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Exercise Handbook: What Transportation Security and Emergency Preparedness Leaders Need to Know to Improve Emergency Preparedness, MTI Report 12-08

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Exercise Handbook:
What Transportation Security and Emergency Preparedness Leaders Need to Know to Improve Emergency Preparedness

MTI Report 12-08

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REPORT 12-08

EXERCISE HANDBOOK: WHAT TRANSPORTATION SECURITY AND EMERGENCY PREPAREDNESS LEADERS NEED TO KNOW TO IMPROVE EMERGENCY PREPAREDNESS

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16. Abstract

The U.S. Department of Homeland Security (DHS) has provided extensive general guidance on developing training and exercise programs for public entities, but little had been done to focus that material on the transportation sector specifically. Transportation sector emergency managers have noted that there should be specific guidance for developing exercises that are focused on the operational work of their agencies, in addition to the Logistics Section functions that are usually the focus of transportation sector entities in multi-agency, multi-jurisdiction exercises. The first section of his report provides information on federal training and exercise requirements for transportation sector entities. It summarizes the changes to emergency management programs and requirements that grew out of the Presidential Policy Directive-8 (PPD-8) issuance in early 2011, and the challenges of adult training. The second section is a Homeland Security Exercise and Evaluation Program (HSEEP)-compliant practical handbook using the project management approach that guides transportation sector staff in the creation, development, implementation and wrap-up of federally mandated exercises. It includes scenarios and implementation guidance based on the actual experiences and work of the transportation sector.

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As part of our research we worked with emergency managers for transit and transportation organizations who have responsibility for developing and implementing exercises within their agencies. Each one read the draft and then provided comments, suggestions and advice that led to the final publication. They are Dave Bergner, American Public Works Association representative; Martin L. Brunges, SEPTA; William Ciaccio, New York City Transit; Samuel L. Donelson, South Jersey Transportation Authority; Bruce Gadbois, Orange County Transit Authority; Ron Lopez, San Francisco Emergency Medical Services (retired); Lorraine Motola, Long Island Railroad and New York City Department of Public Health (retired); John F. O'Grady, New York City Transit; Scott A. Sauer, SEPTA; Bryan Smith, Idaho Department of Transportation; James G. Sullivan, South Jersey Transportation Authority; and Michael Young, New Orleans Regional Transit Agency/Veolia.

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EXECUTIVE SUMMARY

The transit and transportation sector is a key critical infrastructure. All other emergency response depends on the availability of functional roads and transportation assets. Police, fire and emergency medical services (EMS) vehicles can only reach disaster victims if passable and safe roads have been inspected and cleared of debris by the transportation agency personnel. Rescue and relief goods can only be delivered to the disaster site if roads, railroads and ports can recover functionality rapidly. This ability to respond to disasters effectively is based on training the transit and transportation agency personnel in advance, and practicing the knowledge and skills needed to ensure the rapid response to disaster events through realistic exercises.

Following research in 2010, Edwards and Goodrich published Emergency Management Training and Exercises for Transportation Agency Operations, MTI 09-17 (Edwards & Goodrich 2010). One outcome of the research was recommendations from practitioners to create a practical handbook for transportation sector exercise directors. The Department of Homeland Security (DHS) has provided extensive general guidance on developing training and exercise programs for public entities, but little had been done to focus that material on the transportation sector specifically. The role of the transportation sector in delivering emergency response services is often overlooked, both by the other first responders, and by the transportation sector itself.

Transportation agency personnel interviewed for MTI 09-17 stated that they had little help in developing a thorough and effective training and exercise program specifically for transportation personnel, and often relied on multi-agency training and exercise events focused on police and fire personnel for achieving their exercise goals. Transportation sector emergency managers noted that they needed specific guidance in developing exercises that actually tested their internal training and emergency plans, which are focused on the work of their agencies, such as debris removal, road and bridge inspections, permitting, and system operations, as well as the Logistics Section functions that are usually the focus of transportation sector entities in multi-agency, multi-jurisdiction exercises.

Part One of his report provides information on federal training and exercise requirements for transportation sector entities, including a list of guidance documents, and federal plans and frameworks that guide the development of emergency management in the transportation sector. As shown in Table 1, the terrorist attacks of 9/11 resulted in the development of a more detailed set of regulations for homeland security and emergency management activities at the local and state levels and among federal agencies, addressing all four phases of emergency management: mitigation, preparedness, response and recovery. One of these regulations is the Homeland Security Exercise and Evaluation Program (HSEEP) that governs the conduct of the emergency management and homeland security exercise program.

Table 1. Development of Homeland Security Programs

Date	Event/Program/Action
9/11/2001	Terrorist attacks on the World Trade Center and Pentagon
2002	Creation of Department of Homeland Security (DHS)
2003	*Homeland Security Presidential Directive 5* (HSPD-5): *Management of Domestic Incidents* (created National Incident Management System [NIMS])
	HSPD-8 *National Preparedness* (required the development of a preparedness goal)
2005	Interim National Preparedness Goal
	Urban Area Security Initiative Geographic Risk Analysis methodology
	National Planning Scenarios
	Homeland Security Exercise and Evaluation Program (HSEEP)
	Target Capability List; Universal Task List
2011	*Presidential Policy Directive 8* (PPD-8) – replaced HSPD-8 See Table 9 for a detailed analysis of the changes that resulted from this directive.

Part One then summarizes the changes to emergency management programs and requirements that grew out of the Presidential Policy Directive 8 (PPD-8) issuance in early 2011, and the challenges of adult training (Obama 2011). Part Two is a practical handbook using the project management approach that guides transportation sector staff in the creation, development, implementation and wrap-up of federally mandated exercises. The guidance complies with the Homeland Security Exercise Evaluation Program (HSEEP), but focuses the scenarios and implementation guidance on the actual experiences and work of the transportation sector.

PART ONE: EXERCISES FOR THE TRANSPORTATION SECTOR: CHALLENGES AND OPPORTUNITIES

I. INTRODUCTION

The transportation sector[1] has been designated as a critical infrastructure for the United States (Bush 2003b; DHS 2009). During emergency and disaster response, the key role of transportation is obvious. All other emergency response depends on the availability of functional roads and transportation assets. Evacuation of populations at risk and disaster victims depends on the availability of functional transit and transportation assets. Police, fire and emergency medical services (EMS) vehicles can only reach disaster victims if roads have been inspected, and passable and safe roads have been cleared of debris by the transportation agency personnel. Rescue and relief goods can only be delivered to the disaster site if roads, railroads, airports and ports can recover functionality rapidly. This ability to respond to disasters effectively is based on planning for the use of transportation sector assets during disasters, training the transportation sector personnel in advance for their emergency roles, and practicing the knowledge and skills needed to ensure the rapid and effective response to disaster events.

Earlier MTI research, Emergency Management Training and Exercises for Transportation Agency Operations, MTI Report 09-17 (Edwards & Goodrich 2010), was based on a series of interviews with transit and transportation organization emergency exercise staff members in various sized transportation agencies, and experts in emergency management exercises. Those interviewed noted that transportation sector personnel would benefit from access to a practical handbook on exercises that would take existing federal guidance and create a transportation-specific, check-list-based document. This research is based on the work in Emergency Management Training and Exercises for Transportation Agency Operations (MTI Report 09-17).

This research begins by documenting the existing federal guidance and the evolving requirements of the Department of Homeland Security (DHS) and Department of Transportation (US DOT) for emergency management and homeland security planning, training and exercises. It then provides some guidance on overcoming the challenges of maintaining required emergency response training, using information about strategies for adult education in the workplace.

Part Two provides the exercise development and implementation handbook, which was written to support the work of a transportation sector professional who has been assigned to ensure compliance with the federal requirements for exercises, based on required planning and training. DHS has provided extensive general guidance on developing training and exercise programs for public entities (HSEEP Web n.d.), but little has been done to focus that material on the transportation sector specifically. Most currently available materials focus on police, fire and EMS personnel, and on local and state-level emergency operations centers. While the new core capabilities list calls out “critical transportation” as an element, this is defined only as a logistics role (HSEEP 2013, 3-3), ignoring the crucial roles of damage assessment, debris removal and emergency reconstruction in the ability to provide the delineated elements of evacuation and logistics support (FEMA 2012a, 2-3).

Experts have noted that if Emergency Support Function #1: Transportation (ESF #1) is activated, clearing roads, repairing transportation infrastructure, or if transportation assets

are a critical part of the response, then Transportation is part of operations within the federal response system. The role of the transportation sector in delivering emergency response services is often overlooked, both by the other first responders, and by the transportation sector itself.

When transportation agency personnel were interviewed for Emergency Management Training and Exercises for Transportation Agency Operations (MTI Report 09-17 [Edwards & Goodrich 2010]) in 2009-2010, they stated that they had little help in developing a thorough and effective training and exercise program specifically for transportation personnel, and often relied on multi-agency training and exercise events focused on police and fire personnel for achieving their exercise goals (see example in Figure 1). This handbook provides guidance materials, templates and scenarios specific to transit and transportation exercises.

Figure 1. Fire Extinguisher Use Drill

Source: Frances Edwards, 2004.

II. BACKGROUND

In 2002, Mineta Transportation Institute researchers began delivering emergency management training to the California Department of Transportation (Caltrans) headquarters and district staff members. Over 25 deliveries of transportation-customized class offerings, including 2.5-hour-long Incident Command System/ Standardized Emergency Management System/National Incident Management System (ICS/SEMS/NIMS) and 8-hour-long SEMS Emergency Operations Center, and Continuity of Operations courses, have resulted in knowledge about the methods used and the challenges faced in delivering emergency management training and exercises by the nation's largest transportation agency for its staff members. The MTI researchers have also worked with Valley Transit Agency (VTA) in Santa Clara County, Altamont Corridor Express Rail (ACE) (see Figure 2), Caltrain, and Amtrak on full scale exercises over the past 15 years. As a result of this exposure to the transit and transportation community, they became aware that training and exercise resources specifically developed for transportation and transit agencies are scarce.

Figure 2. Learning Station at Facilitated Exercise, ACE

Source: Frances Edwards, 2005.

In 2000, Goodrich developed the concept of a "facilitated exercise" after observing several failed exercises created for first responders. VTA and the San Jose Metropolitan Medical Task Force's (MMTF)[2] multi-agency personnel served as the test bed for this exercise type. Unlike typical full scale exercises that rely on heavily scripted responses by the field-level participants, the facilitated exercise model creates facilitator-led discussions in which

the field participants from multiple disciplines discuss the challenge at hand and jointly develop an action plan before engaging in that action, modeling the actual ICS action planning methodology used in the field.[3] Following the success of this methodology, it was adopted by the San Jose MMTF as their primary exercise model.

Over the next five years Edwards and Goodrich developed bi-annual exercises for the MMTF and its partners, including tabletop exercises, facilitated exercises and the more traditional full scale exercises. Participant evaluation forms continued to reflect the benefits of the facilitated exercise model in developing knowledgeable and capable first responders.

In 2005 and 2009, Edwards and Goodrich served as exercise committee members and exercise evaluators for full scale exercises on the local railroad (scene shown in Figure 3). They were able to test a theory that, while full scale exercises often leave people confused about the right behavior in a disaster, the facilitated exercise was more successful with adult students who benefit from experiential learning and guided discussions. However, few transit and transportation personnel had the background in emergency management to develop meaningful scenarios on which to base the exercises, thereby limiting the value of the exercise. It seemed clear from Edwards' and Goodrich's practical research that a handbook was needed that would guide transportation and transit personnel in developing effective exercises for their agencies.

Figure 3. Evaluator Observes Command Post Interaction at Full Scale Exercise

Source: Frances Edwards, 2005.

In 2009, Edwards and Goodrich were awarded a Seed Money Grant by MTI to research the materials that are currently available to support transit and transportation personnel in emergency management training and exercises. Their literature review was published as an annotated bibliography in Emergency Management Training and Exercises for Transportation Agency Operations (MTI 09-17). Their conclusion: “The consensus across all transit agencies interviewed was that there is a need to augment the HSEEP [Homeland Security Exercise and Evaluation Program] documents with practical guidance on exercise design, and exercise documentation development. Many agencies noted that the exercise staff changes frequently, so written materials are essential for compliance with HSEEP into the future.” (Edwards and Goodrich 2010, 27).

The literature review in MTI 09-17 encompassed books developed for training in a corporate setting, as well as materials focused on police and fire personnel that have commonalities applicable to the transit and transportation sector, such as the role of stress in response. Independent study courses offered by Federal Emergency Management Agency (FEMA) were inventoried, along with HSEEP materials created for first responder multi-agency exercises and for public works executives. There is also guidance from the Department of Energy and the Federal Transit Administration for delivering emergency preparedness, response and recovery training, and even a Transportation Research Board (TRB) document explaining HSEEP requirements for transit and transportation agencies. Many federal emergency preparedness grants mandate specific courses and a certain number of exercises, but provide little guidance on developing exercise materials. None of these materials provides a blueprint for the development of a successful exercise in the transit and transportation sector.

For MTI Report 09-17, Goodrich also conducted telephone interviews with the personnel responsible for the exercise programs in seven transit agencies in three states. The consensus was that there is a need for an easy to use document that provides simple training strategies and examples of scenarios and exercise plans that could be adopted by transit and transportation agencies of all sizes.

It is especially important to note that while large metropolitan transit and transportation agencies may have professional emergency managers, most transportation agencies are in smaller communities without the resources for a full-time, professionally trained emergency manager. Most often the role falls to someone in the maintenance division who is an engineer or safety trainer. In most cases these people have no training to create the classes and exercises required by the federal transit grants, even though such training is available through the FEMA. Time and funding generally preclude their attendance at the available FEMA classes, along with a lack of information about the existence of the on-line independent study courses.

Transportation departments in large cities may be independent, but in smaller cities and counties they are often part of the Public Works or General Services departments. Experts have noted that in these situations staffing levels are shrinking, and transportation functions may be contracted out to consultants or outside vendors. David Bergner of the American Public Works Association, who was interviewed as part of this research, was himself the Public Works Director of several smaller communities in the Midwest, and he

noted the lack of professional emergency management expertise in most such agencies. Smaller agencies rely on volunteer organizations, contractors, and regional governmental partnerships for training exercises, which makes having transportation-specific guidance even more important.

While no handbook can substitute for professional training, it is clear that personnel assigned to provide the training and exercises often have no resources immediately available to them to create a successful training and exercise cycle. The goal of the current research was to provide a blueprint for training and exercise success to those many transit and transportation agencies that lack full-time professional emergency management staff, or even in-house staff with time to train as an exercise designer. Thus a handbook could be an accessible method for providing some guidance to the transportation or public works staff in collaborating with other agencies to meet federal exercise requirements.

III. METHODOLOGY

The research began with a review of existing literature to ensure that no similar publication had been created since the 2009-2010 research. The researchers evaluated the existing materials and determined what gaps exist. The practical exercise handbook was designed to fill the existing gaps, and reference other related materials that are currently available to consumers, such as the 2013 revision of the HSEEP guidance.

The researchers then developed a list of transit and transportation personnel working in emergency management and homeland security training and exercise programs who were willing to add their views on exercises for the transportation sector to the handbook. They included emergency management and transportation sector personnel with exercise experience at the federal, state and local levels, as noted in Table 2. In some cases it was necessary to benefit from the knowledge of recently retired practitioners due to the limitations on federal employees' ability to speak on the record, and the difficulty in finding active transportation emergency managers with the capacity to read and comment on the research report and handbook.

While not comprehensively representative of all parts of the country, the variety of their backgrounds and the consistency of their responses suggest that other professionals from other parts of the country would be likely to agree with their evaluation that the exercise handbook is needed across the transportation sector, regardless of the size of the agency. Even large agency staff members with considerable experience said that the checklists and scenario guidance would be helpful in crafting a variety of exercises. Due to the time limitations of all reviewers, the written responses to the exercise handbook review were not able to be collected. The in-person discussions generated useful feedback and many elements for the new handbook.

The first draft of the handbook was created using the project management approach, the common methodology used by engineers for construction and other large-scale, multi-division projects. It was circulated to several senior emergency management personnel with knowledge of the transportation sector in large-scale emergency response. The only substantial revision resulting from the first reviews was the addition of the Points to Consider section that gathers useful suggestions and lessons learned from all the interviewees, as well as from practical knowledge from the authors.

Table 2. Agencies/Personnel Interviewed

Name	Organization	Type	Size Category	Region	Top Natural Hazards
Dave Bergner	American Public Works Assn. Representative	Local Roads	Small/Medium-Size Cities (Personal experience)	Nationwide	Flood, Wildland-Urban Interface Fire, Drought, Winter Storm
Martin L. Brunges	SEPTA	Transit	Large System	Mid Atlantic	Hurricane, Flood, Power Outage, Heat, Winter Storm
William Ciaccio	New York City Transit	Transit	Large System	Mid Atlantic	Power Outage, Heat, Hurricane, Flood, Winter Storm
Samuel L. Donelson	South Jersey Transportation Authority	Expressway Transit Livery	Medium-Size County	Mid Atlantic	Power Outage, Heat, Hurricane, Flood, Winter Storm
Bruce Gadbois	Orange County Transit Authority	Transit	Medium-Size System	West	Flood, Wildland-Urban Interface Fire, Winter Storm, Earthquake
D.C. Jensen	Louisiana Office of Emergency Management (Ret.)	Statewide	Medium-Size State	South	Hurricane, Wildland-Urban Interface Fire, Heat
Ron Lopez	San Francisco EMS (Ret.)	First Responder	Large County	West	Flood, Wildland-Urban Interface Fire, Winter Storm
William Medigovich	US DOT (Ret.)	Transportation	Whole Nation	Nation-Wide/ International	All Hazards
Lorraine Motola	Long Island Railroad (Ret.)	Transit	Large System	Mid Atlantic	Power Outage, Heat, Hurricane, Flood, Winter Storm
John F. O'Grady	New York City Transit	Transit	Large System	Mid Atlantic	Power Outage, Heat, Hurricane, Flood, Winter Storm
Scott A. Sauer	SEPTA	Transit	Large System	Mid Atlantic	Hurricane, Flood, Power Outage, Heat, Winter Storm
Bryan Smith	Idaho DOT	Transportation	Medium-Size State	Mountain West	Winter Storm, Earthquake, Heat, Volcano
James G. Sullivan	South Jersey Transportation Authority	Expressway Transit Livery	Medium-Size County	Mid Atlantic	Power Outage, Heat, Hurricane, Flood, Winter Storm
Michael Young	New Orleans Regional Transit Agency/Veolia	Transit	Medium-Size System	South	Hurricane, Wildland-Urban Interface Fire, Heat

IV. LITERATURE REVIEW

The first draft of the literature review was developed as an annotated bibliography in Emergency Management Training and Exercises for Transportation Agency Operations (MTI Report 09-17 [Edwards & Goodrich 2010]). The second draft was developed as part of this research project, and is Annex C of Part Two: Handbook of Exercises for Transportation Sector Personnel of this publication.

V. FINDINGS

During the initial research it was discovered that in 2011 the Department of Homeland Security (DHS) undertook a comprehensive revision of the emergency management process. Homeland Security Presidential Directive 8 (HSPD-8): National Preparedness (Bush 2003c) was replaced by Presidential Policy Directive 8 (PPD-8): National Preparedness (Obama 2011). This led to a suite of related guidance documents and directives, which changed terminology and approaches to planning, training and exercises for emergency management in all sectors. DHS issued the final National Preparedness Goal in September, 2011, leading to a shift in focus to core capabilities (FEMA 2012a) from the target capability list (DHS 2007) and focusing on a whole community approach to emergency preparedness (FEMA 2011a). For the first time, transportation was listed as a core capability, providing a new emphasis on its importance in emergency response and recovery operations.

Growing out of the new PPD-8 interpretation of national preparedness was a new method of delivering the Transportation Security Grants (FEMA 2013a) that eliminated the traditional tiered system of guaranteed awards. Starting in 2012, agencies were required to submit investment justifications, which were competitively ranked for funding based on the importance of the investment to the achievement of the core capabilities. Funding for exercises was included in the Operations portion of the grant funding.

Furthermore, the Homeland Security Exercise and Evaluation Program (HSEEP) was redesigned to condense four volumes of guidance into one volume that is posted on the open source section of the HSEEP website (HSEEP 2013). While this new guidance is easier to read than the former four volume set of guidance, it nonetheless has no transportation-specific information, and is still oriented toward multi-jurisdictional exercises with public safety responders in the lead. It provides more extensive documentation assistance for exercise managers, and gives examples that could be useful in designing transportation exercises. However, the DHS/FEMA approach to emergency management still fails to place the Transportation Unit in the Operations Section of the Incident Command System, viewing it as a Logistics Section function to move goods and people around, rather than a critical first response of its own, unless Emergency Support Function #1: Transportation (ESF #1) is activated at the federal level. Without open, safe roads the other first responders cannot reach the victims of a disaster.

Interviews with the transportation sector experts generated a consistent set of responses to the questions about the exercise handbook's (Part Two of this report) contents and attributes (see summary in Table 3). Except for the suggestion to add a section on useful suggestions and lessons learned (called Points to Consider) the experts agreed that the format and content were useful to transportation sector staff members in developing exercises for transportation sector agencies. They also agreed that it was unique in its scope and approach.

Table 3. Handbook of Emergency Management Training and Exercises for Transit and Transportation Agencies - Verbal Survey Questions, Summary of Answers

Thinking about the Handbook of Emergency Management Training and Exercises for Transit and Transportation Agencies draft that was provided to you:	
Question	**Top Five (Most Frequent) Answers**
1. What was the most useful part of the Handbook for you?	1. The scenario format for the specific types of exercises, especially the complete, reality-based scenarios and the exercise goals and outcomes. 2. The example Improvement Matrix. 3. Exercise types and planning determinants table. 4. The project management checklists for each type of exercise. 5. The annotated bibliography with all the FEMA Independent Study courses listed.
2. Is there anything that should be added to the Handbook to make it more useful to a new exercise coordinator?	1. Tell him to find a mentor in a neighboring agency or jurisdiction and ask for help. 2. Add a "lessons learned" element and collect good ideas from your experts as you do the interviews. 3. Make a checklist for each exercise type [Note: the original version only had two example checklists].
3. What was the one thing you hoped to find that was missing? Why is this important?	1. Nothing. It is comprehensive and has more detail than any other reference available.
4. Was there anything in the Handbook that you thought was unnecessary? Why?	1. No.
5. Was there anything in the Handbook that you thought was confusing? Why? How could it be improved?	1. The term "project management" may be unfamiliar to some transportation personnel assigned to conduct exercises, and may be confused with the work of a project manager, which is often a classification/position in a transportation agency. Clarify what project management means and where the system comes from.
6. Was the Handbook organized and indexed for easy use? If not, how could it be improved?	1. Yes.
7. Would you like to comment on anything else about the Handbook?	1. Well written. 2. Thorough. 3. Useful for a novice, but also for an experienced emergency manager. 4. Well organized approach with comprehensive supporting documentation. 5. Useful guide to the HSEEP system that is transportation-specific.

Source: Interviews with fourteen transportation experts, as shown in Table 2.

VI. ANALYSIS

THE EXERCISE PROGRAM

An exercise program that verifies emergency response capability is a requirement of U.S. Department of Transportation (US DOT), Department of Homeland Security (DHS) and many state homeland security and emergency management programs. For example, the Federal Transit Administration (FTA) security and emergency management protective measures mandates exercises (Battelle 2006), which are also essential parts of an agency's overall emergency management program. DHS's FY 2013 Transit Security Grants Program requires that exercises "evaluate the performance of capabilities against the level of capabilities required" (FEMA 2013a, 12). Exercises may be used to determine whether staff training has been effective, and whether existing plans are adequate.

> For a transit agency to be prepared for security and emergency management, three major activities must be established in an ongoing fashion:
>
> - Plans and procedures must be created and kept up to date
> - Training materials must be created, disseminated, and updated on a regular basis
> - Exercises must be conducted and critiqued to verify the ability to act according to the plans and procedures, and [be] based on the associated training (Battelle 2006, 10)

Generally, emergency management is not explicitly and separately identified as a responsibility of a transit or transportation agency, rather it is an implied and over-arching responsibility of all governmental agencies and departments. Therefore, it is essential that all management employees understand how to create and manage an exercise program that meets the specific needs of the FTA (W. Medigovich, personal communication to authors, April 11, 2013).

Some transit agencies also operate commuter rail services, such as New York's Metropolitan Transportation Authority (MTA) that operates the Long Island Railroad. Therefore, their exercise mandates also come from the Federal Railroad Administration (FRA). FRA's Railroad Security Program requires security measures for passenger trains with "detailed planning for emergency situations," and an exercise cycle that includes "drills and exercises down to the local government level" (Fagan 2003, 11). See an example exercise in Figure 4.

Figure 4. Rescue from Train at Full Scale Exercise

Source: Frances Edwards, 2009.

Transit and transportation agencies have received emergency preparedness grants from federal sources, for instance the DHS transit or port grants. Some passenger rail systems have been part of DHS's Urban Area Security Initiative (UASI) grant program. In either case, managing a planning, training and exercising cycle may be a requirement of receiving the grant funding. Exercises may be used to demonstrate the capabilities developed through the use of these grant funds to train personnel, write plans or acquire equipment for communications and emergency response.

Transit agencies may be managed under contract by private sector companies, like New Orleans Regional Transportation Agency that is managed by Veolia Transportation. These companies often contract with consultants to provide the required exercises for transportation sector staff (M. Young, personal communication to authors, March 19, 2013). Nevertheless, the transit agency's management staff members need to know enough about the requirements for transit agency exercises to develop a complete request for proposal (RFP) or request for qualifications (RFQ) for the desired exercises, and to oversee the delivery of required exercise components by the contractor, including the After Action Report and Improvement Plan, requirements of the DHS Homeland Security Exercise and Evaluation Program (HSEEP) (HSEEP Web n.d.).

The Federal Highway Administration (FHWA) encourages the use of exercises to prepare for planned and unplanned events. Their guidance notes that exercises "can be used to

train and familiarize personnel with their roles and responsibilities," as well as "to (1) test the written assumptions in the transportation management plan and (2) see what must be changed and how the plan can be improved" (Radow 2007, 4). Radow notes that there will be a variety of stakeholders at a highway exercise, such as first responder agencies, special event sponsors, and technology providers, as well as agency emergency planning staff.

> With stakeholder agencies representing various jurisdictions and disciplines, review and testing promotes traffic management team coordination and increases stakeholder familiarity of the duties, responsibilities, and capabilities of other stakeholders. Activities range from tabletop exercises that examine how different agencies react to various scenarios to "hands-on" applications that can involve a full simulation or deploying a transportation management plan for smaller planned special events as a test. (Radow 2007, 4)

Identifying Exercise Capability Gaps in the Transportation Sector

Emergency Management Training and Exercises for Transportation Agency Operations (Edwards and Goodrich 2010) summarizes a year of research into transportation sector exercise programs and guidance. Findings include the existence of resources in websites, databases and publications, but expert interviews and surveys of transportation sector agencies showed that most transportation sector emergency managers found the materials lacking in implementation detail adequate to support an exercise program. Many were unaware of the Federal Emergency Management Agency's (FEMA) Independent Study courses on exercise design that would offer some guidance, and suggested that a handbook that incorporated information on resource availability and practical implementation steps would support a more complete exercise program for their agencies.

Research from 2009 through 2012 reveals that, with the exception of Radow's (2007) tabletop guidance, there is currently no practical field-oriented guide for the transportation sector to use in developing and implementing transportation-driven emergency management and homeland security exercises. While there is a robust literature describing exercises and their mandatory elements,[4] based on the federal HSEEP, there is no step by step guidance for the transportation sector staff member tasked with the development and implementation of the field-level exercise program. Past MTI research into transportation sector exercises demonstrated that staff turn-over in transportation sector agency exercise manager positions is frequent. In addition, experts have noted that mid-level and senior management is also experiencing a high rate of turnover. Interviewees reported that experienced exercise managers are retiring, and their cumulative knowledge is not being preserved for the benefit of newly appointed personnel (Edwards & Goodrich 2010). From the first quarter of 2010 through the first quarter of 2013, the rate of federal employee retirements has risen, and this is expected to continue, as pay freezes, furloughs and pay and benefit cuts encourage older workers to retire (W. Medigovich, personal communication to authors, April 11, 2013).

Currently, both FEMA and HSEEP websites provide information on training and exercises generally. The FEMA Independent Study series offers several free, on-line courses

(e.g., IS-120.a, IS-130, and IS-139) that can train new exercise managers in exercise components, and offer guidance on exercise development (FEMA 2008a, 2008b, and 2003). In 2010 the HSEEP site included a five-volume document set covering managing, planning, conducting and evaluating exercises, including sample documents and formats. These materials were based on a military approach to training and exercises, which were adapted by the National Guard Bureau from military unit rotation training cycles for use by federal grantees, and transportation professionals reported that they are difficult to use for civilian organizations (Edwards & Goodrich 2010). These materials are evolving, with newer items available on the website homepage (HSEEP Web n.d.), and additional revised documents were released in April 2013 that provide exercise guidance in a condensed format (HSEEP 2013). While the Transportation Research Board's TCRP Report 86: Guidelines for Transportation Emergency Training Exercises (TRB 2006) was intended to simplify the HSEEP guidance, it does not contain the specific information necessary for practical application by transportation sector exercise managers (Edwards & Goodrich 2010).

HSEEP Overview

According to the National Exercise Program Base Plan of 2011, "HSEEP provides exercise guidance and principles based on national best practices that constitute a national standard for homeland security exercises" (FEMA 2011b, 4). These exercises are intended to evaluate the capabilities of public agencies to respond to the greatest threats to the nation, as articulated after the terrorist attacks of 9/11. In 2005 the Interim National Preparedness Goal (DHS 2005) listed the fifteen National Planning Scenarios, as shown in Table 4. Of the possible catastrophic natural hazards, only earthquakes, hurricanes and pandemic influenza are among the planning scenarios, although flooding is the most common natural disaster in the United States (HSH.com 2011), and caused most of the misery and damage following Hurricane Katrina in 2005 (Cooper & Block 2006) and Hurricane Sandy in 2012 (Hurricane Sandy 2012). The National Planning Scenarios document states that the scenarios were designed to exercise essential capabilities, rather than involving all possible hazards (DHS 2006b).

Table 4. National Planning Scenarios

1.	Improvised Nuclear Device
2.	Aerosol Anthrax
3.	Pandemic Influenza
4.	Plague
5.	Blister Agent
6.	Toxic Industrial Chemical
7.	Nerve Agent
8.	Chlorine Tank Explosion
9.	Major Earthquake
10.	Major Hurricane
11.	Radiological Dispersal Device
12.	Improvised Explosive Device
13.	Food Contamination
14.	Foreign Animal Disease
15.	Major Cyber Attack

Source: DHS, *National Planning Scenarios, Ver. 21.3*, 2006b.

The Interim Goal (DHS 2005) states that the scenarios are “meant to be representative of a broad range of potential terrorist attacks and natural disasters. Collectively, they yield core prevention and response requirements that can help direct comprehensive preparedness planning efforts” (DHS 2005), yet they fail to appreciate the critical role of transportation in all disaster response. Therefore, transportation sector elements are not clearly included in training and exercise requirements in HSEEP materials, which focus on law enforcement, fire services and emergency medical services.

The original HSEEP exercise evaluation guidance focused on the 37-item Target Capabilities List (TCL) articulated by DHS in 2007, as shown in Table 5. These were cross-cutting activities that involved multiple disciplines, focused on the 15 planning scenarios shown in Table 4, that were developed by DHS with a heavy focus on terrorism mechanisms. Transportation is often the key function for development and achievement of the capability, as in “Restoration of Lifelines,” but the role of transportation was neither a capability, nor was it emphasized or even clearly stated in the “Lifelines” capability. The HSEEP Exercise Evaluation Guide for this capability, for example, did not mention transportation until several lines into Activity 1, where between activities 1.4 and 1.5 there is a note, “Time to identify alternate transportation routes for emergency services,” with a target of “Within 2 hours” (HSEEP 2008). The critical role of passable roads and intact bridges and tunnels was buried in the exercise, making it difficult for a transportation sector exercise manager to access and use the capability information in developing and implementing training and exercises.

Table 5. 2007 DHS Target Capabilities List (TCL)

Capability	Activity
Common Capabilities	Planning Communications Community Preparedness and Participation Risk Management Intelligence and Information Sharing and Dissemination
Prevent Mission Capabilities	Information Gathering and Recognition of Indicators and Warning Intelligence Analysis and Production Counter-Terror Investigation and Law Enforcement CBRNE Detection
Protect Mission Capabilities	Critical Infrastructure Protection Food and Agriculture Safety and Defense Epidemiological Surveillance and Investigation Laboratory Testing
Respond Mission Capabilities	On-Site Incident Management Emergency Operations Center Management Critical Resource Logistics and Distribution Volunteer Management and Donations Responder Safety and Health Emergency Public Safety and Security Animal Disease Emergency Support Environmental Health Explosive Device Response Operations Fire Incident Response Support WMD and Hazardous Materials Response and Decontamination Citizen Evacuation and Shelter-in-Place Isolation and Quarantine Search and Rescue (Land-Based) Emergency Public Information and Warning Emergency Triage and Pre-Hospital Treatment Medical Surge Medical Supplies Management and Distribution Mass Prophylaxis Mass Care (Sheltering, Feeding and Related Services) Fatality Management
Recover Mission Capabilities	Structural Damage Assessment Restoration of Lifelines Economic and Community Recovery

Source: DHS, *Target Capabilities List* 2007, 7.

The TCL organized the roles of public agencies into Common Capabilities, then Prevent, Protect, Respond and Recover missions, as shown in Table 5. Each of the four mission elements had sub-capabilities that further defined the activities to be prepared for the 15 scenarios. While Prevent and Protect focused on law enforcement activities, like detecting and eliminating terrorist threats and protecting assets and systems, the Respond and Recover missions required multiagency collaboration. Table 6 shows the sub-units of each of these mission functions.

Table 6. 2007 Homeland Security All-Hazards Taxonomy: Respond and Recover Missions

RESPOND			RECOVER		
Evaluate Incident	**Minimize Impact**	**Care for Public**	**Assist Public**	**Restore Environment**	**Restore Infrastructure**
Assess Incident	Manage Incident	Provide Medical Care	Provide Long Term Health Care	Dispose of Materials	Restore Lifelines
Determine Cause and Origin of Incident	Respond to Hazard	Distribute Prophylaxis	Provide Assistance to Public	Conduct Site Remediation	Reconstitute Government Services
	Implement Protective Action	Provide Mass Care		Restore Natural Resources	Rebuild Property
	Conduct Search and Rescue	Manage Fatalities			Restore Economy and Institutions

Source of Information: DHS, *Target Capabilities List* 2007, 5.

The transportation sector is one key to success for every mission sub-element shown in Table 6. Successful achievement of any action requires the presence of personnel and resources not at the scene at the onset of the event, which means that personnel and equipment must be moved to the scene to support those already present, or to provide missing capability. The HSEEP guidance used the 37 Target Capabilities as evaluation points, but transportation's key role in these missions, and hence in all exercises of the TCL, was missing.

The 2007, DHS guidance for Target Capabilities recognized the key role of planning, training and exercises, evaluation and corrective action in the development of mission readiness. "The Capability Elements serve as a guide for identifying and prioritizing investments when working to establish a capability" (DHS 2007, 9). The Capability Elements shown in Table 7 offer areas for the application of grant funding to planning, training and exercises applicable to the transportation sector.

Table 7. Capability Elements

Element	Description
Planning	Collection and analysis of intelligence and information, and development of policies, plans, procedures, mutual aid agreements, strategies, and other publications that comply with relevant laws, regulations, and guidance necessary to perform assigned missions and tasks.
Organization and Leadership	Individual teams, an overall organizational structure, and leadership at each level in the structure that comply with relevant laws, regulations, and guidance necessary to perform assigned missions and tasks.
Personnel	Paid and volunteer staff who meet relevant qualification and certification standards necessary to perform assigned missions and tasks.
Equipment and Systems	Major items of equipment, supplies, facilities, and systems that comply with relevant standards necessary to perform assigned missions and tasks.
Training	Content and methods of delivery that comply with relevant training standards necessary to perform assigned missions and tasks.
Exercises, Evaluations, and Corrective Action	Exercises, self-assessments, peer-assessments, outside review, compliance monitoring, and actual major events that provide opportunities to demonstrate, evaluate, and improve the combined capability and interoperability of the other elements to perform assigned missions and tasks to standards necessary to achieve successful outcomes.

Source: DHS, *Target Capabilities List* 2007, 9.

However, issuance of the National Preparedness Goal in 2011 (DHS 2011b) led to a change from the TCL to a “core capabilities” system (FEMA 2012a) that HSEEP incorporated in the April 2013 guidance version (HSEEP 2013). Potential changes to homeland security grant program guidance, which is discussed in a later section, may require that future competitive grant applications evaluate how the funding will fill existing gaps in the newly defined core capabilities (DHS 2012a).

2011: PPD-8 Replaces HSPD-8

PPD-8: National Preparedness (Obama 2011), issued on March 30, 2011, replaces HSPD-8: National Preparedness (Bush 2003c). “The intended purpose of PPD-8 was to replace the 2003 Homeland Security Presidential Directive on National Preparedness (HSPD-8), while reaffirming its general policy direction and that of the 2006 Post-Katrina Emergency Management Reform Act (PKEMRA), and 2009 National Infrastructure Protection Plan (NIPP)” (Digital Sandbox 2011; DHS 2009). It also emphasized the Administration’s focus on “whole community” involvement in emergency preparedness (FEMA 2012b). However, the lines of responsibility in PPD-8 omit FEMA, and describe the work of the Secretary of DHS as subordinate to the Assistant to the President for Homeland Security and Counterterrorism, making this official a funnel for all the work products of DHS, while mandating on the Secretary a high level of coordination among the federal departments. Note, for example, that the National Preparedness Goal (Obama 2011, 1), the National Preparedness System (Obama 2011, 2), and the National Preparedness Report (Obama 2011, 4) are all delivered to the President through the Assistant. The Assistant was also

given control of the implementation plan for the development of the Goal and System (Obama 2011, 1).

PPD-8 defines several terms that had been used generically by DHS but were undefined, such as “resilience.” (FEMA, 2013c) Table 8 provides a comparison of some of the wording in HSPD-8 and PPD-8 to show the changes in emergency management applications.

Table 8. Comparison of Terms in HDPS-8 and PPD-8

PPD-8 (2011)	HSPD-8 (2003)
(a) The term “national preparedness” refers to the actions taken to plan, organize, equip, train, and exercise to build and sustain the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from those threats that pose the greatest risk to the security of the Nation.	The term “preparedness” refers to the existence of plans, procedures, policies, training, and equipment necessary at the Federal, State, and local level to maximize the ability to prevent, respond to, and recover from major events. The term “readiness” is used interchangeably with preparedness.
(b) The term “security” refers to the protection of the Nation and its people, vital interests, and way of life.	Not defined.
(c) The term “resilience” refers to the ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies.	Not defined.
(d) The term “prevention” refers to those capabilities necessary to avoid, prevent, or stop a threatened or actual act of terrorism. Prevention capabilities include, but are not limited to, information sharing and warning; domestic counterterrorism; and preventing the acquisition or use of weapons of mass destruction (WMD). For purposes of the prevention framework called for in this directive, the term “prevention” refers to preventing imminent threats.	The term “prevention” refers to activities undertaken by the first responder community during the early stages of an incident to reduce the likelihood or consequences of threatened or actual terrorist attacks. More general and broader efforts to deter, disrupt, or thwart terrorism are not addressed in this directive.
(e) The term “protection” refers to those capabilities necessary to secure the homeland against acts of terrorism and manmade or natural disasters. Protection capabilities include, but are not limited to, defense against WMD threats; defense of agriculture and food; critical infrastructure protection; protection of key leadership and events; border security; maritime security; transportation security; immigration security; and cybersecurity.	Not defined.
(f) The term “mitigation” refers to those capabilities necessary to reduce loss of life and property by lessening the impact of disasters. Mitigation capabilities include, but are not limited to, community-wide risk reduction projects; efforts to improve the resilience of critical infrastructure and key resource lifelines; risk reduction for specific vulnerabilities from natural hazards or acts of terrorism; and initiatives to reduce future risks after a disaster has occurred.	Not defined.
(g) The term “response” refers to those capabilities necessary to save lives, protect property and the environment, and meet basic human needs after an incident has occurred.	Not defined.
(h) The term “recovery” refers to those capabilities necessary to assist communities affected by an incident to recover effectively, including, but not limited to, rebuilding infrastructure systems; providing adequate interim and long-term housing for survivors; restoring health, social, and community services; promoting economic development; and restoring natural and cultural resources.	Not defined.

Source: Palin 2011.

The definitions provide additional insight into the focus areas of PPD-8, some of which differ from HSPD-8. There are six elements for improving preparedness described in PPD-8. A final National Preparedness Goal was issued in September 2011 to replace the Interim National Preparedness Goal from the Bush Administration. A National Preparedness System (DHS 2011c) was created and issued in November 2011 describing "the means to achieve the Goal" (FEMA 2012b), and an annual report documents the progress toward the goal, including areas needed for improvement (DHS 2012c). PPD-8 also requires the creation of additional frameworks to guide homeland security and emergency management activities. The National Response Framework (DHS 2008) was issued following the perceived failure of the earlier National Response Plan in the response to Hurricane Katrina in 2005 (Cooper & Block 2006). The National Recovery Framework (FEMA 2011c) and the National Mitigation Framework (FEMA 2013b) are part of a set that will ultimately include frameworks for each of the mission areas. The last element of the National Preparedness Goal is "build and sustain preparedness," which includes four focus areas: "a comprehensive campaign, including public outreach and community-based and private-sector programs; federal preparedness efforts; grants, technical assistance and other federal preparedness support; and research and development" (FEMA 2012b).

PPD-8 includes several significant alterations in emergency management and homeland security policy and program alignment. Notably, mitigation was added to the mission areas, which now include the DHS-created "prevention and protection," both law enforcement-oriented counterterrorism-focused concepts (Palin 2011), as well as the longstanding FEMA phases of mitigation, response and recovery. FEMA's fourth phase, planning/preparedness, has been subsumed under the new core capabilities as "planning," a "common capability for all mission areas" (DHS 2011b, 2). The cross-cutting Planning mission is defined as "Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or community-based approaches to meet defined objectives," and the Core Capability Target is an eight-part list, including, "Implement, exercise, and maintain plans to ensure continuity of operations" (DHS 2011b,13-14).

The traditional FEMA preparedness elements, which included Community Emergency Response Teams (CERT), community outreach and education, and emergency response resources development, are now included in the Community Resilience rubric under the Mitigation mission."…[T]he Community Resilience core capability focus[es] on an integrated set of activities—including plans development, outreach, and education—necessary to ensure greater community resiliency." Its Core Capability Target is "Maximize the coverage of the U.S. population that has a localized, risk-informed mitigation plan developed through partnerships across the entire community" (DHS 2011b, 2).

PPD-8 defines risk in four specific categories: "terrorism, cyber-attacks, pandemics, and catastrophic natural disasters" (Obama 2011,1), omitting the category of technological disasters, such as power outages, nuclear power plant failures, hazardous materials accidents and transportation collisions; and recurring natural disasters such as floods and wildland-urban interface fires. It is presumed that these events are left to the local communities to manage, perhaps because in some cases there would be an identified "responsible party." However, the combined factors of the BP Horizon disaster and the

Obama Administration's emphasis on whole community make this an untimely and surprising omission. The National Preparedness Goal appears to provide more latitude to local communities and states in determining the risks for which they will plan.

THIRA

The evaluation of risk is undertaken through the Threat and Hazard Identification and Risk Assessment (THIRA) methodology contained in Comprehensive Preparedness Guide 201 (DHS 2012d). In the recent past DHS had defined a risk assessment method that included a "black box element" that assigned risk for federal grant purposes. The "asset-based risk analysis" designated vulnerability as "value assigned by DHS" with no explanation, and omitted population numbers or density as a factor. The companion "UASI geographic risk analysis" considered population size only for "consequences for human health," while including sports complex capacities as a risk factor (DHS 2006a). The new National Preparedness Goal has refocused the risk assessment on the local community's evaluation. Regardless of the limited risk definition in PPD-8, the Goal states, "Each community contributes to the Goal and strengthens our national preparedness by preparing for the risks that are most relevant and urgent for them individually" (DHS 2011b, 1). Furthermore, the National Mitigation Framework (FEMA 2013b) states, "Effective mitigation begins with identifying the threats and hazards a community faces (i). "Threats and hazard identification is the first core capability of the National Mitigation Framework (FEMA 2013b).

The outcome of the THIRA is "applying THIRA results to manage risk, including identification of mitigation opportunities and supporting preparedness activities. Using capability targets, a jurisdiction determines the required resources it needs to achieve its desired outcomes" (DHS 2012d, 15). This will then provide the basis for applying for federal preparedness grant funding for the personnel, equipment, training and exercises needed to achieve improvement in preparedness. Every state was mandated to create a THIRA-based risk assessment, which was transmitted to the FEMA Region office, to be rolled up into regional THIRA reports to DHS (Holdeman 2012).[5]

Evolving Planning Guidance

In 2011, disaster planning and guidance documents were issued by FEMA and DHS. The National Preparedness Goal was issued in September 2011(FEMA 2012b), followed by the National Preparedness System in November 2011(DHS 2011c), and A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action in December 2011 (FEMA 2011a). In 2013, the new Community Planning Guidance (CPG-201) was issued (FEMA 2013d). Each of these documents provides additional direction for disaster preparedness in keeping with PPD-8 (Obama 2011). Table 9 lists the planning and guidance documents that grew out of PPD-8 and their relationships to it.

Table 9. DHS and FEMA Planning and Guidance Documents Related to PPD-8

Department	Date	Name	Relationship to PPD-8
DHS	March 18, 2011	National Exercise Program Base Plan	Controls exercises.
White House	March 30, 2011	PPD-8: *National Preparedness*	Replaces HSPD-8.
DHS	September 2011	*National Preparedness Goal*	Based on PPD-8. Removed color code, replaced TCL with core capabilities, emphasizes "whole community," giving greater role to local and state governments.
DHS	September 2011	National Incident Management System Training Program	Aligns NIMS with the PPD-8 philosophy of locally-driven core capabilities.
DHS	September 2011	National Recovery Framework	First of the new mission area frameworks required by PPD-8.
DHS	November 2011	*National Preparedness System*	Required by PPD-8.
FEMA	December 2011	*A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action*	Explains the "whole community" approach used in PPD-8 and the *National Preparedness Goal;* integrates the private, NGO, faith-based organizations.
DHS	February 2012	FY 2013 National Preparedness Grant Program Vision Document	Proposed reorganization of federal preparedness grants into a competitive block grant program focused on the new "core capabilities;" 2013 Senate Budget bill still includes individual categories.
FEMA	2012	Core Capability/ Target Capability Crosswalk	Provides planning transition for State Preparedness Reports (SPR) from TCL to core capabilities.
DHS	March 30, 2012	National Preparedness Report	Required by PPD-8, summarizes progress toward preparedness, commits to developing the performance measures required by PL 111-271.
DHS	April 2012 (revised 2013)	*Threat and Hazard Identification and Risk Assessment Guide: Comprehensive Preparedness Guide* (CPG) 201	New risk methodology required by the risk-based approach of PPD-8, tied to core capabilities, to be used in SPR.
FEMA	November 28, 2012	PPD-8 Webpage	Latest revision to the webpage that gives updates to PPD-8 implementation progress.
FEMA	November 28, 2012	National Preparedness Goal Homepage	Latest revision to the webpage that gives updates to *Goal* implementation.
FEMA	May 2013	National Mitigation Framework	Second of the new mission area frameworks required by PPD-8.

The National Preparedness Goal was issued to begin implementation of PPD-8, and after Congressional criticism of DHS for failure to have a system for measuring progress in homeland security, especially as it related to return-on-investment in the multiple counterterrorism grants. Congress passed the H.R.3980 - Redundancy Elimination and Enhanced Performance for Preparedness Grants Act on January 5, 2010, also known as Public Law 111-271. It required specifically that the FEMA Administrator have "a plan for promptly developing a set of quantifiable performance measures and metrics to assess the effectiveness of the programs under which the grants are awarded. Defines 'covered grants' as homeland security preparedness grants awarded under the Urban Area Security Initiative and the State Homeland Security Grant Program and other grants specified by the Administrator" (Open Congress n.d.). The Goal added new "capability targets" that "will serve as the basis for the development of performance measures to track our progress" (DHS 2011b, 1).

The Goal defines success as "A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk" (FEMA 2012b, 1). It goes on to define the whole community as "individuals, communities, the private and nonprofit sectors, faith-based organizations, and Federal, state, and local governments" (FEMA 2012b, 1). The role of the new core capabilities is also defined: "The capability targets—the performance threshold(s) for each core capability—will guide our allocation of resources in support of our national preparedness. … The capability targets will serve as the basis for the development of performance measures to track our progress" (FEMA 2012b,1). Thus, the core capabilities become the basis for both the State Preparedness Report (SPR) and federal preparedness grant applications.

The Goal document has two major changes from earlier versions of FEMA and DHS guidance. First, it includes a section on mitigation, in accordance with the PPD-8's new mission list, which had been omitted from previous post-9/11 planning guidance. Second, it includes the 31 new "core capabilities," tied to "capability targets," that will allow governments to focus on the threats that they deem to be most important in their communities (FEMA 2012a). These new "core capabilities" have been mapped to the 2007 version 2.0 of the TCL, which is now obsolete. The new guidance includes a "crosswalk page" that "was created to support the transition that states, localities, tribes, and territories face in realigning activities that may have previously been organized by the TCL to the new core capabilities as part of the 2011 State Preparedness Report effort" (FEMA 2012a,1).

Critical Transportation Core Capability

One significant change from TCL was the addition of "Critical Transportation" as a core capability. Transportation had been buried in the description of several TCL items, but in the new capability list it has its own function and definition:

> Provide transportation (including infrastructure access and accessible transportation services) for response priority objectives, including the evacuation of people and animals, and the delivery of vital response personnel, equipment, and services into the affected areas. Core Capability Targets: 1. Establish physical access through

> appropriate transportation corridors and deliver required resources to save lives and to meet the needs of disaster survivors. 2. Ensure basic human needs are met, stabilize the incident, transition into recovery for an affected area, and restore basic services and community functionality. (FEMA 2012a)

These risks include events such as catastrophic natural disasters, disease pandemics, terrorist attacks and cyber-attacks. The 2011 National Preparedness Goal for the first time recognized transportation as a core element of emergency preparedness, but only within the rubric of the Response mission (DHS 2011b, 12).

The complete list of new Core Capabilities is found in Table 10.

Table 10. Core Capabilities

Mission		Core Capabilities	
8.	Cross Cutting	9.	Planning
		10.	Public Information and Warning
		11.	Operational Coordination
12.	Prevention	13.	Forensics and Attribution
		14.	Intelligence and Information Sharing
		15.	Interdiction and Disruption
		16.	Screening, Search and Detention
17.	Protection	18.	Access Control and Identity Verification
		19.	Cyber-security
		20.	Intelligence and Information Sharing
		21.	Interdiction and Disruption
		22.	Physical Protective Measures
		23.	Risk Management for Protection Programs and Activities
		24.	Screening, Search and Detection
		25.	Supply Chain Integrity and Security
26.	Mitigation	27.	Community Resilience
		28.	Long-Term Vulnerability Reduction
		29.	Risk and Disaster Resilience Assessment
		30.	Threats and Hazard Identification
31.	Response	32.	Critical Transportation
		33.	Environmental Response/Health and Safety
		34.	Fatality Management Services
		35.	Infrastructure Systems
		36.	Mass Care Services
		37.	Mass Search and Rescue Operations
		38.	On-scene Security and Protection
		39.	Operational Communications
		40.	Public and Private Services and Resources
		41.	Public Health and Medical Services
		42.	Situational Assessment
43.	Recovery	44.	Economic Recovery
		45.	Health and Social Services
		46.	Housing
		47.	Infrastructure Systems
		48.	Natural and Cultural Resources

Source: DHS, *National Preparedness Goal*, September 2011b, 2.

Whole Community

The whole community approach to emergency management has been adopted by FEMA and DHS as part of the implementation of PPD-8. As early as October 2010 the FEMA Response Directorate was providing direction to view the community's catastrophic emergency plan as a document belonging to the whole community. This, then, requires that public, private, NGO and faith-based organizations plan, train and exercise together for "catastrophic preparedness" (FEMA 2010, #3). FEMA acknowledged that this was a new approach (emphasis is authors'):

> Plan on using the whole community; shift from a 'government-centric' approach. Communities are capable of providing self-aid/self-help. The public is a resource that can take care of itself; not a liability. We must think bigger – engaging our society at large to include 'atypical partners and collaborators.' Reducing impediments is essential and will require **substantial training/exercising** between our traditional and atypical partners and collaborators. (FEMA 2010, #4)

Following up on the 2011 Whole Community initiative, the National Academies issued a report, Disaster Resilience: A National Imperative, from the Committee on Increasing National Resilience to Hazards and Disasters, Committee on Science, Engineering, and Public Policy. This report recognized transportation's role as "high-value assets that are 'essential' to keep operating" with high costs of disruption (National Academies 2012, 56). Noting that transportation may include private ownership of assets (National Academies 2012, 100), the committee went on to recognize transportation systems and equipment and evacuation routes as critical infrastructure requiring special planning and investment (National Academies 2012, 78). The exercise program of a community must therefore include the transportation sector in the planning and implementation activities for analysis of whole community capability and resilience.

The 2013 HSEEP revisions "align to the National Preparedness Goal (2011), National Preparedness System (2011), and… include the integration of core capabilities" (HSEEP, 2013). However, in the spring of 2013 the original guidance was still on the HSEEP homepage, and tied to the obsolete planning scenarios and TCL.

NIMS and Disaster Response

FEMA has developed a training plan to ensure that all first responders use the same approaches and command and control strategies in response to a multidisciplinary or multi-jurisdiction event (FEMA 2011c). The National Incident Management System (NIMS) was originally mandated by HSPD-5:

> (3) To prevent, prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies, the United States Government shall establish a single, comprehensive approach to domestic incident management. The objective of the United States Government is to ensure that all levels of government across the Nation have the capability to work efficiently and effectively together, using a national approach to domestic incident management. (Bush 2003a)

This integrated system was named the National Incident Management System (emphasis is authors'):

> (15) The Secretary shall develop … and administer a **National Incident Management System (NIMS)**. This system will provide a consistent nationwide approach for Federal, State, and local governments to work effectively and efficiently together to prepare for, respond to, and recover from **domestic incidents, regardless of cause, size, or complexity**. To provide for interoperability and compatibility among Federal, State, and local capabilities, the NIMS will include a core set of concepts, principles, terminology, and technologies covering the **incident command system; multi-agency coordination systems; unified command; training; identification and management of resources (including systems for classifying types of resources); qualifications and certification; and the collection, tracking, and reporting of incident information and incident resources**. (Bush 2003a)

HSPD-5, however, emphasized that all disaster response begins with the local government, special district, tribe, state or territory where the event occurs (emphasis is authors'):

> (6) The Federal Government recognizes the roles and responsibilities of State and local authorities in domestic incident management. Initial responsibility for managing domestic incidents generally falls on State and local authorities. The Federal Government will assist State and local authorities when their resources are overwhelmed, or when Federal interests are involved. The Secretary will coordinate with State and local governments to ensure **adequate planning, equipment, training, and exercise activities**. (Bush 2003a)

At present, the transportation-equipment-related qualifications and certifications are under development by American Public Works Association. (D Bergner, Personal communication to authors, June 6, 2013).

NIMS Application in Multi-discipline, Multi-jurisdiction Events

NIMS is intended not to supplant local control but to provide a platform for the coordination of different professions and agencies as they respond to an emergency or disaster in which transit and transportation agencies play a critical role. On a daily basis, transportation sector agencies coordinate with the state's law enforcement agencies in managing highway collisions. In some cases fire service personnel provide rescue services when people are trapped in their cars or vehicles have gone off the road, and emergency medical services personnel care for the victims until ambulance service personnel remove them to the hospital, or coroner personnel remove them to the morgue. This is a small-scale multi-disciplinary event, where all personnel may be from the same geographical area, and even the same governmental jurisdiction, but some are from the state transportation agency, some from a state or county law enforcement agency, some from a city, county or volunteer fire service, some from a private sector ambulance company, and some from the county coroner's office. One entity has to establish command of the scene and the other entities have to collaborate to create an incident action plan for scene management and

victim services. NIMS requires that the command and control system used should be the Incident Command System (ICS) (Bush 2003a).

Likewise, transit agencies have regular experience dealing with traffic collisions involving their vehicles. These may be vehicle collisions, pedestrian-involved collisions, or passenger-involved events. In each case the transit agency's safety staff will provide safety services and evaluation at the scene, law enforcement will direct traffic and take reports, fire service personnel will provide rescue and emergency medical services for victims, and the coroner will remove the deceased. All these personnel would be from the same geographical area, and might be from the same jurisdiction, but someone has to be in charge of managing the event and coordinating the work of all the responding agencies. Again, NIMS requires that ICS should be the command and control system used.

These small-scale events are unlikely to involve federal departments or out-of-area assets, but using the same ICS-based NIMS command and control system for all emergency events removes confusion over how to manage when a large event occurs. Using ICS for all emergency response enables the responding agency personnel to practice one consistent set of roles and actions, to become familiar with the standard operating procedures used in ICS. "This consistency provides the foundation for nationwide use of NIMS for all incidents, ranging from daily occurrences to more complex incidents requiring a coordinated, Federal response" (FEMA 2011c, vi).

Some events may be multi-disciplinary and multi-jurisdictional. Many transportation organizations are state highway agencies or local government highway departments. Their jurisdictions may be statewide, countywide or citywide, but in each case there is a governing body for civil authority that may be a reporting agency or authority directing or incorporating the transportation agency. For example, the California Department of Transportation (Caltrans) is part of the state's Transportation Agency, part of the executive branch of state government (Figure 5). Caltrans is one department within the agency, as is the California Highway Patrol (CHP), the Department of Motor Vehicles and the Office of Traffic Safety (Brown 2013). These organizations have statewide jurisdiction, and Caltrans maintains the roads of the state highway system. Counties and cities have their own road systems and generally their own road maintenance departments, which are part of the city's or county's department structure under the jurisdiction of the city council or county board of supervisors.

Figure 5. Press Conference at Full Scale Exercise

Source: Frances Edwards, 2007.

Transit agencies may be departments of a county or city, such as the City of Seattle's monorail (Seattle Center Monorail 2012), a state agency as in the Massachusetts Department of Transportation's combined statewide transportation and transit system (MassDOT 2013), or they may be special purpose governments like the Southeastern Pennsylvania Transportation Authority (SEPTA) in the Philadelphia metropolitan area, with their own governing bodies and revenue raising authority (SEPTA n.d.). Transit agencies operate buses, light rail vehicles, trolleys, trackless trolleys, commuter rail services, subways and elevated lines. Some also have specialized services like paratransit, cable cars, ferries and monorails (Edwards & Goodrich 2012).

Multi-Layered Collaboration: Northridge Case Study

In a disaster, such as the 1994 Northridge Earthquake in California, state highway system elements may be damaged, and may impact access or traffic flow on city or county roads. The US DOT report on the Northridge Earthquake documented damage to highways I-5 (the major north/south route), I-10 (the major east/west route connected to the Port of Los Angeles and Long Beach complex), and SR 14 and SR 118 that provide connections to the Antelope Valley and Simi Valley, all major commute routes (US DOT 2002). Immediate response to the earthquake damage and transportation disruption was provided by Caltrans' Traffic Management Center in Los Angeles, the Los Angeles County emergency

operations center, the City of Los Angeles emergency operations center, CHP, Los Angeles Department of Transportation (LA DOT) and the tow truck operators of the CHP's freeway service patrol. The mayor of Los Angeles declared a local emergency, and the FEMA headquarters emergency support team was activated. The governor declared a state of emergency and requested a presidential disaster declaration, which was granted that afternoon (US DOT 2002).

Meanwhile, fires were burning in 50 structures, and water and gas mains were broken throughout the damaged areas. Transportation agencies collaborated with local police, fire and utility workers to clear routes to the damaged areas for their responders. Power outages and communications system damage complicated the response. Motorists in private vehicles and commercial trucks were stranded on broken freeway segments, including elevated segments through the mountains. The fact that the earthquake occurred at 4:30 a.m. on January 17, 1994, the Martin Luther King holiday Monday, limited the number of vehicles on the highway. Rescue required the collaboration of police, fire, CHP and Caltrans. With Emergency Relief Funds guaranteed by FHWA on the day of the earthquake, Caltrans began debris removal, shoring and demolition on the damaged freeway segments (US DOT 2002).

LA DOT and Caltrans collaborated to create detours around the damaged areas. The US DOT and FHWA collaborated with Caltrans to finance the rapid reconstruction of crucial freeway segments using private sector contractors. FEMA coordinated the response of 27 federal agencies to the earthquake, and disseminated information to the public (US DOT 2002). Post-disaster collaboration extended to the transit industry. When road-based commute routes were impassable, LA DOT and Caltrans collaborated with Metrolink to enhance rail-based services into Antelope Valley. Six of the bus-based transit systems extended their routes and hours, and added equipment to enhance commuter services (US DOT 2002).

This case shows how many organizations and levels of government had to coordinate their work in a disaster. California had established its Standardized Emergency Management System (SEMS) in 1993, and this statewide system - based on the Incident Command System (ICS) - provided the basis for the successful multi-discipline, multi-agency collaboration after the Northridge Earthquake. Dr. Richard Andrews was the director of the California Governor's Office of Emergency Services when SEMS was created. He also served on the post-9/11 Homeland Security Advisory Council, and helped to design NIMS. In testimony before California's Little Hoover Commission he stated, "SEMS is the foundation of the National Incident Management System (NIMS) developed by the federal Department of Homeland Security" (Andrews 2006, 2). "… the National Incident Management System (NIMS), is based substantially on the Incident Command System (ICS), the Multi-Agency Coordination System (MACS) and the Standardized Emergency Management System (SEMS), each of which originated in California" (Andrews 2006, 8). Thus Northridge was the first national-level disaster to demonstrate the value of a common command and control system for managing all incidents, regardless of size and complexity.

PPD-8 and the New NIMS Training Plan

Under HSPD-8 the federal government directed the NIMS training program nationwide. The guidance documents contained mandates regarding who had to be trained in each level of NIMS, in each level of government. The 2006 NIMS Training Requirements mandated that IS-700: NIMS and IS-800: National Response Plan courses were mandatory for all state and local personnel involved in delivering Emergency Support Function (ESF) services or support (FEMA 2005a). Transportation is ESF #1, so all employees – elected officials through field personnel – in the transportation sector were mandated to receive this training. In addition, ICS courses in levels 100 through 400 were mandated for specified personnel. For example, "all federal, state, territorial, local, tribal, private sector and non-governmental personnel at the entry level, first line supervisor level, middle management level, and command and general staff level of emergency management operations must complete ICS-100 training" (FEMA 2005a, 3). Although this training was available on line through FEMA's Independent Study courses, the cost of overtime and loss of productive time for employees to take the course made this requirement burdensome. Some grants, such as UASI and State Homeland Security Grants, provided funding for training costs, but seldom covered overtime expenses, essential for field personnel to receive training. Similar mandates were placed on ICS-200 for first line supervisors and above, on ICS-300 for middle managers and above, and on ICS-400 for command and general staff (FEMA 2005a).

In 2009 the FEMA regional administrators notified the governors of the requirement to continue with the NIMS five-year plan for training personnel. "NIMS is a requirement to receive Federal preparedness assistance, through grants, contracts, and other activities" for FY 2010 (Ward 2009). The FY 2009 NIMS Implementation Objectives prescribed the steps that all levels of government had to take each year to comply with NIMS (FEMA 2009). NIMS-related activities were also directed by FEMA Headquarters. For example, in 2008 states and territories were directed to begin credentialing their personnel as part of the FY 2008 NIMS Compliance Objectives and Metrics (Fluman 2008).

PPD-8 led to a reorganization of NIMS oversight at the federal level. The oversight systems, such as the NIMS Compliance Assistance Support Tool (NIMSCAST), have been redirected to a new system for reporting training. NIMS and HSPD-5 will be revised during FY 2013. The National Integration Center oversees the development of NIMS courses and doctrine. The NIMS Fact Sheets that describe training requirements are being updated to mirror PPD-8 initiatives. (J. Dumbrowski, personal communication to authors, February 1, 2013).

With the PPD-8 focus on whole community, the new NIMS Training Program (DHS 2011a) has moderated the demands for training. The 2011 program supersedes the 2008 Five-Year NIMS Training Plan, and the FEMA National Incident Management System (NIMS)—National Standard Curriculum Training Development Guidance—FY 2007. While the 2011 Training Program continues to define the curriculum and required course elements, "Federal, State, tribal, and local and private sector stakeholders' responsibilities include identifying appropriate personnel to take NIMS training," so the onerous list of mandated

personnel has been modified to provide some latitude to local emergency management leaders to select those employees who need to be trained (DHS 2011a, 4).

Planning, Training and Exercises

Planning is the basis for emergency response and emergency management. The National Preparedness Goal (DHS 2011b) identifies planning as one of three core capabilities that cross all five mission areas. In 2010 FEMA announced a new approach to catastrophic planning based on the "golden hours," the first 72 hours after the onset of a disaster, as shown in Figure 6. The approach is based on the military's "five paragraph order," as reflected in their outline for the plan development checklist (FEMA 2010, #71). Phase 1 is the planning effort that leads up to the event, while "Phase 2 begins when the incident occurs. Response efforts are normally focused on life saving and sustaining actions and systems recovery" (FEMA 2010, #71). FEMA notes that the whole community principles focus on the first 72 hours when saving lives is possible. "Time is our biggest enemy, and our approach must focus on preparing and fully empowering impacted communities, survivors, and all of society-NGOs, FBOs, social & fraternal organizations. Our citizens are force multipliers. Individuals and communities are the most critical response and recovery assets present during the initial hours and days following an event" (FEMA 2010, #10).

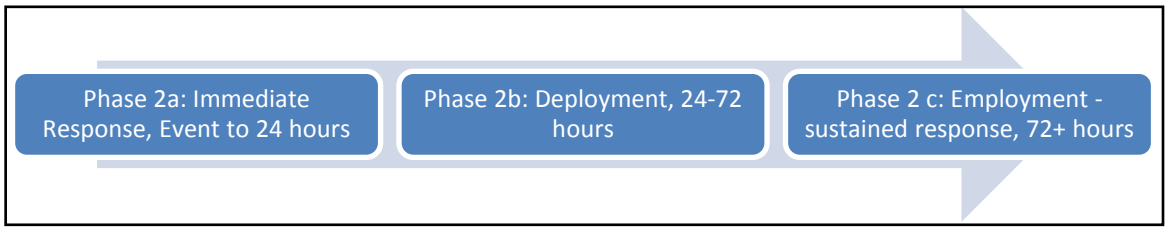

Figure 6. Catastrophic Response Plan

Source: FEMA, *Planning Direction and Guidance Overview*, October 2010, #3.

The Whole Community Approach document includes public transportation systems and airports in the list of community assets that must be engaged in planning for the community response (FEMA 2011a, 12). The National Preparedness Goal has added "critical transportation" to the core capabilities in the Response Mission list (DHS 2011b, 2). FEMA describes these core capabilities, the focus of effort after a disaster, as the "center of gravity," borrowing from the military concept developed by Prussian military theorist, Carl von Clausewitz. His notion was that the center of gravity is "the focal point where physical forces come together" (Eschevarria 2002, v). As applied to the community, "Centers of Gravity are focal points that serve to hold a[n] entire system or structure together and that draw power from a variety of sources and provide it with purpose and direction" (Eschevarria 2002, vii). Thus, by identifying the 31 core capabilities (listed in Table 10 above) as center of gravity elements, FEMA is acknowledging the central role played by them. "These centers of gravity represent the highest priority essential functions necessary for both saving and sustaining lives, and stabilizing the site and the situation within 72 hours. The first six 'enable' a rapid and effective response, while the remainder explicitly address [sic] the needs and priorities of the people and communities impacted by the catastrophic event" (FEMA 2010, #13).

Each center of gravity/core capability is described with an objective, a list of tasks, and set of metrics. For critical transportation the objective is, “in the immediate aftermath of a multi-state catastrophic incident, provide transportation (including infrastructure access and transportation services) for response priority objectives, including evacuation of people in imminent danger, and delivery of vital response services and resources.” The tasks are (quoting from FEMA 2010):

- Prioritize transportation arteries/lines of communication (LOCs)
- Facilitate debris clearance, repair and/or re-opening of essential transportation hubs and arteries (ingress and egress routes)
- Provide transportation to support priority movement between staging areas and impact areas
- Facilitate mass evacuation, if necessary
- Anticipate and integrate special needs accessibility and transportation requirements (FEMA 2010, #29)

The metrics are (again, quoting from FEMA 2010):

- Complete assessment of damaged critical transportation infrastructure, and identify ingress and egress alternatives within two hours
- Identify transportation alternatives to support evacuation priorities in four hours
- Prioritize ground-rail-air-water transportation actions for initial transportation-dependent response forces and emergency evacuation teams within four hours
- Lifesaving-focused access and egress plan within four hours
- One or more emergency routes into impacted area cleared for use by local response forces within six hours
- Deliver vehicle-dependent response forces and equipment into impact area within six hours
- Evacuate emergency medical patients, by any and all means necessary, beginning in six hours
- Full tactical and strategic MEDEVAC systems operating within eight hours
- Emergency routes for large access and egress operations cleared within 12 hours
- Priority airhead repaired and reopened within 12 hours

- Priority port reopened within 24 hours (FEMA 2010, #29, #30)

Furthermore, many of the core capabilities note the importance of exercising the plan to ensure that it is complete and current (DHS 2011b). Plans are created in a static environment, so an exercise offers the opportunity to have various departments and agencies work together to determine whether the imagined responses and resources are actually appropriate to the challenge, and manageable in the field. These tasks and metrics would be useful in developing training and exercise objectives, topics and focus areas. The metrics could provide performance goals against which to measure actual capability in exercises.

Training

Once a plan has been written, those who will use it must be trained on its elements if it is to be useful. Examples abound of well-written plans that were never used when the disaster struck, usually because those responsible for leading the response had never been trained on their roles.

The earthquake response plan for the Hanshin Prefecture in Japan was created in the 1960s, wrapped in silk and placed on a cart in a closet. After the 1995 earthquake the plan was rolled out for the governor's use, but no one in the room knew what was in it. As the city of Kobe was burning and the transportation systems were in ruins, there was no time to read the plan, so they reinvented the plan as they worked (M. Ino, personal communication to authors, March 23, 1997).

During Hurricane Katrina, Mayor Ray Nagin went to a hotel with his closest political advisers while New Orleans flooded, leaving his emergency response plan binder in the trunk of his car. With no training in emergency management, this group reinvented a response plan for the mayor, while the city's professional emergency managers followed the written and practiced emergency plan for the city, leading to political and managerial conflicts (Cooper & Block 2006).

Post-disaster researchers described how the new National Response Plan had been briefed throughout the country, replacing the Federal Response Plan in the spring of 2005; with informational workshops conducted throughout the country and made available for all senior officials, and local and state emergency managers, but many senior officials chose not to attend these events, as was the case in Louisiana. Indeed, the senior leadership of the Federal DHS was unaware of all of its provisions. For example, DHS Secretary Michael Chertoff seemed unaware of the plan or its Catastrophic Annex allowing the federal government to take immediate extraordinary measures (W. Medigovich, personal communication to authors, April 11, 2013) when he kept questioning whether the levees had been breached or overtopped during the flooding of New Orleans following Hurricane Katrina (Cooper & Block 2006).

Conversely, experience has shown that trained and practiced employees in the transportation sector, who are familiar with the emergency plan and its proper execution, have saved lives and conserved property. For example, the JR East Bullet Train employees knew what

to do when the Great East Japan Earthquake struck in March of 2011. They guided the passengers to safely exit the train and move to high ground when the shaking stopped, and before the tsunami came, resulting in no loss of life among bullet train passengers or crew (JR East Group 2011).

Likewise, following the 9/11 attack on New York's World Trade Center, the employees of New York City Transit followed their emergency plan, sending passengers out of the at-risk stations, escorting passengers to the surface, and closing down critical functions. All passengers and employees, and all rolling stock, were saved from the collapse of the World Trade Center towers 1, 2 and 7 by the employees' timely actions (Jenkins & Edwards-Winslow 2002).

Training on the plan must be interactive to be effective. The students will be adults, whose motivation for learning is different from children. They are seeking problem-centered presentations that have immediate application to their jobs and life experiences (Knowles 1980). A classroom presentation of the plan's highlights illustrated with meaningful local examples is one way to impart useful knowledge.

The Challenges of Training in an Adult Classroom

Transit and transportation agencies deliver training to their employees for many subjects: on the job safety, machine operation, sexual harassment, violence in the workplace, accident prevention and other mandated and elective subjects. Recently, they have begun providing emergency response training: security of the vehicles and facilities, response to disorderly passengers, and responsibilities in natural, technological and human-caused emergencies and disasters, including their roles in the Incident Command System. More senior members of the organization are trained in writing an emergency operations plans, staffing an emergency operations center (EOC), creating continuity of operations plans and managing an Emergency Relocation Group. Field-level personnel receive training on rapid accident clearance, hazardous materials accident management, and integration with the Incident Command System in the field, many times as an adjunct to a police or fire command structure.

Students in the transportation sector are adults. In many cases the students are practitioners with years of practical experience, who are receiving emergency management training to gain current knowledge and enhanced skills, often with an eye to promotion. They may have strong skills within the specialized domain of transit or transportation where they have spent their careers, but they need to gain specialized knowledge of emergency management measures and requirements relevant to their current job responsibilities, which include the National Incident Management System (NIMS), Incident Command System (ICS), Multi-Agency Coordination System (MACS) and Continuity of Operations (COOP), as well as any specific local and state developed programs. While some of the students see the new information as a stepping stone to promotion, or as an essential skill for the current and perhaps new job, others take classes only because they are mandated, or because they will be paid overtime for attending. A classroom of adult learners, therefore, poses a different teaching environment than a high school, where students are often seeking motivation and direction. The instructor is challenged to grab their attention when other

pressing job demands compete, for some students, and when a day in a classroom tempts others to play games, text or even sleep.

Andragogy

A number of scholars have studied the phenomenon of adult education, called andragogy. Knowles (1980) developed the theory of andragogy as a different conceptual approach to teaching from pedagogy. He noted that (emphasis is authors'),

> as a person matures, 1) his self-concept moves from one of being a dependent personality toward one of being a self-directed human being; 2) he accumulates a growing reservoir of experience that becomes an increasing resource of learning; 3) his readiness to learn becomes orientated increasingly to the developmental tasks of his social roles; and 4) his time perspective changes from one of postponed application of knowledge to **immediacy of application**, and accordingly his orientation toward learning shifts from one of subject-centered to one of **problem-centered** (Knowles 1980, 39).

Russian scholar Zmeyov, added three additional elements of adults' education that impact teaching and learning (emphasis is authors'):

- The learning of an adult is largely determined by his/her **life context**, i.e., time, place, daily life and occupational, social and family factors.

- The adult learning process is characterized by the **leading role of the learner himself or herself**.

- The **learner and the teacher co-operate** in all stages of learning, i.e., in the planning, realization, evaluation and correction of the learning process. (Zmeyov 1998, 106)

Recognizing that students in the transportation sector training are adults, and that the teaching environment is driven by the learner, trainers have to devise techniques and strategies that engage them and clearly demonstrate the relevance of the subject being taught in their life contexts. The successful classroom is not a place where information is delivered through lectures alone, but where students' experiences in other contexts – job, social and family life – are added to the educational resource base. If adult learning is largely self-directed and needs to be based on experiences and have obvious applications to the learner's "real world," a classroom plan grounded in practice is essential. While some practical knowledge will be experiential, especially in students who are already experienced practitioners, other practical information can be delivered through class discussions, case studies of actual emergency events involving transportation, and group problem solving that matches experienced and inexperienced students.

FEMA recognizes that training adults requires consideration of their knowledge, maturity and motivation for being in the training program.

Adult education courses are most effective when instruction incorporates the following general principles:

- Engage adult learners as active, self-directed participants in their own learning
- Recognize factors that motivate adult learners; design courses and adapt instructional style accordingly
- Identify the relevance of the course to student work environments, since relevance motivates students and makes it easier for them to comprehend the material presented
- Acknowledge adult learners' accumulation of diverse professional experiences and aspirations and use this experience in context
- Deliver instruction in a safe, collaborative environment
- Provide opportunities to critically reflect upon and immediately apply new learning in order to transfer that learning into habitual practice (DHS 2011a, 4-5)

Specialist/Generalist Dichotomy for Training in the Transportation Sector

Incorporation of emergency management within the domain of transit and transportation invokes the specialist/generalist dichotomy at the heart of the self-understanding of all public management. As Raadschelders (2011) notes, people generally enter public sector jobs as specialists – engineers, planners, accountants, dispatchers, mechanics, equipment operators – but as they rise to the managerial level and higher their work requires more and more generalist skills, one of which is the ability to manage an organization during a disaster. One of the challenges of emergency management training in a transit and transportation organization is to "train and educate specialists in generalist perspectives" (Raadschelders 2011, 920). Given the fact that emergency management requires the skills of every member of a transit or transportation agency during a disaster, emergency management becomes a generalist perspective needed by every transit and transportation manager and leader.

Multidisciplinary Aspects of Transportation Sector Emergency Management

Raadschelders further notes that emergency management has to be interdisciplinary "when addressing wicked problems (such as responding to such a multifaceted event as Hurricane Katrina)" (Raadschelders 2011, 917), so teaching NIMS and ICS must include discussion of how transit and transportation integrate with traditional first responder agencies (police, fire, emergency medical services) to manage and resolve emergencies and disasters. Therefore, holding some NIMS and ICS training in an interdisciplinary environment may be beneficial to both the trainers and learners. Fire service command staff members generally have extensive experience in the use of ICS, since they use the system for every event they manage, from a house fire to a hurricane, so their field experiences may enrich classroom discussion. Transit and transportation personnel need

to understand how the field-level ICS structure is organized so that they can integrate their work for safety, efficiency and to ensure maximum reimbursement for their agency from higher levels of government.

Practical Application: Training and Exercises

As noted by Knowles, effective andragogy requires practicality and immediacy (Knowles 1980, 39). Participation in class discussions of real cases and a variety of exercise types offers an opportunity for students to apply the knowledge they already possess to the analysis of the problems that the transportation sector faces in disasters. Reading someone else's analysis of disaster response does not stimulate the critical thinking that participation in an exercise does, as students see the scenario events as a fresh challenge.

FEMA's NIMS training plan endorses the use of exercises as a reinforcement of training. "When developing the training and exercise calendar, those responsible for implementing the training program will benefit their students by sequencing the training and exercises offered in such a way as to allow the students the ability to directly and immediately apply their new learning in the operational context. This … will assist the adult learners in readily transferring their new learning into habitual practice in their operational context" (DHS 2011a, 5). They further suggest that students have an experiential application opportunity before taking the next higher level class, "through exercises, incidents, or planned events—to apply what they learned" in one class before taking the next (DHS 2011a, 5).

Exercises may be as complex as a multi-jurisdictional full scale exercise, or as simple as a work group tabletop exercise. The purpose is the same: to help the participants develop the ability to use the knowledge of the plan and the skills obtained in training to manage an emergency event. The HSEEP system discussed earlier offers a system of progressively more complex exercises to challenge adult learners to apply their knowledge and skills. Seminars offer an introduction to a new field, tabletop exercises (Figure 7) are facilitated discussions across professions and jurisdictions, drills practice a single function (such as a fire drill), functional exercises use simulators (Figure 8) to challenge responders with information and changing circumstances of an emergency, while facilitated exercises allow participants to make decisions about handling an emergency one segment at a time. The full scale exercise is expensive and time consuming, but may serve as a final "dress rehearsal" for a complex event requiring multi-disciplinary coordination.

Figure 7. Tabletop Exercise

Source: Frances Edwards, 2010.

Figure 8. Simulators at Functional Exercise

Source: Frances Edwards, 2004.

Each type of exercise is appropriate for students at different learning and experience levels. New plans, new equipment and new personnel may provide the impetus for beginning an exercise cycle. Some federal grants mandate a regular exercise cycle to keep knowledge and skills sharp. Whatever the motivation for an exercise, it is the exercise of a plan or of training that has been received. The value of the exercise to the student is the ability to apply knowledge in a no-risk environment, to make life and death decisions without worrying that a mistake could be fatal. The exercise needs to be realistic enough to challenge the student's ability to quickly recall and act on training, while limiting the liability of the organization for damage or harm.

CONCLUSION

The leaders of the complex organizations that serve the public must be able to effectively apply the generalist skills of decision-making, problem solving and leadership. In their daily work they need to evaluate and analyze proposals before they become policies and programs to ensure that the community's best interests are served. Transportation sector personnel training and experience vary widely, based upon the type of local government structure in which they are located, and the priorities of their leadership.

The PPD-8 framework has established new systems for emergency management in American governmental agencies, across sectors and jurisdictions. Higher level educational institutions providing transportation studies should provide basic training on emergency preparedness, emergency response to extreme weather events, critical infrastructure protection, and damage assessment procedures.

Transportation sector employees will benefit from well-constructed exercises that stimulate thinking and invite learning. The Handbook of Exercises for Transportation Sector Personnel (Part Two of this report) provides a practical guide for the exercise designer. However, the DHS/FEMA approach to emergency management still fails to place the Transportation Unit in the Operations Section of the Incident Command System, viewing it as a Logistics Section function to move goods and people around, rather than a critical first response of its own. Without open, safe roads the other first responders cannot reach the victims of a disaster.

ENDNOTES

1. The National Infrastructure Protection Plan defines “transportation” as “air, highways, rail, ports and waterways” (DHS 2009, 15). For purposes of this research the term “transportation sector” is limited to transit and road-based modes and systems found at the local and state government levels.

2. The Metropolitan Medical Task Force is part of the Nunn-Lugar-Domenici Domestic Preparedness program that was started by the Department of Health and Human Services to respond to terrorist attacks following the Tokyo Sarin attack and the Oklahoma City bombing. San Jose was one of the original 25 MMTF member communities, starting in 1996. Edwards was its director for the first ten years. The MMTF includes police, fire, EMS, Office of Emergency Services, ambulance provider, hospitals, coroner, public health and mental health professionals working as a team to respond to an attack on a city. In the MMTF’s first facilitated exercise (created by Goodrich) the VTA served as the test bed for the exercise concept, training and implementation, including its vehicle operators, maintenance personnel and management personnel.

3. As used in this handbook, the facilitated exercise model describes a type of modified full-scale activity. Some HSEEP guidance also uses the term as a type of tabletop exercise. A facilitated exercise uses a scenario to motivate exercise “play,” but breaks up the elements of a response into “learning stations.” At each learning station the participants receive a briefing, modeling ICS field methods, and then they create an incident action plan (IAP) for that element of the response through joint discussion of the problem and the resources at hand, or that can be acquired quickly. They then take full-scale action based on the IAP that they developed. From the perspective of adult learning, this model is more likely to have a successful long-term learning outcome, because adults learn best if they say and do what is being taught. A complete explanation of the facilitated exercise is included in *Emergency Management Training and Exercises for Transportation Agency Operations* (MTI Report 09-17) (Edwards & Goodrich 2010). The facilitated exercise model was selected as the basis for a case study by the Kennedy School of Government’s Executive Training course. The case was written by Pam Varley and it is available from Harvard University.

4. An annotated bibliography of resources is Annex C to this publication. It includes a list of web-based resources, which is also available in *Emergency Management Training and Exercises for Transportation Agency Operations* (MTI Report 09-17) (Edwards & Goodrich 2010).

5. As Holdeman (2012) also points out, it is unclear whether government agencies below the state level are required to conduct THIRA.

PART TWO: HANDBOOK OF EXERCISES FOR TRANSPORTATION SECTOR PERSONNEL

I. PREFACE

The purpose of this handbook is to assist transportation sector personnel to develop useful exercises with a transportation focus, or to be effective participants in exercises developed by other entities. For the purposes of this research the term “transportation sector” includes surface transportation organizations such as transit agencies, and state and local highway construction and maintenance organizations. The exercise developers should have access to the on-line Homeland Security Exercise Evaluation Program (HSEEP) materials (HSEEP, 2013a, 2013b, 2013c), and may use this handbook as a simplified guide, while referring back to the HSEEP 2013 manual for more detailed descriptions when needed. This handbook is structured around the project management system that is widely used for large construction projects by transportation sector personnel. The exercise development phase Checklists for are provided to simplify the exercise design and implementation process for someone with little experience in exercise design and implementation, or who has few resources available to develop and execute a meaningful exercise of the organization’s standard operating procedures (SOPs) and plans.

Exercises using SOPs and plans are an important element of their continuing development. Having staff implement SOPs and plans enables the planners to appreciate their value, and understand any changes that must be made. Many federal grants require recipient organizations to exercise the plans, training and equipment acquired with federal funds to ensure that these elements can be used by the organization to fulfill its core capabilities during an emergency. Others, like the Federal Railroad Administration, require annual exercises to ensure emergency response capabilities.

The Department of Homeland Security’s HSEEP guidance is based on a military unit rotation model of training and exercise building that was adapted by the National Guard Bureau for use by federal grantees, and is intended to be a multi-disciplinary national pattern. While this guidance may be useful for experienced exercise developers in hierarchical agencies, such as law enforcement and fire departments, it is often difficult for civilian entities to understand and apply. In 2012, HSEEP documentation was reduced from five volumes to two, but only volume 1 (HSEEP, 2013c) is currently available. Even this shorter version requires significant training in HSEEP nomenclature and doctrine to apply it to exercise development. Most transportation sector agencies do not have the resources to send personnel to the four-day training needed to work from the detailed HSEEP documents without mentoring.

This handbook provides a bridge between existing organization exercise capability and the implementation of a successful HSEEP-compliant exercise that is within the resource capabilities of the typical transportation agency.

II. WHY THIS BOOK?

California Highway Patrol (CHP) officers have a mantra they use when someone questions their authority on city streets or county roads. It is “all roads, all codes,” meaning that their jurisdiction covers the entire state of California, not just the highways. However, what happens when there are no open roads? Law enforcement, fire, emergency medical services (EMS) and utilities require transportation corridors to respond. Without their vehicles, and the resources they carry, responders have little to offer. The ground clearance of most fleet vehicles is just a few inches, making them incapable of clearing obstacles like disaster debris. Even off-road capable apparatus may become quickly immobilized in a post-disaster environment, due to broken glass, jagged concrete or other urban debris.

The transportation sector plays a pivotal role in the ability to respond to disasters. Its essential role is clearly recognized in the Federal Emergency Support Functions (ESFs), where it is listed as number one among the 15 activities, and Public Works is number three. However, at lower levels of government, the transportation sector’s centrality is often not understood by the other responders, and even by transportation professionals themselves. In fact, the transportation sector is a critical enabler of the other first responders’ services, and has its own unique capabilities and demands. Historically, other disciplines, such as law enforcement and fire, routinely use exercises to evaluate their own capabilities. If transportation assets are present at these exercises they are generally used as “support” and placed in the Logistics Section of the Incident Command System (ICS) structure. Although their basic functions of road damage assessment, debris removal, and evacuation are integral parts of the ICS Operations function, transportation sector representatives are often not involved with the more complex phases of the exercise, or indeed even with the exercise planning. Instead, exercise planners make assumptions about the transportation sector’s capabilities, assuming that their needs will simply be met by transportation’s resources, without appreciating the complexities of organizing personnel and resources to fulfill the Incident Commander’s needs.

Another challenge for the transportation sector’s active participation in community exercise design is the current exercise structure in emergency management. Until 9/11 there was limited guidance from the federal government on what an exercise was and how it might be structured, although FEMA did offer courses on exercise design and implementation. Before

9/11, exercises were motivated by the Emergency Management Performance Grants’ (EMG) requirements, nuclear power plant regulations, Federal Aviation Administration (FAA) requirements or similar external mandates. Many exercise planners had either prior first responder experience, military experience, or had been in their organization’s training component for an extended period of time. Exercise structuring, execution and evaluation had differing standards based on the source of the funding or mandate. For example, some exercise cycles, like the FAA’s, provided for a full scale exercise once every three years, with tabletop exercises in the other years; while others, like EMPG’s, required a full scale exercise every four years, but allowed the jurisdiction to substitute response to a real event for the full scale exercise.

After 9/11 the federal government developed a series of grant programs that required community-level exercises on a prescribed cycle. Homeland Security Exercise Evaluation Program (HSEEP) was developed to provide more specific guidance for communities responding to the exercise mandate. However, HSEEP requirements use a Department of Defense three-year mission rotation ideology. Further, HSEEP is not controlled by, nor does it answer to, FEMA, although FEMA is responsible for the training of future exercise designers through its Independent Study courses and the Master Exercise Practitioner Program (MEPP). Initially, the HSEEP documentation had five volumes of guidance material, one of which was access protected and limited to people that HSEEP approved. In 2013, HSEEP announced a revised two-volume guidance set for review, but only one volume, issued in April 2013, is accessible to all exercise planners (HSEEP, 2013c).

Currently, someone starting out to learn exercise design follows a mixed path. Some people may simply learn by doing with a mentor who is an experienced exercise designer. Alternatively, he can start to get basic information from the three FEMA Independent Study courses that are exercise-specific (IS-120.a, IS-130, IS-139). Those wishing to become more knowledgeable may add other independent study courses that describe the current homeland security system in the United States, such as IS-700: National Incident Management System (NIMS). Some practical experience with exercises should follow, even for those only interested in assisting their own departments.

Having completed these prerequisites, one may then take an in-person, HSEEP course for four days to understand the HSEEP process. If he wishes to become a certified exercise manager he must seek a mentor or a host organization where he can gain practical experience in exercise design and implementation. To become certified as a lead exercise designer he must then take the in-class Master Exercise Practitioner Program (MEPP), which is composed of three sessions of four days each at a residential facility (Emmitsburg, Maryland's National Training Center or a state-based course), with two assignments to be completed between the classes. This represents a two- to three-year commitment by both the individual and his organization to have a fully "qualified" exercise designer.

This handbook sought to develop an approach that an employee in a transportation organization, tasked with developing and executing an exercise, and with no previous experience, could put into practice. Furthermore, it is assumed that there is an immediate deadline for the exercise to be conducted, driven by an external or internal demand, and that it must be "HSEEP compliant."

This handbook uses as the basis of exercise design the project management system, a tool most transportation sector organizations use for construction management. Where possible, the handbook's guidance has been reduced to only the minimum elements required for success. In order to do this, some assumptions have been made about existing supporting documentation that can be accessed to support the exercise program development. For example, the HSEEP process for a full risk/threat assessment is not included in this handbook, as every county is mandated to have a thorough risk assessment document as part of its Disaster Mitigation Act 2000 requirements (FEMA 2000), and the transportation sector entity can base its exercise selection on that threat analysis/risk assessment. If the

organization has an emergency operations plan, it will include a threat analysis that can be used by the exercise developers.

Another use of this book is the development of requests for proposals (RFPs) and the contract provisions for compliance. As a result of the onerous process required to develop in-house exercise management expertise, some agencies will contract out, but how do you know if the service being offered by a contractor is what is best for your organization? The guidance in the handbook will assist the transportation sector employee assigned to the exercise program to monitor the work of the contractor to ensure that the exercise products meet agency needs.

This handbook is not intended to replace the existing or emerging models of exercise design education. It is recommended that the transportation organization developing its training and exercise programs invest in itself through its personnel and send them through the state and federal exercise training programs as time and scheduling allow.

PURPOSE

The purpose of this handbook is to provide a quick one-stop reference for a mid-level employee who has limited experience with exercises for a transportation sector organization. Its attributes are that it:

- Is organized based on the need for immediate action to facilitate development of the exercise, while still reading about the next steps in the exercise process.
- Uses project management as the basis for exercise design and development because it is a system that is frequently used in transportation agencies.
- Enables the end user to design, execute, and document an exercise.
- Is Homeland Security Exercise and Evaluation Program (HSEEP) compliant.

The handbook does not address the issue of developing a complete exercise program, which is more complex and requires an integrated training component.

APPLICABILITY AND SCOPE

This handbook is usable by transportation sector and transportation-related entities. It is intended to enable a person recently assigned the task of organizing exercises to become productive within a very short period of time. It follows the HSEEP doctrine of flexibility, scalability and adaptability in design for exercise participants and their organizations.

HOW TO USE THIS DOCUMENT

This document is organized according to the immediate need of the end user, so that he can begin a course of action while still reading this document. It is assumed that the user has been recently assigned the task of designing an exercise, or being part of an exercise

design team, with little lead time for exercise execution, making time an important factor for the reader.

HANDBOOK ORGANIZATION

Exercise Definitions section describes the different types of exercises. Read and make copies for circulation to ensure stakeholders are using a common vision.

Exercise Checklists provides a list of items needing to be addressed in the initiating, planning, execution, controlling and close-out of the exercise.

Initiating Process asks what the exercise drivers are. This will enable identification of probable stakeholders and formation of the exercise “project charter” (the document that authorizes the project), establishes the scope, management and resources available, and provides the project manager with the authority to apply organizational resources to project activities.

Planning Process defines and sequences the activities, the supportive documentation from the HSEEP perspective (exercise plan, participant handbook), and establishment of the various components that enable an exercise.

Executing Process is the actual setup and commencement of the exercise. This includes the prepositioning of any support activities, such as a simulations cell or rehabilitation services.

Controlling Process comprises the evaluation of the exercise, as well as inputs through specific entities necessary to adjust exercise play.

Closing Process is the end of the exercise itself, followed immediately by a meeting of all exercise participants to collect feedback, including meetings with evaluators and controllers to gather their observations. Finally, there is the creation of the follow-up supportive documentation (after-action report with corrective actions).

Process Details is an in-depth look at what each process entails.

Points to Consider is composed of lessons observed by exercise designers that could be useful to exercise developers.

Annex A: Glossary, Abbreviations and Acronyms

Annex B: Sample Feedback Form and After-Action Report

Annex C: List of References and Training Resources for Exercises

Annex D: Home and Family Preparedness Information Fliers

III. EXERCISE DEFINITIONS

OVERVIEW

Exercise nomenclature differs among various exercise doctrines, so it is important to provide the HSEEP definitions for use in the development of transportation sector emergency management exercise activities. Various exercise types have differing scopes and elements, so it is important to understand the facets of different exercises before selecting an exercise format and beginning charter development. It is also possible that the organization is already doing “exercises” that are simply called something else. This section provides a reference for each type of HSEEP exercise, and for an additional model – the facilitated exercise – that was developed and used by the authors.

Exercises are an opportunity for organizations to evaluate their readiness to respond to the threats identified in their jurisdiction through Threat and Hazard Inventory Risk Assessment (THIRA). The exercise tests the plans, training processes and equipment/resource base, not the capability of the personnel.

The following definitions are derived from the HSEEP Glossary in volume 1(HSEEP 2013c). Following these definitions are two descriptive tables. Table 1 summarizes each exercise type and the factors that influence the selection of the type of exercise. Table 2 summarizes the exercise components (participant roles and significant processes) involved in each exercise type.

DISCUSSION-BASED EXERCISES

Seminars

Seminars are informal discussions, unconstrained by real-time portrayal of events and led by a presenter. They are generally employed to orient participants to, or provide an overview of, authorities, strategies, plans, policies, procedures, protocols, response resources, and/or concepts and ideas. Seminars provide a good starting point for entities that are developing, or making major changes to, their plans and procedures.

Workshops

Workshops represent the second tier of exercises in the HSEEP building-block approach. They differ from seminars in two important respects: participant interaction is increased, and the focus is on achieving or building a product (such as a draft plan or policy). Workshops are often employed in conjunction with exercise development to determine objectives, develop scenarios, and define evolution criteria.

A workshop may also be used to produce new standard operating procedures (SOPs), emergency operations plans (EOPs), mutual aid agreements (MAAs), multi-year plans, or improvement plans. To be effective, workshops must be highly focused on a specific issue, and the desired outcome or goal must be clearly defined.

Tabletop Exercises (TTX)

A tabletop exercise (TTX) is intended to generate discussion of various issues regarding a simulated event. TTXs can be used to enhance general awareness, validate plans and procedures, rehearse concepts, and/or assess the types of systems needed to guide the prevention of, protection from, mitigation of, response to, and recovery from a defined incident. TTXs are generally aimed at facilitating conceptual understanding, identifying strengths and areas for improvement, and/or achieving changes in attitudes.

In a TTX, participants are encouraged to discuss issues in depth, collaboratively examine areas of concern and solve problems. The effectiveness of the TTX is derived from the energetic involvement of participants and their assessment of recommended revisions to current policies, procedures and plans. The purpose of the TTX is to evaluate the plan, not the personnel.

There are two subcategories of TTX, basic and advanced. For a basic TTX, the scenario is presented and remains constant. It describes an event and brings discussion participants up to the simulated present time. In an advanced TTX, play advances as participants receive pre-scripted messages that alter the original scenario. Problems are introduced one at a time in the form of a written message, simulated phone call or news release, or other means. Players discuss the issues raised by each problem, referencing established authorities, plans, and procedures for guidance. Players' ideas and strategies are incorporated as the scenario continues to unfold.

Games

A game is a simulation of operations that often involves two or more teams, usually in a competitive environment, using rules, data, and procedures designed to depict an actual or hypothetical situation. Games explore the consequences of participant decisions and actions, and are therefore excellent tools to use when validating or reinforcing plans and procedures or when evaluating resource requirements. Games focus on the personnel and their ability to integrate existing plans and equipment into problem solving.

During game play, decision-making may either be slow and deliberate or rapid and more stressful, depending on the exercise design and objectives. The open, decision-based format of a game can incorporate "what if" questions that expand the exercise's benefits. Depending on the game's design, the consequences of participant actions can be either prescribed or decided dynamically. Identifying critical decision-making points is a major factor in the success of games because participants make their evaluated moves at these critical points. Issues such as force protection may be integrated in a game's play.

ACTION-BASED EXERCISES

Drills

A drill is a coordinated, supervised activity usually employed to validate a specific operation or function in a single agency or organization. Drills are commonly used to provide

training on new equipment, validate procedures, or practice and maintain current skills. For example, drills may be appropriate for establishing a community-designated disaster receiving center or shelter. Drills can also be used to determine whether plans can be executed as designed, to assess whether more training is required, or to reinforce best practices. A drill is useful as a stand-alone tool, but a series of drills can also be used to prepare several agencies and organizations to collaborate in a full scale exercise (FSE).

For every drill, clearly defined plans, procedures, and protocols need to be in place. Personnel need to be familiar with those plans and trained in the processes and procedures drilled.

Functional Exercises (FEs)

An FE is designed to validate and evaluate capabilities, multiple functions and/or sub-functions, or interdependent groups of functions. FEs are typically focused on exercising plans, policies, procedures, and staff members involved in management, direction, command, and control functions. In FEs, events are projected through an exercise scenario with event updates that drive activity at the management level. An FE is conducted in a realistic, real- time environment; however, movement of personnel and equipment is usually simulated.

Response- and recovery-focused FEs are generally focused on exercising the plans, policies, procedures, and protocols, and staffs of the direction and control branches of the Incident Command System (ICS) and Unified Command, or multiagency coordination centers (e.g., Emergency Operations Centers).

A prevention-focused FE generally concentrates on exercising the plans, policies, procedures, agreements, networks, and staffs of law enforcement intelligence centers or agencies with counterterrorism missions. Adversary actions are largely simulated and delivered in the form of shared intelligence; however, some adversary actions may be carried out by simulated adversaries (red teams) in a separate but coordinated category of exercise play.

FE controllers typically use a Master Scenario Events List (MSEL) to ensure participant behavior remains within predefined boundaries. Simulators in a Simulations Cell can inject scenario elements to simulate real events.

Full Scale Exercises (FSEs)

An FSE is typically the most complex and resource-intensive type of exercise. They involve multiple agencies, organizations and jurisdictions and validate many facets of preparedness. FSEs often include many participants operating under cooperative systems, such as the ICS or Unified Command.

In an FSE, events are projected through an exercise scenario with event updates that drive activity at the operational level. FSEs are usually conducted in a real-time, stressful environment intended to mirror a real incident. Personnel and resources may be mobilized

and deployed to the scene where actions would be conducted as if a real incident had occurred. The FSE simulates reality by presenting complex and realistic problems that require critical thinking, rapid problem solving, and effective responses by trained personnel.

The level of support needed to conduct an FSE is greater than that needed for other types of exercises. The exercise site for an FSE is usually large, and site logistics require close monitoring. Safety issues, particularly regarding the use of props and special effects, must be monitored. Throughout the duration of the exercise, many activities occur simultaneously.

Facilitated Exercise

A Facilitated Exercise is a non-HSEEP type, but serves as a form of full scale exercise within the HSEEP definitions.

Authors' Explanation: A Facilitated Exercise is composed of several stations, with each successive station building on the knowledge gained and actions taken from the previous stations. Participants represent all first responders, with problems representing a mix of responsibilities of several jurisdictions. A facilitator is used to explain what the participants are seeing and then asks how they would address the issues. Participants are not allowed to engage in physical actions until they have an articulable plan that is agreed to and is safe. The physical action is based on and carries out the plan. There are normally three to five stations involved, with the facilitator either staying at the station or progressing through the exercise with the participants. Facilitators do not instruct, nor do they reject a plan – except for safety reasons, but they do provide additional information as required to advance the planning process.

Table 11. Exercise Types and Planning Determinants

Type	Definition (based on HSEEP Glossary, 2013c)	Overall Cost	Risk to Participants	Overtime	Distance Learning Possible	Internet-Based Possible	Existing EOP and SOPs Required	Training Required Before Participation[1]
Seminar	Orient participants to authorities, strategies, plans, policies, procedures, protocols, resources, concepts, and/or ideas.	Low	Low	May be on-duty delivery	Yes	Yes	No[2]	No
Workshop	Increased participant interaction, focus on achieving or building a product (e.g., plans, policies); used to: test new ideas, processes, or procedures; train groups in coordinated activities; and obtain consensus; uses breakout sessions to explore parts of an issue with smaller groups.	Low	Low	May be on-duty delivery	Yes	Yes	No[2]	No
Tabletop	Discussion-based; used to: assess plans, policies, and procedures, or to assess types of systems needed to guide the prevention of, response to, or recovery from a defined incident. Includes senior staff, elected or appointed officials, or other key decision-making personnel; aimed at facilitating understanding of concepts, identifying strengths and shortfalls, and/or achieving a change in plans and policy.	Low	Low	May be on-duty delivery	Yes	No	Yes	Yes
Drill	*Operations-based* exercise; coordinated, supervised activity usually employed to test a single, specific operation or function in a single agency; used to: provide training on new equipment, develop or test new policies or procedures, or practice and maintain current skills.	Moderate to High	Moderate to High	On-duty or overtime	No	No	No[3]	Yes
Functional	Single- or multi-agency activity designed to evaluate capabilities and multiple functions using a simulated response; typically used to evaluate the management of EOCs, command posts, and headquarters; and assess the adequacy of response plans and resources; includes simulated deployment of resources and personnel, rapid problem solving, and a highly stressful environment.	Moderate	Low	On duty or overtime	Yes	No	Yes	Yes
Facilitated	Composed of multiple, realistic learning stations that simulate a full scale response, focused discussion of learning station-specific issues through a facilitator with functional area or subject matter expertise before the practical application is begun, to ensure that all actions are according to the SOPs/EOP. May be multi-agency or multi-jurisdictional.	High	Moderate	Overtime possible	No	No	Yes	Yes
Full Scale	Multi-agency, multi-jurisdictional activity involving actual deployment of resources in a realistic coordinated response; tests one or more capabilities within emergency response and recovery; used to assess plans and procedures, and assess coordinated response under crisis conditions. Characteristics include mobilized units, personnel, and equipment; stressful, a realistic environment, and scripted exercise scenarios, but free play by participants; critique only at Hot Wash.	Very High	Very High	Overtime probable	No	No	Yes	Yes

Notes: 1. Specific training for participants is determined by the type of exercise and the scenario selected.

2. May be part of EOP or SOPs development.

3. May be part of training cycle.

Table 12. Exercise Components

Type	Definition (based on HSEEP Glossary, 2013c)	Director	Speaker	Evaluator	Controllers	Participation by Other Agencies	Work Product	After Action	Improvement Plan
Seminar	Orient *participants* to authorities, strategies, plans, policies, procedures, protocols, resources, concepts, and/or ideas.	Yes	Yes	No	No	Maybe	No	Yes	No
Workshop	Increased participant interaction, focus on achieving or building a product (e.g., plans, policies); used to: test new ideas, processes, or procedures; train groups in coordinated activities; and obtain consensus; use breakout sessions to explore parts of an issue with smaller groups.	Yes	Yes	No	No	Maybe	New/revised plan, policy, etc.	Yes	Maybe
Tabletop	Discussion-based; used to: assess plans, policies, and procedures, or to assess types of systems needed to guide the *prevention* of, *response* to, or *recovery* from a defined incident. Includes senior staff, elected or appointed officials, or other key decision-making personnel; aimed at facilitating understanding of concepts, identifying strengths and shortfalls, and/or achieving a change in plans and policy.	Yes	No	Yes	No Director fills role	Usually	Maybe a revised plan or SOP	Yes	Maybe
Drill	*Operations-based* exercise, coordinated, supervised activity usually employed to test a single specific operation or function in a single agency; used to provide training on new equipment, develop or test new policies or procedures, or practice and maintain current skills	Yes	No	Yes	Yes, or Director may fill role	Maybe	No	Yes	Maybe
Functional	Single- or multi-agency activity designed to evaluate capabilities and multiple functions using a simulated response; typically used to evaluate the management of EOCs, command posts, and headquarters; and assess the adequacy of response plans and resources; includes simulated deployment of resources and personnel, rapid problem solving, and a highly stressful environment	Yes	No	Yes	Yes	Maybe	Maybe	Yes	Yes
Facilitated	Composed of multiple, realistic learning stations that simulate a full scale response, focused discussion of learning station-specific issues through a facilitator with functional area or subject matter expertise before the practical application is begun, to ensure that all actions are according to the SOPs/EOP. May be multi-agency or multi-jurisdictional.	Yes	Yes SME Facilitator at each learning station	Yes	Yes	Yes	Maybe	Yes	Yes
Full Scale	Multi-agency, multi-jurisdictional activity involving actual deployment of resources in a realistic coordinated response; tests one or more capabilities within emergency response and recovery; used to assess plans and procedures, and assess coordinated response under crisis conditions. Characteristics include mobilized units, personnel, and equipment; stressful, a realistic environment, and scripted exercise scenarios, but free play by participants, critique only at Hot Wash.	Yes	No	Yes	Yes	Yes	Maybe	Yes	Yes

IV. PROJECT MANAGEMENT AND CHECKLISTS FOR EXERCISES

For the purposes of this document the term ***project management*** is defined as the application of knowledge, skills, tools, and techniques to achieve a specific goal, with a discrete beginning and end. Project management is accomplished through the appropriate application and integration of 47 logically grouped project management processes, such as human resources and risk management, which are categorized into five process groups. These five process groups are: initiating, planning, executing, monitoring and controlling, and closing. Due to the tremendous variance in organizational form, the supporting structures may exist in a variety of designs to support the five basic activities. This exercise book uses the five processes as the framework for managing the exercise development and implementation from beginning to end.

Exercise designers may use any of several approaches to developing the activity. Because many transportation sector agencies use the project management system for day-to-day work, the handbook uses this approach for exercise development, as well. Sample Checklists for are provided to demonstrate the application of the project management methodology to the exercise development activities.

As with all project management-driven activities, the exercise development starts with the Initiation Process, which ends with the creation of the exercise's charter. The second phase is the Planning Process, which theoretically remains open until the closing process. However, due to the short time frame for the execution process, modification of the plan is remanded to the controllers or facilitators. Therefore, additional effort is required during planning to ensure the highest likelihood of success. This can be accomplished by including the facilitators/ controllers and evaluators, as soon as they are identified, in the planning process.

Development of an exercise is a complex process that requires the coordinated participation of several departments within an organization, and possibly also outside organizations. The method for spreading this work among various groups is called the work breakdown structure (WBS). The exercise development work may be conducted using a WBS based on either a model previously created by your organization, or the Incident Command System's five part organization structure.

Some organizations use project management for construction or development work, and may already use a project management software product. An internally known software package may provide structured guidance for organizing the various streams of work that have to be done in concert by different groups. The HSEEP Toolkit (HSEEP, Toolkit System, n.d.) includes a simplified method for charting work plans and delivery dates that might be useful for an organization that does not have a project management software package.

Because there are multiple agencies involved in many exercises, it is important to determine exactly which knowledge, skills and abilities (KSAs) will be used by each organization in this exercise. As the planning progresses it is possible that agencies may wish to augment their KSAs, which may make the planning process unmanageable. Therefore,

documentation of KSAs and scope during charter development is critical when multiple participating organizations are involved.

At certain points in the Checklists for, reference to communication within the exercise appears. Communication methods are specifically identified to aid the controllers/evaluators/facilitators in coordinating/adjusting exercise play. Additional layers of communication, possibly even a complete communications plan, may be required, with the number and types of communication methods dependent upon the complexity of the exercise.

When using the project management approach the exercise must be evaluated for its likelihood of success. This evaluation is known as ***risk management***, and informs the exercise developer about whether the exercise as designed is worth the investment in time and cost, and whether it is likely to achieve the desired outcomes. The location, equipment and activities should all be reviewed to ensure that all personnel involved can be successful during all phases of the exercise. The evaluation may include not only the risk management personnel but all participating agencies with knowledge of operational practices related to the exercise. Application of risk management will ensure that adequate staffing, resources and experienced safety and oversight personnel are present. If this level of support is not available for cost reasons, it is recommended that the scope of the exercise be narrowed, a simpler exercise type be used, or a combination of the two.

If you are unsure of which exercise type to employ, select the one closest to the description you have been assigned, once you have compared it to the exercise description section of this book. Use the associated exercise Checklists for until greater clarification of the exercise is obtained through the Initiating Process Group. You can switch to the more appropriate exercise Checklists for anytime during the Initiating Process.

SEMINAR EXERCISE CHECKLIST

Initiation Process - Seminar Exercise

- ❑ Identify Driver(s)
  - ❑ Contract
    - ❑ Specific wording concerning exercise.
  - ❑ Grant
    - ❑ What was stated in the Grant/Application?
  - ❑ Code/Legislative Requirement
    - ❑ What does the code/legislation state and require?
  - ❑ Political
    - ❑ For what specific purpose?
  - ❑ Internal
    - ❑ What is motivating this change?
- ❑ Identify Stakeholders
  - ❑ Establish Stakeholder's List
    - ❑ Name
    - ❑ Organization
    - ❑ Contact Information
    - ❑ Position
- ❑ Identify Funding Streams
  - ❑ Discretionary
  - ❑ General Fund - Budgeted for Exercise
  - ❑ Grant Funding
- ❑ Identify Scope of Exercise
  - ❑ Who will be the lead agency?
  - ❑ Who are the participants?
    - ❑ Road
    - ❑ Rail
    - ❑ Mass Transit
    - ❑ Public Works
    - ❑ First Responders: Police, Fire, EMS
    - ❑ Emergency Management
  - ❑ Jurisdictions Involved
    - ❑ Special District
    - ❑ Local: City, County
    - ❑ Regional, MPO
    - ❑ State
    - ❑ Federal
- ❑ Identify Scenario Restrictions
- ❑ Establish Charter
  - ❑ Identify Exercise Director
  - ❑ Internal and External Restrictions
  - ❑ HSEEP Compliance
  - ❑ Identify Goal and Objective(s) of Exercise

Planning Process – Seminar Exercise

- ❑ Establish Design Team
  - ❑ Technical (field)
  - ❑ Procedural (management)
  - ❑ Legal
  - ❑ Speaker
- ❑ Site Selection
  - ❑ Bathroom Facilities
  - ❑ Seating
  - ❑ Audio/Visual
  - ❑ Safety Plan
  - ❑ Medical/Fire
- ❑ Resources List and Their Sources
  - ❑ Handouts
    - ❑ Background
    - ❑ Location Description/Map
    - ❑ Existing Plans
    - ❑ Scenario
- ❑ Scenario Development
  - ❑ Realistic/Believability by Participants
- ❑ Location Set-Up and Tear-Down Plan
  (who brings what; sets it up/takes it down)
  - ❑ Check-In/Out
  - ❑ Audio/Visual
  - ❑ Directions (email, mail, handouts)
- ❑ Exercise Documentation
  - ❑ Print

Suggested Meeting Agenda Topics – Seminar Exercise

- ❑ Meeting 1
  - ❑ Goal and Objectives – Develop
  - ❑ Location – Identify Options
  - ❑ Scenario – Discuss
  - ❑ Logistics/Support – Identify issues specific to this exercise
- ❑ Meeting 2
  - ❑ Location – Report on the options, then select best option
  - ❑ Scenario – Develop
  - ❑ Evaluators and Controllers – Discuss evaluation tools for goal and objectives
  - ❑ Logistics/Support – Identify resources
- ❑ Meeting 3
  - ❑ Location – Confirm date, time and point of contact
  - ❑ Scenario – Complete and finalize
  - ❑ Evaluators and Controllers – Ensure evaluation tools are synchronized to scenario, and identify assignments
  - ❑ Logistics/Support – Confirm entities and commitment

Executing Process – Seminar Exercise

- ❑ Issue Exercise Documentation (as required)
- ❑ Check In
- ❑ Begin Presentation
  - ❑ Document time exercise begins
- ❑ Terminate Presentation
  - ❑ Document time exercise ends

Controlling Process – Seminar Exercise

- ❑ Presenters
  - ❑ Provide Presentation Content
    - ❑ Situation
    - ❑ Relevant Plans
    - ❑ Procedures
  - ❑ Keep any discussion focused on exercise goal
  - ❑ Interact with participants to address additional information requests
- ❑ Documenters
  - ❑ Scribe(s) take notes of sessions
  - ❑ Photographer(s) discreetly document activities throughout
- ❑ Exercise Director
  - ❑ Issue Participant Feedback Form
  - ❑ Document discussion
  - ❑ Thanks and Acknowledgements
    - ❑ Funding Source
    - ❑ Location Owner
    - ❑ Exercise Design Team
    - ❑ Presenters
  - ❑ Thank participants for attendance
  - ❑ Collect Participant Feedback Form
- ❑ Debrief
  - ❑ Discuss course of exercise events
  - ❑ Document conversation

Closing Process – Seminar Exercise

- ❑ Exercise Director Reviews Documentation
  - ❑ Participant Feedback Forms
  - ❑ Notes from Debrief
- ❑ Consolidate Documentation
  - ❑ Place into Exercise Documentation Folder
    - ❑ Notes/Minutes
    - ❑ Other Lessons Learned from Exercise
    - ❑ Participant Feedback Forms
    - ❑ Debrief Notes
    - ❑ Photos
    - ❑ Miscellaneous Documentation

WORKSHOP EXERCISE CHECKLIST

Initiation Process - Workshop Exercise

- ❑ Identify Driver(s)
  - ❑ Contract
    - ❑ Specific wording concerning exercise.
  - ❑ Grant
    - ❑ What was stated in the Grant/Application?
  - ❑ Code/Legislative Requirement
    - ❑ What does the code/legislation state and require?
  - ❑ Political
    - ❑ For what specific purpose?
  - ❑ Internal
    - ❑ What is motivating this change?
- ❑ Identify Stakeholders
  - ❑ Establish Stakeholder's List
    - ❑ Name
    - ❑ Organization
    - ❑ Contact Information
    - ❑ Position
- ❑ Identify Funding Streams
  - ❑ Discretionary
  - ❑ General Fund - Budgeted for Exercise
  - ❑ Grant Funding
- ❑ Identify Scope of Exercise
  - ❑ Who will be the lead agency?
  - ❑ Who are the participants?
    - ❑ Road
    - ❑ Rail
    - ❑ Mass Transit
    - ❑ Public Works
    - ❑ First Responders: Police, Fire, EMS
    - ❑ Emergency Management
  - ❑ Jurisdictions Involved
    - ❑ Special District
    - ❑ Local: City, County
    - ❑ Regional, MPO
    - ❑ State
    - ❑ Federal
- ❑ Identify Scenario Restrictions
- ❑ Establish Charter
  - ❑ Identify Exercise Director
  - ❑ Internal and External Restrictions
  - ❑ HSEEP Compliance
  - ❑ Identify Goal and Objective(s) of Exercise

Planning Process – Workshop Exercise

- ❑ Establish Design Team
  - ❑ Technical (field)
  - ❑ Procedural (management)
  - ❑ Legal
- ❑ Site Selection
  - ❑ Bathroom Facilities
  - ❑ Seating
  - ❑ Audio/Visual
  - ❑ Safety Plan
  - ❑ Medical/Fire
- ❑ Resources List and Their Sources
  - ❑ Handouts
    - ❑ Background
    - ❑ Location Description/Map
    - ❑ Existing Plans
    - ❑ Scenario
- ❑ Scenario Development
  - ❑ Goal/Objective(s) Addressed
  - ❑ Realistic/Believability by Participants
- ❑ Location Set-Up and Tear-Down plan
  (who brings what; sets it up/takes it down)
  - ❑ Check-In/Out
  - ❑ Audio/Visual
  - ❑ Directions (email, mail, handouts)
- ❑ Exercise Documentation
  - ❑ Print

Suggested Meeting Agenda Topics – Workshop Exercise

- ❑ Meeting 1
  - ❑ Goal and Objectives – Develop
  - ❑ Location – Identify options
  - ❑ Scenario – Discuss
  - ❑ Logistics/Support – Identify issues specific to this exercise
- ❑ Meeting 2
  - ❑ Location – Report on the options, then select best option
  - ❑ Scenario – Develop
  - ❑ Evaluators and controllers – Discuss evaluation tools for goal and objectives
  - ❑ Logistics/Support – Identify resources
- ❑ Meeting 3
  - ❑ Location – Confirm date, time and point of contact
  - ❑ Scenario – Complete and finalize
  - ❑ Evaluators and Controllers – Ensure evaluation tools are synchronized to scenario and identify assignments
  - ❑ Logistics/Support – Confirm entities and commitment

Executing Process – Workshop Exercise

- ❑ Issue Exercise Documentation (as required)
- ❑ Controller Briefing (immediately prior to exercise)
- ❑ Check In
- ❑ Begin Exercise
  - ❑ Document time exercise begins
- ❑ Terminate Exercise
  - ❑ Document time exercise ends

Controlling Process – Workshop Exercise

- ❑ Controllers
  - ❑ Monitor and adjust exercise play
  - ❑ Interact with participants to address additional information requests
- ❑ Documenters
  - ❑ Scribe(s) take notes of sessions
  - ❑ Photographer(s) discreetly document activities throughout
- ❑ Exercise Hot Wash
  - ❑ Conducted by Exercise Director
  - ❑ Include all participants, exercise staff, controllers, exercise planners, and observers
  - ❑ Issue Participant Feedback Form
  - ❑ Thanks and Acknowledgements
    - ❑ Funding Source
    - ❑ Location Owner
    - ❑ Exercise Design Team
    - ❑ Controllers
    - ❑ Evaluators
    - ❑ Volunteers
  - ❑ Discuss Exercise Results (document discussion)
    - ❑ Goals
    - ❑ Objectives
    - ❑ Scenarios
    - ❑ Actions Taken
    - ❑ What Went Right/Wrong
    - ❑ Areas of Improvement
  - ❑ Thank participants for attendance
  - ❑ Collect Participant Feedback Form
- ❑ Controller Debrief
  - ❑ Conducted by Controller immediately following Hot Wash
  - ❑ Ensure all controllers are included
  - ❑ Discuss course of exercise events
  - ❑ Document conversation
  - ❑ Submit findings to Exercise Director

Closing Process – Workshop Exercise

- ❑ Exercise Director Reviews Documentation
  - ❑ Participant Feedback Forms
  - ❑ Evaluator Observation Forms
  - ❑ Notes from Controller Debrief
  - ❑ Notes from Hot Wash
- ❑ Prepare Draft After Action Report
  - ❑ Incorporate comments related to goal and objectives
- ❑ Convene After Action Conference
  - ❑ Invite Controllers
  - ❑ Review Draft After Action Report
  - ❑ Create Final After Action Report
  - ❑ Establish list of action items for inclusion in the Improvement Plan
- ❑ Exercise Director Creates Improvement Plan
  - ❑ Each improvement element is tied to one of the core capabilities
  - ❑ Each improvement action is assigned to a specific organization with start/ending dates
- ❑ After Action Report/Improvement Plan Submitted to appropriate authorities
- ❑ Retain Improvement Plan for inclusion in Future Grant Applications
- ❑ Consolidate Documentation
  - ❑ Place into Exercise Documentation Folder
    - ❑ Notes/Minutes
    - ❑ Other Lessons Learned from Exercise
    - ❑ Participant Feedback Forms
    - ❑ Debrief Notes
    - ❑ Photos
    - ❑ Miscellaneous Documentation

TABLETOP EXERCISE CHECKLIST

Initiation Process - Tabletop Exercise

- ❑ Identify Driver(s)
  - ❑ Contract
    - ❑ Specific wording concerning exercise.
  - ❑ Grant
    - ❑ What was stated in the Grant/Application?
  - ❑ Code/Legislative Requirement
    - ❑ What does the code/legislation state and require?
  - ❑ Political
    - ❑ For what specific purpose?
  - ❑ Internal
    - ❑ What is motivating this change?
- ❑ Identify Stakeholders
  - ❑ Establish Stakeholder's List
    - ❑ Name
    - ❑ Organization
    - ❑ Contact Information
    - ❑ Position
- ❑ Identify Funding Streams
  - ❑ Discretionary
  - ❑ General Fund - Budgeted for Exercise
  - ❑ Grant Funding
- ❑ Identify Scope of Exercise
  - ❑ Who will be the lead agency?
  - ❑ Who are the participants?
    - ❑ Road
    - ❑ Rail
    - ❑ Mass Transit
    - ❑ Public Works
    - ❑ First Responders: Police, Fire, EMS
    - ❑ Emergency Management
  - ❑ Jurisdictions Involved
    - ❑ Special District
    - ❑ Local: City, County
    - ❑ Regional, MPO
    - ❑ State
    - ❑ Federal
- ❑ Identify Scenario Restrictions
- ❑ Establish Charter
  - ❑ Identify Exercise Director
  - ❑ Internal and External Restrictions
  - ❑ HSEEP Compliance
  - ❑ Identify Goal and Objective(s) of Exercise

Planning Process – Tabletop Exercise

- ❑ Establish Design Team
  - ❑ Technical (field)
  - ❑ Procedural (management)
  - ❑ Legal
- ❑ Evaluation Team
  - ❑ Identify Leader
- ❑ Site Selection
  - ❑ Bathroom Facilities
  - ❑ Seating
  - ❑ Audio/Visual
  - ❑ Safety Plan
  - ❑ Medical/Fire
- ❑ Resources List and Their Sources
  - ❑ Handouts
    - ❑ Background
    - ❑ Location Description/Map
    - ❑ Existing plans
    - ❑ Scenario
- ❑ Scenario Development
  - ❑ Goal/Objective(s) Addressed
  - ❑ Realistic/Believability by Participants
  - ❑ Create Master Sequence of Events List (MSEL) (if using advanced model)
- ❑ Location Set-Up and Tear-Down plan
  (who brings what; sets it up/takes it down)
  - ❑ Check-In/Out
  - ❑ Audio/Visual
  - ❑ Directions (email, mail, handouts)
- ❑ Create Situation Manual (SitMan)
  - ❑ Recommend Use of HSEEP Template
- ❑ Exercise Documentation
  - ❑ Print

Suggested Meeting Agenda Topics – Tabletop Exercise

- ❑ Initial Planning Meeting
  - ❑ Goal and Objectives – Develop
  - ❑ Location – Identify options
  - ❑ Scenario – Discuss
  - ❑ Logistics/Support – Identify issues specific to this exercise
- ❑ Midterm Planning Meeting
  - ❑ Location – Report on the options, then select best option
  - ❑ Scenario – Develop
  - ❑ Evaluators and Controllers – Discuss evaluation tools for goal and objectives
  - ❑ Logistics/Support – Identify resources
- ❑ Master Scenario Events List Meeting (if advanced)
  - ❑ Use Goals and Objectives to identify critical tasks/conditions/standards
  - ❑ Establish timeline with appropriate triggering events to activate critical tasks/conditions/standards
  - ❑ Prepare contingency injects to be used if participants fail to engage appropriately
  - ❑ Address artificialities the exercise venue may create
- ❑ Final Planning Meeting
  - ❑ Location – Confirm date, time and point of contact
  - ❑ Scenario – Complete and finalize
  - ❑ Evaluators and Controllers – Ensure evaluation tools are synchronized to scenario and identify assignments
  - ❑ Logistics/Support – Confirm entities and commitment

Executing Process – Tabletop Exercise

- ❑ Issue Exercise Documentation (as required)
- ❑ Evaluator Briefing (immediately prior to exercise)
- ❑ Check In
- ❑ Begin Exercise Play
  - ❑ Document time exercise begins
- ❑ Terminate Exercise Play
  - ❑ Document time exercise ends

Controlling Process – Tabletop Exercise

- ❑ Exercise Director (or appointed)
  - ❑ Monitor and adjust exercise play
  - ❑ Provide injects to participants as required by MSEL if advanced
  - ❑ Interact with participants to address additional information requests
- ❑ Evaluators
  - ❑ Monitor and document activities/actions of participants
  - ❑ Discussion with Controllers on objectives missed
- ❑ Documenters
  - ❑ Scribe(s) take notes of sessions
  - ❑ Photographer(s) discreetly document activities throughout
- ❑ Exercise Hot Wash
  - ❑ Conducted by Exercise Director
  - ❑ Include all participants, exercise staff, evaluators, exercise planners, and observers
  - ❑ Issue Participant Feedback Form
  - ❑ Thanks and Acknowledgements
    - ❑ Funding Source
    - ❑ Location Owner
    - ❑ Exercise Design Team
    - ❑ Controllers
    - ❑ Evaluators
    - ❑ Volunteers
  - ❑ Discuss Exercise Results (document discussion)
    - ❑ Goals
    - ❑ Objectives
    - ❑ Scenarios
    - ❑ Actions Taken
    - ❑ What Went Right/Wrong
    - ❑ Areas of Improvement
  - ❑ Thank participants for attendance
  - ❑ Collect Participant Feedback Form
- ❑ Controller/Evaluator Debrief
  - ❑ Conducted by lead Evaluator immediately following Hot Wash
  - ❑ Ensure all evaluators are included
  - ❑ Discuss course of exercise events
  - ❑ Document conversation
  - ❑ Submit findings to Exercise Director

Closing Process – Tabletop Exercise

- ❑ Exercise Director Reviews Documentation
  - ❑ Participant Feedback Forms
  - ❑ Evaluator Observation Forms
  - ❑ Notes from Evaluator Debrief
  - ❑ Notes from Hot Wash
- ❑ Prepare Draft After Action Report
  - ❑ Incorporate comments related to goal and objectives
- ❑ Convene After Action Conference
  - ❑ Invite Controllers and Evaluators
  - ❑ Review Draft After Action Report
  - ❑ Create Final After Action Report
  - ❑ Establish list of action items for inclusion in the Improvement Plan
- ❑ Exercise Director Creates Improvement Plan
  - ❑ Each improvement element is tied to one of the core capabilities
  - ❑ Each improvement action is assigned to a specific organization with start/ending dates
- ❑ Submit After Action Report/Improvement Plan to appropriate authorities
- ❑ Retain Improvement Plan for inclusion in future grant applications
- ❑ Consolidate Documentation
  - ❑ Place into Exercise Documentation Folder
    - ❑ Notes/Minutes
    - ❑ Other Lessons Learned from Exercise
    - ❑ Participant Feedback Forms
    - ❑ Debrief Notes
    - ❑ Photos
    - ❑ Miscellaneous Documentation

GAME EXERCISE CHECKLIST

Initiation Process - Game Exercise

- ❑ Identify Driver(s)
  - ❑ Contract
    - ❑ Specific wording concerning exercise
  - ❑ Grant
    - ❑ What was stated in the Grant/Application?
  - ❑ Code/Legislative Requirement
    - ❑ What does the code/legislation state and require?
  - ❑ Political
    - ❑ For what specific purpose?
  - ❑ Internal
    - ❑ What is motivating this change?
- ❑ Identify Stakeholders
  - ❑ Establish Stakeholder's List
    - ❑ Name
    - ❑ Organization
    - ❑ Contact Information
    - ❑ Position
- ❑ Identify Funding Streams
  - ❑ Discretionary
  - ❑ General Fund - Budgeted for Exercise
  - ❑ Grant Funding
- ❑ Identify Sope of Exercise
  - ❑ Who will be the lead agency?
  - ❑ Who are the participants?
    - ❑ Road
    - ❑ Rail
    - ❑ Mass Transit
    - ❑ Public Works
    - ❑ First Responders: Police, Fire, EMS
    - ❑ Emergency Management
  - ❑ Jurisdictions Involved
    - ❑ Special District
    - ❑ Local: City, County
    - ❑ Regional, MPO
    - ❑ State
    - ❑ Federal
- ❑ Identify Scenario Restrictions
  - ❑ Common Objective (all teams work same issue, exploring options)
  - ❑ Force-on-Force (Red vs. Blue, OPFOR, Tiger Team)
  - ❑ Leadership Dynamics (demonstration of different personalities)
- ❑ Establish Charter
  - ❑ Identify Exercise Director
  - ❑ Internal and External Restrictions
  - ❑ HSEEP Compliance
  - ❑ Identify Goal and Objective(s) of Exercise

Planning Process – Game Exercise

- ❑ Establish Design Team
  - ❑ Technical (field)
  - ❑ Procedural (management)
  - ❑ Legal
- ❑ Evaluation Teams
  - ❑ Identify Leader
- ❑ Controller Teams
  - ❑ Identify Leader
- ❑ Site Selection
  - ❑ Separate rooms for each team or sufficient room for private discussion
  - ❑ Bathroom Facilities
  - ❑ Seating
  - ❑ Audio/Visual
  - ❑ Safety Plan
  - ❑ Medical/Fire
- ❑ Resources List and Their Sources
  - ❑ Handouts
    - ❑ Background
    - ❑ Location Description/Map
    - ❑ Existing Plans
    - ❑ Scenario
- ❑ Scenario Development
  - ❑ Goal/Objective(s) Addressed
  - ❑ Realistic/Believability by Participants
  - ❑ Create Master Sequence of Events List (MSEL)
- ❑ Location Set-Up and Tear-Down Plan
  (who brings what; sets it up/takes it down)
  - ❑ Check-In/Out
  - ❑ Audio/Visual
  - ❑ Directions (email, mail, handouts)
- ❑ Create Situation Manual (SitMan)
  - ❑ Recommend Use of HSEEP Template
- ❑ Exercise Documentation
  - ❑ Print

Suggested Meeting Agenda Topics – Game Exercise

- ❑ Initial Planning Meeting
  - ❑ Goal and Objectives – Develop
  - ❑ Location – Identify options
  - ❑ Scenario – Discuss
  - ❑ Logistics/Support – Identify issues specific to this exercise
- ❑ Midterm Planning Meeting
  - ❑ Location – Report on the options, then select best option
  - ❑ Scenario – Develop
  - ❑ Evaluators and Controllers – Discuss evaluation tools for goal and objectives
  - ❑ Logistics/Support – Identify resources
- ❑ Master Scenario Events List Meeting
  - ❑ Use Goals and Objectives to identify critical tasks/conditions/standards
  - ❑ Establish timeline with appropriate triggering events to activate critical tasks/conditions/standards
  - ❑ Prepare contingency injects to be used if participants fail to engage appropriately
- ❑ Final Planning Meeting
  - ❑ Location – Confirm date, time and point of contact
  - ❑ Scenario – Complete and finalize
  - ❑ Evaluators and Controllers – Ensure evaluation tools are synchronized to scenario and identify assignments
  - ❑ Logistics/Support – Confirm entities and commitment

Executing Process – Game Exercise

- ❑ Issue Exercise Documentation (as required)
- ❑ Evaluator and Controller Briefing (immediately prior to exercise)
- ❑ Check In
- ❑ Begin Exercise Play
  - ❑ Document time exercise begins
- ❑ Suspend Play, as identified/required to discuss solutions/course of action
- ❑ Resume Play, as identified/required
- ❑ Terminate Exercise Play
  - ❑ Document time exercise ends

Controlling Process – Game Exercise

- ❑ Controllers
  - ❑ Monitor and adjust exercise play
  - ❑ Provide injects to participants as required by MSEL or opposing team
  - ❑ Interact with participants to address additional information requests
- ❑ Evaluators
  - ❑ Monitor and document activities/actions of participants
  - ❑ Discussion with Controllers on objectives missed
- ❑ Documenters
  - ❑ Scribe(s) take notes of sessions
  - ❑ Photographer(s) discreetly document activities throughout
- ❑ Exercise Hot Wash
  - ❑ Conducted by Exercise Director
  - ❑ Include all participants, exercise staff, evaluators, controllers, exercise planners, and observers
  - ❑ Issue Participant Feedback Form
  - ❑ Thanks and Acknowledgements
    - ❑ Funding Source
    - ❑ Location Owner
    - ❑ Exercise Design Team
    - ❑ Controllers
    - ❑ Evaluators
    - ❑ Volunteers
  - ❑ Discuss Exercise Results (document discussion)
    - ❑ Goals
    - ❑ Objectives
    - ❑ Scenarios
    - ❑ Actions Taken
    - ❑ What Went Right/Wrong
    - ❑ Areas of Improvement
  - ❑ Thank participants for attendance
  - ❑ Collect Participant Feedback Form
- ❑ Controller/Evaluator Debrief
  - ❑ Conducted by the lead Evaluator immediately following the Hot Wash
  - ❑ Ensure all evaluators, controllers are included
  - ❑ Discuss course of exercise events
  - ❑ Document conversation
  - ❑ Submit findings to Exercise Director

Closing Process – Game Exercise

- ❑ Exercise Director Reviews Documentation
  - ❑ Participant Feedback Forms
  - ❑ Evaluator Observation Forms
  - ❑ Notes from Controller/Evaluator Debrief
  - ❑ Notes from Hot Wash
- ❑ Prepare Draft After Action Report
  - ❑ Incorporate comments related to goal and objectives
- ❑ Convene After Action Conference
  - ❑ Invite controllers and evaluators
  - ❑ Review Draft After Action Report
  - ❑ Create Final After Action Report
  - ❑ Establish list of action items for inclusion in the Improvement Plan
- ❑ Exercise Director creates Improvement Plan
  - ❑ Each improvement element is tied to one of the core capabilities
  - ❑ Each improvement action is assigned to a specific organization with start/ ending dates
- ❑ Submit After Action Report/Improvement Plan to appropriate authorities
- ❑ Retain Improvement Plan for inclusion in future grant applications
- ❑ Consolidate Documentation
  - ❑ Place into Exercise Documentation Folder
    - ❑ Notes/Minutes
    - ❑ Other Lessons Learned from Exercise
    - ❑ Participant Feedback Forms
    - ❑ Debrief Notes
    - ❑ Photos
    - ❑ Miscellaneous Documentation

DRILL EXERCISE CHECKLIST

Initiation Process - Drill Exercise

- ❑ Identify Driver(s)
  - ❑ Contract
    - ❑ Specific wording concerning exercise
  - ❑ Grant
    - ❑ What was stated in the Grant/Application?
  - ❑ Code/Legislative Requirement
    - ❑ What does the code/legislation state and require?
  - ❑ Political
    - ❑ For what specific purpose?
  - ❑ Internal
    - ❑ What is motivating this change?
- ❑ Identify Stakeholders
  - ❑ Establish Stakeholder's List
    - ❑ Name
    - ❑ Organization
    - ❑ Contact Information
    - ❑ Position
- ❑ Identify Funding Streams
  - ❑ Discretionary
  - ❑ General Fund - Budgeted for Exercise
  - ❑ Grant Funding
- ❑ Identify Scope of Exercise
  - ❑ Who is the lead agency?
  - ❑ Who are the participants?
    - ❑ Road
    - ❑ Rail
    - ❑ Mass Transit
    - ❑ Public Works
    - ❑ First Responders: Police, Fire, EMS
    - ❑ Emergency Management
  - ❑ Type of Exercise Envisioned
  - ❑ Jurisdictions Involved
    - ❑ Special District
    - ❑ Local: City, County
    - ❑ Regional, MPO
    - ❑ State
    - ❑ Federal
  - ❑ Resources Involved
- ❑ Identify Scenario Restrictions
- ❑ Identify Labor/Union Restrictions
  - ❑ Number of hours between breaks
  - ❑ Number of hours between meals
  - ❑ Number of hours before overtime

- ❑ Scope of work
- ❑ Establish Charter
  - ❑ Identify Exercise Director
  - ❑ Internal and External Restrictions
  - ❑ HSEEP Compliance
  - ❑ Identify Objective of Exercise

Planning Process – Drill Exercise

- ❑ Establish Design Team
  - ❑ Technical (field)
  - ❑ Procedural (management)
  - ❑ Legal
- ❑ Evaluation Team
  - ❑ Identify Leader
- ❑ Controller Team
  - ❑ Identify Leader
- ❑ Site Selection
  - ❑ Site Owner/Controlled Contact Info
  - ❑ Traffic Route
  - ❑ Ingress
  - ❑ Egress
  - ❑ Staging
  - ❑ Check-In Point
  - ❑ Rehab (Red Cross, Fire Associates, Caterer)
  - ❑ Bathroom Facilities
  - ❑ Water
- ❑ Safety Plan
  - ❑ Heat/Cold/Medical/Fire/Trespassing/Traffic
- ❑ Communications Plan
  - ❑ Between Controllers
  - ❑ Between Participants and Controllers/Sim Cell
- ❑ Resources List and Their Sources
  - ❑ Signs, Cones
  - ❑ Mannequins
  - ❑ Actors
  - ❑ Water Jugs
  - ❑ Portable Toilets
  - ❑ Printing
  - ❑ Trash Cans
- ❑ Scenario Development
  - ❑ Goals/Objective Addressed
  - ❑ Realistic/Believability by Participants
  - ❑ Create participant direction cards/ victim symptom cards
  - ❑ Establish Simulations Cell (Sim Cell)
    - ❑ Script message traffic as required
  - ❑ Create Master Sequence of Events List (MSEL)

    Notification/Activation of Participants (choose one of the items below)
    - Pre-stage participants and provide a brief of what has occurred to that point
    - Activate response ____ minutes before event to compensate for response time
    - Activate as with real event and expect ____ minutes delay before arrival
- ❑ Location/Site Plan Layout
  - ❑ Ingress/Egress

- ❑ Cones/Signs
- ❑ Staging
- ❑ Rehab

❑ Location Set-Up and Tear-Down Plan
(who brings what; sets it up/takes it down)

- ❑ Site Staging
- ❑ Check-In/Out
- ❑ Cones
- ❑ Signs
- ❑ Directions
- ❑ Event Construction
- ❑ Vehicle Layout
- ❑ Dummy Positioning
- ❑ Rehab
- ❑ Trash Cans
- ❑ Portable Toilets

❑ Create Exercise Plan (EXPLAN)

- ❑ Recommend use of HSEEP Template

❑ Create Controller/Evaluator C/E Handbook

- ❑ Recommend use of HSEEP Template

❑ Exercise Documentation

- ❑ Print

Suggested Meeting Agenda Topics – Drill Exercise

- ❑ Initial Planning Meeting
  - ❑ Goal and Objectives – Develop
  - ❑ Location – Identify options
  - ❑ Scenario – Discuss
  - ❑ Logistics/Support – Identify issues specific to this exercise
- ❑ Midterm Planning Meeting
  - ❑ Location – Report on the options, then select best option
  - ❑ Scenario – Develop
  - ❑ Evaluators and Controllers – Discuss evaluation tools for goal and objectives
  - ❑ Logistics/Support – Identify resources
- ❑ Master Scenario Events List Meeting
  - ❑ Use Goals and Objectives to identify critical tasks/conditions/standards
  - ❑ Establish timeline with appropriate triggering events to activate critical tasks/conditions/standards
  - ❑ Prepare contingency injects to be used if participants fail to engage appropriately
  - ❑ Address artificialities the exercise venue may create
- ❑ Final Planning Meeting
  - ❑ Location – Confirm date, time and point of contact
  - ❑ Scenario – Complete and finalize
  - ❑ Evaluators and Controllers – Ensure evaluation tools are synchronized to scenario and identify assignments
  - ❑ Logistics/Support – Confirm entities and commitment

Executing Process – Drill Exercise

- ❑ Issue Exercise Documentation (as required)
- ❑ Evaluator and Controller Briefing (prior to day of exercise)
  - ❑ Assignment by location, participants, or both
- ❑ Check In (for support staff, Evaluators, Controllers)
  - ❑ Safety Brief
  - ❑ Actor/Victim Briefing
  - ❑ Actor/Victims with Symptom Cards
- ❑ Begin Exercise Play
  - ❑ Document time exercise begins
  - ❑ Notify all involved parties of exercise commencement
- ❑ Terminate Exercise Play
  - ❑ Document time exercise ends
  - ❑ Notify all involved parties of termination

Controlling Process – Drill Exercise

- ❑ Controllers
  - ❑ Monitor and adjust exercise play
  - ❑ Provide injects to participants as required by MSEL
  - ❑ Interact with participants to address resource requests
- ❑ Evaluators
  - ❑ Monitor and document activities/actions of participants
  - ❑ Discussion with Controllers on objectives missed
- ❑ Documenters
  - ❑ Scribe(s) take notes of sessions
  - ❑ Photographer(s) discreetly document activities throughout

Controller/Evaluator Debrief

Note: This time is used by participants and other exercise staff to pack up and stand by for the Hot Wash

- ❑ Conducted by the lead Evaluator immediately following exercise termination
- ❑ Ensure all Evaluators, Controllers are included
- ❑ When possible, include exercise design team and Exercise Director
- ❑ Discuss course of exercise events. Were goal and objectives met?
- ❑ Document conversation
- ❑ Submit findings to Exercise Director

- ❑ Exercise Hot Wash
  - ❑ Conducted by Exercise Director
  - ❑ Include all participants, exercise staff, rehab staff, actor/victims, Evaluators, Controllers, exercise planners, and observers
  - ❑ Issue Participant Feedback Form
  - ❑ Thanks and Acknowledgements
    - ❑ Funding Source
    - ❑ Location Owner
    - ❑ Exercise Design Team
    - ❑ Controllers
    - ❑ Evaluators
    - ❑ Volunteers
  - ❑ Discuss Exercise Results (document discussion)
    - ❑ Goals
    - ❑ Objectives
    - ❑ Scenarios
    - ❑ Actions Taken
    - ❑ What Went Right/Wrong
    - ❑ Areas of Improvement
  - ❑ Thank participants for attendance
  - ❑ Collect Participant Feedback Form

Closing Process – Drill Exercise

- ❑ Exercise Director Reviews Documentation
  - ❑ Participant Feedback Forms
  - ❑ Evaluator Observation Forms
  - ❑ Notes from Controller/Evaluator Debrief
  - ❑ Notes from Hot Wash
- ❑ Prepare Draft After Action Report
  - ❑ Incorporate comments related to goal and objectives
- ❑ Convene After Action Conference
  - ❑ Invite controllers and evaluators
  - ❑ Review Draft After Action Report
  - ❑ Create Final After Action Report
  - ❑ Establish list of action items for inclusion in the Improvement Plan
- ❑ Exercise Director creates Improvement Plan
  - ❑ Each improvement element is tied to one of the core capabilities
  - ❑ Each improvement action is assigned to a specific organization with start/ ending dates
- ❑ Submit After Action Report/Improvement Plan to appropriate authorities
- ❑ Retain Improvement Plan for inclusion in future grant applications
- ❑ Consolidate Documentation
  - ❑ Place into Exercise Documentation Folder
    - ❑ Notes/Minutes
    - ❑ Other Lessons Learned from Exercise
    - ❑ Participant Feedback Forms
    - ❑ Debrief Notes
    - ❑ Photos
    - ❑ Miscellaneous Documentation

FUNCTIONAL EXERCISE CHECKLIST

Initiation Process - Functional Exercise

- ❑ Identify Driver(s)
  - ❑ Contract
    - ❑ Specific wording concerning exercise
  - ❑ Grant
    - ❑ What was stated in the Grant/Application?
  - ❑ Code/Legislative Requirement
    - ❑ What does the code/legislation state and require?
  - ❑ Political
    - ❑ For what specific purpose?
  - ❑ Internal
    - ❑ What is motivating this change?
- ❑ Identify Stakeholders
  - ❑ Establish Stakeholders List
    - ❑ Name
    - ❑ Organization
    - ❑ Contact Information
    - ❑ Position
- ❑ Identify Funding Streams
  - ❑ Discretionary
  - ❑ General Fund - Budgeted for Exercise
  - ❑ Grant Funding
- ❑ Identify Scope of Exercise
  - ❑ Who is the lead agency?
  - ❑ Who are the participants?
    - ❑ Road
    - ❑ Rail
    - ❑ Mass Transit
    - ❑ Public Works
    - ❑ First Responders: Police, Fire, EMS
    - ❑ Emergency Management
  - ❑ Type of Exercise Envisioned
  - ❑ Jurisdictions Involved
    - ❑ Special District
    - ❑ Local: City, County
    - ❑ Regional, MPO
    - ❑ State
    - ❑ Federal
  - ❑ Resources Involved
- ❑ Identify Scenario Restrictions
- ❑ Identify Labor/Union Restrictions
  - ❑ Number of hours between breaks
  - ❑ Number of hours between meals
  - ❑ Number of hours before overtime

- ❑ Scope of Work
- ❑ Establish Charter
  - ❑ Identify Exercise Director
  - ❑ Internal and External Restrictions
  - ❑ HSEEP Compliance
  - ❑ Identify Objective of Exercise

Planning Process – Functional Exercise

- ❑ Establish Design Team
  - ❑ Technical (field)
  - ❑ Procedural (management)
  - ❑ Legal
- ❑ Evaluation Team
  - ❑ Identify Leader
- ❑ Controller Team
  - ❑ Identify Leader
- ❑ Site Selection
  - ❑ Site owner/controlled contact info
  - ❑ Traffic Route
  - ❑ Ingress
  - ❑ Egress
  - ❑ Staging
  - ❑ Check-In Point
  - ❑ Rehab (Red Cross, Fire Associates, Caterer)
  - ❑ Bathroom Facilities
  - ❑ Water
  - ❑ Safety Plan
    - ❑ Heat/Cold/Medical/Fire/Trespassing/Traffic
- ❑ Communications Plan
  - ❑ Between Controllers
  - ❑ Between Participants and Controllers/Sim Cell
- ❑ Resources List and Their Sources
  - ❑ Signs, Cones
  - ❑ Mannequins
  - ❑ Actors
  - ❑ Water Jugs
  - ❑ Portable Toilets
  - ❑ Printing
  - ❑ Trash Cans
- ❑ Scenario Development
  - ❑ Goals/objective addressed
  - ❑ Realistic/Believability by Participants
  - ❑ Create participant direction cards/Victim symptom cards
  - ❑ Establish Simulations Cell (Sim Cell)
    - ❑ Script message traffic as required
  - ❑ Create Master Sequence of Events List (MSEL)

    Notification/Activation of Participants (choose one of the items below)
    - Pre-stage participants and provide a brief of what has occurred to that point
    - Activate response ___ minutes before event to compensate for response time
    - Activate as with real event and expect ___ minutes delay before arrival
- ❑ Location/Site Plan Layout
  - ❑ Ingress/Egress
  - ❑ Cones/Signs

- ❑ Staging
- ❑ Rehab

❑ Location Set-Up and Tear-Down Plan
(who brings what; sets it up/takes it down)

- ❑ Site Staging
- ❑ Check-In/Out
- ❑ Cones
- ❑ Signs
- ❑ Directions
- ❑ Event Construction
- ❑ Vehicle Layout
- ❑ Dummy Positioning
- ❑ Rehab
- ❑ Trash Cans
- ❑ Portable Toilets

❑ Create Exercise Plan (EXPLAN)

- ❑ Recommend use of HSEEP Template

❑ Create Controller/Evaluator C/E Handbook

- ❑ Recommend use of HSEEP Template

❑ Exercise Documentation

- ❑ Print

Suggested Meeting Agenda Topics – Functional Exercise

- ❑ Initial Planning Meeting
  - ❑ Goal and Objectives – Develop
  - ❑ Location – Identify options
  - ❑ Scenario – Discuss
  - ❑ Logistics/Support – Identify issues specific to this exercise
- ❑ Midterm Planning Meeting
  - ❑ Location – Report on the options, then select best option
  - ❑ Scenario – Develop
  - ❑ Evaluators and Controllers – Discuss evaluation tools for goal and objectives
  - ❑ Logistics/Support – Identify resources
- ❑ Master Scenario Events List Meeting
  - ❑ Use Goals and Objectives to identify critical tasks/conditions/standards
  - ❑ Establish timeline with appropriate triggering events to activate critical tasks/conditions/standards
  - ❑ Prepare contingency injects to be used if participants fail to engage appropriately
  - ❑ Address artificialities the exercise venue may create
- ❑ Final Planning Meeting
  - ❑ Location – Confirm date, time and point of contact
  - ❑ Scenario – Complete and finalize
  - ❑ Evaluators and Controllers – Ensure evaluation tools are synchronized to scenario and identify assignments
  - ❑ Logistics/Support – Confirm entities and commitment

Executing Process – Functional Exercise

- ❑ Issue Exercise Documentation (as required)
- ❑ Evaluator and Controller briefing (prior to day of exercise)
  - ❑ Assignment by location, participants, or both
- ❑ Check In (for support staff, Evaluators, Controllers)
  - ❑ Safety Brief
  - ❑ Actor/Victim Briefing
  - ❑ Actor/Victims with Symptom Cards
- ❑ Begin Exercise Play
  - ❑ Document time exercise begins
  - ❑ Notify all involved parties of exercise commencement
- ❑ Terminate Exercise Play
  - ❑ Document time exercise ends
  - ❑ Notify all involved parties of termination

Controlling Process – Functional Exercise

- ❑ Controllers
  - ❑ Monitor and adjust exercise play
  - ❑ Provide injects to participants as required by MSEL
  - ❑ Interact with participants to address resource requests
- ❑ Evaluators
  - ❑ Monitor and document activities/actions of participants
  - ❑ Discussion with Controllers on objectives missed
- ❑ Documenters
  - ❑ Scribe(s) take notes of sessions
  - ❑ Photographer(s) discreetly document activities throughout
- ❑ Controller/Evaluator Debrief

Note: This time is used by participants and other exercise staff to pack up and stand by for the Hot Wash

  - ❑ Conducted by the lead Evaluator immediately following exercise termination
  - ❑ Ensure all Evaluators, Controllers are included
  - ❑ When possible, include exercise design team and Exercise Director
  - ❑ Discuss course of exercise events. Were goal and objectives met?
  - ❑ Document conversation
  - ❑ Submit findings to Exercise Director
- ❑ Exercise Hot Wash
  - ❑ Conducted by Exercise Director
  - ❑ Include all participants, exercise staff, rehab staff, actor/victims, Evaluators, Controllers, exercise planners, and observers
  - ❑ Issue Participant Feedback Form
  - ❑ Thanks and Acknowledgements
    - ❑ Funding Source
    - ❑ Location Owner
    - ❑ Exercise Design Team
    - ❑ Controllers
    - ❑ Evaluators
    - ❑ Volunteers
  - ❑ Discuss Exercise Results (document discussion)
    - ❑ Goals
    - ❑ Objectives
    - ❑ Scenarios
    - ❑ Actions Taken
    - ❑ What Went Right/Wrong
    - ❑ Areas of Improvement
  - ❑ Thank participants for attendance
  - ❑ Collect Participant Feedback Form

Closing Process – Functional Exercise

- ❑ Exercise Director Reviews Documentation
  - ❑ Participant Feedback Forms
  - ❑ Evaluator Observation Forms
  - ❑ Notes from Controller/Evaluator Debrief
  - ❑ Notes from Hot Wash
- ❑ Prepare Draft After Action Report
  - ❑ Incorporate comments related to goal and objectives
- ❑ Convene After Action Conference
  - ❑ Invite Controllers and Evaluators
  - ❑ Review Draft After Action Report
  - ❑ Create Final After Action Report
  - ❑ Establish list of action items for inclusion in the Improvement Plan
- ❑ Exercise Director Creates Improvement Plan
  - ❑ Each improvement element is tied to one of the core capabilities
  - ❑ Each improvement action is assigned to a specific organization with start/ ending dates
- ❑ Submit After Action Report/Improvement Plan to appropriate authorities
- ❑ Retain Improvement Plan for inclusion in future grant applications
- ❑ Consolidate Documentation
  - ❑ Place into Exercise Documentation Folder
    - ❑ Notes/Minutes
    - ❑ Other Lessons Learned from Exercise
    - ❑ Participant Feedback Forms
    - ❑ Debrief Notes
    - ❑ Photos
    - ❑ Miscellaneous Documentation

FULL-SCALE EXERCISE CHECKLIST

Initiation Process - Full-Scale Exercise

- ❑ Identify Driver(s)
  - ❑ Contract
    - ❑ Specific wording concerning exercise
  - ❑ Grant
    - ❑ What was stated in the Grant/Application?
  - ❑ Code/Legislative Requirement
    - ❑ What does the code/legislation state and require?
  - ❑ Political
    - ❑ For what specific purpose?
  - ❑ Internal
    - ❑ What is motivating this change?
- ❑ Identify Stakeholders
  - ❑ Establish Stakeholders List
    - ❑ Name
    - ❑ Organization
    - ❑ Contact Information
    - ❑ Position
- ❑ Identify Funding Streams
  - ❑ Discretionary
  - ❑ General Fund - Budgeted for Exercise
  - ❑ Grant Funding
- ❑ Identify Scope of Exercise
  - ❑ Who is the lead agency?
  - ❑ Who are the participants?
    - ❑ Road
    - ❑ Rail
    - ❑ Mass Transit
    - ❑ Public Works
    - ❑ First Responders: Police, Fire, EMS
    - ❑ Emergency Management
  - ❑ Type of Exercise Envisioned
  - ❑ Jurisdictions Involved
    - ❑ Special District
    - ❑ Local: City, County
    - ❑ Regional, MPO
    - ❑ State
    - ❑ Federal
  - ❑ Resources Involved
- ❑ Identify Scenario Restrictions
- ❑ Identify Labor/Union Restrictions
  - ❑ Number of hours between breaks
  - ❑ Number of hours between meals
  - ❑ Number of hours before overtime

- ❑ Scope of work
- ❑ Establish Charter
- ❑ Identify Exercise Director
- ❑ Internal and external restrictions
- ❑ HSEEP Compliance
- ❑ Identify Objective of Exercise

Planning Process – Full Scale Exercise

- ❑ Establish Design Team
  - ❑ Technical (field)
  - ❑ Procedural (management)
  - ❑ Legal
- ❑ Evaluation Team
  - ❑ Identify Leader
- ❑ Controller Team
  - ❑ Identify Leader
- ❑ Site Selection
  - ❑ Site Owner/Controlled Contact Info
  - ❑ Traffic Route
  - ❑ Ingress
  - ❑ Egress
  - ❑ Staging
  - ❑ Check-In Point
  - ❑ Rehab (Red Cross, Fire Associates, Caterer)
  - ❑ Bathroom Facilities
  - ❑ Water
  - ❑ Safety Plan
    - ❑ Heat/cold/medical/fire/trespassing/traffic
- ❑ Communications Plan
  - ❑ Between controllers
  - ❑ Between participants and controllers/Sim Cell
- ❑ Resources List and Their Sources
  - ❑ Signs, Cones
  - ❑ Mannequins
  - ❑ Actors
  - ❑ Water Jugs
  - ❑ Portable Toilets
  - ❑ Printing
  - ❑ Trash Cans
- ❑ Scenario Development
  - ❑ Goals/Objective addressed
  - ❑ Realistic/Believability by participants
  - ❑ Create participant direction cards/ victim symptom cards
  - ❑ Establish Simulations Cell (Sim Cell)
    - ❑ Script message traffic as required
  - ❑ Create Master Sequence of Events List (MSEL)

    Notification/Activation of participants (choose one of the items below)
    - Pre-stage participants and provide a brief of what has occurred to that point
    - Activate response ___ minutes before event to compensate for response time
    - Activate as with real event and expect ___ minutes delay before arrival
- ❑ Location/Site Plan Layout
  - ❑ Ingress/Egress
  - ❑ Cones/Signs

- ❑ Staging
- ❑ Rehab

❑ Location Set-Up and Tear-Down Plan
(who brings what; sets it up/takes it down)

- ❑ Site Staging
- ❑ Check-In/Out
- ❑ Cones
- ❑ Signs
- ❑ Directions
- ❑ Event Construction
- ❑ Vehicle Layout
- ❑ Dummy Positioning
- ❑ Rehab
- ❑ Trash Cans
- ❑ Portable Toilets

❑ Create Exercise Plan (EXPLAN)

- ❑ Recommend use of HSEEP Template

❑ Create Controller/Evaluator (C/E) Handbook

- ❑ Recommend use of HSEEP Template

❑ Exercise Documentation

- ❑ Print

Suggested Meeting Agenda Topics – Full Scale Exercise

- ❑ Initial Planning Meeting
  - ❑ Goal and Objectives – Develop
  - ❑ Location – Identify options
  - ❑ Scenario – Discuss
  - ❑ Logistics/Support – Identify issues specific to this exercise
- ❑ Midterm Planning Meeting
  - ❑ Location – Report on the options, then select best option
  - ❑ Scenario – Develop
  - ❑ Evaluators and Controllers – Discuss evaluation tools for goal and objectives
  - ❑ Logistics/Support – Identify resources
- ❑ Master Scenario Events List Meeting
  - ❑ Use Goals and Objectives to identify critical tasks/conditions/standards
  - ❑ Establish timeline with appropriate triggering events to activate critical tasks/conditions/standards
  - ❑ Prepare contingency injects to be used if participants fail to engage appropriately
  - ❑ Address artificialities the exercise venue may create
- ❑ Final Planning Meeting
  - ❑ Location – Confirm date, time and point of contact
  - ❑ Scenario – Complete and finalize
  - ❑ Evaluators and Controllers – Ensure evaluation tools are synchronized to scenario and identify assignments
  - ❑ Logistics/Support – Confirm entities and commitment

Executing Process – Full Scale Exercise

- ❑ Issue Exercise Documentation (as required)
- ❑ Evaluator and Controller Briefing (prior to day of exercise)
  - ❑ Assignment by location, participants, or both
- ❑ Check In (for support staff, Evaluators, Controllers)
  - ❑ Safety Brief
  - ❑ Actor/Victim Briefing
  - ❑ Actor/Victims with Symptom Cards
- ❑ Begin Exercise Play
  - ❑ Document time exercise begins
  - ❑ Notify all involved parties of exercise commencement
- ❑ Terminate Exercise Play
  - ❑ Document time exercise ends
  - ❑ Notify all involved parties of termination

Controlling Process – Full Scale Exercise

- ❑ Controllers
  - ❑ Monitor and adjust exercise play
  - ❑ Provide injects to participants as required by MSEL
  - ❑ Interact with participants to address resource requests
- ❑ Evaluators
  - ❑ Monitor and document activities/actions of participants
  - ❑ Discussion with Controllers on objectives missed
- ❑ Documenters
  - ❑ Scribe(s) take notes of sessions
  - ❑ Photographer(s) discreetly document activities throughout
- ❑ Controller/Evaluator Debrief

Note: This time is used by participants and other exercise staff to pack up and standby for the Hot Wash

  - ❑ Conducted by the lead Evaluator immediately following exercise termination
  - ❑ Ensure all evaluators, controllers are included
  - ❑ When possible, include exercise design team and Exercise Director
  - ❑ Discuss course of exercise events. Were goal and objectives met?
  - ❑ Document conversation
  - ❑ Submit findings to Exercise Director
- ❑ Exercise Hot Wash
  - ❑ Conducted by Exercise Director
  - ❑ Include all participants, exercise staff, rehab staff, actor/victims, evaluators, controllers, exercise planners, and observers
  - ❑ Issue Participant Feedback Form
  - ❑ Thanks and Acknowledgements
    - ❑ Funding Source
    - ❑ Location Owner
    - ❑ Exercise Design Team
    - ❑ Controllers
    - ❑ Evaluators
    - ❑ Volunteers
  - ❑ Discuss Exercise Results (document discussion)
    - ❑ Goals
    - ❑ Objectives
    - ❑ Scenarios
    - ❑ Actions Taken
    - ❑ What Went Right/Wrong
    - ❑ Areas of Improvement
  - ❑ Thank participants for attendance
  - ❑ Collect Participant Feedback Form

Closing Process – Full Scale Exercise

- ❑ Exercise Director Reviews Documentation
  - ❑ Participant Feedback Forms
  - ❑ Evaluator Observation Forms
  - ❑ Notes from Controller/Evaluator Debrief
  - ❑ Notes from Hot Wash
- ❑ Prepare Draft After Action Report
  - ❑ Incorporate comments related to goal and objectives
- ❑ Convene After Action Conference
  - ❑ Invite Controllers and Evaluators
  - ❑ Review Draft After Action Report
  - ❑ Create Final After Action Report
  - ❑ Establish list of action items for inclusion in the Improvement Plan
- ❑ Exercise Director creates Improvement Plan
  - ❑ Each improvement element is tied to one of the core capabilities
  - ❑ Each improvement action is assigned to a specific organization with start/ ending dates
- ❑ Submit After Action Report/Improvement Plan to appropriate authorities
- ❑ Retain Improvement Plan for inclusion in future grant applications
- ❑ Consolidate Documentation
  - ❑ Place into Exercise Documentation Folder
    - ❑ Notes/Minutes
    - ❑ Other Lessons Learned from Exercise
    - ❑ Participant Feedback Forms
    - ❑ Debrief Notes
    - ❑ Photos
    - ❑ Miscellaneous Documentation

FACILITATED EXERCISE CHECKLIST

Initiation Process - Facilitated Exercise

- ❑ Identify Driver(s)
  - ❑ Contract
    - ❑ Specific wording concerning exercise
  - ❑ Grant
    - ❑ What was stated in the Grant/Application?
  - ❑ Code/Legislative requirement
    - ❑ What does the code/legislation state and require?
  - ❑ Political
    - ❑ For what specific purpose?
  - ❑ Internal
    - ❑ What is motivating this change?
- ❑ Identify Stakeholders
  - ❑ Establish Stakeholders List
    - ❑ Name
    - ❑ Organization
    - ❑ Contact Information
    - ❑ Position
- ❑ Identify Funding Streams
  - ❑ Discretionary
  - ❑ General Fund - Budgeted for Exercise
  - ❑ Grant Funding
- ❑ Identify Scope of Exercise
  - ❑ Who is the lead agency?
  - ❑ Who are the participants?
    - ❑ Road
    - ❑ Rail
    - ❑ Mass Transit
    - ❑ Public Works
    - ❑ First Responders: Police, Fire, EMS
    - ❑ Emergency Management
- ❑ Identify Type of Exercise Envisioned
- ❑ Identify Jurisdictions Involved
    - ❑ Special District
    - ❑ Local: City, County
    - ❑ Regional, MPO
    - ❑ State
    - ❑ Federal
  - ❑ Resources Involved
- ❑ Identify Scenario Restrictions
- ❑ Identify Labor/Union Restrictions
  - ❑ Number of hours between breaks
  - ❑ Number of hours between meals
  - ❑ Number of hours before overtime

- ❑ Scope of work
- ❑ Establish Charter
  - ❑ Identify Exercise Director
  - ❑ Internal and external restrictions
  - ❑ HSEEP Compliance
  - ❑ Identify Objective of exercise

Planning Process – Facilitated Exercise

- ❑ Establish Design Team
  - ❑ Technical (field)
  - ❑ Procedural (management)
  - ❑ Legal
- ❑ Facilitator Team
  - ❑ Identify Leader
- ❑ Site Selection
  - ❑ Site Owner/Controlled contact info
  - ❑ Traffic Route
  - ❑ Ingress
  - ❑ Egress
  - ❑ Staging
  - ❑ Check-In Point
  - ❑ Rehab (Red Cross, Fire Associates, Caterer)
  - ❑ Bathroom Facilities
  - ❑ Water
- ❑ Safety Plan
  - ❑ Heat/Cold/Medical/Fire/Trespassing/Traffic
- ❑ Communications Plan
  - ❑ Between Controllers
  - ❑ Between participants and Controllers/Sim Cell
- ❑ Resources List and Their Sources
  - ❑ Signs, Cones
  - ❑ Mannequins
  - ❑ Actors
  - ❑ Water Jugs
  - ❑ Portable Toilets
  - ❑ Printing
  - ❑ Trash Cans
- ❑ Scenario Development
  - ❑ Goals/objective addressed
  - ❑ Realistic/Believability by participants
  - ❑ Create participant direction cards/ victim symptom cards
  - ❑ Create Master Sequence of Events List (MSEL)
- ❑ Divide Goals/Objectives between Stations Based on MSEL
  - ❑ Identify goal/objective with facilitator(s) and station
    - ❑ ALTERNATIVELY embed facilitator with participants and rotate through all stations
- ❑ Schedule groups to permit transition periods and overlap time
  - ❑ Ensure facilitators review verbal plan before allowing execution
- ❑ Location/Site Plan Layout
  - ❑ Ingress/Egress
  - ❑ Cones/Signs
  - ❑ Staging
  - ❑ Rehab

- ❑ Location Set-Up and Tear-Down Plan
  (who brings what; sets it up/takes it down)
  - ❑ Site Staging
  - ❑ Check-In/Out
  - ❑ Cones
  - ❑ Signs
  - ❑ Directions
  - ❑ Event Construction
  - ❑ Vehicle Layout
  - ❑ Dummy Positioning
  - ❑ Rehab
  - ❑ Trash Cans
  - ❑ Portable Toilets
- ❑ Create Exercise Plan (EXPLAN) Recommend use of HSEEP Template
- ❑ Exercise Documentation
  - ❑ Print

Suggested Meeting Agenda Topics – Facilitated Exercise

- ❑ Initial Planning Meeting
  - ❑ Goal and Objectives – Develop
  - ❑ Location – Identify options
  - ❑ Scenario – Discuss
  - ❑ Logistics/Support – Identify issues specific to this exercise
- ❑ Midterm Planning Meeting
  - ❑ Location – Report on the options, then select best option
  - ❑ Scenario – Develop
  - ❑ Evaluators and Controllers – Discuss evaluation tools for goal and objectives
  - ❑ Logistics/Support – Identify resources
- ❑ Master Scenario Events List Meeting
  - ❑ Use Goals and Objectives to identify critical tasks/conditions/standards
  - ❑ Establish timeline with appropriate triggering events to activate critical tasks/conditions/standards
  - ❑ Prepare contingency injects to be used if participants fail to engage appropriately
  - ❑ Address artificialities the exercise venue may create
- ❑ Facilitator Meeting
  - ❑ Review station assignments and group times
  - ❑ Identify potential gaps in policies/procedures from participant perspective and address
- ❑ Final Planning Meeting
  - ❑ Location – Confirm date, time and point of contact
  - ❑ Scenario – Complete and finalize
  - ❑ Logistics/Support – Confirm entities and commitment

Executing Process – Facilitated Exercise

- ❑ Issue Exercise Documentation (as required)
- ❑ Check In (for support staff, Facilitators)
  - ❑ Safety Brief
  - ❑ Actor/Victim Briefing
  - ❑ Actor/Victims with Symptom Cards
- ❑ Initiate Exercise Play
  - ❑ Document time exercise begins
  - ❑ Notify all involved parties of exercise commencement
- ❑ Terminate Exercise Play
  - ❑ Document time exercise ends
  - ❑ Notify all involved parties of termination

Controlling Process – Facilitated Exercise

- ❑ Controllers
  - ❑ Monitor and adjust exercise play
  - ❑ Provide injects to participants as required by MSEL
  - ❑ Interact with participants to address resource requests
- ❑ Evaluators
  - ❑ Monitor and document activities/actions of participants
  - ❑ Discussion with Controllers on objectives missed
- ❑ Documenters
  - ❑ Scribe(s) take notes of sessions
  - ❑ Photographer(s) discreetly document activities throughout
  - ❑ Controller/Evaluator Debrief

Note: This time is used by participants and other exercise staff to pack up and standby for the Hot Wash

  - ❑ Conducted by the lead Evaluator immediately following exercise termination
  - ❑ Ensure all Evaluators, Controllers are included
  - ❑ When possible, include exercise design team and Exercise Director
  - ❑ Discuss course of exercise events. Were goal and objectives met?
  - ❑ Document conversation
  - ❑ Submit findings to Exercise Director
- ❑ Exercise Hot Wash
  - ❑ Conducted by Exercise Director
  - ❑ Include all participants, exercise staff, rehab staff, actor/victims, Evaluators, Controllers, exercise planners, and observers
  - ❑ Issue Participant Feedback Form
  - ❑ Thanks and Acknowledgements
    - ❑ Funding Source
    - ❑ Location Owner
    - ❑ Exercise Design Team
    - ❑ Controllers
    - ❑ Evaluators
    - ❑ Volunteers
  - ❑ Discuss Exercise Results (document discussion)
    - ❑ Goals
    - ❑ Objectives
    - ❑ Scenarios
    - ❑ Actions Taken
    - ❑ What Went Right/Wrong
    - ❑ Areas of Improvement
  - ❑ Thank participants for attendance
  - ❑ Collect Participant Feedback Form

Closing Process – Facilitated Exercise

- ❑ Exercise Director Reviews Documentation
  - ❑ Participant Feedback Forms
  - ❑ Evaluator Observation Forms
  - ❑ Notes from Controller/Evaluator Debrief
  - ❑ Notes from Hot Wash
- ❑ Prepare Draft After Action Report
  - ❑ Incorporate comments related to goal and objectives
- ❑ Convene After Action Conference
  - ❑ Invite Controllers and Evaluators
  - ❑ Review Draft After Action Report
  - ❑ Create Final After Action Report
  - ❑ Establish list of action items for inclusion in the Improvement Plan
- ❑ Exercise Director creates Improvement Plan
  - ❑ Each improvement element is tied to one of the core capabilities
  - ❑ Each improvement action is assigned to a specific organization with start/ ending dates
- ❑ Submit After Action Report/Improvement Plan to appropriate authorities
- ❑ Retain Improvement Plan for inclusion in future grant applications
- ❑ Consolidate Documentation
  - ❑ Place into Exercise Documentation Folder
    - ❑ Notes/Minutes
    - ❑ Other Lessons Learned from Exercise
    - ❑ Participant Feedback Forms
    - ❑ Debrief Notes
    - ❑ Photos
    - ❑ Miscellaneous Documentation

V. INITIATING PROCESS

At this point you may not be sure what type of exercise is needed. That is not unusual for an organization doing an exercise for the first time or with staff that are unfamiliar with the process. It is important to recognize the various levels of complexity of the different exercise models and have a clear understanding of the commitment required to successfully conduct one. The exercise Checklists for will assist in understanding the complexity and should be kept in mind during the Initiating Process.

The purpose of the Initiating Process is to identify the purpose of the exercise. While this may sound simple, when multiple stakeholders are involved there will be multiple objectives to consider. The core of this process is:

- Identification of the desired exercise format based on the drivers
- Identification of the stakeholders and their expectations
- Creation of a charter to guide exercise implementation and resource allocation

The first question when putting together an exercise is: What is pushing, or ***driving*** it? Is it a superior who has suddenly become fixated on "the next big disaster," a contractual/ mandated requirement to conduct an exercise as part of a grant, or is it a political issue, an attempt to address a gap, or an opportunity to evaluate training? In some cases it might be a combination of these factors and others. Identifying the driver(s) will enable the exercise staff to determine what options there are when putting the exercise together; and the sooner that is determined, the faster the other parts of the exercise model can be put into place.

Here are some issues to consider once you have identified the driver(s):

1. **Common Issues**
    - Has a particular exercise model already been identified? (Full Scale, Tabletop)
    - Did the party involved with identifying the exercise model understand what it entailed?
    - Has a specific scenario been identified?
    - How much time is there to put this exercise together?
    - Is there already an exercise being put together by a related entity that your agency could join?
    - Is there a mandate concerning how the exercise should be structured? (HSEEP, FEMA/DHS grant contract)
2. **Superior Suddenly Interested in Disasters**
    - Why the sudden interest?

- How much of the department/agency should be involved in exercise development and execution?
- How much funding is going to be allocated for the exercise?
- Is this effort tied to another agency/department, such as the state highway
- patrol, state wildland firefighting service or another transportation sector partner?
- What does the superior consider to be the objectives?
- Contractual/Grant/Mandated Requirement
- What does the actual contract/grant/mandate state?
- Who do you need to do the exercise with?
- What documentation does the department/agency have from previous exercises?
- Is there anyone who could be interviewed who participated in a previous exercise?

3. **Political**

- What objectives need to be met? (Photo opportunity, public reassurance)
- Who needs to be involved? (Professionals, politicians, community volunteers)
- Has anyone publicly committed to a specific exercise type or scenario?

4. **Needs Driven**

- Realization of emergencies not planned for (e.g., response to active shooter).
- Reorganization of the agency requires changes in assignments.
- New partners need to be integrated into the response - EOC or field (e.g., RACES, CERT).

5. **Training Driven**

- Does the organization need to validate existing training levels?
- Does the organization need to demonstrate gaps in existing training?
- Has the organization recently enhanced training levels and needs to demonstrate the enhancements?
- Has the organization trained its employees and their families on emergency response and the role of the employee in the agency's response and recovery?

The underpinning concept is to identify what restrictions regarding the exercise design or implementation are present that cannot be modified or eliminated. Several of the issues identified above may provide for some flexibility once they are investigated. The important part is to be as thorough as possible during this stage, as failure to identify the driver(s)

and map out the associated issues will result in having to redesign the exercise, costing time and the patience of those participating in the process.

Once the evaluation of the needs is complete, and the driver(s) and issues have been mapped, the second question is: What are the actual ***needs*** of the organization regarding the exercise? What plans, policies, training and/or processes or equipment need to be evaluated?

Some examples of typical needs that require evaluation are:

- A new emergency plan annex that was recently published.
- A plan for coordination with a mutual aid partner.
- Communications protocols (internal and/or external).
- A policy identifying the use of another organization's resources for certain events.
- Implementing an alternate procedure for how something is accomplished.
- Evaluation of a piece of equipment for applicability to a new use or situation.
- Only a specific portion or section of any of the suggested plans or procedures needs to be involved. Addressing question three will help narrow this area.

This subject matter selection should follow a simple-to-complex/small-to-large approach, as the organization is doing two things at once, initially: the exercise with its artificialities; and then: the testing of the plans, policies, procedures and/or equipment being used in the exercise to resolve the problems presented by the scenario. If an exercise has not been conducted in the past, participants may have trouble tracking the implementation of the plans and the artificial context of the exercise. If the exercise is too complex and involves too many problems to resolve, the participants may become overwhelmed, which could result in a breakdown of the exercise. Participants and observers may have a challenge differentiating between the artificialities of the exercise scenario and the real-world challenges of using the existing plans and equipment to resolve the scenario. Therefore, the less complex and more focused an exercise, the greater the likelihood that it will address the needs of the organization to evaluate the plans, equipment and training that are available.

The third question is: where is your organization in its training cycle? If your organization has never conducted any training on the policies, procedures or equipment use that needs to be evaluated (question two), then you would benefit by beginning with either an orientation seminar (to provide rapid training for staff on the issues), or engage mid-level personnel in scenario resolution through a tabletop exercise. The issue is reconciliation with the first question (understanding the drivers), that is, to prevent the development of a more advanced level exercise than the organization is ready for. If that is the situation, renegotiation of the exercise model is needed, or a narrowing of the exercise objective(s) may be necessary to ensure a successful outcome.

Establish the stakeholder registry early in the process, while drivers are being identified. The driver inquiries may reveal other persons and entities that can or should be incorporated in later steps of the project. Create a listing of the entities involved in the upcoming exercise and their relationships, which will be useful in developing later exercises, if an exercise program is established.

Once the drivers have been identified, and the questions of what should be exercised explored, generate a formal statement of work for the desired exercise. This will function as the guidance for subsequent planning, and enable the risk management component of your organization to assess the potential risks to exercise success due to the complexity of the exercise and the experience level of the leadership.

The final product of this process is a charter that identifies who is in charge, the resources allocated and which drivers have defined the desired exercise.

By the end of the Initiation Process a clear understanding of the type of exercise that needs to be conducted to fulfill the objectives of the exercise should emerge. It might not be any single exercise type represented in the Checklists for, but a combination of two or more. If that occurs, modify the exercise Checklists for most similar to the design, as appropriate. However, it is recommended that for the first exercise you should try to stay with one type, if possible.

WHAT ABOUT “HSEEP COMPLIANCE”?

HSEEP is provided as guidance. HSEEP is a process to develop, conduct and evaluate an exercise using the national process. HSEEP has standardized templates on their website for that purpose. The primary concern of HSEEP is the documentation process that results in evaluation to identify lessons learned and improvements needed. Historically, exercises produced lessons to be learned, but without the Improvement Process loop, those lessons were never implemented, and future events and exercises demonstrated similar problems.

The actual conduct of the exercise can, and will, vary organization to organization, based on the needs identified. Keep all notes, meeting minutes and documentation associated with the exercise. Take LOTS of pictures of the exercise, even if it is only a Seminar. Keep these photos stored with the other documentation for use in developing the After Action Report and Improvement Plan.

VI. PLANNING PROCESS

If the Initiating Process is executed successfully the Planning Process will remain focused on the mechanics of the exercise. If not, frequent revisiting of the initial issues will occur and undermine your Planning Process. Location, logistical support, tools used to evaluate the exercise, and several other factors will be addressed, created and developed during this phase. Templates for the documentation already exist on the HSEEP Homepage Policy and Guidance document library (no date). The important part of the Planning Process is the finalizing of the objectives and the development of a scenario. Table 3 offers some suggestions for possible objectives for transportation sector agencies. The scenario's purpose is to provide a context for the various actions taken and/or discussions engaged in by the participants as they use the various plans, policies, procedures, and protocols their respective organizations have developed to respond to such events.

It is recommended that you carefully review the Checklists for provided in the previous section to ensure that you have addressed all of the necessary issues, and that you identify further issues unique to your situation.

Table 13. Example Exercise Objectives for Transportation Sector Agencies

Objective	Description
Alert Notification	To demonstrate the ability to alert, mobilize, and activate the personnel, facilities, and systems required for emergency response, and for subsequent staffing for the next shift to maintain 24- hour operations.
Communications	To determine the ability to establish and maintain communications essential to support response to an incident/accident and the immediate recovery, including establishing interoperable communications with first responder agencies.
Coordination and Control	To determine the effectiveness of mutual aid plans and the coordination among the transportation sector organizations for a major emergency; evaluate the effectiveness of procedures for requesting resources from a higher level of government; evaluate coordination within the department when responding to a major emergency or disaster; evaluate the functionality and effectiveness of the EOC in communicating with the field and managing strategic challenges; evaluate the level of knowledge of EOC personnel regarding plans, emergency operations, and decision-making; evaluate the adequacy of facilities, equipment, displays, and other materials to support emergency operations; evaluate the ability to use ICS effectively, including multi-disciplinary coordination in the field.
Damage Assessment	To demonstrate the ability to organize and conduct damage assessment, including the collection of information to facilitate response by first responder organizations, support of over- weight permits, and recovery activities.
Emergency Public Information	To determine the capability of the emergency public information system to disseminate timely and accurate emergency response information in languages and methods appropriate to the community; evaluate the ability to work with the media and maintain media monitoring and rumor control; evaluate the adequacy of the electronic signboards, travel information radio, 5-1-1 system, and agency website for maintaining timely travel information to the public.
General Services	To determine the adequacy of procedures for providing to transportation sector field forces such support services as food and refreshments, apparatus and equipment maintenance, sanitary facilities, and medical care.
Health and Medical	To evaluate the training, equipment and plans to protect transportation sector responders from contamination from releases in the field; identify and contain the hazardous material (including radiological) or infectious agents in the field in collaboration with other first responder agencies; facilitate the clean-up of the agent of concern from the roadway or transit facility. Evaluate the availability to transport the expected number of casualties, including systems to support the movement of special needs populations.
Individual/Family Assistance	Determine whether employees have received adequate instruction in personal, home and family preparedness. The goal is to ensure that employees can stay at work or return to work, secure in the knowledge that their families are prepared to manage without them.
Public Safety	To determine the effectiveness of the coordination with first responders to ensure safe routes to the disaster sites for emergency vehicles. Determine the effectiveness of rapid road restoration and debris removal plans, including the adequacy of the equipment and trained employees. Evaluate transportation's role in controlling traffic flow, and limiting access to hazardous/evacuated areas and key governmental facilities, and in restoring access to formerly closed areas, in collaboration with law enforcement.
Public Works	Evaluate the adequacy of procedures for restoring and repairing essential services and vital facilities (as defined by the organization's Continuity of Operations Plan) during a major emergency or disaster. Evaluate the capability to organize and provide emergency repair and restoration of highway system assets and assist with emergency protective measures, such as levee repairs, cutting fire breaks, and laying sandbags.
Traffic Management	To determine the adequacy of the evacuation plan for the jurisdiction and the ability of officials to effectively coordinate an evacuation. Demonstrate the capability and procedures to provide access, egress and emergency routing (including contraflow where appropriate) to support mass care for persons displaced by a disaster in another community.

Source: Based on rubrics from Wisconsin Emergency Management, 2004.

SCENARIO DEVELOPMENT

Selection of a scenario should occur after exercise objectives are identified. A scenario should provide a context for the participants going through the exercise to use the plans, procedures and equipment as they were trained. In this way, the participants are able to see how the response effort would work, and be in a better position to leverage the

resources they are likely to have. Later, in a real situation, when additional resources are available, the participants will understand how to benefit from them; or when resources are inadequate, they will be more confident using improvisation with available resources to achieve goals.

Selection of the scenario may be based on:

- Existing federal models
- A recent local event
- A national level news event involving similar infrastructure
- An international level news event involving similar infrastructure
- A historical event with current local parallels
- Findings of an Opposing Force, tiger team, penetration test
- Findings of any assessment involving both threat and vulnerability
- A previous exercise's improvement plan (as a follow-up exercise).
- An actual occurrence increases believability.
- Theoretically based scenarios decrease believability.
- The more artificialities that are used, the higher the likelihood of misunderstanding and rejection by participants.

Authors' recommendation: Look for three events that have happened within your region in the last ten years. Select the one that supports as many of the objectives as possible. Modify the scenario to include those objectives not covered. Table 4 provides a list of common types of community hazards that can be used as the basis for exercise scenario development.

Table 14. Common Types of Community Hazards

Natural	Technological	Criminal/Terrorism
Riverine Flood	Hazardous Material/ Industrial Accident	Arson
Flash Flood	Hazardous Material/ Transportation Accident	Riots/ Civil Unrest
Tidal Flooding/ Levee and Seawall Overtopping	Multi-Car Accident	Cyber Attack
Wildland Interface Fire	Train Derailment	Mass Murder/ Shootings
Urban Conflagration	Storm Drain Failure	CBRNE Terrorism
Severe Winter Storm	Power Outage	
Ice Storm	Communications Outage	
Hurricane	Building Collapse	
Tornado	Ferry Accident	
Wind Storm	Bridge Collapse	
Heat	Levee Failure	
Fog	Aircraft Crash	
Lightening	Dam Failure	
Thunderstorm	Nuclear Power Plant Accident	
Earthquake	Silo Explosion	
Liquefaction		
Tsunami		
Landslide		
Mudslide		
Debris Flow		
Volcano		
Drought		
Hail Storm		
Avalanches		
Land Subsidence		
Coastal Erosion		
Sea Level Rise		
Sink Hole		
Human Disease Epidemic		
Animal Disease Outbreak		
Crop Disease Outbreak		
Insect Infestation		
Desertification		

All or Nothing, or Something in Between

There is a debate surrounding HSEEP exercise design concerning achievability of the scenario. This should be addressed in the Exercise Objectives, but it is easy to overlook the question during the scenario development, so the sides of the issue are included here.

- One side believes that additional complications to the scenario should be added until the participants cannot proceed further or complete the objective within the time allowed. This is an adaptation of military exercise models to determine a unit's combat mission capability.

- The other side believes that the scenario should lead to a successful outcome, and that the goals should be attainable. This is an adaptation of the principles of adult education.

- A third group believes in the middle-ground, managing the exercise by adding scenario complexity sufficient to expect a 50-80 percent success rate; permitting learning, with- out destroying morale. Creating failure is likely to damage the morale of

the exercise participants, while success, even if not complete, will generally create participants willing to play again. Exercises are designed to test plans, policies and resources, not people. Local political realities may also prevent a “failure” exercise, as the public may interpret a failed exercise as a lack of community emergency preparedness or emergency response capability. Finally, the general acknowledgement among first responders is that the primary mission is the preservation of life, so they will continue to strive until they have saved everyone or lost all the personnel resources. While there may be value in the military model of “pushing it until it breaks,” local political considerations and participant morale suggest that allowing the participants to achieve at least some success (50-80 percent) is a better approach. Either way, make sure that the scenario provides a believable context for the exercise and matches its objectives.

Political Influences

There are times when a current event will have a disproportional effect on scenario development. At times elected representatives will raise the “What if that happens here?” question. If that occurs, it is recommended to divide the event into phases, and use only one phase as the basis of the scenario. An example would be an exercise of the initial response (first 15-20 minutes). This would then focus on the most likely first responding entity and how they would react. Another might be four to six hours into the event, with your organization’s assets joining a response effort already underway. This approach allows you to look at your exercise objectives and narrow the focus of the scenario onto those assets, while still recognizing the political realities of the officials, who want to respond to current interest in a specific scenario. Recent examples of such situations are hurricane exercises, active shooter exercises or tornado exercises after a widely reported actual event in another community.

Objectives

The core reason for an exercise cycle is to evaluate the training, plans, procedures and/or equipment to determine what areas may need improvement. Exercises test the functionality of the plans not the performance of individuals. The type of exercise (e.g., tabletop, drill) provides the framework for the activities of the personnel involved. The scenario provides the context. The objective drives the decision about the scenario and type of exercise. It is easy to overload the scenario with elements or make the emergency too complex. When that happens, the objective(s) of the exercise becomes lost in the details of the scenario, and participants often lose sight of their purpose in exercising. Keep your objectives simple and clear. Refer to them frequently when developing the scenario. Always ask, “Is this scenario input necessary to create a plausible situation the participants will believe in and respond to?”

The following sections provide skeletal outlines of points to consider and topics to include when constructing exercise scenarios. Each outline is followed by one or more example scenarios. These may be used with the outlines to create credible exercises.

SCENARIO FORMAT FOR DISCUSSION-BASED SEMINARS, WORKSHOPS AND EXERCISES

1. Overview of organization's existing plans for emergencies.

2. Create three to five sentence scenarios, with supporting photos if possible. (PPT format for the unfolding scenario can lend realism with photos and video from real events, or created for the exercise).

3. First credible report from on-scene reporter (civilian), first responder (law, fire, transportation or EMA professional) or official reporting entity. (USGS, NOAA, CDC, other similar organization)

4. Discussion of each stakeholder's response.

    a. How soon would that department/entity be notified; by whom? (dispatch, alert and warning system, other)

    b. What plan is in place to guide the entity's response? (EOP, SOP, other)

    c. What would that entity do in the first five minutes after receiving notification? (dispatch personnel, get secondary confirmation and more details, await dispatch by another entity, put specific personnel on alert, activate a subsidiary plan, e.g., Multiple Casualty Incident Plan, Hazardous Materials Response Plan)

5. Next report on the event from the scene. (first responder, electronic media, social media, bystander report to 9-1-1 center)

6. Discussion of each stakeholder's response to that message.

    a. How soon would this message be received and from whom?

    b. What actions would the entity take?

    c. What coordination would the entity put in place?

7. First damage assessment report from scene by bystander, first responder, or other entity. (road worker, transit worker, electronic media, social media) Is it credible? Does it include photos/video?

8. Discussion of each entity's response to the damage assessment.

    a. How soon would this information be received by the entity and from whom?

b. How would this entity verify the information?

c. How would this entity respond to the verified aspects of the information?

d. Has ICS been established, and by whom? What agency has IC? Should this change? If so, when and to whom? (e.g., need a hazmat professional or a medical professional)

9. What actions are being taken by transit entities at this point?

a. Who are they coordinating with?

b. Who has asked for resources from them?

c. Who have they asked for resources?

10. What actions are being taken by transportation entities at this point?

a. Who are they coordinating with?

b. Who has asked for resources from them?

c. Who have they asked for resources?

11. First EMS injury and/or hazardous material report from the scene.

a. How soon would this information be received and from whom?

b. What new actions would the entity take?

c. What new coordination would be required?

12. Discussion of how each entity responds to the injury/hazmat report.

a. How soon would this information be received by the entity and from whom?

b. How would this entity verify the information?

c. How would this entity respond to the verified aspects of the information?

d. What off-scene resources would be needed and who would notify them?

e. What transit or transportation resources would be needed? Why? From whom?

Proceed by adding information and facilitating discussion for the amount of time assigned for the exercise activity. Allow adequate time for an After Action Review and Improvement Plan development, when appropriate (see Table 2 Exercise Components). Ensure that:

1. The existing plans are being properly used.

2. The existing reporting relationships are being used.

3. ICS/NIMS is being used.

4. The recorder or exercise staff is noting areas for improvement in training, planning, and systems/equipment.

Example Scenarios for Discussion-Based Transportation Sector Exercises

Multi-Vehicle Pile-Up on Interstate Highway (Virginia-North Carolina)

Note: This scenario uses fictionalized details from a real event. All details should be modified to ensure credibility for the exercising jurisdiction, such as where the reports would be received.

News source: Associated Press, “Three dead, several hurt after massive pileup of almost 100 vehicles near Virginia-North Carolina border,” NY Daily News [Website] (March 31, 2013) http:// www.nydailynews.com/news/national/dead-75-car-pileup-va-n-border-article-1.1303988 (accessed October 30, 2013).

NOTE TO EXERCISE DIRECTOR ONLY: Exercise Goals/Desirable Outcomes	
Overall	Include discussion of historical events in the community and the action taken at that time during any appropriate discussion phase.
Alert/Notification	Manage highway sign boards to close freeway.
Communications	Establish interoperable communications channels with law, fire and EMS; coordination with TMC.
Coordination and Control	Establish ICS linkage, coordinate transportation sector through appropriate ICS section/ branch; activate plans for tow trucks, including big-rig tow trucks, and gasoline delivery trucks; coordinate staging areas for other first responders.
EPIO	Coordinate public information with ICS; have transportation sector representative in the EPIOteam.
Damage Assessment	Coordinate damage assessment with ICS; have transportation sector representative in the Plans Section damage assessment team.
General Services	Support transportation sector field forces for feeding/sanitation during repairs.
Health and Medical	Ensure appropriate PPE for personnel assisting with gasoline/diesel fuel clean-up; support access and egress for EMS and ambulance services.
Individual and Family Assistance	Arrange access, egress and alternate transportation, such as school buses to move uninjured victims to shelter.
Public Safety	Collaborate with first responders on safe routes to the disaster site for first responders; staging area establishment; rapid debris removal and road repair.
Public Works	Repair state highway system components.

On March 31, 2013, more than 75 motor vehicles collided in dense fog on the southbound side of a mountain interstate highway, Interstate 77 (I-77), near the Virginia/North Carolina border. The area is an isolated portion of the highway, with a steep upward slope on one side and a steep downward slope on the other. There is a narrow shoulder next to the slow lane and a grass median between the northbound and southbound lanes of the highway, but no shoulder on the fast lane side. Lighted message boards warned motorists of upcoming fog, but those unfamiliar with the area did not realize how quickly the fog became dense.

First credible report: 1:18 p.m.

First credible report is received from a trucker on I-77 by CB radio, which was monitored in the state transportation agency's Traffic Management Center. The truck driver reports that he is in dense fog, and ahead of him is a multi-vehicle accident involving at least one tractor- trailer, which is now on fire. There appears to be at least six cars involved. He is requesting all assistance immediately, and provides the latitude/longitude location of his truck from his GPS. Due to the fog and dense traffic he is afraid to leave his vehicle to investigate further, but traffic in both southbound lanes appears to be stopped. He has put on his hazard lights, fog lights and is sounding his horn as a warning to arriving traffic. Northbound traffic is still moving smoothly, although some people are slowing to look at the fire.

Second report from scene: 1:20 p.m.

The state police dispatch center has received a 9-1-1 cell phone call from a passenger on the northbound side of I-77. She has sent photos of fire showing through fog and reports that there is a bad multi-vehicle accident near Galax, Virginia, on the southbound side of I-77. Because of the fog she is afraid to stop and cause accidents on her side of the freeway, but her limited vision suggests that traffic is stopped in both southbound lanes. She estimates that the back-up is about ¼-mile from the accident and getting worse. She asks that the highway patrol to investigate, as she is sure that people are hurt. But she has no other information, except that the fog is dense in the area.

First damage assessment report: 1:25 p.m.

The state police dispatch center has received a 9-1-1 cell phone call from a passenger on the southbound side of the I-77 near Galax. She reports that she is with her family, who are on their way home from Easter brunch. In the far distance she can see something big on fire, but she is in the rear of a 10-car pile-up in the slow lane of the southbound side of the freeway. She provides the lat/long information from the car's GPS, showing that she is about ¼-mile from the trucker who first reported the accident, and they have notified On-Star that they have been in a rear-end accident but are uninjured. She reports that there is another accident ahead of the one that her car is in, and something up there is on fire. She states that both lanes southbound are completely blocked and traffic is piling up behind her set of damaged vehicles. As she is speaking she reports hearing another accident develop behind her that involves the sound of at least five crashes, and at least one horn is blaring behind her. She thinks it got stuck from the crash. She has sent a video of the scene that

shows the immediate few cars with significant damage and the horn can be heard. The state police dispatch center receives a call from a motorist. He is an Army medic home on leave, on his way to a family Easter dinner. He is caught between a set of vehicle crashes, although his vehicle is undamaged. He estimates that there are about 10 cars behind him and another 10 in front of him, including a tractor-trailer truck on fire. He has moved his car to the shoulder next to the slow lane and gotten his medic's bag from his trunk.

He has started to triage the passengers in the cars nearest to him, and sent one other uninjured motorist, a retired Philadelphia police officer, to see whether there is anyone in the vehicle that is on fire, to see if he can organize help. The retired officer will call if they need the medic. He has asked all the other motorists and passengers to remain in their cars for safety, since visibility is limited and the outside of the slow lane shoulder drops down a steep slope. He also reports smelling gasoline, which he thinks may be leaking from some of the rear-ended vehicles.

So far he has spoken to occupants of 10 cars, and all report minor injuries, with the front seat passenger and motorist of the second car in his pile-up having facial lacerations, which he has treated to stop the bleeding, and a broken arm for which he has provided a sling, but no other treatment. Five people report neck pain, three have contusions on their heads from hitting the steering wheel, and two have ankle pain. He requests emergency response to the area via the northbound lane, as all traffic in the southbound lane is stopped. He suggests closing the southbound side further north to prevent the pile-up from worsening. As he is making the request there is a loud series of bangs as another multi-car accident occurs.

Winter Rain Storm/Pineapple Express Blocks Roads (California)

Note: This scenario uses fictionalized details from a real event. All details should be modified to ensure credibility for the exercising jurisdiction, such as where the reports would be received.

News source: Jeff Wilson [Associated Press], "Huge mudslide fatal in Ventura County; 3 killed, 21 missing in tiny La Conchita; 15 homes crushed," UTSanDiego [Website] (January 11, 2005) http://www.utsandiego.com/uniontrib/20050111/news_7n11storm.html (accessed October 30, 2013).

NOTE TO EXERCISE DIRECTOR ONLY: Exercise Goals/Desirable Outcomes	
Overall	Include discussion of historical events in the community and the action taken at that time during any appropriate discussion phase.
Alert/Notification	Manage highway signs, including movable electronic signs, to close freeway.
Communications	Establish interoperable communications channels with law, fire and EMS; coordination with Sheriff's 9-1-1 system.
Coordination and Control	Establish ICS linkage, coordinate transportation sector through appropriate ICS section/ branch; activate plans for heavy equipment to assist with mud removal, and tow trucks to remove inundated cars; coordinate staging areas for other first responders.
EPIO	Coordinate public information with ICS; have transportation sector representative in the EPIO team.
Damage Assessment	Coordinate damage assessment with ICS; have transportation sector representative in the Plans Section damage assessment team.
General Services	Support transportation sector field forces for feeding/sanitation during repairs.
Health and Medical	Ensure appropriate PPE for personnel assisting with mud clean-up; support access and egress for EMS and ambulance services.
Individual and Family Assistance	Arrange access, egress and alternate transportation, such as school buses to move uninjured victims to shelter.
Public Safety	Collaborate with first responders on safe routes to the disaster site for first responders; staging area establishment; rapid debris removal and road repair.
Public Works	Repair state highway system components.

In 2005, a Pineapple Express winter storm soaked the whole California coast, dropping record levels of rain and snow on communities. The town of La Conchita in Ventura County was the victim of a mudslide when a cliff face collapsed onto a community. The town sits between the cliffs and U.S. Route 101 (US 101), which in turn is next to the Pacific Ocean.

First credible report: 3:55 p.m.

A cell phone call is received at the Ventura County Sheriff's 9-1-1 call center from a county road crew member that a cliff face has collapsed on about 20 homes in La Conchita. The worker was part of a team removing debris from earlier storm damage to US 101 when he heard the noise and looked up to see the cliff face dissolve into a huge mudslide. People were yelling and running toward US 101, but some houses were buried, possibly with people inside. The caller sends a photo to the raw cliff face.

Second report from the scene: 3:58 p.m.

A cell phone call is received at the Ventura County Sheriff's 9-1-1 call center from a resident of La Conchita. He states that he was driving home when he saw the cliff face behind his house collapse on his whole neighborhood. He says the mud is more than 10 feet deep, and the houses have disappeared. He is urging the first responders to bring heavy equipment for mud removal. He says he tried to go into the mud, but he cannot walk on it because it is so wet. He reports that all the roads into the neighborhood are also covered in mud. He sees a few neighbors standing dazed looking at the damage, and he has urged them to wait for the first responders. One woman says her father is at home alone and she needs to get to him. She was at the store when the cliff collapsed.

First damage assessment report: 4:15 p.m.

The first fire captain on scene has established ICS, and is IC. His Planning Section Chief has accessed Google Earth maps of the neighborhood inundated with mud. He has located the undamaged perimeter of the mudslide area and estimates that 15 houses are completely buried and at least five others are badly damaged. He has collected five residents of the area who are providing information about who lives in the homes and whether they are likely to have been home when the mudslide occurred. It appears that the public school bus has not come yet, so any school-aged children should not be in the neighborhood. So far, most of the residents who work are day-shift workers and probably not home yet, either. However, there are several elderly residents who probably are at home, and the Plans Chief is working with the residents to identify those houses for primary investigation. US 101 is open, and enough debris has been removed to make it accessible for first responder vehicles. He needs assistance to close the road to other traffic and establish staging for first responder vehicles.

First EMS/hazmat report: 4:30 p.m.

The IC reports to Dispatch that the first victims have been found in the mud. So far, three adult males have been unearthed and are deceased. All three were outdoors. Fire personnel have determined that another 21 people are unaccounted for. Several people who fled the mudslide have minor injuries from falls. Listening devices have been dropped into five of the homes where people are thought to be at home. So far, one elderly man has been rescued from his collapsed home, with serious injuries. All of the neighbors at the command post have lost everything, including their vehicles. Has anyone called the Red Cross to open a shelter? Can we provide some transportation for these people? There are 12 little kids from the school bus who are also here and need shelter. Only three are with their parents, while the others expected to meet their parents at home when they were done with work. These people all need to go somewhere dry now, or we will have hypothermia patients next.

Hurricane Evacuation from Atlantic City

Note: This scenario uses fictionalized details from a real event. All details should be modified to ensure credibility for the exercising jurisdiction, such as where the reports would be received.

News source: Jeff Schwachter, “Hurricane Sandy 2012: Evacuations and Preparations in New Jersey; Gov. Christie orders evacuations from Sandy Hook down to Cape May, including the Atlantic City casinos, as Hurricane Sandy approaches New Jersey,” Atlantic City Weekly [Website] (October 27, 2012) http://www.atlanticcityweekly.com/news-and-views/Hurricane-Sandy-2012-Evacuations-and-Preparations-jersey-shore-nj-track-path-nyc--176107731.html (accessed October 30, 2013).

NOTE TO EXERCISE DIRECTOR ONLY: Exercise Goals/Desirable Outcomes	
Overall	Include discussion of historical events in the community and the action taken at that time during any appropriate discussion phase.
Alert/Notification	Manage highway to direct evacuation routes.
Communications	Establish interoperable communications channels with law, fire and EMS; coordination with TMC.
Coordination and Control	Establish ICS linkage; coordinate transportation sector through appropriate ICS section/ branch; activate plans for tow trucks and gasoline delivery trucks to support evacuation; coordinate staging areas for other first responders.
EPIO	Coordinate public information with ICS; have transportation sector representative in the EPIO team.
Damage Assessment	Coordinate damage assessment with ICS; have transportation sector representative in the Plans Section damage assessment team.
General Services	Support transportation sector field forces for feeding/sanitation during post-event repairs.
Health and Medical	Ensure appropriate PPE for personnel assisting with outdoor evacuation activities, and their safe removal before storm landfall; support access and egress for EMS and ambulance services during evacuation.
Individual and Family Assistance	Arrange access and egress routes for private vehicles; alternate transportation such as mass transit buses and trains or school busses to move residents without cars to shelter; and provide paratransit services.
Public Safety	Collaborate with first responders on safe routes to the disaster site for first responders; staging area establishment; rapid debris removal and road repair/track repair during immediate recovery period.
Public Works	Repair road system components.

In October 2012, Superstorm Sandy struck the east coast of the United States. Damage to the coastal areas was expected from both the hurricane's winds and rain and from associated storm surge, which was expected to damage the barrier islands along the Atlantic Ocean coast. Atlantic City is a seashore resort on a barrier island, Absecon Island, in New Jersey that has casinos active throughout the year. The residential population of Atlantic City is about 40,000, but the casinos and hotels draw another several thousand people each day, with many more during the summer months. Evacuation of Atlantic City was ordered by New Jersey Governor Chris Christie, and people were given a day to collect their belongings and leave. Casinos were also ordered closed 12 hours before estimated hurricane landfall.

First credible report: Saturday, October 27, 2012, noon

Governor Christie orders the evacuation of all coastal communities from Sandy Hook to Cape May, New Jersey. Atlantic City has a population of about 40,000 residents and about 1,000 additional casino guests, some of whom have just arrived by limousine from Philadelphia Airport, and others of whom have come by public transportation and private cars.

Second report from the scene: 2:00 p.m.

The mayor of Atlantic City has contacted the New Jersey Department of Transportation to ask for guidance on the evacuation of the city. The city is to be evacuated by 4 p.m. on Sunday, 22 hours away. He wants to know how many cars per hour can exit across the 3 roadway bridges to the mainland, and whether he should assume that the other cities on

the island will also be using the same exits. How many cars would those other cities, which are mostly home to summer-only residents, produce at this time of year?

First damage assessment report: 4:00 p.m.

The police chief of Atlantic City is meeting with the mayor and his advisers about the evacuation planning. The chief has had a meeting with the casino security directors to coordinate the closure of the casinos and the plan for security during the storm. They are concerned about getting their customers back as soon as possible. What are the plans for evacuation and recovery? Given the newness of the casinos and their locations relative to the ocean they do not anticipate damage to their hotel rooms or casino floors, so their concern is access for patrons, staff and supplies. The chief points out the economic significance of the casino revenues to the city's ability to provide services.

First EMS/hazmat report: 5:00 p.m.

The fire chief of Atlantic City is meeting with the mayor and his advisers about the evacuation and recovery planning. The chief had a meeting with the hospital director and the nursing home industry representative. They have begun release of all ambulatory patients to their homes, but some lack transportation. As these patients do not need ambulances, their insurance will not pay for ambulances. What can be done for them? The nursing homes are moving their patients to the mainland, but they are concerned about EMS support en route for the frail elderly. The Social Services Director is concerned about moving the people who have no cars, both residents and visitors. How can this be managed? What about the homeless populations who have no transportation and no disaster shelter, as they have no fixed address that allows them to register at the city's disaster shelters on the mainland. What can be done for them?

SCENARIO FORMAT FOR ACTION-BASED FUNCTIONAL EXERCISES

1. Overview of organization's existing plans for emergencies; venue may be EOC or field.

2. Create three to five sentence scenarios, with supporting photos if possible. (For an indoor Functional exercise, a PPT format for the unfolding scenario can lend realism with photos and video from real events, or created for the exercise to mimic television coverage that might be received in the EOC or a command post vehicle.)

3. Briefing modeled on those delivered at Staging in a real event, or delivered to those arriving at the EOC or TMC to manage an emergency.

4. "Simulation cell" (Sim Cell) delivers messages to the participants using telephone, radio, amateur radio, cell phone, e-mail, runner-carried messages or any other technology used by the organization in real events. These "inputs" drive play. Players determine their own responses to the Sim Cell messages. Evaluators note whether the reactions are according to the plan, going beyond the plan due to the

complexity of the response, or off plan because the plan is faulty. All discrepancies between play and plan will be discussed in the After Action Review.

5. Periodically, briefing updates may be delivered to the participants by their Section Chiefs, as though they were working during an event. This may be face-to-face in Section groups or through messaging. These “inputs” also drive play.

6. Play continues until all exercise objectives are met, or until available time has elapsed.

7. Allow adequate time for an after-action review and improvement plan development (see Table 2: Exercise Components). Ensure that:

8. The existing plans are being properly used.

9. New actions that are appropriate are added to the plan.

10. The existing reporting relationships are being used, or modifications are discussed and substituted.

11. ICS/ NIMS is being used.

12. The evaluators and exercise staff are noting areas for improvement in training, planning, and systems/equipment.

Example Scenario for Action-Based Transportation Sector Functional Exercises

SCADA Failure for Mass Transit System

Note: This scenario uses fictionalized details from a real event. All details should be modified to ensure credibility for the exercising jurisdiction, such as where the reports would be received.

News source: Darin Andersen, “Protecting Today’s SCADA-Based Mass Transit Systems Should Begin with a Defense-in-Depth Strategy,” Mass Transit [Website] (October 10, 2012), http://www.masstransitmag.com/article/10812546/protecting-todays-scada-based-mass-transit-systems-should-begin-with-a-defense-in-depth-strategy?print=true (accessed October 30, 2013).

NOTE TO EXERCISE DIRECTOR ONLY: Potential Exercise Goals/Desirable Outcomes	
Overall	Include discussion of historical events in the community and the action taken at that time during any appropriate discussion phase. Use these real events to develop the script for the Sim Cell messages for the SCADA events. Evaluate whether existing plans, training and equipment are adequate to meet the needs of a cascading emergency event.
Alert/Notification	Activate back-up internal notification systems that would be functional if the SCADA had failed; notify partner agencies of loss of functions. Notify passengers of service impacts – loss of service, slowing of service, probable delay length.
Communications	Establish interoperable communications channels with law, fire and EMS; what systems are isolated from the SCADA system and its networks?
Coordination and Control	Establish ICS for mass transit agency internal event, alternatives to SCADA operations implemented (such as default systems, human operators, slowing operations); coordinate with law/others to provide human power for non-functioning SCADA traffic controls; coordinate with vendors for replacement systems and equipment.
EPIO	Coordinate public information through ICS. Policy Group to determine what information will be released to the public, how will media be notified? Will social media be used? How would SCADA failure affect these functions?
DamageAssessment	Coordinate damage assessment through ICS; have IT representative in the Plans Section damage assessment team.
General Services	Support transportation sector field forces for feeding/sanitation during emergency actions in the field.
Health and Medical	Ensure appropriate PPE for personnel working on field systems restoration, working as substitutes for SCADA, e.g. signal controls, and other positions with safety concerns.
Individual and Family Assistance	Arrange access, egress and alternate transportation for passengers, such as a bus bridge to replace non-functioning fixed rail assets. Determine if there are stranded passengers and coordinate with appropriate NGOs for their care.
Public Safety	Collaborate with first responders, as needed, on safe routes to the disaster sites (if appropriate) for first responders; staging area establishment with protected access and egress. Did SCADA failure cause an accident, strand passengers in tunnels or on bridges? Possible support from local government's TMC or state highway system TMC, such as use of their electronic signs for notification? Evaluation of threats to other networks from the SCADA failure. Who is interoperable with the damaged system?
Transit	Effect rescues, repairs and restoration.

In July 2012, an external attack on the SCADA system caused a cascading failure of service to Central City's mass transit system. The first failure was noted in the light rail signaling system, when an operator called to report two consecutive signal failures on his route, and to ask for direction on whether to continue the route without working signals. Within five minutes the control room reported that the lighted status map had gone dark, and within five more minutes calls were received from all elements of the system reporting failures of computer controlled devices, loss of lighting, and loss of data systems.

First credible report: 3:55 p.m.

A cell phone call is received at the Central City Mass Transit Agency (CCMTA) call center from a light rail operator noting that the last two signals that he passed are not working. He continued to operate the light rail cars using visual information from the front car operating position, but the failure of the second signal has caused concern. He is at a station awaiting direction on how to proceed.

Sim Cell Messages:

1. Call center operator notifies the Call Center Director of the signal failure. [Call Center Director takes appropriate action based on the CCMTA's emergency plan for signal failures. Note that the work of the emergency response team is largely driven by the Call Center Director's initial responses to the Sim Cell calls. Therefore, it is important that this person have a pre-event review briefing with the Exercise Director regarding his/her role, and that an up-to-date plan is available to every participant during the exercise, with the appropriate position Checklists for tabbed for easy access.]

2. Signal manager calls Call Center Director to report that all signals are off. [Call Center Director takes appropriate action based on the CCMTA's emergency plan for signal failures.]

Second report: 3:58 p.m.

A cell phone call is received at the CCMTA call center from a bus operator asking why his electronic fare machine is not working. He has a line of 10 people with fare cards who are trying to board the bus and he needs direction. Should he just let them ride for free since his machine is malfunctioning?

Sim Cell Messages:

1. Call Center operator notifies the Call Center Director of the fare box failure. [Call Center Director takes appropriate action based on the CCMTA's emergency plan for fare box failures.]

2. Fare box operations manager calls Call Center Director to report that all fare boxes are malfunctioning. [Call Center Director takes appropriate action based on the CCMTA's emergency plan for signal failures.]

First damage assessment report: 4:15 p.m.

A field safety supervisor calls on his cell phone to the Call Center Director to report that the safety systems for traffic signal interlock for light rail have all gone dark. He asks for direction on whether to stop field operations of the light rail system for safety reasons, noting that without the interlock the left turn signal will still operate, permitting cars to turn in front of the light rail cars. Should he try to get personnel to direct traffic at the major light rail traffic intersections?

Sim Cell Messages:

1. Sim Cell member reads above message to Call Center Director. [Call Center Director takes appropriate action based on the CCMTA's emergency plan for signal interlock failures.]

2. Signal system manager calls Call Center Director to report that the signal problem is in the CCMTA's internal IT system. [Call Center Director takes appropriate action

based on the CCMTA's emergency plan for signal failures. Monitor play to ensure that ICS is established within CCMTA by this point.]

First EMS report: 4:00 p.m.

The Call Center has received a cell phone call from a motorist on First Street. A southbound light rail car has just hit a car at the corner of First and Maple Streets. The flashing "trolley coming" signal interlock did not work, so the driver, who had a green light, made the left turn in front of the light rail train, assuming that it was going to stop since there was no flashing signal. The driver is pinned in the car with injuries, and at least 10 passengers who were standing have been thrown to the floor as the operator tried to apply the brake.

Sim Cell Messages:

1. Call Center operator notifies the Call Center Director of the above (reads message). [Call Center Director takes appropriate action based on the CCMTA's emergency plan for signal failures.]

2. Field safety officer makes cell phone call to Call Center Director, noting that he has called for law enforcement and fire/EMS to come to First and Maple Streets where there is a light rail versus car accident with at least 10 serious injuries. He notes that his mobile data terminal is not working, nor is his CCMTA radio. The light rail line is blocked, so a bus bridge is needed from the Freeway Stop around the accident to the Elm Stop where the northbound trains can turn around. [Call Center Director takes appropriate action based on the CCMTA's emergency plan for light rail accidents, and for computer and radio failures.]

SCENARIO FORMAT FOR ACTION-BASED FACILITATED EXERCISES

1. Pre-exercise training or refresher review of organization's existing plans for emergencies; venue may be EOC or field. Players take physical actions based on decisions made during facilitated discussion with Facilitator/Subject Matter Expert (SME).

2. Provide three to five learning stations where information unfolds as it would in a real event, with supporting props, and "crime scene" photos of the event, if possible. (Learning stations can use photos and video from real events, or created for the exercise to mimic television coverage that might be received at command post vehicle.)

3. Briefing delivered at first learning station, "Staging" in the field, or delivered to those arriving at the EOC or TMC to manage an emergency.

4. Facilitators are SMEs who are respected by the participants, preferably from within their own organizations. If external SMEs are used, a member of the organization's relevant staff should partner with the SME to ensure that all decisions made during play are within agency policy. Players determine their own responses to

the scenario at each learning station. Evaluators note whether the reactions are according to the plan, going beyond the plan due to the complexity of the response, or off plan because the plan is faulty. All discrepancies between play and plan will be discussed in the After Action Review.

5. Play continues until all exercise objectives are met, or until available time has elapsed.

6. Allow adequate time for an after-action review and improvement plan development (see Table 2: Exercise Components). Ensure that:

7. The existing plans are being properly used.

8. New actions that are appropriate are added to the plan.

9. The existing reporting relationships are being used, or modifications are discussed and substituted.

10. ICS/ NIMS is being used.

11. The evaluators and exercise staff are noting areas for improvement in training, planning, and systems/equipment.

Multi-Vehicle Pile-Up on Interstate Highway (Virginia-North Carolina)

Note: This scenario uses fictionalized details from a real event. All details should be modified to ensure credibility for the exercising jurisdiction, such as where the reports would be received.

News source: Associated Press, “Three dead, several hurt after massive pileup of almost 100 vehicles near Virginia-North Carolina border,” NY Daily News [Website] (March 31, 2013) http://www.nydailynews.com/news/national/dead-75-car-pileup-va-n-border-article-1.1303988 (accessed October 30, 2013).

NOTE TO EXERCISE DIRECTOR ONLY: Potential Exercise Goals/Desirable Outcomes	
Overall	Include discussion of historical events in the community and the action taken at that time during any appropriate discussion phase. Ensure all participants know the relevant plans and their assigned roles, and the notification system that would get them to an event.
Alert/Notification	Manage highway sign boards to close freeway.
Communications	Establish interoperable communications channels with law, fire and EMS; coordination with TMC.
Coordination and Control	Assume IC at ICS Field Command Post, law and fire in Liaison Officer group.
EPIO	Transportation sector representative becomes EPIO.
Damage Assessment	Transportation IC coordinates damage assessment of road infrastructure, managed by Transportation Plans Section Chief.
General Services	Support transportation sector field forces for feeding/sanitation during repairs.
Health and Medical	Ensure appropriate PPE for personnel working in the field; consider weather conditions, safety issues, toxic exposures.
Individual and Family Assistance	All issues should have been managed by Law and Fire, coordinate with the Liaisons, as appropriate.
Public Safety	Manage road closure, length of road closure, rapid debris removal and road repair.
Public Works	Repair state highway system components.

Learning Station One: Staging Briefing and Assume Incident Command

On March 31, 2013 more than 75 motor vehicles collided in dense fog on the southbound side of a mountain interstate highway, Interstate 77 (I-77), near the Virginia/North Carolina border. Some estimates reached 100 damaged vehicles, including a tractor trailer that burned. Three people died and 20 people were severely injured, requiring hospitalization. The traffic back-up reached 8 miles from the scene of the initial accident. Lighted message boards warned motorists of upcoming fog, but those unfamiliar with the area did not realize how quickly the fog became dense. People were apparently driving too fast for conditions. The area is an isolated portion of the highway with a steep upward slope on one side and a steep downward slope on the other. There is a narrow shoulder next to the slow lane, and a grass median between the northbound and southbound lanes of the highway, but no shoulder on the fast lane side. Use safety precautions, as visibility is still limited and the slopes are damp and slippery.

The Law IC reports that all life safety and evidence collection issues have been managed, and they are ready to clear the scene. Law is ready to turn over IC to Transportation for the recovery actions.

Learning Objectives for the Station

1. Ensure that participants know who would have been part of the Law ICP.

2. Ensure that participants know their roles and how they would have been notified to go to the scene of an event.

3. Ensure that participants know how to transition IC from one department/agency to another, including IAP creation.

4. Ensure that participants know who manages the interoperable communications systems and how to contact them via some other mechanism (cell phone, e-mail, other radio) in case the system fails.

5. Ensure that policies are in place for the use of mobile equipment such as Command Post Vehicle, Communication Vehicle or other equipment belonging to Law and Fire that would be needed by the Transportation IC after Law and Fire leave; or for the transition from the Law or Fire vehicle to a Transportation-owned asset. Does Transportation need to acquire such assets?

Facilitated Discussion

1. How will Law and Transportation transition IC? What information needs to be discussed at the transition meeting?

2. What documentation has to be created for the transition? Who needs copies of the final close-out documentation?

3. Are interoperable communications systems in place to allow Transportation IC to coordination with Law and Fire Liaisons remaining at the ICP?

4. When would you personally arrive at the scene of an event like this? How would you be notified?

Once participants have agreed on a course of action that is acceptable to the Facilitator for changing IC, they conduct a full scale activity that carries out those actions. The ICP is set up with Law IC and related actors, necessary forms and communications systems.

Learning Station Two: Damage Assessment

All life safety issues have been addressed and all evidence has been collected from the scene of the initial accident where the fire occurred. There were also three people killed in the accident, and it is believed that their bodies have been recovered. However, due to the extreme damage to the cars and the heat of the fire, the bodies were unrecognizable at the scene. There were also several injured victims who were bleeding profusely when removed from their damaged vehicles. Use caution when inspecting the damage to the road at the scene of the first accident, as there is bodily fluid remaining on the pavement surface in places. There may be vehicle debris remaining in the median and shoulder areas.

Learning Objectives for the Station

1. Conduct road surface and appurtenances damage assessment (median, shoulder, culverts, drains, fencing, signage, lighting, safety equipment, buried conduit for electrical and phone lines and antennas, radio repeaters, other). Use appropriate documentation forms.

2. Complete field report to EOC regarding damage and responsible parties for the damage or reimbursement; what can be paid for by FHWA? What can be billed to responsible parties involved in the accident? What documentation does your jurisdiction require to bill responsible parties? What photographic or video evidence/ documentation needs to be collected?

3. What PPE, safety equipment and professional equipment would Transportation damage assessment staff need? Do they carry it or how is it provided?

Facilitated Discussion

1. What items need to be included in the Damage Assessment reports? How will the work area be divided up?

2. Who conducts the damage assessment? Are there people or agencies who are not represented in this group would should be included?

3. What costs can be reimbursed by others, such as FHWA or responsible parties, and what documentation do they need? Is this clear in your emergency plan Checklists for? Who within Transportation can provide advice on reimbursements?

4. What safety equipment do you have for use during the damage assessment? [Steel- toed boots, hard hats, safety goggles, reflective clothing/vest, respiratory protection, weather protection, miner's light, flashlight, personal safety flashing light, other.] Do you routinely bring these with you to the scene of an accident?

5. What safety equipment is needed for the scene? [Barricades and delineators to protect assessors from northbound traffic, scene lighting, markers for slopes off shoulders, other.]

6. What professional equipment do you have for use during the damage assessment? [Clipboard, paper and pen, handheld computer, measuring device, camera (still/ video), material collection bags, other.] Do you routinely bring these with you to the scene of an accident?

Once participants have agreed on a course of action that is acceptable to the Facilitator for creating the damage assessment documentation, they conduct a full scale activity that carries out those actions. The section of roadway to be assessed includes rubber mats with messages describing the damage that they would see, simulated damage that would permit measuring and photographing is also beneficial. Note that a reasonably large burned area of pavement is required for the tractor trailer fire, as well as gasoline and diesel spills where the accidents occurred, bodily fluids, body parts at the fire/wreck scene, damage to the shoulder and median, random car parts along the side of the road, and other "stage dressing" to stimulate damage assessment recording.

Learning Station Three: Plans Section/Report Damage Assessment Findings

Learning Objectives for the Station

1. Confirm appropriateness and completeness of documentation.

2. Confirm knowledge of ICS coordination with Law and Fire Liaisons based on body parts and hazmat (fuels) findings.

3. Confirm knowledge of reporting system for moving the damage assessment information from field ICS/Plans Section to the correct part of the Transportation Department.

4. Confirm knowledge of next steps for securing damaged areas and expeditious opening of the road. [Length of time for safety clean-up of road, management of traffic during expeditious repairs; e.g., one lane open? Or two-way traffic on northbound side for the damaged areas with a median cross-over, length of time for emergency road repairs to restore functionality.]

Facilitated Discussion

1. What forms were used to document the damage? What other media were used? [Encourage students to discuss and compare approaches.]

2. What information did you find that is outside the scope of Transportation? Who needs this information and how will you get it to them expeditiously?

3. What will you do with the damage assessment forms and other materials? How will you get the photos/video into the damage assessment system?

4. Who will act on the damage assessment information? Who will secure the damaged areas? How? Who will decide to reopen the road? What has to be done before the road can be reopened? What can be done in the meantime to improve traffic flow?

Once participants have agreed on a course of action that is acceptable to the Facilitator for managing the damage assessment documentation and providing information and advice on reopening the road, they conduct a full scale activity that carries out those actions. The ICP should have exercise e-mail addresses for the ICP/Plans Chief and the simulated Operations Chief established for use in collecting materials and messages from field personnel. Paperwork is delivered to the ICP/Plans Section, photos/video are downloaded or e-mailed to the established ICP/Plans exercise address. Messages are sent to the appropriate party (Operations Chief or other party designated by the organization) regarding observations on road opening steps and strategies.

Close-Out

All participants are invited to a Hot Wash. Light refreshments and drinks are provided while participants complete evaluation forms for the overall exercise. (Note: some jurisdictions

like to have each Learning Station evaluated by participants as soon as they are finished with that activity to capture detailed responses. This can be useful if time permits. Allow

15 minutes for each evaluation set.) The Exercise Director facilitates a discussion of each learning station by the participants, using the Post-It note system described in the Closing Process - After Action Report guidance in this handbook, or a verbal approach. Evaluators gather information for use in the AAR and Improvement Plan.

SCENARIO FORMAT FOR ACTION-BASED FULL SCALE EXERCISES

1. Pre-exercise training or refresher review of organization's existing plans for emergencies; venue may be EOC or field. Players take physical actions based on plans and training using existing equipment and resources.

2. The complexity of the event should match the capabilities and needs of the organization. Goals should be established that are achievable by the personnel with the existing plans and training, and generally with the existing equipment and resources, unless the purpose is to demonstrate a gap in planning, training, exercises or equipment/resources.

3. It is best to start a full scale exercise at Staging, since this mimics the real world for most Transportation and Transit entities. Few would be first on the scene. This enhances safety by allowing people to arrive at the event without the inherent danger of a Code 3 "lights and sirens" response through the community.

4. Briefing is delivered at Staging in the field, or delivered to those arriving at the EOC or TMC to manage an emergency.

5. Briefing is delivered by the Staging Manager, who relays the activation messages to the participants. Once activated, participants determine their own responses to the scenario as they would under ICS, based on their agency plans and SOPs. Evaluators are noting whether the reactions are according to the plan, going beyond the plan due to the complexity of the response, or off plan because the plan is faulty. All discrepancies between play and plan will be discussed in the After Action Review.

6. Play continues until all exercise objectives are met, or until available time has elapsed.

7. Allow adequate time for an after action review and improvement plan development (see Table 2: Exercise Components). Ensure that:

    a. The existing plans are being properly used.

    b. New actions that are appropriate are added to the plan.

c. The existing reporting relationships are being used, or modifications are discussed and substituted.

d. ICS/ NIMS is being used.

e. The evaluators and exercise staff are noting areas for improvement in training, planning, and systems/equipment.

Chatsworth Metrolink Train Accident (California)

Note: This scenario uses fictionalized details from a real event. All details should be modified to ensure credibility for the exercising jurisdiction, such as where the reports would be received.

National Transportation Safety Board [NTSB]. Collision of Metrolink Train 111 with Union Pacific Train LOF65-12; Chatsworth, California; September 12, 2008. NTSB. January 21, 2010. Report #NTSB/RAR-10/01, PB2010-916301 http://www.ntsb.gov/doclib/reports/2010/RAR1001.pdf (accessed October 30, 2013).

NOTE TO EXERCISE DIRECTOR ONLY: Potential Exercise Goals/Desirable Outcomes	
Overall	Include discussion of historical events in the community and the action taken at that time during any appropriate discussion phase. Ensure all participants know the relevant plans and their assigned roles, and the notification system that would get them to an event.
Alert/Notification	Manage railroad emergency notification systems, passenger emergency notification systems, notification to first responders.
Communications	Establish interoperable communications channels with law, fire and EMS; coordination with TMC.
Coordination and Control	Assume IC at ICS Field Command Post, law and fire in Liaison Officer group.
EPIO	Transportation sector representative becomes EPIO.
Damage Assessment	New Transportation IC coordinates damage assessment of railroad infrastructure, managed by new Transportation Plans Section Chief.
General Services	Support transportation sector field forces for feeding/sanitation during repairs.
Health and Medical	Ensure appropriate PPE for personnel working in the field; consider weather conditions, safety issues, toxic exposures.
Individual and Family Assistance	All issues should have been managed by Law and Fire, coordinate with the Liaisons, as appropriate.
Public Safety	Manage railroad closure, length of closure, rapid debris removal and track repair.
Transit	Repair railroad components and open tracks.

Staging Briefing and Assume Incident Command

On September 12, 2008, at 4:22 a.m. a 3-car Metrolink passenger commuter train collided head-on with a Union Pacific (UP) freight train in Chatsworth, California. The impact forced the Metrolink engine back 52 feet into the lead Bombardier double-deck car. Twenty-five people, including the engineer died, and 102 were injured. Damage exceeded $12 million. The Metrolink engineer was texting while driving, which is illegal, and missed a red signal at a dual track section, where he should have stayed to let the freight train pass onto the

siding. NTSB noted that the Metrolink system lacked a positive train control system to prevent the train from going through the signal against the light.

Numerous law, fire and EMS agencies responded, as well as Metrolink and city Departments of Transportation and Public Works. Los Angeles Fire Department assumed initial IC. Over 1,000 first responders were involved with search, rescue and medical care, hazardous materials investigation (using the freight train's consist) and site security and traffic control.

The Fire IC reports that all life safety and evidence collection issues have been managed, and they are ready to clear the scene. Fire is ready to turn over IC to Transit for the recovery actions.

The exercise scene needs to be set up to replicate the damage as much as possible. There is substantial damage to both the Metrolink and UP vehicles, and over $200,000 in lost cargo from the UP train. All three cars and the locomotive of Metrolink are damaged, with the first coach being destroyed. The UP lead engine is on its side. Other UP cars are derailed. Metroliink and UP have staged heavy equipment for response. The railroad's safety fence between the track and a residential development was cut by the first responding law enforcement unit to get access to the accident scene. A fence protecting a school from the tracks was taken down to permit access for first responders between the track area and the helicopter landing zone. There is debris spread along the Metrolink wreckage that was removed from the cars during the search and rescue process.

Learning Objectives for the Exercise

1. Ensure that participants know who would have been part of the Fire ICP, including which transportation sector representatives.

2. Ensure that participants know their roles and how they would have been notified to go to the scene of an event.

3. Ensure that participants know how to transition IC from one department/agency to another, including IAP creation.

4. Ensure that participants know who manages the interoperable communications systems and how to contact them via some other mechanism (cell phone, e-mail, other radio) in case the system fails.

5. Ensure that policies are in place for the use of mobile equipment, such as Command Post Vehicle, Communication Vehicle, or other equipment belonging to Law and Fire that would be needed by the Transportation IC after Law and Fire leave; or for the transition from the Law or Fire vehicle to a Transportation-owned asset. Does Transportation need to acquire such assets?

6. Conduct track and vehicle damage assessment (rails, ties, ballast, wiring, signals, drains, fencing, signage, lighting, safety equipment, buried conduit for electrical and

phone lines and antennas, radio repeaters, other). Use appropriate documentation forms.

7. Complete field report to EOC regarding damage and responsible parties for the damage or reimbursement. What documentation does your jurisdiction require to reimburse victims, UP, adjacent property owners?

8. What PPE, safety equipment and professional equipment would Transportation damage assessment staff need? Do they carry it or how is it provided?

9. Confirm appropriateness and completeness of documentation of all damage.

10. Confirm knowledge of ICS coordination with Law and Fire Liaisons based on body parts and hazmat (fuels) findings, and need to manage the debris from the Metrolink cars that includes personal property of victims.

11. Confirm knowledge of reporting system for moving the damage assessment information from field ICS/Plans Section to the correct part of the Transportation Department.

12. Confirm knowledge of next steps for securing damaged areas and expeditious opening of the railroad. [length of time for safety clean-up of track, management of rail traffic during expeditious repairs; e.g., one track able to be opened using the siding? Length of time for emergency repairs, debris clearance and restoration of fencing, signals and other aspects to restore functionality

VII. EXECUTING PROCESS

At this point the exercise has been fully developed and is executed, with the Controlling Process monitoring the events. All activities related to the Executing Process have been determined in the Planning Process and documented in the Master Sequence of Events List (MSEL).

Only minor variations from the planned exercise are possible during the execution. The Exercise Director, Controllers and Evaluators may decide to shorten the exercise, change an aspect for safety reasons, or eliminate equipment because of malfunction or confusion about its use. In general, all changes should be avoided except for safety-driven concerns. Otherwise, deficiencies in planning, training or equipment should be noted by the evaluators and included in the Improvement Plan.

The time of exercise play precludes plan modification once the exercise is underway.

VIII. THE CONTROLLING PROCESS

ROLES OF EXERCISE STAFF: CONTROLLERS, EVALUATORS, FACILITATORS

The purpose of this section is to explain how the controllers or facilitators keep the exercise on track by providing the necessary injects and other critical information to the participants, so that participants can continue to work the problems that are presented in the exercise. The following glossary defines the roles of the various exercise staff members.

Controller	In an operations-based exercise, controllers plan and manage exercise play, set up and operate the exercise incident site, and possibly take the roles of individuals and agencies not actually participating in the exercise (i.e., in the Simulation Cell [Sim Cell]). Controllers direct the pace of exercise play and routinely include members from the *exercise planning team*, provide key data to participants, and may prompt or initiate certain participant actions and injects to the participants, as described in the *Master Scenario Event List (MSEL)*, to ensure exercise continuity. The individual *controllers* issue exercise materials to participants as required, monitor the exercise timeline, and monitor the safety of all exercise participants. Controllers are the only participants who should provide information or direction to participants. All controllers should be accountable to one senior controller. (Note: If conducting an exercise requires more controllers or evaluators than are available, a controller may serve as an evaluator. However, this typically is discouraged.)
Controller/Evaluator Debrief	The Controller and Evaluator (C/E) debriefing provides each controller and evaluator with an opportunity to provide an overview of the functional area they observed, and to discuss both strengths and areas for improvement. The lead evaluator should assign one or more members of the evaluation team to take detailed notes of the C/E debriefing discussion.
Evaluator	Evaluators, selected from participating agencies, are chosen based on their expertise in the functional areas they will observe. Evaluators use exercise evaluation guides to measure and assess performance, capture unresolved issues, and analyze exercise results. Evaluators passively assess and document participants' performance against established emergency plans and exercise evaluation criteria, in accordance with HSEEP standards. Evaluators have a passive role in the exercise and only note the actions/decisions of participants without interfering with exercise flow, except for safety concerns.
Facilitator	Facilitators work with the participants to verbally create a course of action before participants execute the course of action for that learning station. They do not direct the participants in a correct course of action, but rather solicit their ideas and suggestions as the plan develops, and point out the ramifications of the potential courses of action the participants develop. Where necessary, they provide additional information about the scenario to compensate for artificialities that may be adversely impacting the participants' decision-making. They must be subject matter experts who are respected by the participants.

The controllers or facilitators control the tempo and volume of injects during exercise play. In a full scale exercise controllers give general descriptions of the circumstances and allow the participants to develop and execute their plan. In a facilitated exercise the facilitator interacts with the participants as they develop their plan, and does not permit play to begin at that learning station until a plan that meets the exercise objectives and follows established plans and departmental standard operating procedures (SOPs) has been developed. Thus, the controller in a full scale exercise notes deficiencies that have occurred during play, while the facilitator notes the issues that required redirection or rethinking by the participants.

The controllers or facilitators should note any deviations from the expected responses to the exercise scenario problems, such as work being done by a different element than

anticipated or different strategies being employed. For example, lacking a hose connection, one fire department truck company used its water fire extinguishers to decontaminate CBRNE victims.

Communication must be established among the controllers or facilitators, especially if they are geographically separated, or if a Sim Cell is involved. A personal cell phone, RACES radio operators functioning as shadows, radios on their own separate exercise frequency, or runners may be used to establish the communications links. The purpose is to coordinate the tempo of activities or make adjustments in exercise play that are noted by the controllers or facilitators at different points of the exercise space.

The evaluators are there in a passive capacity to collect as much information as possible about the participants' efforts to find solutions to the problems. The evaluators will have pre-identified items or activities that should be observed during play. Evaluators, controllers and facilitators need to have a detailed operational understanding of the participants' standard operational procedures, as well as of those plans that are being exercised.

All exercise participants are part of the safety team, and there is a responsible safety officer who will have included a safety message in the exercise documentation. However, the controllers/facilitators and evaluators are in a unique position to note safety plan violations or developing unsafe conditions during play. This group should be reminded immediately prior to exercise play of that unique position, and that they should intervene as necessary to ensure safe operations during the exercise. Exercise play may be stopped to prevent or address a safety problem. Any safety issues that were observed during the exercise should be included in the Controller/Evaluator Debrief.

CONTROLLER/EVALUATOR DEBRIEF

The final step of the controlling process is the Controller/Evaluator Debrief, which should include the exercise director, the exercise planning staff, the evaluators and controllers (or facilitators when used) to reconcile what objectives have and have not been met by the participants. The meeting is convened by the Chief Evaluator. The purpose of the meeting is to ensure that the goals and objectives have been met, and to identify any gaps in performance that indicate the need for additional training or equipment. This step also provides closure for the personnel who have been involved since the beginning of the planning process. The controllers and evaluators will contribute their individual perspectives on the achievements of and gaps in the exercise.

IX. CLOSING PROCESS

AFTER ACTION REPORT/IMPROVEMENT MATRIX: ACTIVITIES AFTER THE EXERCISE

When the exercise activities have been completed, the closing process begins. During this segment the participants collaborate on the creation of the exercise documentation, including elements for the After Action Report and Improvement Matrix. This chapter uses a glossary and summary sections to describe the different types of activities.

HSEEP Glossary

Hot Wash	A Hot Wash is a facilitated discussion held immediately after an exercise among exercise participants from each functional area. It captures feedback about any issues, concerns, or proposed improvements participants may have about the exercise. The Hot Wash is an opportunity for participants to voice their opinions on the exercise and their own performance.
Participant Feedback Form	Participants and observers receive a Participant Feedback Form after the end of the exercise that asks for input regarding observed strengths and areas for improvement that participants identified during the exercise. Providing Participant Feedback Forms to participants during the exercise Hot Wash allows them to provide evaluators with their insights into decisions made and actions taken. A Participant Feedback Form also provides participants the opportunity to provide constructive criticism about the design, control, or logistics of the exercise to help enhance future exercises. Information collected from feedback forms contributes to the issues, observations, recommendations, and corrective actions in the After Action Report/Improvement Plan.
After Action Report (AAR)	The After Action Report (AAR) summarizes key exercise-related evaluation information, including the exercise overview, exercise design summary, and analysis of objectives and core capabilities. The AAR is usually developed in conjunction with an IP. The lead evaluator and exercise planning team draft the AAR and submit it to conference participants before the After Action Conference.
Improvement Plan (IP)	The Improvement Plan (IP) identifies specific corrective actions, assigns them to responsible parties, and establishes target dates for their completion. The IP is developed in conjunction with the After Action Report.
After Action Conference (AAC)	The After Action Conference (AAC) is a meeting held among the lead evaluator, members of the evaluation team, and exercise stakeholders to debrief the exercise and to review and refine the draft AAR. The AAC should be an interactive session, providing attendees the opportunity to discuss and validate the analytical findings in the draft AAR.

HOT WASH

Once the exercise has been completed the Exercise Director immediately convenes a meeting (Hot Wash) of the exercise participants. The purpose is to collect information about the exercise and its value, and to determine what actions have to be corrected. This may include the need for more training, different equipment, different strategies or a different use of personnel or equipment. The Hot Wash may be conducted in different ways, depending on the types of exercise being documented. These methods are described below.

Seminars and Workshops

Exercise components that are principally oriented toward information and education can best be evaluated using a written feedback form, especially when many people are attending.

As with any class, the goal is to impart information in a readily understood manner, and to ensure that the recipients are confident that they understood the information and can apply it. Thus, the feedback form concentrates on participant understanding.

Tabletop Exercises

Tabletop exercises usually have from 10-30 people to ensure that everyone has time to speak. In such a small group, the Hot Wash may be a more informal facilitated discussion, or a hardcopy form may be used. In either case, the purpose is to determine whether the exercise goals and objectives were met, any deficiencies were observed, and to identify any new ideas that developed from the exercise.

Another technique is to give each participant about 10 Post-It notes (with extra Post-Its available on the table), to record individual ideas or concerns; one idea per Post-It. Put up three sheets of paper on easels or taped to the wall with painter's tape. On one paper write "What went well," on another write "Needs improvement," and on a third write "Never again." Invite the participants to put their Post-It notes on the appropriate board. Have exercise staff members collect the notes into groupings of similar ideas. Have one staff member at each paper, and have that person read the notes for that topic, providing combined wording for the groupings, and then reading single notes. This results in a quick development of consensus issues, and allows time for discussion of outliers, which may prompt agreement from other participants when it is read. After all the comments have been read, facilitate a discussion of the goals and objectives, and inviting ideas for future training, equipment acquisition and tabletop topics.

Games

These are force-on-force events, usually focused on law enforcement or security and an adversary. They may be based on computers or face-to-face discussion between two teams of moves and countermoves. Since this system is seldom used by transportation personnel outside of law enforcement, the Hot Wash will be focused on that single profession, and should be developed and managed by law enforcement or security leadership. They may use tabletop-style evaluation procedures.

Drills

Drills focus on one skill. It may be as large as a whole building evacuation or as small as fire extinguisher training for a work group. Since there is just one skill being tested, the written feedback forms are the most efficient way to get information about the success and value of the event.

Functional, Facilitated and Full Scale Exercises

In a functional exercise each participant works on an individual tasks, many of which include interfaces with other participants, and some of which may be driven by external injects and artificialities. The goals and objectives may be different for different EOC sections or field-level work groups. Therefore, the most efficient way to collect information on the

successes and areas for improvement is a combination of the written feedback form and the group discussion with the Post-It notes. Because these groups may be large, it may be necessary to have the people with the same goals and objectives hold the Hot Wash together, with exercise staff members facilitating each separate, goal-based group. The staff then brings the individual group material to the Exercise Director for inclusion in the exercise report.

The facilitated exercise may have several groups of people participating in the learning stations over the course of the day. It is best to collect written feedback at each learning station as the group passes through, and hold a Hot Wash meeting with selected leaders from each profession that is participating. The Hot Wash meeting then uses the Post-It system for collecting feedback, leading to a discussion of the points raised by those present.

The full scale exercise is likely to have 50 or more participants, and may be citywide or regional, making face-to-face communication difficult. Each participant should complete a feedback form. Leaders of various sections or segments should meet for a Hot Wash meeting using the Post-It format. Exercise evaluators can collect information at each section or segment meeting, and add it to the material on which the After Action Report will be based.

PARTICIPANT FEEDBACK FORM

Regardless of the type of exercise, written feedback forms offer the best documentation of participant reactions to the event. Feedback should be solicited first on the goals and objectives of the exercise. Next the reactions of the participants to the exercise format and conduct should be noted. HSEEP has created templates available at the HSEEP homepage Policy and Guidance document library (no date) for collecting various types of exercise-related information.

AFTER-ACTION REPORT

The Exercise Director tabulates the Participant Feedback forms, and collects the comments for use in the After Action Report (AAR). The comments should be limited to responses to the goals and objectives of the exercise. Additional information from participants may be used to design future exercises. The Exercise Director also collects information from the exercise evaluators for use in the AAR and the Improvement Plan (IP).

The AAR/IP format is available from HSEEP (2013a). An example of the verbiage used in an After Action Report is in Annex B of this document.

AFTER-ACTION CONFERENCE

The Exercise Director meets with the evaluators and controllers to review the draft AAR. They collaborate on the creation of the final AAR, out of which grows the list of action items for inclusion in the IP. Participants must develop consensus on “strengths, areas for improvement and capability gaps” (HSEEP, 2012).

IMPROVEMENT PLAN

The Exercise Director will consider the comments from participants and evaluators in developing the Improvement Plan. This plan is intended to provide a list of specific actions that will be taken as a result of the lessons learned from the exercise. These may be planning elements, training elements or equipment elements. Each improvement element must be tied to one of the core capabilities that the agency is required to achieve. The core capabilities list is included in the Research Report (Part One) for this document. Each improvement action must be assigned to a specific organization with specific start and end dates.

The AAR/IP is circulated to exercise participants and their agencies, with a focus on those participating in the Improvement Plan. (HSEEP, 2013c). The AAR/IP must also be submitted with some federal grants. (LYNC, 2013) In many cases future grant funding is tied to support to complete the AAR/IP elements as a priority. Requests for other planning, training and equipment funding will be contingent on the completion of the AAR/IP elements first. The stakeholder organizations should also track the completion of items on the IP matrix to ensure appropriate allocation of exercise resources for future events.

An example of the verbiage used in an Improvement Plan matrix is also in Annex C of this document.

X. POINTS TO CONSIDER: ADVICE FROM THE EXPERTS

Source: Conversations with transportation agency subject matter experts listed in the Acknowledgements section of this guide's accompanying research report (Part One). Points have been developed in many cases from multiple comments on a similar issue.

PLANNING

1. Finding Exercise Funding

Some agency representatives noted that funding for exercises is difficult to find. The Federal Railroad Administration (FRA) mandates annual exercises but does not provide funding for any of the costs. The Transit Security Grants Program (TSGP) offers the opportunity to request grant funding for exercises under Operational funding. However, all TSGP finding is now based on Investment Justification that is rated competitively across the nation for grant awards, meaning that exercise funding has to compete with other Operational needs in other organizations.

Reference: FEMA [Federal Emergency Management Agency]. Transit Security Grant Program (TSGP), Funding Opportunity Announcement (FOA). May 28, 2013. http://www.fema.gov/library/viewRecord.do?id=7475 (accessed June 18, 2013).

2. Seek guidance and help from others

Exercises using ICS have been conducted by the fire service for over 30 years. AARs from those exercises are posted on the Lessons Learned Information Systems (LLIS) website (FEMA, n.d.). Some reports are open-sourced at https://www.llis.dhs.gov/, while more descriptive reports may only be available from the password-protected portion of the website. Register to use LLIS as soon as you are assigned to create an exercise, and then review the AARs of other agencies for ideas. Also, seek help from an experienced exercise practitioner in your jurisdiction or an adjacent jurisdiction. You can find someone through your county or state office of emergency management, either an emergency management practitioner or a fire service exercise director. Ask this person to be your mentor through your first exercise design and implementation cycle.

3. Scheduling the exercise: Working with volunteer fire departments

Remember that the FRA requires an annual exercise that includes first responders. While large-city fire departments may see the value in involving their paid professional staff in exercises, the volunteer fire departments in smaller communities may not have the capacity to participate in a large full scale exercise. You may be able to use a planned special event like a parade or county fair to design a full scale exercise with practical value for the volunteer fire department. Follow Radow's (2007) guide to create a tabletop exercise that supports the planning for the planned special event.

4. Scheduling the exercise with paid professional fire departments

When scheduling the FRA exercise with a paid professional fire department, start the discussion at least six months in advance so that the exercise may be incorporated into the department's budget and training schedule. Remember that action-based exercises usually require the fire department participants to be off-duty personnel on paid overtime, or on-duty personnel being backfilled by overtime staff. In either case, there is a significant cost to the fire department. Integrating the required FRA and FTA exercises with exercises that the fire department is required to hold benefits all participating agencies and gets the greatest benefit from the investment of time and planning funds. By collaborating with first responder agencies to do an exercise that meets the needs of multiple departments you also avoid "drill fatigue," people just being tired of participating in exercises.

5. Use actual events as the exercise scenario basis for the most value

Every community has had some kind of emergency response by its transportation sector. Find a real event and use it to develop the scenario for the exercise. If there were many things that needed to change from the actual response, repeat the event scenario as it occurred and see if intervening planning and training makes for a better outcome. If the response was handled well, recreate the scenario in a different part of the service area, or using a different set of limitations (fewer resources immediately available, or a holiday weekend time frame, for example) to see if the participants can overcome new challenges. Make sure to keep documentation of real major accidents, storms, floods and other hazardous events to use for future exercise scenario development. New camera technologies, including 3-D laser scanners, allow for a reconstruction of an actual event that can create immediacy in a discussion- based exercise, as participants can view the event scene from multiple vantage points. Participants are more likely to take the scenario seriously if they know something similar really has happened in their community or region. Avoid no- win scenarios, as little is learned and participants become frustrated and may refuse to collaborate again.

6. Communication systems make a good exercise focus

Most transportation agencies have layers of communication available during normal operations. In addition to truck-mounted radios, which may be dependent on repeaters mounted on storm-vulnerable towers and buildings, many agencies have handheld radios, Blackberries, cell phones and satellite phones. During a disaster these same technologies are used by multiple first responder agencies as well as members of the public. After the World Trade Center Tower 1 collapsed on September 11, 2001, taking with it the repeater farm on its roof, the northern troop of the New Jersey State Police lost all its internal communications capability. During Superstorm Sandy, agencies used Blackberries, and found that their messages took six to eight hours to be delivered. A good exercise will include the use of multiple communications resources to ensure that agency employees are familiar with their options, know where the "dead spots" are within the jurisdiction, and know how to work with RACES (amateur radio)

volunteers to add layers of capability. Fall-back resources such as runners and car-to-car radio communication should be practiced.

7. Site selection options

Many commuter railroads share track with Amtrak or a commercial freight company. This may make it difficult to organize a rail-based exercise, if your agency does not have a switching yard in its jurisdiction. Consider joining with a neighboring jurisdiction that does have a switching yard or separated siding, or contact a private sector company with a private siding for use of their facilities during their off-hours. This can create a public-private partnership for training, allowing their staff to be part of some of the training at no cost, in exchange for the use of their siding for your exercise. Note that there may be risk management issues to be settled with the private sector partner, including hold harmless agreements and insurance policies that might have to be approved by the transit agency governing body, and that might require payment of a premium. Also note that such arrangements can add six months or more to the planning cycle, so start early.

8. Exercise timeline development

Developing the exercise timeline can be complex when multiple agencies and jurisdictions are involved. An exercise involves several phases of planning that have to be well coordinated to achieve readiness on the date that the exercise is to be held. One solution is to use project management software that will identify the critical node points where everyone's work has to coincide, such as delivery of injects, property commitments, staffing lists, and training dates. One such software application is Oracle's Primavera Contract Management (Oracle, n.d.), which is used by SEPTA. This is construction management software that they use to design the exercise schedule, creating a line diagram of activities. This will substitute for Gantt charts that can be difficult to manage when time changes occur, as the software will update all the cascade of subsequent activities that are impacted by the time change. SEPTA noted that an agency should use whatever project management software that agency's construction staff uses, as they will be available to mentor exercise staff with the initial application of the software to exercise planning. Investigate whether a separate license will be required for the emergency management staff and how much that will cost.

9. Select facilitators/evaluators who know your organization

Many organizations recruit exercise facilitators and evaluators from outside of their own organization because they do not have adequate staff to both play the required roles and manage the exercise. Be sure to select people who know your organization well, and who are known and respected by the members of your organization.

In a Facilitated Exercise the facilitator manages the discussion among the participants as they develop solutions and action plans. Therefore, this person must command the trust and respect of the participants whose actions he will be commenting on during the discussions at each learning station. The participants must have confidence that

this person is a subject matter expert, and is also familiar with their organization and its needs.

In other forms of exercises (discussion-based or action-based) the evaluator must be both a subject matter expert (for the areas to be evaluated) and also some- one who is familiar with the organization's structure and resources. Evaluation must be specific to that organization, based on its emergency plan and command and control system (ICS) organization, not generic. For example, the evaluator must understand what element of the transportation agency will serve as IC in an event with a transportation lead, and what element will participate in Operations or Logistics in a multi-agency command post with another agency (police, fire, EMS, public health) in the lead. Therefore, local practitioners are preferred over contractors or out of area "experts."

10. Provide food for participants and victim volunteers

Use of Fire or Police Associates (volunteer support organizations), Red Cross or Salvation Army should be considered to provide food for larger events during rehabilitation. Using these resources reflects some of the services these organizations may provide in real events. Work through law enforcement or fire for their respective volunteer support service, or contact Red Cross or Salvation Army directly. While federal funding may not be used to purchase food, the locally-provided exercise budget should include funding for the purchase of the hot beverages, water and food needed for personnel, but the volunteer organizations can staff the distribution of the drinks and meals.

If sandwiches are going to be provided, a ratio of 90% turkey and 10% vegetarian is recommended, with onions, peppers, pickles, mayonnaise and mustard kept "on the side."

11. Communications plan development

The communications plan lists the assets that will be used for communications within the exercise. The more complex the exercise, the more robust the communications plan must be. The exercise designers should determine the lines of communication that need to be available to the various participants – controllers, evaluators, safety personnel, support personnel and others. As noted above, RACES amateur radio operators are one method of communications. However, other methods may be needed due to the size or design of the event. Table 5 lists some options and their benefits and challenges.

Table 15. Communication Plans Elements

Communications Plan System	Optional Methods	
	Positive Attributes	**Negative Attributes**
RACES (amateur radio)	Multiple frequencies, extended range, remote access.	Must have FCC licensed radio operator and must be sanctioned by ARES or RACES; creates “party line” where all users hear the messages.
Dedicated radio channels	In-house asset, involves dispatch staff in training.	May have real world operational impacts as it ties up frequencies for the duration of the exercise; creates “party line” where all users hear the messages.
Cellular phones	Ease of use, availability.	Requires creation of a phone directory. One-to-one communication, excludes most of the participants from the information, which requires further dissemination of the information, which takes time
Landline phones	Ease of use, availability in indoor settings.	Requires creation of a phone directory. One-to-one communication, excludes most of the participants from the information, which requires further dissemination of the information which takes time. Not mobile.
Satellite phones	Extended range, opportunity to test a seldom used system.	Difficult to use, expensive, inconsistent connection. Must have line-of-site with satellite (i.e., not indoors or under heavy tree canopy). Requires creation of a phone directory. One- to-one communication, excludes most of the participants from the information, which requires further dissemination of the information, which takes time.
Texting	Commonly used, available on most cell phones, provides documentation of the communication, can be sent to multiple users at the same time. Mobile.	Not everybody receives texts. Acronyms may be a distracter. Must develop a directory of text addresses. No confirmation that message was received.
E-mail	Commonly used, available in most indoor settings, provides documentation of the communication, can be sent to multiple users at the same time.	Only available indoors unless participants have a data plan and have their phones configured to receive e-mail. Must allow significantly more time for response. No guarantee that the individual received the message. Must develop a directory of e-mail addresses, and individuals may not wish to provide personal addresses.

TRAINING

1. Report for Work/Disaster Service Worker training
Public agencies depend on their personnel to come to work, even during declared disasters, to ensure that there are adequate staff members to manage the emergency operations center (EOC), the continuity of operation plan activities (COOP) and the rapid damage assessment, debris removal, repair and restoration of service required to support the public safety responders. Pre-exercise training should include a refresher segment on the labor agreements and state laws that obligate specified transit and transportation personnel to stay at work or go to work during a declared emergency. The training should include information on how the employee will be notified, what to do if the communication systems in the community are not working, and exactly where employees should report for duty. Make it clear that all Operations and Maintenance personnel are essential workers and must report for duty. In addition, the training should include a segment on home and family preparedness so that employees' families are prepared to cope with the disaster without the employee. Annex D contains a selection of sample home and personal preparedness fliers that might be distributed to help employees get prepared. These should be modified to account for the most common disasters in your agency's jurisdiction.

2. Exercise preparation: 2, 4, 6, 8
The Annotated Bibliography (Annex C) contains information on FEMA Independent Study courses that prepare students to develop and conduct exercises. These are free, on-line courses that a student may take on a computer, at his convenience. A newly assigned exercise manager should take as many of these courses as time permits, prior to beginning the exercise cycle. The recommended schedule is shown in Table 6.

Table 16. On-Line, Free Emergency Training Courses and Suggested Study Time Frame

Time Before Assignment and Planned Exercise	Course
2 months	IS-100 PW.b
	IS-120.A
4 months, include	IS-700
	IS-130
	IS-800.B
	IS-801
6 months, include	IS-139
	IS-821
	IS-921
	IS-921 Toolkit
8 months, include	IS-860
	IS-913

More time	All other courses mandated as MEPP prerequisites – see list in Annex C

EXERCISES

1. Evaluate only your own agency and profession

In multi-jurisdictional and multi-profession exercises, evaluators should be selected from each profession and jurisdiction, and only evaluate the performance of their agency's personnel. This lessens the pre-exercise study of plans for the evaluators, and also ensures that the evaluator understands the role of the agency he is evaluating.

2. Include observers from other agencies

Agencies may benefit from having observers from other agencies present at their exercises. The observers can provide insights into areas where the agency's plans may need to be coordinated with near-by jurisdictions, and may offer suggestions for improvement based on the way other agencies in the region handle similar events.

3. Video the exercise

Make a video of the exercise. This can be useful for training future employees, for updating someone who missed the exercise, for briefing senior staff on the value and benefits of exercises, and for improving future exercise delivery. If you cannot afford a professional videographer, see if the participating fire or police department has a videographer who could be part of the exercise team. Alternatively, contact the local community college's media communications department to see if second year students could use making a video of your exercise a class project, for extra credit, or as an internship. Student labor rates through the college will usually be

$15 or less per hour (in 2013), and if it is work done for class credit it might be at no cost to your agency. If your agency has a relationship with a RACES (amateur radio) organization, their members may be volunteer videographers for your event. They may also have access to amateur television technology that would allow people in the command post to see the field events unfold. This can be recorded for future use, as well. If these ideas fail, ask any agency member with a video phone or cam- era to capture the photographic evidence of the exercise, even if the sound is not usable. A voice-over narration can be added later through a vendor, or internally, if the capacity is developed.

4. Use a sandbox

Sometimes it is difficult to envision actions during discussion-based exercises. In a facilitated exercise the full scale aspect (getting people to leave the discussion and move vehicles as ideas are discussed) may interfere with the discussion focus, and in a full-scale event some aspects may have to be simulated due to cost and space. Therefore a "sandbox" approach may enhance the exercise and participant learning. This approach is used by the military to track large-scale field operations that cannot readily be observed from one vantage point, as well as for complex maneuver planning, like the management of aircraft on an aircraft carrier.

In advance of the event make a floor map to scale of the exercise site using a large plotter, or visqueen (heavy plastic sheeting used in roofing) and colored tape. Cut out sandpaper makes good simulated roadbed, and bridges, while overcrossings and waterways can be created using paint or construction paper. Purchase Matchbox vehicles, and HO-scale model building kits and traffic signals to create the exercise environment. Exercise participants can move the vehicles as they develop a response plan, enabling them to see where they might create congestion, which routes are blocked, and where staging areas might be optimally located.

5. Provide rehab after exercises

At the end of the exercise, ideally before the Hot Wash, every participant should go through a “rehab” station that is similar to the staff rehabilitation system used by the fire service. It should be a relatively quiet and shady place, with water and simple snacks available. This is a good place to have a department psychologist discuss incident stress and the importance of peer debriefing groups. If your agency does not have a post-event incident debriefing plan, discuss how to develop one with your local fire department. Exercise participants may develop stress reactions to the simulated events, especially if they have been to a real event that is similar to your simulated one, where someone was hurt or killed, or there was significant environmental damage. Known as the “echo effect,” this second experiencing of a tragic event can be stronger than the reaction to the initial event.

ANNEX A: GLOSSARY

Sources of information and concepts: FEMA Independent Study Courses, various years; Edwards and Steinhausler, 2007; Project Management Institute, 2008; Ontario Ministry of Community Safety and Correctional Services, 2012.

GLOSSARY

Action Plan	Written plan created from the Action Planning Briefing that includes goals and objectives, operational period, maps, organization charts and any auxiliary plans, to be used during the covered operational period.
Action Planning Briefing	A meeting held, as needed, throughout the duration of an incident to select specific strategies and tactics for event control operations and for service and support planning. The Action Planning Briefing allows all General Staff to collaborate and the Management Section Chief to develop the Action Plan.
Agency	An agency is a division of government with a specific function or a non-governmental organization (e.g., private contractor, business, etc.) that offers a particular kind of assistance. In ICS, agencies are defined as jurisdictional (having statutory responsibility for incident mitigation) or assisting and/or cooperating (providing resources and/or assistance).
Agency Representative	An individual assigned to an incident from an assisting or cooperating agency who has been delegated authority to make decisions on matters affecting that agency's participation at the incident. Agency Representatives report to the Liaison Office.
Artificialities	The conditions created by the design of an exercise that do not simulate or mirror actual conditions. The use of artificialities may interfere with the participant's ability to respond realistically.
Branch	The ICS organizational level having functional responsibility for major operations. The Branch level is, organizationally, between the section and the group or unit.
Buffer Zone Protection Plan	A plan to provide stand-off and perimeter protection to critical infrastructure elements. Federal funding was available to assist with the creation and implementation of the plan.
Business Continuity	Plans for business to continue after a disaster or emergency, including plans for alternate locations and data recovery.
Cascading Event	An emergency or disaster that starts by impacting a discrete area or single sector, and then causes additional follow-on damage in other areas or sectors.
Catastrophe	A natural, technological or human caused event that overwhelms existing plans for disasters and emergencies, causes widespread or economically significant damage across multiple jurisdictions, and requires significant outside assistance, including federal response.
CBRNE Terrorism	Chemical, biological, radiological, nuclear, or explosive/incendiary materials used against a human population to create social or political change.
Chiefs	The ICS title for the General Staff individuals responsible for supervision of functional sections: Operations, Planning, Logistics, and Finance/Administration.
Command Staff	The EOC Command Staff consists of the Information Officer, Safety Officer, Security Officer, Emergency Management Coordinator and Liaison Officer. They report directly to the Management Section Chief. They may have an assistant or assistants, as needed.
Communications Plan	A list of communications resources that will be used to support the exercise, including which organizations are assigned to which methods/channels. May be documented using the Incident Radio Communications Plan (ICS-205.) (FEMA, ICS Resource Center, no date).
Continuity of Operations	Plans for a government entity to continue providing essential services after a catastrophic event, including alternate locations, vital records preservation and communications systems.
Critical Infrastructure	Public and private assets that are essential to the operation of society's public health and safety, security, and economy.
Deputy	A fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operation or perform a specific task. In some cases, a Deputy could act as relief for a supervisor and therefore must be fully qualified in the position. Deputies can be assigned to the Incident Commander, General Staff, and Branch Director positions.
Director	The ICS title for individuals responsible for supervision of a Branch.
Disaster	A natural, technological or human caused event that overwhelms the usual systems of emergency response and requires outside assistance.

Emergency Management	A system for organizing resources to mitigate against, prepare and plan for, respond to and recover from emergencies and disasters.
Emergency Operations Center (EOC)	A pre-designated facility established by an agency or jurisdiction to coordinate the overall agency, or jurisdictional, response to an emergency or disaster event.
Emergency Services Coordinator	The individual within each political subdivision that has coordination responsibility for jurisdictional emergency management.
Exercise Plan (EXPLAN)	The participant handbook for operations-based exercises which provides controllers, evaluators, participants, and observers with information such as the exercise purpose, scope, objectives, and logistical information.
Finance/ Administration	The section responsible for all event costs, reimbursements, and financial considerations. Includes the Time Unit, Procurement Unit, Compensation/Claims Unit, and Cost Unit.
Fusion Center	A location where law enforcement and federal homeland security entities meet to evaluate streams of information and convert it to actionable intelligence to enhance safety and security.
General Staff	The group of personnel reporting to the Management Section Chief: Operations Section Chief, Planning Section Chief, Logistics Section Chief, or Finance/Administration Section Chief.
Hazardous Material	Any material so categorized by federal or state law that is capable of doing harm to humans or the environment through routine or accidental exposure.
High Threat Urban Area	An urban area in the United States that has been evaluated using risk analysis techniques and determined to have many hazards and vulnerable populations and facilities that, if damaged, would have significant security or economic consequences.
Homeland Security	A concept developed after the terrorist attacks of September 11, 2001, to enhance the safety, security and emergency management of domestic communities and resources, including critical infrastructure.
Homeland Security Presidential Directive 7	A directive issued by President George W. Bush that required identification, prioritization and protection of the nation's critical infrastructure.
Improvised Explosive Device (IED)	An explosive device made by an individual using components and explosive materials gathered from the normal commercial supply chain, not commercial or military explosive devices.
Incident Action Plan (IAP)	Created by the Incident Commander in the field during an ICS event. Contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period. The IAP may be oral or written.
Incident Command System (ICS)	A standardized emergency management concept specifically designed to allow its users to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents without being hindered by jurisdictional boundaries.
Incident Commander	The individual responsible for the management of all incident operations at the incident site in the field.
Incident Objectives	In the field, statements of guidance and direction necessary for the selection of appropriate strategies and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed. Incident objectives must be achievable and measurable, yet flexible enough to allow for strategic and tactical alternatives.
Lessons Learned Information System (LLIS)	A FEMA website where AARs and related exercise materials are posted, along with other useful reports, articles and videos. Access to https://www.llis.dhs.gov/ is open to all, while access to the secure portion is password protected. All exercise directors for public entities may register for a password, as may many private sector partner agency staff members.
Liaison Officer	A member of the Command Staff responsible for coordinating with representatives from cooperating and assisting agencies.
Logistics Section	The section responsible for providing facilities, services, and materials for the incident or in the EOC.
Management by Objective	In ICS, this is a top-down management activity that involves three steps to achieve the incident or EOC goal. The steps are: establishing the objectives, selection of appropriate strategies to achieve the objectives, and the tactical (in the field) or strategic (In the EOC) direction associated with the selected strategy. Tactical direction includes selection of tactics, selection of resources, resource assignment, and performance monitoring.
Mitigation	Steps taken in advance of a disaster to protect populations and critical infrastructure, or to lessen the damage they incur.
Multi-Agency Coordination System (MACS)	The combination of personnel, facilities, equipment, procedures, and communications integrated into a common system. When activated, MACS has the responsibility for coordination of assisting agency resources and support in a multi-agency or multi-jurisdictional environment.

Mutual Aid Agreement	Written agreement between agencies and/or jurisdictions in which they agree to assist one another upon request by furnishing personnel and equipment.
National Incident Management System (NIMS)	Developed by the Secretary of Homeland Security at the request of the President, the National Incident Management System (NIMS) integrates effective practices in emergency preparedness and response into a comprehensive national framework for incident management. Based on ICS, the NIMS enables responders at all levels to work together more effectively to manage domestic incidents, no matter what the cause, size or complexity.
National Infrastructure Protection Plan (NIPP)	A national plan for protecting locations and resources in specified sectors within the United States, including transportation and utilities.
Officer	The ICS title for the personal responsible for the Command Staff positions of Safety, Liaison, and Information.
Operational Period	In the field, the period scheduled for execution of a given set of operation actions as specified in the Incident Action Plan. Operational Periods can be of various lengths.
Operations Section	The Section responsible for all tactical operations at the incident or, in the EOC, for supporting field operations. Includes Branches, Divisions and/or Groups, Task Forces, Strike Teams, Single Resources, and Staging Areas in the field; branches, groups, and units in the EOC.
Planning Section	Responsible for the collection, evaluation, and dissemination of information related to an event, and for the preparation and documentation of Action Plans. The Planning Section also maintains information on the current and forecasted situation and on the status of resources assigned to the incident. Includes the Situation, Resource, Documentation, and Demobilization Units, as well as Technical Specialists.
Preparedness	Steps taken in advance of an emergency or disaster to organize resources to enhance safety; includes planning, training, exercising and stockpiling.
Project Charter	A document issued by the project initiator that formally authorizes the existence of a project, and provides the project manager with the authority to apply organizational resources to project activities.
Public Information Officer (PIO)	A member of the Command Staff responsible for interfacing with the public, media, or with other agencies requiring information directly from the incident or the EOC. There is only one PIO per incident in the field. There is a PIO in the EOC whenever it is opened.
Recovery	Steps taken after a disaster to repair damaged property, restart the economy and repair critical infrastructure functionality.
Response	Steps taken during a disaster or emergency to save lives, protect the environment and protect property including critical infrastructure.
Risk Assessment	A systematic review of potential hazards, vulnerabilities and consequences focused on a specific location, community or economic sector.
Safety Officer	A member of the Command Staff responsible for monitoring and assessing safety hazards or unsafe situations and for developing measures for ensuring personnel safety. In the EOC, this includes ensuring the psychological safety of the EOC staff by ensuring regular shift changes are planned for and that appropriate food is delivered in a timely fashion during prolonged activations.
Safety Plan	Defines safety considerations for the specific exercise activities, including a code word to announce a real-world emergency.
SCADA	A computer system which controls and monitors a process. This process can be infrastructure, facility or industry based.
Section	The organizational level with responsibility for a major functional area of the event (e.g., Operations, Planning, Logistics, Finance/Administration). The Section Chief works directly for the Management Section Chief and oversees branches, groups and units.
Span of Control	The supervisory ratio: in the field, ranges from one supervisor for three to seven individuals, with five workers to one supervisor being optimum. In the EOC there is no minimum, and up to 10 personnel may report to one supervisor.
Staging Areas	Staging Areas are locations set up at an incident where resources can be placed while awaiting a tactical assignment. The Operations Section manages Staging Areas.
Toxic inhalation hazard	A material that causes distress, injury or death to humans or animals through inhalation
Transportation management center	A location at which the transportation agency collects and analyzes information about the operation of the transportation and transit systems in the community, integrating information from the Intelligent Transportation System technology, such as road sensors and traffic cameras.
Unified Command	Enables institutions and agencies with different legal, geographic, and functional responsibilities to coordinate, plan, and interact effectively.
Unity of Command	The concept by which each person within an organization reports to only one designated person.

Urban Area Security Initiative (UASI)	A federal program that provides terrorism preparedness, response and mitigation funding to the nation's largest cities and their adjacent communities.
Vehicle-Borne Improvised Explosive Device	An explosive device carried by a car, truck or other vehicle that is made by an individual using components and explosive materials gathered from the normal commercial supply chain, not commercial or military explosive devices.
Weapons of Mass Destruction	Generally, a characterization of large bombs, especially biological weapons, nuclear bombs or fire bombs, capable of destroying large areas and large numbers of people at the same time.
Weapons of Mass Disruption	Any explosive, chemical, biological, radiological or incendiary device capable of causing significant localized loss of life and property damage.
Weapons of Mass Killing	Any device capable of killing multiple people in brief period.

ANNEX B: SAMPLE PARTICIPANT FEEDBACK FORM AND SAMPLE AFTER-ACTION REPORT: IRON HORSE 2005

Participant Feedback Form

Exercise Name: Exercise Date:

Participant Name: _____ Title: _____

Agency: _____

Role: Player Observer Facilitator Evaluator

Part I: recommendations and corrective actions

1. Based on the exercise today and the tasks identified, list the top 3 strengths and/or areas that need improvement.

   _____
   _____
   _____

2. Is there anything you saw in the exercise that the evaluator(s) might not have been able to experience, observe, and record?

   _____
   _____
   _____

3. Identify the corrective actions that should be taken to address the issues identified above. For each corrective action, indicate if it is a high, medium, or low priority.

   _____
   _____
   _____

4. Describe the corrective actions that relate to your area of responsibility. Who should be assigned responsibility for each corrective action?

   _____
   _____
   _____

5. List the applicable equipment, training, policies, plans, and procedures that should be reviewed, revised, or developed. Indicate the priority level for each.

   _____
   _____
   _____

Part II – Exercise Design and Conduct: Assessment

Please rate, on a scale of 1 to 5, your overall assessment of the exercise relative to the statements provided below, with 1 indicating strong disagreement with the statement and 5 indicating strong agreement.

Table C.1: Participant Assessment

Assessment Factor	Strongly Disagree				Strongly Agree
a. The exercise was well structured and organized.	1	2	3	4	5
b. The exercise scenario was plausible and realistic.	1	2	3	4	5
c. The facilitator/controller(s) was knowledgeable about the area of play and kept the exercise on target.	1	2	3	4	5
d. The exercise documentation provided to assist in preparing for and participating in the exercise was useful.	1	2	3	4	5
e. Participation in the exercise was appropriate for some- one in my position.	1	2	3	4	5
f. The participants included the right people in terms of level and mix of disciplines.	1	2	3	4	5
g. This exercise allowed my agency/jurisdiction to practice and improve priority capabilities.	1	2	3	4	5
h. After this exercise, I believe my agency / jurisdiction is better prepared to deal successfully with the scenario that was exercised.	1	2	3	4	5

Part III – Participant Feedback

Please provide any recommendations on how this exercise or future exercises could be improved or enhanced.

Example After-Action Report

Iron Horse 2005: The First 15 Minutes
ACE Train UASI/San Jose MMTF

September 20, 21, 22: 9:15 am, 10:30 am, Noon / Each Day

EXECUTIVE SUMMARY

Iron Horse 2005 provided an opportunity for 290 Bay Area first responders and supporting volunteers to learn about the safe response to an accident of unknown origin on the railroad. A joint venture of the ACE UASI and the San Jose Metropolitan Medical Task Force (MMTF), the goal was to ensure that all first responders know what to do in the first fifteen minutes after an accident, regardless of their professional background. Participants included law, fire, emergency service and emergency medical services personnel from Alameda and Santa Clara Counties and their cities.

The exercise was comprised of four stations in the Facilitated Exercise format. Station One covered situational awareness, improvised explosive device (IED) review, and information about hazardous materials on the railroad. Thirty nine (39) IEDs were placed around the exercise grounds for participants to discover during the exercise. The goal was to reinforce the need for vigilance at all major events. Station Two covered railroad safety precautions and information on locomotives and their systems, and an overview of unified command with rail. Station Three covered the configuration of the various types of passenger rail cars in use in the Bay Area, and the unique problems of managing a multiple casualty response in them. Station Four focused on the patient, including the problems of extraction from confined spaces, and treatment of likely injuries. The exercise proceeded over three days, with three cycles of 3.5 hours each day.

Several weeks before the Facilitated Exercise there was a tabletop exercise that focused on the dispatching and communications elements of the response to a train accident. In addition to identifying important lessons about the communications issues, participants also validated some of the materials for the exercise.

On the middle day of the exercises Mayor Ron Gonzales invited the media to join him for a tour of the exercise area, including a review of the main points taught at each station. The goal was to reassure the community that first responders are aware of the potential for accidents and intentional crime against the railroad, and are preparing to ensure the safety of the victims of such events.

Volunteers from three groups assisted with the event. San Jose RACES provided exercise communications, and assisted with student movement from station to station. San Jose Search and Rescue staffed the check-in position, and assisted participants with logistics for the event. Fremont Fire Department Rehabilitation Team provided refreshments, including water at each of the learning stations, and lunch for the instructors each day.

Lessons learned will be shared with all participating agencies, with the hope that they will incorporate them in their on-going training, and in their equipment acquisition programs. A training DVD was made from the exercise, and will be shared with all participating jurisdictions, along with the supporting handouts.

EXERCISE OVERVIEW

Iron Horse 2005 provided an opportunity for the first responder agencies along the ACE Train route to consider the challenges of providing effective response and rescue to a rail accident with an unknown etiology. ACE Train UASI and San Jose Metropolitan Medical Task Force (MMTF) financially co-sponsored the offering of the 3.5 hour exercise, which follows the Facilitated Exercise format developed by San Jose MMTF under a grant from DHHS in 2000. The Kennedy School at Harvard University has selected the San Jose Facilitated Exercise model as a “best practice,” and has written a case for use in their Executive Management Training Program. (See Annex 2) Under the HSEEP model it could be considered a series of four sequential operations-based exercises.

A committee of MMTF and ACE Train staff met starting in September 2004 to develop a joint exercise that would inform first responders along the track regarding rail safety, rail equipment, and IED management. The Facilitated Exercise format is the standard training model used by San Jose MMTF since 2000, and was preferred by the committee. Experience with previous full scale exercises resulted in a group decision to emphasize quality training and hands on practice to ensure participant capability after the exercise.

Two hundred ninety (290) participants from law, fire, emergency services, emergency medical service agencies and volunteers participated in one of the nine exercise cycles. The scenario of a train derailment from an unknown cause provided the “tapestry” for the activities, creating an environment within which to solve the first responder field level problems presented at each learning station.

Participants included law, fire, emergency services and emergency medical services (EMS) personnel from Alameda County and Santa Clara County and their cities. The ACE UASI paid for overtime for first responder attendees along their tracks and their mutual aid partners, and the San Jose MMTF paid for the exercise development and instructional expenses. Mannequins and 39 IEDs were used to heighten the reality of the scenario, which was held at the Union Pacific Rail Yard in San Jose. Train cars and locomotives were provided by ACE and CalTrain. Instructors were provided by those organizations, Amtrak Police Department, San Jose Fire, San Jose Police, and Santa Clara County Health and Hospital System.

The IEDs were created by the Chief Facilitator to reinforce for the participants the variety and simplicity of the objects that could be used to create hazards for first responders. Simple backpacks of explosives through homemade Claymore mines and sophisticated derailing charges challenged the participants’ observation skills. Students were encouraged to share information with each other as they discovered the IEDs to reinforce the need for constant vigilance and communication at the scene of an event with an unknown etiology.

In preparation for the Facilitated Exercise, a tabletop exercise was held in September 2005 emphasizing dispatching and communications issues at a rail accident in an isolated location. The tabletop covered two accident scenarios, and enabled the exercise staff to validate some of the handout materials in advance of the facilitated exercise. One outcome of the tabletop was a list of additional resources that are needed to ensure the ability of rail and first responder personnel to communicate effectively at the scene of a multiple casualty event.

On the second day of the exercise Mayor Ron Gonzales invited the media to meet him for a tour of the exercise grounds, and a review of the goals at each station. Members of the media were able to film the stations and review the important lessons with each set of facilitators. Coverage of the exercise began at 5:15 am with a live shot from the rail yard, and continued through the noon news segments in the Bay Area.

The lessons learned from the exercise reinforced the focus of the exercise. First responder safety in an accident environment of unknown origin challenges the knowledge of each participant. Working on the railroad is a unique experience for most first responders, yet after Madrid and London it is clear that rail must be viewed as a potential terrorist target, as well as a potential accident site. The four learning stations provided opportunities for participants to receive written and verbal information that will ensure their safety, and assist with a rapid response to victim needs.

As a result of the success of previous Facilitated Exercises, San Jose MMTF created a training DVD that can be shared with personnel unable to attend the exercise, so that they can also benefit from the information. The video will be sent to all participating agencies, along with sets of handout materials, to encourage other companies and units to learn about IEDs and operations on the railroad.

EXERCISE GOALS AND OBJECTIVES

1. Ensure that first responders have the knowledge of the railroad and railroad operations to ensure their safety when they respond to an event on the railroad.

2. Ensure that first responders are aware of the hazard of IEDs at any emergency call, and can identify IEDs before they explode.

3. Ensure that first responders are aware of the hazardous materials that are carried on the railroad, and their potential for impacts at the site of an accidental or intentional multiple casualty event.

4. Ensure that first responders have an awareness of the types of passenger rail equipment that are in use in the Bay Area, and know about their dangerous components, and how to operate safely around them.

5. Ensure that first responders are able to safely access rail cars in a damaged condition, derailed, or on their sides.

6. Ensure that first responders can anticipate the types of injuries passengers may receive in an accident, and know how to manage those patients in the austere conditions of the more isolated portions of the Bay Area rail lines. Examples used were Niles Canyon and the mud flats in Alviso.

EXERCISE EVENTS SYNOPSIS

Tapestry: You are dispatched to the scene of a train accident. The report has come from an unknown person with a cell phone who has little information about the event or the condition of the passengers or cars. Your job is to confirm the event, provide an initial size up, including the need for mutual aid, and note any special precautions that other first responders should take as they travel to or arrive at the scene.

Event One: Initial responding unit may be police, fire, or EMS. They need to do an adequate size up, including assessing the type of problem (derailment, explosion, other accident), the probable number of victims, the presence of hazardous materials, and the presence of IEDs.

Event Two: Initial responding unit evaluated the condition of the locomotive, shuts it down safely, and develops unified command with available rail personnel, starting with the Conductor. Request and confirm that the rail line is shut down or secured by use of train numbers and mile markers.

Event Three: Initial responding personnel can report to their dispatch the information about the train that will help to identify available information on the likely number of passengers and initial challenges of making entry. Location of power and compressed air lines, rest rooms and human waste containers, and the challenge of unibody construction and the safe entry points, are among the considerations.

Event Four: Initial responding personnel can extract victims safely, evaluate their injuries, and deal with the unique issues of confined spaces on the two level train cars.

ANALYSIS OF MISSION OUTCOMES

Each of the 290 first responders was asked to provide an evaluation of the benefit of each learning station. The cards have been reviewed by the Chief Facilitator. About 2% of the participants had a suggestion for improvement, or felt that needed information was lacking. The rest of the participants expressed enthusiasm for the beneficial knowledge they gained, and the practice that they received.

ANALYSIS OF CRITICAL TASK PERFORMANCE

Article I. 1. – A. 5. IEDs and Hazardous Materials

a. **Issue:** all elements were successfully completed.

b. **References:** the need for IED training has been identified in the After Action Reports of earlier exercises.

c. **Summary:** IED training is important in an era of terrorist bombings.

d. **Consequences:** IED training was beneficial, and all participants were encouraged to share the information with their peers.

e. **Analysis:** expectations and outcomes were the same.

f. **Recommendations:** continue the training using the DVD and handouts; continue incorporating IED events in future tapestries.

g. **Improvement actions:** this after action report will be shared with the chiefs of all organizations that participated in the exercise; IED information will be included with a request to distribute to their organization's training officer; a DVD of the training will be provided along with a set of handouts for sharing with their organization's training officers.

B.1- B.6. Safe Operations on the Railroad

a. **Issue:** Safety was successfully emphasized.

b. **References:** no first responder agency training plans included a railroad familiarization and safety segment.

c. **Summary:** safe operations on the railroad are critical in all types of events, from single person medical emergencies to large-scale accidents. Placement of flares to stop a train, hand signals to stop a train, mile marker recognition and the location of dangerous elements on locomotives will make for a safer workplace for all first responders working around the railroad. Recognize that communications interoperability will have to be established at the scene through cached radios on arriving first responder units. Expect to coordinate actions in remote area through air resources, especially for ACE train in Niles Canyon and along the Alviso mud flats due to lack of marked roads, and the fact that few first responders are familiar with these areas. Expect to deploy more units as the first response in more remote areas. Coordinate all emergency calls for rail events through San Jose Control, even though there are various owners of the right-of-way, because San Jose Control can allocate the calls to the correct rail jurisdiction.

d. **Consequences:** railroad safety information was useful to all participants, who were also encouraged to make copies of the safety information handouts for all work colleagues.

e. **Analysis:** expectations and outcome were the same.

f. **Recommendations:** develop an SOP for departmental response on the railroad; incorporate railroad safety training in the "seldom used skills" elements of all first responder on-going training; add railroad safety information to all Dispatcher training; ensure that Dispatchers have action sheets to use to guide on-scene first responders during a response; add railroad safety information to all Dispatch Checklists for railroad related events; expect to coordinate actions in remote area through air resources, and plan through Dispatch accordingly. Ensure that first responders dispatched to rail events have a cache of interoperable radios to give to the train staff for unified command. A portable repeater may be needed. Add railroad mile markers to all agencies' GIS tied to CAD.

g. **Improvement actions:** this after action report will be shared with the chiefs of all organizations that participated in the exercise; model safety Checklists for sheets will be included with a request to distribute them to their organization's Dispatch; a DVD of the training will be provided along with a set of handouts for sharing with their organization's training officers. Advise all first responders along the rail lines to have a cache of interoperable radios available for use in a unified command system, and to have access to a portable repeater, possibly using Homeland Security Grants for the purchase.

C.1. – C.4. Rail Car Familiarization

a. **Issue:** rail car information and tours provided effective hands-on learning opportunities for first responders, most of whom had never seen the inside of a rail car.

b. **References:** EOPs for the involved jurisdictions do not address response to accidents on the railroad, and SOPs for most first responder departments do not address rail as a separate issue.

c. **Summary:** knowing how rail cars are built and configured is a critical safety issue in responding to an accident on the railroad, regardless of etiology. The Unibody construction makes it dangerous to cut into the cars, so knowing where the entry points are located is critical. The shape of the cars and narrowness of the aisles, especially on the second flood of the cars, makes extraction of the injured very difficult. Pre-planning for appropriate equipment and knowing some alternate techniques will speed the victim care. Some cars also have human waste containers that have to be avoided. The properties of Lexan and the proper way to remove windows will also speed response.

d. **Consequences:** rail car configuration information was important to all participants, and they were encouraged to share the information and handouts with their peers.

e. **Analysis:** expectations and outcome were the same.

f. **Recommendations:** ensure that Dispatchers and unit leaders have ready access to rail car information handouts to support response; ensure that all first responders along the railroad have the chance to see a rail car as part of a training cycle.

g. **Improvement actions:** this after action report will be shared with the chiefs of all organizations that participated in the exercise; rail car configuration information will be included with a request to distribute them to their organization's Dispatch and unit leaders; a DVD of the training will be provided along with a set of handouts for sharing with their organization's training officers.

D.1. – D.5. Extraction and Medical Care

a. **Issue:** a review of patient care and extraction issues provided effective hands- on learning opportunities for first responders, most of whom had never seen the inside of a rail car.

b. **References:** EOPs for the involved jurisdictions do not address medical response to multiple casualty events on the railroad, and SOPs for most first responder departments do not address multiple casualty events in the railroad as a separate issue.

c. **Summary:** knowing the types of injuries that could occur to victims of rail accidents is critical. Rail is not like car or bus because people are often sitting at tables, are likely to be eating and drinking, and often have computer equipment out and in use. All of these items are likely to cause different mechanisms of injury for passengers. Also the narrow stairs and walkways on the second levels make moving an injured passenger very difficult. The exercise allowed mixed groups of first responders to puzzle out how they could use tools at their disposal in non-traditional ways to achieve the goal of rapid removal of injured and trapped passengers in a potentially dangerous situation: secondary IEDs, hazardous materials accidents associated with the accident/derailment (freight versus passenger train), car on its side, or partially collapsed unibody car.

d. **Consequences:** rail car medical response capabilities information was important to all participants, and they were encouraged to share the information and handouts with their peers.

e. **Analysis:** expectations and outcome were the same.

f. **Recommendations:** ensure that all first responders and Dispatchers have access to layouts of commonly used rail cars in their response area, and that all medical directors and senior medical trainers have access to mechanism of injury information. Develop an SOP for first responder actions when an IED is discovered while they are working with a patient.

g. **Improvement actions:** this after action report will be shared with the chiefs of all organizations that participated in the exercise; rail car configuration and mechanism of injury information will be included with a request to distribute them to their organization's Dispatch and medical leaders; a DVD of the training will be provided along with a set of handouts for sharing with their organization's medical director and training officer.

CONCLUSION

The participant feedback from the exercise clearly demonstrated the benefits of combining learning and practice in the Facilitated Exercise format. The ability to immediately reinforce the new skills with reasoning and practice embeds the knowledge. The topic of working on the railroad in response to an accident was challenging for all participants, and provided significant new knowledge to all professions.

I. Exercise Evaluation Guide
Iron Horse 2005

Section One: General Information

Iron Horse 2005 brings together the first responders along the ACE Train route from Stockton to San Jose, traversing three counties and numerous fire and law enforcement jurisdictions. The goal is to provide the tools and information necessary to ensure safe operation at the time of an accident on the railroad requiring mass casualty response, whether caused by intentional or accidental human action.

The scenario is a derailment with multiple injuries with an unknown cause. The exercise will allow first responders to explore alternatives for safe response. The four stations include “Staging” briefing and an IED refresher; locomotive management and joint incident command considerations; rail car familiarization for different types of equipment; and extraction and medical care of mass casualties.

The exercise is focused on the first responding entity, regardless of the profession: fire, law or public works. The time frame of response is the first 15 minutes, during which adequate size up and establishment of Incident Command would set the plan for successful completion of the abatement of the problem. Emphasis is placed on notification of appropriate resources to expedite the field response.

Section Two: What To Look For

A. Station One: Staging and IEDs

1. Do participants believe that the scenario is plausible?

2. Do participants understand the concept of the IED threat?

3. Do participants understand the concept of TICs (toxic industrial chemicals) on the railroad, and the relationship to safe response?

4. Do participants understand the likelihood of human-caused disasters using hazardous materials?

5. Do participants know where to look for IEDs?

B. Station Two: Planning and Unified Command

1. Do participants understand how to operate safely on the railroad?

2. Do participants understand how to safely work around and shut off a locomotive?

3. Do participants understand the importance of unified command on the railroad?

4. Do participants know how to do an adequate size up?

5. Do participants know how to notify the railroad through Dispatch, and what to report?

6. Do participants know where to look for IEDs?

C. Station Three: Rail Car Familiarization

1. Do participants understand the location of dangerous mechanical equipment on the cars?

2. Do participants understand the problems of moving around inside the confined spaces of a rail car?

3. Do participants understand how to mitigate the dangers in the compressed air and electrical systems?

4. Do participants know where to look for IEDs?

D. Station Four: Extraction and Medical Care

1. Do participants understand the types of injuries that might occur to passengers?

2. Do participants know the types of medical procedures they may have to perform?

3. Are participants made aware of the unusual medical demands that may be made on them, including operating outside their normal scope of practice under the supervision of a MD by radio?

4. Do participants understand the issues in patient extraction in the confined spaces of the rail cars, including choosing among unacceptable alternatives?

5. Do participants know where to look for IEDs?

Section Three: Observation Record

Each participant was an evaluator of his/her own learning. Every participant was provided with 4 color-coded cards to record responses to each learning station experience. These cards, left in a box at each learning station, were gathered each day and reviewed by the Lead Facilitator to ensure that all stations were on-target. Approximately 260 participants turned in survey cards at the end of each learning station.

*Article II. Station One: **Staging and IEDs***

> **Most useful thing I learned**: “How easy it is to build a bomb or other devices to cause a mass casualty event.” Fire

Most useful thing I learned: “To be very aware of your surroundings. Everyday objects can be deceiving and dangerous. Be verbal with those around you.” EMS

Relevance to my job:“Very, helping what to look for regarding suspicious devices or objects.” PD

Relevance to my job: “As a potential first responder my vigilance for potential threats has definitely increased.” EMS

Article III. Station Two: ***Safety on the Railroad***

Relevance to my job: “Organization of what needs to be done in an organized manner; how to approach safely.” PD

Relevance to my job: “What how IED or other objects do not mix with what engines look like.” FD

Relevance to my job: “Good, helps with initial approach and safety factors to think about prior to approach.”

Most useful thing: “Identifying your location to ensure that resources are diverted to the proper location. Operating features of locomotive, multi-unit shut down/kill the engine.” FD

Article IV. Station Three: ***Rail Car Familiarization***

Relevance to my job: “Very important as an EMS provider.” EMS

Relevance to my job: “Gave me practical ways to enter a car.” FD

Relevance to my job: “Gives us info to stay or try to stay safe during emergency incidents.” PD

Relevance to my job: “Yes for many different scenarios – medical aids/MCIs; fires; detailments; terrorist attacks.” FD

Article V. Station Four: ***Extraction and Medical Care***

Most useful thing: “The need to stage in such a way that egress and ingress is possible.” PD

Most useful thing: “The difficulty in extracting patients from the train, and how big backboards are inside.” FD

New ideas on extraction: “I wouldn’t have thought of roof cutting through trains unless told about it.” FD

New Ideas on extraction: “We are not cutting structural supports.” FD [Note that this combines information from Station 3 and Station 4.]

Relevance to my job: “I now have a greater understanding.” PD Relevance to my job: “Knowing what Fire/Meds have to do.” PD

Section Four: Data Analysis Questions and Measures

The Exercise Director monitored the exercise performance to ensure that all learning objectives were being met. Comments from the participants, instructors and volunteer assistants were used to develop Lessons Learned for future improvements, which are included in the AAR under “Recommendations.”

Annex One
IMPROVEMENT PLAN

Core Capability	Task/ Station	Recommendation	Action	Capability Element	Responsible Party	Start Date	Completion Date
Infrastructure systems	Stn 1: IEDs/ Hazmat	Send DVD, handouts, and CD of AAR to all chiefs of participating departments	Make copies and mail	Training	San Jose OES	12/1/05	2/1/06
		Use DVD to train other staff	Incorporate into ongoing training	Training	All agencies	1/1/05	Ongoing
On-scene security and protection	Stn 2: Safe Operations on the RR	Create SOP for departmental response on the RR	Promulgate a new SOP on RR operations	Planning	San Jose MMTF/ All agencies	12/1/05	6/30/06
		Add RR safety information to seldom used skills	Add RR safety module to seldom used skills training	Training	All agencies	2/1/06	6/30/06
		Add RR safety information to Dispatcher training	Add RR safety module to Dispatcher training	Training	All agencies	2/1/06	6/30/06
		Create Dispatcher action guide/safety sheets for first response on the RR	Create action guide/model safety checklists	Planning	San Jose Fire Dispatch	12/1/05	2/15/06
		Distribute Dispatcher action guide	Distribute the guide to all participant agencies	Planning	San Jose OES	3/1/06	3/30/06
		Incorporate the Dispatcher Action Guide into Dispatch documentation	Add the Dispatcher Action Guide to documentation	Planning	All agencies	3/1/06	3/30/06
		Create/update Dispatchers' railroad event checklists	Create/update checklists	Planning	All agencies	3/1/06	3/30/06
		Create/update SOP for using air resources to coordinate RR on-scene response	Create/update SOPs on air support	Planning	All agencies	12/1/05	4/30/06
		Obtain interoperable radio cache for use at unified command events	Coordinate with Homeland Security Grant to obtain interoperable radio cache	Equipment	All agencies along train tracks	12/1/05	1/15/06
		Obtain a portable repeater	Coordinate with Homeland Security Grant to obtain portable repeater	Equipment	All agencies along train tracks	12/1/05	1/15/06
		Add railroad mile markers to GIS tied to CAD	Get railroad mile marker information from RR, add to GIS tied to CAD	Planning	All agencies along train tracks	12/1/05	6/30/06

Core Capability	Task/ Station	Recommendation	Action	Capability Element	Responsible Party	Start Date	Completion Date
Infrastructure systems	Stn 3: Rail Car Familiarization	Create rail car familiarization handout	Create handout in conjunction with rail that provides key life safety information on rail cars	Planning	San Jose OES	12/1/05	3/31/06
		Distribute rail car familiarization sheets on CD	Distribute CDs to all agencies along the tracks	Planning	San Jose OES	12/1/05	4/15/06
		Incorporate rail car familiarization sheets in first responder training and Dispatch SOPs	Add rail car information to training and documentation for Dispatch and first responders	Training	All agencies along train tracks	4/1/05	6/30/06
		Add rail car walk- throughs to first responder training	Coordinate with rail agencies to permit walk-throughs of rail cars for first responder familiarization	Training	All agencies along train tracks	4/1/05	6/30/06
Public health and medical services	Stn 4: Extraction and Medical Care (cont)	Create mechanism of injury guide for rail accidents	Create mechanism of injury guide for rail accident victims	Planning	San Jose MMTF	12/1/05	1/16/06
		Distribute “mechanism of injury” guide to all participating agencies	Distribute injury guide	Planning	San Jose OES	12/1/05	2/1/06
		Incorporate training on rail-related mechanisms of injury for all medical first responders	Add “mechanisms of injury” information to all medical first responder training	Training	All agencies	7/1/06	12/31/06
		Develop SOP for first responder actions when an IED is discovered after they have started patient care	Develop SOP for first responder action when an IED is discovered after they have started patient care	Planning	San Jose MMTF	4/1/06	5/31/06
		Distribute IED SOP to all participating agencies	Distribute IED SOP	Planning	San Jose OES	4/1/06	6/30/06
		Incorporate training on IED SOP for all first responders	Add IED SOP information to all medical first responder training	Training	All agencies	4/1/06	12/31/06

ANNEX C: ANNOTATED BIBLIOGRAPHY: RESOURCES FOR TRANSPORTATION SECTOR TRAINING AND EXERCISES

Note: For other sources used in this guide, see also the Bibliography section at the end of this document.

COURSES

ICS ***100.***PW***b:*** ICS ***for Public Works.*** FEMA***, no date.***

This course is designed as the introduction to the Incident Command System (ICS), which is the command and control system mandated by the National Incident Management System (NIMS). The course is the same as other FEMA Independent Study ICS courses, but it uses public works applications.

IS-120.A: An Introduction to Exercises. FEMA***, no date.***

The course is designed to introduce the student to basic exercise concepts, including designing, managing, and evaluating an exercise and creating an improvement plan. This course is the introductory level to the HSEEP process. This along with courses IS-130 and IS-139 are intended to provide baseline knowledge for participation in formal HSEEP exercise training. These three courses are the prerequisites for taking the HSEEP training.

IS-130: Exercise Evaluation and Improvement Planning. FEMA***, 2008.***

The purpose of this course is to build on the information in IS-120 with a focus specifically on the exercise evaluation elements. It includes methods for analyzing data from the exercise, creating the After Action Report and the Improvement Plan. This is useful to all civilian agencies as an adjunct to IS-120. It focuses on terminology and processes required for administering an exercise.

IS***/G-139: Exercise Design Course.*** FEMA***, 2007.***

This is the basic civilian exercise design course that is offered to all government agencies. It covers tabletop, functional, and full scale exercises, exercise evaluation, and exercise enhancements. The primary focus is on designing the functional exercise, which takes place in an emergency operations center (EOC), with a simulation cell (Sim Cell) providing the outside information and stimulation of response actions by EOC personnel.

IS-700: National Incident Management System Introductory Course. FEMA***, 2008.***

This independent study course provides an introduction to the National Incident Management System (NIMS). NIMS is used by all local, state, tribal, territorial, federal and private sector entities during domestic incidents to provide command, control, communication and collaboration across multiple professions and multiple jurisdictions.

IS-800: National Response Framework: An Introduction. FEMA***, 2010.***

This independent study course provides an introduction to the National Response Framework, which is the nationwide plan for coordination and collaboration during multi-agency, multi-jurisdiction disasters.

IS-801: Emergency Support Functions (ESF***) #1: Transportation.*** FEMA***, 2008.***

This independent study course provides an introduction to the meaning and function of ESF #1 – Transportation within the Emergency Response Framework. It lays out the relationships between levels of government in the requesting of and provision of transportation assets and services. As such, it is a useful guide for the development of exercises in local and state transportation agencies by making clear the types of assistance that can be expected and planned for.

IS-821: Critical Infrastructure and Key Resources Support Annex. FEMA***, 2009.***

This independent study course provides an introduction to the Critical Infrastructure and Key Resources (CIKR) Support Annex to the National Response Framework (NRF). The course describes the relationship between the NRF and CIKR prevention, protection, and response and recovery; the role of the Infrastructure Liaison in supporting coordination with the CIKR sectors and all levels of partners; and identifies the processes defined in the NRF for ensuring that CIKR considerations are integrated into incident response efforts.

IS-860.A: National Infrastructure Protection Plan (NIPP***).*** FEMA***, 2009.***

The independent study course presents an overview of the National Infrastructure Protection Plan (NIPP). The NIPP provides the unifying structure for the integration of existing and future CIKR protection and resiliency efforts into a single national program. This course explains the importance of protecting critical infrastructure and key resources; identifies the relevant authorities and roles for CIKR protection efforts; and describes the NIPP unifying structure for the integration of CIKR protection efforts, including: sector security partnership model, risk management framework, and information sharing process.

IS-913: Critical Infrastructure Protection: Achieving Results through Partnership and Collaboration. FEMA***, 2013.***

This independent study course provides an overview of the elements of and processes to develop and sustain successful critical infrastructure protection partnerships. This course explains the value of partnerships to infrastructure protection and resilience, identifies strategies to build successful critical infrastructure partnerships, describes methods to work effectively in a critical infrastructure partnership, identifies processes and techniques used to sustain critical infrastructure partnerships, and identifies strategies and methods for achieving results through critical infrastructure partnerships.

IS-914: Surveillance Awareness: What You Can Do. FEMA, 2013.

This independent study course provides an overview of surveillance activities and the indicators associated with them, as well as the actions that employees and service providers can take to report potential surveillance incidents. The course identifies potential targets of adversarial surveillance, describes the information obtained by surveillance that is of interest to adversaries, helps participants to recognize indicators of surveillance within the everyday environment, identify actions that one can take to detect potential adversarial surveillance incidents, describes the importance of identifying and reporting suspicious activities associated with adversarial surveillance, and specifies actions one can take to report potential incidents of adversarial surveillance.

IS-921: Implementing Critical Infrastructure Protection Programs. FEMA, 2012.

This independent study course introduces those with critical infrastructure duties and responsibilities to the information they need and the resources available to them in the execution of the mission to protect and improve resilience in the nation's critical infrastructure. The course summarizes critical infrastructure responsibilities, identifies the range of critical infrastructure protection activities for all levels of government, describes processes for effective information sharing with critical infrastructure partners, and identifies various methods for assessing and validating information.

IS-921: Critical Infrastructure Protection and Resilience Toolkit. DHS, 2012, http://emilms.fema.gov/IS921/921_Toolkit/index.htm.

This toolkit is an adjunct to the IS-921 course. It includes information on critical incident planning, tabletop exercise planning, critical infrastructure partnerships, frequently asked questions, videos and resources. It is formatted as a series of downloadable PDF documents and videos to help personnel responsible for critical infrastructure to develop and implement a tabletop exercise.

SHRP ***2 L12: Training of Traffic Incident Responder***. Transportation Research Board (TRB), 2012.

TRB funded the creation of this multidisciplinary course that is designed to facilitate the rapid restoration of full service on the highway after an accident. Prospective students include Department of Transportation personnel, law enforcement, fire service, emergency medical service, ambulance providers and tow company employees. The curriculum includes training in the Incident Command System as the common command and control system to be used in multi-agency emergency events.

FEMA *Emergency Management (*EM*), Master Exercise Practitioner Program (*MEPP*) Series, Credentialing Plan for* FISCAL YEAR *2014*, *EM MEPP:*

[All Courses are delivered in person at the Emergency Management Institute (EMI), National Emergency Training Center (NETC), Emmitsburg, MD.]

E132: Discussion-Based Exercise Design and Evaluation Course

E133: Operations-Based Exercise Design and Evaluation

E136: Operations-Based Exercise Development Course

Target Audience for the MEPP

EMI's resident MEPP eligibility includes local, state, tribal, trust territory, Department of Homeland Security (DHS), and other federal agency emergency management/ emergency services personnel with responsibilities involving emergency management exercises. This includes exercise training officers, emergency managers, emergency services, personnel from fire, emergency medical,hospitals, public/ environmental health, coroners, law enforcement, corrections officials, public works/ utilities, community service/volunteer agencies, non-profits, and private entities who participate in emergency services/emergency management exercise design/development, conduct, evaluation, and improvement planning activities, members of exercise planning teams, evaluation teams, and/or those who manage exercise programs.

Mandatory Training Prerequisites for the MEPP

For FY2014, EMI resident MEPP applicants MUST complete the following EMI Independent Study (IS) courses. These EMI IS-courses are available on the web at http://training.fema.gov/IS/. It is also mandatory that copies of certificates of completion be included as part of an MEPP application package. A complete listing of all of the EMI IS courses can be found at http://training.fema.gov/IS/crslist.aspx.

IS-100 Introduction to Incident Command System http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-100.b

IS-120 An Introduction to Exercises http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-120.a

IS-130 Exercise Evaluation and Improvement Planning http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-130

IS-200 ICS ***for Single Resources and Initial Action Incidents*** http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-200.b

IS-230 Principles of Emergency Management http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-230.c

IS-235 Emergency Planning http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-235.b

IS-700 NIMS***, An Introduction*** http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-700.a

IS-775 EOC ***Management and Operations*** http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-775

IS-800 National Response Framework, An Introduction http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-800.b

Classroom Prerequisite for All FY2014 MEPP Series

EMI requires that all MEPP applicants complete the Homeland Security Exercise and Evaluation Program (HSEEP) training course and/or the accompanying Train- the-Trainer (TTT). This course has been administered since 2005 under Training and Exercise Integration (TEI) course catalog code MGT-330 or EMI code E/L146. The HSEEP TTT has been conducted as TEI 330-1 and as EMI code E/L 147. Many states have also conducted this course and have issued certificates. Copies of Certificates of Completion must be included in your MEPP applicant package. Certificates with dates of attendance of less than three (3) days are not acceptable unless accompanied by a course agenda that clearly shows that the HSEEP course (also referred to as mobile training course) was conducted in accordance with the Plan of Instruction (POI) for the seven (7) course modules and contact hours.

EMI reserves the right to modify the prerequisites for the MEPP on an individual MEPP series basis.

GUIDANCE

FEMA. 2011. A Whole-Community Approach to Emergency Management: Principles, Themes, and Pathways for Action (FDOC 104-008-1). Washington, DC: FEMA, December 2011.

This document describes the pathways to creating an emergency management program that involves all the sectors in a community. It emphasizes lessons learned from Hurricane Katrina and stakeholder conferences, embodied in Strategic Themes: understand community complexity, recognize community capabilities and needs, foster relationships with community leaders, build and maintain partnerships, empower local action, and leverage and strengthen social infrastructure, networks, and assets.

Association of Bay Area Governments. 2010. *Checklists for: Recommendations to Plan for Transportation Disruptions Following Future Earthquakes in the San Francisco Bay Area*. http://quake.abag.ca.gov/wp-content/uploads/2010/10/Checklists for.pdf.

This is a series of Checklists for by entity for earthquake preparedness that emphasizes the importance of updating and exercising transportation and transit emergency plans. It includes suggestions for employees, transit and transportation agencies and various elements of the whole community. These Checklists for are beneficial in designing drills on specific items or cross-agency exercises that evaluate the linkages within preparedness plans.

Department of Energy. 2002. *Transportation Emergency Preparedness Program. Guidance for Planning, Conducting and Evaluating Transportation Emergency Preparedness, Tabletops, Drills and Exercises*. Washington, DC: Department of Energy, Office of Transportation and Emergency Management.

This manual pre-dates the HSEEP program, and was prepared specifically for radiological issues anticipated to occur by the Department of Energy. It is radiological-centric. The terminology is inconsistent with current usage, a violation of ICS/NIMS requirements. It does provide a good reference for radiological transportation issues, with possible application for other hazardous materials transportation issues.

FIRESCOPE. 2012. *Field Operations Guide* [FOG], ICS ***420-1.*** **Sacramento, CA: Incident Command System Publications, December, 2012.**

This manual provides a comprehensive view and generic template of ICS. It is applicable to any organization operating at the field level. ICS is the NIMS-mandated method for organizing all field response in the country. This manual explains the relationships of various actors at a disaster or emergency event.

HSEEP. **2007. Volumes 1 through 5. DHS, February 2007.**

This served as the base document for exercise design and evaluation in the United States. It is based on a military training model that does not translate well into civilian training programs. Most mass transit agencies viewed the requirements as onerous. Its principal purpose was to provide a common framework for exercise development for multiple disciplines. It fulfilled the ICS/NIMS requirement for clear, common terminology, and offered a framework for the development of an exercise program, but it required formal training to understand the overall process. Personnel with prior military experience will find the material very familiar. The program is in a continuous state of development, resulting in a new two-volume version issued in 2013. Its main application is to fulfill requirements for federal grants to various public agencies. FEMA exercise guidance that preceded it, and is still in use, is more user friendly for civilian agencies.

Volume 4 functioned as a library with sample exercise materials, such as documents, format and policy guidance. After years of being password protected, the volume is now under revision and will be accessible to anyone on the internet.

HSEEP***. 2013. DHS, April 2013.***

This is a simplified guide that addresses the core of HSEEP and partially follows a project management-based approach. This revision was developed to comply with the 2011 National Preparedness Goal and the 2011 National Preparedness System. It includes best practices and stakeholder involvement. It superseded the 2007 HSEEP volumes.

DHS. ***National Preparedness Goal, 2011***. September 2011.
This document replaces the Interim National Preparedness Goal of 2005, and implements the Presidential Policy Directive-8: National Preparedness order. It introduces the new five

core capability mission areas: prevention, protection, mitigation, response and recovery. It also introduces the 31 new core capabilities that replace the Target Capability List's (TCL) 37 items. A crosswalk to compare and replace the TCL is available at the FEMA website, http://www.fema.gov/library/viewRecord.do?fromSearch=&id=6510.

DHS. *2011. National Preparedness System*. November 2011.

Quoting from Introduction on page 1:

> *This document summarizes the components of the National Preparedness System, which include: identifying and assessing risk, estimating the level of capabilities needed to address those risks, building or sustaining the required levels of capability, developing and implementing plans to deliver those capabilities, validating and monitoring progress, and reviewing and updating efforts to promote continuous improvement. … The National Preparedness System is the instrument the Nation will employ to build, sustain, and deliver those core capabilities in order to achieve the goal of a secure and resilient Nation. The guidance, programs, processes, and systems that support each component of the National Preparedness System enable a collaborative, whole community approach to national preparedness that engages individuals, families, communities, private and nonprofit sectors, faith-based organizations, and all levels of government. The National Preparedness System builds on current efforts, many of which are established in the Post-Katrina Emergency Management Reform Act and other statutes.*

Ontario Ministry of Community Safety and Correctional Services. 2012. *Appendices: Guidelines for the Development of an Exercise Program*. Ontario, Canada, April 26, 2012.

This document includes a detailed list of exercise elements that closely parallels the HSEEP documentation. While it does not mention HSEEP it does refer to the NFPA 1600 standard and the Canadian exercise requirements. The examples focus on hospitals, but much of the guidance would be useful to American transportation agencies.

Project Management Institute. 2008. ***A Guide to the Project Management Body of Knowledge*** (PMBOK® Guide), 4th edition. Newtown Square, PA: Project Management Institute.

This is the American National Standard for project management used by engineers and project managers, developed through a consensus process. It provides a common framework for managing all phases of a project, from start to close. It is used as a framework for developing and implementing exercises because it is a well-known system in the transportation maintenance and operations profession, where emergency management activities are often housed in the transportation sector.

Radow, Laurel J., *ed*. 2007. *Tabletop Exercise Guidelines for Planned Events and Unplanned Incidents/Emergencies.* Washington, DC: FHWA-HOP-08-005.

This document includes a description of how a tabletop exercise could be used in a planned event to bring together stakeholders, test the training of the participants, and ensure that the event's traffic management plan is appropriate for the complexity of the event. The document includes a useful Checklists for organizing a tabletop exercise.

U.S. Fire *Administration*. 2008. *Traffic Incident Management Systems.* FEMA.

This document is not directly related to exercises. It does, however, provide the critical framework necessary to understand the Incident Command System as it relates to transit assets. It enables tracking of information flow and decision-making, so that monitoring at critical points for evaluation purposes can be established.

***Wisconsin Emergency Management Tabletop Exercise Scenarios*, Volume 1. *Wisconsin* Emergency Management, 2004. no date.**

This document offers a comprehensive approach to the development, implementation and evaluation of a tabletop exercise using the HSEEP guidance. Its focus is terrorism exercises, but it does offer some transportation accident and natural hazards scenarios for use in planning tabletop exercises.

REPORTS

DHS. ***Lessons Learned Information System*** (LLIS). https://www.llis.dhs.gov.

The DHS LLIS includes reports of exercises that have occurred. This information may be useful in the development of event-specific transportation exercises by providing tested scenarios for specific locations. Some exercises have integrated elements of transit, usually exclusively as a logistics support asset. Unfortunately this site is password protected. Although all public agency employees may register to obtain a password, the frequency with which the passwords expire makes accessing the site cumbersome.

Edwards, Frances L. and Daniel C. Goodrich. 2010. *Emergency Management Training and Exercises for Transportation Agency Operations*. Report 09-16. San Jose, CA: Mineta Transportation Institute.

This document is research done to determine the need for further development of a transportation exercise handbook. The report contains lists of websites that were searched and the information found at each.

NCHRP. 2009. *Report 525. Surface Transportation Security, vol 14: Security 101, a*

Primer for Transportation Agencies. Transportation Research Board, 2009.
While this document does not directly address exercises, it does explain overall security structure of an organization, including facets of exercises needed to test security capability by penetration testing.

RAND Corporation. 2010. *Local Level Civilian and Military Disaster Preparedness Activities*. Santa *Monica*, CA: RAND Corp.

This report describes the steps toward the development of a common planning tool for use by civilian and military emergency planners. Exercises are noted as critical communication tools between parties to a planning process. “Plans are fluid and can be modified with data from exercises. Plans are typically drafted and modified via stakeholder input, then further refined following exercises. Thus, exercises are a critical process for ensuring that plans are logically sound.” (p. 31) This report documents interviews with civilian and military emergency planners, confirming the need for more joint planning, training and exercising, an outcome that mirrors the transit agency response to community level exercises.

TRB. 2006. TCRP ***Report 86: Guidelines for Transportation Emergency Training Exercises*. Transportation Research Board, March 2006.**

This was a contracted effort to develop a document that would allow transportation agencies to use earlier versions of the HSEEP documentation, and merge the Incident Command System (ICS) into transportation, as well. Unfortunately, the document contains a considerable amount of boiler plate from ICS materials and HSEEP materials without adequate explanation of the application of the information to transit and transportation agencies.

TRB. TR ***News*, no. 238. 2005. Transportation Research Board, May-June 2005.**

The focus is on transportation security training and education. This issue covers regional exercises and “emergency management simulation systems,” which is a type of exercise. Computer based virtual environments are discussed as an asset for trainees.

TRB. 2004. *Transportation Research Circular No. E-C065*. Transportation Research Board, June 2004.

This includes the summaries and presentations at TRB’s 83rd annual meeting. Topics include the “Use of Evacuation Simulation and Emergency Planning.” The article describes the use of a simulation cell as a means to evaluate the effectiveness of plans that cannot be field tested, such as evacuation exercises. This document was developed when the first HSEEP materials became available.

EXERCISE BOOKS

Green, Walter. 2000. *Exercise Alternatives for Training Emergency Management Command Center Staffs*. No city, USA: Universal Publishers.

This book provides practical information on exercises for emergency operations center staff members. It includes examples and Checklists for emergency exercise planning.

McCreight, Robert. 2001. *An Introduction to Emergency Exercise Design and Evaluation*. Plymouth, UK: Government Institutes.

This book provides a simplified version of HSEEP exercise design information but lacks practical information for exercise implementation, and does not refer to transportation response issues.

Phelps, Regina. 2010. *Emergency Management Exercises: From Response to Recovery*. *San* Francisco, CA: Chandi Media.

This book focuses on creating business continuity exercises for the private sector. It has useful insights into some practical aspects of exercise planning but does not provide information on integrating the HSEEP requirements into the exercise documentation. It also does not refer to the transportation sector.

ANNEX D: HOME AND FAMILY PREPAREDNESS

Note: This annex contain a variety of emergency preparedness fliers to support employee and family preparedness. These were developed in California where wildland fires, flood and earthquakes are the principal threats. They should be customized to the threats revealed in the community's THIRA.

Individual Preparedness

- Car Kit

Family Preparedness

- Family Plan
- Family Kit
- Financial Documents
- Low Cost/No Cost Activities

Spring Ahead/Fall Back

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EMERGENCY KIT FOR THE CAR

WATER. This is your most important item. You will need water to drink, for first aid, and to take medicine. In your kit, have at least one gallon of water per person, based on who usually rides in your car. You could purchase a box of foil packets or cans of water at a camping store, or one liter bottles at COSTCO in a 20 bottle flat.

PRESCRIPTION MEDICATIONS. This is the second most important item. If you take medications on which your health depends you must carry a three-day supply at all times. This would include heart, blood pressure and diabetic medications. If you regularly take other prescription drugs for allergies or other health concerns, it is also wise to carry these. Keep this supply fresh by rotating it every week. Also include any non-prescription medications you often use: nose drops, antihistamine, allergy remedies, diarrhea medication, or indigestion medications. In times of stress such as an emergency health problems can become worse. Having proper medications and keeping to the prescribed schedule is very important.

FOOD. Food is important for psychological reasons and to keep your blood sugar level up to avoid dizzy or shaky feelings. People with diabetes, heart disease, or other health problems should consult their physicians for advice about the foods for their kits. The healthy general public should select foods like crackers, peanut butter, snack packs of fruit, pudding, granola bars, dried fruit, and single serving cans of juice. Plan on four light meals per day. Avoid high sugar foods like candy and soft drinks as they make you very thirsty. Avoid alcoholic beverages.

LIGHT SOURCE. A chemical light stick provides long shelf life and a sparkless source of light. A flashlight with a special long-life battery or a long-burning candle may be used after you have checked the area to be sure that there is no leaking gas or petroleum in the area. Do not rely on a regular flashlight as ordinary batteries lose their power quickly in the heat of a car. You might consider an electric light with an attachment to your car cigarette lighter, available at camping stores.

RADIO. Your car radio is your source for emergency broadcast information. Get a list of all-news stations for the area where you live, work, and areas you drive to or through. Keep this list in your glove compartment and in your emergency kit. A hand cranked emergency radio is also useful ands eliminates the need for batteries. These often come with flashlights that run on the same power source.

EMERGENCY BLANKET. Mylar emergency blankets are available at camping-goods stores. They can be used as a blanket or a heat shield against the sun. They fold into a small package. A thermal blanket may be substituted when storage space permits.

FIRST AID SUPPLIES. Include 4x4 gauze, cloth that can be torn into strips to hold a bandage in place, Kerlex, anti-bacterial ointment (Neosporin, Bacitracin, etc.), burn cream, rolls of gauze, large gauze pads, rolls of first aid tape, scissors, a large cloth square for a sling or tourniquet, safety pins, needles and heavy thread, matches, eye wash, and a chemical ice pack. Rotate these supplies every six months.

PERSONAL CARE AND HYGIENE ITEMS. Alcohol-based hand sanitizer, small plastic bottle of pine oil or other disinfectant, six large heavy-duty garbage bags with ties for sanitation and waste disposal, box of tissues, roll of toilet paper, plastic bucket to use as a toilet after lining it with a plastic garbage bag. (Your smaller kit items can be stored in your bucket inside a sealed trash bag).

ADDITIONAL ITEMS TO CONSIDER. Sturdy shoes (especially if your work shoes are not good for walking), sweater or jacket, hat/sun visor, mouthwash, feminine hygiene supplies, whistle (to attract attention and call for help), rope or string, pencil and tablet, change for a pay phone.

DON'T LET YOUR GAS TANK FALL BELOW HALF-FULL!The radio and heater in your car may save your life, but you can't run the car's accessories long without the gas to start the engine and re-charge the battery. If you travel in isolated areas, on the freeway, or far from home, an adequate gasoline supply is crucial. Fill up often. After the quake the gas pumps may not work for several days while electrical power is restored, and once the pumps work, the supplies will quickly be depleted through panic buying. NEVER CARRY CANS OF GAS IN YOUR TRUNK! A can of gas is a bomb!

CONFIDENTIAL HOUSEHOLD DATA FOR YOUR DISASTER KIT

Home Address _____ Phone _____

Adult Name _____ Work Phone _____

Employer _____ Work Hours _____

Adult Name _____ Work Phone _____

Employer _____ Work Hours _____

Other adults in the household: Any with disabilities?: _____

Children	Birth Year	School

Persons authorized to pick-up children from school (Info on emergency release card):

Name _____ Phone _____

Name _____ Phone _____

Name _____ Phone _____

Name _____ Phone _____

Pets in Household:

Type: _____ Medical Problems _____

Type: _____ Medical Problems _____

Type: _____ Medical Problems _____

Household cell phones, e-mail addresses,
ham radio call signs, etc. _____

_____

Language spoken at home:

What languages can you act as a translator for: _____

Important medical conditions in family, including allergies and special medications:

_____

_____

_____

Address(es) of Neighbors Who Have Your House Key:

_____

Out of Area Contact:	Relationship:	City:	Phone:

Family meeting place (away from home)

Address: _____

Phone: _____

What neighborhood teams are your family members part of?

_____

Home access and shutoff locations

Make a rough sketch of your home below. Indicate the locations of: Gas and water valves, electric switches and circuit breakers, entry and exit points, location of pool or hot tub, emergency and first aid supplies.

Is your hot water heater strapped to wall, top and bottom Yes _____ No _____ Need Help _____

FEMA: FAMILY BASIC DISASTER SUPPLIES

There are six basics you should stock in your home:

1. **Water**
2. **Food**
3. **First-Aid Supplies**
4. **Clothing, Bedding & Sanitation Supplies**
5. **Tools**
6. **Special items**

WATER

http://www.fema.gov/plan/prepare/water.shtm

How Much Water do I Need?

You should have at least a three-day supply of water and you should store at least one gallon of water per person per day. A normally active person needs at least one-half gallon of water daily just for drinking. Additionally, in determining adequate quantities, take the following into account:

• Individual needs vary, depending on age, physical condition, activity, diet, and climate.

• Children, nursing mothers, and ill people need more water.

• Very hot temperatures can double the amount of water needed.

• A medical emergency might require additional water.

How Should I Store Water?

To prepare safest and most reliable emergency supply of water, it is recommended you purchase commercially bottled water. Keep bottled water in its original container and do not open it until you need to use it. Observe the expiration or “use by” date.

If You are Preparing Your Own Containers of Water:
It is recommended you purchase food-grade water storage containers from surplus or camping supplies stores to use for water storage. Before filling with water, thoroughly clean the containers with dishwashing soap and water, and rinse completely so there is no residual soap. Follow directions below on filling the container with water.

If you choose to use your own storage containers, choose two-liter plastic soft drink bottles – not plastic jugs or cardboard containers that have had milk or fruit juice in

them. Milk protein and fruit sugars cannot be adequately removed from these containers and provide an environment for bacterial growth when water is stored in them. Cardboard containers also leak easily and are not designed for long-term storage of liquids. Also, do not use glass containers, because they can break and are heavy.

If storing water in plastic soda bottles, follow these steps:
Thoroughly clean the bottles with dishwashing soap and water, and rinse completely so there is no residual soap. Sanitize the bottles by adding a solution of 1 teaspoon of non- scented liquid household chlorine bleach to a quart of water. Swish the sanitizing solution in the bottle so that it touches all surfaces. After sanitizing the bottle, thoroughly rinse out the sanitizing solution with clean water.

Filling Water Containers

Fill the bottle to the top with regular tap water. If the tap water has been commercially treated from a water utility with chlorine, you do not need to add anything else to the water to keep it clean. If the water you are using comes from a well or water source that is not treated with chlorine, add two drops of non-scented liquid household chlorine bleach to the water. Tightly close the container using the original cap. Be careful not to contaminate the cap by touching the inside of it with your finger. Place a date on the outside of the container so that you know when you filled it. Store in a cool, dark place. Replace the water every six months if not using commercially bottled water.

FOOD

http://www.fema.gov/plan/prepare/food.shtm

Store at least a three-day supply of non-perishable food. Select foods that require no refrigeration, preparation or cooking and little or no water. If you must heat food, pack a can of sterno. Select food items that are compact and lightweight. Avoid foods that will make you thirsty. Choose salt-free crackers, whole grain cereals, and canned foods with high liquid content.

Include a selection of the following foods in your Disaster Supplies Kit: Note: Be sure to include a manual can opener.

- Ready-to-eat canned meats, fruits and vegetables
- Canned juices, milk, soup (if powdered, store extra water)
- Staples--sugar, salt, pepper
- High energy foods--peanut butter, jelly, crackers, granola bars, trail mix
- Vitamins
- Foods for infants, elderly persons or persons with special dietary needs
- Comfort/stress foods--cookies, hard candy, sweetened cereals, lollipops, instant coffee, tea bags

FIRST AID SUPPLIES
http://www.ready.gov/basic-disaster-supplies-kit

Assemble a first aid kit for your home and one for each car. A first aid kit* should include:

- Sterile adhesive bandages in assorted sizes
- 2-inch sterile gauze pads (4-6)
- 4-inch sterile gauze pads (4-6)
- Hypoallergenic adhesive tape
- Triangular bandages (3)
- 2-inch sterile roller bandages (3 rolls)
- 3-inch sterile roller bandages (3 rolls)
- Scissors
- Tweezers
- Needle
- Moistened towelettes
- Antiseptic
- Thermometer
- Tongue blades (2)
- Tube of petroleum jelly or other lubricant
- Assorted sizes of safety pins
- Cleansing agent/soap
- Latex gloves (2 pair)
- Sunscreen

Non-prescription drugs:

- Aspirin or nonaspirin pain reliever
- Anti-diarrhea medication
- Antacid (for stomach upset)
- Syrup of Ipecac (use to induce vomiting if advised by the Poison Control Center)
- Laxative
- Activated charcoal (use if advised by the Poison Control Center)

Contact your local American Red Cross chapter to obtain a basic first aid manual.

CLOTHING, BEDDING, SANITATION SUPPLIES
http://www.ready.gov/basic-disaster-supplies-kit

Clothing and Bedding

If you live in a cold climate, you must think about warmth. It is possible that you will not have heat. Include at least one complete change of clothing and footwear per person.

- Jacket or coat
- Long pants
- Long sleeve shirt
- Sturdy shoes or work boots
- Hat, gloves and scarf
- Rain gear
- Thermal underwear
- Blankets or sleeping bags
- Sunglasses

Sanitation

- Toilet paper
- Soap, liquid detergent
- Feminine supplies
- Personal hygiene items
- Plastic garbage bags, ties (for personal sanitation uses)
- Plastic bucket with tight lid
- Disinfectant
- Household chlorine bleach

TOOLS

http://www.ready.gov/basic-disaster-supplies-kit

- Mess kits, or paper cups, plates and plastic utensils
- Emergency preparedness manual
- Portable, battery-operated radio or television and extra batteries
- Flashlight and extra batteries
- Cash or traveler's checks, change
- Nonelectric can opener, utility knife
- Fire extinguisher: small canister, ABC type
- Tube tent
- Pliers
- Tape
- Compass
- Matches in a waterproof container

- Aluminum foil
- Plastic storage containers
- Signal flare
- Paper, pencil
- Needles, thread
- Medicine dropper
- Shut-off wrench, to turn off household gas and water
- Whistle
- Plastic sheeting
- Map of the area (for locating shelters)

SPECIAL ITEMS
http://www.ready.gov/basic-disaster-supplies-kit

Remember family members with special needs, such as infants and elderly or disabled persons.

For Baby

- Formula
- Diapers
- Bottles
- Pacifiers
- Powdered milk
- Medications

For Adults

- Heart and high blood pressure medication
- Insulin
- Prescription drugs
- Denture needs
- Contact lenses and supplies
- Extra eye glasses
- Hearing aid batteries

Entertainment--games and books

Keep the items that you would most likely need during an evacuation in an easy-to-carry container. Possible containers include a large, covered trash container; a camping backpack; or a duffle bag.

FIRES, FLOODS, FAULTS, TERRORISTS…

Do You Know Where Your Vital Records Emergency Information Is?

During a disaster, like an earthquake or flood, you may need to evacuate your home rapidly. You will want to have some important legal documents with you, and others in a safe place. Take steps now to ensure that you safeguard your legal documents, and have appropriate access to them for disaster recovery!

1. **Open a bank safe deposit box, or buy a fireproof safe** for essential, irreplaceable, original documents. These include:

   - Family birth certificates
   - Marriage certificates and divorce papers
   - Citizenship papers
   - Military records and discharge papers, copies of the face of military ID cards
   - Copies of insurance policies with agent contact information
   - A list of bank accounts with the bank address
   - A list of credit card numbers and addresses
   - Accountant's copy of your income tax filings for 7 years
   - Securities, US Savings Bonds, certificates of deposit, and other financial instruments
   - Original Social Security Cards for all family members
   - Titles and deeds for property
   - Vehicle titles and a copy of the registration papers

2. **Make a GoKit Document Cache to keep in your family emergency kit.** Organize these records in a 1" ring binder with page protectors, or in a waterproof container. You can use a 14" piece of 3" PVC pipe and two end caps. Use adhesive to attach one end cap permanently, and use a threaded cap for the other end. Fill the book or tube with the following documents/copies and update it each spring and fall.

   - Copies of birth certificates and marriage/divorce papers
   - Emergency contact information for all family members: work address and phone, school address and phone, day care/after school care address and phone
   - Out of area contact person's name, address and phone number
   - Copies of citizenship papers/green cards
   - Original passports for all family members
   - Military papers to prove Veterans Benefits eligibility, copies of the face of military ID cards

- Copies of medical information for each family member: physicians names and numbers, prescription drug names and dosages, pharmacy name and number
- Copies of insurance policies with 24 hour contact information for every policy
- Copies of the tax bill, mortgage papers or property deed to prove homeownership;
- copy of lease to prove legal right to alternate shelter
- Copies of 2 utility bills less than 1 year old to prove residency (owners and renters)
- Copies of the credit card list and emergency numbers to report lost cards
- Copies of all family drivers licenses and auto registrations
- Copies of all Social Security Cards
- One pad of checks and one credit card for an account that you seldom use. Use for emergency expenses: food, alternate lodging, replacement clothing
- $50 in small bills in case cash registers and credit card machines do not work
- $10 in quarters for the pay phone
- A copy of the wills for each family member. Make sure that an out of area family member has another copy in a safe place, and that your legal adviser has a copy.
- Copies of funeral arrangements in place or last wishes for adults

DON***'T*** LEAVE YOUR FAMILY***'S*** FINANCIAL SECURITY TO CHANCE***...***BE PREPARED***!***

LOW-COST/NO-COST EMERGENCY PREPAREDNESS

1. Get a family out-of-state phone contact and make a wallet card for each family member.

2. Ensure that school emergency contact cards are regularly updated; ensure that each child has at least 2 people listed to pick him/her up if parents are unavailable.

3. Select two family reunification points for use if the house is inaccessible. Select one place in the neighborhood, such as a friend's home, food store, or other location well known to all family members. Select another location not in your immediate neighbor- hood, but easily accessible by all family members, such as your place of worship, a movie theater or a regional mall.

4. Locate your gas meter and learn how to use the gas shut-off valve and when to shut off your gas.

5. Store heavy objects on low shelves or on closet floors, not on high shelves. Heavy pots and pans and storage boxes may fall during earthquakes and injure family members.

6. Remove any heavy objects from overhead shelves in bedrooms. When people are asleep, they cannot protect themselves from falling objects.

7. **Water** is a most important element. Each person needs one (1) gallon for drinking and food preparation each day. Additional water is needed for sanitation, clean up, and for pets. A dog will also need one (1) gallon a day and a cat will need at least a pint.

   Storing water is easy. Wash and rinse clean, 2-liter soda or any other **clear plastic** juice bottles, fill them with tap water then add four (4) drops of liquid **chlorine bleach** (Clorox), the plain unscented type.

   Do not use the frosted type of plastic jugs that we buy milk and water in for storage purposes. These are for short time use and will deteriorate too soon for storage use.

   Keep some coffee filters available to be able to filter any cloudy or murky water you obtain during an emergency. Then treat it with sixteen (16) drops of Chlorine Bleach mix well and let stand for at least thirty (30) minutes before using.

   A little Tang or Kool-Aid can be added at the time of drinking to avoid the slight bleach taste.

8. **Make a GoKit Document Cache:**

   - Copies of the tax bill, mortgage papers or property deed to prove homeowner-ship; copy of lease to prove legal right to alternate shelter.

- Copies of 2 utility bills less than 1 year old to prove residency (owners and renters)
- Copies of the credit card list and emergency numbers to report lost cards
- Copies of all family drivers' licenses and auto registrations
- Copies of all Social Security Cards
- A copy of the wills for each family member. Make sure that an out of area family member has another copy in a safe place, and that your legal adviser has a copy.
- Copies of funeral arrangements in place or last wishes for adults.

9. **Car Kit.** Have some simple things in your car. Think about yourself and family members.

- Water, some snack food, any required prescription medication, and any special needs for your children.
- Hat, jacket, blanket or shawl. You may need to keep warm.
- Writing paper, several pencils, a flashlight, (keep the batteries out of the flash-
- light until you need it. This prevents corrosion of the flashlight.
- Shoes you can walk some distance in. Ladies should avoid "heels, open toes, and sandals."
- Simple personal hygiene and items for your comfort.

Water, **Food**, and **Medication** should be **changed weekly.** Put a fresh supply into the kit and use what you take out. You do not have to buy extra and nothing spoils. Flashlight batteries should be replaced and used every few months.

Shoes and **extra clothes** need not be new. Those that are out of style, may need a little sew-up, or have a stain, will work just fine in an emergency.

Start small. Then build as you can. **Begin**, the rest is easy.

SPRING AND FALL JOBS

Important Steps to Take When You Change the Clocks!

SPRING AHEAD!

- **Change the batteries in your smoke detectors.** Save the batteries for re-use in handheld electronic devices and toys. Recycle used batteries through the County's Household Hazardous Waste Program: 408-299-7300 (Santa Clara County, California).

- **Change all the batteries in your emergency supply kits and your household flashlights.** Follow the same reuse and recycle steps as in #1.

- **Rotate the food, water and non-prescription medications in your car kit, desk kit and household caches.** Use the previously stored food within the next few weeks. Ensure that the newly stored food is recently purchased and has at least nine months left on the "use by" date noted on the container. Discard medications from the car kit has heat in the trunk causes them to deteriorate, and put desk kit items in the front of the medicine chest for first use.

- **Check your gas shut off valve.** Turn the valve 1/8th of a turn in each direction to ensure that the valve moves freely. If the valve does not move readily, call PG&E for a free valve service and lubrication. THIS IS NOT A DO-IT-YOURSELF JOB!

- **Sort through the supplies stored under your kitchen sink** and in the laundry cupboard. Ensure that you keep all liquid cleaning products containing "chlorine" or "bleach" in the laundry, and all liquid products containing "ammonia" in the kitchen. If you have children in the home ensure that these cupboards are protected with properly installed and working safety latches to prevent child poisoning.

- **Sort through the toxics stored in your garage.** If you find items that you no longer need, properly recycle or discard those items in their original containers through the County's Household Hazardous Waste Program: 408-299-7300 (Santa Clara County, CA). Ensure that the items you keep are segregated by category and properly stored in waterproof containers with lids, and with locks if you have children in your household. Sort into paint and painting supplies; gardening fertilizers and pesticides; automotive products; and hobby supplies. Store the lidded containers on the garage flood or behind locked cupboard doors.

- **Review the medical information in your Vial of Life and with your child's caregiver.** Update the information to add or change medical conditions, medications and dosages, doctors' names and phone numbers, and emergency contact information.

These seven steps taken every six months will ensure that you are ready for emergencies!

FALL BACK!

ABBREVIATIONS AND ACRONYMS

AAC	After Action Conference
AAR	After Action Report or After Action Review
ACE	Altamont Corridor Express
AMTRAK	National Railroad Passenger Corporation
ARES	Amateur Radio Emergency Services
BP	British Petroleum
Caltrain	Commuter rail between San Francisco, San Mateo and Santa Clara counties
Caltrans	California Department of Transportation
CB	Citizen's Band (Radio)
CBRNE	Chemical, Biological, Radiological, Nuclear and Explosives
CCMTA	Central City Mass Transit Agency
CDC	Centers for Disease Control
C/E	Controller and Evaluator
CERT	Community Emergency Response Team (or Training)
CHP	California Highway Patrol
CIKR	Critical Infrastructure and Key Resources
COOP	Continuity of Operations
DHHS	Department of Health and Human Services
DHS	Department of Homeland Security
DOE	Department of Energy
DOT	Department of Transportation
EMI	Emergency Management Institute
EMPG	Emergency Management Performance Grant
EMS	Emergency Medical Services
EOC	Emergency Operation Center
EOP	Emergency Operations Plan
EPIO	Emergency Public Information Officer
ESF	Emergency Support Function
EXPLAN	Exercise Plan
FAA	Federal Aviation Administration
FBO	Faith-Based Organization
FCC	Federal Communications Commission
FE	Functional Exercise
FEMA	Federal Emergency Management Act
FHWA	Federal Highway Administration
FOA	Funding Opportunity Announcement
FOG	Field Operations Guide
FRA	Federal Railroad Administration

FSE	Full Scale Exercise
FTA	Federal Transit Administration
FY	Fiscal Year
HSEEP	Homeland Security Exercise and Evaluation Program
HSPD	Homeland Security Presidential Directive
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
IED	Improvised Explosive Device
IP	Improvement Plan
IS	Independent Study course
IT	Information Technology
JR East	East Japan Railway Company
KSA	Knowledge, Skill and Abilities
LA DOT	Los Angeles Department of Transportation
LLIS	Lessons Learned Information Systems
LOC	Lines of Communication
MAA	Mutual Aid Agreement
MACS	Multi-Agency Coordination System
MassDOT	Massachusetts Department of Transportation
MEDEVAC	Medical Evacuation
MEPP	Master Exercise Practitioner Program
MMTF	Metropolitan Medical Task Force
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MSEL	Master Sequence of Events List
MTA	Metropolitan Transportation Authority (New York)
MTI	Mineta Transportation Institute
NETC	National Emergency Training Center
NFPA	National Fire Protection Association
NGO	Non-Governmental Organization
NIMS	National Incident Management System
NIMSCAST	NIMS Compliance Assistance Support Tool
NIPP	National Infrastructure Protection Plan
NOAA	National Oceanic and Atmospheric Administration
NRF	National Response Framework
NTSB	National Transportation Safety Board
OPFOR	Opposing Force
PDF	Portable Document Format
PIO	Public Information Officer

PKEMRA	Post-Katrina Emergency Management Reform Act
PMBOK	Project Management Body of Knowledge®
POI	Plan on Instruction
PPD	Presidential Policy Directive
PPD-8	Presidential Policy Directive-8
PPE	Personal Protective Equipment
RACES	Radio Amateur Civil Emergency Service
RFP	Request for Proposal
RFQ	Request for Qualifications
SCADA	Supervisory Control and Data Acquisition
SEMS	Standardized Emergency Management System
SEPTA	Southeastern Pennsylvania Transportation Authority
Sim Cell	Simulation Communication Center
SitMan	Situation Manual
SME	Subject Matter Expert
SOC	State Operations Center, the state's EOC
SOP	Standard Operating Procedure
SPR	State Preparedness Reports
SPR	State Preparedness Report
SR	State Route
TCL	Target Capabilities List
TCRP	Transit Cooperative Research Program
TEI	Training and Exercise Integration
THIRA	Threat and Hazard Inventory Risk Assessment
TMC	Transportation Management Center
TRB	Transportation Research Board, part of the National Academy of Sciences
TSA	Transportation Security Administration
TSGP	Transit Security Grants Program
TTT	Train-the-Trainer (a type of course)
TTX	Tabletop Exercises
UASI	Urban Area Security Initiative
UP	Union Pacific Railroad
US DOT	United States Department of Transportation
USAR	United States Army Reserve
USGS	United States Geological Survey
VBIED	Vehicle-borne Improvised Explosive Device
VTA	Santa Clara Valley Transit Agency
WBS	Work Breakdown Structure
WMD	Weapons of Mass Destruction

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Mr. Goodrich was appointed U.S. Security Documents Reviewer for the European Union's CAST Project, focused on the development of unified training for first responders across EU member states. In June 2007 he was a guest of the Turkish government at the Second Istanbul Conference on Democracy and Global Security, and his paper on policing after disasters was published in Turkey. He was selected as a 2006 Fellow of the Foundation for Defense of Democracies, studying terrorism in Israel at Tel Aviv University.

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Mr. Goodrich has been an active member of the San José Metropolitan Medical Task Force, a CBRNE response unit, since 1999, where he has served as exercise director for eight facilitated exercises, a model of exercise that he developed. Harvard University's Kennedy School of Government has selected the creation of this exercise style for a case study in its executive management series.

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