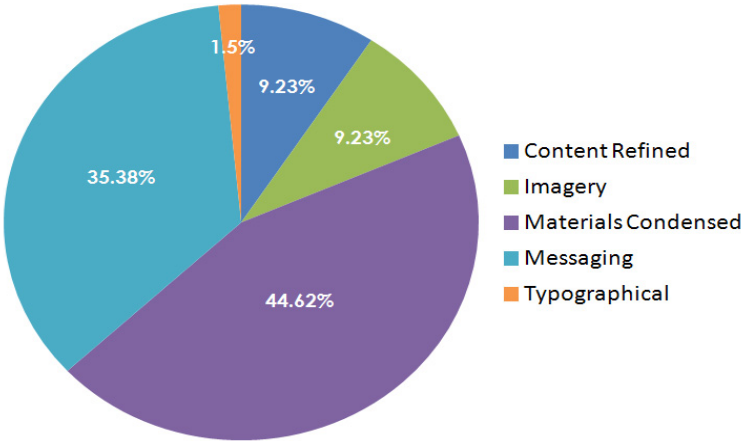

Figure C.11. Change profile for Virginia pilot delivery.

Montana Train-the-Trainer Pilot Summary

Introduction

The third train-the-trainer pilot course was held in Helena, Montana, on July 11–12, 2012, at the Fort Harrison Montana Army National Guard Regional Training Institute. The course was led by two master instructors and observed by two members of the research team. There were 32 students at the training representing law enforcement, fire, transportation, and towing, as shown in Figure C.12. Due to wildfires occurring in Montana at the time of the training, fewer fire participants were able to attend than originally anticipated. Therefore, the contacts from fire organizations that helped invite participants to the training reached out to the Montana Department of Natural Resources and Conservation (DNRC) to send participants; these participants are classified in Figure C.12 as "Other." In addition, it should be noted that two of the participants from "DOT" were from the Wyoming DOT and attended the training to gauge the potential benefit of delivering the training in Wyoming. Table C.23 contains a list of all participants' and observers' organization or discipline.

Agenda

The pilot course began with a welcome from a representative of the Montana Highway Patrol. After the FHWA introduction, one of the instructors gave a brief introduction to the course, seating arrangements, and instructor guide before the curriculum was introduced. After lunch, a representative from FHWA gave a brief presentation on FHWA's role in training implementation moving forward. The master instructors rotated responsibility for teaching the individual course modules. Tables C.24 and C.25 reflect the actual timing of each lesson and any breaks.

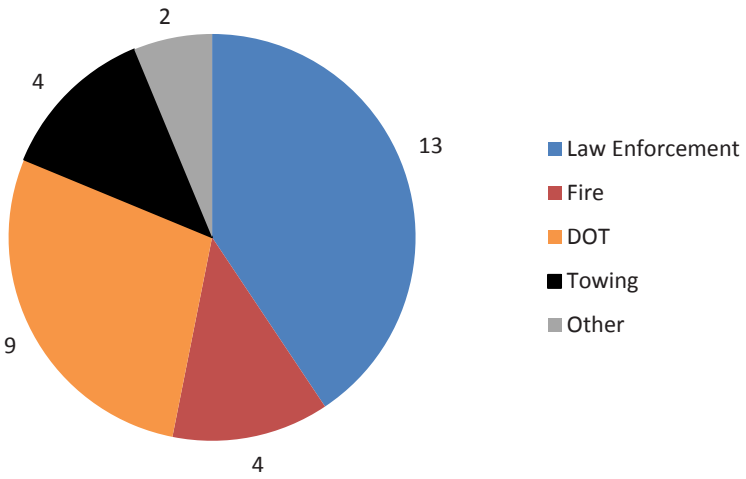

Figure C.12. Montana course attendees by discipline.

Table C.23. Montana Course Attendees and Observers

First Name	Last Name	Organization/Discipline
Participants		
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Montana DNRC
Attendee First Name	Attendee Last Name	Montana Tow Truck Association
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Montana Tow Truck Association
Attendee First Name	Attendee Last Name	East Helena Fire Department
Attendee First Name	Attendee Last Name	Montana DOT
Attendee First Name	Attendee Last Name	Montana DOT
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Fire Services Training School
Attendee First Name	Attendee Last Name	Montana Fire Chiefs Association
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Wyoming DOT
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Fire Services Training School
Attendee First Name	Attendee Last Name	Montana DOT
Attendee First Name	Attendee Last Name	Montana Tow Truck Association
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Montana DOT
Attendee First Name	Attendee Last Name	Montana DOT
Attendee First Name	Attendee Last Name	Montana DNRC
Attendee First Name	Attendee Last Name	Montana DOT
Attendee First Name	Attendee Last Name	Montana DOT
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Wyoming DOT
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Montana Highway Patrol
Attendee First Name	Attendee Last Name	Montana Tow Truck Association
Observers		
First Name	Last Name	Observer, FHWA Montana Division
First Name	Last Name	Senior Observer, Research Team
First Name	Last Name	Junior Observer, Research Team
First Name	Last Name	Observer, FHWA
First Name	Last Name	Master Instructor, Research Team
First Name	Last Name	Master Instructor, Research Team

Table C.24. Day 1: July 11, 8:00 a.m.–4:00 p.m.

Time	Lesson
7:45–8:00 a.m.	Breakfast *(provided)*
8:00–8:23 a.m.	Welcome and Introductions
8:23–9:28 a.m.	Lesson 0: Course Introduction
9:28–9:45 a.m.	Break
9:45–10:43 a.m.	Lesson 1: Statistics, Terminology, and Standards
10:43–10:56 a.m.	Break
10:56–11:17 a.m.	Lesson 2: Notification and Response
11:17 a.m.–Noon	Lesson 3: Arrival
Noon–12:48 p.m.	Lunch *(provided)*
12:48–1:14 p.m.	Lesson 3: Arrival *(cont'd)*
1:14–1:32 p.m.	Lesson 4: Initial Size-Up
1:32–2:01 p.m.	Lesson 5: Command Responsibilities
2:01–2:16 p.m.	Break
2:16–3:03 p.m.	Lesson 6: Safety, Patient Care, and Investigation
3:03–3:16 p.m.	Break
3:16–4:00 p.m.	Lesson 7: Traffic Management

Table C.25. Day 2: July 12, 8:00 a.m.–3:40 p.m.

Time	Lesson
7:45–8:00 a.m.	Breakfast *(provided)*
8:00–9:02 a.m.	Lesson 7: Traffic Management *(cont'd)*
9:02–9:18 a.m.	Break
9:18–9:44 a.m.	Lesson 7: Traffic Management *(cont'd)*
9:44–10:28 a.m.	Lesson 8: Removal
10:28–10:34 a.m.	Lesson 9: Termination
10:34–10:52 a.m.	Break
10:52 a.m.–12:25 p.m.	Lesson 10: Hands-On Tabletop Activity
12:25–1:21 p.m.	Lunch *(provided)*
1:21–1:49 p.m.	Lesson 11: Situational Awareness
1:49–2:05 p.m.	Break
2:05–2:13 p.m.	Introduction to Train-the-Trainer Instructor Guide
2:13–2:48 p.m.	Open Discussion
2:48–3:40 p.m.	Assessment and Evaluation

Evaluation Results

At the conclusion of the 2-day pilot course, each participant was given a course evaluation form to complete. The feedback from the Montana pilot was largely positive, with 96% of respondents agreeing that they would recommend this course to others. However, students at this pilot also expressed more concern regarding the length of the training, with 23% responding either "neutral" or "disagree" to the question "The duration of the training was sufficient for learning the subject matter," and 43% responding "neutral" or "disagree" to "I believe that the time allocated to each lesson is sufficient to allow me to teach it." These results are not surprising when one understands that Montana does not have a TIM program and the subject matter was relatively new to the participants. Also, despite the hesitation some participants expressed, 60% felt confident that they could lead the classroom activities.

Figure C.13 provides evaluation results for all 28 questions.

The evaluation responses were also analyzed by discipline, years of TIM experience, and years of training experience. The training appears to have been well received across all four of the disciplines in attendance, with towing attendees rating the training the highest. In addition, the message of SQC resonated with all attendees, regardless of TIM experience. Years of training experience appeared to have little impact on respondents' confidence in their ability to lead classroom activities. The one responder who had 16–20 years of training experience felt "neutral" about his level of confidence in leading activities, and of the 11 respondents with no previous training experience, 55% felt "neutral."

Question 16—I would recommend this training to others.

Figure C.14 provides responses to Question 16 stratified by TIM discipline.

Question 23—I gained an appreciation of why quick clearance is important.

Figure C.15 provides responses to Question 23 stratified by years of TIM experience. (Note: There were no respondents who fell within the 1–5 years of TIM experience range.)

Question 28—I am confident that I can lead all classroom activities.

Figure C.16 provides responses to Question 28 stratified by years of training experience. (Note: No respondents who fell within the 21+ years of training experience range.)

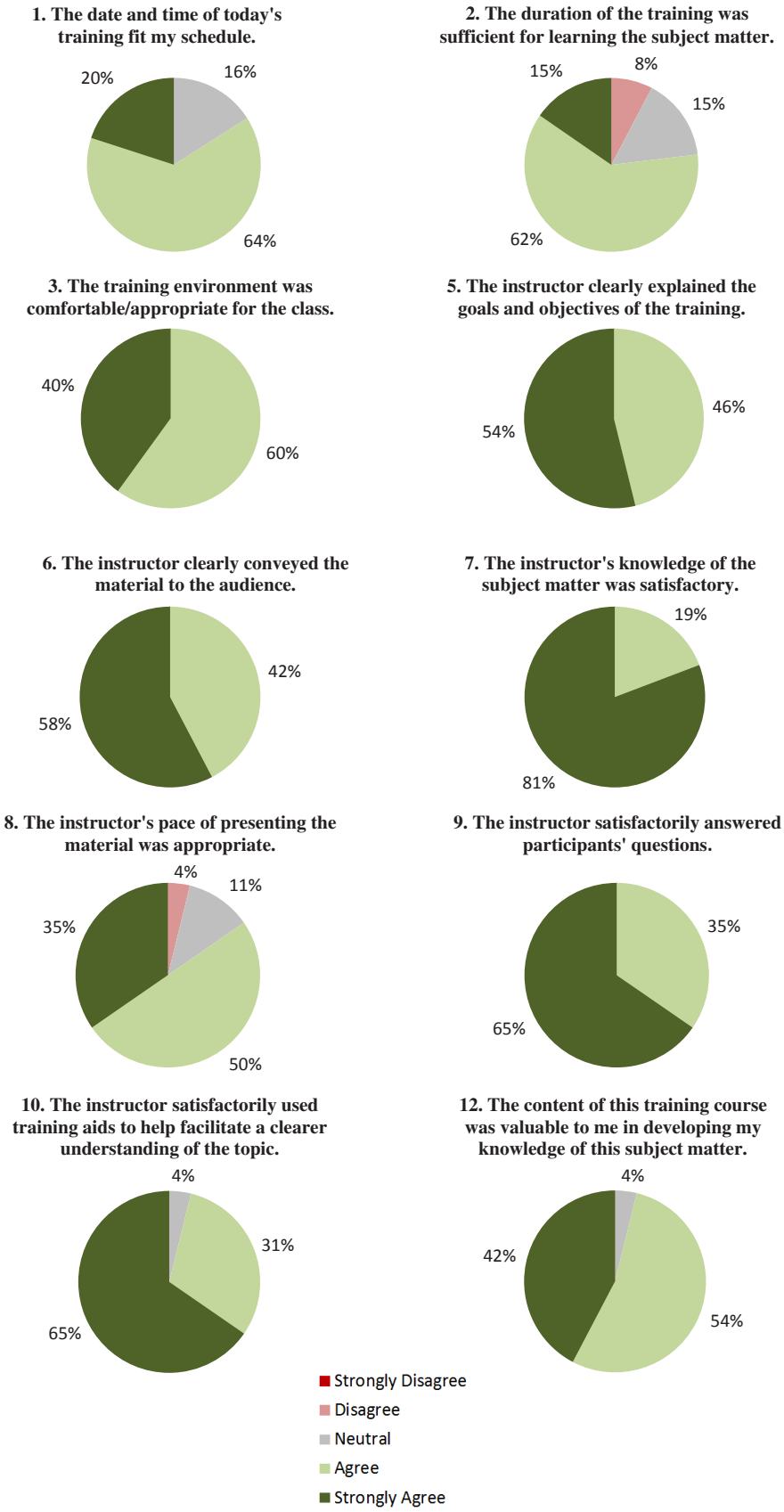

Figure C.13. Evaluation results for the Montana train-the-trainer pilot (continued on next page).

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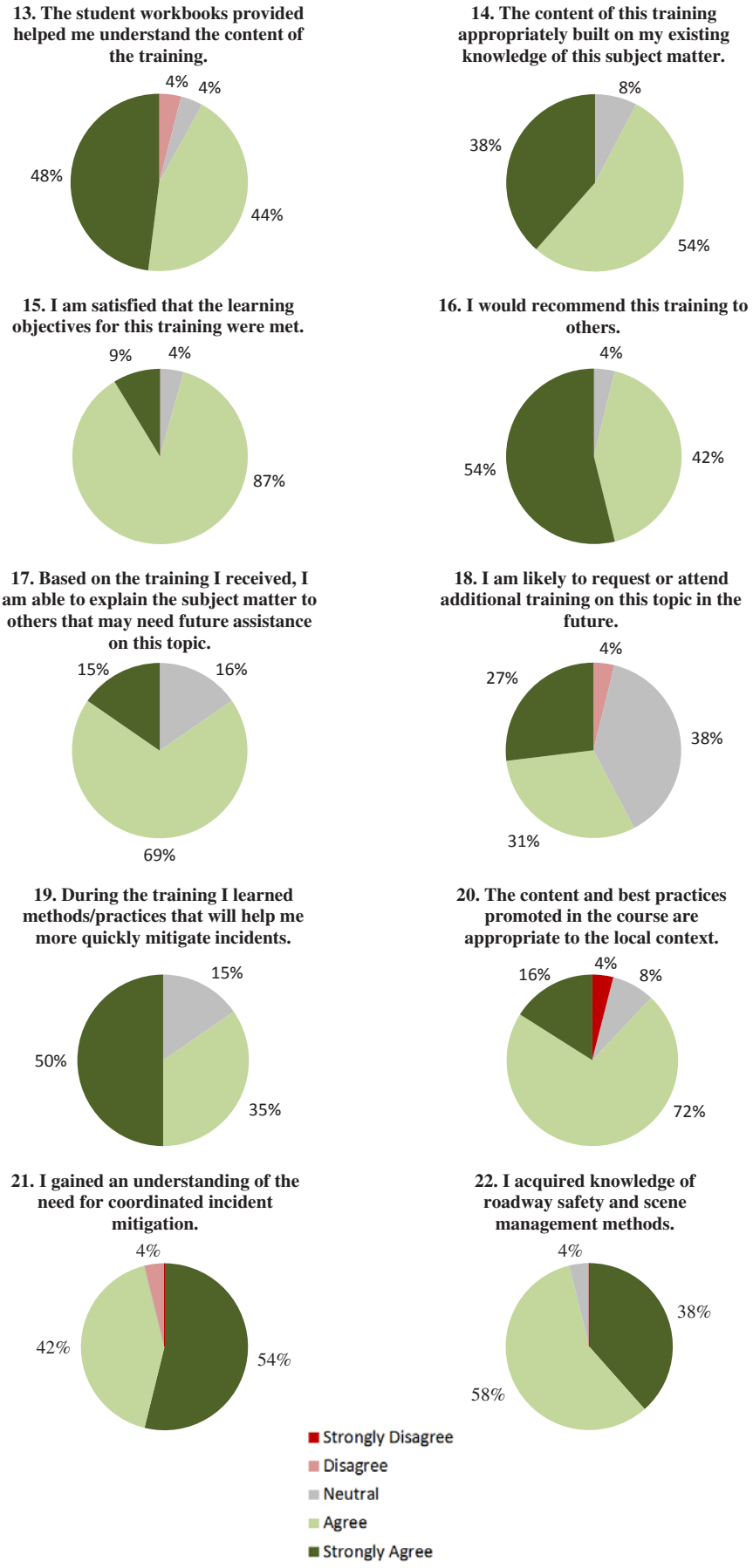

Figure C.13. Evaluation results for the Montana train-the-trainer pilot (continued on next page).

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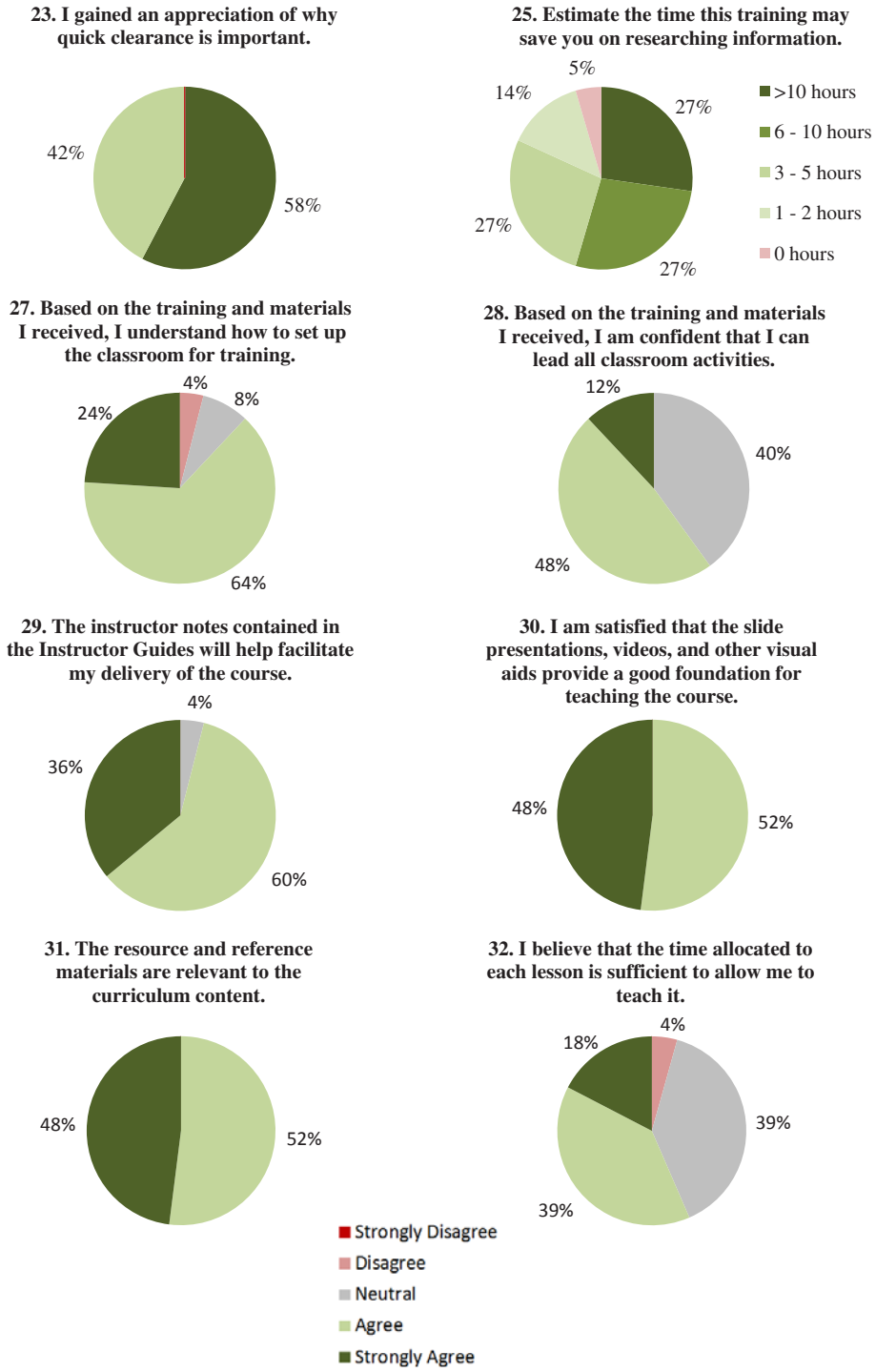

Figure C.13. Evaluation results for the Montana train-the-trainer pilot.

All of the comments to the qualitative feedback sections are presented in Tables C.26 through C.33, along with the resolution to each comment (if applicable). Key themes from the qualitative feedback sections include the following:

- The course felt rushed; a lot of information was presented very quickly. Also, participants noted they will need more practice and time reviewing the materials before instructing the course. Given that the material being presented may have been newer to Montana participants than to those in the other pilot locations, the research team was not surprised by this response.
- There should be more traceability between the PowerPoint presentation and instructor guide. The research team

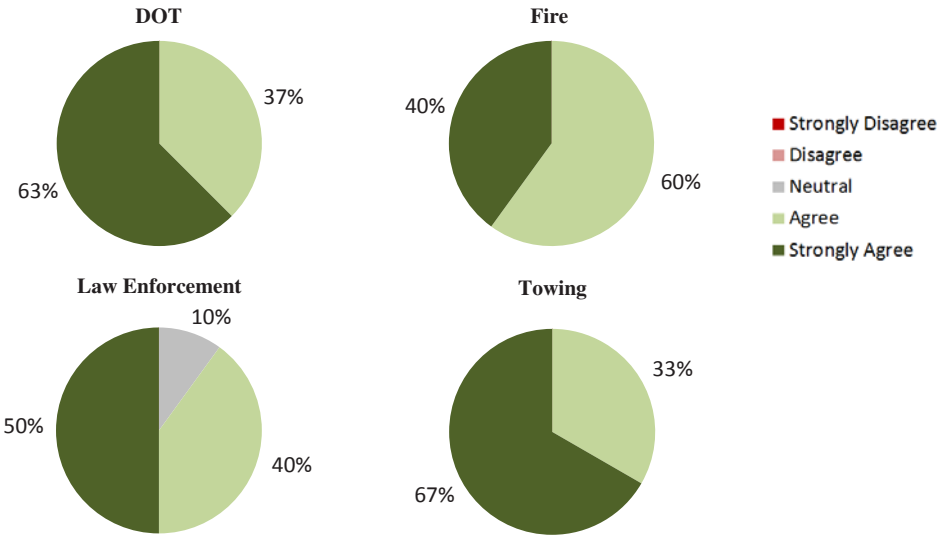

Figure C.14. Montana course responses to Question 16 stratified by TIM discipline.

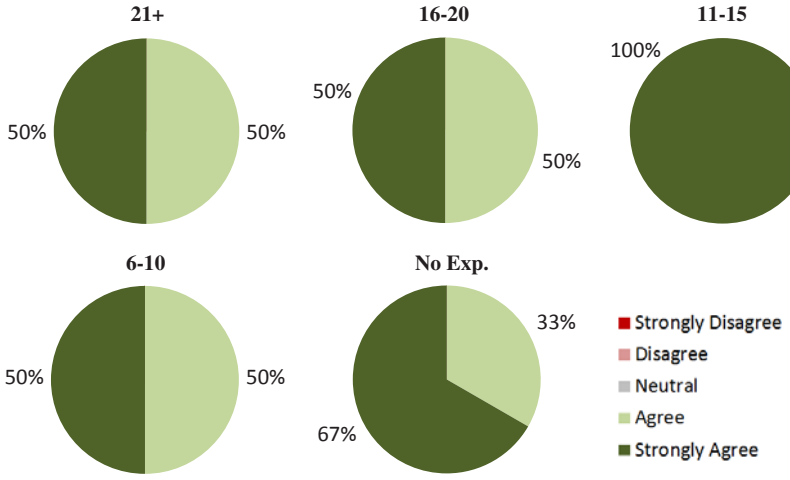

Figure C.15. Montana responses to Question 23 stratified by years of TIM experience.

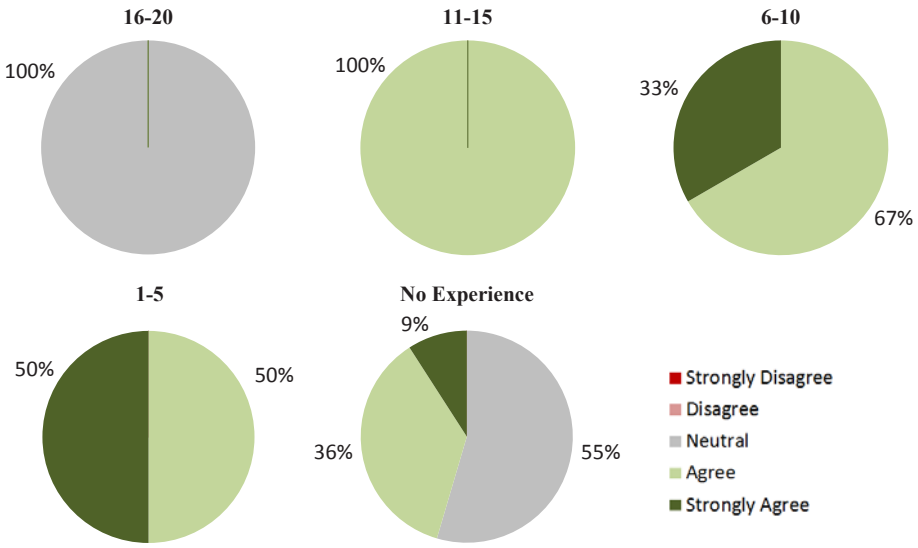

Figure C.16. Montana responses to Question 28 stratified by years of training experience.

Table C.26. Question 4—Scheduling Comments

Comment
The training could go another ½ day. I feel a little rushed in some areas. A little overwhelming.
While the pace was fast to cover the material, I have the experience in fire and EMS that I understood the philosophies behind the program. My challenge is that many of our principals in wildland fire are younger folks who don't have that experience and the classroom pace will have to slow down a bit to allow them digestion. This can be tailored on the local level.
Case studies presented and end of second day got long.
Rolled out a lot of information quickly. Presenters old. A great job, but course should have been a half day longer to not feel so rushed.
I felt the information presented was great, but there was a lot to process in 2 days. This even more difficult knowing that we have to teach it as well.
The dates and times are fine. Duration of the training could be shorter.
Too much intro stuff—took too long. Upstream, downstream, one lane numbers too long. Get on with it. Too many slides on time line—cut by half. Video too long—shorten and make more of a point that it was a medical closure.
Room being hot was beyond instructors' control.
No. 2—not sure! I did not receive any NIMS or ICS training beforehand. This was kind of my first exposure, but I had enough experience at Wyoming Department of Transportation (WYDOT) to relate to some of the case situations and knowledge of what we as a DOT try to do.
Always hard for independent business owners to take time from their busy time of the year. It would be important for instructors to recognize independent business owners and volunteers from fire departments and such for spending the time and money to attend two. The duration of the class, considering the type of material, is pretty short. Our instructors are good and very well-rehearsed. A new instructor would need some time and practice.

Table C.27. Question 11—Instructor Comments

Comment
Some of the slides and videos didn't give a complete view of the crash scenes. It was hard to decide where to place emergency vehicles at the scene when viewing the slides.
At this writing, we have got to the "tactile" learning portion, but the written lesson and visual aids enhance and accommodate these different learning styles.
All instructors did a very good job of facilitating conversations and still keeping the class on track.
Very good video clips that were relevant and interesting.
Both Tom and Ron are outstanding!
Seemed a little rushed. Could have gone an hour longer the first day to help cover material. Presenters did a great job of prepping group for possible questions when leading class and gave areas you should research and prep for.
The ability of the instructors to bounce back and forth was helpful in keeping my attention and effectively communicating the information.
The instructors did a great job. The best part is that they are or have been involved in all of the life situations.
Just a little bit slow at times.
The instructors gained my respect very early on Day One because they were "real." They had managed incidents. They had seen the results of mismanaged incidents firsthand. They were experienced veterans and very articulate in their presentations.
Text was difficult to follow at times. Each PowerPoint slide should have chapter and number so that instructor can keep track of where we are.
The secondary crash video with Kerri was poorly produced and not a very valuable tool for training.
No issues noted. Instructors were very knowledgeable and passionate about the training subject matter.
No. 8 relates back to question No. 2. The pace maybe okay if I had other training. Maybe a bit fast if I did not have the experience.
PowerPoint and book need coinciding page numbers. Page number of workbook on lower right hand side of slide.
5: I think some of the students were confused about clearing scenes quickly. This is a new concept for Montana and, if the principles are applied correctly, then TIM will become SOP. Maybe if you focus on this being a new process, not excuse for sloppy work—I think the supervisors were nervous and saw potential for issues with their troops.
Excellent team instruction. Thanks!

will address this concern in the final materials by adding the PowerPoint slides to the corresponding pages in instructor guide.

- The importance of inter-agency cooperation and communication needs to be emphasized. (Note: A known history of miscommunication/disagreement between on-scene responders in Montana is a primary reason the state was selected to be a pilot workshop location.)

Curriculum Modifications

As a result of comments received during the training delivered in Helena, Montana, the research team made 153 changes to the course curriculum. The types of changes implemented are outlined in Figure C.17.

Key curriculum modifications implemented by the research team as a result of the Montana training include

- Reinforced safe, quick clearance terminology throughout.
- Added instructor notes that provide context for course content, promote uniformity of delivery, and enhance messaging.
- Updated instructor guide and student workbook to match presentation.

Table C.28. Question 24—Overall Training Comments

Comment
I now understand that communicating to the other departments that are responding to a scene will greatly reduce the time my guys and I will spend on the pavement in harm's way.
(Referencing No. 17) I am an adult educator and understand adult learners. Many people in this room probably aren't and don't. This can be a hindrance to relaying the information. A few moments addressing adult learners and how to effectively convey the message may be helpful.
A lot of what was presented seems like common sense for a seasoned veteran. But, it is good for us "old guys" to be reminded to stop and think through a situation.
Secondary accidents: Great new info on secondary accidents. The movie with the woman that survived a secondary crash I believe was too long. I never quite connected her story, although I believe others might.
I understand the concept of quick clearance and its benefits, but we need to address getting the job done at an incident from a law enforcement perspective. Amount of material and time required is long.
Thought Kerri's story was a good component to remind us of the consequences of secondary crashes. Reinforces what we are all here for.
I would need to study this material more to fully be able to relate this material to others. There is so much. Additional time to make it presentable would be needed for me to address the other disciplines that I am not an expert in.
I think it could be taught without student books.
I don't know what the student book looks like, but I hope it's half the size of the instructor book. There seem to be a lot of sections that could be shortened a lot.
Most of the first responders I deal with on incidents are volunteers that are very poorly trained and very poorly equipped. "Secondary" incidents are common in my environment. All incident response entities need this training—NOW!
I do not think this course cannot be put on without subject matter experts. I would not provide this course to others without taking the training.
The In-Time video, I think, was useful for the about first half. After that, I did not get much out of it.
There seem to be a lot of urban photos and situations. It would be nice to have rural presentation to more align with rural settings we deal with in a geographically challenged state. Several states around Montana are in the same situation.
Should consider some material to address responders using privately owned vehicles to arrive on scene. This is a true issue in rural states.
It will take a little [time] to look over the material and [I will need to] instruct a couple times before I will feel confident that I have a strong understanding and can answer student questions.
A coordinated effort by the various disciplines to launch this program will save lives. The launching of a statewide multidisciplinary program by the end of the year is not possible. Five years is more realistic.
I was unsure what to expect before attending. After attending, I learned and appreciated the course and its content. I feel this is vital training for all emergency responders.

Table C.29. Question 26—Time-Saving Measures Comments

Comment
Not sure how to answer this one. Most of this material is new to me. I'm going to have to spend a lot of time reading through it and doing research.
One must always prepare and researching local protocols will always be part of it.
All resources are great. The modular system should work nicely.
Some examples used by instructors could be in manual—i.e., using cell phones is like driving impaired.
Great stuff—lots of resources. It is usually easier to sell a new tactic if you can show it is listed as "best practice" in a published government publication.
Course materials give excellent references for future use.
I have been conducting local "incident action planning" meetings for several years. Now, for the first time, I have a lesson plan. I can't wait to see the training aids. I will research online, but up until now, I've been flying by the seat of my pants.
Having used UFIS drivers training (Emergency Driving) and scene safety, most was not new material. Some of the videos were a good addition.
A lot of the information being presented has already been put into use in the area I work. What I have learned and the websites given during the training will help to get the rest on board.
If I was to be the trainer in WYDOT for this course, I don't believe you could give me the materials only and ship me out. You need the knowledge of those that helped develop the presentation.

Table C.30. Question 33—Instructor Materials Comments

Comment
Again, this is new to me. It is going to take quite a bit of learning the material before I can lead a class on this subject matter. I'm a little overwhelmed.
(Referencing No. 27) Haven't received all materials . . . this writing. (Referencing No. 32) See No. 4.
Any resource is helpful. If I don't have to build it that saves me time to better learn the information.
Didn't get a lot from the Kerri Crane video. Might be just my own law enforcement perspective. I know this is a pilot, but if we are going to be instructing this we really need the PowerPoint quicker and we need to be heading out to train this to others.
Looking forward to shortened version in order to deliver to volunteers. Also looking forward to multidiscipline audiences. I believe we have been handed an opportunity to move our highway responses to a much higher level. The material in this course will save lives!
Good training materials, videos, and class participation exercises to use in teaching the course.
On the first few times teaching this, it will take longer to present all the material. As one practices, I believe the time allotted would be sufficient.
I think the course could be taught without books for the students.
To present this to most fire departments, will need to shorten it a lot. As with most federal-level classes, I would probably cut the slides by 50%.
I haven't seen all the material yet, but it appears the course would require several days to teach, especially if we are staging incidents and practicing our response. That might be tough when you are dealing with a class of volunteers.
Leave space under instructor notes for instructors to add additional notes and comments. After-action reviews should be integrated into course materials. They can go a long way in bringing understanding on why certain events occurred as well as helping to build the inter-ageing team.
Once the materials for instructing are sent out, it may answer No. 27. I did like Kerri's video. It's a reality awareness that should capture all responders.
It will take a couple sessions as an actual instructor before I can really accurately answer these questions.
Next step—how to keep it fresh? It needs a bit more four-lane interstate case studies. It is harder when you block one lane plus 1 and you only have two to begin with. And you may not have any alternate routes. Some examples could stimulate discussion.
More involvement and training would be necessary before I'd feel comfortable instructing.

Table C.31. Question 34—"If you believe that the course contains gaps or omits any content which would be valuable, please provide an explanation."

Comment
I have not seen any gaps or missing content. The instructors have done a good job "hitting home" with the material in the instructor guide.
Need to put some more rural examples, case studies.
I think it covers it all! I like the modular concept. I will utilize that concept on the road instructing fire departments!
Possibly have an exercise on incident action planning and establishing incident command. This will be a big part for the groups moving forward.
I would like to see more discussion about the role of T/R in the TIM program. It focused a lot on fire and LE, but didn't continue the discussion much about how the casualty was removed and the effects of the tow truck positioning on the scene. A lot of responders do not understand that tow trucks need to clear a scene and effectively remove damaged vehicles.
The course assumes a working knowledge of ICS [incident command system]. My experience outside the fire community finds that is not the case. I-100 and 200 is not adequate for Incident Commanders. Students need a better understanding of unified command and how it works in the field.
It seemed there were segments of the PowerPoint presentation that seemed scattered. Perhaps best described like a computer's hard drive that needs to be defragmented. Having more rural presentation material would be more audience appropriate and discussions more real life.
Should include a copy of 6I from MUTCD.
The gap is how the scene changes in relation to the tow truck operator's needs. As presented, not once did the instruction talk about how the scene will change—the need to reevaluate and readjust the scene.
You-tube: "Mechanism of injury"—entertaining video.

Table C.32. Question 35—"If you feel that the training presentation contains any shortcomings, please list them."

Comment
Again, I believe the course could go ½ day longer. Speaking about the Train-the-Trainer course.
Well done, appropriate.
Overall time training may be difficult to "sell" to local agencies and private firms. We should continue to look for ways to condense presentations. Consider including Ch. 6I: 3.5 pages in the manual (MUTCD).
Maybe a module about debriefing and/or after-action reports. Do we really need a demonstration on exiting a vehicle or placing cones? It seemed pretty well explained in the classroom on the board.
Discussion on after-action meetings and reports for motor incidents. Possibly adding more small-group interdisciplinary activities.
The training presentation was good. The instructors were efficient and knowledgeable. The audio/visual component was well thought out and followed the book. It would be nice to have corresponding back page numbers on all slides for faster reference.
Great program.
You do not recognize or talk about risk management and the mitigation of risk even though that is what the whole course is about.
There was very little presentation material regarding tow truck protocol and ambulance protocol. Having these folks included provides a better understanding of roles and responsibilities for all IC scenarios.
Need to work on wording for cleaning scenes quickly. Need to ensure it doesn't result in shoddy, incomplete instructions.
It may not be the course, but it may be examples of who should be at trainings. Who should be at year one trainings? When should refreshers be done? What is a good class size? Or mix for discussion purposes?
The basic program is primarily what I would call First Responder Roaded. Please address the end-of-scene needs.
Lesson 11 seemed to take a little too much time. It's a pretty basic principle exiting the car. Not sure if much was gained by the actual demonstration.

Table C.33. Question 36—"What do you consider to be the most valuable information that you will take away from this class?"

Comment
Lesson 3: Arrival was the most valuable information I gained. The terms "move it" or "work it" is the first time I heard them and once explained will give my guys a better idea of when to stay on the pavement or get off the pavement. The entire chapter explains how to set up a scene to safely protect everyone involved. Along with Chapter 7 on traffic control, I now understand how to set up a scene. The five traffic cone setup: great information.
Interdisciplinary understanding; "Just what is it that you do? Oh, that makes sense!"
I plan to implement the modules into 1–2 hour training meetings with local FD's, tow companies, etc.
Video clips of traffic examples—very compelling. All instructor materials—preparation bringing this course forward.
The simple realization that we need to get together (all disciplines) and train together and maybe pre-plan for different scenarios.
Opened my eyes to what the other disciplines are doing at the scene.
Interaction with other disciplines. I believe highway work to be some of the most dangerous activities that we do. Hats off to all the great work that went into this course.
Communication between the different agencies through each phase or step of incident management.
Better understanding of other agency and private sector concerns in incident management. Need to make sure all sides are taught and we need to come up with solutions everyone can agree to.
What is expected of me as I work with the other disciplines on scene.

(continued on next page)

Table C.33. Question 36—"What do you consider to be the most valuable information that you will take away from this class?" (continued)

Comment
That it takes many people working together to shorten the timeline I believe we need to do.
To have all of the other agencies in one room.
MUTCD and the fact that in most areas of Montana, we can't comply in a timely manner. This course was way too long. Most of the people I work with and for can't take 12 hours out of their lives on available training hours for their departments. For the course to have an impact on firefighters, it needs to be shortened to 3–4 hours—honestly, 3 hours max.
That gives me the ability to back coordinated emergency response teams that can safely reduce incident on-scene time lines, save lives, and not get any additional people injured or killed, due to their response to the incident. I have discovered valuable information from this course, that I will be able to share within my own crew/agency, that will enhance safety, reduce incidents of secondary crashes—on incidents and within my maintenance "work zones"—and reduce on-scene time lines.
The opportunity to develop a game plan for local jurisdictions before the incident and focus on common goals for all involved.
Hands-on exercise and the value of this segment.
Providing all partnerships the same information material with an understanding of why each agency plays a role in safe clearance of a specific incident. All playing together in the sand box with the ultimate end result: safe clearance in the quickest manner.
The importance of quick clearing to avoid secondary collisions. I really appreciated the hands-on parts. Helps sink in the validity of the training.
That it is time to bring all groups to the table to communicate, coordinate, and train together.
The training program itself.
From the DOT side, it opened my eyes to what other disciplines have to do. We touched on it some, but the main goal of a transportation system is to move traffic. I don't think we pushed the return traffic flow enough. What I mean is I think "intermediate" to "major" crashes should use ICS, even if there is no command post. Someone needs to take charge of the crash scene. Rookie Trooper or Engine Chief, they need to say "I'm in charge until . . ." and they need to know these TIM principals to keep communications open with a goal of opening the system back up to traffic. We have rural volunteer firefighters that will stay and block traffic until the last dog is hung. We need to be able to send folks home at the right time and keep folks for as long as needed also.
By following and implementing TIM programs to decrease secondary accidents, we can work as a team and shorten or at least not lengthen the time line.
All of it! I got a lot from this course. This has been a long time coming to our agency. I also think it was presented very well.
Simple approach to an important officer safety issue. Training was paced well to easily understand and follow.

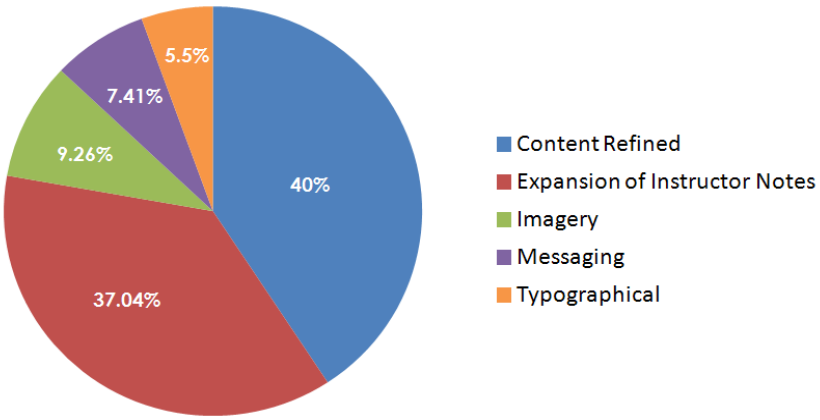

Figure C.17. Change profile for Montana pilot delivery.

Florida Train-the-Trainer Pilot Summary

Introduction

The final train-the-trainer pilot course was held in Florida on August 8–9, 2012, at the Florida DOT SMART SunGuide Center. The course was led by two master instructors and observed by two representatives from the research team. There was representation from law enforcement, fire, transportation, and towing as shown in Figure C.18. Table C.34 contains a list of all participants' and observers' organizations.

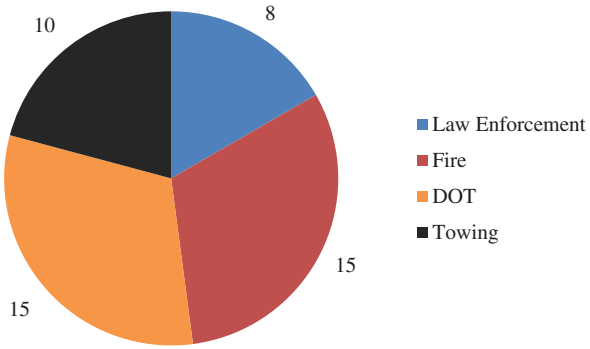

Figure C.18. Florida course attendees by discipline.

Table C.34. Florida Course Attendees

Attendee Name	Organization
Attendee First and Last Name	South Trail Fire & Rescue
Attendee First and Last Name	Florida Highway Patrol
Attendee First and Last Name	Florida Highway Patrol
Attendee First and Last Name	Southwest Ranches Volunteer Fire Rescue
Attendee First and Last Name	Miami-Dade Fire Rescue
Attendee First and Last Name	American Towing Inc.
Attendee First and Last Name	Priority Towing Inc.
Attendee First and Last Name	Anchor Towing
Attendee First and Last Name	Miami-Dade Expressway Authority
Attendee First and Last Name	Tice Fire Department
Attendee First and Last Name	Hollywood Fire Rescue
Attendee First and Last Name	Florida Department of Transportation (FDOT) District Four
Attendee First and Last Name	FDOT
Attendee First and Last Name	Hallandale Beach Fire Rescue
Attendee First and Last Name	FDOT
Attendee First and Last Name	FDOT District Four
Attendee First and Last Name	FDOT
Attendee First and Last Name	FDOT
Attendee First and Last Name	Broward Sheriff's Office
Attendee First and Last Name	Southeastern College
Attendee First and Last Name	Emerald Towing Service
Attendee First and Last Name	US Coast Guard Aux. BBC
Attendee First and Last Name	Florida Highway Patrol
Attendee First and Last Name	Florida Highway Patrol
Attendee First and Last Name	Rapid Incident Scene Clearance (RISC) Provider

Attendee Name	Organization
Attendee First and Last Name	FDOT
Attendee First and Last Name	Transcore, FDOT District 3
Attendee First and Last Name	AECOM
Attendee First and Last Name	Florida's Turnpike Enterprise
Attendee First and Last Name	FDOT District Four SMART SunGuide RTMC
Attendee First and Last Name	Westway Towing
Attendee First and Last Name	FDOT
Attendee First and Last Name	City of Miami
Attendee First and Last Name	Margate Fire Rescue
Attendee First and Last Name	Florida Highway Patrol
Attendee First and Last Name	Marion County Fire Rescue
Attendee First and Last Name	Florida Highway Patrol
Attendee First and Last Name	Florida Highway Patrol
Attendee First and Last Name	South Trail FD
Attendee First and Last Name	Plant City Fire Rescue
Attendee First and Last Name	FDOT District Four
Attendee First and Last Name	Florida Highway Patrol
Attendee First and Last Name	Westbrook Towing
Attendee First and Last Name	Kauff's Transportation Systems
Attendee First and Last Name	FDOT
Attendee First and Last Name	Tice Fire Department
Attendee First and Last Name	DBI Services
Attendee First and Last Name	DBI Services
Contractor Name	**Title/Organization**
Contractor First and Last Name	Master Instructor, Research Team

Agenda

The pilot course began with introductions from a representative from FHWA about FHWA's role in training implementation. Unlike the other pilot courses, there was no introduction from senior leadership from any of the TIM disciplines. After the FHWA introduction, the course curriculum was introduced. The master instructors rotated responsibility for teaching the individual course modules. Tables C.35 and C.36 reflect the actual timing of each lesson and any breaks.

Evaluation Results

At the conclusion of the 2-day pilot course, the participants were given a course evaluation form to complete. As was the case in the other train-the-trainer pilots, the feedback was overwhelmingly positive. Two-thirds of respondents "strongly agreed" that they would recommend this training to others. An additional 27% "agreed" with that statement, meaning 46 participants out of 48 would recommend the training to other responders. At least 90% of respondents responded positively to all but two evaluation questions. The two questions with slightly less positive reactions dealt with instructors satisfactorily answering questions and the appropriateness of the curriculum to the local context. The somewhat lower scores in these two questions were related to skepticism from some attendees about whether certain elements of the curriculum could work in Florida. This disagreement led the instructors to go off-script occasionally as they discussed certain nuances of the curriculum. While the course is designed to accommodate discussion, repeated digressions can result in time management issues. As the instructors began to run out of time, it necessitated shorter question responses, which some in the course took as providing "evasive" answers. This issue points to the importance of consistently following the curriculum guide to help avoid lengthy digressions. Figure C.19 illustrates the evaluation results for all 28 questions.

The evaluation responses were also analyzed by discipline, years of TIM experience, and years of training experience. The training appears to have been well received across all four of the disciplines in attendance. According to the responses to Question 16, 100% of towing attendees, 93% of DOT attendees, 94% of fire attendees, and 89% of law enforcement would recommend this course to others.

The message of SQC appeared to resonate with nearly all attendees, regardless of TIM experience. An analysis of Question 23 reveals that all but two attendees (one in the 16–20 year range and one in the 11–15 year range) reported a gain in SQC appreciation.

Many of the respondents reported that they felt confident in their ability to subsequently teach the curriculum to other responders. As shown by the responses to Question 28, this confidence did not appear to be affected by years of training experience. Only five attendees did not express confidence: one in the 21+ year range, one in the 16–20 year range, and two in the 6–10 year range.

Table C.35. Day 1: August 8, 8:00 a.m.– 4:00 p.m.

Time	Lesson
7:45–8:00 a.m.	Breakfast *(provided)*
8:00–8:21 a.m.	Welcome and Introductions
8:21–9:10 a.m.	Lesson 0: Course Introduction
9:10–9:23 a.m.	Break
9:23–10:18 a.m.	Lesson 1: Statistics, Terminology, and Standards
10:18–10:28 a.m.	Break
10:28–10:58 a.m.	Lesson 2: Notification and Response
10:58–11:53 a.m.	Lesson 3: Arrival
11:53 a.m.–12:30 p.m.	Lunch *(provided)*
12:30–1:11 p.m.	Lesson 3: Arrival *(cont'd)*
1:11–1:43 p.m.	Lesson 4: Initial Size-Up
1:43–2:00 p.m.	Break
2:00–2:24 p.m.	Lesson 5: Command Responsibilities
2:24–3:21 p.m.	Lesson 6: Safety, Patient Care, and Investigation
3:21–3:39 p.m.	Break
3:39–3:57 p.m.	Lesson 7: Traffic Management

Table C.36. Day 2: August 9, 8:00 a.m.–3:15 p.m.

Time	Lesson
7:45–8:00 a.m.	Breakfast *(provided)*
8:00–9:13 a.m.	Lesson 7: Traffic Management *(cont'd)*
9:13–9:28 a.m.	Break
9:28–9:36 a.m.	Lesson 7: Traffic Management *(cont'd)*
9:36–10:26 a.m.	Lesson 8: Removal
10:26–10:31 a.m.	Lesson 9: Termination
10:31–10:47 a.m.	Break
10:47–11:56 a.m.	Lesson 10: Hands-On Tabletop Activity
11:56 a.m.–12:35 p.m.	Lunch *(provided)*
12:56–1:22 p.m.	Lesson 11: Situational Awareness
1:22–1:35 p.m.	Course Evaluation
1:35–2:00 p.m.	Group Discussion
2:00–3:15 p.m.	Assessment

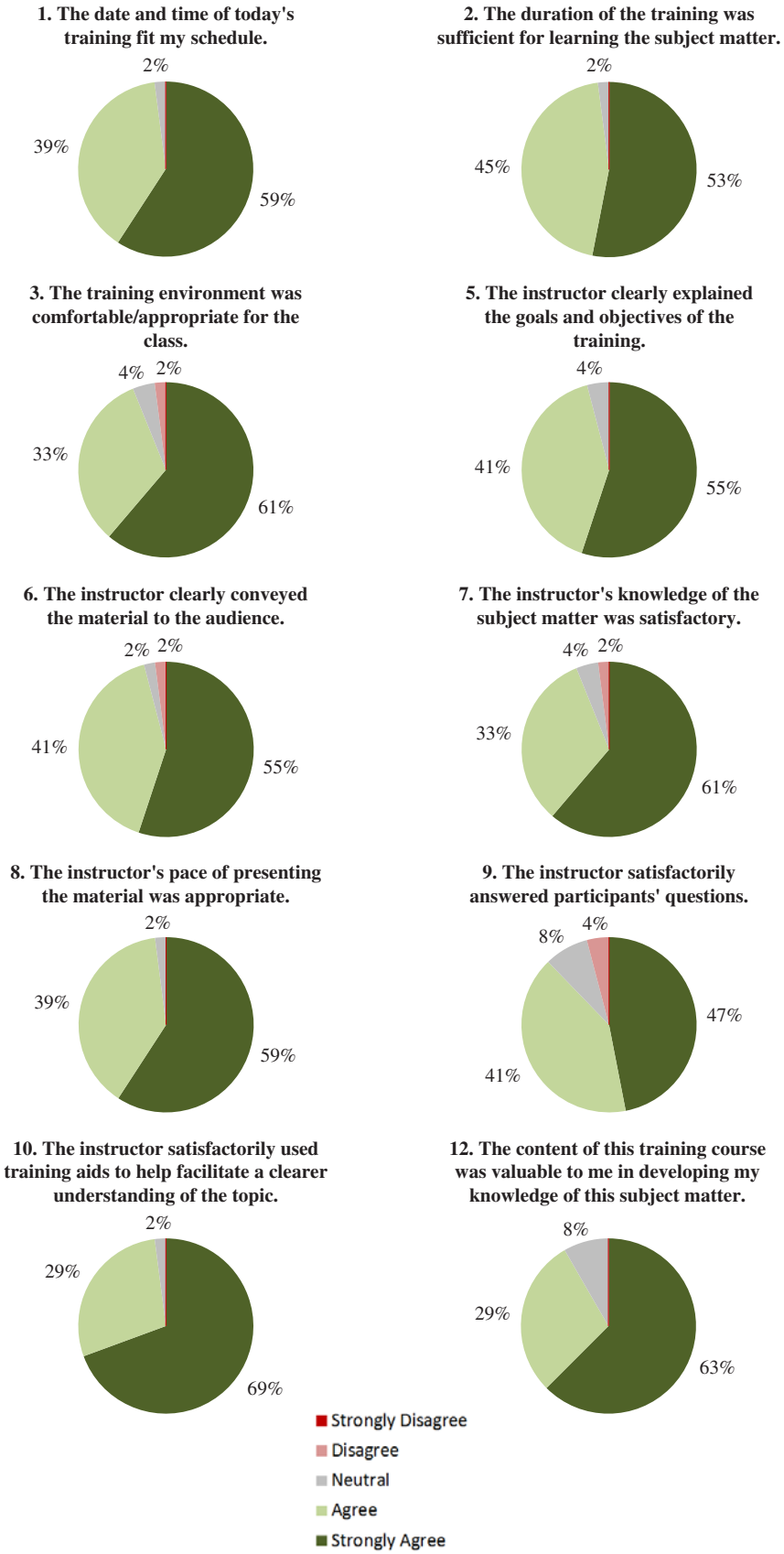

Figure C.19. Evaluation results for the Florida train-the-trainer pilot (continued on next page).

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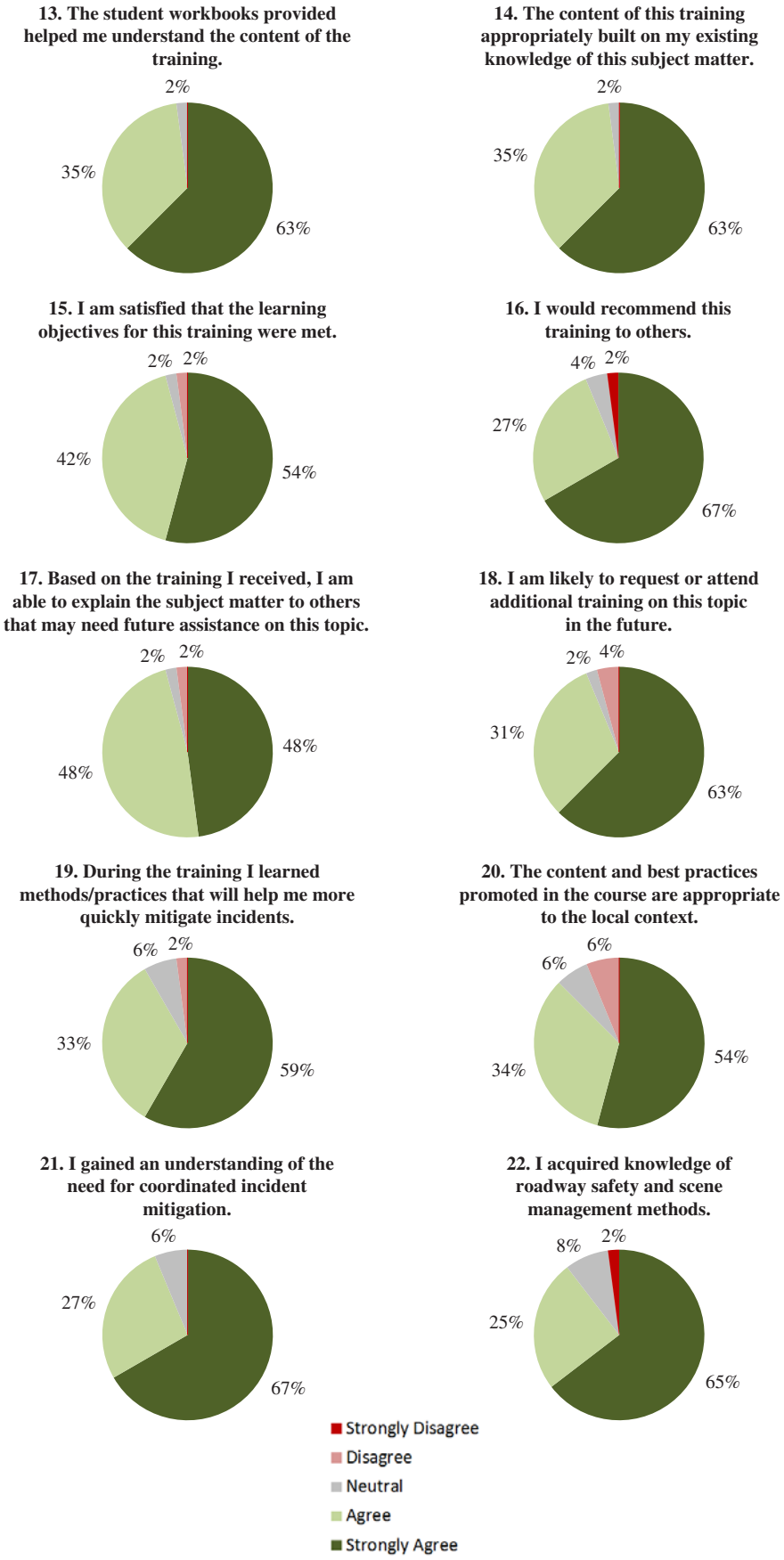

Figure C.19. Evaluation results for the Florida train-the-trainer pilot (continued on next page).

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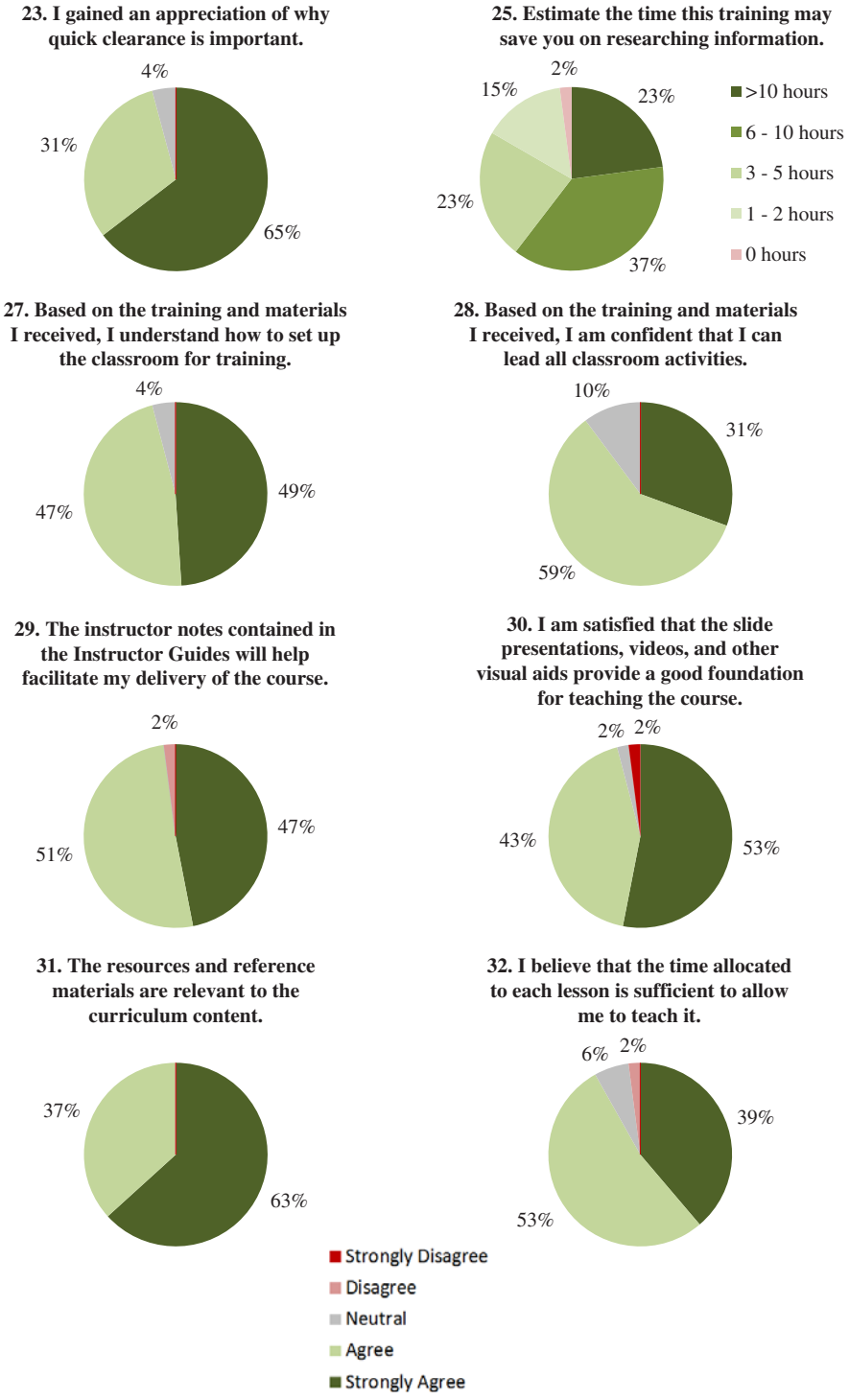


Figure C.19. Evaluation results for the Florida train-the-trainer pilot.

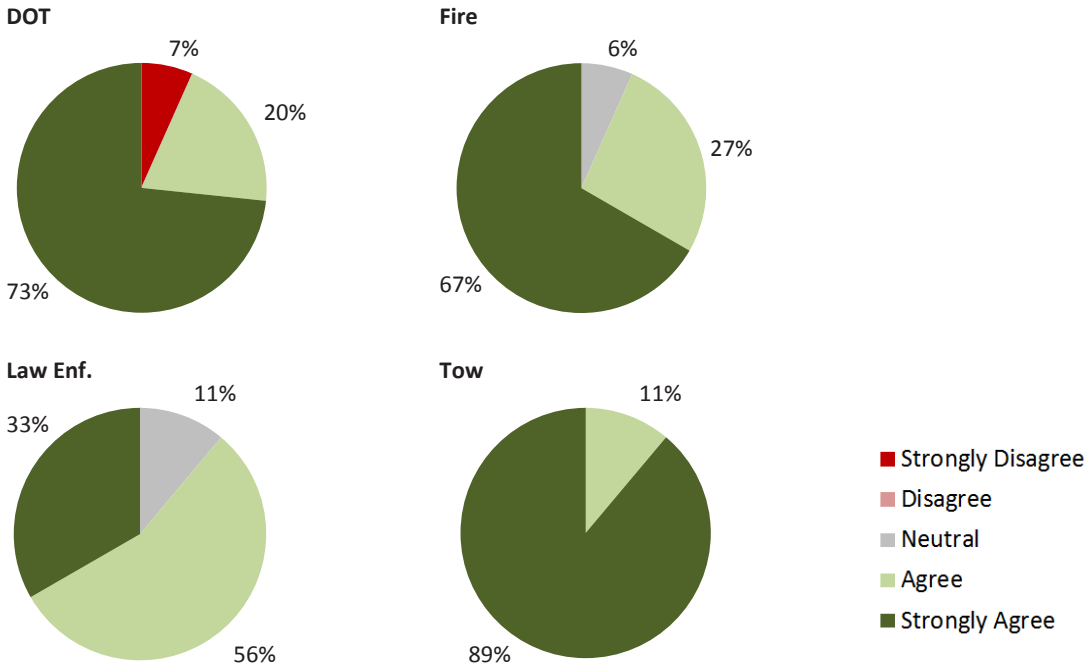


Figure C.20. Florida course responses to Question 16 stratified by TIM discipline.

Question 16—I would recommend this training to others.

Figure C.20 provides responses to Question 16 stratified by TIM discipline.

Question 23—I gained an appreciation of why quick clearance is important.

Figure C.21 provides responses to Question 23 stratified by years of TIM experience.

Question 28—I am confident that I can lead all classroom activities.

Figure C.22 provides responses to Question 28 stratified by years of training experience.

While nearly all participants had a positive experience, the qualitative feedback provided the team with insight into areas of potential improvement. Most of the constructive feedback centered on including more local context to the training, such as transportation management center (TMC) and service patrol information. The local context is an important part of the

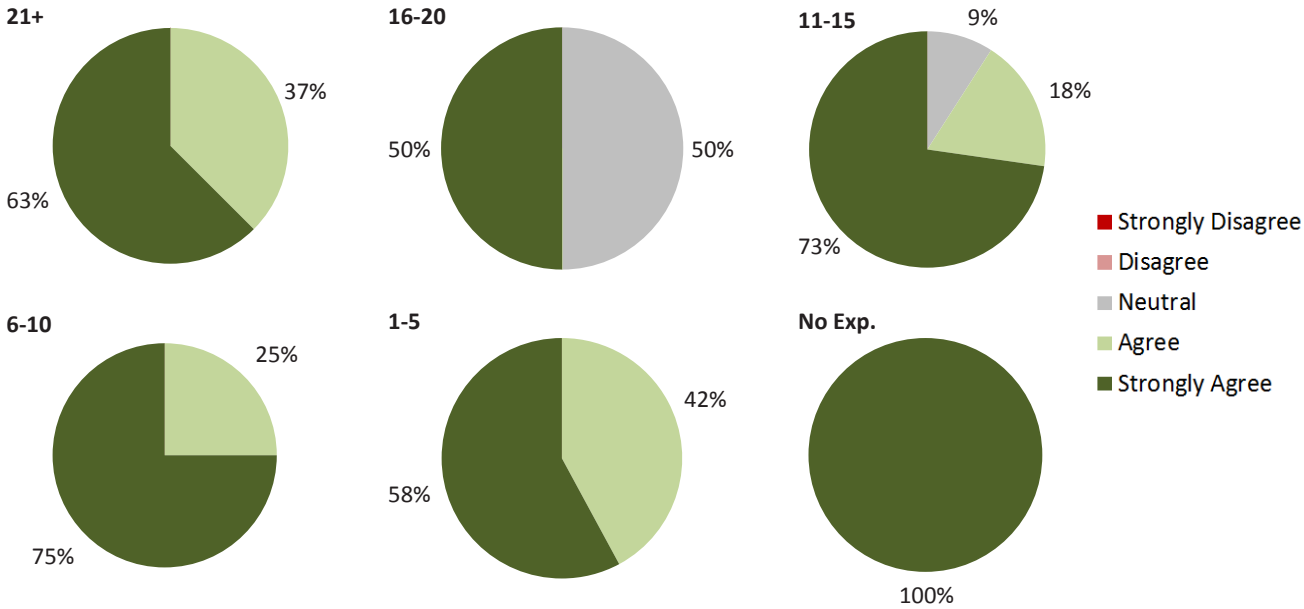


Figure C.21. Florida course responses to Question 23 stratified by years of TIM experience.

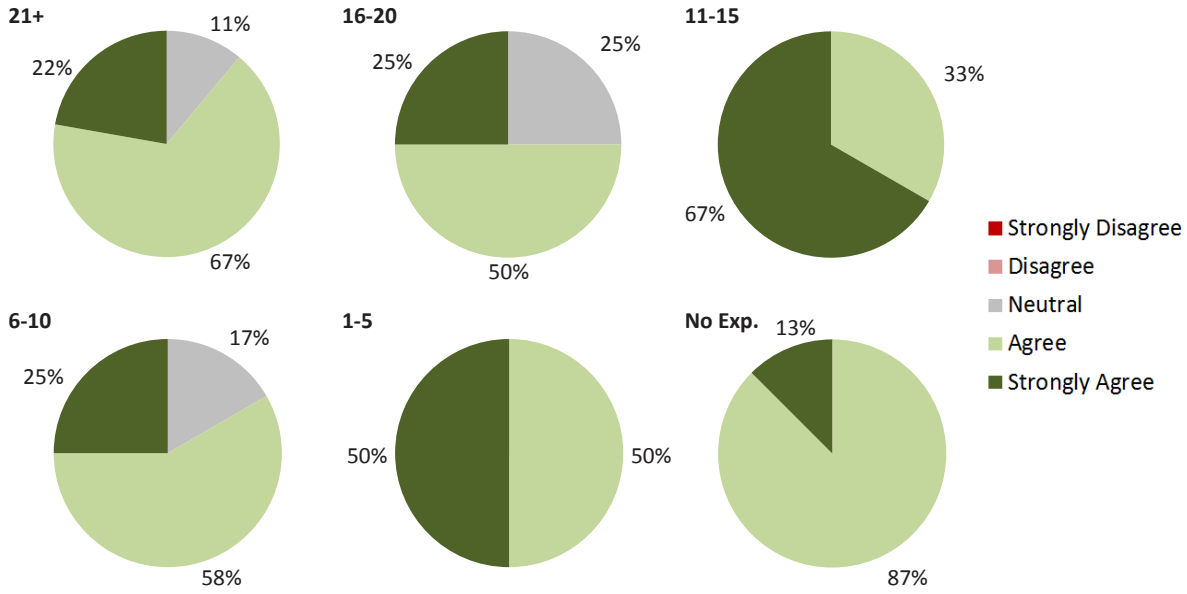


Figure C.22. Florida course responses to Question 28 stratified by years of training experience.

course and there were fewer local examples in this course than in other pilots. As noted by some participants, there was some hostility and negativity among a few of the students. Inclusion of additional local context, particularly at the beginning of the course, may have alleviated some of the skepticism.

All comments to the qualitative feedback sections are presented in Tables C.37 through C.44, along with the resolution to each comment (if applicable).

Observer Comments and Course Modifications

Overall, the observer team felt this was one of the most challenging pilot courses, yet the result was still very positive. The pilot was challenging because there was a high level of skepticism among a small, but vocal, portion of the class attendees. This skepticism reinforced the importance of the course

(*text continues on page 81*)

Table C.37. Question 4—Scheduling Comments

Comment	Resolution
Chairs at facility could have been more comfortable. Time allocated was sufficient for the amount of material presented.	Chair complaint passed to venue contact.
Chairs need to be replaced.	Chair complaint passed to venue contact.
Chairs were uncomfortable for the amount of time spent in them. Understanding this was beyond your control!	Chair complaint passed to venue contact.
Chairs were very uncomfortable. Hard seats.	Chair complaint passed to venue contact.
Good job on prep, execution, and show. Instructors all of them excellent job. Very professional!	na
Hope the final course can recommend key topics in case the training is needed to be shortened to accommodate some first responders schedule. I understand that may be a local issue, but could be based on common deficiencies throughout nation.	Stressed throughout course that lessons do not need to be taught all in one session.
I had enough advance warning to clear my schedule, which is key.	na
I have been in the job two years and this session has been the one with the most information I've gotten yet. One-stop session on all you would need to know or start thinking about. Thanks, Bill.	na
I understand there will be training in other areas of Florida. Pensacola is an area that is ready, so I wanted to get trained now to move forward quickly.	na
More time (3 days). Overall, great course—instructors very knowledgeable.	na
N/A great job.	na
Need better chairs for the amount of time spent in them.	Chair complaint passed to venue contact.
Seats were not made for 2 full days. Gotta do a better job with an advance to ensure comfort for the students when securing a venue for use.	Chair complaint passed to venue contact.

Table C.38. Question 11—Instructor Comments

Comment	Resolution
A lot of evasiveness in answering some questions when hard pressed.	This was due to time management issues. Having instructors stick to the script will reduce digressions.
As this was a Train-the-Trainer pilot, some of the material was not covered in detail that would normally be done in the regular training.	na
Car scenes were a great learning tool.	na
Excellent instructors. Thank you.	na
Have an instructor at each individual tabletop scenario—please.	More instructions on tabletop activity were added after this pilot to allow exercise to commence without instructor at table.
I know it is hard to get disciplines to change their way of thinking. Maybe a little more explanation at the beginning to get rid of some negativity.	Indicates importance of having senior leadership from various disciplines speak at beginning of course. This did not occur in Florida.
I see the student exercises in most cases were not demonstrated, just referred to. However, to be more effective in bringing forth the proper message (I may interpret it differently), it would have been nice to address them more.	While the exercises themselves were not performed, the principles necessary for leading the exercises were taught.
Instructors were great!!	na
Kept swearing by the timeline when, in fact, keeping it on the easel would have been sufficient.	na
May need to reiterate throughout training that this is a Train-the-Trainer session since class participants constantly bring up local issues at our training.	Important for instructors not to digress from the script and get caught up in too many local questions.
Need more breaks—10 minutes each hour.	Noted.
Nice that instructors were from different fields as first responders.	na
Okay. Good to go.	na
Ron had excellent knowledge of presentation. Ron . . . answered questions satisfactorily, Gary sometimes “vague.”	na
Ron was excellent; other instructor (Gary) did not know South Florida audience and therefore was unprepared to answer certain questions. He seemed to “tap dance” a lot.	This was due to time management issues. Having instructors stick to the script will reduce digressions.
Ron was great, kept attention well. Gary talked [about] how his department handled things, above what we could implement.	This was due to time management issues. Having instructors stick to the script will reduce digressions.

Table C.39. Question 24—Overall Training Comments

Comment	Resolution
From time to time, kindly inform the class what page you are on—slides don't match pages.	Final curriculum page numbers will match.
I already had knowledge about subject. This just helped further explain things I already knew and why.	na
I believe more information about the TMC and the resources available to the responders would be helpful. Some of the TMC information should be included.	Excellent point. Speaks to the need for local customization of curriculum (not all areas have TMC).
Nothing can replace on scene experience. Some students have never had feet on the ground and do not have a clue.	Important to bring the right kind of students into the course.
Okay. Good to go.	na
Overall an excellent training presentation. A little long but lots of helpful information.	na
Seems like a great training that will benefit first responder agencies.	na
The material that was provided is helpful. I can use the books as a quick reference guide/tool.	na
This course gave me a better insight on how different agencies would like to perform their jobs. Networking was excellent.	na
Training program was excellent.	na
Training very good. Interaction with all agencies helpful. Need more classes dealing with traffic.	na
Wish I had the simulation road maps.	Additional instructions on tabletop scenarios added after this pilot.
Working training into our five different fields would be good, but will it happen. I hope we can train together to help in all our learning and respect for each other's role in highway safety.	na

Table C.40. Question 26—Time-Saving Measures Comments

Comment	Resolution
Attended two FHWA Traffic Incident Management (TIM) workshops prior to this that covered a lot of the same material.	na
Gave out good information!!	na
Good source of information to take for training.	na
Happy to have these materials at hand for further training. I have been gathering information around the state for our area.	na
I already had a lot of this information.	na
Thank you for doing the research for us.	na
The material was well presented to better understand the different roles in each profession.	na
This class gave me the tools to perform a good class to anyone that is expected to perform under temporary traffic control (TTC) incidents.	na

Table C.41. Question 33—Instructor Materials Comments

Comment	Resolution
Amount of time needed to teach is too high; it is unreasonable to take people off the road for that many hours. Info needs to be condensed.	It was stressed numerous times that the course is intended to be broken into modules.
Another day covering commercial trucks, rigs, tankers, and HAZMAT, fuel spills.	Noted; however, many complained the course was already long.
Excellent program. Some minor mistakes in instructor guide that were pointed out in class.	Expected in a pilot delivery.
Good work with material. Could include a severe incident or accident such as the alligator alley 2000 36-car/truck accident due to fog, I-4 incident multicar/truck incident, and I-75 fog/smoke multi incident. What would you do?	Excellent point. Speaks to the need for local customization of curriculum.
I like the suggestion and ability to break out the modules as needed to target the student needs.	na
I will need to train other individuals separately to assist me in training a class, but that is doable.	na
Lengthy but a lot of good materials that will help.	na
Make a definite time limit for the course (i.e., 8 hours or 16 hours).	Each lesson has an expected time length.
Teachers did an excellent job; well taught.	na

Table C.42. Question 34—"If you believe that the course contains gaps or omits any content which would be valuable, please provide an explanation."

Comment	Resolution
A module dedicated to dispatch (law enforcement and transportation management center) would be very valuable. While it was touched on, this communication needs to be further discussed.	Noted; however, many complained the course was already long.
As a towing professional, this course was more toward fire safety.	na
Emphasize for the incident commanders police/fire/recovery to work together and re-evaluate scene for clearance and safety more often.	This was reiterated numerous times.
I would like to see more time on HAZMAT. Very little was covered; also big rigs.	Noted; however, many complained the course was already long.
Incorporation of road rangers (Service Patrol) as part of incident response, usually first ones on scene. They do not necessarily have the same responsibilities as "DOT," as explained in the course. Understand that may only be locally here, but they are an important . . .	Speaks to the need for local customization of curriculum.
Might want to include a pretest so you could measure student comprehension with post-test. This would also help determine instructor effectiveness.	Good suggestion; however, length of test may make that an unpopular decision.
More information on best practices, what is the trend, backed up with documentable research and testimonies.	na
More TMC information to let responders know how the dynamic message signs (DMS) and cameras can help them with response and their safety.	Speaks to the need for local customization of curriculum.
Need to talk about road rage and their roles to mitigate traffic at incidents and the equipment that they have on board (i.e., cones, arrow boards, portable signs).	Covered in "D Driver" section
No gaps in my estimation.	na
None that I noticed.	na
Other local specialized agencies such as the local severe incident response vehicle program.	Speaks to the need for local customization of curriculum.
Very fluid course.	na
Would include one multicar/truck incident.	There were several in the curriculum.
Would like to see other performance metrics other states use or implement besides the FHWA required ones.	Speaks to the need for local customization of curriculum.

Table C.43. Question 35—"If you feel that the training presentation contains any shortcomings, please list them."

Comment	Resolution
Three days might be better—covers HAZMAT and big truck incidents.	Noted; however, many complained the course was already long.
Add express lane procedures.	Speaks to the need for local customization of curriculum.
Don't allow some of the subjects that are being debated to carry on as long as they did.	Having instructors stick to the script will reduce digressions.
Ensure all attendees have each other's contact information for networking purposes. Lastly, more time should be spent or added on the Train-the-Trainer portion of the course, because that's what most of us will be expected to do when returning to our respective organizations.	Contact information was distributed immediately after the course.
Follow up one on one with groups of instructors locally to see how well prepared they are to present the material.	This is accomplished through the alumni-led course.
No, not at this time. I do understand this is a pilot program. Look forward to teaching my guys.	na
Page 6-4 of the instructor guide contains false information that may adversely impact a responder's safety. Page 3-33 of the instructor guide contains an error with respect to HVSA.	HAZMAT citation was corrected.
Some classmates (1) tried to use the class as their personal forum. The instructor was able to control it, but it is what it was.	na
Stress the importance more to fire/rescue personnel about clearing lanes. They are usually the issue for closures through my years of experience. I understand their safety, but as in this class (Seattle video + arrest) it is continual.	This point was mentioned numerous times.
The material is very general in nature and needs to be more specific for each of the disciplines. This class should not be taught by anything less than two to three multidiscipline instructors coordinated by DOT.	There were two instructors from different disciplines at this course.
There is not enough understanding of the individual agencies standard operating procedures (SOPs) and how we are individually liable for any errors in judgment on decisions made on the scene of an incident. I know of the importance of safe, quick clearance. Overall, very good!!	na
We need everyone to understand that lane blocking events wreckers should be notified as soon as possible.	na
Would like to see more time spent on tabletop exercise.	This would be possible in situations where the curriculum was not delivered in its entirety in one session.

Table C.44. Question 36—"What do you consider to be the most valuable information that you will take away from this class?"

Comment
Alertness on scene to hazards, and the importance of opening the roadway and communication.
All of the new safety issues that I was unaware of. I can now apply them in the field and teach my team.
Awareness and safety at the roadside. Understanding each responder's duty and actions and cross training. Excellent course! Please take this to the next level nationwide. It is invaluable. We had an associate wrecker driver struck and killed on 95 in January 2012 while assisting the Florida Highway Patrol. We need to protect ourselves and each other. This program will save lives. Thank you!
Communication with agencies involved on scene.
Communication, collaboration, and understanding the mission and priority of the other agencies.
Coordinated TIM during incidents. Thinking ahead during initial response size-up on how to position vehicles so that following agencies can deploy efficiently.
Every department has assets and resources that contribute to TIM. This class shows how to merge all assets and resources together for the best possible TIM scene.
Federal highway is backing up what we are trying to teach locally.
From a fire rescue standpoint, the integration of multiple disciplines on the scene that typically in the past have not been in the forefront of concern for the fire departments.
Gained a better understanding of the roles and responsibilities of tow trucks, DOT, and recovery on scene.
How to handle difficult tower questions and/or concerns.
How to properly set up for traffic blocking or diverting.
Information shared between agencies gave a better understanding and respect of other agencies.
Inner teaching I strongly like. I [would] like the DOT, fire, police to see that tow drivers are just as important to help the scene and clear roads.
Learning why each discipline does what they do at a scene helps us understand at the TMC why lanes are closed at times.
MUTCD
Need for better communication between all responding agencies.
Networking.
Quick clearance and on-scene safety.
Responders working together. The class shows that all responders are needed in meeting time lines and working as a team.
Safe, quick clearance and understanding of each other's roles with communication. Also, we have information to take to field personnel.
Safety and protection from "D" drivers and better services from my agency to consumers or contracts.
Safety concerns pre-during-post incidents and how to safely perform these tasks with some sort of unified standard or system. And I would like to thank you all for your knowledge and experience in the subject presented.
Safety responders working together. Safety of responders on scene.
That all disciplines have unique concerns, making it more important to all sit at the table to work through some of those issues.
That the training is a good idea, but you guys still have work to do to make it better.
That there is a national push to attempt to train first responders in the TIM concept and work together to get the roadway open with safe, quick clearance.
That you are not telling responders how to do their jobs but giving them other options. Stress on teamwork for the multiple agencies.
The ability to train others and save lives.
The fact that everyone needs to communicate to obtain the same goal on an incident.
The importance of sharing our knowledge between each profession.
The resources, teaching aids, and training props that were provided.
The tabletop exercises because hands on you retain more.
The teaching points were the most helpful. I highlighted those when presented.
Time is critical when you arrive to an incident with road obstructions. Important to assess the situation and relay the information.
Training content is very well organized. I do outreach to incident responder agencies. We have been teaching many of same principles, but I have learned some new materials that are valuable.
When working in our groups the conversations on how and why other first responder units do what they do. We all learned a lot of teamwork.
Work together.
Working together to achieve a common goal. Safety for all and quick clearance.

(*text continued from page 75*)
introductions and buy-in from senior leadership. In other pilot locations, high-level representatives from DOT, law enforcement, and fire gave opening remarks speaking to the importance of this course. These opening remarks did not occur in Florida.

Because the team did not alleviate concerns and skepticism at the beginning of the course, there was a greater resistance to the curriculum compared to other pilots. This resulted in numerous digressions from the instructor script, which, in turn, created time management issues for the instructors. It is critical for instructors to stay close to the instructor script to avoid lengthy digressions.

Given that this was the final pilot course, the curriculum changes stemming from the Florida delivery were relatively minor. Most of the changes dealt with updating and refining curriculum imagery as well as revising curriculum citations. One significant revision was the inclusion of scenario instruction handouts for each tabletop exercise. This will enable attendees to run the tabletop activity without an instructor always being present.

Tennessee Alumni-Led Pilot Summary

Introduction

The alumni-led pilot course was held in Tennessee on September 12–13, 2012, at the Tennessee DOT Region One Auditorium. The course was led by graduates of the train-the-trainer pilot course held in Nashville in June 2012 and observed by two members of the research team. There was representation from law enforcement, fire, transportation, towing, and EMS, as shown in Figure C.23. Table C.45 contains a list of all participants' and observers' organizations.

Evaluation Results

At the conclusion of the 2-day pilot course, the participants were given a course evaluation form to complete. As was the

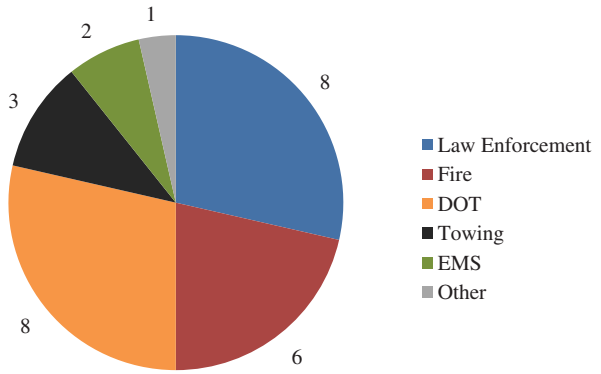


Figure C.23. Alumni course attendees by discipline.

Table C.45. Alumni Course Attendees

First Name	Organization
Attendee First and Last Name	Seymour Volunteer Fire Department
Attendee First and Last Name	Tennessee Department of Transportation
Attendee First and Last Name	Tennessee Highway Patrol
Attendee First and Last Name	Tennessee Highway Patrol
Attendee First and Last Name	Tennessee Highway Patrol
Attendee First and Last Name	Tennessee Highway Patrol
Attendee First and Last Name	Tennessee Department of Transportation
Attendee First and Last Name	Eddie's Wrecker Service
Attendee First and Last Name	Tennessee Department of Transportation
Attendee First and Last Name	Tennessee Department of Transportation
Attendee First and Last Name	Tennessee Towing & Recovery Professionals
Attendee First and Last Name	Tennessee Highway Patrol
Attendee First and Last Name	Gatlinburg Fire Department
Attendee First and Last Name	Tennessee Highway Patrol
Attendee First and Last Name	Rural Metro EMS Knoxville
Attendee First and Last Name	Tennessee Department of Transportation
Attendee First and Last Name	Greeneville Fire Department
Attendee First and Last Name	Seymour Volunteer Fire Department
Attendee First and Last Name	Greeneville Fire Department
Attendee First and Last Name	Tennessee Department of Transportation
Attendee First and Last Name	Eddie's Wrecker Service
Attendee First and Last Name	City of Knoxville Fire Department
Attendee First and Last Name	Tennessee Highway Patrol
Attendee First and Last Name	Knoxville Police Department
Attendee First and Last Name	Tennessee Highway Patrol
Attendee First and Last Name	Tennessee Department of Transportation
Attendee First and Last Name	Lenoir City Utilities Board
Attendee First and Last Name	Tennessee Department of Transportation
Attendee First and Last Name	Jefferson County Emergency Management
Attendee First and Last Name	Rural Metro EMS Knoxville

case with the train-the-trainer pilots, the feedback was very positive. Three-quarters of respondents "strongly agreed" that they would recommend this training to others. An additional 19% "agreed" with that statement, meaning 94% of respondents would recommend the training to other responders. The question with the least positive reaction asked respondents if they were likely to attend training on this topic in the future. The majority, 81%, responded favorably; however, the remaining 19% had "neutral" feelings. Two of these three neutral responses came from towing attendees, indicating that the training may not have had as strong of a positive reaction as in the other disciplines. One potential explanatory variable is that there were no instructors at the course with a towing background. However, no other pilot course had tower instructors, yet the towing community had positive reactions to the course. Figure C.24 illustrates the evaluation results for all 16 questions.

The evaluation responses were also analyzed by discipline and years of TIM experience. The training appears to have been well received across three of the four disciplines in attendance. According to the responses to Question 16, 100% of DOT attendees, 100% of fire attendees, 88% of law enforcement attendees, and 50% of towing attendees (only two evaluations from towers) would recommend this course to others.

The message of SQC appeared to resonate with nearly all attendees, regardless of TIM experience. An analysis of Question 23 reveals that all respondents reported a gain in SQC appreciation.

Question 16—"I would recommend this training to others."

Figure C.25 provides responses to Question 16 stratified by TIM discipline.

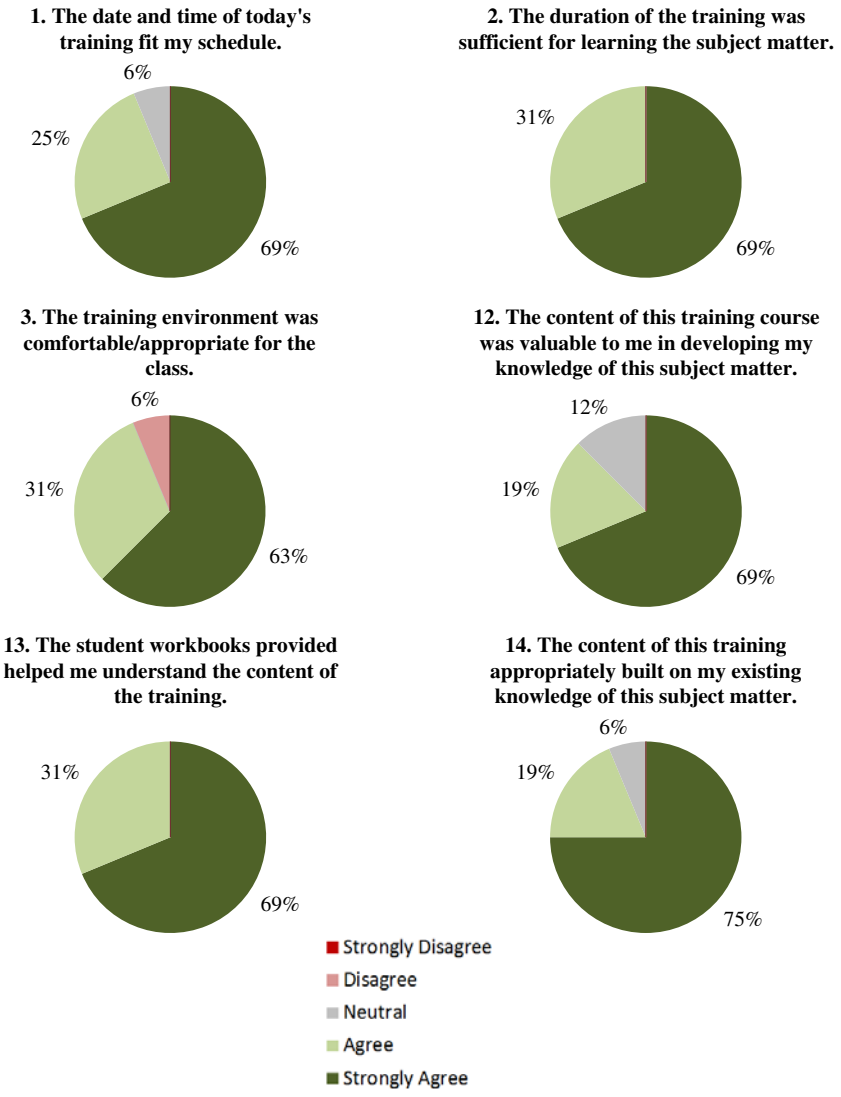


Figure C.24. Evaluation results for the Tennessee alumni-led pilot (continued on next page).

(continued from previous page)

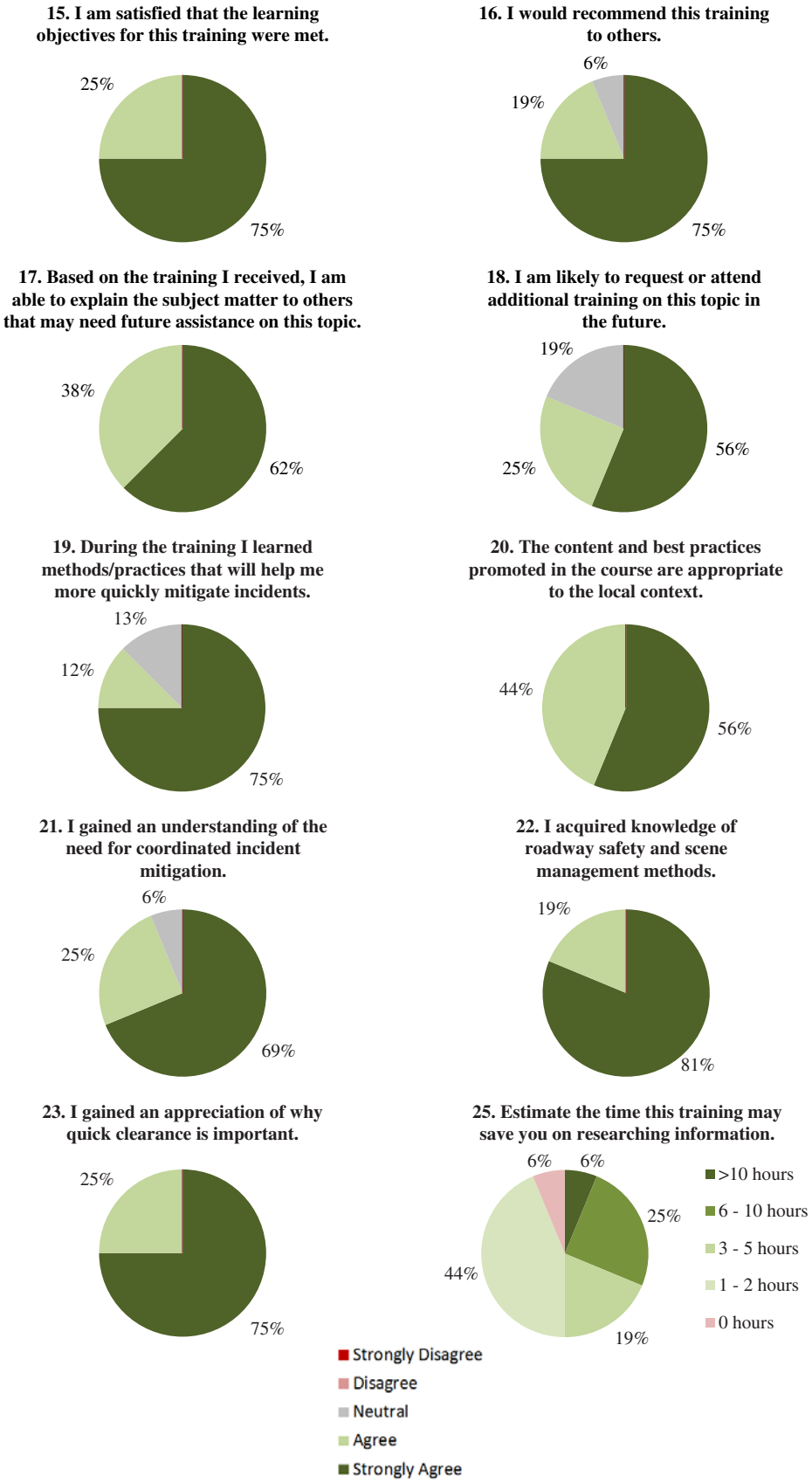


Figure C.24. Evaluation results for the Tennessee alumni-led pilot.

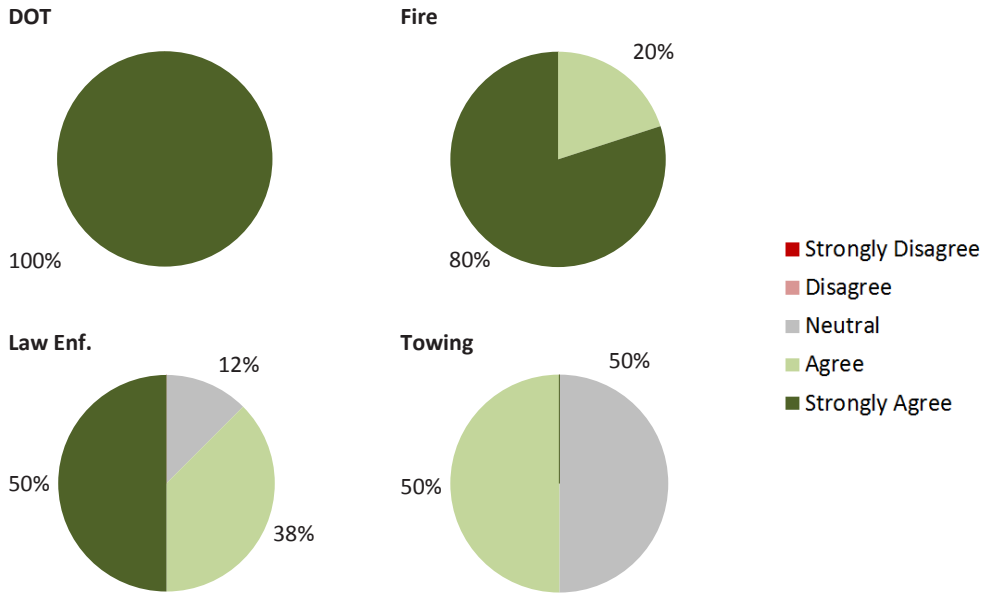


Figure C.25. Alumni course responses to Question 16 stratified by TIM discipline.

Question 23—"I gained an appreciation of why quick clearance is important."

Figure C.26 provides responses to Question 23 stratified by years of TIM experience.

While nearly all participants had a positive experience, the qualitative feedback provided the team with insight into areas of potential improvement. Most of the constructive feedback focused on a somewhat less positive experience for towers. This is an interesting feedback item that generally did not appear in any other pilot course. One potential explanation is that there were no towers in attendance at the June 2012 train-the-trainer pilot in Nashville. Without towers at that course, the attendees did not have the full benefit of the multi-disciplinary environment. Given that these attendees then became the instructors for the alumni-led pilot, it is possible the initial lack of tower involvement was partially responsible for some of the tower concerns expressed in the evaluation. Because there were only three towers present at the alumni-led pilot, it is difficult to precisely determine the source of the tower concerns.

All of the comments to the qualitative feedback sections are presented in Tables C.46 through C.51, along with the resolution to each comment (if applicable).

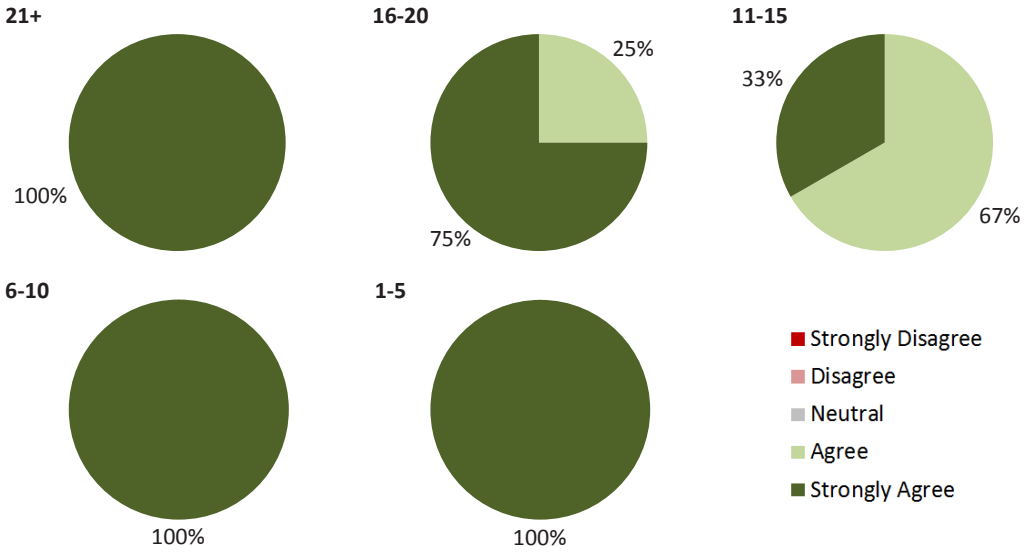


Figure C.26. Alumni course responses to Question 23 stratified by years of TIM experience.

Table C.46. Question 4—Scheduling Comments

Comment	Resolution
1. Well-developed curriculum. 2. Room temp was very cold.	Room complaint passed to venue contact.
Class was good for DOT, fire, and police, but not much for towing.	Team is evaluating why towers may have had less valuable experience.
Room too cold!	Room complaint passed to venue contact.
Room was a little cold at times.	Room complaint passed to venue contact.

Table C.47. Question 24—Overall Training Comments

Comment	Resolution
I think it helps when we can work together, but need more information from dispatch.	na
I would definitely recommend this course to others.	na
Would be interested in further classes or opportunities to take a Train-the-Trainer course. I teach work zone safety to our utilities operations at Lenoir City, which consists of 150 employees working in roadside work zones.	na

Table C.48. Question 26—Time-Saving Measures Comments

Comment	Resolution
Again, towing needs more info on what to bring to the scene.	Team is evaluating why towers may have had less valuable experience.
Any information that may be read on this subject has potential to be interesting or useful. So don't think for that reason I would not read or research other info.	na
I was impressed with the handouts and materials provided to me.	na

Table C.49. Question 34—"If you believe that the course contains gaps or omits any content which would be valuable, please provide an explanation."

Comment	Resolution
Gaps between towing and dispatch.	Curriculum will be reviewed.
Great job.	na
Incorporating working with (to include training) power companies. Our electric crews respond to numerous motor vehicle crashes each week that have broken poles and downed power lines at incident scenes.	Interesting comment and speaks to the myriad agencies that are related directly and indirectly to TIM.
The towing and recovery section was just kind of rushed through.	This could be related to a relative lack of towing involvement prior to this course in Tennessee planning activities and the Nashville Train-the-Trainer course.

Table C.50. Question 35—"If you feel that the training presentation contains any shortcomings, please list them."

Comment	Resolution
The need for towing and recovery input is needed more as we towing and recovery are one of the most important entities needed for scene clearance.	This could be related to a relative lack of towing involvement prior to this course in Tennessee planning activities and the Nashville Train-the-Trainer course.

Table C.51. Question 36—"What do you consider to be the most valuable information that you will take away from this class?"

Comment
A greater understanding of how each department works on the scene as a whole and how to better work with each department.
A timely reopening of travel lanes.
Communication among all agencies on scene and dispatch.
Publications.
Refresher of ITS utilization.
Safety.
Safety and timely.
The information on the proper way to set up transition and buffer zones on highway incidents.
To properly position apparatus to block oncoming traffic.

Observer Comments and Course Modifications

The alumni-led course offered the research team the first opportunity to evaluate a course taught by graduates of the train-the-trainer course. Overall, the observer team felt the alumni pilot went well, validating the train-the-trainer concept. As expected, those alumni instructors that had done the most preparation were the most effective.

While there were only three towers present at this course, these attendees appeared to have a somewhat less valuable experience compared to attendees from other disciplines. It is possible that a lack of towers at the initial train-the-trainer pilot in Nashville resulted in less understanding of tower issues for the alumni instructors. If this was the case, this is further evidence of the criticality of multidisciplinary training. While curriculum content is crucial for attendee learning, the shared experience and understanding that comes from multidisciplinary learning is equally important.

The curriculum changes stemming from this pilot course generally focused on refining course content and improving instructor notes. A general refresh of data was conducted to provide the most up-to-date statistics in the curriculum. Instructor notes were reinforced based on observed experiences with new instructors, including adding presentation thumbnail images and adding photographs of activities. One major change was to recommend moving Lesson 11 (Situational Awareness) to follow Lesson 3 (Arrival). This change was made to provide a break from classroom curriculum during the first day of the course.

APPENDIX D

Course Evaluation Tools

A. National Traffic Incident Management Responder Train-the-Trainer Course: Participant Feedback Form

Instructions: Please answer the following questions about the training you just received. Check only one box indicating the degree to which you agree or disagree with each statement. You may provide optional comments or explanation in the spaces provided.

Demographics

Training Location:
Training Dates:
Your Name:
Your Agency or Organization:
Your Job Title:
Your Phone Number:
Your Business E-mail:

Scheduling

(Check only one box)	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The date and time of today's training fit my schedule.	☐	☐	☐	☐	☐
2. The duration of the training was sufficient for learning the subject matter.	☐	☐	☐	☐	☐
3. The training environment was comfortable/appropriate for the class.	☐	☐	☐	☐	☐

4. Comments or explanation:

_____

_____

_____

Instructor(s)

(Check only one box for each statement)	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5. The instructor clearly explained the goals and objectives of the training.	☐	☐	☐	☐	☐
6. The instructor clearly conveyed the material to the audience.	☐	☐	☐	☐	☐
7. The instructor's knowledge of the subject matter was satisfactory.	☐	☐	☐	☐	☐
8. The instructor's pace of presenting the material was appropriate.	☐	☐	☐	☐	☐
9. The instructor satisfactorily answered participants' questions.	☐	☐	☐	☐	☐
10. The instructor satisfactorily used training aids (e.g., PowerPoint Slides, Activities, etc . . .) to help facilitate a clearer understanding of the topic.	☐	☐	☐	☐	☐

11. Comments or explanation:

_____

_____

Overall Training

(Check only one box for each statement)	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
12. The content of this training course was valuable to me in developing my knowledge of this subject matter.	☐	☐	☐	☐	☐
13. The student workbooks provided helped me understand the content of the training.	☐	☐	☐	☐	☐
14. The content of this training appropriately built on my existing knowledge of this subject matter.	☐	☐	☐	☐	☐
15. I am satisfied that the learning objectives for this training were met.	☐	☐	☐	☐	☐
16. I would recommend this training to others.	☐	☐	☐	☐	☐
17. Based on the training I received, I am able to explain the subject matter to others that may need future assistance on this topic.	☐	☐	☐	☐	☐
18. I am likely to request or attend additional training on this topic in the future.	☐	☐	☐	☐	☐
19. During the training I learned methods/practices that will help me more quickly mitigate incidents.	☐	☐	☐	☐	☐
20. The content and best practices promoted in the course are appropriate to the local context.	☐	☐	☐	☐	☐
21. I gained an understanding of the need for coordinated incident mitigation.	☐	☐	☐	☐	☐
22. I acquired knowledge of roadway safety and scene management methods.	☐	☐	☐	☐	☐
23. I gained an appreciation of why quick clearance is important.	☐	☐	☐	☐	☐

24. Comments or explanation:

_____

_____

_____

_____

Time-Saving Measures

(Check only one box)	>10 hours	6–10 hours	3–5 hours	1–2 hours	0 hours
25. Estimate the time this training may save you on researching information, e.g., reading training manuals, researching guidance and protocols, searching online.	☐	☐	☐	☐	☐

26. Comments or explanation:

Instructor Materials

(Check only one box for each statement)	Strongly Agree	Agree	Neutral or N/A	Disagree	Strongly Disagree
27. Based on the training and materials I received, I understand how to set up the classroom for training.	☐	☐	☐	☐	☐
28. Based on the training and materials I received, I am confident that I can lead all classroom activities.	☐	☐	☐	☐	☐
29. The instructor notes contained in the Instructor Guides will help facilitate my delivery of the National Traffic Incident Management Responder course.	☐	☐	☐	☐	☐
30. I am satisfied that the slide presentations, videos, and other visual aids provide a good foundation for teaching the National Traffic Incident Management Responder course.	☐	☐	☐	☐	☐
31. The resources and reference materials are relevant to the curriculum content.	☐	☐	☐	☐	☐
32. I believe that the time allocated to each lesson is sufficient to allow me teach it.	☐	☐	☐	☐	☐

33. Comments or explanation:

34. If you believe that the course contains gaps or omits any content which would be valuable, please provide an explanation.

35. If you feel that the training presentation contains any shortcomings, please list them.

36. What do you consider to be the most valuable information that you will take away from this class?

B. National Traffic Incident Management Responder Train-The-Trainer Course: Evaluation of Program

Demographics

Training Location:
Training Dates:
Your Name:
Your Agency or Organization:
Your Phone Number:
Your Business E-mail:

1. Overall, did you feel sufficiently **prepared** to deliver the assigned instruction?

   ____ Yes
   ____ No

   If you answered "No," what do you recommend be changed or added to the program to increase your preparation?

2. Do you believe that the provided instructional material was **logically organized** for your use as the instructor?

   ____ Yes
   ____ No

   If you answered "No," what do you recommend be changed to make the flow of instruction better?

3. Do you believe that the **presentation material** enabled you to achieve the learning objectives for the students?

   ____ Yes
   ____ No

   If you answered "No," what do you recommend be changed to make the presentation material better?

4. Were the **activities sufficiently explained** to you so that you could facilitate their accomplishment by the students?

   ____Yes
   ____No

   If you answered "No," what do you recommend be changed to make facilitating the activities better?

   _____

   _____

   _____

5. Was the **time** allowed for the instruction sufficient to allow you to meet the instructional objectives?

   ____Yes
   ____No

   If you answered "No," was the time allocated too long or too short?

   ____Too long, I needed less time.
   ____Too short, I needed more time.

   If you answered no, what do you recommend be changed to improve your ability to manage the time?

   _____

   _____

   _____

   _____

6. Please rate the Train-the-Trainer in terms of its impact and usefulness in the following areas, using the scale below.

(Check only one box)	Very Useful	Useful	Neutral	Disagree	Not Useful
37. Increasing your subject matter knowledge	☐	☐	☐	☐	☐
38. Increasing your confidence in delivering your own subject matter expertise	☐	☐	☐	☐	☐
39. Increasing your ability to successfully deliver the instructional content	☐	☐	☐	☐	☐

7. Do you think you will have the opportunity to utilize the training skills you've practiced during this workshop within the next three months?

   ____Yes ____No

   If yes, please briefly describe when and how you might apply these skills.

   _____

   _____

   _____

   If no, please explain why you will not be able to utilize these training skills within the next three months.

   _____

   _____

   _____

8. If you were given the task of redesigning this program, other than what you have already described above, what would you change?

   _____

   _____

C. Strategic Highway Research Program (SHRP) 2 Student Exam

Lesson 1 – Statistics, Terminology, and Structure

_____ **Question 1:** What does the acronym NUG stand for?

A. National Unified Group
B. National Utilization Goal
C. National Unified Goal
D. National Utilization Group

_____ **Question 2:** The main NUG objectives are: responder safety, safe, quick clearance, and _____.

A. Responder coordination
B. Prompt, reliable interoperable communications
C. Implement "Steer It/Clear It" laws in every state
D. Implement "Move Over" laws in every state

_____ **Question 3:** A traffic queue is defined as:

A. The backup of approaching traffic at an incident site
B. The staging of tow/recovery vehicles at an incident site
C. The backup of traffic downstream traffic at an incident site
D. The staging of first responder vehicles at an incident site

_____ **Question 4:** Crashes, disabled vehicles, and debris on the road are the most important factors affecting travel time reliability as they cause roughly ____ of non-recurring congestion.

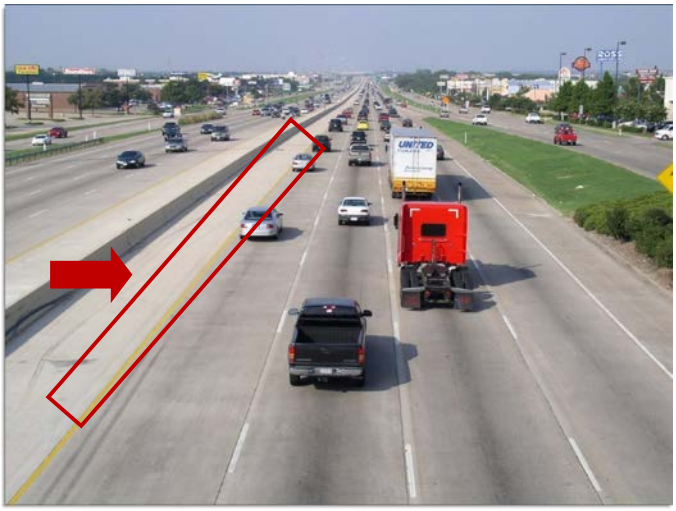
A. 5%
B. 25%
C. 50%
D. 100%

_____ **Question 5:** In the U.S., on average, approximately 3 injury crashes occur every:

A. Second
B. Minute
C. Week
D. Hour

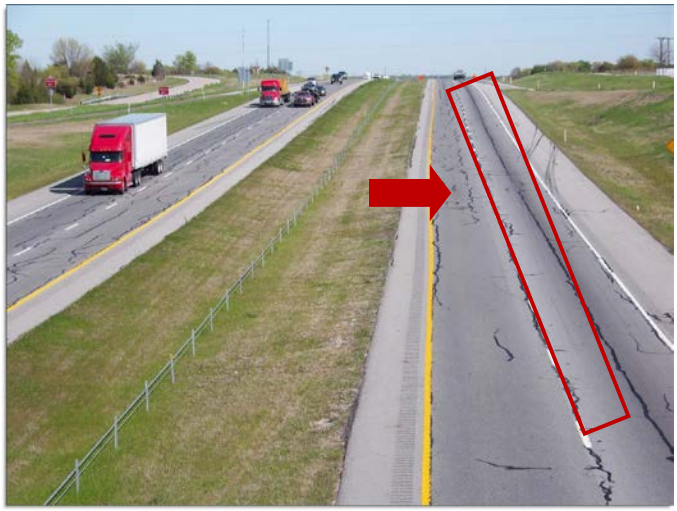
_____ **Question 6:** The area identified in the photo with the arrow and box is called:

A. Left lane
B. Right lane
C. Left or inside shoulder
D. Left or outside shoulder



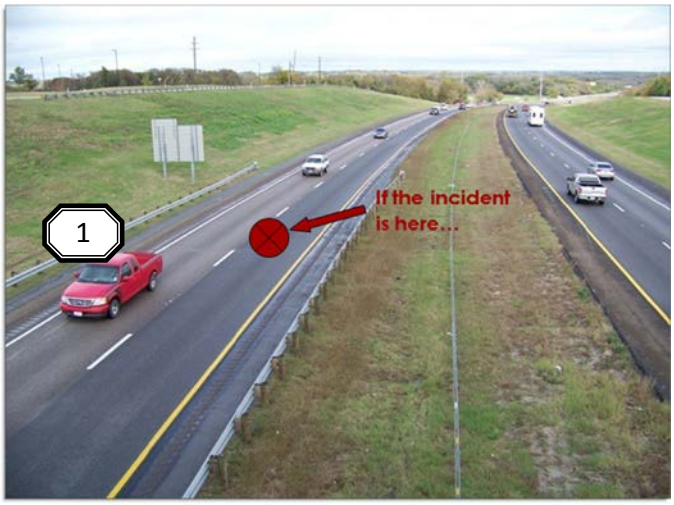
_____ **Question 7:** The area identified in the photo with the arrow and box is called:

A. Number 1 lane
B. Number 2 lane
C. Right number 1 lane
D. Right outside shoulder



_____ **Question 8:** In the photo, is the truck labeled 1 considered downstream or upstream of the incident?

A. Upstream
B. Downstream
C. Lane +1
D. Right lane



_____ **Question 9:** According to the TIM phases of incident response, which of the following is the next responder duty after incident arrival?

A. Initial Size-Up
B. Traffic Management
C. Investigation
D. Clearance

_____ **Question 10:** What does the acronym NIMS stand for?

A. National Incident Maintenance System
B. National Inventory Management System
C. National Incident Management System
D. National Incident Command System

_____ **Question 11:** Where can national standards for traffic control devices be found?

A. In the Manual on Uniform Traffic Control Devices
B. In the National Unified Goal
C. There are no national standards; each state determines its own standards
D. In the National Incident Command System

_____ **Question 12:** What does chapter 6I of the Manual on Uniform Traffic Control Devices contain information on?

A. It contains vendor information on where to purchase traffic control devices
B. It addresses the proper use and implementation of roadway signage
C. It addresses the proper use of traffic control devices in a traffic incident management area
D. It addresses the proper use of traffic control devices in construction work areas

Lesson 2 – Notification and Response

_____ **Question 1:** The time period between when an incident is first reported or detected and when first responders are notified of the incident is referred to as:

A. Response time
B. Notification time
C. Reflex Time
D. Detection time

_____ **Question 2:** Why it is important for the Communications Center personnel to provide the geographic location of an incident using mile markers or the nearest intersection?

A. To provide the most accurate description for later-arriving responders
B. To track which intersections see the greatest occurrence of incidents
C. To identify the type of incident
D. To more accurately identify the specific location of the incident

_____ **Question 3:** Why is it important that Communications Centers ask for the type and color of the vehicles involved when an incident is reported?

A. In order to know which responder groups should be dispatched
B. It helps with verification if an incorrect incident location has been reported
C. To track the types of vehicles most frequently involved in incidents
D. It is important for insurance claims

Lesson 3 – Arrival

_____ **Question 1:** Why is the use of multiple emergency lights at an incident scene discouraged by the MUTCD once good traffic control is established?

A. Use of too many lights can be distracting and can create confusion
B. Use of too many lights is draining on battery life
C. MUTCD does not discourage the use of lights
D. Use of too many lights causes the effects of high-visibility retro-reflexivity to be diminished

_____ **Question 2:** Every emergency unit should notify their Dispatch or Communications Center that they have arrived on-scene. What are some information items that should be communicated by the first-arriving emergency unit?

A. That the unit has arrived on-scene. The only other information that needs to be communicated is whether the reported geographical location was correct
B. That the unit has arrived on-scene as well as traffic conditions, exact incident location, and other issues related to the geographical location of the incident that would assist later-arriving units
C. That the unit has arrived on-scene and whether Hazmat is involved
D. That the unit has arrived on-scene

_____ **Question 3:** If a vehicle is involved in a minor incident and is blocking traffic, relocating it to a secondary location follows the practice of _____.

A. Work It
B. Push It
C. Pull It
D. Move It

_____ **Question 4:** Which term means that incident responder vehicles are positioned at angles that create a protected area for responders and incident vehicle occupants?

A. Linear Positioning
B. Block Positioning (Blocking)
C. Parallel Positioning
D. Protected Positioning

_____ **Question 5:** When blocking an incident site with a responder vehicle, the front tires should be turned _____ the work or activity area.

A. Toward
B. Away from
C. Parallel to
D. Perpendicular to

_____ **Question 6:** A "Zero" Buffer is an area at the incident scene identified as:

A. The downstream space created by a blocking vehicle
B. The upstream space created by a blocking vehicle
C. The space between a blocking vehicle and moving traffic
D. The space created by a blocking vehicle that is occupied by personnel and equipment

_____ **Question 7:** When using _____ blocking protocol, an additional lane is shut down in order to increase safety at an incident scene.

A. Traffic
B. Lane + 1
C. Road
D. Vehicle

_____ **Question 8:** This type of ANSI Standard vest has back and front coverage, but no side panels.

A. Class 1
B. Class 2
C. Class 3
D. All Standard ANSI vests have side panels

_____ **Question 9:** Which class of ANSI Standard vest has sleeves?

A. Class 1
B. Class 2
C. Class 3
D. All Standard ANSI vests have sleeves

_____ **Question 10:** The shorter-length ANSI Standard vest, also known as ANSI 207, should be used by law enforcement under which circumstance?

A. When stopping a violator for a traffic infraction such as speeding
B. When performing traffic control duties
C. When performing a traffic stop on a vehicle that is reported stolen
D. Law enforcement is only permitted to wear ANSI 107 type vests

_____ **Question 11:** According to the Federal Highway Administration and American Traffic Safety Services Association, high-visibility safety apparel should be replaced when it becomes faded, torn, dirty, soiled, worn, or defaced, or it is not visible at _____ feet, day or night.

A. 500
B. 1,000
C. 2,000
D. 5,000

_____ **Question 12:** On what point does the Federal MUTCD revision of 2009 supersede 23 Code of Federal Regulations, Part 634?

A. It requires responders to wear high-visibility apparel on all highways, not just federally-funded ones
B. It requires all responders to wear high-visibility apparel only on federally-funded highways
C. It specifies that responders may wear Performance Class 1 vests instead of Classes 2 and 3
D. It specifies that flaggers are exempt from wearing high-visibility safety apparel

Lesson 4 – Initial Size-Up

_____ **Question 1:** According to Federal MUTCD 2009, activities that need to be completed within 15 minutes of on-scene arrival include: estimating the number of vehicles and injuries, estimating the expected time duration of the incident, assessing whether there is evidence of criminal activity, and _____.

A. Donning high-visibility safety apparel
B. Completing all incident paperwork
C. Estimating the expected vehicle queue length
D. Notifying local media outlets

_____ **Question 2:** It is recommended that responders arriving at a traffic incident should estimate the magnitude of the traffic incident, the expected time duration of the traffic incident, and the expected vehicle queue length within _____ minutes of their arrival on-scene.

A. 5
B. 10
C. 15
D. 20

_____ **Question 3:** According to Federal MUTCD, a Minor duration incident must have travel lanes cleared in:

A. Less than 15 minutes
B. Less than 30 minutes
C. 30 minutes to 1 hour
D. 1 hour to 2 hours

_____ **Question 4:** According to Federal MUTCD, the expected duration of an Intermediate Incident is _____.

A. Less than 30 minutes
B. From 30 minutes to 2 hours
C. From 2 hours to 3 hours
D. More than 3 hours

_____ **Question 5:** According to Federal MUTCD, the expected duration of a Major Incident is _____.

A. Less than 30 minutes
B. From 30 minutes to 1 hour
C. From 1 hour to 2 hours
D. More than 2 hours

_____ **Question 6:** At a vehicle crash scene, four (4) quarts of engine oil and approximately one (1) gallon of anti-freeze has spilled onto the road surface. If the local protocol is to consider this spill a "hazardous materials incident which requires a response from a regional hazardous materials response team," what is the likely consequence of this decision?

A. State and federal environmental reports will need to be filled out by the agency which requested the Hazmat team
B. An extended period lane closures, increased congestion, and delayed clearance of the crash scene will result
C. Overall the crash scene will be cleared faster due to additional personnel being at the scene
D. Though it may result in delayed clearance, calling for a Hazmat response in this case is correct

_____ **Question 7:** The duration of an incident involving a disabled vehicle parked on the shoulder of the road not blocking traffic is classed as:

A. Minor
B. Intermediate
C. Secondary
D. Major

_____ **Question 8:** When exiting a responder vehicle, the exit should be made on the _____side when possible, first checking inside and outside mirrors for oncoming traffic and watching for debris on the roadway. When moving around a corner or the "zero" buffer, stop and watch for traffic.

A. Non-traffic
B. Traffic
C. "Zero" buffer
D. Upstream

Lesson 5 – Command Responsibilities

_____ **Question 1:** Which of the following is a goal of the Incident Command System (ICS)?

A. Keeping incident response expenses to a minimum
B. Speeding up incident response
C. Keeping responders and others safe
D. Using as many resources as possible

_____ **Question 2:** ICS is managed by objectives ultimately determined and prioritized by the Incident Commander. The benefits of having a core set of prioritized incident objectives is that they:

A. Allow for diverse goals within the multiple agencies responding
B. Allows multiple agencies to have their own separate goals and agendas
C. Allow for independent incident response from each responder
D. Enable multiple agencies to have a consistent goal without duplication of effort

_____ **Question 3:** A Battalion Chief, a County Sheriff, a State Transportation Supervisor and a State Trooper are working together to coordinate a major duration incident. Under the Incident Command System they are collectively referred to as:

A. Unified Command Post
B. Unified Command
C. Command Communication
D. Incident Directors

_____ **Question 4:** The Incident Command System (ICS) is an integrated organizational structure using plain English that allows responders to _____, whether single or multiple incidents, without being hindered by jurisdictional boundaries in the case of using unified command.

A. Develop their own method of response
B. Slowly respond to incidents
C. Use agency-specific radio codes or slang
D. Efficiently respond to incidents

_____ **Question 5:** _____ are used by incoming resources that are not actively involved in incident response and are standing by.

A. Loading zones
B. Resource areas
C. Staging areas
D. Staging zones

_____ **Question 6:** No matter the eventual duration or complexity of an incident response, _____ must always be established upon arrival.

A. A Section
B. A Branch
C. Divisions
D. Command

_____ **Question 7:** The Public Information Officer (PIO) is designated as part of the Command staff. Their job is to facilitate communication between:

A. The ICS sections and Dispatch
B. Divisions and task forces and the media
C. Unified Command and the incident victims, hospitals, and the media
D. Unified Command and the media, and Traffic Management Centers, and Dispatch

_____ **Question 8:** The _____ is designated as part of the Command staff and is responsible for monitoring scene safety and developing preventative safety measures.

A. Liaison Officer
B. Safety Branch
C. Safety Officer
D. Safety Commissioner

_____ **Question 9:** This practice allows first responders to prepare, pre-plan, and practice for multi-agency command & control of incidents, specifically for those areas that have a greater likelihood of having incidents. It involves the development of diversion route protocols, processes for using staging areas, and guidelines for processes, such as quick clearance.

A. Pre-planning
B. Physical organization
C. Reinforced response
D. Responding

_____ **Question 10:** When Command asks for additional responders from their agency and others, this is called:

A. Initial Response
B. ICS Expansion
C. Unified Command
D. Reinforced Response

Lesson 6 – Safety and Investigation

_____ **Question 1:** When dealing with simple vehicle fluid leaks some of the steps include identifying the spill as a vehicle fluid, stopping leaking material at the source, containing and limiting the spill from spreading, _____, and sweeping material off travel lanes.

A. Applying available absorbents
B. Notifying the Environmental Protection Agency
C. Notifying a Hazmat response team
D. Looking up the Emergency Response Guidebook

_____ **Question 2:** You come upon an incident scene with an injured motorist and there are elements present which could expose you to injury, contamination, or other ill-effect. Until other responders arrive on-scene, you should:

A. Approach the scene to check on the motorist
B. Refrain from approaching the scene to check on the motorist as your safety must come first
C. Call for an air ambulance to be dispatched
D. Don your high-visibility vest and approach the motorist as the motorist's safety must come first

_____ **Question 3:** Under only very limited circumstances should a responder without emergency medical training move an injured motorist. One of these circumstances is:

A. If there is imminent danger to leaving the injured motorist in place
B. If EMS or Fire and Rescue haven't yet arrived on-scene
C. If the motorist is unconscious
D. If the motorist is trapped in their vehicle

_____ **Question 4:** _____ is the process of prioritizing patients based on the severity of their condition. This rations patient treatment efficiently when resources are insufficient for all to be treated immediately.

A. Size-Up
B. Triage
C. Assessment
D. Examination

_____ **Question 5:** According to the National Fire Protection Association (NFPA), if it is necessary to have fire vehicles positioned in the right-of-way of a highway, these vehicles should be highly visible and shall be equipped with a chevron retro-reflective striping. This striping is required to be:

A. 6 inch alternating red and yellow vertical stripes
B. 6 inch alternating red and yellow horizontal stripes
C. 6 inch alternating red and yellow stripes sloping at 45 degrees
D. 6 inch alternating red and yellow stripes in a diamond pattern

_____ **Question 6:** What source of information will most quickly provide the correct actions to take when responding to an incident involving a Commercial Motor Vehicle (CMV) bearing a 4-digit response placard?

A. The DOT Emergency Response Guidebook
B. The truck driver
C. The shipping container or package
D. A local Hazmat response team

_____ **Question 7:** Why should responders approach a burning vehicle from a vantage point other than the front or rear of the vehicle?

A. Items may violently explode, propelling loose parts off the vehicle
B. To avoid smoke inhalation
C. So as not to interfere with other firefighting activities
D. To mitigate the dangers of passing traffic

_____ **Question 8:** During vehicle firefighting, why is it often necessary to close down multiple lanes?

A. To make room for the firefighters' hose and equipment which will be used to attack the fire
B. For extrication efforts
C. To allow room for the tow truck to remove the burned vehicle
D. So that Unified Command can be established

_____ **Question 9:** Gasoline-electric hybrids shut down their internal combustion engine at idle and restart it when needed. What circumstance can that cause at an incident scene that involves when a gasoline-electric hybrid?

A. High-voltage cables on hybrids are always orange
B. Firefighting techniques used on hybrid vehicles are completely different
C. Hybrid vehicles can appear to be turned off even though their high-voltage electrical system is still energized
D. Hybrid vehicles pose a significant shock danger to responders and should not be worked on

_____ **Question 10:** In the case of trapped victims who will require extrication, what clearance time is considered best practice?

A. 30 minutes or less
B. 60 minutes or less
C. 90 minutes or less
D. 2 hours

_____ **Question 11:** When quick clearance of the highway is essential, the best landing place for a medical helicopter or air ambulance is?

A. On the highway upstream of the incident
B. An off-highway site close to the incident
C. On the highway downstream of the incident
D. Next to where the ambulance is parked

_____ **Question 12:** What is the recommended typical size of a medical helicopter landing zone?

A. 100 feet by 100 feet
B. 50 feet by 50 feet
C. 10 feet by 10 feet
D. 100 feet by 100 feet, uphill slope facing the wind

_____ **Question 13:** If immediate patient transport is required, how should law enforcement be involved?

A. A law enforcement officer will always need to ride along in the ambulance
B. They should be advised which hospital the patient is being transported to so that an interview may be conducted at a later time
C. The law enforcement officer needs to return the patient's driver's license to them before transport to the hospital
D. Law enforcement must request a medical helicopter

_____ **Question 14:** Properly documenting findings for presentation in a court of law, from taking measurements and photos of the incident scene, and _____ are duties specific to law enforcement personnel.

A. Extrication
B. Determining crash causation
C. Calling for towing vehicles
D. Calling for Department of Transportation involvement

_____ **Question 15:** Name a form of crash scene measurement that uses cameras and CAD to compute the distances associated with crash scenes.

A. Laser Measurement
B. Sokia (Total) Station
C. Photogrammetry
D. Tape Measure

_____ **Question 16:** Photogrammetry saves time:

A. During the investigation process at the crash scene
B. In the office, after the initial investigation
C. In the squad car, while waiting on wreckers
D. In responding to the crash scene

_____ **Question 17:** What may be an appropriate reason that responders may refrain from moving debris at an incident scene?

A. Debris should only be removed by towing and recovery personnel
B. In certain situations, specific debris may actually be evidence that law enforcement needs for investigative purposes
C. Debris should only be removed by Fire Department personnel prior to any patients being removed from their vehicles
D. Debris at a crash scene may have sharp and jagged edges that will injure anyone who touches it

Lesson 7 – Traffic Management

_____ **Question 1:** Per Federal MUTCD requirements, cones that are used at night on highways with a posted speed limit over 45 mph must be _____.

A. 28 inches tall with 2 reflective stripes
B. 36 inches tall without reflective stripes
C. 18 inches tall with 2 reflective stripes
D. 60 inches tall with 4 reflective stripes

_____ **Question 2:** Federal MUTCD requirements state that when a single flagger is used, they must stand _____.

A. In the median of the roadway, if available
B. On the shoulder of the roadway
C. In the closest lane of traffic as to be highly visible
D. Behind a blocking vehicle

_____ **Question 3:** This traffic control device provides information that assists motorists when there is a substantial drop in speed, significant queuing and delays expected, and/or lane or ramp closures.

A. Changeable Message Sign
B. Retro-reflective sign
C. Reflective traffic cone
D. Road flare

_____ **Question 4:** Retro-reflective, pink deployable signs as specified by NFPA Standard #1500, should be 36″×36″ or 48″×48″ in size and deployed _____.

A. At the rear step of a blocking fire vehicle
B. On the shoulder downstream of traffic cones
C. On the shoulder upstream of traffic cones
D. At the same location as changeable message signs

_____ **Question 5:** It is necessary to increase your "Advance Warning" area when at a _____.

A. Straight stretch of road during daylight hours
B. Major intersection
C. City surface street on a dry, sunny day
D. A roadway with a slight hill or curve

_____ **Question 6:** Responders arrive to find an incident which is in the opposite lanes of a divided highway. They park their vehicles and cross over the median barrier to reach the incident scene.

A. This is not considered a good practice and is discouraged due to safety risks
B. This is the most efficient way to position their vehicles
C. This is the fastest way to access the scene and is an acceptable practice
D. This allows them the best access to equipment on their vehicle

_____ **Question 7:** Which responder is allowed to direct traffic at an incident scene?

A. Law Enforcement officer
B. Fire/Rescue
C. EMS
D. Any trained responder

_____ **Question 8:** When multiple responder vehicles are parked at the incident scene, which vehicle(s) should turn off their overhead lights following the "light shedding" protocol?

A. All response vehicles that are unoccupied and parked in the activity area
B. All response vehicles except for the furthest upstream providing advance warning
C. All tow and recovery vehicles
D. All response vehicles except law enforcement

_____ **Question 9:** The following are attributes of which type of flare? Visible 360 degrees from great distances; can have multiple flash patterns; non-hypnotic and non-disorienting; multiple configurations; disposable or rechargeable; average of 90–100 hours running time; can withstand being run over by most vehicles.

A. Incendiary
B. Chemical light stick
C. Light-emitting diode
D. Light stick

_____ **Question 10:** It is necessary to increase your "Advance Warning" area when at a incident when there is bad weather such as rain, fog or snow, limited sight distances such as bridges or hills/curves, or _____.

A. At sunrise or sunset
B. On straight and level rural road
C. During peak travel hours
D. During special events

_____ **Question 11:** This buffer space covers the distance between the incident space and Transition Area. The length of this upstream buffer space is determined based on the stopping sight distance of a vehicle traveling at posted speed limit.

A. "Zero" buffer
B. Longitudinal buffer
C. Lateral buffer
D. Upstream buffer

_____ **Question 12:** Which component of a temporary traffic control does this statement refer to?
This area is used to direct approaching traffic out of its normal travel path by using a cone taper and is where tapers should be set up immediately upon Arrival.

A. Advance warning area
B. Termination area
C. Transition area
D. Buffer area

_____ **Question 13:** For safety reasons, each time a cone is placed, the responder should:

A. Return to the shoulder before counting off the next set of 10 paces
B. Return to the shoulder before counting off the next set of 20 paces
C. Stay in the lane and count off the next set of 10 paces
D. Stay in the lane and count off the next set of 20 paces

_____ **Question 14:** After securing the incident scene, which of these groups of lights should be turned **ON?**

A. Traffic preemption devices, board/directional lights, white strobes
B. Ground lights, headlights, white strobes
C. Ground lights, amber arrow board/directional lights, compartment light
D. Traffic preemption devices, ground lights, white strobes

_____ **Question 15:** The following needs to be communicated to the Communications Center: Special equipment needs, lane closings or openings, or _____.

A. Whether cones or flares are used
B. Traffic diversions
C. Which responders are staged and standing by at the scene
D. The blocking position of vehicles

Lesson 8 – Removal

_____ **Question 1:** _____ is defined as the practice of rapidly, safely, and aggressively removing temporary obstructions from the roadway.

A. Quick Action
B. Quick Clearance
C. Effective Obstruction Removal
D. Push, Pull, or Drag

_____ **Question 2:** What is the term used to describe a vehicle involved in an incident that is still functional/should be moved out of the roadway as soon as possible?

A. Steer It/Clear It
B. Work It
C. Quick Clearance
D. Vehicle removal

_____ **Question 3:** A disabled vehicle is a commercial vehicle which has spilled its cargo. It is determined that the leaking cargo is hazardous. What should happen before initiating clearance?

A. The vehicle should immediately be moved out of the roadway
B. The cargo should be salvaged
C. The appropriately trained responders must be contacted
D. The driver should be asked what action he wants responders to take

_____ **Question 4:** What can be found in the TRAA Vehicle Identification Guide?

A. Information needed to correctly dispatch towing and recovery units
B. Information on what Hazmat placards mean
C. Information on whether the vehicle is a hybrid
D. The telephone number of the local towing company

_____ **Question 5:** What additional step may also be accomplished during liquid and debris clean-up?

A. Request permission from the Communications Center to remove or clean up debris or fuel/liquid spill
B. Request permission from Command to remove or clean up debris or fuel/liquid spill
C. Request a Hazmat response.
D. Refer to the Emergency Response Guidebook

_____ **Question 6:** In the case of a disabled vehicle in an intersection, what is considered a best practice?

A. Have the wrecker perform the hook-up in place
B. Push the vehicle out of the intersection and then perform the hook-up
C. Have the motorist move the vehicle
D. Don't request the wrecker until the vehicle is moved out of the intersection

_____ **Question 7:** In the case of unexpected delays, who should be notified and advised?

A. Communications Center
B. Insurance company
C. The towing company
D. Law enforcement

_____ **Question 8:** What protection do Hold Harmless laws provide to responders at crash scenes?

A. This law protects them from liability when treating patients
B. This law protects them from liability when removing damaged or disabled vehicles
C. This law protects them should they become injured at an incident scene
D. This law protects them from being sued by another responder

Lesson 9 – Termination

_____ **Question 1:** Effective termination includes recovering the roadway from any damage caused by the incident, removing temporary traffic control devices from the incident scene, _____, informing drivers of the return to normal traffic flow condition, and departure from the incident scene.

A. Lifting the alternate route or detour restrictions
B. Calling the Communications Center to dispatch towing capability
C. Calling the Communications Center to dispatch a medical helicopter
D. Installing temporary traffic control devices

_____ **Question 2:** Restoring traffic signalization to the appropriate status and updating traffic control devices is a restoration phase task specific to which discipline?

A. Law Enforcement
B. EMS
C. Department of Transportation
D. Fire and Rescue

_____ **Question 3:** Why should responder vehicles that are no longer required leave the scene as soon as practical?

A. To minimize exposure to traffic
B. To move to the next incident
C. To make room for other responders
D. To save on highway emissions

_____ **Question 4:** Roadway recovery is defined as the task that involves:

A. Re-opening travel lanes
B. Addressing physical damage such as any major fuels spills or roadway damage
C. Re-opening the highway after a complete shutdown
D. Salvaging any spilled cargo

_____ **Question 5:** By the time vehicles involved in a minor duration incident are moved to the shoulder:

A. The majority of the response vehicles should be gone
B. The majority of the response vehicles should be upstream
C. The majority of the response vehicles should still be in position
D. Only EMS should remain

_____ **Question 6:** Effective termination of a traffic-related incident includes coordinating with responders still on-scene about incident egress, notifying the Communications Center as lane closings/openings change, and _____.

A. Coordinating with the Department of Transportation to restore traffic
B. Coordinating with law enforcement to restore traffic
C. Calling for a towing company to remove damaged vehicles
D. In the case of a fatality, calling for the coroner

_____ **Question 7:** When should high-visibility apparel be removed?

A. While you are still in the work area
B. Once you have passed the "zero" buffer
C. Once law enforcement has left the incident scene
D. Once you are inside the vehicle

APPENDIX E

Assessment Analysis

Introduction

This Pilot Assessment Report presents the findings of a comprehensive analysis of the SHRP 2 train-the-trainer pilot courses, based on the results of the post-course attendee assessment. The research team conducted four train-the-trainer pilot courses and one alumni-led pilot course taught by graduates of the train-the-trainer course. The pilots were conducted at the following locations and dates:

- Pilot 1: Nashville, Tenn. June 19–20, 2012
- Pilot 2: Richmond, Virginia June 27–28, 2012
- Pilot 3: Helena, Montana July 11–12, 2012
- Pilot 4: Fort Lauderdale, Florida August 8–9, 2012
- Alumni-Led Pilot: Knoxville, Tennessee September 12–13, 2012

This analysis is part of the research team's ongoing efforts to support the National Academies' pursuit of a high quality training program for traffic incident responders. The objective of this analysis is to evaluate the effectiveness of the train-the-trainer course and materials in preparing trainers to deliver training through FHWA-sponsored national implementation. Course effectiveness is measured by attendee performance on a 92-question assessment administered at the conclusion of the 2-day course. Through this analysis, it can be determined

- Whether instructional strategies supported learning objectives.
- If the minimum knowledge requirements were met (across incident responder types and experience levels).

Pilot Course Test Summary of Findings

The assessment was distributed to 162 incident responders participating in one of the five pilot courses. The SHRP 2 team primarily targeted incident responders from six separate disciplines to participate in the course: Law Enforcement, Fire/Rescue, Department of Towing and Recovery, Emergency Medical Services (EMS), Dispatch, and Department of Transportation (DOT). Each participant, under the guidance of the instructor, was issued a test with specific instructions. The test was informally proctored; the instructors were in the room while the students were taking the exams. The exam was not held to a specific time limit.

Demographics

The respondents consisted of 51 representatives of Law Enforcement, 42 from the Fire/Rescue discipline, 18 from Towing and Recovery, two from EMS, two from Dispatch, 46 from the DOT, and one other. Table E.1 provides a demographic profile of the total respondents.

The respondents were asked to provide their years of experience. Of the 162 respondents, 137 answered the question. Table E.2, provides the experience profile based on the answers received.

Student Performance

Figure E.1 illustrates the overall student performance as compared workshop to workshop. There was minimal variation among locations. Virginia students achieved the highest score (85.0%). Alumni-led students achieved the lowest scoring (80.4%). The lower alumni-led score was anticipated given that (a) the alumni-led pilot was marketed to less-experienced responders than the four train-the-trainer pilot courses and (b) the alumni-led pilot was taught by recent graduates of the train-the-trainer course, whereas the train-the-trainer pilots were taught by master instructors from the research team who were very familiar with the curriculum.

Table E.1. Respondents by Discipline

Discipline	Number of Respondents
Law enforcement	51
Fire	42
Towing	18
EMS	2
Dispatch	2
DOT	46
Other	1
Total	162

Table E.2. Respondents by Discipline and Experience

Discipline	0–5	6–10	11–15	16–20	21+	Total
Law enforcement	12	5	12	7	7	43
Fire	7	4	7	2	19	39
Towing	3	2	4	2	2	13
EMS	0	0	1	0	1	2
Dispatch	0	0	0	0	1	1
DOT	9	4	9	7	9	38
Other	0	0	1	0	0	1
Total	31	15	34	18	39	137

Instructional Strategies Support of Learning Objectives

One purpose of this assessment is to determine whether instructional strategies support learning objectives. Learning of each lesson was separately evaluated. Figure E.2 illustrates the overall student performance by lesson. It demonstrates that learning remains relatively consistent across the lessons. Student scores for the alumni-led pilot were generally lowest in all lessons. Lesson 2 has modest variation in scores. This is likely due to only having three questions for this section. Given that Lesson 2 is designed for 20 minutes of instruction time, it may be necessary to add more questions to that lesson. Scores generally trend downward after Lesson 3, likely due to fatigue. It is important to note that course is designed to be delivered in its entirety or in modules. In instances where the course is broken into several modules, assessment fatigue is anticipated to be less of an issue.

Variation in absorption was evaluated to determine if there was an impact on students' learning by the content presentation. Figure E.3 presents the average lesson scores for those that attended one of the four train-the-trainer pilots and demonstrates there is some variability in the absorption of learning at the start and end of the class. Lesson 3 received the highest score (88.7%). Lesson 9 had the lowest score (66.1%). Several respondents skipped Lesson 9 due to fatigue (skipped sections not included in analysis). Given that Lesson 9 was designed for only 10 minutes of instruction time, yet contains seven assessment questions, it may be necessary to reduce the number of questions for Lesson 9.

Learning across Responder Types and Experience Levels

A secondary purpose of this assessment is to determine whether the minimum knowledge requirements were met across incident responder types and experience levels. Figure E.4 illustrates that learning is occurring across the various responder types (law enforcement, fire, towing, and DOT shown—EMS, Dispatch excluded due to smaller sample size). It demonstrates that learning remains relatively consistent across the four disciplines. There is not much variation among discipline scores in Tennessee and Montana. Towers generally scored lowest (Virginia, Florida, and Alumni-led).

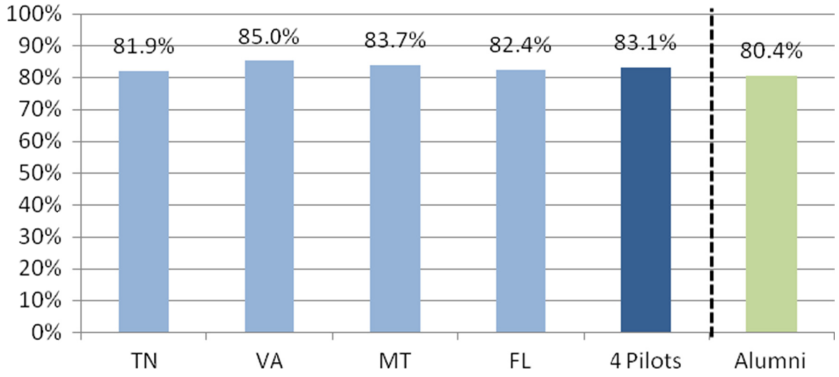


Figure E.1. Average student assessment scores across pilot locations.

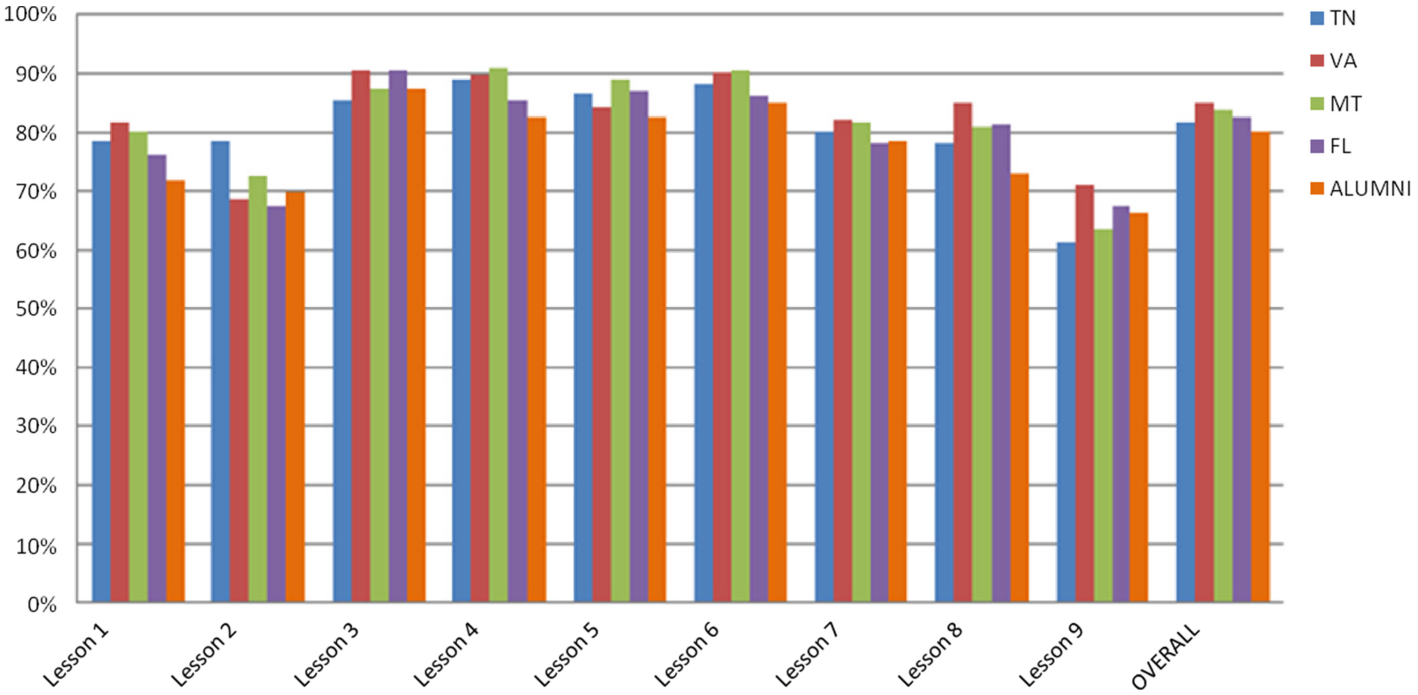


Figure E.2. Average assessment scores by lesson and pilot location.

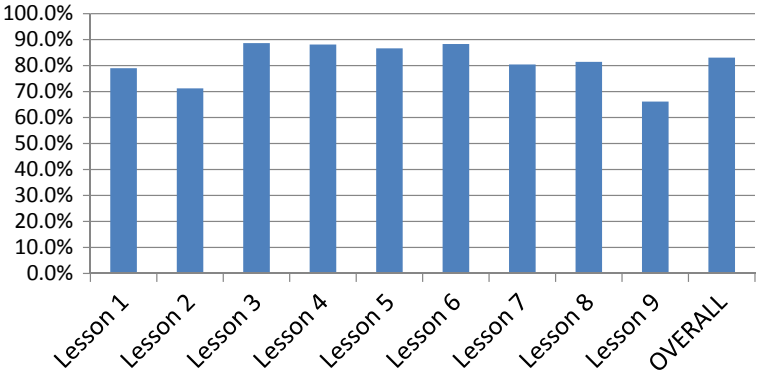


Figure E.3. Average assessment scores for all train-the-trainer pilots (variation in absorption).

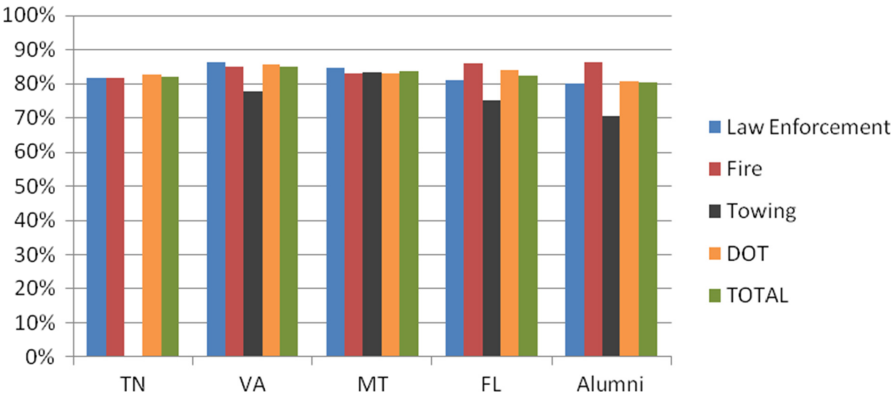


Figure E.4. Average assessment scores by location and discipline (multidisciplinary learning).

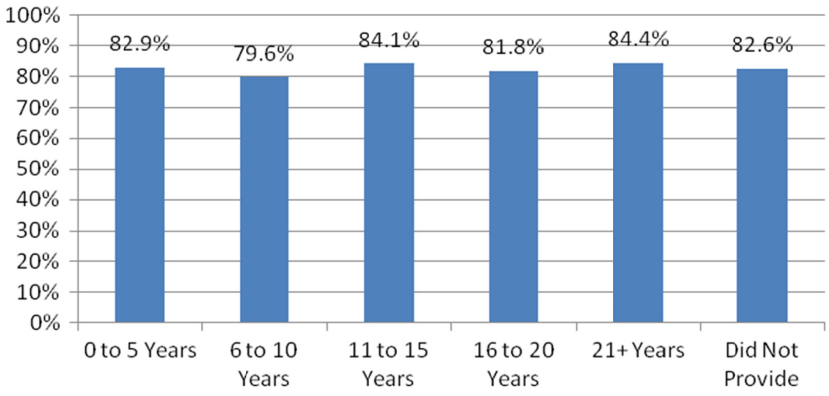


Figure E.5. Average assessment scores across the continuum of TIM experience.

Student scores for the alumni-led pilot course had the largest spread between high and low discipline score (15.6 points).

Figure E.5 illustrates that learning is occurring across the various experience levels in on-scene TIM response. It demonstrates that learning remains relatively consistent across the continuum of experience in the field. The 25 students that did not identify their level of experience scored within the same level as those who did. In summary, there is a small difference in scores based on years of experience, as demonstrated by the lowest score of 79.6% for those with 6 to 10 years and the highest score of 84.4% for those with more than 21 years of experience.

Summary and Recommendations

Overall, the assessment successfully measured course performance. Learning is occurring across incident responder types and experience levels. There was no major difference in student performance based on training or testing location. It is apparent from performance on the assessment that the instructional strategies supported the learning objectives.

Learning remains relatively consistent across the lessons. It is recommended that additional questions be added to Lesson 2 and questions be removed from Lesson 9 to provide a more balanced ratio of instruction time to number of assessment questions. The analysis also shows that there is variability in the absorption of learning at the start and end of the class. Scores generally trend downward after Lesson 3, which is likely due to fatigue. In instances where the course is broken into smaller modules, fatigue should be less of an issue. Should the course be delivered in its entirety, it is recommended to move the Field Activity (Lesson 11) from Day 2 to Day 1 to provide an extended classroom break on the 1st day. Additionally, this will also keep students in the classroom before the exam and should provide better continuity (i.e., students will not have to transition from the classroom curriculum to a field activity and then back to the classroom for assessment). Finally, the student scores for the alumni-led pilot were generally the lowest in all lessons. This is mostly attributed to the less-experienced students teaching the alumni pilot. However, given that the alumni pilot was led by recent train-the-trainer graduates, the instructors' relative unfamiliarity of the curriculum may have been partially responsible for lower scores in that pilot. Stressing the importance of preparation time to the instructors of alumni-led pilots should help mitigate the lack of curriculum familiarity.

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AASHTO LIAISON

Gummada Murthy, *Associate Program Director, Operations*

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Andrew Beal, *Manager, Traffic Office, Highway Standards Branch, Ontario Ministry of Transportation*

*Membership as of April 2013

Related SHRP 2 Research

Improving Traffic Incident Scene Management (L12)

e-Learning for Training Traffic Incident Responders and Managers (L32B)

Post-Course Assessment and Reporting Tool for Trainers and TIM Responders Using the SHRP 2 Interdisciplinary Traffic Incident Management Curriculum (L32C)