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NCHRP REPORT 740

A Transportation Guide for All-Hazards Emergency Evacuation

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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Systematic, well-designed research provides the most effective approach to the solution of many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation develops increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

In recognition of these needs, the highway administrators of the American Association of State Highway and Transportation Officials initiated in 1962 an objective national highway research program employing modern scientific techniques. This program is supported on a continuing basis by funds from participating member states of the Association and it receives the full cooperation and support of the Federal Highway Administration, United States Department of Transportation.

The Transportation Research Board of the National Academies was requested by the Association to administer the research program because of the Board's recognized objectivity and understanding of modern research practices. The Board is uniquely suited for this purpose as it maintains an extensive committee structure from which authorities on any highway transportation subject may be drawn; it possesses avenues of communications and cooperation with federal, state and local governmental agencies, universities, and industry; its relationship to the National Research Council is an insurance of objectivity; it maintains a full-time research correlation staff of specialists in highway transportation matters to bring the findings of research directly to those who are in a position to use them.

The program is developed on the basis of research needs identified by chief administrators of the highway and transportation departments and by committees of AASHTO. Each year, specific areas of research needs to be included in the program are proposed to the National Research Council and the Board by the American Association of State Highway and Transportation Officials. Research projects to fulfill these needs are defined by the Board, and qualified research agencies are selected from those that have submitted proposals. Administration and surveillance of research contracts are the responsibilities of the National Research Council and the Transportation Research Board.

The needs for highway research are many, and the National Cooperative Highway Research Program can make significant contributions to the solution of highway transportation problems of mutual concern to many responsible groups. The program, however, is intended to complement rather than to substitute for or duplicate other highway research programs.

NOTICE

The project that is the subject of this report was a part of the National Cooperative Highway Research Program, conducted by the Transportation Research Board with the approval of the Governing Board of the National Research Council.

The members of the technical panel selected to monitor this project and to review this report were chosen for their special competencies and with regard for appropriate balance. The report was reviewed by the technical panel and accepted for publication according to procedures established and overseen by the Transportation Research Board and approved by the Governing Board of the National Research Council.

The opinions and conclusions expressed or implied in this report are those of the researchers who performed the research and are not necessarily those of the Transportation Research Board, the National Research Council, or the program sponsors.

The Transportation Research Board of the National Academies, the National Research Council, and the sponsors of the National Cooperative Highway Research Program do not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the object of the report.

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Advisers to the Nation on Science, Engineering, and Medicine

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www.national-academies.org

COOPERATIVE RESEARCH PROGRAMS

FOREWORD

By Stephan A. Parker
Staff Officer
Transportation Research Board

NCHRP Report 740: A Transportation Guide for All-Hazards Emergency Evacuation focuses on the transportation aspects of evacuation, particularly large-scale, multijurisdictional evacuation. It will be useful for transportation managers, planners, and operators in communicating and coordinating with emergency managers in emergency evacuation planning, operations, and reentry; and, complementarily, assist emergency managers in communicating and coordinating with transportation managers, planners, and operators as well as strategic community-based organizations.

The guidance, strategies, and tools in this Guide are based on an all-hazards approach that has applicability to a wide range of "notice" and "no-notice" emergency events including accidents and incidents, acts of nature, hazardous materials releases, technological emergencies, criminal activities, and terrorism. This Guide follows the basic planning steps of the Federal Emergency Management Agency's Comprehensive Preparedness Guide (CPG) 101. Each chapter parallels one of the six main CPG steps. Each chapter is further subdivided into smaller, discrete tasks, with cross-references to tools, such as templates or checklists, that are shown at the end of each chapter and are on the bound-in CD-ROM.

The Louis Berger Group led a team that prepared *NCHRP Report 740* under NCHRP Project 20-59(32). They were tasked to develop a guide on transportation's role in all-hazards emergency evacuations. Research, interviews, and a field test identified the need for a guide that emergency managers and transportation managers would both find useful. Transportation managers and operators across all modes have significant resources, including infrastructure, vehicles, operational strategies, and information to support emergency managers and other partners in carrying out an evacuation. Emergency managers frequently interact with one or more representatives from transportation, often in the incident response, operations, emergency management, or security areas, but they may not be aware of the broad array of transportation resources available, particularly in regions that have had little experience with wide-scale evacuations. Likewise, transportation planners outside the operations, emergency management, and security areas may have had little exposure to emergency management planning cycles, protocols, and organizational frameworks such as the National Incident Management System (NIMS), Emergency Support Functions (ESFs), and the Incident Command System (ICS). This Guide provides a process to bring the resources and expertise of transportation and emergency management together, beginning with Step 1—Form a Collaborative Planning Team.

This project created four products that are available on the TRB website at http://www.trb.org/publications/Blurbs/168631.aspx: (1) the printed Guide, described herein, including a bound-in CD-ROM containing the Guide's tools and appendices; (2) the contractor's final report, which documents the development of the Guide, published as *NCHRP Web-Only Document 196;* (3) an accessible PDF version of the Guide; and (4) a PowerPoint presentation describing the entire project.

CONTENTS

ACRONYMS AND ABBREVIATIONS

ALDOT.. Alabama Department of Transportation
AVMA ....American Veterinary Medical Association
CAME ....Convener Agencies for Multimodal Evacuation
CAP .... Corrective Action Program
CAPTA ....Costing Asset Protection: An All-Hazards Guide for Transportation Agencies
CERT .... Citizen Emergency Response Teams
CBO .... Community-Based organizations
COG ....Councils of Government
CPG ....Comprehensive Preparedness Guide
DHS ....Department of Homeland Security
DHHS... Department of Health and Human Services
DOT...Department of Transportation
EM .... Emergency Manager
EMAC ....Emergency Management Assistance Compact
EOC...Emergency Operations Center
EOT ....Evacuation Operations Team
ESF .... Emergency Support Functions
ETO ....Evacuation Transport Operations
EWP ....Evacuation Workshop Planning
FEMA .... Federal Emergency Management Agency
FHWA .... Federal Highway Administration
FTA ....Federal Transit Administration
HAZUS-MH... Hazards U.S. Multi-Hazard model
HSEEP... Homeland Security Exercise and Evaluation Program
ICS .... Incident Command System
IRIS .... Incident Resource Inventory System
JIS .... Joint Information System
LEPC... Local Emergency Planning Committees
LLIS .... Lessons Learned Information Sharing
MOA ....Memorandum of Agreement

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MOU .... Memorandum of Understanding
MPO .... Metropolitan Planning Organizations
MUTCD ....Manual of Uniform Traffic Control Devices
NCHRP .... National Cooperative Highway Research Program
NGO .... Non-Governmental Agency
NHC .... National Hurricane Center
NIC .... National Integration Center
NIMS .... National Incident Management System
NRF ....National Response Framework
PAEP ....Public Assisted Evacuation Plan
PALM ....Private Assets Logistics Management
PETS ....Pets Evacuation and Transportation Standards
REAC ....Region Emergency Assistance Compact
RPO ....Regional Planning Organization
RTEPM .... Real Time Evacuation Planning Model
RTSWG .... Regional Transit Security Working Group
SLOSH ....Sea, Lake and Overland Surges from Hurricanes
SOG ....Standard Operating Guidelines
TCL .... Target Capabilities List
TCRP... Transit Cooperative Research Program
TMC ....Traffic Management Center
TOC ....Traffic Operations Center
TRB .... Transportation Research Board
TSA ....Transportation Security Administration
TXDOT .... Texas Department of Transportation
UASI .... Urban Area Security Initiative
VOAD .... Volunteer Organizations Active in Disaster

INTRODUCTION

Transportation plays a vital role in evacuation mitigation, planning, response, and recovery. However, "the majority of the emergency operations plans for large urbanized areas are only partially sufficient in describing in specific and measurable terms how a major evacuation could be conducted successfully, and few focus on the role of transit…Even among localities with evacuation plans, few have provided for a major disaster that could involve multiple jurisdictions or multiple states in a region and necessitate the evacuation of a large fraction of the population" (Transportation Research Board [TRB] 2008).

A major event requiring multijurisdictional, multimodal coordination involving several layers of government (local, regional, state(s), and perhaps federal) as well as private and nonprofit entities may seem unlikely in many jurisdictions. However, the United States experienced more billion-dollar natural disasters in 2011 than in any other year on record according to the National Climatic Data Center. Major storms from Hurricane Irene, which battered the East Coast, and spring tornadoes that brought devastation from Wisconsin to Texas, remind us that we don't know where or when emergencies or

FIGURE I–1:
Vermont, September 2011.
FEMA News Photo

FIGURE I–2:
Minnesota, April 1997.
FEMA News Photo

disasters will strike. During the first 11 months of 2011, 97 major disasters were declared.

Floods (Figure 1-1 and Figure 1-2), wildfires (Figure 1-3), hurricanes, earthquakes, tsunamis, chemical plant fires, train derailments, and chemical releases from truck accidents demonstrate that few communities are immune from (frequently) unprecedented and large-scale emergencies. Presidential declarations of emergencies have occurred with greater or lesser frequency in every state and in most counties across the United States.

Figure 1-4 developed by the Federal Emergency Management Agency (FEMA) illustrates both the frequency and the geographic diversity of emergency declarations from January 10, 2000, to January 1, 2010.

Many emergencies require evacuation of large numbers of people, including persons needing extra assistance in emergencies (such as nursing home residents or persons without access to personal vehicles or to regular transit). Some events come with some notice, some don't.

A major challenge is to coordinate in advance the full potential of the range of transportation resources, including agencies within a jurisdiction; layers of government across multiple jurisdictions; and private sector, nonprofit, and community organizations (see Table 1-1). Deep collaboration can help identify the full range of needs for transportation assistance in evacuation, as well as uncover resources that might have been overlooked. Some jurisdictions and geographic areas have a great deal of experience with such planning and coordination; their experiences are the foundation for the guidance presented here. This guide provides step-by-step guidance and associated tools and resources to help any region develop the transportation coordination elements of an evacuation and reentry plan.

The guide also lightly addresses transportation planning for large-scale planned special events because some regions have found great value in using special events to test and practice evacuation traffic and operations plans and strategies. There are some important similarities and obvious differences between planning for a large-scale event, ranging from a major concert or NASCAR event to an event

FIGURE I–3:
California, July 2008.
FEMA News Photo
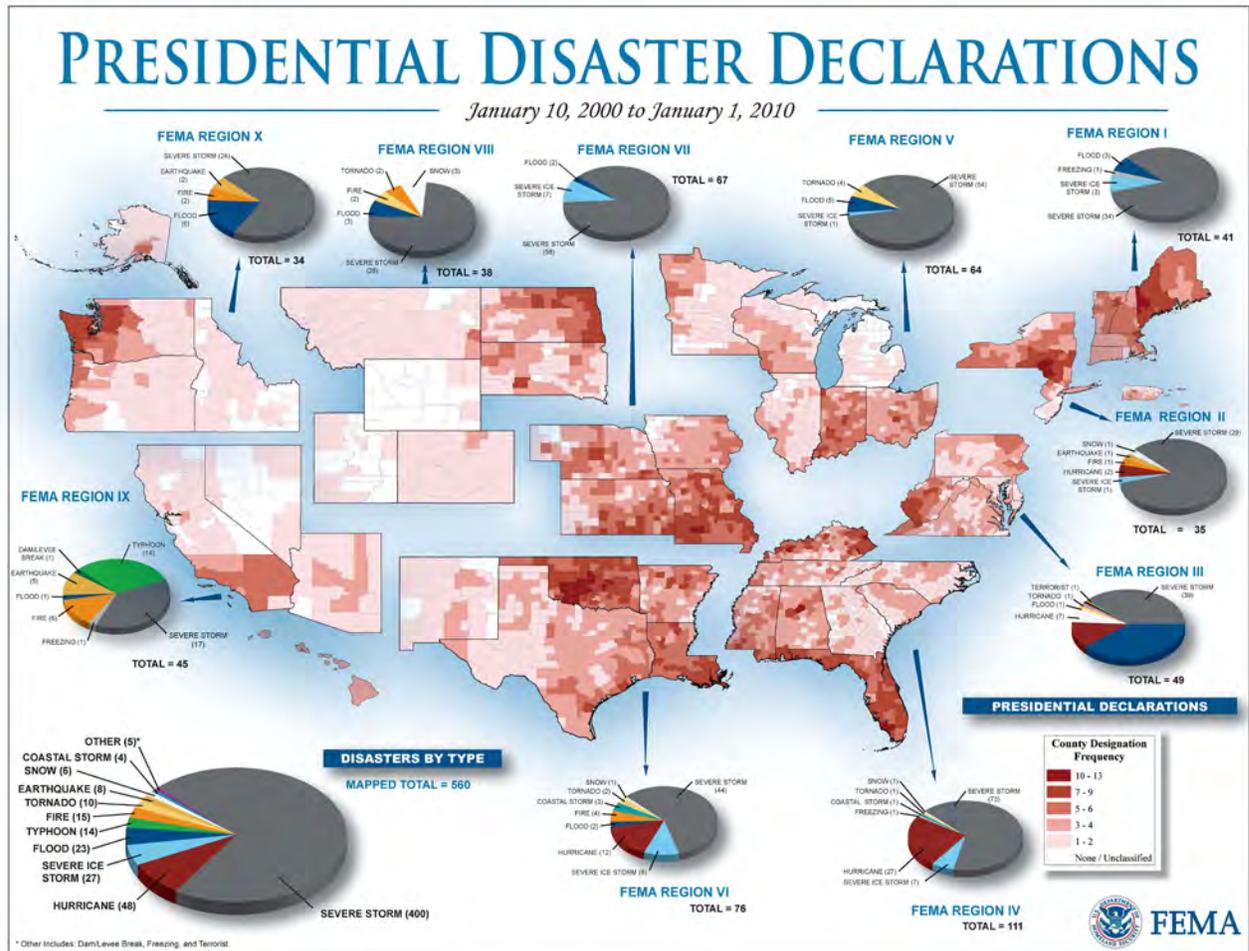
FIGURE I–4:

Presidential Disaster
Declarations: Frequency by
County and Type of Disaster
by FEMA Region *FEMA*

TABLE I–1:

Range of Coordination
Complexity for Evacuation

	SINGLE JURISDICTION	MULTIPLE JURISDICTIONS
SINGLE MODE	Local emergency planning and response; low level of planning and response complexity **Example:** Localized flooding evacuation using only automobiles	Regional emergency planning and response; moderate level of planning and response complexity **Example:** Large-scale hurricane contraflow evacuation using only automobiles
MULTIPLE MODES	Local emergency planning and response coordinated across several local agencies that share the same geography; moderate level of planning and response complexity **Example:** Localized wildfire evacuation using automobiles, buses, vans, ambulances, etc.	Regional emergency planning and response; high level of planning and response complexity **Example:** Large-scale city-assisted hurricane evacuation utilizing automobiles, buses, trains, ambulances, etc.

on the scale of the Olympics, and planning for a no-notice event like an explosion or earthquake or a notice event like a hurricane. The similarities lie in the benefits of advance planning (establishing relationships and roles, setting goals and objectives, identifying operations tactics and strategies, evaluating resource needs), and in some of the strategies and resources that may be used to manage or control traffic and congestion (advance public education, variable message signs, rerouting traffic, varying traffic signal timing, deploying transit vehicles or shuttles, and more).

The major differences are in the lack of notice for most disasters, who is in charge, and the major objective for evacuations–saving many lives in the face of an emergency versus avoiding major congestion and inconvenience from poor planning for an event. Throughout the guide, the focus is on evacuation, with special event planning noted where it has important crossover lessons for evacuation planning.

The guide does not address the full range of emergency management coordination, communications, mass care (e.g., shelters), or other emergency support functions for evacuation other than where they intersect with transportation, except in the Step 5 **Outline and Checklists.** For example, it does not cover shelter management, but notes that shelter selection should consider certain transportation aspects. The guide does provide references to FEMA materials and other guidance that can help a region develop a comprehensive evacuation plan. Tools and resources such as the **"Workshop in a Box"** can help any group plan an effective workshop to support evacuation planning. The

Multijurisdiction, Multimodal Evacuation Plan Outline Template and Checklist Tools in Step 5 include all aspects of evacuation planning. For workshops and other planning events, disciplines other than transportation may want to review Step 5 to see additional items for which they need to be planning. Although it is anticipated that even experienced jurisdictions will find pearls of wisdom and useful tools in this guide, some guide users may want to skim some of the basics that are directed to localities and states that have had few if any occasions to require large-scale evacuations.

This guide focuses on the transportation aspects of evacuation, particularly large-scale, multijurisdictional evacuation. It is intended to assist transportation managers, planners, and operators in communicating with and coordinating with emergency managers in emergency evacuation planning, operations, and reentry; it is also intended to assist emergency managers in communicating with and coordinating with transportation managers, planners, and operators as well as strategic community-based organizations.

The guide builds on research and resources from the Department of Homeland Security (DHS); FEMA (which is part of DHS); the Federal Highway Administration (FHWA) "Routes to Effective Evacuation Planning" primer series and other emergency transportation operations documents; FHWA planning for special events resources; previous Transit Cooperative Research Program (TCRP) and National Cooperative Highway Research Program (NCHRP) studies; and research conducted for the development of this guide that focused on regions with extensive evacuation experience.

GUIDE ORGANIZATION

The following illustration from the "FEMA Comprehensive Preparedness Guide 101 Version 2" (CPG 101 2010) depicts the ideal steps in the emergency planning process. As each plan needs to be adaptable, each jurisdiction may not need to complete each step but should attempt to complete as many as possible to avoid gaps in their plans. This guide follows the basic planning steps of the CPG 101. Each chapter parallels one of the six main CPG steps as shown in Figure 1-5.

Each chapter is further subdivided into smaller, discrete tasks, with cross-references to tools, such as templates or checklists, that are found at the end of each chapter.

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
Form a Collaborative Planning Team	Understand the Situation	Determine Goals and Objectives	Plan Development	Plan Prep. Review and Approval	Plan Implementation and Maintenance
Identify Core Planning Teams	Identify Threats and Hazard	Determine Operational Priorities	Develop and Analyze Course of Action	Write the Plan	Exercise the Plan
Engage Whole Community in Planning	Meeting	Meeting	Meeting	Review the Plan	Review, Revise, and Maintain the Plan
	Engage Whole Community in Planning	Set Goals and Objectives	Identify Resources	Approve and Disseminate the Plan	
			Meeting		
			Identify Info. and Intelligence Needs		

FIGURE I–5:

CPG 101 Planning Steps

STEP 1
FORM A COLLABORATIVE PLANNING TEAM

IT'S NOT THE PLAN, IT'S THE PEOPLE.

Collaboration is the foundation of emergency planning, and beginning to develop that collaboration is the first step.

Collaboration—among public and private sector agencies and across jurisdictions—is a must-have according to interviews for this project, particularly for those with recent evacuation experience. No one has all the resources needed. Evacuation planners must have contacts with private sector businesses and organizations to cover shortfalls in public resources. Planners need to get people to the table ahead of time.

FIGURE 1-1:

Evacuation Planning Meeting

FEMA News Photo

"In a real disaster, the plan isn't worth the paper it's written on. It's the relationships and understanding you develop while you are working on the plan that will enable you to deal with the unexpected. And the unexpected is essentially what defines a real disaster."

– Houston veteran of Hurricanes Katrina and Rita

"You don't want to be meeting your teammate for the first time in the middle of an emergency."

"If someone is not already on my cell-phone prior to an emergency, they probably won't be of much help in the middle of an emergency."

"We learned that it takes all these organizations to make it work. Everyone pulls together and helps each other and it's just wonderful."

– North Carolina

TASK 1.1

IDENTIFY LIKELY INTERAGENCY AND INTER-REGIONAL PARTNERS (JURISDICTIONS AND LEVELS OF GOVERNMENT) REQUIRED FOR TRANSPORTATION AND EMERGENCY MANAGEMENT COORDINATION

Imagine a huge event in your vicinity —for example, hurricane, terrorist attack, major flood, or chemical spill

Your jurisdiction or region may play one or more of the following roles in an event:

- **A source of evacuees**

- **Support for evacuees passing through the jurisdiction (providing equipment, staff, supplies)**

- **A host community for evacuees**

Thinking about these potential roles, start a list of the different jurisdictions and levels of government that would likely be involved. Your list will certainly cross village, town, and city boundaries, probably county boundaries, probably regional boundaries (if your area includes one or more metropolitan planning organizations, rural planning organizations, or tribal planning organizations), possibly tribal and state boundaries, and perhaps even international boundaries. It will also likely include multiple levels of government across those boundaries:

- **Local (village or town)**

- **City**

- **County or parish**

- **Tribal**

- **State**

- **Federal**

Identify existing emergency plans and the stakeholders, committees, and/or organizations managing those plans

In most cases, an emergency management leader will work with his/her counterparts to confirm what is already underway, so as not to duplicate effort. Begin to assemble a list of plans and contacts. (See Resource Tool 1.1 for a contact list template.)

☑ Good Practice

Establish a multidisciplinary, multijurisdictional Evacuation Operations Team (EOT) to be called up to plan, organize, and execute tactical evacuation operations. This team will include police, fire, and emergency medical personnel; highway workers; public information specialists; public transit representatives; emergency managers; mass care specialists; political decision makers; and others as appropriate. The EOT will collect and maintain 24/7-contact information and periodically train and exercise the team. Team members may be from public, private, or volunteer sectors. The EOT becomes the region's Core Planning Team for evacuation planning, response, and reentry.

Adapted from FHWA "Using Highways During Evacuation Operations for Events with Advance Notice- Evacuation Planning and Preparedness Process from the Transportation Perspective"

Meet and Greet

You may want to convene an initial meeting primarily for transportation, transit, and emergency managers to get to know each other (if they don't already), prior to the full-blown stakeholder workshop recommended in Step 2. The workshop preparation tasks described in the "Workshop in a Box" Resource can be simplified for a preliminary, more targeted meeting, but preparation is still critical. Transportation professionals must be knowledgeable of the language of the National Incident Management System (NIMS) and Incident Command Systems (ICS). Resource Tool 1.2 discusses alternative frameworks for "convening agencies for multimodal evacuation planning," who may or may not be the ultimate operations leads or decision-makers.

Transportation and transit partners in each participating jurisdiction will want to review their respective emergency plans (if they have not previously) to understand what is expected of them.

Many emergency plans are geared to emergency support functions (ESFs). As these provide a framework and guidance for operations roles (see Step 3), we provide a brief introduction to ESFs

Tip

Look to planned special events teams for potential partners. A team similar to your EOT with slightly different stakeholders (e.g., mass care would not be involved) would be engaged for large-scale planned events. Your region may already have teams established for large-scale event planning, on a regular or an ad hoc basis.

Tip

- Emergency managers usually work well with their neighbors in supporting local response activities and participating in exercises.

- There may already be one or more organizations or committees (official or unofficial) that are coordinating emergency planning across one or more jurisdictions, or throughout an entire region. For example, securing Urban Area Security Initiative grants requires coordination, and joint emergency planning exercises require coordination.

- All urban regions (greater than 50,000 population) have Metropolitan Planning Organizations (MPOs) and/or Regional Planning Councils (sometimes with different boundaries, sometimes called Councils of Governments). These initially focused mainly on transportation coordination, but now many include other disciplines and issues that benefit from regional coordination, such as emergency planning.

- Some areas have Rural Planning Organizations or Tribal Planning Organizations.

- Except in areas that routinely deal with huge events like hurricanes, it would be rare to find a committee or organization in place to deal with transportation coordination for very large emergency events that cross regional and/or state boundaries. However, regions that have coordinated large-scale events might have a good core team established.

in Resource Tool 1.3, expanded from the FEMA descriptions to elaborate on potential transportation roles and interaction with each ESF.

TASK 1.2

ENGAGE THE WHOLE COMMUNITY IN PLANNING

Develop an initial list of potential non-government partners–private sector, community-based, and faith-based organizations. Figure 1-2, from CPG 101, identifies the basic elements. Resource Tool 1.4 provides suggestions for building such a list. It is anticipated that a few of those who are most interested and motivated will want to be part of the core planning team or EOT. However, it is important to maintain and expand contacts to the full range of private sector and community groups, as they may be able to serve as key communication conduits to their employees, members, or clients.

Tip

See FHWA *"Simplified Guide to the Incident Command System for Transportation Professionals"* for a succinct yet complete guide geared to Transportation.

Tip

Refer to *TCRP Report 106/NCHRP Report 536: Practitioner's Handbook, From Handshake to Compact: Guidance to Foster Collaborative, Multimodal Decision Making.*

Tip

TCRP 150: Communication with Vulnerable Populations- A Transportation and Emergency Toolkit provides a step by step guide to developing a collaborative communication network that extends across multiple agencies such as public health and agencies on aging, and reaches deep and wide into community-based, faith-based, and nonprofit organizations. Private sector, community-based, faith-based, and nonprofit organizations may also have extensive resources that would assist in a large-scale evacuation, but in most cases, such planning and coordination needs to be done in advance to be most effective.

1 Know the Community

As you progress in producing a community map, there are three major areas where members of various communities can assist your effort.

Hazards	Population	Capabilities
Members of the community know the natural, technological, and man-made hazards that exist in their community.	As the geographic community can include many social communities, it is important to engage the members of the community to get a picture of what populations are represented. Planners need to know where these populations are located and what needs they may have.	Social communities bring a host of capabilities that can be used to respond to a disaster (e.g., volunteers to run/staff shelters, licensed healthcare professionals), while corporations can provide material support and are a community in and of themselves.

2 Identify the Communities to Engage

Working with existing groups is the most efficient way to link into a community as they have established relationships, networks, and communication channels.

Existing community-based programs are worth connecting with because trusted relationships have already been established between these offices and the community and further initiatives can capitalize on this goodwill.

The community assessment process will identify existing programs and contacts.

Being familiar with current events and programs in the community will help identify barriers and opportunities for the engagement.

3 Partner with Community Leaders to Develop an Engagement Program

Engagement is about building trusted relationships.

Community leaders need to trust that planners will support the work of the community and not dictate solutions for their issues. If communities don't trust that this will happen, they may choose to disengage.

Working with leaders in the community to establish the type and level of engagement is critical.

Leaders may be people who have an official position within the community or simply the "doers" in the community that have the ability to create the momentum needed for engagement activities. The best person to establish a partnership with will only be identified after getting to know the community well.

FIGURE 1-2:

CPG 101, Version 2: Forming a Whole Community Collaborative Partnership

STEP ONE—TOOLS

TOOL 1.1: NETWORK CONTACT DATABASE

PURPOSE:

This tool is a template to organize contacts for building a network.

DIRECTIONS:

Complete the information for each public, voluntary, and private entity. Distribute to network members. Embed a schedule to regularly update information. Notes can include information about the populations served and approximate number of clients or members. This information can be maintained in a database, on Excel sheets, or in Word documents, based on local practice and preferences.

Hint

Print out the database periodically and either laminate the pages or store them in water-proof containers (such as sealed plastic bags). If power is out and networks are down or unavailable, many emergencies are wet, and such a precaution can be very helpful.

An electronic version of the table below is available on CRP-CD-132.

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A Transportation Guide for All-Hazards Emergency Evacuation

Tool 1.1, Network Database

Full Name	Organization	Title	Email	Phone	Cell	Fax	Address	City	State	Zip	Facebook	Twitter	Notes

STEP ONE—TOOLS

TOOL 1.2: POTENTIAL FRAMEWORKS FOR INTEGRATING MODES FOR EFFECTIVE EVACUATION: CONVENER AGENCIES FOR MULTIMODAL EVACUATION (CAME) PLANNING

PURPOSE:

This tool sets forth three steps for developing frameworks for integrating modes and entities for effective evacuation. The focus of these frameworks is on multimodal and multijurisdictional evacuation planning. Comparable decision-making applies to large-scale planned events.

DIRECTIONS:

If necessary, review the descriptions of roles in Step 1. Steps 2 and 3 can provide the foundation for one or more discussions among the collaborative EOT as to the optimal framework for sustaining the evacuation planning effort.

Step 1: Identify entities and their roles and responsibilities with respect to multimodal and multijurisdictional evacuation planning

Note: Step 1 provides background information on various agencies at different levels of government with a brief summary of their potential roles in evacuation planning and operations. Those who are already familiar with the organizations can go to Step 2.

FEDERAL ENTITIES

U.S. Department of Homeland Security (DHS)/FEMA

Provides policy, coordination, and support roles. The Urban Area Security Initiative (UASI) is funded through FEMA to plan for enhancing regional emergency preparedness efforts related to national security. UASI funding is typically used in providing planning, training, and other support activities for emergency managers and first responders. FEMA's Office of Disability Integration has a Disability Integration Coordinator for each of FEMA's X regions. The Office of Disability Integration also plays a leadership role in fostering whole community planning.

U.S. Department of Transportation

The Federal Highway Administration and the Federal Transit Administration (FTA) provide information on planning for disasters and funding to transportation organizations. The FTA coordinates United We Ride and the Office of Civil Rights.

STATE AGENCIES

State Emergency Management

State emergency management agencies are vital for multijurisdictional planning, implementation, response, and reentry efforts. They set policy and usually coordinate with transportation agencies and all other functional areas during planning, response, recovery, and reentry.

State Police

State police are also vital for multijurisdictional planning, implementation, response, and reentry efforts. They have been involved in planning and implementing highway contraflow evacuations and engage in nearly all aspects of multimodal evacuations to ensure civil order during an evacuation, as well as providing first response when necessary. They also play an important and often lead role during the reentry process.

State Departments of Transportation (DOT)

DOTs primarily focus on building, operating, and maintaining transportation infrastructure, primarily highways. Some DOTs own and operate or contract for provision of transit fleets and services. They are a primary agency to be involved in evacuation planning, response, and reentry. For example, in Louisiana, the DOT contracts with private bus operators that move evacuees out of New Orleans, which is a key part of the New Orleans City Assisted Evacuation Plan. DOTs in other states that are subject to hurricanes (e.g., much of the Atlantic and Gulf coasts), flooding (e.g., states bordering on the Mississippi, Missouri, or other major rivers as well as coastal regions), wildfires, (e.g., California, the southwestern United States, and Florida) or states that have been subjected to terrorist threats (e.g., New York, New Jersey, Connecticut, and the Washington, DC region) are actively engaged in evacuation planning either at state levels, MPO levels, or both. Some state DOTs, however, are not actively involved in evacuation planning efforts.

State Health

State health agencies work closely with hospitals and health care providers, especially with nongovernmental agencies (NGOs) and vulnerable populations. They also coordinate with state police and emergency management agencies as well as transportation providers. In some states they may take the lead for both ESF #6–Mass Care, Emergency Assistance, Housing, and Human Services and ESF #8–Public Health and Medical Services. State health agencies in some states actively coordinate with emergency managers in planning, implementation and reentry efforts, particularly with regards to medical transportation evacuation coordination. Sometimes this is also facilitated and coordinated with the MPOs or with ESF #1, Transportation.

REGIONAL AGENCIES

Metropolitan Planning Organizations (MPOs) and Councils of Governments (COGs)

MPOs and COGs provide coordination amongst local government and transportation agencies, and technical assistance and data management services to assist in planning and policy making. The structure of MPOs, with representation from local government and transportation agencies, could provide a unique opportunity for multimodal evacuation planning across regions; however, MPOs mainly focus on transportation infrastructure, not emergency management. MPOs usually have extensive transportation modeling capabilities including demographics that can be very useful in developing and testing evacuation scenarios. Some MPOs provide staff that focus on emergency preparedness, but many MPOs are not actively engaged with emergency managers.

Rural Planning Organizations

Rural areas may get planning support from state organizations or from rural planning organizations. Many of the fundamental issues and available resources are different from urbanized areas, but the need for coordination, access, and outreach, often in remote or isolated areas, is important. Rural communities often have higher than average senior citizen populations and persons in poverty, often with very limited access to transit or social service transportation resources that could assist in evacuation.

Tribal Planning Organizations

Many tribal areas are isolated and rural, with high poverty and limited access to transit or social service transportation resources. Many are also located in areas where natural disasters such as wildfires and/or flooding pose recurrent threats.

Transit Agencies

Transit agencies play an important part in multijurisdictional and multimodal evacuation planning, response, and reentry efforts. Some transit agencies, especially in weather-event prone areas and those that have experienced large-scale security events, actively plan for evacuations in coordination with local and state agencies.

Urban Area Security Initiatives

See previous description under DHS.

LOCAL AGENCIES

Emergency Management and Response

These agencies are critical for evacuation planning, response, and reentry. They are often the lead agency responsible for all aspects of emergency preparedness, response and management. They often work closely with neighboring local governments and state and regional agencies. However, their jurisdiction is limited to the boundaries of their municipality. When disasters cross political boundaries, they must work in close coordination with their neighbors as well as state and other entities.

Office of Special and Functional Needs/Office of Disabilities

These agencies provide policy and planning guidance on working with functional needs populations. They often coordinate with emergency management and response agencies as well as transportation agencies; however, their role in emergency preparedness planning is often limited in most cities and counties.

Planning, Public Works, and Transportation

City planning, public works, and transportation agencies typically focus on land use and infrastructure issues and often do not become deeply involved with evacuation planning or response efforts. They are often important for providing data and resources, such as vehicles, personnel, and equipment, to support emergency managers and transit agencies during the planning and response processes. They are critical in assessing damage after disasters to inform the reentry process. Utility companies (e.g., power companies) usually have lists of high-priority facilities for power restoration, including homes with an individual dependent on power (e.g., an oxygen concentrator with only a short-term backup generator). Such priority lists can help emergency managers locate high-risk individuals.

Health and Human Services

These agencies often work directly with vulnerable population groups and NGOs that serve the same communities. They also often coordinate with paratransit and other transportation providers for individuals with mobility impairments or other functional needs. With respect to evacuation planning, they often coordinate with emergency managers and transportation planners to inform the planning, response, and reentry stages.

Step 2: Identifying one or more CAME planning

The second step in developing frameworks for integrating modes and entities for effective evacuation is to identify one or more agencies to serve as the Convener Agencies for Multimodal Evacuation (CAME). In emergency management, lead agencies direct evacuations, response, and reentry based on protocol.

An important aspect of a CAME is the regional, multijurisdictional scope and the ability to coordinate and plan across multiple agencies representing local, regional, and state levels. No one agency is currently able to coordinate emergency planning, response, and reentry efforts across multiple modes of transportation at the regional scale. At the federal level, all disasters start at the local level then escalate up, i.e., through requests for state and federal assistance. However, in recent years our nation has seen a breakdown in this approach when disasters impact large regions, and communication across agencies and jurisdictions is often uncoordinated and not subject to prior planning. A key research lesson is that regions that have not experienced major regional mass evacuations, such as those along the Atlantic and Gulf coasts (usually for hurricanes) and those in western states (usually for wildfires), often are unprepared the first time a disaster strikes. While it is important to learn from past experience, regions throughout the nation should not wait until a disaster strikes before actively planning for such an event. Moreover, regions that have experienced mass evacuations are most likely to coordinate multimodal evacuation planning efforts at the regional scale. To date, these efforts have been ad hoc without federal guidance.

Step 1 of Tool 1.2 identifies a number of agencies and their roles and responsibilities with respect to evacuation planning, response, and reentry. When identifying one or more agencies to serve as the CAME, the primary focus must be multijurisdictional and multimodal planning. Candidates include state emergency management agencies, state transportation agencies, regional transit agencies, MPOs, COGs, Regional Transit Security Working Groups (RTSWGs-established and required through the Transportation Security Administration - TSA), UASIs, or powerful municipal departments in regions willing to work in a regional manner.

Possible roles and responsibilities of the CAME include:

- **Getting all of the stakeholders to the table.**

- **Collaboratively defining roles and responsibilities for each partner agency.**

- **Identifying and securing funding for regional, multimodal evacuation planning and exercise efforts.**

Hint

There is an important distinction to draw between a "lead agency," an agency directing/coordinating a response or protective activity, often an emergency management agency; and a "convener agency," one which performs the vital task of leading the forum in which operations plans could be discussed and coordinated with other agencies and jurisdictions in the region. The convener agency could be an emergency management agency; a transportation agency; and/or a local, regional, or state agency or organization.

Step 3: Possible Frameworks for CAME Structure

This step defines possible frameworks for a CAME structure
based on two alternative framework dimensions.

FRAMEWORK DIMENSION 1: LOCAL, REGIONAL, OR STATE LEAD

Local governments are most connected to people's needs but might be problematic to
serve as the CAME because they do not have experience with issues in areas they do
not serve. State agencies have a multijurisdictional focus, but they often do not want to
interfere with local issues. Moreover, some states have multiple urbanized regions.

Conclusion

Regionally focused agencies may be the most logical to serve as the CAME.

FRAMEWORK DIMENSION 2: EMERGENCY MANAGEMENT OR TRANSPORTATION LEAD

An issue facing multimodal evacuation planning is that emergency management
agencies do not always understand transportation planning; conversely transit and
transportation operations and management agencies do not always understand emergency
management. To best integrate the two disciplines, they must work closely together.

Conclusion

Transportation and emergency management agencies may
work in joint fashion to serve as the CAME.

Possible CAME structures include:

- **UASI or RTSWG as CAME**
- **MPO as CAME**
- **Transit agency as CAME**
- **UASI/RTSWG/Emergency Manager (EM)/MPO as CAME**
- **UASI/RTSWG/EM/Transit agency as CAME**
- **Transit agency/MPO as CAME**
- **UASI/RTSWG/EM/Transit agency/MPO as CAME**

All other agencies listed in Step 1 of Tool 1.2, and possibly others, should be considered within the framework as members of the CAME Committee - the Emergency Operations Team, Core Planning Team, or whatever name is chosen for the full planning group. Strong consideration should be given as to inclusion of NGOs, community-based organizations (CBOs) and faith-based organizations (FBOs) that represent populations with access and functional needs within the framework.

POLICY OPTION

It may be appropriate to establish a national policy to ensure that all regions are planning for integrating modes and entities at the regional scale. A national policy could allow for a flexible framework that regions can tailor to best allow local, regional, and state agencies to identify a CAME that will be most effective in convening collaborative, inclusive emergency planning.

STEP ONE—TOOLS

TOOL 1.3: INTRODUCTION TO ESF AND TRANSPORTATION ROLES AND INTERACTIONS WITH EACH ESF

PURPOSE:

1. Introduce transportation and transit personnel that may not be familiar with emergency management concepts to emergency support functions. 2. Summarize transportation interactions with other functions in evacuation planning, response, and reentry that emergency managers as well as transportation managers should be aware of.

DIRECTIONS:

Review the functional descriptions. Compare these with the descriptions and classifications used by different emergency management agencies in your region and your state(s). Confirm state, regional, and local government transportation agency roles and interactions to coordinate for the different functional requirements.

FEMA defines ESF annexes to the National Response Framework (NRF) as documents that provide the structure for coordinating federal interagency support for a federal response to an incident. They are mechanisms for grouping functions most frequently used to provide federal support to states and federal-to-federal support, both for declared disasters and emergencies. They are codified in the NRF and represent the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies–from the smallest incident to the largest catastrophe. As part of the NRF, ESFs are primary mechanisms at the operational level used to organize and provide assistance.

ESFs are only activated at the federal level (as per the Stafford Act), when the Governor of a State "proclaims" that the disaster at hand has exceeded the state's resources. The Governor may ask the President to make a Declaration of a Disaster. When the President issues the Declaration, they specify which programs are activated for which counties of the state. The state has a cost share–usually of 25%.

If a state identified a shortage, for example, of paratransit services, they could request (in this case it would be through ESF #8, led by Department of Health and Human services—the DHHS) additional paratransit resources. DHHS could contract for those resources, and provide them to the state, for which FEMA, via the Stafford Act would reimburse DHHS for 75% of the cost, and the state would reimburse 25% of the cost.

Local and regional agencies may include ESFs as part of disaster planning, and it may be most expedient to use the same format as the NRF. Some local and regional agencies combine ESFs or use different nomenclature. Nevertheless, the functions are clearly delineated and well known. Transportation can interact with every other function while planning for, responding to, or recovering from an event requiring wide-scale evacuation. The first and second columns in Table 1.1 are from the NRF. The far right column summarizes transportation's likely role and interaction with each of the other functions in an evacuation. ESFs will be referred to throughout this guide (by name, not number) to identify likely partners in the various facets of evacuation planning, response, and recovery. From the NRF, the ESFs are as follows. Those marked in bold are identified by FEMA as critical in evacuation, according to the Target Capabilities List (TCL) for evacuation (pages 377-394 of the TCL). However, many other functions play important, if not lead roles, in evacuation, as noted in column 3. Table 1-1 is an excerpt from the table:

TABLE 1-1:

Roles and Responsibilities of the ESFs

TOOL 1.3, INTRODUCTION TO ESF AND TRANSPORTATION ROLES AND INTERACTIONS WITH EACH ESF		
ESF	Scope	Transportation Interactions Focused on Evacuation
ESF #1 – Transportation	• Aviation/airspace management and control • Transportation safety • Restoration/recovery of transportation infrastructure • Movement restrictions • Damage and impact assessment	Planning: Transportation modelers can inform EM on what is likely to happen on roadways if "everyone" goes (instead of selective sheltering-in-place if appropriate) (See Step 2 for examples.) Operations: Coordinate and manage roadways-monitor roadway status, incident response, fuel, and services- for self-evacuees, for vehicles transporting evacuees needing assistance, and in-bound response vehicles. (See Step 3 and Tool 3.4 for strategies.) • Provide and/or coordinate transportation resources (all modes) for those needing evacuation assistance.
ESF #2 – Communications	• Coordination with telecommunications and information technology industries • Restoration and repair of telecommunications infrastructure • Protection, restoration, and sustainment of national cyber and information technology resources • Oversight of communications within the Federal incident management and response structures	Transportation Management Centers provide essential communications and information on infrastructure status, incidents, roadway capacity, and potential detours. See Step 4, Section 2 for more detail. • Some locations have joint traffic management/emergency management centers

TOOL 1.3, INTRODUCTION TO ESF AND TRANSPORTATION ROLES AND INTERACTIONS WITH EACH ESF		
ESF	Scope	Transportation Interactions Focused on Evacuation
ESF #3 – Public Works and Engineering	• Infrastructure protection and emergency repair • Infrastructure restoration • Engineering services and construction management • Emergency contracting support for life-saving and • Life-sustaining services	Transportation agencies are sometimes part of Public Works and Engineering; coordinate on roadway, bridge status, detours needed for evacuation, and repairs needed/prioritized for reentry. For resource typing (see Step 4), most transportation resources will be classified under the public works category.
ESF #4 – Firefighting	• Coordination of federal fire-fighting activities • Support to wildland, rural, and urban firefighting operations	Routinely coordinate on highway incidents; rapid incident response and clearance critical on major roadway facilities in an evacuation.
ESF #5 – Emergency Management	• Coordination of incident management and response efforts • Issuance of mission assignments • Resource and human capital • Incident action planning • Financial management	Coordination between emergency management and transportation critical in all phases of planning and response to understand mutual roles, capabilities, constraints
ESF #6 – Mass Care, Emergency Assistance, Housing, and Human Services	• Mass care • Emergency assistance • Disaster housing • Human services	Self-evacuees need roadway capacity, services such as fuel to get to shelter. Assisted evacuees need transit or other transportation support to get to shelter, including their mobility devices, service animals, and other support–coordination critical. See Step 4 tools for templates for resource databases.
ESF #7 – Logistics Management and Resource Support	• Comprehensive, national incident logistics planning, management, and sustainment capability • Resource support (facility space, office equipment and supplies, contracting services, etc.)	Advance agreements, Memoranda of Understanding (MOUs) among transportation providers (public and private) and other agencies/entities facilitates planning and response. See Step 5 for MOU templates.
ESF #8 – Public Health and Medical Services	• Public health • Medical • Mental health services • Mass fatality management	Congregate care facilities (e.g., hospitals, nursing homes) that require evacuation will require multiple types and levels of evacuation transportation, from ambulances to buses. See Step 2, Tools 2.3 and 2.4 for inventories of individuals in facilities and of people out in the community receiving services. See Step 3, Tool 3.1 for a framework for discussion between medical transportation and general public transportation. See Step 4 for inventory resource tools. Caution: many facilities in a single region may have overlapping transportation agreements with specialized providers such as ambulances that may be overwhelmed in a widespread emergency. Multi-regional/multi-state agreements may be needed.
ESF #9 – Search and Rescue	• Life-saving assistance • Search and rescue operations	Transportation and public works may need to clear roads; provide other support as needed to support rescue operations.
ESF #10 – Oil and Hazardous Materials Response	• Oil and hazardous materials (chemical, biological, radiological, etc.) response • Environmental short- and long-term cleanup	Such incidents may require evacuation and frequently occur on or near transportation facilities; planning and coordination required.

TOOL 1.3, INTRODUCTION TO ESF AND TRANSPORTATION ROLES AND INTERACTIONS WITH EACH ESF		
ESF	**Scope**	**Transportation Interactions Focused on Evacuation**
ESF #11 – Agriculture and Natural Resources	• Nutrition assistance • Animal and plant disease and pest response • Food safety and security • Natural and cultural resources and historic properties protection and restoration • Safety and well-being of household pets	Livestock may need to be relocated in an evacuation–transportation coordination needed. See Step 2, Tool 2.5. Pets and service animals may need transport on public vehicles in an evacuation–advance planning, crates for pets, rules, and procedures are critical. Transportation coordination with mass care is needed to identify which shelters can or cannot accommodate pets.
ESF #12 – Energy	• Energy infrastructure assessment, repair, and restoration • Energy industry utilities coordination • Energy forecast	Downed power lines are often along roadways–access and coordination needed to restore power. For extended power outages, some evacuations may be required. Subways, rail usually have stand-alone power but may need restoration assistance.
ESF #13 – Public Safety and Security	• Facility and resource security • Security planning and technical resource assistance • Public safety and security support • Support to access, traffic, and crowd control	Law enforcement is often essential for traffic control at critical intersections or potential bottlenecks in evacuations, and to support contraflow operations. Also needed for traffic incident response. Planning essential to establish priorities, expectations, and constraints. ESF #13 will also be responsible for control, shelter, and possible relocation of inmates in detention and correctional facilities.
ESF #14 – Long-Term Community Recovery	• Social and economic community impact assessment • Long-term community recovery assistance to States, local governments, and the private sector	Transportation should be included as a community-planning partner for recovery from a major event requiring evacuation and potential mitigation.
ESF #15 – External Affairs	• Emergency public information and protective action guidance • Media and community relations • Congressional and international affairs • Tribal and insular affairs	Informing the public about the need for evacuation or sheltering-in-place and where to go is the EM responsibility via ESF #15. ESF #1 should coordinate with ESF #15 on recommending where to go and how to get there if needed.

STEP ONE—TOOLS

TOOL 1.4: POTENTIAL COMMUNITY PARTNERS

PURPOSE:

Tool 1.4 provides examples of local, county, regional, state, and national entities–community-based, and faith-based organizations, public agencies, and private companies–that may help in planning and responding to an evacuation. The tool is compiled from literature review and interview findings and is not comprehensive. The lists are in alphabetical order.

DIRECTIONS:

Use the lists in Table 1-2 to identify potential partners who may have vehicles, equipment, outreach, personnel, information, and other resources needed to plan and execute an evacuation.

TOOL 1.4, POTENTIAL COMMUNITY PARTNERS		
Potential Partners–Community-Based, Faith-Based Organizations	Potential Partners–Private Sector	Potential Partners–Public
• Agencies that work with individuals who have disabilities, limited English skills, or who are poor, children, homebound, or carless with no easy access to public transit • Agencies serving people who are blind or have low vision • Agencies serving people who are deaf and hard of hearing • After school programs and volunteer programs (e.g., Big Brothers/Big Sisters, YMCA) • American Red Cross • Area Agency on Aging • Centers for refugees and immigrants • Churches, synagogues, temples, mosques • Citizen Emergency Response Teams (CERT) • Community and neighborhood leaders • Direct human service providers • Faith-based ministries • Food banks, homeless shelters • Independent living centers • Meals on Wheels or similar senior nutrition center programs • Medical Reserve Corps • Nongovernmental organizations (NGOs) • Paratransit service (for MPOs, CBOs, or FBOs) • Salvation Army • United Way • United We Ride • Veterans' organization • Volunteer Organizations Active in Disaster (VOAD)	• Adult and child day care facilities • After school programs • Air service (commercial and private) • Amtrak, railroads • Animal shelters • Coach company and other private contractors with passenger vehicles (e.g., shuttles, limousines) • Construction contractors • Dial-a-Ride • Dialysis centers • Equipment vendors • Farmers associations • Fuel suppliers • Food vendors, caterers • Hospitals and health care facilities • Hotels and motels • Marine: ferries, private boats • Non-emergency ambulance service • Nursing homes and other long-term care facilities • Pre-schools • Schools (private) • Shuttle services (including airport and rental car) • Taxi industry • Trade groups (e.g., Building Owners Management Association) • Utilities (gas, electric, water, sanitation)	• Animal services • Citizens advisory committees • Colleges and universities • Commuter rail/light rail • Detention centers (e.g., jail, juvenile, half-way house, prison, work-release programs) • Emergency management • Ferry service • Fire • Forestry service • Fusion Center • GIS department • Head Start programs • Highway patrol • Medical assistance • Mental health departments, agencies, programs • MPOs or COGs • National Guard • Office of Emergency Medical Services • Paratransit provider • Public health agencies–state and local • Public information/community relations office • Public safety • Rural transportation agency • School districts • State department of transportation (DOT) • State wildlife/park service • Subway • Transit agency • Transportation coordinating council • Tribal agencies • University transportation centers

TABLE 1-2:

Potential Community Partners

STEP 2
UNDERSTAND THE SITUATION

TASK 2.1

GATHER INFORMATION ON POTENTIAL RISKS/HAZARDS THAT MAY REQUIRE EVACUATION

Local and state emergency managers have extensive emergency plans with hazard and risk assessments. What threats and hazards are addressed in existing plans? What are the historical threats or hazards that have resulted in evacuations? Are there other foreseeable threats or hazards that might require large-scale evacuation?

Risk management is the identification and assessment of the threats and hazards that could impact a jurisdiction. The risk assessment is the process of collecting and identifying information about possible threats and hazards and then assigning values to each for the purpose of determining those that have the highest priorities so that plans for action can be developed for addressing them. The jurisdiction can then catalog everything from specific asset vulnerabilities to staffing levels for emergency personnel.

Tip

"Managing Travel for Planned Special Events Handbook," FHWA (2003) and an Executive Summary geared to decision makers released in 2007 are available at the Transportation Operations website, http://www.ops.fhwa.dot.gov/program_areas.

Planners should begin by conducting research and analysis on the most likely threats or hazards that could affect a jurisdiction. The initial step in the research should be to gather information about potential risks, population demographics, household pet and service animal populations, and any geographic characteristics that could impact emergency operations. Threat assessments should include the identification of any potential targets. Hazard identification should include natural, human-made, and technological hazards. Any incidents that may have already occurred in the jurisdiction should be identified. Tool 2.1 provides a simple framework for reviewing and assessing potential risks and hazards.

Sources for expertise on hazard or threat potential include jurisdictional agencies, particularly state and local emergency management agencies; academic, industrial, and public interest group researchers; private consultants specializing in hazard or threat analysis; and professional associations concerned with the hazards or threats on a planner's list. Risk assessment is the basis for the transportation evacuation plan development. Planning teams must decide what likely threats or hazards should be planned for and what resources may be needed if the events were to occur (although planning is ultimately for all hazards). During this part of the process, inventories are created and evaluated. Loss estimates are also provided on assets deemed critical during the response and recovery phases of an incident.

Local public works (or civil engineering) departments and utilities are sources for information on potential damage to and restoration time for the critical infrastructures

Good Practice

For special event planning, understanding the situation involves identifying the size and characteristics of the proposed event. "Managing Travel for Planned Special Events Handbook" and the Executive Summary identify five major categories of events, each with specific characteristics and challenges:

1. Discrete/recurring event at a permanent venue,
2. Continuous event,
3. Street use event,
4. Regional/multi-venue event, and
5. Rural event

Managing transportation access and egress of large groups of people, often unfamiliar with the area, on transportation infrastructure that is not equipped to readily handle such volumes, (a major special event planning challenge) can be a reasonable surrogate for an evacuation, with the advantages of advance notice, time to plan, and reasonable control over resources.

Tip

FEMA's **Hazards U.S. Multi-Hazard model (HAZUS-MH)** is a nationally used and standardized methodology and software program that estimates potential losses from earthquakes, floods, and hurricane winds. Communities that already have a FEMA-approved multi-hazard mitigation plan may use them as reference documents in the hazard analysis.

that may be threatened by hazards. For this guide, potential damages to transportation infrastructure are the primary concern.

Once the lists are collected, planners can then organize the data into a matrix that will be usable to the planning team. The threats and hazards can be organized by frequency of occurrence or magnitude of the event. They may be grouped by intensity or severity of event. Planners could decide to organize by the size of an area the event may impact or the duration the event may last. Or planners may decide to organize the data by the number of fatalities the event is likely to cause. Planners must decide how best to organize the data for their own jurisdiction and how each would impact the community for which they are developing the evacuation plan.

Planners also need to recognize that one threat or hazard event may have a ripple effect. For example, a hurricane (natural event) may cause power failures (technological event) that could lead to civil disturbance (human-caused event). Planners must realize events may not be independent of each other and therefore they must plan responses for all contingencies, including combinations of evacuation and shelter-in-place protective actions.

During the analysis phase, facts and assumptions will be produced. Facts are verified pieces of information. They can be laws and regulations. They may be population statistics or terrain maps. They are documented and real. Assumptions are not facts. Assumptions consist of information accepted as being true in the absence of facts in order to provide a framework or to establish expected conditions of an operational environment so that planning can proceed.

Tip

TRB's *NCHRP Report 525, Vol. 15: Costing Asset Protection: An All-Hazards Guide for Transportation Agencies (CAPTA)* is designed as a planning tool for top-down estimation of both capital and operating budget implications of measures intended to reduce risks to locally acceptable levels. CAPTA supports mainstreaming an integrated, high-level, all-hazards, national incident management system-responsive, multimodal, consequence-driven risk management process into transportation agency programs and activities.

The guide is supplemented online with a downloadable Microsoft® PowerPoint slide show and CAPTool, a spreadsheet tool for implementing the CAPTA methodology. A help file is also available online.

Assumptions should only be used as facts if they are considered valid, or deemed likely to be true, and are necessary for solving the problem. In the planning process, assumptions should be used sparingly, and every effort should be made to obtain facts or historical precedent.

TASK 2.2

GATHER CONTACTS AND DATA ON PEOPLE AND ANIMALS THAT MAY NEED EVACUATION

The planning team must have extensive information about the jurisdiction itself. Population demographics can be obtained from the United States census website. The local planning commission or department should have detailed demographic and land use data. Tool 2.2 provides a template for estimating total evacuees and self-evacuees based on demographic data. The local visitor's bureau plus contacts with local, state, or federal parks or major attractions such as museums or amusement parks can provide a profile for tourists and visitors, with seasonal data and location information that will supplement the basic demographic data for the region. Tool 2.2 includes instructions for developing rough estimates of individuals that may need additional assistance in an emergency situation.

The local chamber of commerce can identify major employers in the area that should be included in the broader collaborative planning team, both as constituents requiring information and support in an evacuation, and as sources for potential resources for evacuation and recovery.

Agencies such as state and local health departments, education departments, and corrections can provide information on regional institutions such as hospitals, nursing homes, assisted living facilities, schools, and day care centers, and correctional facilities that may need additional assistance in an evacuation. Tool 2.3 provides a series of templates and instructions for gathering important transportation-related information for this range of institutions. Such institutions **should** have their own plans in place, but may not (not all states require day care centers to have plans, for example). However, a regional review of plans and a broader perspective may identify that many hospitals and nursing homes, for example, all have agreements with the same one or two ambulance providers, that would be overwhelmed in a major emergency. Looking outside the region (including investigating FEMA national agreements) may help fill potential gaps.

State and local health departments, para-transit providers, and community-based,

Hint
Work to develop contacts within a 20-mile radius, a 50-mile radius, and 100+ mile radius. Depending on the type of threat or hazard you may face, people nearby may also be impacted and overwhelmed, so start local, but think regional and beyond as well.

faith-based, and for-profit and nonprofit organizations provide extensive services to non-institutionalized individuals without access and functional needs who are dispersed throughout the community. Tool 2.4 provides a survey form and template for gathering transportation-related information for such groups.

State (and sometimes local) departments of agriculture and national, state, and local associations can provide information on animals that may need evacuation or secure shelter. Tool 2.5 provides two templates and instructions, one for an inventory of institutions (including ranches) for livestock, animal shelters, zoos, and research facilities, and a second template for estimating numbers of pets/companion animals.

Actions: Find out "Who's Who" in your region. Continue adding to Tool 1.1, *Network Contact Database*, initiated in Step 1 as you identify the partners who have the necessary information to support (or preferably complete and take ownership of) the database tools in this step. Start with the names you know; add to this as you continue the process of building your plan and building your relationships, recognizing that the relationships may be the most important part of your plan. Ask the people who "own" the resource to complete their portions of the database. The workshop that caps off this initial data gathering can help you to continue to gather information and build relationships.

TASK 2.3

PLAN AND CONVENE A REGIONAL WORKSHOP, BUILDING ON THE INFORMATION AND CONTACTS DEVELOPED IN TASKS 2.1 AND 2.2

Use Tool 2.6, *Evacuation Needs Discussion Guide* to assist in developing discussion questions. Use the Resource, "Workshop in a Box," (beginning on page 137 of this guide) to plan and implement the workshop recommended.

Note: Workshops may be useful at various stages of planning. The "Workshop in a Box" Resource provided at the conclusion of Step 6 Tools can be adapted for use during any phase of planning, and is referenced in multiple chapters of the guide.

STEP TWO—TOOLS

TOOL 2.1: PRELIMINARY RISK ASSESSMENT

PURPOSE:

Develop a high-level overview of primary risks and hazards in your community or region.

DIRECTIONS:

This is a quick exercise to assist in the identification of the primary risks in your community. For the following table, using your best judgment (and referring to experts or other resources as needed), briefly assess some of the major risks that might impact your community, estimating first the probability of the event; then the likely number of people impacted; and finally whether the event might overwhelm local resources and require support from regional, state, and/or federal partners. This is intended to get you thinking of some "worst case scenarios"–some more likely than others. Refer to emergency plans, historical data, the FEMA tools on mapping local natural hazards (FEMA.gov/), and to any UASI (Urban Area Security Initiative) or other analyses as to risks and hazards. You may also want to check whether others in your region are familiar with or have run scenarios with Sea, Lake and Overland Surges from Hurricanes (SLOSH)–a computerized model run by the National Hurricane Center (NHC) to estimate storm surge heights. Any sites near a nuclear power plant will have extensive planning documents for evacuations and drills as part of their standard procedures. Such planning and documentation may also be useful for other hazards. Note that emergency managers have more complex and detailed assessment forms including maps; this tool is intended to get individuals and groups started on the conversation. The list items are adapted from the *NCHRP Report 525/TCRP Report 86, Volume 9: Guidelines for Transportation Emergency Training Exercises* (TRB 2005, Table 1, Emergency Events Affecting Transportation Agencies), to include those threats that could conceivably cause an evacuation.

For most events, consider whether location would matter; for example, if a truck or train overturns and explodes on or near the border of a neighboring town or county, such as on a bridge, would that complicate the response? For this assessment, assume in most cases that the event will occur at the most inconvenient or dangerous location (near a school or nursing home, for example) and the most inconvenient time (at morning rush hour or in the middle of the night, as usually seems to be the case). For columns 2 and 3, indicate high, medium, low or zero for your judgment as to risk and the number of people likely to be affected. If you anticipate that a situation may call for some to shelter-in-place and others to evacuate, please note that in the comments column. For column 4, indicate regional, state, multi-state, federal, or not applicable–including all that might apply–for your assessment of the type and level of coordination that might be required if local resources are overwhelmed. Please add a comment/notes if you want to clarify or remind yourself of your thinking.

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Tool 2.1, Preliminary Risk Assessment

Event type	Probability/ Frequency/ Likelihood				# People Impacted, Needing to Evacuate				Regional/ State/ Multi-state/ Federal role likely (indicate N/A if not applicable)				Comments
Assessment	High	Med.	Low	Zero	High	Med.	Low	Zero	High	Med.	Low	Zero	
Natural Hazards													
Earthquakes													
Floods													
Hurricane/ Typhoon													
Ice storms													
Landslides													
Naturally occurring epidemics													
Snowstorms and blizzards													
Tornadoes													
Tsunami													
Volcanic eruption													
Wildfire													
Human- Caused Intentional													
Bomb threats and other threats of violence													
Fire/ arson													
Riot/ civil disorder													
Sabotage: External and internal actors													
Security breaches													
Terrorist assaults using chemical, biological, radiological, or nuclear agents													
Terrorist assaults using explosives, firearms, or conventional weapons													
War													
Workplace violence													
Human-Caused Unintentional													
Accidental contamination or hazardous materials spills													
Accidental damage to or destruction of physical plant and													

Preliminary Risk Assessment

This excerpt can be viewed in full on CRP-CD-132.

STEP TWO—TOOLS

TOOL 2.2: EE–ESTIMATED NUMBER OF EVACUEES

Each database includes a sample with instructions, followed by a blank form that can be customized for an individual jurisdiction.

Estimated Number of Evacuees: data for this table should come from the U.S. Census and from local estimates. Smaller sets of data could be collected and inventoried for a jurisdiction to help identify all residents.

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Tool 2.2, EE – Estimated Number of Evacuees

Estimated Number of Evacuees					
Jurisdiction Name	**Type**	**Total Estimated Evacuees**	**Estimated Evacuees That May Need Additional Assistance With Basic Transportation**	**Estimated Evacuees That May Require Specialized Transportation Assistance (e.g., lift equipped vans)**	**Estimated Evacuees That May Require Case Management (e.g., medical transport)**
Name of jurisdiction evacuating (state / city / town / neighborhood / area (coast/inland) / etc.)	Full (will include all residents) Partial (will be a % of total population) for some events a location could have full evacuation of one area and partial evacuations of another area	This will be the number of evacuees that a jurisdiction could expect in the event of an evacuation. For example if an evacuation has been ordered for an entire town, then the number would be the U.S. Census figure for the total number of people for that town plus any tourists or visitors to the area. But if the evacuation order is for 100% of the coastal residents and 50% of everyone else then the jurisdiction would have to calculate the number of evacuees they could expect.	This initial estimate can be based on demographic information on households without vehicles or on estimates from the local transit agency on their rider profiles (including the number of riders that make use of the lift on their lift-equipped buses). Tourists and visitors that did not arrive in personal vehicles may also need assistance. The estimate will be refined with additional information from CBOs, FBOs, NPOs, and other sources.	This initial estimate can be based on U.S. Census estimates on individuals with disabilities (though not all disabilities require a lift-equipped vehicle) or on estimates from the local transit agency on their paratransit rider profiles. The estimate will be refined with additional information from CBOs, FBOs, NPOs, and other sources.	This initial estimate can be based on state or local health agency estimates on institutional populations; and on law enforcement estimates of correctional facility populations. The estimate will be refined with additional information from CBOs, FBOs, NPOs, and other sources for non-institutionalized people who would need extensive support.

Estimated Number of Evacuees

This excerpt can be viewed in full on CRP-CD-132.

The U.S. Census Bureau has extensive demographic data down to the county level and below. For a quick snapshot and estimate of the numbers of people who may need additional assistance to evacuate, poverty, disability, and age are probably the best short-hand indicators of the likely scope.

http://www.census.gov/hhes/www/disability/demofiles.html

http://www.censusscope.org/us/map_poverty.html

The tools that follow this first demographic snapshot are designed to help a region hone in on the specifics of facilities, institutions, and those who are out in the community who may need additional assistance. It is likely that the state and local Departments of Health and Corrections agencies have already gathered much of the required information, but may not have focused on the transportation implications. The questions on ambulatory status are designed to avoid potential concerns about patient privacy.

STEP TWO—TOOLS

TOOL 2.3: IF–INSTITUTIONAL FACILITIES

Each database includes a sample with instructions, followed by a blank form that can be customized for an individual jurisdiction.

Institutional Facilities:

These locations will require additional assistance to evacuate their respective inhabitants. These institutionalized persons may also require specialized transportation resources, specialized support, equipment, and trained attendants to accompany the evacuees.

Questions for the jurisdiction/region to assist in identifying vulnerable locations:

Note: These inventory questions relate primarily to transportation needs. However, the individuals conducting the inventory may also want to ask about other issues they may need to be aware of such as communication, supervision, procedures for transfer of medical or other records, procedures for tracking and supervising unaccompanied minors, and other logistical issues not necessarily bearing on transportation. FEMA's CPG 101, version 2, Appendix C, pages 114-115 (section on Population Protection) provides a comprehensive set of questions on evacuation and sheltering in place. Likewise, the Target Capabilities List section on evacuation provides guidance.

Are all nursing homes accounted for? Note: Responsibility usually assigned/delegated to ESF #8, *Public Health and Medical Services*. **Are all hospitals and long-term care facilities identified?** Note: Responsibility usually assigned/delegated to ESF #8, *Public Health and Medical Services*; complicated cases would require case management and medical transportation, but transit/other transportation resources may be asked/be able to assist with ambulatory patients and those with moderate mobility impairments, using lift-equipped vehicles.

Do multiple nursing homes, hospitals, and long-term care facilities rely on the same ambulance or specialized transportation services? Are these resources likely to be overwhelmed in a major regional emergency? What is the fallback plan? For reference, Tool 3.2 provides an overview of key considerations for coordination of standard and medical transportation requirements.

Do all nursing homes and hospitals have agreements with comparable destination facilities? Are all schools (public and private, including pre-school) inventoried? Note: It is anticipated that most plans designate responsibility for schools to ESF #6, *Mass Care, Emergency Assistance, Housing, and Human Services*. In some cases, this may mean that the plan focus is mainly on using schools as shelters. Each jurisdiction and region needs to evaluate this. Note: Many schools have their own

fleets or contract for "yellow bus" services. Some of these vehicles are usually equipped with lifts for students with mobility impairments. However, coordination and public transit support may be needed, depending on the type of event (notice or no-notice), the time of day, location, etc.

Are all group homes and adult day care facilities inventoried? Note: Responsibility usually assigned/delegated to ESF #8, *Public Health and Medical Services*, but transportation/transit support and coordination may be needed or requested.

Are all detention facilities inventoried? Note: Responsibility usually assigned/delegated to ESF #13, *Public Safety and Security*, but transportation/transit support may be requested.

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Tool 2.3, IF – Institutional Facilities

INSTITUTIONAL FACILITIES – HOSPITALS/HEALTH CARE FACILITIES				
Facility	**Address**	**Contact**	**# of Beds**	**Estimates on Ambulatory Status**
Name: this table would contain hospitals, nursing homes, rehabilitation centers, and other medically related facilities	Specific location should be here; it could also be noted here if there is an alternative mailing address	Complete contact information for the owner / manager / staff that would be assigned and working at the location	Population at these locations can be calculated by counting the total number of beds at the facility versus the number of occupied beds	Identifying approximate numbers of patients across the spectrum of mobility will aid in planning for transportation
Name	Address	Contact/#	#	%

Institutional Facilities

This excerpt can be viewed in full on CRP-CD-132.

STEP TWO—TOOLS

TOOL 2.4: AE–ASSISTED EVACUEES (NON-INSTITUTIONAL)

Each database includes a sample with instructions, followed by a blank form that can be customized for an individual jurisdiction.

Individuals with Access and Functional Needs (non-institutional).

Individuals with access and functional needs for communication, supervision, mobility, and transportation are widely dispersed in every community. The best way to reach out to these individuals is through their existing connections to the community–through the trusted messengers that work with them regularly. Refer to the list of potential partners in Tool 1.4, *Potential Community Partners*. Some of these partners are public agencies, such as public health organizations that may offer free or reduced-price health care, or paratransit service providers. Many of these partners are faith-based, community-based, or nonprofit organizations that work with specific communities, such as churches for a particular language group, or a volunteer organization working with the mentally ill or persons with cognitive disabilities. The organizations and the groups they serve will vary in every location; the "Potential Partners" is a place to start.

Note that many communities have established coordination networks among community-based organizations to reduce duplication and to better understand additional support that may be available. "United We Ride" is a national initiative replicated in many states to coordinate human service organizations that have transportation resources. "Service Link" in New Hampshire is an example of such a coordination effort. *TCRP Report 150: Communication with Vulnerable Populations—A Transportation and Emergency Management Toolkit* provides comprehensive, step-by-step guidance on how to establish a strong network of community-based organizations to support emergency and evacuation planning. The templates included herein are based on that type of outreach.

It is possible or even likely that there will be some duplication of individual clients who receive service from more than one type of agency. However, in terms of total numbers, there are likely many others who will not be counted in the initial inventory, so the count and contacts should be useful for planning purposes. As the network grows and expands its role to promote personal and "buddy system" emergency preparedness, individuals may "get the message" from more than one trusted messenger.

TOOL 2.4: AE PART 1: POTENTIAL NETWORK PARTNER INFORMATION SHEET

PURPOSE:

This is a template to gather information for collaborative network contacts.

DIRECTIONS:

Distribute this at meetings and by email. Summarize information in the database (Tool 2.4, AE part 2), but preserve the forms for the additional information on population groups. Follow up on leads to other groups. Update regularly.

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Tool 2.4, AE part 1: Potential Network Partner Information Sheet

[Logo of sponsoring agency if desired]   [Evacuation Planning/ Project name]

Name

_____Position/Title_____

Agency/Company_____

Address_____City_____

Telephone_____Back-up phone_____Email_____

_____Do you or your agency work with or represent any individuals or groups that may be considered vulnerable*? Population groups your agency/ organization serves

_____

Approximate number of individuals you work with or represent_____

Approximate percentages of individuals you work with by mobility status:

____% Ambulatory

_____tory with assistance (cane, wa___

AE Part 1

This excerpt can be viewed in full on CRP-CD-132.

TOOL 2.4: AE PART 2: ASSISTED EVACUEES

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Tool 2.4, AE Assisted Evacuees Part 2

HOME HEALTH CARE PROVIDERS AND SIMILAR IN-HOME SUPPORT SERVICES (E.G., MEALS ON WHEELS); PARATRANSIT OPERATORS; DIALYSIS CENTERS; AND COMMUNITY-BASED, FAITH-BASED, AND NONPROFIT ORGANIZATIONS			
Agency/Organization	**Contact**	**# Registered/Served**	**Estimates on Ambulatory Status**
This will contain the names of in-home care providers and others who provide in-home support. These providers furnish in-home health care or other support to a constantly changing set of clients over a fairly large area; they should be contacted to determine if they have clients living within the area who may require assistance in evacuating, or in developing their own plan or buddy system to help them evacuate.	Complete contact information for the owner / staff who would have a list of patients or clients they tend to	Population for these could be determined by the number of patients / clients registered	Identifying approximate numbers of clients across the spectrum of mobility and supervisory requirements, as well as pet/ companion animal information will aid in planning for transportation
Name	Contact/#	#	%

AE Part 2

This excerpt can be viewed in full on CRP-CD-132.

STEP TWO—TOOLS

TOOL 2.5: LA–LIVESTOCK AND OTHER ANIMALS

Each database includes a sample with instructions, followed by a blank
form that can be customized for an individual jurisdiction.

Livestock, Animal Shelters, Zoos, Animal Research Facilities

Livestock may need transportation logistics support (e.g., clearing roads to allow for large
herd movements to a nearby safer location), or support in coordinating transportation vehicles
(e.g., for high value race horses). See Figure 2-1. The support function is addressed in the
resource areas in Step 4; this step focuses on identifying major regional facilities that may be
at risk for a particular event. State or local associations (e.g., Cattlemen's Association) can
assist in identifying ranches, feed lots, or other facilities or locations at risk as well as potential
resources for movement or safe locations for shelter. The National Alliance for State Animal and
Agricultural Emergency Programs (NASAAEP.org), the National Animal Rescue and Sheltering
Coalition (narsc.net), and the American Veterinary Medical Association (AVMA) (http://www.
avma.org/disaster/default.asp) all provide support and resources for planning for animals.

Animal shelters should be inventoried to identify whether they have a hardened facility, so they could
shelter in place for most events. They should also know the number, types, and sizes of crates they
have available or can quickly obtain in case they have to move (e.g., in the event of a chemical release).

FIGURE 2-1:

Cattle rescued from
the flooded marshes
of lower Cameron Par-
ish, Louisiana, 2005.

FEMA News Photo

FIGURE 2-2:

Hurricane Gustav's animal
evacuation, Texas, 2005.

FEMA News Photo

Similar to animal shelters, zoos, and facilities with research animals need emergency planning contingencies–can they shelter in place for all events? If they need to move, how would they transport animals securely?

Note that the agency or agencies charged with ESF #11, *Agriculture and Natural Resources*, are likely to be the leaders in this section.

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Tool 2.5, LA – Livestock and Other Animals

Facility	Address	Contact	# Animals	Types and Sizes	# movable cages/ containers	Comments- evacuation versus shelter potential, requirements
Enter the facility name.	Full street address	Complete contact information for the owner / staff	Average number of animals on site	Summary inventory of types, e.g., 1,000 cattle, 100 dogs, or 50 housecats versus 5 tigers and 3 hippos	What provisions are on-site if a move is required?	Brief description of existing emergency plans for evacuation and/or shelter-in-place

Livestock and Other Animals

This excerpt and the comparable template for pets/companion animals can be viewed in full on CRP-CD-132.

Pets/Companion Animals

In the fall of 2006, Congress passed H.R. 3858, the Pets Evacuation and Transportation Standards Act of 2006 (PETS Act). On Friday, October 6, 2006, President Bush signed the PETS Act into law. The PETS Act amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act to ensure that state and local emergency preparedness operational plans address the needs of individuals with household pets and service animals following a major disaster or emergency. The PETS Act authorizes FEMA to provide rescue, care, shelter, and essential needs for individuals with household pets and service animals, and to the household pets and animals themselves following a major disaster or emergency (http://www.avma.org/disaster/petsact_faq.asp). See Figure 2-2. The templates for Institutional (Tool 2.3) and Assisted Evacuee (Tool 2.4) planning include placeholders to develop estimates for pets/companion animals. The AVMA provides an on-line calculator to estimate the number of pets in a given community, based on national averages from a 2007 market research study: http://www.avma.org/reference/marketstats/ownership.asp. The AVMA website (http://www.avma.org) also has links to state resources for states that have submitted plans.

In addition, the American Red Cross, FEMA, DHS, Centers for Disease Control, the American Humane Association, and the American Society for the Prevention of Cruelty to Animals have all developed pet-care and related emergency community preparedness materials.

STEP TWO—TOOLS

TOOL 2.6: EVACUATION NEEDS DISCUSSION GUIDE

PURPOSE:

This tool can be used to encourage advance thinking about mass evacuation before a planning session when multiple stakeholders, including public agencies, community-based and faith-based organizations, and multiple jurisdictions, are involved. This tool may be useful to professionals in the fields of transit, transportation, public works, emergency management, and law enforcement as well as other responders–anyone convening or participating in mass evacuation planning.

DIRECTIONS:

This tool can be used before or during an evacuation planning session to prompt thinking and discussion about evacuation needs, roles, and responsibilities. The convener can develop additional topics and customized questions as needed.

Roles and Relationships

Mass evacuations by definition encompass multiple jurisdictions, public agencies, private entities, and community-based and faith-based organizations. Understanding the web of roles, responsibilities, and relationships involved in a mass evacuation is a necessary first step for success.

Consider the following questions in advance of a meeting or to use as discussion starters:

- **What role would your agency or organization play in a large-scale evacuation?**

- **What type of planning is needed so that your agency or organization will be equipped to fulfill that role?**

- **What other agencies or organizations would likely be your partners in evacuation planning, response, and recovery?**

- **What information about your partners' roles in evacuation planning, response, and recovery would be useful?**

Note: These questions are re-visited throughout the process, as the plan takes shape and as understanding increases.

Needs

Mass evacuations involve all segments of a population. This requires planning for the full scope of transportation-related needs. Developing the contacts and associated databases from Tools 2.2, 2.3, 2.4, and 2.5 provides a solid foundation for understanding the diversity and needs of the whole community including the following major categories of evacuees:

- **Self-evacuees (who may be caring for individuals with access and functional needs, and who may also have pets/companion animals)**

- **Individuals without cars whose primary functional need is transportation (who may also be caring for individuals with other access and functional needs, and who may also have pets/companion animals)**

- **Individuals in institutions, either full time or part time, who may have access and functional needs, and who may have pets/companion animals**

- **Individuals with additional access and functional needs, beyond transportation, who are not in institutions, and who may have pets/companion animals**

STEP 3
DETERMINE GOALS AND OBJECTIVES

Step 3 introduces specific disaster scenarios and operational priorities and strategies to help meet objectives for evacuation.

TASK 3.1 FIRST DETERMINE OPERATIONAL PRIORITIES

Determining operational priorities is the precursor to setting goals and objectives.

Develop/Consider Scenarios

Developing scenarios is important in emergency planning because it enables emergency managers, transportation managers, and other key players to think through and practice all the stages of an actual disaster, including coordination, actions, and resource needs. The actual disaster is almost certain to be different from what is planned, but the process, the relationships developed, and the decisions on frameworks and strategies for control and operations will lead to better outcomes. Large-scale scenarios give emergency managers and other partners more realistic expectations of:

FIGURE 3-1:

Hurricane Rita, September 2005.

FEMA News Photo

- **What transit agencies can deliver and when**

- **How different modes and public and private entities can work together for greater impact**

- **The types of support transportation agencies can provide, from population and traffic information to cones and variable message signs**

- **The likely impacts of various decisions, such as the traffic congestion impacts of an evacuation that is not staged**

In the event of an actual disaster, emergency managers will then be able to make better, more informed decisions on public protection actions, for example, selective evacuations with selective sheltering-in-place. (For special event planning, the scenario is the planned special event.)

Revisit Tool 2.1, *Preliminary Risk Assessment,* to identify likely causes for potential scenarios to explore and plan. Focus first on scenarios that have both a high likelihood and a high number of people impacted. See Figures 3-1, 3-2, and 3-3. Remember that some events may be co-related: drought can increase the risk of wildfire; winter storms or flooding can increase the risk of a dam or levee breach. For each threat or hazard, the planning team

will work through how the incident will develop, the warnings issued, impacts on the jurisdiction(s), and finally to the consequences of the event. Each scenario should include:

- **Prevention/protection**

- **Initial warning–develop and analyze the course of action, e.g., evacuate or shelter-in-place or both (depending on location)**

- **Impact/specific consequences**

- **Response requirements**

- **Restated response requirement as priorities**

Table 3-1 illustrates two transportation-related scenarios developed for the TRB guidebook on emergency training exercises. It is significant to note that both scenarios identify multijurisdictional coordination as major issues. This guidebook will also be referenced in Step 6.

FIGURE 3-2:
Oklahoma, May 1999.
FEMA News Photo

FIGURE 3-3:
California, October 1989.
FEMA News Photo

Feature	Scenario 1: Port Dirty Nuclear Explosion	Scenario 2: Highway Collapse/Chlorine Gas Leak
Weapon	Dirty nuclear bomb, explosives	Explosives, chlorine gas
First Target	Ship/port	Highway overpass
Second Target	Highway overpass	Highway rail overpass, train carrying hazardous materials
Time of Year	Summer, July 4	Summer
Time of Day	Morning rush hour	Evening rush hour
Special Features	Holiday travel	Outdoor festival near second incident scene
Modes Affected	Freight (port operations), highway, and transit	Freight (rail operations), highway, and transit
Major Issues	Radiation preparedness, evacuation, mass hysteria, transportation gridlock, and multijurisdictional cooperation	Chemical preparedness evacuation or sheltering for special event, transportation gridlock, and multijurisdictional cooperation

TABLE 3-1:

Example scenarios from the joint *TCRP Report 86/ NCHRP Report 525, Volume 9: Guidelines for Transportation Emergency Training Exercises, Attachment 5.*

NATIONAL PLANNING SCENARIOS

While developing scenarios, refer to the National Planning Scenarios. The current version is available on ODP Secure Portal (https://odp.esportals.com) and the Lessons Learned Information Sharing system (https://www.llis.dhs.gov). The 15 scenarios include terrorist attacks, natural disasters, and other emergencies. They are listed in Table 3-2. They provide sufficient detail to allow a scenario to be customized for local circumstances. (The summary columns of notice/no notice, public protection measures, and regional coordination are not from the DHS tables but were developed based on reviews of the scenarios.)

National Planning Scenarios	Advance Notice?	Public Protection Measures Include:		Regional Coordination Required?
		Evacuation	Shelter-in-Place	
Improvised nuclear device	No	Yes	Yes	Yes
Aerosol anthrax	No	Yes	Yes	Yes
Pandemic influenza	Yes	No	No, possible isolation	Yes
Plague	No	No	Possibly	Yes
Blister agent	No	Yes	No	Yes
Toxic industrial chemicals	No	Yes	Yes	Yes
Nerve agent	No	Yes	Yes	Yes
Chlorine tank explosion	No	Yes, self-evacuate	Yes	Yes
Major earthquake	No	Yes	Yes	Yes
Major hurricane	Yes	Yes	Yes	Yes
Radiological dispersal device	No	Yes	Yes	Yes
Improvised explosive device	No	Yes	Yes	Yes
Food contamination	Yes	No	No	Yes

TABLE 3-2:

National planning scenarios

Identify potential traffic, transit, intermodal, and interjurisdictional challenges and opportunities presented by the scenario

Using information gathered in Step 2, analyze the demographics against the transportation network. See Figures 3-4 and 3-5. In addition to highways, other transportation modes and routes will likely be employed, including large numbers of pedestrians traveling on the road network. Note that Step 4 includes tools for inventorying resources ranging from buses and roads to intermodal centers; Step 3 focuses on objectives and strategies that help define the resource and information requirements, although the two steps are interrelated.

SCENARIO PLANNING TOOLS

Alternate modes and transportation partners are identified in Tools 3.1, 3.2, and 3.3. Tool 3.4 stresses strategies for all modes. Tool 3.5 stresses traffic signals, signs, and roadway markings that can assist drivers. Greater detail on transportation, transit, and intermodal resources appear in Step 4.

The agencies managing an evacuation will need to rely on the existing transportation network to carry evacuees from at-risk areas to safe areas. Each component of the transportation network should be reviewed to determine critical characteristics, including:

- **Carrying capacity (number of vehicles/passengers per hour)**

- **Potential choke points (e.g., railroad crossings, interchanges, and lane reductions)**

- **Potential vulnerabilities (e.g., bridges or tunnels)**

- **Sensitivity to seasonal considerations (e.g., snow, fog, and flooding)**

- **Location respective to evacuation population distribution**

- **Location respective to potential sheltering and care destinations**

- **Proximity to alternate, parallel routes**

TRAFFIC MANAGEMENT CHALLENGES

Management of an emergency evacuation presents a number of distinct challenges for agencies tasked with initiating and coordinating the movement of large numbers of evacuees out of a hazard region in an orderly and efficient manner.

FIGURE 3-4:

Texas, August 2008

FEMA News Photo

FIGURE 3-5:

North Dakota, April 2009.

FEMA News Photo

Scale and Patterns of Movement

First and foremost, a large-scale evacuation scenario will place great strain on the transportation network's ability to handle a large volume of evacuees and vehicles. Traffic volumes and patterns of movement may differ significantly from what the traveling public and those tasked with traffic management at the state, county, and local levels have experienced.

Compromised Infrastructure

Certain types of incidents, such as earthquakes, fires, chemical plumes, or hostile incidents or threats, may also compromise the safety and availability of certain critical infrastructure, such as bridges, tunnels, viaducts, and transit. This compounds the difficulty of managing an evacuation. Emergency officials, supported by information from first responders and the general public, need to quickly identify, assess, and respond to compromised transportation infrastructure by widely disseminating information on closures and re-routing emergency vehicle movements.

Secondary Incidents

Following the initial event that triggers the evacuation, secondary incidents (e.g., vehicle collisions and aftershocks) can further compromise evacuation infrastructure. Such events may require emergency responders to re-assess the evacuation strategy and provide updated information to evacuees who are impacted by the effects of such secondary incidents.

Because transportation agencies are able to contribute significant resources and capabilities to the emergency evacuation process, transportation and emergency management coordination is an integral part of both the planning process and the real-time implementation of an evacuation scenario.

TRANSPORTATION MODES

A jurisdiction and region should consider all transportation options, including all modes, as viable alternatives. See Figures 3-6 and 3-7. Although roadway and highway networks will be principal conduits for moving large numbers of people, the nature and consequences of events will dictate what transportation options are best. With the foreknowledge of capacity and the

FIGURE 3-6:

Louisiana, September 2008.

FEMA News Photo

FIGURE 3-7:

Texas, August 2008.

FEMA News Photo

available transportation resources by corridor, decisions can be made as to how to distribute evacuees among modes. Likely candidates for evacuation modes and networks include:

- **Local roadways**

- **Highways**

- **Private vehicles**

- **On-road transit (bus and paratransit vehicles, including private sector over-the-road coaches and school buses)**

- **Commuter and regional rail systems, subways, and light rail systems**

- **Ferries and other boats**

- **Taxis**

- **Vans and buses operated by CBOs, FBOs, NPOs, and private sector agencies**

- **Airplanes, both commercial and private**

- **Pedestrian movements**

INTERMODAL COORDINATION

Those who need additional assistance, such as paratransit or lift-equipped vehicles, should be advised how to secure such services. Tool 3.1 provides guidance on that type of coordination. In many cases, it will be necessary and most efficient to ask those who are able to walk to a nearby pick-up location, which can be a local bus stop or other easily identified landmark. Local buses or vans will often transport people to a more central location where they are transferred to vehicles more suitable for longer distance travel, such as regional rail systems or over-the-road coaches. Transferring between

modes can take place at established intermodal facilities, such as bus/rail stations, or can be improvised at a landmark location with good access to local roads, transit, and evacuation routes, such as a stadium or convention center.

Contraflow

Contraflow is a form of reversible traffic operation in which one or more travel lanes of a divided highway are used for the movement of traffic in the opposing direction. Since 1999, contraflow has been used to evacuate regions of the southeastern U.S. under threat from hurricanes and is now considered as a potential preparedness measure for other mass-scale hazards.

- Contraflow segments are most common and practical on freeways because they are the highest-capacity roadways, are designed to facilitate high-speed operation, and do not incorporate at-grade intersections that can interrupt flow or permit unrestricted access into the reversed section. Freeway contraflow can be implemented and controlled with fewer personnel than unrestricted highways.

- States have varied the number of inbound lanes used for outbound evacuees. However, nearly all of the contraflow strategies currently planned on U.S. freeways have been designed for the reversal of all inbound lanes.

- Some states also have used shoulder lanes for evacuation and service traffic.

- Some early research suggests that reserving some contraflow lanes for buses (and perhaps other vehicles with professional trained drivers) could improve the carrying capacity of both the regular lanes and the contraflow lanes.

Contraflow

Contraflow lanes typically do not significantly degrade traffic safety, because they are usually well controlled.

There are significant differences between contraflow operation on urban arterial roadways and long sections of interstate freeways during hurricane evacuations.

Key issues with contraflow lanes: Crossover points may need to be constructed in advance, with ramps and transition points evaluated.

Some of the key issues that arise during evacuation lane reversals are:

- Traffic control

- Access

- Merging,

- Use of roadside facilities

- Safety

- Labor requirements

- Cost

From an operational standpoint, the most critical areas of reversible segments are the transition zones. For reversible lanes to be effective, the capacity of the transition sections (into and out of the contraflow lanes) must be capable of accommodating the increased volume.

Transferring from local transit to alternate modes becomes particularly important if local buses operate on natural gas or alternate fuels that may not be available in the destination jurisdiction. This also allows local buses and paratransit vehicles to make multiple local trips in neighborhoods and with clients they may already know.

TRAFFIC MANAGEMENT TACTICS

In most evacuation scenarios, the majority of evacuee movement will take place on roadways and highways in both personal and transit vehicles. Given the potentially large number of vehicles that will be accessing the limited roadway network at the same time, consider how regional cooperation can increase the effective capacity of the roadways. The viability of the traffic management plan employed during an evacuation will have a direct relationship to the safety and comfort of the evacuees. Tool 3.5 provides an overview and picture examples of traffic control devices from signs to pavement markings to gates that can assist drivers in understanding what to do in emergency situations that require evacuation.

Local transportation planners should be involved in the development of the evacuation plan. Their understanding of the regional transportation network enables them to identify ways to improve the carrying capacity of roadways and transit systems in a safe manner. Traffic management centers and their experienced staff can provide the critical real-time traffic information and expertise to plan, communicate, and coordinate among transportation, law enforcement, and other entities. These are mentioned in Tools 3.3 and 3.4 and among the resources in Step 4. Planners can enable decision makers to determine:

- **How to shift roadway use among a region's interstates and primary and secondary roadways**

- **Which routes are available for the most expedient movement of at-risk populations from their originating points to the highway network**

- How to deliver evacuees to final destinations

- How to assign lane usage on interstates and other primary highways

- How to stage evacuations to minimize roadway congestion

- Whether to dedicate lanes for high-occupancy vehicles and any other vehicles required to move certain special population groups

- Whether and how to establish contraflow lanes

An integral component of the evacuation traffic management plan is the selection of tactics to move traffic more efficiently. The challenge lies in identifying those tactics that provide the greatest increase in carrying capacity while imposing realistic time and resource requirements for implementation (King County 2008). Tool 3.3 provides a list of potential traffic management, transit, and travel demand strategies that could be employed during an evacuation (associated with an objective).

Convene at Least One Collaborative Workshop on Operational Priorities

Convene an inclusive workshop to establish one or more "core" scenarios, discuss operational priorities, and develop goals and objectives. Good preparation with read-ahead information and careful facilitation can ensure that workshops are worthwhile and meet specific intermediate objectives, for the meeting and for the entire process.

- Tool 3.1, *Evacuation Operational Priorities and Goals and Objectives Discussion Guide–"Thought Starters"*, can be used together with the resource, "Workshop in a Box" and the background information in this step.

- Tools 3.2, 3.3, 3.4, and 3.5 may also be useful to spark discussion and develop locally appropriate goals and objectives for interregional coordination for a large-scale evacuation. This may require more than one workshop, depending on the level of agreement on scenarios, operational priorities, and goals and objectives.

- Tool 3.2, *Transportation Coordination Spectrum of Considerations for Access and Functional Needs Populations,* addresses the planning objective that all evacuees have access to appropriate transportation support and can maintain independence in the least restrictive shelter accommodations possible for their individual situation. The table helps transportation managers coordinate with medical transportation managers to identify and classify evacuees with access and functional needs according to the types of transportation they may need and potential destinations.

- Tool 3.3, *Primary Entities and Transportation Modes Involved in Evacuation,* addresses the objective to ensure that all modes and appropriate entities are included in planning for evacuations. The table helps transportation and emergency managers identify roles modes and entities can play in evacuations, either in providing transportation resources, or identifying community needs, or both.

- Tool 3.4, *Transportation Operations Coordination Checklists,* addresses the objective that all appropriate "tools" in the traffic management, transit operations, and travel demand management "toolboxes" are considered in planning for and responding to a disaster requiring evacuation. Most will require inter-regional coordination.

- Tool 3.5, *Traffic Control Devices Supporting Evacuation,* serves to generate discussions on strategies and possible modifications to identifying resource needs around traffic signals, lane markings, and signage.

The checklists outline a three-part strategy that includes actions to:

- Improve roadway capacity and efficiency

- Prioritize, reorient, and supplement transit service in several modes

- Manage transportation demand with actions directed at both vehicles and passengers

These checklists can help emergency, transportation, and transit planners and managers identify the agencies and transportation-related actions that will be critical in an evacuation.

Note: Many of these strategies and coordination actions will also be useful for planned special events.

Task 3.2 Establish Goals and Objectives (as part of a workshop)

GOALS

Goals are broad, general statements that indicate the intended solutions to the problems identified as threats or hazards that the planning team established in Step 2. They are results that personnel and resources are supposed to achieve. They will be used to gage when the response is achieved and the operation is deemed successful.

For example, a jurisdiction's goal in fire events may be to minimize the loss of life by evacuating the maximum amount of people possible from the immediate hazard area. The desired result would be to move the maximum amount of people out of the fire area to safety.

Example:
Relationships among the Mission, Operational Priorities, Goals, and Objectives

Plan Mission:

Effectively coordinate and direct available resources to protect the public and property from hazards or threats.

Operational Priority:

Protect the public from hurricane weather and storm surge.

Goal:

Complete evacuation before arrival of tropical storm winds. Desired result: All self-evacuees and assisted evacuees are safely outside of the expected impact area prior to impact.

Objective:

Complete tourist evacuation 72 hours before arrival of tropical storm winds. Desired result: tourist segment of public protected prior to hazard onset, allowing resources to be redirected to accomplishing other objectives in support of this goal or other goals.

(From FEMA 2010)

OBJECTIVES

Objectives are more specific and identifiable. They lead to achieving response goals and determine the actions that participants in the event must accomplish. Objectives then refer to activities that must take place, procedures to do so, or procedures by specific organizations. Using the fire evacuation from the above goal, some objectives may be:

- **Prevent people from entering the evacuation area and becoming an additional burden to the road system**

- **Properly plan evacuation routes to provide for the best balance of flow and eliminate or minimize gridlock**

- **Maximize use of roadways early in the event to reduce traffic load later in the event (when smoke and panic will hamper evacuation efforts)**

- **Provide proper guidance to motorists through the use of uniformed officers, public works, and/or mutual aid employees along with appropriate signage**

- **Ensure timely response by pre-staging necessary resources, such as changeable message boards, signs, uniformed officers, tow trucks, and public works/mutual aid personnel**

As each objective is accomplished resources supporting that objective can then be shifted to other goals or objectives.

STEP THREE—TOOLS

TOOL 3.1: EVACUATION OPERATIONAL PRIORITIES AND GOALS AND OBJECTIVES DISCUSSION GUIDE—"THOUGHT STARTERS"

PURPOSE:

This tool can encourage advanced thinking about mass evacuation before a planning session when multiple stakeholders are involved, including public agencies, CBOs and FBOs, and multiple jurisdictions. This tool focuses on the objectives for Step 3 of the planning process. This tool may be useful to professionals in the fields of transit, transportation, and public works as well as emergency management, law enforcement, and other first responders–anyone convening or participating in mass evacuation planning.

DIRECTIONS:

This tool can be used before and during an evacuation planning session to prompt thinking and discussion about multijurisdictional scenarios, operations, and goals and objectives.

Use the following questions for self-reflection in advance of a meeting or as an icebreaker at a meeting. To foster discussion, refer to the information in this step, the intermediate goals and objectives from the "Workshop in a Box," and Tools 3.2, 3.3, and 3.4.

- **Consider events and scenarios that might occur in this area where large-scale evacuation requiring multijurisdictional coordination may be needed. Refer to the risk and scenario information under Step 1.**

- **Which two evacuation scenarios do you think are most likely to be challenging for multijurisdictional coordination?**

- **Which two evacuation scenarios do you think are most likely to be perceived as both plausible for this region and compelling and interesting for you and other stakeholders?**

Midway or earlier in the workshop, ask the group to reach general consensus on one to three overarching, comprehensive scenarios that the Emergency Operations Team can use as organizing principles for Step 4 and as the foundation for exercises and drills in Step 6. (The scenarios can be modified in Step 4 and during the exercise planning as more information becomes available; this is essentially the "straw man" to encourage focused rather than hypothetical responses.)

Based on these scenarios, ask the team to discuss:

- **Types of evacuation operations needed and corresponding evacuation roles and responsibilities of various modes and agencies (refer to Tools 3.2, 3.3, and 3.4)**

- **Goals and objectives for a successful evacuation response and reentry**

The convener can develop additional topics and customized questions as needed.

STEP THREE—TOOLS

TOOL 3.2: TRANSPORTATION COORDINATION
SPECTRUM OF CONSIDERATIONS FOR ACCESS
AND FUNCTIONAL NEEDS POPULATIONS

OBJECTIVE:

Ensure that all evacuees have access to appropriate transportation support and can maintain
independence in the least restrictive shelter accommodations possible for their individual situation.

PURPOSE:

This table helps identify and classify evacuees with access and functional needs, the
types of transportation they may need, and potential destinations in an evacuation.

DIRECTIONS:

Use this tool to plan for the full range of transportation requirements. In response phase,
coordinate between general transportation and medical needs transportation (case man-
agement) to process transportation requests and deploy transportation resources dur-
ing an evacuation. [The first four categories will largely be the responsibility of ESF
#1, *Transportation*; the last three largely the responsibility of ESF #8, *Medical*.]

TOOL 3.2, TRANSPORTATION COORDINATION SPECTRUM OF CONSIDERATIONS FOR ACCESS AND FUNCTIONAL NEEDS POPULATIONS			
Level	Types of Access and Functional Needs	Sheltering	Transportation Mode or Vehicle
Independent	**Travel and transfer without help**	**Self-selected: private home, hotel or general shelter**	**Mass transit (buses, trains) or personal autos**
Minor assistance not related to mobility	Persons who are deaf or hearing impaired, blind, or with cognitive disability	Self-selected: private home, hotel or general shelter	Mass transit (buses, trains) or personal autos
Minor mobility assistance	Walker, collapsible wheelchair, service animal	Self-selected: private home, hotel or general shelter; communication assistance needed in general shelter; possibly including companion or caregiver (case by case)	Mass transit (buses, trains), personal autos, vans (e.g., from group homes or adult day care)
Adaptive transport	Motorized wheelchair or scooter–need lift or ramp, able to transfer independently	Self-selected or accessible areas in general shelters, may need elevated cots, other accommodations	Mass transit (buses, trains) or personal autos–transport with mobility device/animal
Travel with assistance	Motorized wheelchair or scooter–need lift or ramp, unable to self-transfer mobility device	Self-selected or accessible areas in general shelters, may need elevated cots, other accommodations	Mass transit, personal autos, lift-equipped vans or buses—transport with mobility device.
Major mobility assistance	Wheelchair with assistance, gurney or stretcher	Self-selected or accessible areas in general shelters, may need elevated cots, other accommodations	Mass transit, personal autos, lift-equipped vans or buses, or more specialized transport with caregiver–case management
Major medical assistance	Continuous medical attention–IV, oxygen, medical monitoring equipment	Assisted living (individual or facility), long-term care facility (LTC) or acute care hospital. Facility-to-facility (hospital to hospital, LTC to LTC, assisted living to assisted living)	Ground and air ambulances, accessible buses, mass transit with caregiver–case management

STEP THREE—TOOLS

TOOL 3.3: PRIMARY ENTITIES AND TRANSPORTATION MODES INVOLVED IN EVACUATION

OBJECTIVE:

Ensure that all modes and appropriate entities are included in planning for evacuations.

PURPOSE:

Identify the roles that entities can play in evacuations in either providing transportation resources or identifying community needs or both.

DIRECTIONS:

Review the descriptions, identify the counterparts in your region or community, and verify that they are included in emergency evacuation planning. Potential community service providers (last three rows) are listed in much greater detail (but not with these role distinctions) in Tool 1.4, *Potential Community Partners*.

Primary Entities and Transportation Modes Involved in Evacuation

This excerpt can be viewed in full on CRP-CD-132.

TOOL 3.3, PRIMARY ENTITIES AND TRANSPORTATION MODES INVOLVED IN EVACUATION			
Entity/Mode	Role in Providing Transportation Resources	Role in Identifying Community Needs	Issues to Consider; Pros/Cons
Highway/other roadway	Foundation for majority of movement–self-evacuees and assisted evacuees	Know the highway infrastructure; traffic management centers have data on roadways, potential bottlenecks; incident management teams keep traffic moving	Extensive options and strategies to consider; see Tool 3.4, Transportation Operations Coordination Checklists, Step 4
MPO/COG	Limited; primarily coordination/demographic, mapping, transportation network, transit, highway capacity, other information/convener	Potentially substantial, providing demographic information, possibly convening community providers with service providers	Rarely has assets to control, rarely has authority to act; usually offers "neutral ground" and meeting place resources and information
Emergency manager (EM)	In some states and regions (particularly rural areas), EM is in charge of arranging and securing transportation assets (e.g., school buses, private vehicles)	In most communities, EM is ultimately in charge; often delegates to health agencies, fire departments, public safety, and others	Roles and available resources vary greatly by region and state; most EMs are well-versed in NIMS and ICS; evolving emphasis on vulnerable populations/whole community "top down" and "bottom up" increasing visibility; push for inclusion
Fixed-route transit (bus)	Buses can provide transportation to the community along the fixed route or buses can be deviated to serve other routes during an emergency	Data on regular patterns of bus patrons could be useful for evacuation planning	Transition from regular service to emergency service needs careful planning and coordination. Buses provide medium-high occupancy for evacuation and allow for geographic flexibility based on road network

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Step 3 - Determine Goals and Objectives

TOOL 3.3, PRIMARY ENTITIES AND TRANSPORTATION MODES INVOLVED IN EVACUATION			
Entity/Mode	Role in Providing Transportation Resources	Role in Identifying Community Needs	Issues to Consider; Pros/Cons
Rail transit	Trains can provide transportation to the community along fixed rail lines	Data on regular patterns of train patrons could be useful for evacuation planning	Electric powered systems may fail during an emergency. Systems can provide high occupancy but limited geographic flexibility
Paratransit	Vehicles provide transportation to people with access and functional needs related to personal mobility	Data on regular patterns of paratransit patrons would be very useful for evacuation planning	Transition from regular service to emergency service needs careful planning and coordination. Vehicles provide low occupancy for evacuation and allow for geographic flexibility based on road network
Air–commercial, private, and military, including fixed-wing aircraft and helicopters	Provide rapid, longer-distance transport, as necessary, including air ambulances and support rescue efforts	Limited; in locations such as Alaska with extensive air connections, pilots may have unique knowledge of isolated populations that may be impacted by a disaster	Costly; fixed aircraft require adequate take-off/landing sites plus coordination; may not be able to deploy in bad weather situations; most helicopters have limited capacity. Coordination with commercial, private and military resources likely entails a federal intervention
Water modes–ferries, private craft	Essential in evacuating islands without bridges to land, can also add capacity where bridges are over capacity or damaged	Limited; may have unique knowledge of island populations	Advance MOUs helpful; capacity and utility varies by location
Other modes–unique to each location (e.g., inclined rail and people movers)	Unique to each location and mode	--	Varies by location
Community service operators with vehicles (e.g., FBOs, NGOs, CBOs)	Vehicles can provide evacuation service to their regular clients if they have sufficient capacity	Drivers and dispatchers can inform service providers with greater capacity of the locations and needs of their regular clients	Advance planning and contacts necessary to ensure that trusted messengers are available to establish contacts and connections; will need to work out protocols on confidentiality, operations, communications coordination
Community service providers without transportation vehicles (e.g., Meals on Wheels)		Service providers can inform emergency management and authorized personnel of locations and needs of their clients	Advance planning and contacts necessary to ensure that trusted messengers are available to establish contacts and connections; will need to work out protocols on confidentiality, communications
Community service providers without transportation, but with lead emergency planning and response responsibilities (e.g., Red Cross, Mass Care)		In cooperation with the EM designated lead for Mass Care, can identify appropriate destinations for self-evacuees as well as those requiring shelter: regular shelter; medical needs shelters; and regular shelters that are fully accessible and flexible enough to accommodate a range of functional needs	Transportation coordination is required to ensure that evacuees are transported with their caregivers, their mobility devices, their service animals, or whatever support is needed to ensure their maximum independence and functions in a shelter environment; and that the environment is truly accessible to all

STEP THREE—TOOLS

TOOL 3.4: TRANSPORTATION OPERATIONS COORDINATION CHECKLISTS

OBJECTIVE:

Ensure that all appropriate "tools" in the traffic management, transit operations, and travel demand management "toolboxes" are considered in planning for and responding to a disaster that require evacuation. Most will require inter-regional coordination.

PURPOSE:

These Transportation Operations Coordination Checklists outline a three-part strategy that includes actions to improve roadway capacity and efficiency; prioritize, reorient, and supplement transit service in several modes; and manage transportation demand with actions directed at both vehicles and passengers. The specific actions within each of these strategic categories may be useful and require coordination across agencies and jurisdictions in the event of an evacuation. These checklists can help emergency, transportation, and transit planners and managers identify the agencies and transportation-related actions that will be critical in an evacuation. Note: many of these strategies and coordination actions will also be useful for planned special events.

DIRECTIONS:

Use the checklists to determine the transportation-related actions and interagency coordination efforts that may be required in each strategic area–roadway, transit, and demand management–in evacuation planning and response.

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A Transportation Guide for All-Hazards Emergency Evacuation

Tool 3.4, Transportation Operations Coordination Checklists

TRANSPORTATION ROADWAY ACTIONS						
Description	Is this needed? ✔	Identify Decision Maker	Action Needed	Coordination Needed	Communication to General Public or Affected Groups	Comment
Coordinated traffic signals, traffic control						
Closed-circuit television, variable message sign, signage						
Highway advisory radio						
AM or PM peak roadway configurations in effect (during off-peak hours)						
Roadway clearance Tow trucks deployed for incident response? ...intenance/construction lanes cleared? ...tes and select						

Transportation Operations Coordination Checklists

This excerpt can be viewed in full on CRP-CD-132.

STEP THREE—TOOLS

TOOL 3.5: TRAFFIC CONTROL DEVICES SUPPORTING EVACUATION

OBJECTIVE:

Use traffic control devices–signs, signals, and pavement markings–to communicate operational guidance, promote safety, and enhance the efficiency of evacuating traffic streams.

PURPOSE:

Traffic control devices, whether conventional Manual of Uniform Traffic Control Devices (MUTCD) applications or those developed by local transportation agencies, can be used to increase capacity, provide clear guidance for drivers, and provide critical location information to evacuees and police, emergency management, and transportation agencies tasked with managing the event.

DIRECTIONS:

Review the descriptions, identify needs within the region or community for various threats that require an evacuation response, and adapt and/or apply traffic controls to fit needs.

In its MUTCD, the FWHA establishes the standards that govern the design, placement, operation, and maintenance of road signs, pavement markings, and traffic signals in the United States (FHWA 2009). Among its important roles, the MUTCD is to establish the uniformity of appearance and application of traffic control devices across the country. In addition to signs and markings for construction zones, special events, and detours, these devices also include those for the control and guidance of traffic during other temporary and short-term occurrences, such as evacuations, incidents, and other emergency events.

For more than 10 years, numerous new signs and markings have also been developed to meet the challenges of mass evacuations, particularly for hurricanes in the Gulf and Atlantic coastal states where recent experiences have illustrated the need for the specific guidance and control of traffic through contraflow sections and the communication of traveler information along evacuation routes. While none of these newer signs are currently included in the MUTCD, they have relied on the general guidelines and principles of the manual for their design and implementation. The following section highlights examples of adaptations of standard MUTCD traffic control devices developed by local transportation agencies for evacuation management plans that have been put into practice. They are included here rather in the *Resources* in Step 4 due to their unique and often innovative characteristics and the close correlation to the relevant strategies.

SIGNS

The MUTCD includes a section specifically dedicated to signing for emergency management. Chapter 2N of the manual includes guidance on the design, size, and placement of these devices, including evacuation route signing (FHWA 2009).

Figure 3-8 shows the MUTCD standard EM-1 sign for a Hurricane Evacuation Route to be posted along designated evacuation routes. The EM-1 sign may also be used with legends for types of hazards other than hurricanes, or this line of text may be omitted for more general use. On the left side of Figure 3-8 is a commonly used supplemental sign that shows AM and FM radio station frequencies that provide emergency information.

In addition to the formally designated signs in the MUTCD, numerous local transportation agencies have developed their own signs for local use in emergencies and evacuations. These include signs specifically for use on contraflow road segments to convey radio frequencies for evacuation travel information, as well as general information that would be conveyed via variable message signs. Figure 3-9 shows another example developed by the Texas Department of Transportation (TXDOT) to facilitate the use of shoulder "evaculanes" in Houston. Agencies typically follow broad MUTCD guidance pertaining to shape, color, legend, and pattern, as well as other American Association of State Highway and Transportation Officials standards pertaining to structural design and placement.

Traffic control is important on contraflowing segments of roadway during evacuations, particularly on the reverse flowing lanes. When the alignments of directional freeway lanes become independent or separated by medians, drivers in contraflowing lanes may not always be aware of exit locations and services available because the signs in their lanes face in the other direction and they cannot see into the other lanes.

FIGURE 3–8:

MUTCD EM-1 Evacuation Route Sign

Left hand Photo: Brian Wolshon (Permission Self-Granted)

Right hand Photo: 2010 Manual of Uniform Traffic Control Devices, published by FHWA

To accommodate these drivers, some agencies, such as the Alabama Department of Transportation (ALDOT), use fold down signs adjacent to contraflow lanes. When not in use, these signs are folded upward and appear as blank sign backs, as shown on the left side of Figure 3-10. An ALDOT work crew member will unlock the latches that permit the bottom half of the sign to fall into the open position when needed and will secure the bottom sign half to the sign supports, as shown in right side of Figure 3-10.

Figure 3-11 shows an example of a variable message sign used during contraflow operations. Located just before a key decision point outside of New Orleans, Louisiana, this sign guides drivers into the appropriate travel lane based on their destination. At this location, the left two lanes transition into the contraflow lanes toward Baton Rouge, Louisiana, and the right two lanes continue in the normal-flow fashion north toward Mississippi.

PAVEMENT MARKINGS

Pavement markings are another type of traffic control device increasingly used for evacuations. These markings are not found in the MUTCD,

FIGURE 3–9:

TXDOT Evaculane Information/Regulatory Sign

Brian Wolshon (Permission Self-Granted)

FIGURE 3–10:

Fold-down Guidance Signing for Contraflow Lanes

Source: Connor 2005, Alabama DOT

FIGURE 3–11:

Variable message sign with traveler evacuation information, Interstate 10 to New Orleans, Louisiana

Source: Alison Caterella-Michel

but they have been developed and adapted based on broad guidance for local use.

Figure 3-12 shows an example of pavement markings used to designate shoulders as an additional travel lane. Developed by TXDOT, the markings are affixed on shoulders along U.S. Route 290, a westbound evacuation route for Houston, Texas, toward Hempstead, Texas, and locations beyond. The left side of the figure shows the marking on the inside shoulder adjacent to the normal flowing lanes, identifying that the lane can be used for emergency evacuation. These markings are particularly important in advance of interchange ramps because the paved shoulder aligns with the off-ramp and on-ramp auxiliary lane. The marking on the right side of the figure is used on the inside shoulder of the contraflowing lanes. The directional arrow above the hurricane symbol indicates the intended direction of travel.

TXDOT officials report that many of the newest types of heat-applied thermoplastic pavement markings, such as the ones shown in Figure 3-12, retain their retro-reflective properties even when submerged below 2 or 3 inches of water, making them desirable for use on routes prone to flooding.

FIGURE 3-12:

Hurricane evacuation route directional shoulder pavement markings (normal lanes at left and contraflow lanes at right), U.S. Route 290, Texas

(Note: These photos were not taken under evacuation conditions.)

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The Florida Department of Transportation has developed another example of evacuation-related pavement markings for placement in the vicinity of interchanges along Interstate 10 between Jacksonville, Florida, and Tallahassee, Florida. As shown in Figure 3-13, these markings are applied to the inside shoulders near interchanges to show the interchange (mile marker) number. These pavement markings are not meant for drivers; they have been installed so that aerial surveillance crews flying over Interstate 10 during evacuation events can identify specific locations and reference traffic conditions based on its proximity to specific interchange and mile marker locations.

TRAFFIC SIGNALS

Follow-up reports from several recent major evacuations note the limited coordination and responsiveness among traffic signals along evacuation routes. Because of this issue, the use of traffic signals during evacuations has become a control concern, particularly for the evacuation of urbanized areas under no-notice conditions. Recent reviews of practice showed no currently recognized standards or recommended rules of operation for traffic signals during evacuation emergencies. While the primary goal of traffic signals during an evacuation should be to facilitate the outbound movement of traffic away from the hazard zone, both cross street and turning traffic also need to be accommodated. In urbanized areas with densely spaced street grids, there may not be a clearly defined primary direction of movement.

The timing of signals along primary arterial highways has become an issue during hurricane evacuations where traffic tends to move between population centers and through more sparsely populated areas. In several instances, evacuation traffic on the major highway passed through small towns with one or two traffic signals that had not been modified to facilitate the major emergency movement direction. In other cases, signal indications along the primary highway were set to a flashing yellow to maintain uninterrupted flow along the main route. However, some areas of these small towns became inaccessible, and local travelers have been unable to find adequate gaps to cross the major highway. To avoid similar conditions in future evacuations, some localities have

FIGURE 3-13:

Interchange location pavement marking, eastbound Interstate 10 at mile marker 283, Live Oak, Florida

Brian Wolshon (Permission Self-Granted)

maintained normal, non-emergency, peak-hour signal timings to service cross-street traffic, but this approach has led to congestion, long queues, and delays as well as the potential for prohibiting full clearance of the hazard zone. To address these issues, some state agencies now plan to use flashing yellow in conjunction with police enforcement to permit cross-street traffic maneuvers.

A recent study conducted by Chen et al. (2007) to examine the effects of varied traffic signal timing for no-notice urban evacuation scenarios developed by the District of Columbia DOT to evacuate Washington, DC, under various no- and short- notice evacuation scenarios found that the "best" plan depended on what needed to be achieved.

As expected, the longer green times for the outbound evacuation traffic was best for maximizing the amount of outbound evacuation traffic volume and minimizing their delay.   The authors also recommended a flashing yellow to give a virtual infinite green to the evacuation traffic, but also pointed out that if approach volumes are nearer those of routine peak periods that the usual non-emergency timing plans could be most effective. If average delays of 15 minutes to cross street traffic were deemed to be acceptable, then cycle lengths of 180 seconds to 240 seconds (depending on the amount of evacuating volume) could also be effective.

OTHER DEVICES

Another device is the contraflow entry ramp closure gate that prohibits the entry of traffic into a roadway flowing in the opposite direction.. The gates are very similar in size and appearance to railroad gates or freeway closure gates used in western states during snow storms. Illustrated in Figure 3-14, these gates typically incorporate an arm that is lowered from a vertical open position to a horizontal closed position or is rotated horizontally from parallel to the road to perpendicular to the direction of travel (FHWA 2009).
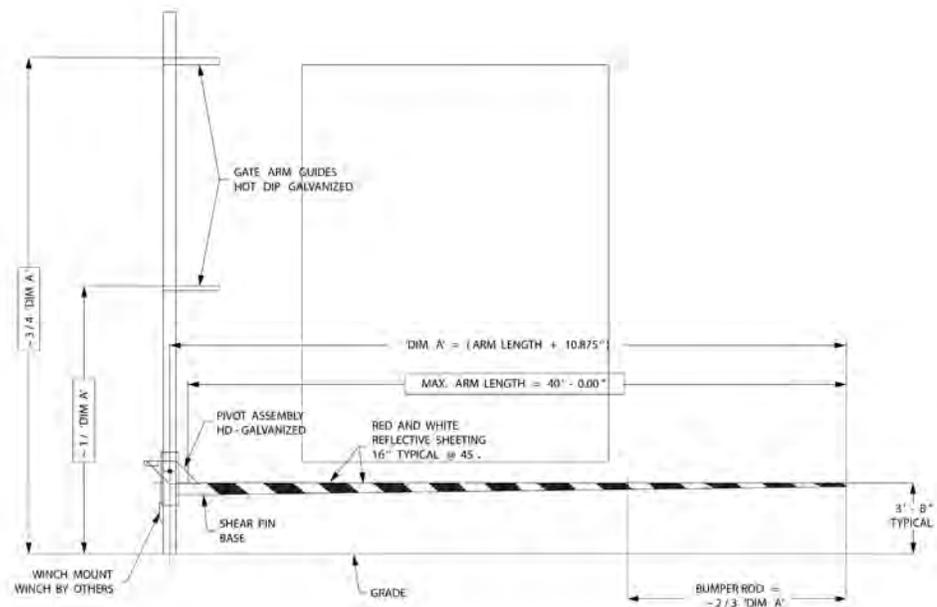
FIGURE 3-14:

Contraflow Gate System

(B&B Roadway & Security Solutions, LLC, 2002)

STEP 4
DEVELOP THE PLAN

This step is the heart of the entire process and describes how to carry out the three major tasks in multijurisdictional emergency evacuation plan development:

1. **Develop and analyze courses of action and decision points;**

2. **Identify resources; and**

3. **Identify information and intelligence needs.**

The many tools for this step are numbered to correspond to the three major tasks.

Each of these three tasks may require a workshop or meeting. To make sure all the requirements for an effective workshop are being carried out, revisit the "Workshop in a Box" Resource following Step 6 of this guide prior to each meeting or workshop.

- **Tool 4.0,** *Evacuation Operations, Resource, and Information Needs Evaluation Sheet–"Thought Starters",* **provides suggested discussion questions and topics for each of the three main tasks.**

- **Tools 4.1.1 and 4.1.2 provide guidance on the overall timeframe. Time required for individual actions should be estimated and discussed as part of plan development, tested in exercises, then confirmed or amended after an actual event. The workshop(s) on developing and analyzing courses of action should bear down on these questions. Detailed checklists can help, such as the** *Resource Inventory Checklist* **(Tool 4.2.6), the** *Multijurisdictional Multimodal Evacuation*

Planning Checklists (Tool 5.2), or example checklists from FEMA or from other jurisdictions as noted in the bibliography.

- Tools 4.2.1 through 4.2.6 provide lists of resource needs, information on FEMA resource typing, templates for organizing transportation-related data, and a checklist on data collected.

- Tool 4.3, *Checklist for Inter-agency Communications and Information Sharing between Transportation Agencies, Emergency Management, and Others* can help coordinate exchanges of information and situational awareness in exercises and planning as well as in actual events.

The following flowcharts present slightly different approaches to steps and decision points that involve coordination among agencies, jurisdictions, service providers, and other stakeholders.

1. FEMA developed the *Capability Activity Process Flow for Citizen Evacuation and Shelter-in-Place Capability.* It is included in the TCL for evacuation. The flow diagram (Figure 4-1) offers a high-level view of the evacuation process. The full TCL for evacuation and sheltering in place provides much more detail and is included in Appendix A, which can be found on CRP-CD-132, as an effective checklist for review of plan capabilities.

2. The *Planning Evacuation Flowchart* (Figure 4-2) was developed for this guide to assist planners and emergency responders through the major steps and decision points that involve interjurisdictional coordination for matching resources to needs required in a large-scale evacuation. It identifies the key transportation-related information needed (e.g., databases) at various points throughout an evacuation exercise or event.

3. Figure 4-3, *Evacuation Steps Flowchart,* adds more decision points, more processes and references to plans such as Standard Operating Procedures (SOPs), versus the resources identified in Figure 4-2 regarding transportation and mass care. It also addresses reentry.

These three flowcharts help place the entire evacuation process in context.
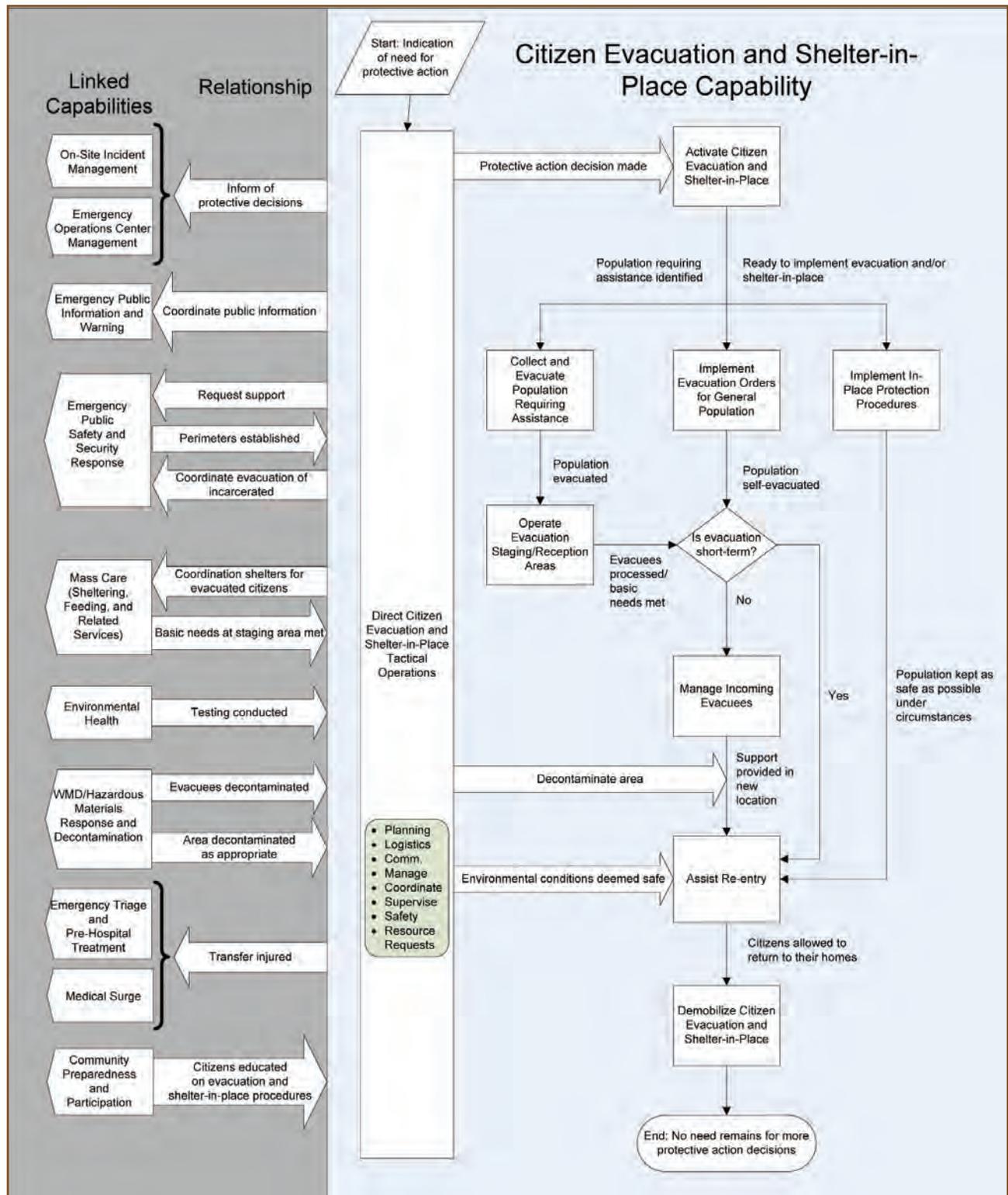
FIGURE 4-1:

Evacuation and Shelter-in-place Flowchart from FEMA Target Capabilities List

THE EVACUATION FLOWCHART RELATED TO RESOURCE DATABASES (FIGURE 4-2)

Planners can use this Evacuation Flowchart to plan in advance for the types of decisions, resources, and information that may be required to assess the need for multijurisdictional coordination and to match resources to needs in an evacuation. Review the flowchart to identify how the different resource databases will support an evacuation.

Use the following legend to navigate through the flowchart in Figure 4-2.
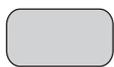
Rounded box–"Start" and "End" points.
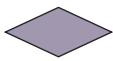
Diamond–Indicates where a decision is necessary. Accompanied by Yes/No questions.

Rectangle box–Represents a step or action to be taken.

Arrows–Indicate the flow of action in an evacuation.

Resource Database–Indicates the specific databases identified in Steps 2 and 4 of the guide that provide necessary information at specific points in the evacuation planning, response, and reentry stages. These also correspond to steps in the *Resource Inventory Checklist.*

Note that many of the databases and resources are the responsibility of non-transportation functional areas, such as ESF #6, *Mass Care*, and ESF #8, *Medical Support.* The "owners" of the mass care, law enforcement/public safety, and medical resources and respective databases already have contacts, contracts, and mutual aid agreements in place with their counterparts in nearby regions and adjacent states.

Tip

State agencies typically deal directly with counterpart agencies in other states, while local jurisdictions correspond with other jurisdictions and state agencies within their own state, particularly with regard to mutual aid agreements and formal requests for assistance. On many occasions, however, jurisdictional agencies deal directly with other agencies across state lines on an operational basis without going through state agencies; these usually occur in neighboring jurisdictions with extensive regular interaction. This interaction and coordination may be facilitated by the MPO or COG.

FIGURE 4-2:

Planning Evacuation
Flow Chart

Page 74
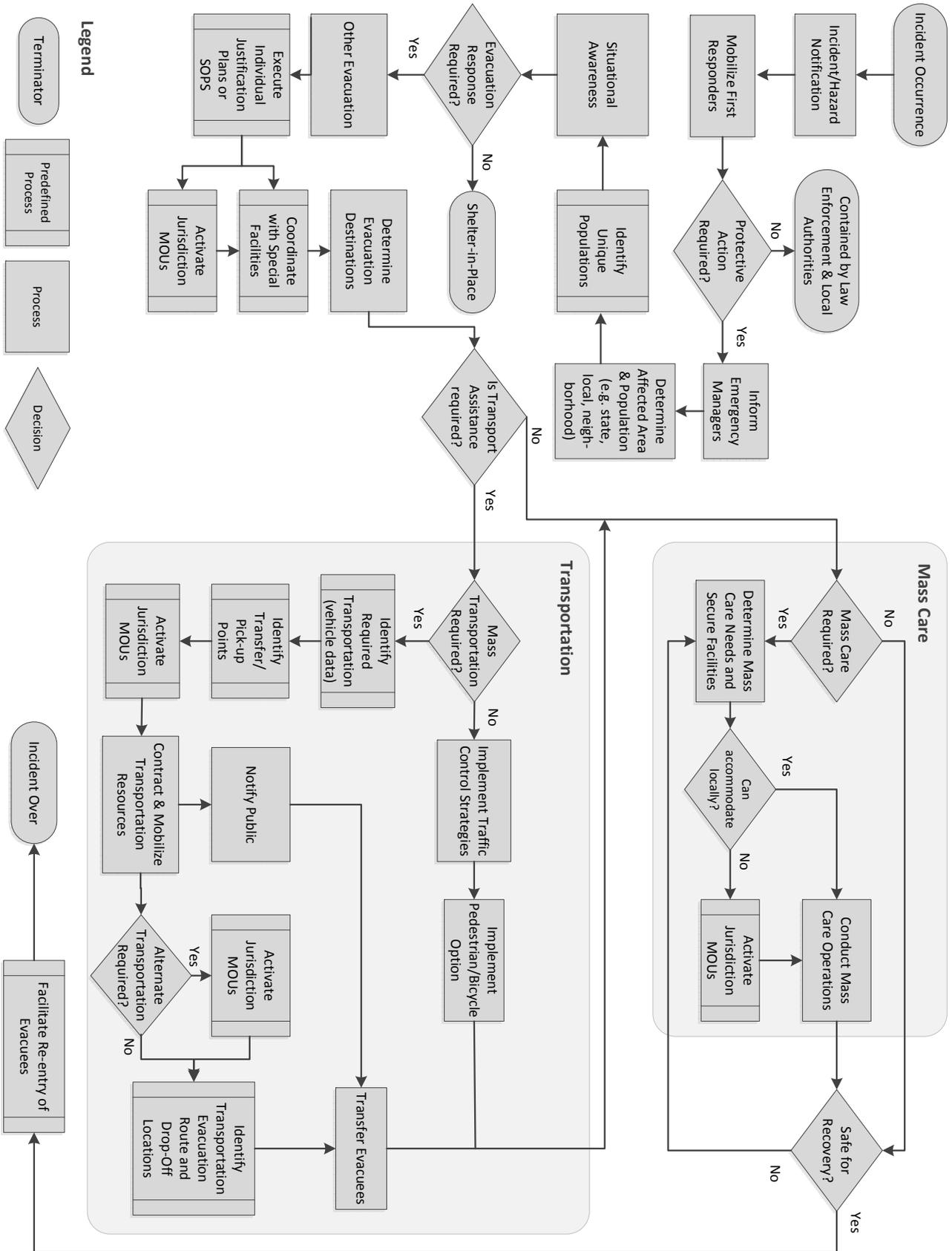Step 4 - Develop the Plan

FIGURE 4-3:

Evacuation Steps Flow Chart.

TASK 4.1

DEVELOP AND ANALYZE COURSES OF ACTION

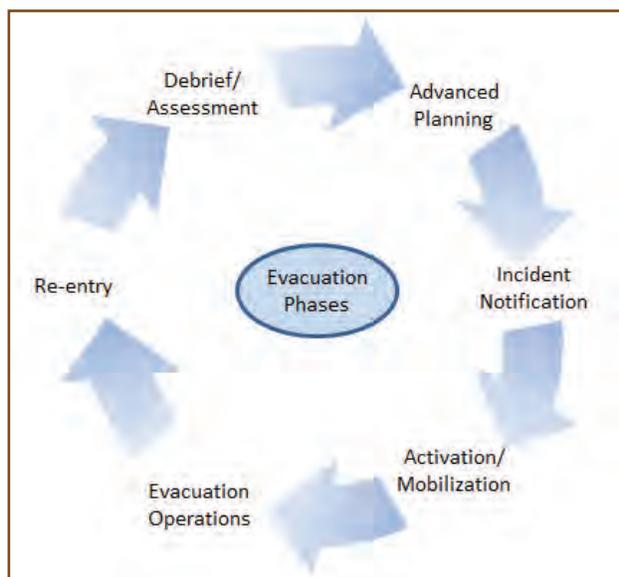Within Task 4.1 are three subtasks to help planners develop and analyze courses of action:

1. **Establish the timeline,**

2. **Depict decision points in the scenario, and**

3. **Identify and depict operational tasks.**

Subtask 4.1.1 Establish the Timeline

The timeline can be the first agenda item in a workshop with the convener developing the background materials and research to make effective use of everyone's time.

TIMELINE FOR EMERGENCY EVACUATION–NOTICE OR NO-NOTICE

Begin to determine how each scenario or possible incident will unfold. Work out the timeline, placing decision points where necessary. Example decision points are identified in Figures 4-1, 4-2, and 4-3.

The general timeline of steps for an evacuation are depicted in Figure 4-4.

Notice events such as hurricanes provide more time for each of the evacuation steps. Advanced planning for no-notice events therefore becomes very critical, as the time available for the remaining steps becomes very compressed. "Given the spontaneous and chaotic nature of no-notice events or emergency incidents, these phases are likely to overlap in time. Therefore, the progression of these phases is not meant to indicate a firm timeline." (FHWA 2006)

Advanced Planning

"The planning phase enables agencies to work together to establish a cooperative system, including roles and responsibilities, resource management and infrastructure operations, and key points of contact for agencies that would be involved. Include public education in advanced planning.

FIGURE 4-4:

Evacuation Timeline

FEMA

Recommended Tip

In choosing multijurisdictional scenarios for large-scale evacuation, choose at least one no-notice event and one notice event. In addition to the differences in the timeline and likely response actions, this will also give you the opportunity to practice different jurisdictional roles as "senders" and "recipients" of evacuees.

Incident Notification

"This phase assumes an incident has occurred and been detected, and notification must be established. This is when the Incident Command System (ICS) is initialized."

Activation and Mobilization

"This phase involves the dissemination of information to the public and all preparation for the actual evacuation. The ICS will be established and operational."

Evacuation Operations

"This phase covers the actual exit movement and transfer of people and goods from the affected area to another. The ICS will direct state, county, and local agency support."

Re-Entry

"This phase involves the ingress of evacuees. It will require coordination among local, county, and state agencies, through the ICS, to ensure a safe and orderly re-entry process." (FHWA 2006)

Tool 4.1.1 describes a free online evacuation clearance time estimation tool developed by the DHS, called the Real Time Evacuation Planning Model (RTEPM). This tool calculates vehicle clearance times for self-evacuees with evacuation areas and other parameters determined by the users. Some jurisdictions already have evacuation models. For those who do not, this tool may support scenario development and planning for the Activation and Mobilization and Evacuation Operations phases of the timeline. See Figures 4-5 and 4-6.

Note that RTEPM only models clearance times with traffic and congestion for self-evacuees. For more realistic timelines and clearance times, RTEPM should be paired with locally adjusted timelines for a Public Assisted Evacuation Plan (PAEP), as described in Tool 4.1.2, which builds in the additional time required to organize and implement a PAEP for a notice event.

TIMELINE: PLANNED SPECIAL EVENTS

The timeline for planned special events is similar to the emergency timeline in its steps. Because the events are planned with appropriate coordination in place, there is less chance of chaos.

Tip

The Oak Ridge Evacuation Modeling System (OREMS) is another tool for evacuation modeling.

Go to **http://emc.ornl.gov/products/oak-ridge-evaluation-modeling-system.html.**

Reminder

Planning for special events can help you plan for evacuations and other emergencies. The collaborative partnerships and many of the operational strategies to manage traffic, make use of transit, disseminate public information, and manage travel demand will be very similar, though the timelines are different.

*Five Phases of Managing Travel
for Planned Special Events*

1. **Regional planning and coordination**

2. **Event operations planning**

3. **Implementation activities**

4. **Day-of-event activities**

5. **Post-event activities**

Integration of lessons learned from post-event activities into future event planning and operations creates a seamless process allowing for continuous improvement of transportation system performance from one event to the next.

Task 4.1.2 Depict the scenarios and identify decision points and operational tasks

For evacuation planning, the two major variants to explore are events with notice and events with little or no notice. These scenarios can be investigated in parallel or sequentially, but both need to be addressed for a robust, all-hazards evacuation plan. Identify scenarios that are specific enough to require clear thinking and decisionmaking about how to respond, but broad enough to spark ideas and creative thinking on

how to address variations and contingencies. Multijurisdictional stakeholders can review the scenarios and develop them further by adding decision points and fitting them into the steps on the timelines–at least one timeline for a notice event and one for a no-notice event. Next planners can identify and place operational tasks on the timelines. Planners can use the following list to help identify operational tasks.

*   **What is the action? (phasing down regular bus service to implement evacuation service; or closing down on ramps to the highway in areas beyond the immediate danger zone)**

*   **Who is responsible for the action? (the transit agency or the DOT supported by law enforcement)**

*   **When should the action take place? (once notice is given that an evacuation should take place)**

*   **How long should the action take and how much time is actually available? (depending on the event and how riders are notified, it could take hours to return riders back to their homes; that may not be possible in a no-notice event such as a chemical spill, so what are the options, how would the transit agency respond, and how would it inform its riders about what to do?)**

FIGURE 4-5:

North Carolina, September 1999.

FEMA News Photo

FIGURE 4-6:

Louisiana, October 2002.

FEMA News Photo

- **What has to happen before?**

- **What happens after?**

- **What resources does the person/ entity need to perform the action?**

Tool 3.4 from the previous step identifies potential operational actions for various transportation modes. FHWA's Emergency Transportation Operations (ETO) section offers a wide array of resources related to highway operations. Resources range from Traffic Incident Management through Planned Special Events to the Disaster/Emergency Transportation Operations, particularly focused on evacuation. Intelligent Transportation Systems (ITS) are an important element. The ETO website is www.ops.fhwa.dot.gov/opssecurity.

Figure 4-7 identifies key decision points for determining whether an event is local or regional, as well as possible response actions. Not all events will require regional responses; knowing the difference is an important decision step.

At this point, the core planning team can decide one or more potential courses of action. The strategies identified in Tool 3.4 are good starting points for developing the course of action.

- **Periodically stop and test the action to determine if it is making progress towards the end of the event.**

- **See if new goals and objectives have been created.**

- **Watch for tasks that may not have been completed. The failure of one task could cause the operation to fail.**

- **Check for gaps and omissions.**

- **Look for inconsistencies in organizational relationships; for example, if they were supporting another jurisdiction, would they still be able to support their own emerging needs?**

Deciding among potential actions for a particular scenario is accomplished by comparing costs and benefits against the goals and objectives. Identify the best possible action or "package of actions," and present it to senior officials for approval. Mandatory evacuations and closing roads and bridges as a preventive strategy may not be popular, but are far less costly in lives and resources than the late attempt to rescue those who refuse to leave.

Helpful Concept of Operations and Overall Evacuation Planning Guidance

"Operational Concept: Assessment of State of the Practice and State of the Art in Evacuation Transportation Management" includes transit as well as highway operations (FHWA, 2006)

The "Routes to Effective Evacuation Planning" series developed by the U.S. Department of Transportation, FHWA, provides a series of documents consistent with DHS/FEMA National Response Plan concepts and guidance. The series includes:

"Using Highways During Evacuation Operations for Events with Advance Notice" (2006); "Using Highways for No-Notice Evacuations" (2007) and "Evacuating Populations with Special Mobility Requirements" (2009).

These and other resources such as the "Emergency Transportation Operations Publications Series Presents: The Best of Traffic Incident Management, Traffic Planning for Special Events and Evacuation & Disaster Planning (CD)" are available through the FHWA Emergency Transportation Operations Knowledge Management Center webpage at **www.ops.fhwa.dot.gov/opssecurity**
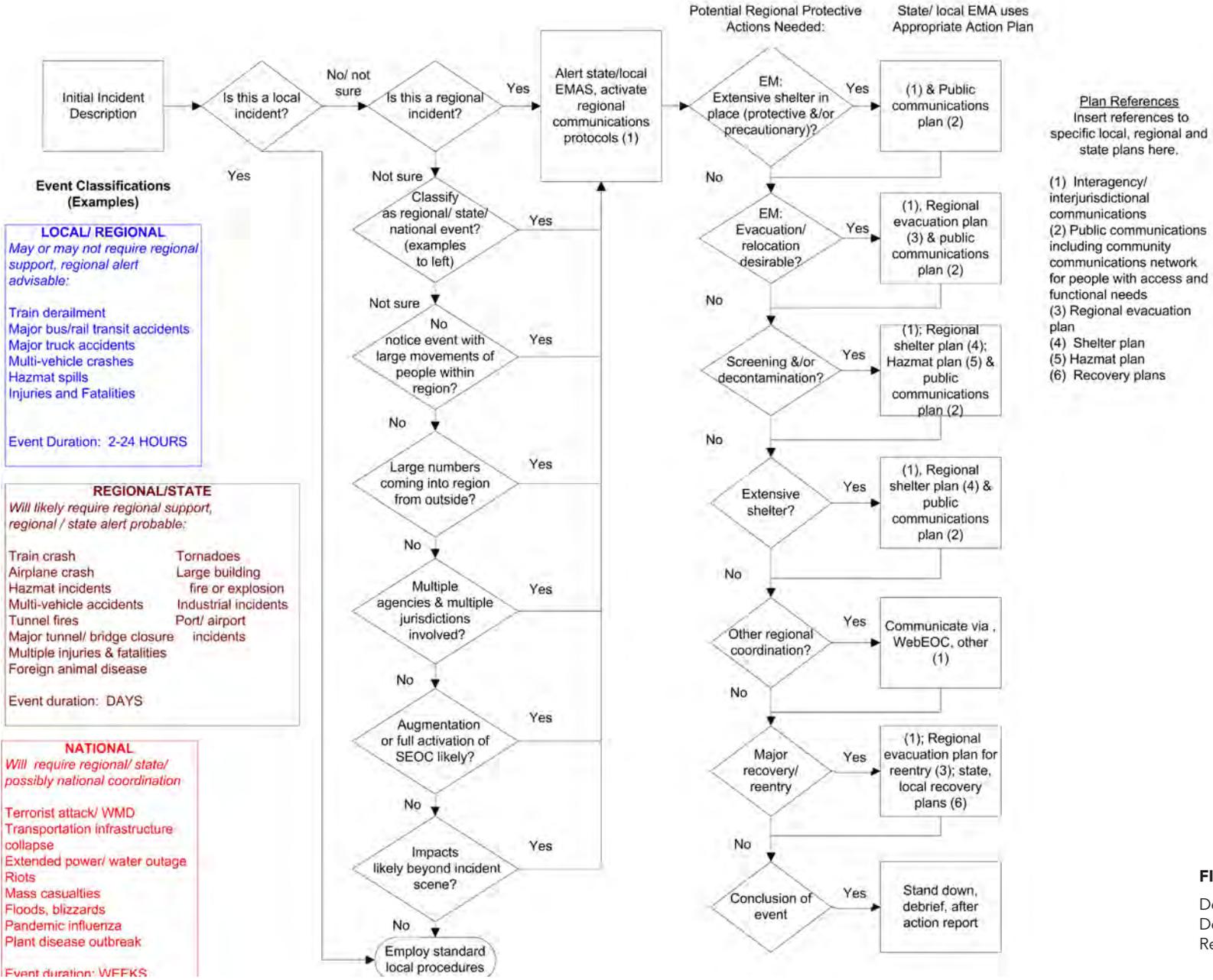
Event Classifications (Examples)

LOCAL/ REGIONAL
May or may not require regional support, regional alert advisable:

Train derailment
Major bus/rail transit accidents
Major truck accidents
Multi-vehicle crashes
Hazmat spills
Injuries and Fatalities

Event Duration: 2-24 HOURS

REGIONAL/STATE
Will likely require regional support, regional / state alert probable:

Train crash   Tornadoes
Airplane crash   Large building
Hazmat incidents   fire or explosion
Multi-vehicle accidents   Industrial incidents
Tunnel fires   Port/ airport
Major tunnel/ bridge closure   incidents
Multiple injuries & fatalities
Foreign animal disease

Event duration: DAYS

NATIONAL
Will require regional/ state/ possibly national coordination

Terrorist attack/ WMD
Transportation infrastructure collapse
Extended power/ water outage
Riots
Mass casualties
Floods, blizzards
Pandemic influenza
Plant disease outbreak

Event duration: WEEKS

Initial Incident Description → Is this a local incident? — No/ not sure → Is this a regional incident? — Yes → Alert state/local EMAS, activate regional communications protocols (1)

Is this a local incident? — Yes → (Employ standard local procedures)

Is this a regional incident? — Not sure → Classify as regional/ state/ national event? (examples to left) — Yes →

Classify as regional/ state/ national event? — Not sure → No notice event with large movements of people within region? — Yes →

No notice event with large movements of people within region? — No → Large numbers coming into region from outside? — Yes →

Large numbers coming into region from outside? — No → Multiple agencies & multiple jurisdictions involved? — Yes →

Multiple agencies & multiple jurisdictions involved? — No → Augmentation or full activation of SEOC likely? — Yes →

Augmentation or full activation of SEOC likely? — No → Impacts likely beyond incident scene? — Yes →

Impacts likely beyond incident scene? — No → Employ standard local procedures

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Potential Regional Protective Actions Needed: **State/ local EMA uses Appropriate Action Plan**

EM: Extensive shelter in place (protective &/or precautionary)? — Yes → (1) & Public communications plan (2)

EM: Evacuation/ relocation desirable? — Yes → (1), Regional evacuation plan (3) & public communications plan (2)

Screening &/or decontamination? — Yes → (1); Regional shelter plan (4); Hazmat plan (5) & public communications plan (2)

Extensive shelter? — Yes → (1), Regional shelter plan (4) & public communications plan (2)

Other regional coordination? — Yes → Communicate via, WebEOC, other (1)

Major recovery/ reentry — Yes → (1); Regional evacuation plan for reentry (3); state, local recovery plans (6)

Conclusion of event — Yes → Stand down, debrief, after action report

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Plan References
Insert references to specific local, regional and state plans here.

(1) Interagency/ interjurisdictional communications
(2) Public communications including community communications network for people with access and functional needs
(3) Regional evacuation plan
(4) Shelter plan
(5) Hazmat plan
(6) Recovery plans

FIGURE 4-7:

Decision Tree for Determining a Regional Event

TASK 4.2

IDENTIFY RESOURCES

Planners and the Emergency Operations Team should first identify resources needed to accomplish tasks (without regard to availability). Different resources may be needed at different stages of the event. For example, maps with demographic information or information on lane configurations and capacity for the highway network will be very useful in the planning stages while real-time traffic information will be more useful during response. The FHWA "Operational Concept: Assessment of State of the Practice and State of the Art in Evacuation Transportation Management" includes examples of needed resources (mostly highway) for each stage of evacuation planning, response, and recovery (FHWA 2006).

Tool 4.2.1 provides lists of resources–equipment and assets, intelligence, management, personnel and teams, vehicles, and routes that are typically controlled or owned by DOTs, Emergency Management, MPOs, and transit agencies.

Resource Typing

The National Integration Center (NIC) has developed and published more than 120 resource typing definitions. Tool 4.2.2 provides an introduction to FEMA resource typing as it relates to transportation, with screen shots of two of the Tier I resources that are related to transit and transportation that could be used to support an evacuation and reference links to other resources.

The tools related to resources are as follows:

4.2.1	Examples of Resources (list)
4.2.2	Overview of FEMA Resource Typing for Transportation Resources
4.2.3	TR–Transportation Related Resources Database Templates
4.2.3.1	Major evacuation routes
4.2.3.2	Food/fuel vendors along major evacuation routes (selected- with generators)
4.2.3.3	Variable message sign (VMS) and dynamic message sign (DMS) inventory
4.2.3.4	Public works equipment and resources inventory
4.2.4	TA–Transportation Assistance
4.2.4.1	Intermodal facilities or other designated reception/collector locations
4.2.4.2	Mass transportation modes database
4.2.4.3	Vehicle fleet information form
4.2.4.4	Manager/supervisor/dispatcher/driver database
4.2.5	PS- Public Shelter Transportation Reference
4.2.6	Resource Inventory Checklist

> "Resource typing is categorizing, by capability, the resources requested, deployed, and used in incidents. Measurable standards identifying resource capabilities and performance levels serve as the basis for categories. Resource users at all levels use these standards to identify and inventory resources. Resource kinds may be divided into subcategories to define more precisely the capabilities needed to meet specific requirements."
>
> FEMA

Resource Inventorying
INCIDENT RESOURCE INVENTORY SYSTEM (IRIS)

Once resources are typed, they are inventoried based upon mission requirements, capability of resources, and response time. FEMA provides a database for local and state entities called IRIS (Incident Resource Inventory System) as part of its National Incident Management (NIMS) support function. Guidance in the use of this system is also available at the FEMA website. It is not a national resource ordering database, but a system that can be used to maintain inventories of the 120 Tier 1 resources for their own and for mutual aid use. (Tool 4.2.2, *Overview of FEMA Resource Typing for Transportation Resources*, includes screen shots from the flyer and one page of the manual for IRIS. Agencies can enter any of the typed resources [e.g., buses, arrow signs, and variable message signs] into IRIS.)

Of course, transit agencies with 40 or 4,000 buses will NOT have 40 or 4,000 buses to deploy in the event of an emergency; availability will vary by season, by time of day, by the amount of notice and the anticipated length of the deployment, and by the number of operators and supervisors that can reasonably be deployed without causing undue harm and disruption to current operations. With that understanding, transit agencies can maintain constant, current inventories of transit vehicles and support vehicles; fuel, tires, and other maintenance and servicing supplies; and rosters of operators, supervisors, maintenance and servicing personnel, and other support personnel. Many transit agencies regularly provide support across jurisdictional lines on an ad hoc basis as needs arise and as resources are available.

For multijurisdictional evacuation planning, it is essential for transit managers and operations planners to be forthright and realistic with emergency managers and planners as to:

- **The time it will take to deploy any spare buses and operators (or trains, ferry boats, or other mass transit modes),**

- **An approximate number of vehicles "immediately available" on an average day,**

- **The ramp up time necessary for a larger no-notice event,**

Urban Transit Tip

Urban transit agencies often have subcontract relationships or agreements with other transportation providers, such as private coach operators for suburban transit operations, local bus operators, paratransit operators, and others. Transit agencies may also be a logical coordinating central point for other resources such as school buses, intercity buses, vanpool services, and other options.

A transit operator will also often act as the local host for "United We Ride" (unitedweride.gov), a federal initiative of the Coordinating Council on Access and Mobility established to coordinate human service transportation at the local level. Approximately 40 states have developed coordinated transportation plans, with many more local "chapters". United We Ride has extensive resources, ambassadors and partners to help communities coordinate human service transportation.

- **The factors that would increase or decrease that ramp up time, and what kind of support they could expect to provide for a notice event, and**

- **When most or all regular service might be expected to be cancelled or diverted.**

Tool 4.2.4.3, *Vehicle Fleet Information Form*, provides an inventory resource that can assist in that discussion. Similarly, highway resources such as variable message signs may be in many locations far from where they are needed for evacuation (such as at construction sites). It will take time to locate, move and reset them.

Organizing and Tracking Resources

Once the resources have been inventoried, those needing the resources organize them for ease of access. The planning phase can develop a system for organization and tracking of resources, such as a searchable database or a series of electronic spreadsheets in folders on a common site with restricted access. The host of such a site might be the CAME or a sponsoring agency.

Organization might occur by locations, by jurisdiction, by ease of access, by special category (such as vehicles requiring Commercial Driver License certification) or by function (debris removal, information services). The participants in the planning process must define what system will provide the best access and accuracy prior to and during an adverse event.

Every agency and organization involved in an exercise or event must keep good records, documenting labor and other costs, to be considered eligible for potential reimbursement. For example, Chicago Transit Authority establishes a unique job order number for timesheets, materials requests, and other tracking for emergency events.

Extensive information on all aspects of resource management is available on the FEMA website and in ETO resource documents and will not be replicated here.

Tip

Potential messages for permanent signs and for dynamic signs should be discussed in advance to ensure consistency across the region. The "Resource Inventory" workshop would be a good forum for these and other discussions around scenarios and resource availability.

Tip

Emergency Management will want to verify that health and correctional facilities have established mutual aid agreements or contracts with comparable facilities in nearby as well as distant jurisdictions, to be activated depending on the event. Health facilities are the primary responsibility of ESF #8, *Public Health and Medical Services*, while detention and correctional facilities are the primary responsibility of ESF #13, *Public Safety and Security*. Appropriate transportation resources must also be identified.

Transportation Related Resources Database Templates

Tools 4.2.3 through 4.2.5 provide templates to classify, identify, and inventory resources. Each jurisdiction and agency can:

- **Complete its portion of the resource inventory prior to the workshop; and**

- **Identify availability of resources and potential constraints to using those resources. This will help match resources to needs and identify resource shortfalls.**

The planning team can then begin the process of developing lists of private suppliers or other jurisdictions that will be called upon to supplement the gaps. Planners will match resources with other geographical/regional needs so that multiple demands for the same or similar resources can be identified and conflicts resolved.

TASK 4.3

IDENTIFY INFORMATION AND INTELLIGENCE NEEDS

The two major and equally important facets of identifying information and intelligence needs are:

- **Interagency, interdisciplinary, and interjurisdictional communication and information exchanges (internal communication), and**

- **Accurate and timely communication with the public and with community partners in the communication network (if active) (public communications).**

In the planning stages of internal communication:

- **Clarify what information will be exchanged with counterparts within functional area in other jurisdictions;**

- **Determine which communications are necessary within each jurisdiction across other functional areas; and**

- **Work out the logistics of how to communicate.**

> **Tip**
>
> Planners can estimate capability at this point. A capability estimate is an assessment of a jurisdiction's ability to take a course of action. It represents the capabilities and resource types needed to complete a course of action. Capability estimates help decide if pursuing a particular course of action is realistic and supportable. The capability estimates may be written documents, tables or matrices, or oral presentations. The information should be able to answer most questions about whether a jurisdiction has the ability to support a course of action. Planners can use capability estimates for both present and future operational planning. Refer to the **FEMA Target Capabilities List** (Appendix A) for details.

- Practice sharing information between Emergency Operations Centers (EOCs) and Traffic Management Centers (TMCs) and, if appropriate, with Fusion Centers (DHS funded).

In the planning stages of public communication:

- Decide how to communicate with the public in a clear, consistent manner.

- Work very closely with ESF #15, External Affairs.

- Include in pre-scripted messaging and public education efforts

    - The meaning of terms,

    - Evacuation routes,

    - What to take and what to leave behind,

    - Information on transporting pets,

    - Where to meet for pick-ups if transportation is needed,

    - Advantages of a "buddy system," and

    - How to obtain transportation assistance if needed.

- Keep messages consistent as possible across the jurisdictions in the geographic planning area.

- Include community partners with strong ties to the whole community, in particular to groups and individuals with access and functional needs. (Refer to *TCRP Report 150* on how to establish and engage a community network.)

- Use multiple media, communications methods, and languages that are accessible to the deaf and hard of hearing, to those who are blind or of low vision, to those who do not speak English, and to those who may have cognitive disorders.

- Employ social media, such as Facebook and Twitter, to reach the broadest possible audience.

- Keep messages simple, clear, and accurate.

In the Activation and Response phases:

- Work closely with External Affairs to ensure that information gets out quickly and that it accurately conveys

    - How the public should respond–who needs to move, when, and to where;

    - Who needs to stay where they are, why that is safer, and how long they need to stay there; and

    - How to request transportation assistance.

Tip

The FHWA document, Information Sharing Guidebook for Transportation Management Centers, Emergency Operations Centers, and Fusion Centers may be helpful in carrying out this task.

Tip

Florida uses 511 for evacuation information and has developed apps for smart phones and tablets. It uses GPS to determine the location of the nearest shelter and provides turn-by-turn directions. http://floridaevacuates.com/mobile/.

- **Use any tracking and registration that has taken place during the evacuation.**

- **Use social media and community networks, even if only partially intact, to spread the word.**

In the reentry and recovery phase:

- **Reentry requires extensive intelligence exchanges and coordination among all disciplines, to ensure that all is ready and secure.**

- **Public information will be more difficult to disseminate, particularly if people have relocated for an extended period of time to distant locations.**

Tool 4.3, *Checklist for Inter-Agency Communications and Information Sharing*, provides worksheets to plan and track communication within transportation, across jurisdictions and multiple stakeholders, and public communication through multiple stages of an event. It is intended for use in planning, and could be one of the tools used in the Intelligence and Information Exchange Workshop.

STEP FOUR—TOOLS

TOOL 4.0: EVACUATION OPERATIONS, RESOURCE AND INFORMATION NEEDS EVALUATION SHEET–"THOUGHT STARTERS"

This tool can be used to encourage advance thinking about mass evacuation before the three workshops anticipated for Plan Development. The workshops or planning sessions should involve multiple stakeholders, including public agencies, community-based and faith-based organizations, and multiple jurisdictions. This tool may be useful to professionals in the fields of transit, transportation, and public works as well as emergency management, law enforcement and other responders–anyone convening or participating in mass evacuation planning.

DIRECTIONS

This tool can be used before or during an evacuation planning session to prompt thinking and discussion about:

- **Develop courses of action: scenarios, timelines and operations planning**

- **Roles and relationships with regards to courses of actions**

- **Resource needs**

- **Resources available, and resource gaps,**

- **Roles and relationships with regards to resources**

- **Information and intelligence needs**

- **Roles and relationships with regards to information and intelligence**

The questions are best used as accompaniment to the "Workshop in a Box" Resource following Step 6.

The convener can develop additional topics and customized questions as needed.

Task 1. Develop Courses of Action(s)

1. **What are your thoughts on the operational options being considered for the selected evacuation scenario(s)?**

2. **Which ones do you like?**

3. **Which do you think will have the most impact?**

4. **Which do you think the general public will best accept?**

5. Which do you think carry the most political risk?

6. What is the preferred package of multiple actions that could make a big difference?

7. What role would your agency have in implementing that complete package?

Roles and Relationships

Mass evacuations by definition encompass multiple jurisdictions, public agencies, private entities, and community-based and faith-based organizations. Understanding the web of roles, responsibilities, and relationships involved in a mass evacuation is a necessary first step for success.

Consider the following questions in advance of the meeting or to use as discussion starters, particularly any changes in your thoughts since these questions were asked at an earlier workshop (Step 2):

1. What operational role would your agency or organization play in the selected scenario(s) for a large-scale evacuation, in implementing the preferred package of strategies?

2. What type of planning is needed so that your agency or organization will be equipped to fulfill that role?

3. What other agencies or organizations would likely be your partners in implementing the operations package?

4. What information about your partners' roles in operations would be useful?

Task 2. Resource Needs

Mass evacuations involve all segments of a population. This requires planning for the full scope of transportation-related needs. The phrase "transportation-related needs" is used broadly to include resources and support required for:

1. Self-evacuees (e.g., signage along routes, gas, food, open roads, traffic control)

2. Individuals without cars (e.g., buses, coaches, subway, ferries, or other modes of transportation)

3. Individuals with access and functional needs (e.g., accessible vehicles, specialized staff support, multi-lingual communication or pictograms, accessible shelters).

Available Resources

Use the following questions for self-reflection in advance of a meeting or as an icebreaker at a meeting.

1. What types of transportation-related resources will your agency or organization have to meet the needs of constituents and/or clients for the scenario(s) identified in Step 3? For example, if you are a transit manager, how many vehicles could you deploy with one hour of notice? With two hours of notice? Within four hours? With two days notice? Would time of day or day of week impact your resources? What factors most influence your ability to respond?

2. To whom will your organization turn if your resources are not sufficient?

3. Which entities might turn to your organization for transportation-related resources?

4. What type of planning needs to occur within the region to ensure that transportation-related resources will be in place to meet the transportation needs of all evacuees in a mass evacuation?

Roles and Relationships for Resources

1. What resources would your agency or organization need in a large-scale evacuation?

2. What resources would your agency or organization have or contribute to support a large-scale evacuation?

3. What type of planning is needed so that your agency or organization will be equipped to fulfill that role?

4. What other agencies or organizations would likely be your partners in evacuation planning, response, and recovery?

5. What information about your partners' roles in evacuation planning, response and recovery would be useful?

Task 3. Information and Intelligence

1. What information and intelligence will you need in order to do your part to support a large-scale evacuation?

2. When would you need the information?

3. From whom would you expect to get the information?

4. How would you expect to get the information?

5. How would you expect to get the information if your primary or preferred method of communication was not available?

Roles and Relationships for Information and Intelligence

1. What role would your agency or organization play in a large-scale evacuation with regards to information and intelligence? For example, how would you communicate your need for resources or your availability of resources?

2. What type of planning is needed so that your agency or organization will be equipped to fulfill that role?

3. What other agencies or organizations would likely be your information and intelligence partners in evacuation planning, response, and recovery?

4. What information about your partners' roles in evacuation planning, response and recovery would be useful?

STEP FOUR—TOOLS

TOOL 4.1.1: REAL TIME EVACUATION PLANNING MODEL

> **This tool corresponds to Task 4.1.1: Establish the Timeline**
> In the planning and response phases, it is important to know how long it may take to evacuate a segment or a large part of the population. These two tools used in tandem can help a region that does not have its own model or tools understand some of the dynamics and potential timeline requirements for the activation and response portions of the timeline for an evacuation.

PURPOSE:

Jurisdictions and regions that do not have evacuation clearance time models in place (that estimate traffic and congestion based on different scenarios of population, time of day, and other factors for events such as hurricanes) may be able to obtain similar vehicle clearance time estimates for their jurisdiction or region by using this tool.

DIRECTIONS:

Contact the Department of Homeland Security Science and Technology Directorate for access to the model (either the beta test version or the full model). Use the model to estimate vehicular clearance times for different scenarios, including notice and no-notice events. Use caution with the results of the model for no-notice events, as the model does not take into account the coordination and movement of people with access and functional needs, which will likely require additional time. For scenarios for events with notice, use this tool in conjunction with Tool 4.1.2, the Public Assisted Evacuation Plan timeline.

This project is sponsored by the U.S. Department of Homeland Security, Science and Technology Directorate. The Real Time Evacuation Planning Model (RTEPM), is a clearance time calculator tool for vehicular traffic evacuating an area. The tool was developed based upon the end-user's requirement to give them the ability to "draw a polygon on a map, push a button and have the clearance time calculated for that polygon." This GIS based tool accesses census and traffic information, generates trips, assigns them to the selected roadway network and determines the number of hours to evacuate the identified area. The user has the ability to adjust the endpoints of the evacuation, include or exclude certain roadways, identify shelters as destinations, adjust population for seasonal effects, specify a one day or multi day evacuation, and select behavioral curves as to how quickly the evacuation is expected to progress. The project focused on evacuation planning for hurricanes, looking closely at the results obtained in the FEMA/USACE Hurricane

Evacuation Studies conducted for hurricane prone states. This tool has potential application for other evacuations related to wildfires, nuclear power plants, dams, chemical stockpiles, and everyday hazardous materials incidents. The project expects to be concluded in 2012 and potentially transitioned into an operational mode. See Figure 4-8. For additional information, the reader is directed to the Department of Homeland Security Science and Technology Directorate.

Note that the clearance times identified in the RTEPM do not include the additional time required to coordinate and deploy mass transit assistance for carless populations, or the additional time needed to evacuate nursing homes, hospitals, and other facilities. The Public Assisted Evacuation Plan (Tool 4.1.2) together with the RTEPM can provide reasonable clearance time estimates, especially for events with notice, for those jurisdictions or regions without access to clearance time models.

FIGURE 4-8:

Real Time Evacuation Planning Model Flyer.

STEP FOUR—TOOLS

TOOL 4.1.2: PUBLIC ASSISTED EVACUATION PLAN (PAEP) TIMELINE FOR NOTICE EVENTS

PURPOSE:

This tool provides a timeline for a PAEP, which should be helpful for planning and responding to an evacuation for a notice event, especially hurricanes and possibly wildfires and tsunamis. It sets forth key phases and milestones for evacuation response that should be planned for ahead of time. See Figure 4-9. Phases include the Leaning Forward Phase, the Make Ready Phase, the Execute PAEP Phase, the Wind Down PAEP Phase, and the Transition to Response Phase.

DIRECTIONS:

This timeline should be used as a starting point for local, regional, and state planning efforts for determining the timeline for a notice evacuation event, particularly hurricanes and possibly wildfires and tsunamis. However, for wildfires and tsunamis, the notice might be much shorter, thus there would be less time to respond before the event. Plans across governments and agencies should consider various actions during each of these phases and work together to ensure adequate collaboration, and refine the timeline estimates for their particular region and event. Moreover, plans from various agencies and across multiple jurisdictions should come to agreement on and adhere to the timeline and to the operational strategies that accompany it.
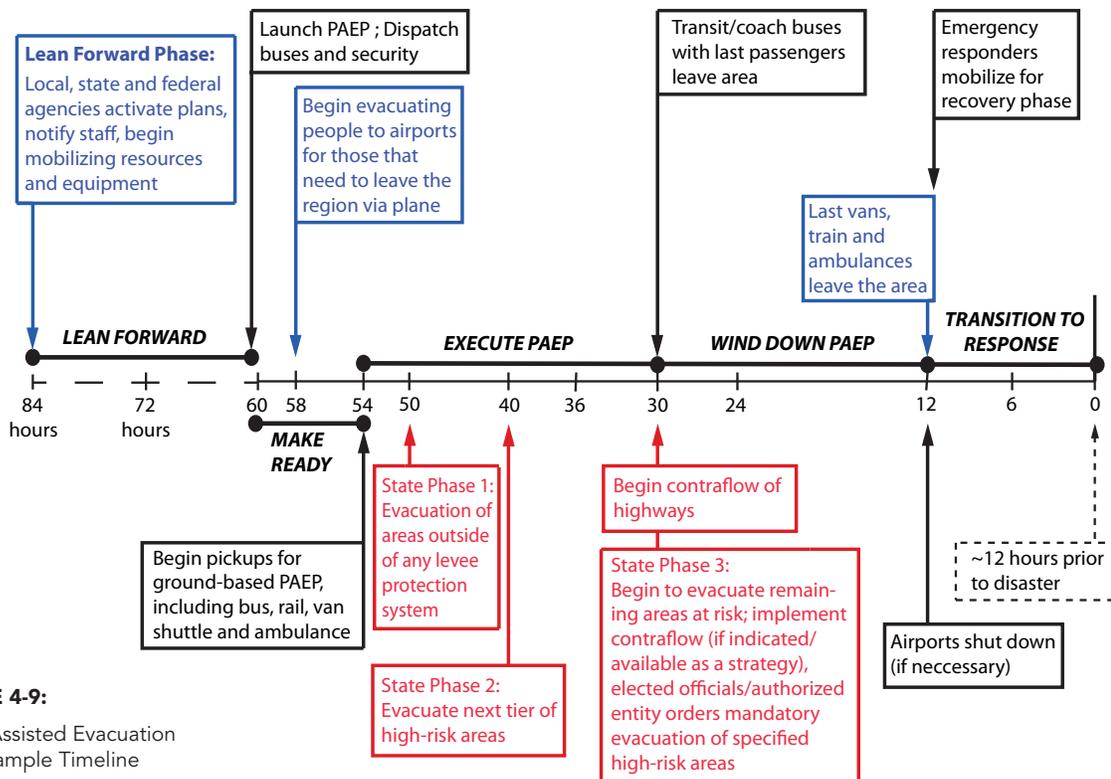
FIGURE 4-9:

Public Assisted Evacuation Plan Example Timeline

STEP FOUR—TOOLS

TOOL 4.2.1: EXAMPLES OF RESOURCES

PURPOSE:

This list provides examples of resources that may be necessary to plan, train, exercise, and respond to evacuations. The resources are categorized by agency/organization and listed in alphabetical order. The list is compiled from the literature review and interview findings and is not comprehensive.

DIRECTIONS:

Use the lists to inventory existing resources and identify those that are needed and potentially available through other agencies/organizations. Note that different resources may be needed at each different stage: Planning/preparedness, mitigation, response and recovery. FHWA's Resources can also be entered into the FEMA IRIS system (profiled below). It has been noted that transit agencies should be careful when they enter resources into a resource typing database. Though they may have 1,000 buses or 100 paratransit vehicles, at any given time they may only have a dozen of the former or one or two of the latter to readily deploy to an incident. The number will vary by season, by day of week, by amount of notice, by the anticipated amount of time the vehicles would be needed, and by the availability of qualified drivers and possibly supervisors.

Examples of Resources List

This document can be obtained in digital format from the guide website.

TOOL 4.2.1, EXAMPLES OF RESOURCES	
DEPARTMENT OF TRANSPORTATION	
Equipment and Assets	• Code Red/Reverse 9-1-1® emergency alert notification • Event radio channels to communicate with people in field • Hardwired, secure telephone lines with direct links to regional municipalities • Voice Interoperable Program for Emergency Response (VIPER) on mobile phones on same frequency
Intelligence	• Maps of hurricane and surge zones, flood zones, wildfires, etc. • Registry for access and functional needs populations, medical special needs, pets, livestock–updated bi-annually • State Medical Asset Resource and Tracking Tool, a web-based tool to track hospital bed count daily • Trigger points and evacuation timeline

TOOL 4.2.1, EXAMPLES OF RESOURCES	
Management	• Annual county inventory of medical special needs/ fragile populations and available ambulances • Annual inventory of resources in counties not at risk • Clearly defined roles and responsibilities for all agencies participating in the evacuation • Gap analysis between number of vehicles available and number needed for evacuation • List of vehicles in county available for evacuation • Private Assets Logistics Management (PALM) system that manages private sector assets that can be accessed during an evacuation • Standard Operating Guidelines (SOG), updated every two years • Statewide mutual aid agreements for ambulances • WebEOC
Personnel	• Contacts in other agencies for real-time information • EM personnel in EOC with decision making authority • State Incident Management Team available to help counties with evacuation • Logistics staff to coordinate resources and resource requests • Personnel to update registry information
Vehicles	• Ambulances (basic life support, advanced life support, bariatric)–private and public • EM vehicles • Fire department vehicles • School buses for areas without mass transit
METROPOLITAN PLANNING ORGANIZATION/COUNCIL OF GOVERNMENTS (MPO/COG)	
Intelligence/Data	• 511 service operated by state to provide updates on state and interstate highways • GIS maps • Mapping tool to provide: • Information to evaluate placement of law enforcement and equipment • Weather information • Hurricane tracking • Traffic flow information including contra flow map • Modeling capabilities • Evacuation models by zip code, neighborhood, city, county or state • Hurricane models • Monitoring of blue tooth numbers • Reliable data from traffic cameras
Management	• Centralized Traffic Operations Center (TOC) • Convening leaders of different agencies to discuss evacuation plans • Funding coordination • Study to help public information officers reach access and functional needs populations
Personnel	• Staff support to committees for planning and after-action reviews • GIS staff

TOOL 4.2.1, EXAMPLES OF RESOURCES	
TRANSIT AGENCY AND OTHER TRANSPORTATION PROVIDERS	
Equipment and Assets	• Evacuation route signage • Generators at transit facilities • GPS on buses • Meters in stations to count number of people allowed into stations • Parking lots where stalled vehicles can be towed • Queue ropes • Radios on buses • Subway Stations (both non-accessible and ADA accessible)
Intelligence	• Assessment to identify number of people who need assistance to evacuate from special facilities, their physical characteristics (e.g., ambulatory, able to transfer from wheelchair to bus seat, needs wheelchair, needs stretcher) and the type of vehicle they need • Estimates of time required to load and unload buses, drive to destination, and return • Hyper alert application for mobile phones to alert staff and operators • Joint Rail Control Center • Maps for drivers (e.g., to off-site bus storage areas, pickup, transfer, and drop off points)
Management	• 3-1-1 System to coordinate requests for evacuation transportation • Communication–internal, intra-agency, external • Employee preparedness letters • Social media • Subscription service • Website • Credentials/identification for all personnel • Designated pickup and transfer points • Documents to track assets and operators' hours • Off-site vehicle storage • Registry (2-1-1, access and functional needs, medical special needs) • Shelter for transit facility personnel • Signal systems • Software that integrates resource requests with reimbursement • Transportation resources database to track vehicle status • WebEOC
Personnel	• Dispatcher • Drivers • Law Enforcement • Transit personnel assigned to EOC • Transit personnel to track vehicles and number of evacuees
Vehicles	• Dispatcher • Drivers • Law Enforcement • Transit personnel assigned to EOC • Transit personnel to track vehicles and number of evacuees
COMMUNITY-BASED/FAITH-BASED ORGANIZATIONS (CBOS/FBOS)	
Equipment and Assets	
Intelligence	
Management	
Personnel	
Vehicles	

STEP FOUR—TOOLS

TOOL 4.2.2: OVERVIEW OF FEMA RESOURCE TYPING FOR TRANSPORTATION RESOURCES

PURPOSE:

The purpose of this tool is to direct planners to the FEMA website to find extensive resources about resource typing–a major element of resource management. FEMA has developed a free, online tool so that jurisdictions and agencies can record their Tier 1 resources. See NIMS IRIS (National Incident Management System, Incident Resource Inventory System) below.

DIRECTIONS:

Go to http://www.fema.gov/emergency/nims/ResourceMngmnt.shtm#item5

FEMA also released guidance in March 2007 to revise its former policy on resource typing. For details go to http://www.fema.gov/pdf/emergency/nims/ng_0001.pdf

Some transportation-related resources are typed and defined in the Public Works section:

- **http://www.fema.gov/pdf/emergency/nims/508-7_public_works_resources.pdf**

- **http://www.fema.gov/txt/emergency/nims/public_works_resources.txt; buses are on page 21. For accessibility, text versions of all typed resources are provided on the FEMA website. Variable message signs, arrow signs, and snow removal equipment are also included.**

Resource: Buses					
CATEGORY: Public Works and Engineering (ESF #3)				**KIND:** Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	METRIC					
Capacity	Adult Seating	40 or more	30 to 40	20 to 30	Under 20	
Fuel		Gasoline/Natural Gas/Diesel/Electric	Gasoline/Natural Gas/Diesel/Electric	Gasoline/Natural Gas/Diesel/Electric	Gasoline/Natural Gas/Diesel/Electric	
Equipment	Example					
COMMENTS:						

Animal Protection Resource Typing

Animal Protection Resource Typing for transportation resources includes large animal transport and small animal transport. The following are references to the FEMA Resource Typing.

- **http://www.fema.gov/pdf/emergency/nims/508-1_animal_health_resources.pdf**

- **http://www.fema.gov/pdf/emergency/nims/508-1_animal_health_resources.txt**

More than 120 resources have been typed as Tier 1 resources. Resources are being revised on an as-needed basis as the NIC and stakeholders recognize errors or updates.

FEMA has developed a free, online tool so that jurisdictions and agencies can record their Tier 1 resources (http://www.fema.gov/pdf/emergency/nims/508-7_public_works_resources.pdf) . Readers are referred to the website for original diagrams, and to the text version for those with visual or other impairments.

For accessibility, text versions of all typed resources are provided on the FEMA website. The public works reference is http://www.fema.gov/txt/emergency/nims/public_works_resources.txt; buses are on page 21.

Medical Emergency Resource Typing including paratransit vehicles, defined with some restrictions

Medical Emergency Resource Typing for transportation assets also includes fixed wing and rotary wing aircraft, and ground ambulances, as well as ambulance strike teams. These include detail comparable to the Multi-Patient Medical Transport Vehicle.

- http://www.fema.gov/pdf/emergency/nims/508-3_emergency_medica_%20services_%20resources.pdf

- http://www.fema.gov/txt/emergency/nims/508_3_emergency_medical_%20services.txt

RESOURCE:		Multi-Patient Medical Transport Vehicle				
CATEGORY:	Health & Medical (ESF #8)			KIND: Vehicles/Team		
MINIMUM CAPABILITIES:		TYPE I	TYPE II	TYPE III	TYPE IV	OTHER
COMPONENT	METRIC					
Overall Function	Provides basic medical support, evacuation, and transportation services via multi-passenger vehicle. May also be utilized to import personnel and or equipment/supplies into the area of need.	Capable of providing basic medical transportation services during large scale evacuation.	Capable of providing basic medical transportation services during large scale evacuation.	Capable of providing basic medical transportation services during large scale evacuation.		
Team	Team experienced in the care and transportation of ambulatory patients.	Basic Life Support	Basic Life Support	Basic Life Support		
Personnel	Minimum Staff	Driver (licensed and able to operate vehicle) and certified as an EMT Emergency medical staff specific to the mission/commensurate with the mission assignment	Driver (licensed and able to operate vehicle) and certified as an EMT Emergency medical staff specific to the mission/commensurate with the mission assignment	Driver (licensed and able to operate vehicle) and certified as an EMT Emergency medical staff specific to the mission/commensurate with the mission assignment		
Capacity	Patient Transport	Climate controlled Minimum of 10 seated patients AND 1 wheeled ambulance cot	Climate controlled Minimum of 10 seated patients	Climate controlled Minimum of 6 seated patients		

RESOURCE:		Multi-Patient Medical Transport Vehicle				
CATEGORY:	Health & Medical (ESF #8)			KIND: Vehicles/Team		
MINIMUM CAPABILITIES:		TYPE I	TYPE II	TYPE III	TYPE IV	OTHER
COMPONENT	METRIC					
Equipment and Supplies	Equipment and supplies needed to meet mission objectives	Oxygen Compressed air Minimum of equipment and supplies commensurate with the mission assignment PPE consistent with OSHA 1910.134 and 1910.1030 requirements	Oxygen Compressed air Minimum of equipment and supplies commensurate with the mission assignment PPE consistent with OSHA 1910.134 and 1910.1030 requirements	Oxygen Compressed air Minimum of equipment and supplies commensurate with the mission assignment PPE consistent with OSHA 1910.134 and 1910.1030 requirements		
COMMENTS:	1. Security, fuel, vehicle maintenance support, transportation, food, and/or rest facilities will be provided by the requesting jurisdiction unless other arrangements have been made. 2. Additional staff, e.g., administrative, logistics, maintenance, are recommend to ensure the ongoing availability of resources required to safely and effectively support the mission assignment. 3. Ground safety assurance and traffic control are important support requirements. This support may be significant depending upon the size and location of the incident. 4. Each team/unit can work a maximum of 12-hour shifts, depending upon individual policies and procedures. If assigned for > 5 days, additional staff will be needed to provide for crew rest. See ALS and BLS Air or Ground Ambulance resources for staffing of individual ambulances. 5. The estimation of the quantity of medical transportation resources needed is based on many factors such as the nature of the mission, logistics, intensity of demand, duration of service activity, and allowance for rest periods. 6. A minimum of Td toxoid or Tdap (receipt of primary series and booster within the past 10 years) and a complete Hepatitis B Vaccination Series OR a waiver of liability. Also refer to immunization recommendations for emergency responders by Centers for Disease Control for additional guidance for specific responses.					

STEP FOUR—TOOLS

TOOL 4.2.3: TR–TRANSPORTATION RELATED RESOURCE DATABASE TEMPLATES

PURPOSE:

These databases are designed to assist planners in helping self-evacuees make their way to their destinations.

DIRECTIONS:

Initial databases include a sample with instructions, followed by a blank form that can be customized for an individual jurisdiction. Screen shots of related, more detailed, self-explanatory Excel sheet database resource templates are also provided.

Tool 4.2.3.1, Major Evacuation Routes

This tool is a list of the major evacuation routes for adjoining jurisdictions or states. For hurricane-prone locations, these are already predetermined and include evacuation signage. For other locations, the list can include major routes such as highways, interstates, or other multi-lane roads. In preparing to use this tool, consider the following questions:

- **Is the route itself routinely subject to hazards, such as flooding? See Figure 4-5**

- **Are there potential bottlenecks, such as lane drops?**

- **How will bottlenecks be handled in a major evacuation?**

- **Are alternate routes identified in case there is infrastructure damage, debris, or a major incident that blocks a route?**

- **Will a route, or a specific section/segment along the route, require law enforcement to keep evacuation traffic moving?**

- **Are there any jurisdictional questions among law enforcement agencies as to which is charged with monitoring and staffing the route or segment?**

- **Is there coordination among jurisdictions as to designating routes and how to manage those routes in the planning, response, and reentry phases of an evacuation?**

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Tool 4.2.3, TR – Transportation Related Resource Database Templates

Major Evacuation Routes Example
Specific law enforcement agency contact information should be here Specific law enforcement agency assigned to monitor / staff route or segment

Route	Potential Bottlenecks	Law Enforcement Assigned	Law Enforcement Agency	Contact
Specific route that will be used during evacuations. For hurricanes/tsunamis these have been predetermined and have signs showing directional ~~other jurisdictions~~	Identify specific locations, (e.g., lane drops); potential mitigation (e.g., divert some traffic to alternate route prior to lane drop)	Yes / No / if needed: if the route or segment along the route has been pre-determined that law enf~~ must~~ ~~f~~	Specific law enforcement agency assigned to monitor / ~~databas~~	Specific law enforcement agency contact

Transportation Related Resource Database Templates
This excerpt can be viewed in full on CRP-CD-132.

Tool 4.2.3.2, Selected Food/Fuel Vendors along Major Evacuation Routes

Pre-determine food and fuel vendor locations before an evacuation occurs. These services will need generators to operate if there is a power outage. Include contact information. Consider staffing the facility with local law enforcement. Priority for refueling should also be considered.

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Tool 4.2.3.2, Selected Food/Fuel Vendors along Major Evacuation Routes

Food/Fuel Vendors along Major Evacuation Routes Example

Route	Vendor	Address	Contact	Generator	Food/Fuel/Both
Name: specific route or segment along the evacuation route	Name of facility	Specific location along the route should be here; it could also be noted here if there is an alternative mailing address	Complete contact information for the owner/ manager/ staff that woul~~d~~ ~~as~~ in~~stalled~~ io~~n~~	Yes / No: if location has no generator the facilit~~y~~ without power the location	Designates if location has food, fuel, or both

Selected Food/Fuel Vendors along Major Evacuation Routes
This excerpt can be viewed in full on CRP-CD-132.

Tool 4.2.3.3, Variable Message Sign and Dynamic Message Sign Inventory (separate Excel sheet- screen shot for reference only) Possible supplement to FEMA Resource Definition

State	Organization	Equipment	Fixed/Portable	Location	Quantity	Power Source	Current Uses	Message Capabilities and Limits	VMS Evacuation Plans	Contacts
Example Information		Dynamic Message Sign	Fixed	Throughout metropolitan region	43		Online with Operations Center. Displays real-time traffic information to motorists.	Maximum of 60 characters (21 char line X 3 lines)	Metropolitan Transportation Emergency Management Plan	John Doe, Statewide TS Development Manager 611 555 5555 jdoe@state.us

Variable Message Sign and Dynamic Message Sign Inventory

This excerpt can be viewed in full on CRP-CD-132.

Tool 4.2.3.4, Public Works Equipment and Resources Inventory (separate Excel sheet- screen shot for reference only) Note: some of these are included in FEMA resource typing; many are not.

Available Public Works Equipment & Resources						
Equipment Type	Application	Location	Quantity	Owner	Main Number	Axle Height/Vehicle Clearance
Arrow Board Trailer Mounted	Temporary lane closure					
	Temporary lane closure					

Public Works Equipment and Resources Inventory

This excerpt can be viewed in on CRP-CD-132.

STEP FOUR—TOOLS

TOOL 4.2.4: TA–TRANSPORTATION ASSISTANCE

PURPOSE:

The following databases inform emergency managers of potential assets that can be used to coordinate and assist evacuees needing additional assistance to make their way to safe refuge.

DIRECTION:

Each database includes a sample with instructions, followed by a blank form that can be customized for an individual jurisdiction. The screen shot for the supplementary Excel sheet (4.2.4.3) is provided for those desiring more detail for logistics planning.

4.2.4.1 *Intermodal Facilities Database*

4.2.4.2 *Mass Transportation Modes Database*

4.2.4.3 *Vehicle Fleet Information*

4.2.4.4 *Manager/Supervisor/Dispatcher/Operator Database*

STEP FOUR—TOOLS

TOOL 4.2.4.1: IF–INTERMODAL FACILITIES OR OTHER DESIGNATED RECEPTION/COLLECTOR LOCATIONS

PURPOSE:

Reception/Pickup Locations: this database serves to coordinate those pre-determined locations that evacuees would be directed to for reception/pickup for transportation to shelters.

DIRECTIONS:

Each database includes a sample with instructions, followed by a blank form that can be customized for an individual jurisdiction.

Promising practice

Some places use these gathering opportunities to register and "tag" people (and service animals, pets, and durable medical equipment) prior to transport, for example, attaching associated wristbands to children and their parents.

- **Employ trained staff from Mass Care to help with registering people and resolving concerns about people with access and functional needs such as unaccompanied minors, people with cognitive disabilities, with language barriers, and other needs.**

- **Ensure that service animals remain with their owners at the transportation "hand-off" between modes and that caregivers stay with their client(s) and/or family member(s), and that mobility devices and other durable medical equipment stay with the owner, or at least are carefully tracked, scanned, and transported at the same time, so the owner is reunited with his/her equipment immediately upon arrival at the destination shelter.**

Tip

While planning, "sending" jurisdictions need to verify how they will collect people, how and where they will identify them, their families and their belongings, how they will transport them, and how they will coordinate with receiving jurisdictions as to appropriate destinations.

The database can be further designed to include information about how evacuees will get to the reception/pickup locations: walking or driving personal vehicles. The same form can be used to gather information on destination location reception centers, if there will be a central collection point prior to assigning people to shelters.

The locations must be well known locations such as parks, libraries, schools, stadiums, or established intermodal facilities such as rail/bus stations.

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Tool 4.2.4.1, IF – Intermodal Facilities or Other Designated Reception/ Collector Locations

Intermodal Facilities or Other Designated Reception/Collector Locations Example

Name	Address	Contact Name / #	Facility Type			Modes Served-check all that apply					# Parking spaces	Person Capacity
			Ad hoc	At-grade off street	Grade separated multi-modal	Bus, van	Rail	Ferry	Air	Other		
Common name for facility	Address; if a large facility designate specific collection location; prepare and post wayfinding	This will contain the contact name and phone number for person who could authorize use of the facility.	E.g., stadium, mall, museum, convention center, etc.	E.g., park and ride lot, bus transfer station, etc.	E.g., bus/ rail, bus/ rail/ air, bus/ car/ ferry, etc.						# spaces for cars, buses if designated; # handicapped	Approx. max # that can fit

Intermodal Facilities or Other Designated Reception/Collector Locations

This excerpt can be viewed in full on CRP-CD-132.

STEP FOUR—TOOLS

TOOL 4.2.4.2: MASS TRANSPORTATION MODES DATABASE

(See also Tool 4.2.2 for *FEMA Resource Typing for Buses and Multi-Patient Medical Transport Vehicles* and Tool 4.2.4.3 *Fleet Vehicle Information Form*)

PURPOSE:

The Mass Transportation Modes Database tool is designed to provide a comprehensive listing of all modes of transportation that could be used to evacuate mass numbers of people. They include basic information on wheelchair lifts and securement locations on each vehicle. This assists in determining total capacity for evacuation of people with access and functional needs.

DIRECTIONS:

Include information from paratransit providers as well as from CBOs, FBOs, and NGOs where feasible and where agreements are in place. Not all vehicles identified will be available in many situations.

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Tool 4.2.4.2, Mass Transportation Modes Database

Mass Transportation Modes Database Example

Mode	Name	Address	Contact Name / #	# Vehicles, capacity per vehicle	Capacity (Max. # People)	Wheelchair life equipped? #Yes / # No	# of wheelchair securement locations
Transit (list all modes); school buses; coach or other national bus line; trains; airlines with pre-approved agreements; etc.	School / Vendor name.	This address may be the location where the mode is "housed", for example school bus yard, or it could be the specific location for the mode such as airports or train station.	This will contain the contact name and phone number for person who could authorize use of each specific mode for evacuation.	If there are different vehicle sizes and types, request averages or detail by vehicle type (what contact can provide)	Total capacity mode can accommodate.	Indicate the number of vehicles or the percentage or vehicles that are lift equipped	Some vehicles have 1, 2 or more securement locations; indicate the approximate

Mass Transportation Modes Database

This excerpt can be viewed in full on CRP-CD-132.

STEP FOUR—TOOLS

TOOL 4.2.4.3: VEHICLE FLEET INFORMATION FORM

VEHICLE-FLEET INFORMATION TOOL										
	Purpose:		This tool is designed as a resource inventory tool for transportation fleets. It can be adapted for any type of fleet for any type of vehicle.							
	Directions:		Examples of important items to inventory are:							
			The number of vehicles							
			The type of vehicles							
			The location of stored vehicles							
			The fuel type and storage locations of the fuel (can be used for sharing arrangements)							
			The capacity of the vehicles							
			Axle clearance (important in responses to flooding)							
			The configuration of the vehicles (rail systems) as consists (and if the consist sizes can be changed, and what the maximum capa							
			Vehicle deployment by time of day (this ensures that readiness can be assessed at peak, off-peak, and non-revenue hours)							
			Each system can also add any additional information important to deployment of its fleet in an emergency.							
Carrier 1										
	Fleet - buses			Buses in Service				Storage Facilities		
	Rail cars (see below)			Weekday			Saturday	Sunday		
			AM Peak	Midday	PM Peak	Night		Location:		Location:
	Standard buses									
	# Available							Fuel type:		Fuel type:
	Average seats per bus							Amount:		Amount:
	Average wheelchair tie-									
	Estimated total seating capacity (with wheelchairs in place)									
	Estimated total standing capacity (with wheelchairs in place)									
	Estimated total wheelchair									

Vehicle Fleet Information Form
This excerpt can be viewed in full on CRP-CD-132.

STEP FOUR—TOOLS

TOOL 4.2.4.4: MANAGER/SUPERVISOR/DISPATCHER/DRIVER DATABASE

PURPOSE:

This tool is designed to help planners identify personnel needed
and available to assist with emergency evacuations.

DIRECTIONS:

In the planning stage, identify drivers and operators who are willing to drive in an emergency
situation. Most transit systems and large operations will include contact information for the
managers who could authorize the use of the buses or other vehicles and drivers. The supervi-
sors and dispatchers will keep the lists of drivers/operators. In certain types of incidents, such
as a radiological incident, managers and drivers are not expected to put themselves and their
equipment in danger; they would likely be deployed to a nearby site out of the danger area to
transport people once they have been decontaminated. For small operations, actual drivers can
be identified; however, the person who can authorize the driver can be the primary contact.

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Tool 4.2.4.4, Manager/Supervisor/Dispatcher/Driver Database

Manager/Supervisor/Dispatcher/Driver Database Example

Mode	Manager/Supervisor/Dispatcher/Driver Name	Approximate # of drivers potentially available	Contact Information
Mode which drivers have been authorized to legally operate; for example school bus, train, planes, etc.	This should be the specific name of managers or supervisors with authority to request drivers to operate in an emergency situation. See notes. Pre-planning is needed to ensure such service is included in union agreem... or contracts. Approximate numb... drivers who would be a...	Approximate numbers of drivers who might be available/who have volunt...	Phone numbers for managers/drivers / operators/ supervisors/

**Manager/Supervisor/Dis-
patcher/Driver Database**
day.)

This excerpt can be viewed in full on CRP-CD-132.

STEP FOUR—TOOLS

TOOL 4.2.5: PS–PUBLIC SHELTERS TRANSPORTATION REFERENCE

PURPOSE:

This database serves to coordinate the transportation aspects of the more comprehensive public shelter database information.

DIRECTIONS:

Include, at the minimum, the facility name, address, and capacity. For transportation purposes, it is only necessary to know when a particular shelter is at or near capacity, whether it has power or a generator for people with access and functional needs who might require power, and whether it accepts pets. Transportation (highway and transit) officials also need to know about roadway access and parking capacity. The survey template that follows the database provides a starting point for gathering the information. Such surveys may contain more detailed information than can be readily captured in the database, and if so should be appended to the database.

Each database includes a sample with instructions, followed by a blank form that can be customized for an individual jurisdiction.

This public shelters list table includes a placeholder for a database ID for each shelter which would be assigned for planning and tracking purposes and would correspond with the ID used by the American Red Cross or the designated agency responsible for ESF #6–*Mass Care, Emergency Assistance, Housing, and Human Services* function.

The FEMA document, "Guidance on Planning for Integration of Functional Needs Support Services in General Population Shelters" (November 2010) (www.fema.gov/pdf/about/odic/fnss_guidance.pdf) provides comprehensive guidance, checklists, and other tools to help local communities accomplish the mission stated in the title of the Guide.

More jurisdictions now open and allow pets in the event of evacuations. The pets are not usually sheltered with the population, but the evacuees are usually allowed access to them.

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Tool 4.2.5, PS – Public Shelters Transportation Reference

Public Shelters List – Transportation Reference Example

Database ID	Name	Building #	Address	Directions	Access Roads-	Alternative access	Parking capacity	Host Capacity	Pet Friendly (P)-	Generator –	Additional Considerations	POC for questions
# assigned to location	Facility name	Could be specific building ID, number, or other identifier	Complete physical address of location designated as a shelter could also be used to designate specific building/room (i.e.: gymnasium).	Directions from one or more evacuation routes including landmarks	Access roads to shelter clearly marked; not subject to flooding or other hazards.	Alternative routes available if primary access route is blocked?	Parking capacity for cars (for self-evacuees, staff and volunteers) and for buses	How will transportation be notified when shelter is at or near capacity?	Yes/No: Pet care facilities are on-site or nearby.	Yes/No: facility has a functioning generator. In a power access and functional needs may need to	Any additional information associated with the shelter location could be	Name and phone number for point of contact

PS–Public Shelters Transportation Reference

This excerpt can be viewed in full on CRP-CD-132..

SHELTER FACILITY TRANSPORTATION SURVEY

Please print all information. This form is generic to many types of shelters; some of the questions on this form might not apply to every site. In such cases, answer N/A (not applicable).

Site Name:

Street Address:

Town/City: **County/Parish:**   **State:** _____   **Zip Code:**_____

Mailing Address (if different):

Phone: ( ) _____-_____ **Fax:** ( ) _____-_____

Email address (if applicable):

EMERGENCY CONTACT INFORMATION:

To verify facility readiness, availability, and capacity, contact (N
secondary contacts:

Public Shelters Survey

This excerpt can be viewed in full on CRP-CD-132.

STEP FOUR—TOOLS

TOOL 4.2.6: RESOURCE INVENTORY CHECKLIST

PURPOSE:

Every jurisdiction and agency involved in an evacuation will develop its own procedures for identifying community needs and matching the resources required to meet those needs. Each process will be unique to the geographic area, type of event, available resources, and other variable factors. The stepped process presented here is a tool to help planners inventory the information and resources they will need for evacuations.

DIRECTIONS:

Use the following stepped process to inventory and match evacuation resources to the needs of self-evacuees and evacuees requiring assistance. Planners may choose to organize the information in a database, list, or emergency evacuation plan.

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Tool 4.2.6, Resource Inventory Checklist

Step 1: Identify and Locate Evacuees (From Step 2)	Completed
Estimate the number of people who will need to be evacuated.	
Permanent residents	
Tourists	
Commuters	
Estimate the number of self-evacuees.	
Locate self-evacuees.	
...tify by state, county, city, zip code, neighborhoods, or	

Resource Inventory Checklist

This excerpt can be viewed in full on CRP-CD-132.

STEP FOUR—TOOLS

TOOL 4.3: CHECKLIST FOR INTER-AGENCY COMMUNICATIONS AND INFORMATION SHARING BETWEEN TRANSPORTATION AGENCIES, EMERGENCY MANAGEMENT, AND OTHERS

> **This tool corresponds to Task 4.3: Identify Intelligence and Information Needs**

PURPOSE:

Whether notice or no-notice, emergency events that result in mass evacuation can produce the following conditions:

1. **Multijurisdictional and interagency response**

2. **Large volumes of information**

3. **Complex webs of coordination and decisions**

Transportation agencies and providers can use the following worksheets in planning exercises to document communication, decisions, and other actions taken before and during an evacuation. The worksheets may also serve as reminders in the midst of an event, but advance practice and planning is important to ingrain the lessons. Most regions have one or more EOCs and TMCs, usually at local, city and/or county, and state levels. The planning effort should include the sharing of information between EOCs and TMCs and if appropriate, with Fusion Centers (DHS funded). Without that go/no go discussion based on what the data TMCs have available to share with the EOCs, it may be less likely that the evacuation will be organized in a way to limit congestion on the roadway network. The FHWA document, "Information Sharing Guidebook for Transportation Management Centers, Emergency Operations Centers, and Fusion Centers" (FHWA 2010) may be helpful.

Informing the public (through multiple media, in multiple languages, and in multiple accessible formats) is an essential component of information sharing. It is primarily the responsibility of ESF #15, *External Affairs*.

DIRECTIONS:

Use the worksheets to systematically organize information, convey and request key information, track decisions and actions to be taken, and document the incident (exercise scenario or actual incident). The steps below correlate to the worksheets that follow.

1. Assess the initial incident using available information.

2. Based on that information, determine what agencies and jurisdictions should be involved in communication activities.

3. Identify and collect the types of transportation information to be shared. The information collected reflects the user's role and responsibilities in the management of the transportation-related resources. It also relates to defined emergency response functions.

4. Identify what information is to be provided and what information is needed from the expected participants.

5. Determine whether Emergency Management has updated its orders or directions since the initial assessment. This is especially important to understanding how the geographic and associated jurisdictional characteristics of the evacuation may be changing.

6. Prepare for the next cycle of information sharing and exchanges.

7. Based on emerging and updated information, identify what information is to be provided to and what information is needed from the expected participants.

8. Preparing for re-entry, coordinate among transportation disciplines across jurisdictions.

9. Preparing for re-entry, coordinate information across all jurisdictions and disciplines.

10. After action report—define how well interjurisdictional communication worked.

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A Transportation Guide for All-Hazards Emergency Evacuation

Tool 4.3, Checklist for inter-agency communications and information sharing between transportation agencies, emergency management, and others

Step 1: Assess the initial incident using available information.		
	Incident Description	
Situation Location		
Nature of Incident/ Type of Danger (describe briefly)		

Shelter-in-Place   Selecti...

Checklist for inter-agency communications and information sharing between transportation agencies, emergency management, and others

Shelter-in-Place   Phased Release   Full Evacuation
Phased release   Full
Widespread   evacuatio

This excerpt can be viewed in full on CRP-CD-132.

STEP 5
PREPARE, REVIEW, AND APPROVE PLAN

TASK 5.1

WRITE THE PLAN

Turning all the preparation into a viable evacuation plan is the next step in the emergency evacuation process. The recorded results of the planning process in all functional areas can be used in drafting an outline. The plan may also include a number of annexes, such as roadway route plans, shelter locations, transit route pickup points, resource listings, and many other items as appropriate.

Some evacuation plans (e.g., the Atlanta Regional Evacuation Coordination Plan) begin the plan with a concise "first hour" checklist/guide for chief elected officials, county/city managers and other decision makers. See the Resource Section, State and Municipal Plans and Guidance (page 177) for more examples.

Basic rules when preparing the document:

1. **Keep the language simple and clear. Write at or below an eighth grade language level.**

2. **Summarize important information with checklists and visual aids such as maps and flowcharts. Any tools developed for the plan must be readily convertible to alternate formats.**

3. **Avoid using jargon and acronyms.**

4. **Use short sentences and the active voice.**

5. **Provide enough detail to be understandable, but not overwhelming. Focus on actions.**

6. **"Keep out of the weeds." References to standard operating procedures and other detailed documents are preferable.**

7. **Qualifiers and vague words create confusion. Provide enough detail to convey an easily understood concept of operations.**

8. **Format, organize, and cross-reference the documentation so that readers and end users are able to find the options and solutions they need.**

Tool 5.1 provides a Multijurisdictional Evacuation Coordination Template Outline. Much of the information required to fill in the pieces of the outline will have been developed in the databases and operational plans developed through the steps of this guide.

TASK 5.2

REVIEW THE PLAN

Emergency agencies, homeland security officials, transportation and transit agencies, and other key stakeholders must review the plan and add their suggestions on improving the plans. Reviewing the plan determines if the contents will be useful at the time it is needed.

Tool 5.2 provides a comprehensive checklist that can be used as an internal review tool prior to submitting the plan for external review. In addition, the FEMA Target Capabilities List for Evacuation and Sheltering-in-Place is included in its entirety as Appendix A to this document.

Basic critique methods may be applied to the plan to determine if it will be effective and efficient. These methods measure if the plan is adequate, feasible, acceptable, complete, and in compliance.

- **The plan is adequate if it can accomplish the mission while under control. Have valid and reasonable assumptions.**

- **The plan is feasible if the mission can be accomplished utilizing the resources within the allocated time allotted.**

- **The plan is acceptable if it meets the requirements driven by the threat or incident. It also is acceptable if it meets the costs and time limitations. Finally it is acceptable if it complies with all applicable laws, regulatory requirements, and standards.**

- **The plan can be labeled complete if it:**
  - **Incorporates all tasks to be accomplished**
  - **Includes all required capabilities**
  - **Integrates the needs of the general populations, children under the age of 18, individuals with disabilities and other access and functional needs, immigrants, individuals with limited English proficiency, and a diverse racial and ethnic population**
  - **Provides a complete picture of the sequence of events and the scope of the planned response**
  - **Provides time estimates for achieving objectives**
  - **Identifies criteria for success and the desired outcome expected**

- **Once the plan is complete, it can also be considered compliant if it meets applicable laws and official and regulatory requirements. The plan also needs to comply with state and federal standards.**

TASK 5.3

APPROVE AND MAINTAIN THE PLAN

Obtaining senior officials' approval through a formal promulgation documentation process is vital to ensuring that the plan will be effectively implemented at all levels. The chief executive of each agency must review and sign the plan. This process is based in specific statute, law, or ordinance, including the authority to call for a mandatory evacuation. Establish the authority and the formal process required for changes and modifications to the plan. Include a regular review and update of the plan as needed, ideally on an annual basis.

Tool 5.3, Sample MOU with Transit Agency as Convener, and Tool 5.4, Sample Memorandum of Understanding (MOU) with Metropolitan Planning Organization or Other Regional Entity as Convener, provide example language for such agreements that can be amended as appropriate to fit the agreed-upon governing or coordinating structure and operational agreements.

In addition to an umbrella agreement or understanding among the main stakeholders and partners in the planning process, it is also advisable to develop MOUs and/or coordination frameworks with others, such as:

- **Transportation counterparts in other localities, such as across county or state lines**

- **Transit counterparts in the region and in nearby and more distant jurisdictions**

- **Medical transportation providers**

- **Private sector transportation providers (the state or local Emergency Management Agency may elect to do this, but the lead transportation entity needs to know about it)**

- **School bus operators or providers (the state or local Emergency Management Agency may elect to do this, but the lead transportation entity needs to know about it)**

- **CBOs, FBOs, and NGOs**

- **Private sector organizations that can provide support and supplies**

TASK 5.4

DISSEMINATE THE PLAN

Once approved, the CAME or the emergency manager(s) will arrange to distribute the plan to those responsible for implementing it. Much of the evacuation plan will be a public document,

because elements will need to be shared with non-governmental and faith-based organizations, as well as other agencies, to help them understand their roles and to encourage them to participate in planning. Some elements, however, will be considered sensitive and should have appropriate standardized documented control processes in place, including accountability for all copies. Secured electronic access is preferable, but portable hard copies may also be necessary in some cases. Determining which elements are public and which are sensitive can be decided during the development of the plan.

For transportation and transit agencies that do not work regularly with emergency management, it is important to be aware of the Emergency Management Assistance Compact (EMAC). EMAC is a national interstate mutual aid agreement that enables states to share resources during times of disaster. Since the 104th Congress ratified the compact, EMAC has grown to become the nation's system for providing mutual aid through operational procedures and protocols that have been validated through experience.

EMAC is administered by NEMA, the National Emergency Management Association, headquartered in Lexington, Kentucky. EMAC complements the federal disaster response system, providing timely and cost-effective relief to states requesting assistance from assisting member states who understand the needs of jurisdictions that are struggling to preserve life, the economy, and the environment. EMAC can be used either in lieu of federal assistance or in conjunction with federal assistance, thus providing a "seamless" flow of needed goods and services to an impacted state. EMAC further provides another venue for mitigating resource deficiencies by ensuring maximum use of all available resources within member states' inventories.

STEP FIVE—TOOLS

TOOL 5.1, MULTIJURISDICTION MULTIMODAL EVACUATION COORDINATION TEMPLATE OUTLINE

PURPOSE:

Provide the framework for organizing the information gathered
in Steps 1 through 4 into a formal plan.

DIRECTIONS:

This document presents the template outline for a Multijurisdictional Evacuation Plan. This annotated outline is used to prepare a multiregional evacuation plan. The collaborative planning and information gathering in Steps 1 through 4 in this guide provide the majority of the information needed to complete this template. Some of the items that are not covered, such as providing supplies to shelters, are the responsibilities of ESFs that are part of the collaborative planning team, and will have the information readily available. Though such items are outside the scope of this guide, which is focused on transportation coordination, such elements are part of a comprehensive Evacuation Plan. Refer to the checklists in Tool 5.2 for more detail for each item in the outline.

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Tool 5.1, Multijurisdiction Multimodal Evacuation Coordination Template Outline

Title: Regional Evacuation Coordination Plan for [insert region name]
[Date]

1 Introduction

1.1 Purpose of Plan

Note: This template was adapted from the King County, Washington, Evacuation Planning Template, which was designed for a single jurisdiction evacuation plan. The original template for Evacuation Plans and the Evacuation Template Overview and Evacuation Resources documents are available on-line at: http://www.kingcounty.gov/safety/prepare/

EmergencyManagementProfessionals/
Plans/EvacuationTemplate.aspx.

of activities

Multijurisdiction Multimodal Evacuation Coordination Template Outline

This excerpt can be viewed in full on CRP-CD-132.

STEP FIVE—TOOLS

TOOL 5.2, MULTIJURISDICTION MULTIMODAL EVACUATION PLANNING CHECKLISTS

PURPOSE:

The purpose of this tool is to facilitate the internal review of a regional evacuation plan prior to outside agency review.

DIRECTIONS:

This checklist was modified and expanded from the single-jurisdiction template developed by King County, Washington. The checklists are based on the premise that a regional coordinating entity has been established for multi-modal coordination for regional evacuations (along the lines of one of the CAME frameworks), and that the regional entity will be established through agreements between existing jurisdictional entities, and will likely have very limited powers within itself to establish regulations, compel evacuations or quarantines, or command substantial financial and staff resources. Its powers lie in its ability to coordinate information, communications, and resources at all stages of evacuation planning, mobilization, and reentry. If a regional entity for evacuation planning and response is established that does have greater authority and power than is assumed in these checklists, the checklists can be modified to reflect those powers. Likewise, the checklists can be tailored as necessary to reflect regional characteristics (e.g., substitute parish or borough for county.)

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Tool 5.2, Multijurisdiction Multimodal Evacuation Planning Checklists

1.2	Plan Scope
1.2.1	**Geographic Scope**
1.2.1-A	Determine if any of the information required for this section is available from existing jurisdiction plans or documents, e.g., CEMP.
1.2.1-B	Identify the jurisdictions for which this evacuation plan is being written and to which it can be applied. Include maps as an appendix where appropriate.
1.2.1-C	Identify geographic areas of your region that may require particular attention (e.g. floodplains) during an evacuation. Include maps as an appendix where appropriate.
1.2.1-D	Identify jurisdiction(s) in the region beyond the legal scope of your region's evacuation plan on which you might need to rely if an evacuation of your region occurs. Include maps as an appendix where appropriate. Examples include: · Neighboring jurisdiction that may shelter your evacuees. · Neighboring jurisdiction whose resources you may use.
1.2.1-E	Identify relevant geographic zones within your region. Areas may incl

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Note: Not all actions identified here are covered in earlier steps of this guide, since the guide up to this point has been focused on the transportation aspects. However, the collaborative partners that have participated to this point will have the knowledge and resources to complete other actions. Refer to the Target Capabilities List for Evacuation and Sheltering-in-Place (Appendix A) to identify any support function partners that may be unclear for this checklist.

Multijurisdiction Multimodal Evacuation Planning Checklists

This excerpt can be viewed in full on CRP-CD-132.

STEP FIVE—TOOLS

TOOL 5.3, SAMPLE MOU WITH TRANSIT AGENCY AS CONVENER

PURPOSE:

Provide a starting point for dialog and negotiations for formalizing the plan in the event that a transportation or transit agency is the convener for the CAME.

DIRECTIONS:

Consider with your collaborative planning group whether this type of framework for jurisdictional coordination would be appropriate. If so, modify the language as appropriate for your region.

EXAMPLE:

A MEMORANDUM OF UNDERSTANDING BETWEEN [LOCAL PUBLIC SAFETY AGENCY] AND [LOCAL TRANSIT AGENCY]

PURPOSE

This Memorandum of Understanding (MOU) is intended to document the intention of the [local transit agency] and [local public safety agency] to work together, on a continuing and lasting basis, toward maximum cooperation and mutual assistance in the areas of disaster response and emergency preparedness. To the maximum extent possible, the parties will develop joint programs for planning, training, conducting exercises, and responding to disasters impacting [local transit agency] and/or [local public safety agency] or the community served by both agencies. Specifically, this MOU will address:

The development of a mutual aid agreement between [local transit agency] and [local public safety agency] in the event of disasters, natural or manmade, that overwhelm the capabilities of either.

The development of a joint exercise that requires the response of both entities in responding to disasters such as, but not limited to, an oil spill to the environment.

The development of a coordinated response in event of terrorist use of weapons of mass destruction within [local transit agency] or community served by [local public safety agency] and in accordance with the Homeland Security Domestic Preparedness Program.

MUTUAL AID AGREEMENT

The state of [name of state] authorizes the state and its political subdivisions to develop and enter into mutual aid agreements for reciprocal emergency aid in case of emergencies too extensive to be dealt with effectively unassisted.

It is in the best interest of the citizens of [name of community] for [local public transit agency to enter into such a mutual aid agreement with [local public safety agency] to provide for expeditious emergency assistance, resources permitting, in the event of a catastrophic event or natural disaster in the city and/or surrounding county.

[Local transit agency] desires to provide reciprocal assistance to [local public safety agency], resources permitting, in the event of a natural or man-made disaster.

Mutual Aid Agreements provide the mechanism that enhances and leverages existing capabilities.

The process for creating a Mutual Aid Agreement between [local transit agency] and [local public safety agency] begins with:

- **Establishing a working group. This group will review current local, state, and federal laws to clearly identify any limitations to how each party will provide assistance during emergencies.**

- **Writing a draft agreement (unless the law says otherwise) including the terms of the agreement, the participating parties, period of assistance, definitions of disasters or emergencies, and designating an authorized representative who can execute the agreement.**

The agreement will do the following:

- **Identify available services and resources, with some specific reference to the type of resources that can and cannot be used. Limitations also will be spelled out, to ensure the resources are not exhausted.**

- **Identify exactly how to request assistance, for instance, the "trigger" for a request-a local emergency or disaster declaration.**

- **Explain how the agency will request and what the expected committed response would be.**

- **Identify who can make the request, and whether it will be written or oral. If possible, a form will be developed clearly explaining what is needed and for what length of time.**

- **Define operational procedures and explain who will maintain control of the resources provided and who will provide required maintenance for any equipment made available.**

- **Make provisions for any food, housing, or communications support required for personnel who respond to an emergency or disaster.**

- **Define reimbursable expenses, including personnel, material, and equipment costs and for replacing damaged or destroyed equipment.**

JOINT EVACUATION EXERCISE

[Local transit agency] and [local public safety agency] intend to test capabilities and limitations of both entities in responding to a [hazardous chemical spill] [hurricane] requiring evacuation response actions during a joint exercise in FY [20]. An Exercise Planning Team comprising representatives from [local public safety agency]; [local transit agency]; and the [city/county] Emergency Operations Center will:

- **Define the type of exercise, develop an exercise scenario, and ensure active participation by [local transit agency] and [local public safety agency] response organizations.**

- **Identify a list of key entities that will have responsibility for developing, controlling, and participating in the exercise.**

- **Identify resources for developing and conducting the exercise.**

- **Establish a timeline for keeping such an approach on track.**

- **Conduct the exercise.**

- **Review the lessons learned from the exercise and incorporate them into future response and exercise plans.**

DOMESTIC PREPAREDNESS [IF APPLICABLE]

[Local transit agency] serves one of the 120 cities selected by the U.S. Department of Defense to receive extensive training to prepare the community for the potential of a terrorist attack using weapons of mass destruction. The U.S. Army Chemical and Biological Command [conducted/will conduct] this training during the period [identify date]. [Local public safety agency] participated in this training with [local transit agency].

[Local transit agency] will continue to coordinate development of its Domestic Preparedness Program with [local public safety agency]. Specifically, [local public safety agency] will:

- **Coordinate with [local transit agency] on its plans for responding to terrorist use of weapons of mass destruction planning and operations.**

- **Encourage transit first responders to participate in training offered by the [local public safety agency].**

- **Invite [local transit agency] to participate in the development and conduct of the Biological Attack Tabletop Exercise and other follow-up exercises.**

- **Collaborate with [local transit agency] in the purchase of response, detection, and decontamination equipment for incidents involving terrorist use of nuclear, biological, or chemical agents to ensure the right mix of equipment is available for responding to such incidents.**

- **Provide reciprocal support, resources permitting, to [local transit agency] in the event of an incident on an agency vehicle or in an agency facility.**

AGREEMENT MODIFICATION PROCESS

Modifications to this agreement may be presented at any time and shall be mutually agreed upon in writing after joint discussions involving both parties.

This Agreement shall become effective when executed by both parties and shall remain in effect for a period of five (5) years, and shall automatically be renewed for successive five (5) years periods unless terminated by either party upon sixty (60) days prior written notice.

IN WITNESS WHEREOF, the parties' authorized officers have executed this Agreement on the date first above written.

STEP FIVE—TOOLS

TOOL 5.4, SAMPLE AGREEMENT WITH A METROPOLITAN PLANNING ORGANIZATION (MPO) AS CONVENER

PURPOSE:

Provide a starting point for dialog and negotiations for formalizing the plan
in the event that an MPO or other regional agency is the convener.

DIRECTIONS:

Consider with your collaborative planning group whether this type of framework for jurisdictional
coordination would be appropriate. If so, modify the language as appropriate for your region.

EXAMPLE:

ADDENDUM TO REGION EMERGENCY ASSISTANCE COMPACT BETWEEN [METROPOLITAN PLANNING ORGANIZATION (MPO) NAME] OR [OTHER REGIONAL ENTITY NAME] FOR [NAMED JURISDICTIONS] CONCERNING [MPO/OTHER] REGIONAL PROTECTIVE ACTION COORDINATION

AGREEMENT

On [date], member jurisdictions of the [MPO/Other] entered into an agreement to
provide mutual aid in the event of a regional emergency. This Addendum to the original
agreement covers the coordination of protective actions during a major emergency.

ARTICLE 1

PURPOSE

The purpose of this agreement is to ensure that protective actions are coordinated regionally
in a major emergency that affects multiple jurisdictions in the [MPO/Other] area. This
agreement addresses specific elements of a regional response that require multijurisdictional
coordination to effectively protect the public in a severe, widespread, or prolonged emergency.
These elements include command and management, communications, public information and
warning, evacuation, and reception and shelter. This agreement builds upon the existing [MPO/
Other] Region Emergency Assistance Compact (REAC) [if applicable, insert exact name].

ARTICLE 2

LIMITATIONS

This agreement does not create a regional command structure, and it does not infringe on each jurisdiction's statutory authority to exercise command and control.

ARTICLE 3

COORDINATION

A major man-made or natural disaster that directly impacts multiple jurisdictions will require local governments to work closely together and with the State to share information, make decisions, implement protective actions, and deploy resources. Furthermore, due to the interconnectedness of the [MPO] area, a disaster that directly impacts a single jurisdiction will still likely have a regional impact, and will require regional coordination.

In a regional emergency, all members, therefore, agree to coordinate their response as follows:

1. **Command and Management**

   - **Local EOCs will coordinate protective action decisions with each other and with the State EOC.**

   - **Local EOCs will coordinate assignment of available resources with each other and with the State EOC.**

   - **Jurisdictions will notify potentially impacted neighboring jurisdictions of any protective actions before they are implemented or as soon as practical.**

   - **Local jurisdictions and the state will employ the concepts and terminology of the National Incident Management System.**

2. **Communications**

   - **Jurisdictions will maintain continuous communication with each other and the state via emergency management software systems, interoperable radio systems, telephone, and other means.**

   - **Jurisdictions and the state will post status reports on common use software systems as soon as practical.**

   - **The State EOC will facilitate the flow of information between local jurisdictions to the extent necessary.**

3. **Public Information and Warning**

   - **Local jurisdictions will each establish Joint Information Systems (JIS) to manage the dissemination of information and instructions to the public.**

   - **Dissemination of emergency public information and instructions will be coordinated between jurisdictions through a "Regional Joint Information System" to ensure that citizens receive timely, accurate, and consistent information across jurisdictions.**

   - **Evacuation.**

- Traffic evacuation measures will be preplanned and coordinated between local EOCs and the State EOC, and between local transportation departments and the [state] Department of Transportation.

- Local jurisdictions and the state will coordinate and pre-plan potential counterflow routes.

- When a jurisdiction establishes counterflow operations or closes a road, all jurisdictions' EOCs will be notified and status reports will be posted regularly.

4. Reception and Shelter

- All jurisdictions will pre-identify facilities that can be used for reception centers and/or shelters.

- All jurisdictions will identify and train staff to operate reception centers and/or shelters.

- All jurisdictions will coordinate the provision and distribution of available supplies for reception centers and/or shelters.

- All jurisdictions will establish reception centers and/or shelters as necessary.

- Reception centers and shelters will be open to citizens of all jurisdictions.

ARTICLE 4

IMPLEMENTATION

1. Plans and Procedures

- The [Title of Agreement] establishes regional coordination concepts for preparedness, response, and recovery; contains procedural guidance; and provides information to better coordinate regional protective actions.

- Each jurisdiction agrees to incorporate in its plans and procedures, to the maximum extent feasible, the concepts included in this agreement and the [Title of Document.]

2. Training and Exercises

- Each jurisdiction will ensure that the appropriate personnel in public safety and related disciplines are familiar with this agreement and the attached guidelines.

- Jurisdictions will conduct joint training to improve the region's ability to execute the functions that comprise this agreement and the attached guidelines.

- Jurisdictions and the state will conduct a joint exercise at least annually to test and improve regional coordination procedures and systems.

- Jurisdictions and the state will review after action reports from actual events and exercises to revise plans.

3. Revisions

This Agreement may be amended only when jurisdictions or agencies/departments that are parties to the agreement, mutually agree in writing.

Signature Page

We, the undersigned, confirm the concepts and commitments contained in this agreement. We will direct the participation of our jurisdictions and agencies in continued regional planning to implement the provisions of this agreement.

[Identify all participants in the plan by name and title including local, county, and state representatives. This will usually include mayors, county executives, state emergency manager, state department of transportation, and possibly one or more governors, depending on the geographic scope of the plan.]

STEP 6
IMPLEMENT AND MAINTAIN PLAN

The three tasks for plan implementation and maintenance are:

1. **After action reporting,**
2. **Updating the plan, and**
3. **Training, testing, and exercising the plan.**

TASK 6.1

AFTER ACTION REPORTING

Any event, large or small, planned or unplanned, provides an opportunity for learning and improving the plan.

Use small events, such as apartment fires and minor flooding, to practice coordination and deployment of transportation and transit resources to support minor evacuation and sheltering operations.

Use large planned events, such as major sports events, concerts, or festivals, to practice the transportation coordination, interdisciplinary and interjurisdictional communications, roadway control strategies,

transit deployment, and other techniques with law enforcement and other key players.

Documenting what went well and what did not go so well ensures that lessons learned are also shared, and improvements can be made.

Tool 6.1, *After Action Reporting–Real Events–FEMA Guidance*, documents what is provided on the FEMA website for the Corrective Action Program (CAP).

Tool 6.2 is an *After Action/Corrective Action Report Survey Template*.

TASK 6.2

UPDATING THE PLAN

Establish the authority and the formal process required for changes and modifications to the plan. Include a regular review and update of the plan as needed, ideally on an annual basis. The Outline and Checklist in Step 5 (Tools 5.1 and 5.2) include such steps.

TASK 6.3

TRAINING, TESTING, AND EXERCISING

Emergency drills, simulations, and exercises are designed to test plans and procedures, and the cooperation of participating agencies. Most jurisdictions have emergency management or public safety websites that have information about emergency preparedness and activities to educate the public. In addition, community outreach and awareness programs including education for persons with additional functional needs will be necessary to ensure a highly aware and well-prepared community.

Exercises provide a means to validate the plan and supporting procedures and evaluate the skills of personnel. The lessons learned from exercises are used in the review and maintenance process, and are an essential part of ensuring that an evacuation plan will function as intended when it is needed.

One of the goals will be to have as many agencies participate as is practical. Enlisting volunteers from the broader community, including people who are deaf and hard of hearing, who are blind and with limited vision, with various mobility impairments, and with limited English skills, for example, will assist those conducting the exercise to identify and correct critical missing pieces in communication, transportation, and response operations.

Having the public practice to evacuate is not possible; exercises will need to be tabletop exercises for practical reasons, except for the elements that can be garnered in planned special events. Therefore, critical incident debriefings after any evacuation that is mobilized will be especially important, since it is the only "boots on the ground" practice the plan gets. It is also essential to debrief members of the broader public, including the network of people with access and functional needs and their advocates, to determine what worked well, what didn't, and what can be improved.

Tip
The biggest issue in any emergency response, simulated or real, is communication. It is always better to address communication problems and difficulties before a real incident occurs.

Tip
A debriefing held in the field immediately after the event is usually called a "hot wash"; if the debriefing is separated in time from the exercise, it is usually just called a debriefing. Ensure the debriefing is documented.

Emergency response drills are categorized by complexity. Drill types include:

- **A plan walk-through**
- **A tabletop exercise**
- **Event simulation**
- **Full deployment drill**

As complexity increases, the drill length, stress on participants, necessary resources, and duration increase. Pick a drill type based on organization knowledge, experience, and resources. These are described in greater detail in Tool 6.3, *Overview Description of Drills, Simulations, and Exercises*. The tool also includes basic steps to develop an exercise.

After each training event, a debriefing can evaluate the exercise, ensure that any opportunities for improvement are identified, and corrective actions developed and implemented.

Include the findings and recommendations along with a narrative of the events and response in an After Action Report, which describes the training exercise and identifies significant lessons learned and corrective actions to be implemented. Tool 6.4, *Participant Feedback Form*; Tool 6.5, *Facilitator Report Form*; and Tool 6.6, *Summary of the Full After Action Report Template*, provide example templates for documenting a training exercise.

Testing and exercising are important elements to ensure readiness for an evacuation. The TRB has developed an entire guide dedicated to transportation security exercises and drills (*NCHRP Report 525/TCRP Report 86, Volume 9: Guidelines for Transportation Emergency Training Exercises, 2005*). See Figure 6-1. Please see this guide for full information on developing exercises and drills.
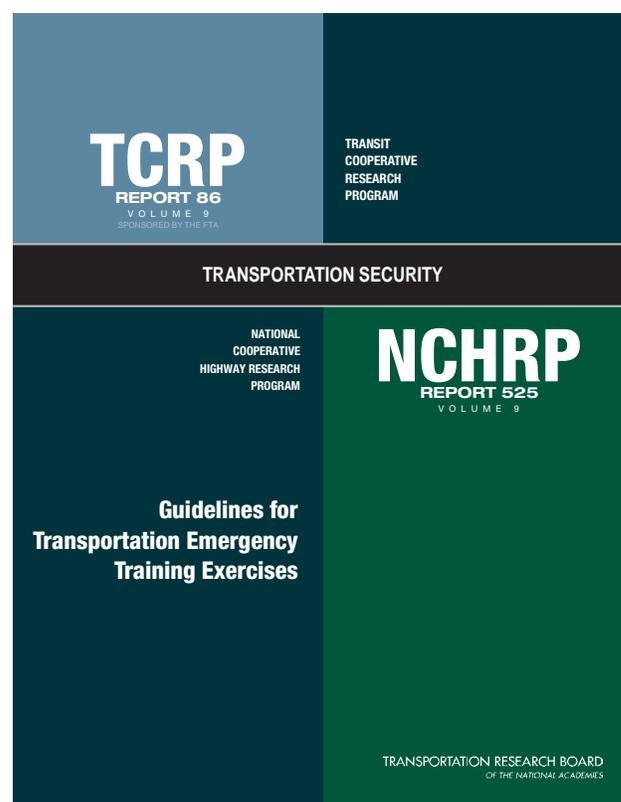
FIGURE 6-1:

Guideline for Transportation Emergency Training Exercises

STEP SIX—TOOLS

TOOL 6.1, AFTER ACTION REPORTING–REAL EVENTS–FEMA GUIDANCE

PURPOSE:

The evaluation and improvement of mission and task performance are the final steps of the Preparedness Cycle and crucial to informing risk assessments, managing vulnerabilities, allocating resources, and informing the other elements of the Cycle. Organizations develop improvement plans and track corrective actions to address the capabilities identified in plans and tested in exercises or real events. In addition to corrective actions, assessment initiatives such as the state preparedness reports and FEMA-administered Gap Analysis tool provide the means to evaluate a States operational preparedness for key critical areas. Using this data to reassess and revise plans and protocols contributes to the beginning of the next Preparedness Cycle by ensuring that updated strategies and plans can be used to inform new preparedness-building activities.

DIRECTIONS:

The Corrective Action Program (CAP) provides a standard methodology for handling corrective actions and improvement plans. The CAP System is a web-based application that enables users to prioritize, track, and analyze improvement plans developed from exercises and real-world events. (http://www.fema.gov/prepared/eval.shtm)

Lessons Learned Information Sharing

Lessons Learned Information Sharing (LLIS) is the national network of lessons learned and best practices for emergency response providers and homeland security officials.

STEP SIX—TOOLS

TOOL 6.2, AFTER ACTION/CORRECTIVE ACTION REPORT SURVEY TEMPLATE

OBJECTIVE:

Provide a standard format for reporting on an event.

PURPOSE:

This form (down to the After Action Questionnaire) can be used for planned special events as well as actual disasters. Emergency managers will likely have a preferred form for collecting this type of information, based on updated FEMA or DHS requirements. Getting familiar with whatever form will be used prior to a disaster (i.e., completing the form for a planned special event or exercise) will improve the observations and reporting for an actual disaster.

DIRECTIONS:

Complete the form based on information about the event.

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Tool 6.2, After Action/Corrective Action Report Survey Template

General Information

Information Needed	Text goes in text boxes below.
Name of Agency:	
Type of Agency: * (Select one) * City, County, Operational Area (OA), State agency (State), Federal agency (Fed), special district, Tribal Nation Government, UASI City, non-governmental or volunteer organization, other.	
City/ County Name/ Region/ State	
Completed by:	
Date report completed:	
Position:	
Phone number:	
Email address:	
Dates and Duration of event: (Beginning and ending date of response or exercise activities - mm/dd /yyyy)	
...ing, or exercise: *	

**After Action/Corrective Action
Report Survey Template**

This excerpt can be viewed in full on CRP-CD-132.

STEP SIX—TOOLS

TOOL 6.3, OVERVIEW DESCRIPTION OF DRILLS, SIMULATIONS, AND EXERCISES

OBJECTIVE:

Provide evacuation planning partners with a common understanding and vocabulary for the types of emergency planning exercises.

PURPOSE:

Describe the types and levels of drills, simulations, and exercises and the basic steps needed to develop an exercise

DIRECTIONS:

Review the descriptions and determine the most appropriate form of exercise based on regional needs and resources.

Adjacent Page:
Overview Description of Drills, Simulations, and Exercises

This excerpt can be viewed in full on CRP-CD-132.

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Tool 6.3, Overview Description of Drills, Simulations, and Exercises

Emergency response drills are categorized by complexity. Drill types include:

- A plan walk-through
- A tabletop exercise
- Event simulation
- Full deployment drill

As complexity increases the drill length, stress on participants, necessary resources, and duration increase. Pick a drill type based on organization knowledge, experience, and resources.

A **plan walk-through** introduces the emergency plan. Review key points of the plan, when it is implemented, and how it is executed. Refer participants to communication pathways, guidelines for speaking to the media, emergency contact phone lists, and emergency procedures. Conduct a plan walk-through when a new policy or procedure is implemented, or when a revision to existing plans is completed. A plan walk-through can yield ideas, comments and discussion on plans and are a tool for familiarization and refreshers. Community network partners may be invited to a plan walk-through to provide additional insights.

A **tabletop exercise** requires the real-life participants to respond to incoming information about a hypothetical crisis as if it were real. A moderator and role players feed participants details as the scenario unfolds. For example, a scripted role player calls the dispatcher, "This is a drill. This is Operator Smith reporting that I am at the scene of an apartment fire, as requested, and am assisting to evacuate the uninjured residents to another location. Many do not speak English, at least two are in scooters, and at least one appears to be deaf or hard of hearing." During the tabletop exercise, the participants address the tasks and work to achieve resolution of the crisis. A tabletop is a communication exercise and can have varying degrees of intensity and duration depending on the participating organizations' needs. Invite and include in a tabletop exercise the community network partners representing diverse components of the access and functional needs communities. Allow several hours for execution and debriefing improvements to the plan and assessing team function.

Event simulations increase the level of realism and intensity. For example, transit system personnel and emergency responders respond to flooding or fire scenes, complete with fake blood and screaming people with simulated injuries. Participants know it is a drill, but the events are set up to be as realistic as possible and the realism helps prepare for a real incident. As the realism increases, it is critical to have facilitators, observers and evaluators to ensure safety, evaluate individual and team

Figure 6-2. *Progressive Exercise Continuum (TCRP 2005, page 10, Figure 3)*

performance, and prepare feedback for participants. The event simulation can include evacuation to safety, communication to external audiences, and program continuity considerations as much as possible Invite and include in a tabletop exercise the community network partners representing diverse components of the access and functional needs communities. Having a "stand-in" for a person who is deaf, blind, mobility impaired, or with limited English proficiency will NOT give the same quality of feedback or experience as a real member of the affected population. An event simulation could last two to eight hours or longer.

A **full deployment drill** is as real as possible. It involves more than one agency, several jurisdictions, and sometimes multiple layers of government. Such a deployment may last for days, similar to a real event. The duration simulates the fatigue, staff changes, and planning cycles that occur in a long incident. A full deployment drill requires extensive planning and a major commitment of time and resources. Transportation and transit agencies would carry out their assigned roles for evacuation for a hurricane, wildfire, or bioterrorism incident. It is important that appropriate agency personnel participate in such exercises whenever possible and actively seek to be invited. Involve community network partners at key junctures of the drill.

Basic Action Steps to Develop an Exercise
The following basic steps will accommodate simpler exercises; the steps shown in Figure 6.2 pertain to more complex exercises.

Action Step 1. Develop the evacuation exercise planning team. Remember to be inclusive with representative

STEP SIX—TOOLS

TOOL 6.4, PARTICIPANT FEEDBACK FORM

OBJECTIVE:

Introduce evacuation planning partners to the type of information
that will be collected at the conclusion of an exercise.

PURPOSE:

Obtain feedback from participants immediately after an exercise of whatever type.

DIRECTIONS:

Ask each participant to complete the form honestly and completely.

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Tool 6.4, Participant Feedback Form

[JURISDICTION / LOCATION
"EXERCISE"
DATE AND TIME]
Participant Feedback

1. Based on discussions today and the tasks identified, list the top three preparedness and response issues that concern you.

2. Identify the action steps that can be taken to address the issues identified above. For each action step, indicate if it is a high, medium or low priority.

3. Describe the specific action steps that can be taken in your area
action item?

Participant Feedback Form

This excerpt can be viewed in full on CRP-CD-132.

STEP SIX—TOOLS

TOOL 6.5, FACILITATOR REPORT FORM

OBJECTIVE:

Introduce evacuation planning partners to the type of information they will be expected to provide if they facilitate an exercise (in this case a tabletop exercise.)

PURPOSE:

This form is to be used by the facilitator to conduct the Hot Wash for the tabletop exercise.

DIRECTIONS:

Use this form to record the top three strengths and the top three items requiring improvement as observed during the exercise.

Additional comments and discussions recorded during the Hot Wash will be recorded in the comments section of the form.

Upon completion of the exercise, combine this form with the participant questionnaires, the completed AAR/IP, and attendance rosters. This post exercise packet is used as support documentation in Test, Training, and Exercise files and the Corrective Action Program.

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Tool 6.5, Facilitator Report Form

Title of Exercise

Date_____

Name:		Evaluated Organization:
Email:		Staff / Section:

Overview Description of Drills, Simulations, and Exercises

This excerpt can be viewed in full on CRP-CD-132.

STEP SIX—TOOLS

TOOL 6.6, SUMMARY OF THE FULL AFTER ACTION REPORT TEMPLATE

OBJECTIVE:

Introduce evacuation planning partners to the more comprehensive type of information that must be collected for a formal Homeland Security Exercise and Evaluation Program (HSEEP) compliant exercise. Planners should always check with DHS for the most recent version of the forms.

PURPOSE:

Formally document the exercise for lessons learned.

DIRECTIONS:

Compile player, observer, and facilitator comments and notes as well as the attendance roster to develop a comprehensive report on the exercise.

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Tool 6.6, Summary of the Full after Action Report Template

EXECUTIVE SUMMARY

The [*STATE NAME/JURISDICTION*] – [*EXERCISE TYPE* – seminar, table top, etc.] was conducted on [*DATE OF EXERCISE*].

EXPLAIN THE SEQUENCE OF EVENTS

LIST KEY STRENGTHS IDENTIFIED
Key strengths identified during this exercise include:

LIST SUCCESSES RECOGNIZED
In addition, several successes of this exercise can be recognized, a

LIST IMPROVEMENT AREAS
Throughout the exercise, several opportunities for improvere identified, including:

Participant Feedback Form

This excerpt can be viewed in full on CRP-CD-132.

This is a summary. The full 20-page official Homeland Security Exercise Evaluation Program (HSEEP) After Action Report template with instructions is available at https://hseep.dhs.gov/pages/After_Action_Reporting.aspx and can be used for any exercise that may be eligible for DHS grant funding or reimbursements.

RCISE OVERVIEW

RESOURCE:
EVACUATION WORKSHOP PLANNING 101 "WORKSHOP IN A BOX"

INTRODUCTION

Evacuation Workshop Planning 101 (EWP) is a general set of tools and guidelines that an organizer can use to plan and implement an initial evacuation planning workshop and follow-on meetings. It provides general templates that the user can customize to match the goals and desired outcomes articulated by the organizer and convener. Because the framework is generic, it can be used for a kick-off meeting or subsequent meetings that take place in a series of meetings, or adapted for another type of approach.

As a result, the EWP is based on two assumptions:

1. **The organizer or convener has already obtained internal buy-in from his/ her agency or organization about the need for a workshop or meeting.**

1. **The agency or organization has committed to providing the resources to plan and conduct the workshop.**

If these two assumptions do not apply, the organizer or convener will want to obtain those commitments before proceeding.

A workshop creates a unique opportunity to bring agencies and organizations together to discuss mass evacuation planning. Although there is a Mass Evacuation Incident Annex in the National Response Framework, this does not translate directly to local planning. The EWP provides a customizable template that brings together transportation, transit (public and private), emergency services and management, law enforcement, and other first responders to develop community-specific plans that will assure the safety of all community members, whether they can self-evacuate or will need assistance. The workshop convener will also want to seriously consider including CBOs and FBOs, or at least representatives of "umbrella" organizations or leading organizations that are well connected to many others.

Tip

Look to the following agencies and organizations for information about mass evacuation planning activities:

1. **Transportation and transit related**
   - State Department of Transportation
   - County roads and/or public works (terminology and authority varies by locale)
   - Public transportation systems–city, county, and regional
   - Public and private schools–particularly in rural areas, public school buses may represent the greatest potential resource for moving large numbers of people, and in some communities, colleges and universities have large fleets of buses

2. **Emergency Management**
   - State emergency management agencies (may be placed with Homeland Security; again the names can vary by locale)
   - County emergency management
   - City emergency management
   - Local Emergency Planning Committees (LEPCs) (federally mandated)

3. **Law Enforcement**
   - State Highway Patrol
   - Local police departments
   - Sheriff's office

4. **Public and nonprofit response agencies** (while the agencies below are responsible for Mass Care, they are often knowledgeable about activities related to Mass Evacuation; the state emergency management agency will know who is responsible for Mass Care)
   - State public health agencies (Department of Health/terminology varies by location)
   - County, parish, regional, or local public health agencies
   - American Red Cross
   - Salvation Army

5. **Planning organizations**
   - Metropolitan Planning Organizations (MPOs)
   - Regional Councils of Government
   - Regional Planning Organizations (RPOs)
   - Rural Planning Organizations
   - Tribal Planning Organizations

PLANNING

Action Step 1.
ASSESS EXISTING WORK GROUPS, WORK PRODUCTS, AND INITIATIVES ADDRESSING MASS EVACUATION TO IDENTIFY EXISTING DISCUSSION VENUES AND CONDUITS FOR DISTRIBUTING INFORMATION.

Identifying existing initiatives is an important first step in a planning process. Finding and building off work already in progress can make the workshop planning and implementation process move more smoothly and much more quickly.

- **If emergency managers have already initiated or formed a Collaborative Planning Team, as recommended under CPG 101, Version 2 (Step 1) (FEMA 2010), this group (or a subcommittee of this group) should take on the leadership role for evacuation planning, making sure to include representatives from transit and general transportation. Step 1 describes this process.**

- **If the Collaborative Planning Team has been convened on a local rather than regional level, it will likely be necessary to develop a regional forum or framework. This may work best with a convener entity that already has an established regional role. Emergency managers are responsible for planning and coordination of all resources; if there were a regional emergency coordinator, this would clearly be their responsibility. However, such a role is not very common.**

As alternative or supportive CAME planning, many transit agencies are regional rather than local, and Metropolitan, Rural or Tribal Planning Organizations usually have a broader geographical coverage than a single municipality. There is an important distinction between a "lead agency," an agency directing/coordinating a response or protective activity, such as emergency management or law enforcement, and a "convener agency," one which leads the forum in

which operations plans can be discussed and co-ordinated with other agencies in multiple levels of government and with jurisdictions throughout and beyond the region. (See Tool 1.2, *Potential Frameworks for Integrating Modes and Entities for Effective Evacuation: Convener Agencies for Multimodal Evacuation Planning, Step 1,* for more detail and suggestions.)

Do an initial scan of websites. Look for committees charged with emergency planning. Check committee notes. Read online newsletters. Search terms like "evacuate" and "evacuation." While "mass care" is not mass evacuation, those involved in that type of planning may have knowledge of local or regional activity; this is especially true if a jurisdiction has not yet initiated any type of formal mass evacuation planning.

Next, make an initial effort to reach out beyond those who are already engaged in emergency response planning.

1. **Transportation-related**

- **Your local transit agency or planning agency may be able to advise you about existing transit- and transportation-oriented committees. These are often convened by transit agencies and by MPOs (e.g., United We Ride, Citizen Mobility Advisory Boards, others). The group focus is not likely to be on evacuation or emergency planning, but such groups often provide an exceptional liaison to community and non-profit transportation providers and to community members in need of transportation support (for everyday life as well as in emergencies).**

2. **CBOs, FBOs, and nonprofit agencies and organizations**

- **Public schools, public health agencies and others usually have very strong ties to community resources. These may include "umbrella" organizations like United Way and others that help coordinate resources and requirements among many different organizations. Your initial contacts with schools and**

others should help you identify community leaders. This initial outreach does not need to include every service organization but should include key stakeholders who are well connected to a broader network of agencies.

Finally, prepare to reach out to specific individuals you have identified through the initial environmental scan. Think in advance about how to phrase your inquiry about other mass evacuation planning efforts. Give consideration to how you will describe your interest and what you plan to do with the information you are collecting. Consider attending meetings, such as LEPC meetings as a way to learn more about local or regional emergency planning that may include mass evacuation planning.

Action Step 2.
DEVELOP PRELIMINARY GOALS AND OUTCOMES FOR THE WORKSHOP

Goals and outcomes establish direction for planning and communication. They also become important touchstones throughout the process when there are opportunities or pressure to expand the workshop scope. Preliminary goals may evolve as the convener gathers more information through subsequent planning steps. Goals are most useful for both planning and implementation when they are SMART: specific, measurable, achievable, realistic, and time-bound.

Goals should fit the known context of existing or ongoing mass evacuation planning efforts to avoid duplication or confusion.

In addition to goals, experienced meeting facilitators find it useful to define concrete outcomes for meetings. Another way to think about outcomes is to substitute the word "deliverables." When the workshop is completed, what will the concrete deliverables be? Examples might be: a list of contact information, work groups with assignments, or an action plan.

Page 140
Resource: Evacuation Workshop Planning 101
"Workshop in a Box"

GOAL 1	Set foundation for collaborative partnership
If achieved, Goal #1 will have the following outcome:	• Contact information with a broad group of agencies and organizations that want some level of involvement with emergency evacuation planning (including degree of involvement- active participation, active monitoring, observation, etc.) • Commitment from participants to actively reach out to other individuals in their organizations as well as other agencies, faith-based, non-profit and community-based organizations to participate in evacuation planning
GOAL 2	Establish core planning team
If achieved, Goal #2 will have the following outcome:	• Contact information for enthusiastic volunteers from multiple agency and organization perspectives • Agreement on general frequency of communications within the core team and with the broader group • Agreement on next meeting date
GOAL 3	Begin work on understanding the population, characteristics and demographics of the region and people that may need to evacuate
If achieved, Goal #3 will have the following outcome:	• Identify existing risks that might require evacuation • Identify existing databases of demographics • Identify evacuation planning partners that work with different population groups and communities, especially those that may need additional assistance in preparing for or carrying out an evacuation
GOAL 4	Begin work on understanding the resources that different partners bring to the evacuation process. (This will be addressed extensively in Step 4)
If achieved, Goal #4 will have the following outcome:	• Identify existing databases of transportation resources, e.g., evacuation signs, variable message signs, etc. • Identify existing databases of transit and other resources to move people, including buses, vans, ambulances, boats, trains, aircraft, etc.

GOAL 1	Broaden the network of organization; participating in evacuation planning
If achieved, Goal #1 will have the following outcome:	• Working with network partners, identify gaps in the current network- are representatives of all major communities included, such as home-bound elderly and foreign language groups? (These will vary greatly from one community to the next, see Tool 1.4 for suggestions of additional partners to seek out.) • Rely on network partners who best know representatives of these communities to make initial invitations.
GOAL 2	Begin to develop an inclusive exercise in evacuation planning
If achieved, Goal #2 will have the following outcome:	• Collaboratively decide on the objectives, and the type and scale of the exercise. • Establish a subcommittee to plan the exercise, keeping the rest of the group apprised of progress, and of opportunities to participate in the planning and the execution of the exercise.
GOAL 3	Promote personal preparedness planning (for evacuation) among partner agencies and their clients/consituents
If achieved, Goal #3 will have the following outcome:	• Personal emergency preparedness planning principles and existing materials discussed among collaborative partners, including whether the materials are appropriate for each partner's clients or constituents. • Principles of continuity of operations for community-based, faith-based and non-profit agencies presented to partner groups and agencies. • Additional materials identified or developed as necessary to meet needs of various clients. • Personal emergency preparedness information widely distributed throughout the communities by trusted messengers.

Resource: Evacuation Workshop Planning 101
"Workshop in a Box"

GOAL 1	Secure regional agreement on principles of coordination for large-scale evacuation
If achieved, Goal #1 will have the following outcome:	• Develop a draft memorandum of agreement or understanding (MOA or MOU) for consideration by local governing bodies, including state governing bodies if necessary and as appropriate (see example MOU, Chapter 5 Tools.) • Develop draft MOAs or MOUs among transportation and transit agencies, both with the emergency managers and with counterpart transportation and transit agencies in anticipated receiving regions, as appropriate. • Ensure that the transit agency or other lead transportation agency has MOAs or MOUs regarding evacuation planning and execution with community groups, schools, and other agencies that control substantial transportation resources, including public, private and non profit resources. Need to include issues with drivers, etc. (e.g., are Commercial Driver's Licenses required? Is special training, as in transporting frail patients, required? Could National Guard or others drive the vehicles in an emergency?)
GOAL 2	Confirm agreements and understanding between potential "reception" regions and potential "donor" regions
If achieved, Goal #2 will have the following outcome:	• Develop MOAs or MOUs on likely situations and potential reactions, including communications protocols, potential involvement of state or federal agencies and resources, etc.

Action Step 3.
BUILD SUPPORT WHILE COLLECTING INPUT

Building support for the workshop with partners and stakeholders lays the foundation for a successful workshop. This activity requires time and effort; do not take shortcuts. Building the databases identified in Step 2 will require extensive outreach, and building relationships while building the databases is important to the process. Seek out agencies and individuals who are respected within their sector or community and seen as either formal or informal leaders. See the Tool titled Partners to Help Match Resources to Needs for ideas about potential partners.

Contact information

Initiate contact with key individuals first by phone or email. Offer to meet with people in person in their offices. Be prepared to schedule additional meetings to meet with committees or other groups that are involved in emergency planning.

Name:	
Position/Title:	
Agency/Organiztion/Company:	
Website for Agency/Organization/Company:	
Email Address:	
Office and Mobile Phone:	
Address:	
Possible Role in	
• Mass Evacuation	
• Workshop	
Other Notes:	

Background material or "leave-behinds"

Consider developing simple written materials to leave behind. Be sure to include the convener's contact information along with the date the document was created. Keep in mind that the document will likely be circulated within the agencies and organizations from which you are seeking support.

Keep material brief, ideally limit it to one page. Consider a well-organized bulleted list or Frequently Asked Question (or FAQ) format that a reader can quickly scan. Include headers or use other formatting tools to enable quick focus on key sections or ideas. Sample questions to be posed and answered may include:

1. **What is the (name of workshop)?**

2. **What is the purpose of the workshop?**

3. **What are the outcomes expected to be?**

4. **How will my agency or organization benefit?**

5. **What are you asking of me?**

6. **How can I get more information?**

Depending on the particular planning process, information may already be available about the date, time, and location. If those decisions have been made, be sure to include that information. If those decisions are still pending, say so and be sure to explain how people will be informed once that information is available.

What's in it for me, or WIIFM

While it is not possible to anticipate every potential benefit, successful conveners give advance thought to potential short- and long-term benefits to participating in the evacuation planning and the work that goes into it (such as participating in the workshop). This helps them articulate the benefits of participation. It

can also be useful to acknowledge that benefits may not be equal but they can be mutual.

These questions can foster thinking about the value of workshop participation for possible partners and stakeholders. Remember to ask these questions in meetings to get confirmation or discover new information:

1. **What are likely benefits from workshop participation?**

2. **How do the goals of the workshop and expected outcomes support the goals of the potential partner?**

3. **How might participation in the workshop assist the potential partner to leverage relationships or resources to achieve other goals?**

4. **How does the partner think about and balance the short- and long-term costs and benefits of participating in the workshop?**

Gather information

Use meetings with possible partners and supporters to gather more information. Some of the topics to explore include:

1. **What concerns or hopes does an individual or agency have for the workshop?**

2. **What information will be important to make available to workshop participants as they consider how to plan for mass evacuations?**

3. **Are there other people or organizations that should be included?**

4. **Are there other on-going initiatives or activities that relate to the workshop that have not yet been identified?**

Use the input and ideas that are gathered to refine and improve workshop planning and design. Using the ideas of partners and stakeholders will likely increase their commitment to the workshop.

Notes

Keep good notes throughout this phase. If there are conversations with potential partners about them helping with planning functions, be sure to follow-up with an email or short memo that documents the actions to be taken and commitments made. This type of careful follow-up enhances the credibility of the convener and promotes reliability among different agencies and organizations. Both contribute to the establishment of productive working relationships.

Action Step 4.
DESIGN THE WORKSHOP/MEETING

A well-designed and thoughtful workshop promotes the achievement of desired outcomes and creates incentive for partners and stakeholders to be involved.

1. **Begin by refining the goals and outcomes developed early in the process. Ideas and input gained through building support have likely advanced the convener's thinking.**

2. **Think about a reasonable time frame for the meeting. Consider both the length of the meeting and the time of day. Account for the professional obligations and preferences of probable participants, as well as travel time.**

3. **Draft the first agenda by comparing desired outcomes with possible time intervals necessary for discussion and decision making. This first draft may lead the convener to:**

   • **Adjust the goals and outcomes because it becomes evident there is not sufficient time to accomplish them, or**

   • **Readjust time frames to account for the likely differences in complexity among the goals and outcomes.**

4. **Determine whether participants will require background informational material to either prepare for the meeting or to support discussion and any desired action; these could be fact sheets, reports, and articles. Some may already exist and others may need to be drafted and produced.**

5. **Think about the best way to encourage participation during the workshop. Workshops and meetings are more enjoyable and produce better outcomes if the meeting plan encourages all participants to share their thinking and to engage in discussion. This may require advance thinking about the development of questions and activities that draw out the knowledge and experience of participants.**

6. **Plan what types of facilitation techniques will likely contribute to an effective workshop. Techniques to consider include:**

   • **Explicit description of the facilitator's and participants' roles,**

   • **Ground rules,**

   • **Room arrangements that foster participation (hollow square or U instead of classroom style),**

   • **Formal agendas with identified background documents and assigned discussion leaders,**

   • **Warm-up exercises or questions (See Tool 2.6,** *Evacuation Needs Discussion Guide***, Tool 3.1,** *Evacuation Operational Priorities and Goals and Objectives Discussion Guide–"Thought Starters"***, and Tool 4.0,** *Evacuation Operations, Resource and Information Needs Evaluation Sheet–"Thought Starters"***),**

   • **Attention to facilitative techniques that structure the discussion (e.g., summarizing, keeping track of speakers, managing air time, and keeping the discussion on track).**

Action Step 5.

DEVELOP MEETING MATERIALS

Once the agenda and meeting plan are finalized, develop the documents and materials to support the work of participants. Some of the material will support the substantive work of the meeting (e.g., agenda, fact sheets, and reports). Other materials, such as sign-in sheets, assist in documentation and make the work flow well.

If material will be distributed in advance of the meeting, allow sufficient time to draft, revise, edit, and proof materials. A "back-off" schedule with assignments decreases the possibility of forgetting important information. Consider

turning Word documents into PDF documents if they will be distributed electronically.

Clearly identify all documents with a title or header reflecting the meeting title and date. If there is more than one page, use footer or style of pagination that indicates, for example, page 1 of 5. Include information about the originator.

Examples of materials include:

1. **Sign-in sheet**

2. **Agenda**

3. **Fact-sheets**

4. **Reports**

AGENDA HEADER Convener: Title of Meeting: Time, Date: Location:
Convene
a. Welcome
b. Introductions
c. Meeting plan, including goals and intended outcomes
Items for Discussion — Identify who will lead discussion for each item, include the following additional information if useful
a. Background information
b. Intended outcome, e.g. "For information Only," "Discussion" or "Action"
Next Steps — Recap
a. Communications
b. Action plans, including who is accountable and any time frames
c. Announce whether there will be additional meetings and how participants will be informed
Evaluate the Meeting
a. What worked?
b. What should be changed?
c. Are there other suggestions for the next meeting?
Adjourn

Action Step 6.
SECURE FACILITY AND PLAN LOGISTICS

Selecting a facility involves balancing location, size, accessibility, availability, parking and/or proximity to public transportation, audio-visual and technical capability, food and other hospitality, and cost.

Some conveners will have access to their own facilities; others will need to secure facilities from other organizations. There are many potential sources for appropriate meeting space. The convener may want to look first to its partners and stakeholders for ideas and recommendations. Be prepared to visit several facilities to find one that will meet all necessary criteria.

The precise timing of when the convener begins to seek a facility will vary based on other planning and logistics decisions. A site can be secured more quickly the more the convener knows about the expected numbers of participants, their needs, and the overall meeting design.

Accessible Meeting Facility Checklist

The workshop facility should be assessed using the following list. Local Building Codes Enforcement offices are also resources for information about accessibility, especially in public buildings.

- **Signage using the internationally recognized symbol of accessibility**

- **Transportation and parking**

- **Assessment of exterior surfaces, interior floors, and landings**

- **Entrances and interior doors**

- **Ramps, walkways, interior stairways, and corridors**

- **Elevators**

- **Meeting rooms and common areas**

- **Public restrooms (both genders)**

- **Service animal accommodations**

Audio-visual capabilities

Audio-visual requirements will vary based on the specific meeting plan, e.g., a plan to use Power Point slides during the workshop or meeting.

If the group is expected to be larger than 25 participants, give serious consideration to the availability of microphones for both speakers and participants. Low-grade hearing loss is increasingly a challenge in all groups. There is a general reluctance to use microphones but moderate amplification can vastly improve the attention, comprehension, and thus participation of an entire group.

Equipment checklist
- **Microphones, both lavaliere and stationary**

- **Projection screen**

- **Adequate electrical outlets**

- **Stand or small table for projector and/or computer**

- **Extension cords**

- **Laptop computer**

- **Projector**

- **Laser pointer**

Additional facility considerations

The convener will want to clarify the following:

- **Access to building (when is building open, and how and when is it locked)**

- **Start and end times for meeting. Include additional time at the beginning for registration and at the end when people may want to continue networking or discuss follow-up activities**

- **Room set-up or arrangement**

- **Security**

- **Janitorial supplies and/or services**

- **Dolly or rolling carts to assist in bringing meeting materials or hospitality items**

Hospitality

Providing food and beverages is a sign of hospitality, a token acknowledgement of the time and expertise that participants are contributing, and is known to improve attendance. Different facilities may have different rules about the types of food and beverage that are allowed; be sure to ask the facility manager about their policies. The time of day will influence what you will offer participants. If it will be a lunch meeting, give serious consideration to providing simple box lunches or inexpensive sandwich trays. Participants are universally grateful for the courtesy.

Some public agencies may be restricted by law from providing food and drink. One option may be to make available box lunches that participants can purchase for themselves. Another option is to communicate clearly that participants are welcome to bring their own lunch or other refreshments.

Be sure to make tap water available, either in pitchers or water coolers. Coffee is also welcome if this does not violate any policy of the convening or hosting agency.

Other supplies and logistics include:

- **A box for office supplies**

- **Pens and pencils**

- **Pads for writing**

- **Tape, both cellophane and masking or painters tape for taping flip charts to the wall**

- **Flip charts**

- **Markers (water soluble markers are least likely to bleed through, and they do not stain clothing or have a strong chemical odor)**

- **Name tags (these may be printed in advance or left blank for people to fill in)**

- **Paper clips**

- **Staple gun**

- **Scissors**

Directional signs–meeting name and time at main accessible entrance; directions to main entrance from other entrances if there is more than one entrance; arrow signs within the facility at regular intervals and at decision points, as necessary

Note

Be sure to bring extra copies of the agenda and all documents for those who may have forgotten their materials.

Action Step 7.
RECRUIT WORKSHOP PARTICIPANTS

The convener has likely been keeping a list of possible workshop participants based on his/her research and information gleaned while building support. Contact information should include:

1. **Name**
2. **Position or title**
3. **Agency/organization/company name**
4. **Website for agency/organization/company**
5. **Primary and back-up email**
6. **Primary and back-up phone numbers, including fax number**
7. **Mailing address**
8. **Role in mass evacuation**

Identify a credible person or organization to issue the invitation; this may or may not be the convener. Regardless of whether invitations will be distributed by email or by letter, a recognizable name or organization increases the likelihood the invitation will be opened, read, and seriously considered.

Be aware that messages may be blocked by firewalls and plan for alternative methods of contact and from whom the message should originate.

Invitation checklist

Use the following list to be sure the invitations contain necessary information.

- **Purpose of the invitation**
- **Time, date, and meeting location**
- **Goals for the meeting and planned outcomes**
- **Types of agencies and organizations invited**
- **Why the individual and/or agency is being invited (e.g., expertise, experience, commitment to outcomes)**

- **Expected benefits of participation (WIIFM)**
- **Contribution to the common good**
- **Requested action (RSVP)**
- **Reference enclosed or attached meeting accommodation form if accommodations will be made**
- **Convener's contact information**

Meeting accommodation form

Among the invited participants, there may be individuals who require accommodations to fully participate in the meeting. Depending on the convener's status, the American's with Disabilities Act may require provision of accommodations. Develop a simple checklist or form by which an invitee can request assistance. Include the following in such a form:

1. **Name**
2. **Organization**
3. **Contact information, especially email and phone**
4. **Intent to bring a personal assistant (information will be useful in planning for seating and refreshments)**
5. **Use of a wheelchair (enables planning for space)**
6. **Need for interpreters (specify the language)**
7. **Assistive listening devices**
8. **Service animal**
9. **Special dietary requirements (specify the need so that refreshments can accommodate)**
10. **Chemical sensitivity**
11. **Other needs**
12. **Date by which accommodation request should be returned**
13. **Address or return information for the request**

IMPLEMENTATION

Action Step 8.
RECHECK FACILITY, SUPPLIES, AND HOSPITALITY

Plan to arrive at least one hour early to be sure the facility is open, the room set-up is as planned, and to set up any audio-visual equipment. Place signage in a visible location or multiple locations to direct participants to the meeting room.

Place food and drinks in an area.

Set up a registration and sign-in table. Regardless of whether there are pre-printed nametags for participants, have additional blank nametags and markers available. Lay out any documents that will be made available to all participants. Even if documents have been distributed electronically in advance, have additional copies available for walk-in participants or people who substitute for a participant and announce the availability of these documents at the beginning of the meeting.

Action Step 9.
HAVE A PLAN

If other staff will assist the convener, make assignments for the meeting. Place one individual in charge of the registration to greet people as they enter, direct them to refreshments, answer questions, and make people feel welcome. Assign other people to other tasks as needed, such as setting up audio-visual equipment.

If a professional facilitator has been engaged, the convener will want to be available to answer any content or substantive questions that may affect the meeting process. If the convener will also be the facilitator, the following tips will be useful.

Assign someone besides the facilitator to take notes. Good notes are an important part of building credibility for the planning effort and maintaining momentum. Meeting notes do not have to be verbatim but should be sufficiently detailed that a reader who did not attend the meeting will have a clear understanding of what was discussed, what follow-up is needed, whether there were any decisions made and who is responsible for implementation activities. Good documentation supports momentum because the record created decreases the likelihood of a group going over prior discussions and decisions that have been documented.

Facilitator tips

1. **The facilitator's role is to help the group have a productive discussion. The facilitator does not participate in the discussion or offer opinions. Facilitators who are also conveners will want to have other people from his/her agency participate in the meeting so that agency expertise and information is available to the group.**

2. **Have a clear beginning**

3. **Make introductions**

4. **Explain the workshop goals and outcomes**

5. **Describe the materials that will be referred to in the meeting**

6. **Consider an opening question or ice-breaker related to the subject to set the group at ease and start discussion**

7. **Use the agenda and planned time frames to guide the group and keep on track**

8. **Reference the meeting or workshop goals and outcomes to keep the discussion focused**

9. Keep track of who has spoken and who is next

10. Work to involve as many participants in the discussion as possible; beware of the same people always talking

11. Observe carefully for signs that people do not understand one another because of differences in terminology, different perspectives, and/or experiences

12. As the discussion moves from topic to topic, clearly summarize what has been discussed and restate any actions or commitments before moving to a new topic

13. Respect the stated adjournment time

14. Have a clear ending

15. Thank participants for their work

16. Evaluate the meeting.

17. At the conclusion, be prepared to tell participants what the next steps will be or designate someone to provide that information; possible items to address include: the next meeting; and how and when notes will be distributed

18. Follow-up

Action Step 10.
DOCUMENT THE MEETING AND SHARE WITH PARTICIPANTS

Good meeting documentation builds confidence that the work participants have accomplished at a meeting will be followed through. Write up notes as soon as possible after the workshop or meeting while memories are fresh. Two weeks is a typical time frame for completing and distributing notes.

Action Step 11.
MAINTAIN MOMENTUM

If the workshop is part of a series of meetings, quickly confirm details for the next meeting. An ideal time to announce the next meeting is when the meeting notes are distributed. Continue to build the contact list of potential stakeholders and partners. Consider maintaining a file of related articles and reports that may later become background or informational documents.

Action Step 12.
STRENGTHEN WORKING RELATIONSHIPS

Be generous with positive feedback and encouragement to participating agencies.

Give credit to your agency and supervisors for their support. Keep them informed about the effort. Changes in leadership may create a need to build the case again so document all efforts, positive reactions, and benefits accrued to the convener's agency.

Action Step 13.
UTILIZE FEEDBACK TO IMPROVE

Make use of any feedback that is provided at the end of the workshop because it builds confidence in the process. When people see that their input is used, it builds commitment to the work and the convener's credibility.

GLOSSARY OF TERMS

A

Access and Functional Needs Populations

Populations whose members may have additional needs before, during, and after an incident in functional areas, including but not limited to: maintaining independence, communication, transportation, supervision, and medical care. Individuals in need of additional response assistance may include those who: have disabilities; live in institutionalized settings; are elderly or children; are from diverse cultures; have limited English proficiency or are non-English speaking; or are transportation disadvantaged. See also "Vulnerable Populations." (Definition adopted from the National Response Framework [NRF] definition.)

Accessible

Having the legally required features and/ or qualities that ensure easy entrance, participation, and usability of places, programs, services, and activities by individuals with a wide variety of disabilities (NIMS definition).

After Action Report (AAR)

AARs assemble critical data regarding evacuation performance in the aftermath of an exercise or event (including evacuations), including the findings and recommendations gathered from debriefing sessions with relevant agencies and staff; a narrative of the events; critical successes and failures during the exercise or event itself; and lessons learned and agreed-upon methods to address performance gaps. The evaluation and improvement of mission and task performances that take place with AARs are the final steps of the preparedness cycle and crucial to informing risk assessments, managing vulnerabilities, allocating resources, and informing the other elements of the cycle. AARs are also referred to as Corrective Action Reports, especially when referring to actual events.

All-Hazards Approach

An all-hazards approach is a conceptual and management approach that uses the same set of management arrangements to deal with all types of hazards (e.g., natural, man-made, complex).

Americans with Disabilities Act (ADA)

Passed in 1990, ADA is civil rights legislation that protects individuals with disabilities. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services, and telecommunications. An individual is defined by the ADA as someone with a disability if they: (1) have a physical or mental impairment that substantially limits a major life activity; (2) have a record of such an impairment; and/or (3) are regarded as having such an impairment.

Area Agency on Aging (AAA)

AAAs are regional agencies (more than 600 nationwide) responsible for the Older Americans Act programs at the local level. AAAs contract for transportation, nutrition, and other services. Each has an advisory council. AAAs are a national network supported by The National Association of Area Agencies on Aging (N4A).

Assistive Device

Assistive devices are tools, equipment, or products that can help people perform tasks associated with daily living and/or manage specific medical conditions or disabilities. Assistive devices can include hearing aids, computer programs, and simpler devices, such as a "reacher."

C

Catastrophic Incident

Any natural or man-made incident, including terrorism, that results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions. A catastrophic incident could result in sustained regional or national impacts over a prolonged time period; almost immediately exceeds resources normally available to state, territorial, local, tribal, and private-sector authorities in the affected area; and significantly interrupts governmental operations and emergency services to such an extent that national security could be threatened (All Hazards Consortium, draft definition).

Cognitive and Developmental Disabilities

Cognitive and developmental disabilities include disorders that may affect a person's ability to listen, think, speak, read, write, do math, or follow instructions. It includes people with dyslexia, an extreme difficulty in reading, and attention deficit hyperactivity disorder (ADHD), which is an inability to focus on necessary tasks. Many cognitive disabilities are based in physiological or biological processes within the individual, such as a genetic disorder or a traumatic brain injury. Other cognitive disabilities may be based in the chemistry or structure of a person's brain and may require assistance with aspects of daily life.

Community-based Organization (CBO)

CBOs are nonprofit organizations that operate within a local community, are often run on a voluntary basis, and are self funding. CBOs vary in terms of size and organizational structure. Some are formally incorporated with a written constitution and a board of directors, while others are much smaller and more informal. See also Faith-based Organization (FBO) and Nongovernmental Organization (NGO).

Community Emergency Management Plan (CEMP)

CEMPs provide policies, authorities, concepts of operations, legal constraints, responsibilities, and emergency functions to be performed in order to create an integrated approach to the management of emergency programs and activities for all emergency phases (mitigation, preparedness, response, and recovery), for all types of emergencies and disasters, and for all levels of government and the private sector. (Definition adapted from: http://www.davislogic.com/CEMP.htm#Definition.)

Comprehensive Preparedness Guide 101, Volume 2 (CPG 101)

CPG 101 provides general guidelines for developing Emergency Operations Plans (EOPs). It promotes a common understanding of the fundamentals of planning and decision making to help emergency planners examine a hazard and produce integrated, coordinated, and synchronized plans. This guide helps emergency managers in state, territorial, local, and tribal governments in their efforts to develop and maintain a viable all-hazard EOP. (Definition from FEMA document: "Guidance on Planning for Integration of Functional Needs Support Services in General Population Shelters.")

Contraflow

Contraflow is a form of reversible traffic operation in which one or more travel lanes of a divided highway are used for the movement of traffic in the opposing direction. Since 1999, contraflow has been used to evacuate regions of the southeastern United States under threat from hurricanes, and is now considered a potential preparedness measure for other mass-scale hazards. Contraflow segments are most common and practical on freeways because they are: the highest capacity roadways, designed to facilitate high speed operation, and do not incorporate at-grade intersections that can interrupt flow or permit unrestricted access into the reversed section.

Convener Agencies for Multimodal Evacuation (CAME)

A CAME is one or more designated agencies that performs the vital task of leading the forum in which emergency operations plans can be discussed and coordinated with other agencies and jurisdictions in the region. It is important that the CAME be regional and multijurisdictional in scope, be able to address multiple modes of transportation, and have the ability to coordinate and plan across multiple agencies representing local, regional, and state levels. CAME candidates include state emergency management agencies, state transportation agencies, regional transit agencies, MPOs, COGs, Regional Transit Security Working Groups (RTSWGs- established and required through the Transportation Security Administration [TSA]), Urban Area Strategic Initiatives (UASIs), or powerful municipal departments in regions willing to work in a regional manner. CAME is a term that was developed in conjunction with this report and is not a universally recognized acronym.

Council of Governments (COG)

The COG is a voluntary association of local governments that operates as a planning body. The COG collects and disseminates information, reviews applications for funding, and provides services for its member governments.

D

Department of Homeland Security (DHS)

The Department of Homeland Security's mission is to lead the unified national effort to secure the country, preserve citizens' freedoms, and prepare for and respond to all hazards and disasters. DHS leverages resources within federal, state, and local governments and coordinates the transition of multiple agencies and programs into a single, integrated agency focused on protecting the American people and their homeland. More than 87,000 different governmental jurisdictions at the federal, state, and local level have homeland security responsibilities. The comprehensive national strategy seeks to develop a complementary system connecting all levels of government without duplicating effort.

Disability

A disability is a physical or mental impairment that substantially limits one or more of a person's major life activities. There are many definitions for "disability," both narrow and broad. For example, a person with a visual impairment correctable by contact lenses could be considered disabled in some circumstances but not in others.

Disaster Planning Cycle

See Emergency Planning Cycle.

Durable Medical Equipment (DME)

Durable medical equipment is medical equipment that a person needs to function on a daily basis, such as oxygen tanks, wheelchairs, orthotics, and prosthetics.

Dynamic Message Sign (DMS)

A DMS is a traffic control device used in conjunction with traffic management systems to communicate real-time traffic information about roadway or adverse weather conditions and special events. It is also referred to as a variable message sign (VMS), a changeable message sign (CMS), or an electronic message sign.

E

Emergency

An emergency is a sudden, urgent, often unexpected occurrence or occasion requiring immediate action or an urgent need for assistance or relief. Also see Incident.

Emergency Alert System (EAS)/ Emergency Broadcast System

The EAS is designed to provide the President with a means to address the American people in the event of a national emergency. Beginning in 1963, the President permitted state and local emergency information to be transmitted using the system. Since then, local emergency management personnel have used the EAS to relay local emergency messages via broadcast stations, cable, and wireless cable systems.

In October 2005, the Federal Communications Commission expanded the EAS rules to require EAS participation by digital television broadcasters, digital cable television providers, digital broadcast radio, digital audio radio service, and direct broadcast satellite systems.

Emergency Management (EM)

The broad class of agencies or people involved in the practice of managing emergencies and other incidents of all kinds. Emergency response is a subset of emergency management.

Emergency Management Agency (EMA)

An EMA may also be known as an Office of Emergency Management (OEM), Office of Emergency Services (OES), or by a similar name. It is generally described as a state or local government agency that provides support to the local community in response to an emergency situation.

Emergency Management Assistance Compact (EMAC)

A national interstate mutual-aid agreement that enables states to share resources during times of disaster. EMAC has grown to become the nation's system for providing mutual aid through operational procedures and protocols that have been validated through experience. EMAC is administered by the National Emergency Management Association (NEMA), headquartered in Lexington, Kentucky. EMAC acts as a complement to the federal disaster response system, providing timely and cost-effective relief to states requesting assistance from assisting member states. (Adapted from FEMA-EMAC 2007.)

Emergency Medical Services (EMS)

EMS are types of emergency services dedicated to providing out-of-hospital acute medical care and/or transport to definitive care for patients with illnesses and injuries, which the patient or the medical practitioner believes constitutes a medical emergency.

Emergency Operations Center (EOC)

The EOC provides needed centralized management when a major emergency or disaster strikes. The EOC is an established location/facility in which local and state staff and officials can receive information pertaining to an incident and from which they can provide direction, coordination, and support to emergency operations. This is also where the decision makers and support agencies will report to manage the evacuation. National Incident Management System (NIMS) defines the EOC as, "The physical location at which the coordination of information and resources to support incident management (on-scene operations) activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, medical services), by jurisdiction (e.g., federal, state, regional, tribal, city, county), or by some combination thereof."

Emergency Planning Cycle

The emergency planning cycle includes four basic elements bracketing a disaster: mitigation, preparedness, [disaster], response, recovery, cycling back to mitigation and preparedness. The circle graphic on next page (See Figure G-1) illustrates this cycle. See also Preparedness Planning Cycle.
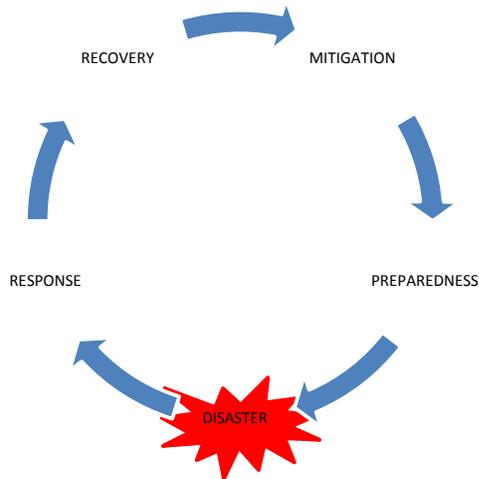
FIGURE G–1

"Emergency Planning Cycle"

Emergency Responder/ Management Personnel

Includes federal, state, territorial, tribal, sub-state regional, and local governments; private-sector organizations; critical infrastructure owners and operators; nongovernmental organizations (NGOs); and all other organizations and individuals who assume an emergency management role. These represent a broader community than first responders. See also First Responder. (See Section 2 (6), Homeland Security Act of 2002, Pub. L. 107-296, 116 Stat. 2135 [2002]) (NIMS, 2008)

Emergency Response

The planned and actual response by multiple agencies to incidents that can include acts of terrorism, wildland and urban fires, floods, hazardous material spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, war-related disasters, public health and medical emergencies. Traffic incidents are assumed to be included. (Adapted from NIMS, 2008.)

Emergency Support Function (ESF)

The federal government groups most of its resources and capabilities, and those of certain private-sector and NGOs, under ESFs. ESFs align categories of resources and provide strategic objectives for their use. They use standardized resource management concepts such as typing, inventory, and tracking to facilitate the dispatch, deployment, and recovery of resources before, during, and after an incident. Support agencies are assigned based on the availability of resources in a given functional area. ESFs provide the greatest possible access to federal department and agency resources regardless of which agency has those resources. See Tool 1.3 for more detail and discussion.

Emergency Transportation Operations (ETO)

A coordinated, performance-oriented, all-hazard approach to support the development of a formal program for the improved management of traffic incidents, natural disasters, security events, and other emergencies on the highway system. Focuses on an enhanced role for state DOTs as participants with the public safety community in an interagency process. (Adapted from *NCHRP Report 525*, Volume 6, 2005.)

Evacuation

The organized, phased, and supervised movement of people away from a dangerous or potentially dangerous area due to an emergency or other major event. Local governments typically have the primary responsibility for ordering an evacuation if one is necessary.

Evacuation Operations Team (EOT)

EOTs are a multi-disciplinary, multijurisdictional group of specialists called on to plan, organize, and execute tactical evacuation operations and usually become the region's Core Planning Team for evacuation planning, response, and re-entry. The teams typically include police, fire and emergency medical personnel, highway workers, public information specialists, public transit representatives, emergency managers, mass care specialists, political decision makers, and others as appropriate. The team periodically trains and exercises the team and team members may be from public, private, or volunteer sectors. (Definition adapted from the FHWA report: "Using Highways During Evacuation Operations for Events with Advance Notice- Evacuation Planning and Preparedness Process from the Transportation Perspective.")

F

Faith-based Organization (FBO)

FBOs are organizations based on religious beliefs or connected with an organized faith community. These organizations typically deliver a variety of human services, such as caring for the infirm and elderly, advocating justice for people who are oppressed, humanitarian aid, and international development efforts.

Federal Emergency Management Agency (FEMA)

FEMA is the federal agency charged with building and supporting the nation's emergency management system. On March 1, 2003, FEMA became part of DHS. FEMA's mission is to support American citizens and first responders to ensure that the United States works together to build, sustain, and improve capability to prepare for, protect against, respond to, recover from, and mitigate all hazards. FEMA provides funding for mitigation and training, and reimbursements for response and recovery efforts. The Office of Disability Integration and Coordination, with a representative in each FEMA field office, is part of FEMA.

First Responder

A first responder is the first responding unit to arrive at an incident scene. This term has traditionally been used to describe public safety emergency responders who have duties related to preservation of life and property. As transportation agencies become more actively involved in traffic incident response and take active roles in Incident Command (as partners in Unified Command), they are becoming accepted as first responders for traffic incidents. For example, service patrols may be first on the scene of an incident and many are trained to provide traffic control to stabilize the scene and to provide emergency first aid. Some service patrols are also permitted limited use of emergency lights and sirens to get to an incident.

Fixed Route

A fixed route refers to where transit service vehicles run on regular, pre-designated, pre-scheduled routes with little or no deviation.

Fusion Center

Centers that integrate various streams of information and intelligence, including that flowing from the federal government, state, territorial, tribal, and local, governments, as well as the private sector, providing a more accurate picture of risks to people, economic infrastructure, and communities that can be developed and translated into protective (e.g., preventative or responsive) actions. The ultimate goal of fusion is to prevent man-made (terrorist) attacks and to respond to natural disasters and man-made threats quickly and efficiently should they occur. Note that Fusion Centers are referred to differently in the various states. FHWA has also prepared a guidebook for Fusion Center/Transportation Management Center/EOC linkages/integration.

Incident Command System (ICS)

ICS is a standardized, on-scene, all-hazards incident management approach used by all levels of government, many nongovernmental organizations, and the private sector. ICS is the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to aid in the management of resources during incidents. ICS is the command and control protocol at a highway incident scene. It is the operational component or core of NIMS.

Incident

In emergency management vocabulary, this is an event that has the potential to result in unintended harm or damage. Incidents are natural or man-made occurrences or events and can include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response including traffic incidents (NIMS 2008). Also see Catastrophic Incident.

Interagency Coordination

The synchronization and integration of activities, responsibilities, and command and control structures of different government agencies to ensure that the resources of an organization are used most efficiently in pursuit of the specified objectives. In addition to interagency coordination, it is also essential to have coordination and good communication among jurisdictions, service providers, other area plans, and stakeholders. (Definition adopted from: www.businessdictionary.com)

L

Latchkey Children

Children (usually 5 to 12 years old) who must spend part of the day unsupervised at home while their parents are at work. U.S. Census estimates in 2000 indicated about 14% of children or about 10 million children were unsupervised on average for an hour a day, but the time and frequency vary widely, including varying with the age of the child.

Limited English Proficiency (LEP)

Individuals who do not speak English as their primary language and who have a limited ability to read, speak, write, or understand English can be limited English proficient, or "LEP." These individuals may be entitled to language assistance with respect to a particular type or service, benefit, or encounter.

M

Major Disaster

Any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought) or, regardless of cause, any fire, flood, or explosion in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under the Robert T. Stafford Disaster Relief and Emergency Assistance Act to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby (Stafford Act). Many guides actually treat catastrophic events as a more severe event than a major disaster.

Mandatory Evacuation

The term implies that individuals do not have a choice of whether or not to evacuate because the government will not be able to protect them and provide relief if they remain. It generally conveys a higher level of urgency. (Adapted from U.S. House of Representatives document: "A Failure of Initiative.")

Medical Needs Shelters (MNS)

All shelters must be accessible to people with access and functional needs. A MNS is a location that offers greater medical assistance than basic first aid, but not to the level of acute care. This type of shelter may be reserved for a relocation of a nursing home in the event of a disaster. It will be assumed that the staff of the facility will accompany the patients and be the primary caregivers of medical care to them. Supplies and equipment will also be the responsibility of the evacuated facility. Due to the nature of the MNS, limiting occupants to just those of the evacuated facility should be given consideration.

Memorandum of Understanding (MOU)/Memorandum of Agreement (MOA)

A document that outlines the intentions of two or more different agencies or jurisdictions to work together on a continuing and lasting basis, toward maximum cooperation and mutual assistance in the areas of disaster response and emergency preparedness. The documents typically confirm a mutual aid agreement for reciprocal emergency aid in case of emergencies too extensive to be dealt with effectively unassisted. MOUs and MOAs are also developed between a local agency and outside organizations or private companies in order to ensure that the necessary resources are available in the event of an emergency.

Metropolitan Planning Organization (MPO)

An MPO is an agency designated by law with the lead responsibility for developing transportation plans and programs within an urbanized area. MPOs are established by agreement of the Governor(s) and units of local government representing at least 75% of the population in the urbanized area. An MPO can also be a Council of Governments. See also"Council of Governments (COG).

N

National Incident Management System (NIMS)

NIMS is a system used in the United States, and established by DHS, to coordinate emergency preparedness and incident management among various federal, state, tribal, territorial, and local agencies. NIMS provides the template for the management of incidents. Also see Incident Command System (ICS) and the FHWA report titled "Simplified Guide to the Incident Command System (ICS) for Transportation Professionals."

National Planning Scenarios

The National Preparedness Guidelines, developed by DHS, contain 15 scenarios that form the basis for coordinated federal planning, training, exercises, and grant investments. The 15 all-hazards planning scenarios (the National Planning Scenarios or Scenarios) were developed for use in national, federal, state, and local homeland

security preparedness activities. The Scenarios are planning tools and are representative of the range of potential terrorist attacks and natural disasters and the related impacts that face our nation. The objective was to develop a minimum number of credible scenarios in order to establish the range of response requirements to facilitate preparedness planning. See also Scenarios. (Definition adapted from: "National Planning Scenarios: Executive Summaries" and "Fitting the Pieces Together: Improving Transportation Security Planning in the Delaware Valley.")

National Preparedness Guidelines

These guidelines define what it means for the nation to be prepared by providing a vision for preparedness, establishing national priorities, and identifying target capabilities. The guidelines adopt a Capabilities-Based Planning process supported by three planning tools: the National Planning Scenarios, Target Capabilities List (TCL), and Universal Task List (UTL). The Guidelines serve as a framework to guide operational readiness planning, priority-setting, and program implementation at all levels of government. (Definition from DHS document titled: "Target Capabilities List: A Companion to the National Preparedness Guidelines.")

National Response Framework (NRF)

NRF is part of the National Strategy for Homeland Security that presents the guiding principles enabling all levels of domestic response partners to prepare for and provide a unified national response to disasters and emergencies. NRF provides the structure and mechanisms for national-level policy for incident management. The NRF can be accessed on the DHS website.

Nongovernmental Organization (NGO)

NGOs are nonprofit entities formed as an association that are based on the interests of their members, individuals, or institutions, and that are not created by government but may work cooperatively with government. Such organizations serve a public purpose, not a private benefit.

P

Paratransit

Paratransit is the family of transportation services that serves the mobility impaired or transportation disadvantaged. Examples of paratransit include taxis, carpools, vanpools, minibuses, jitneys, demand responsive bus services, and specialized bus services.

People with Medical Conditions

Many people throughout the United States may have one or more existing medical conditions, some more severe than others. People with medical conditions are individuals who have one or more medical diagnoses that may or may not interfere with activities of daily living. They may need assistance during an emergency evacuation. If a person with a medical condition becomes debilitated, limited, or otherwise impaired, that person may be protected under the Americans with Disabilities Act (ADA). See Tool 3.2.

People with Mobility Disabilities

Mobility disabilities are the physical challenges that can range from difficulty moving to the need to use assistive devices such as canes, walkers, wheelchairs, or scooters. A person with mobility disabilities may have a condition that requires him/her to remain in bed or need similar conveyances, and may require additional assistance in an evacuation. That assistance could range from a low-floor bus to accommodate a person with a walker, to a lift-equipped bus, paratransit, or other vehicle, to an ambulance or similar specialized vehicle.

## People with No Access to a Vehicle

People with no access to a vehicle are individuals and families that do not have a car and generally rely on public transportation on a daily basis. Individuals and families may not have a car for several reasons, including economic factors, geographic location (i.e., people who live in urban environments may not own a vehicle), health conditions (e.g., those with physical disabilities, some of the very elderly), environmental conscientiousness, and lack of a license.

Preparedness Planning Cycle

The Preparedness Planning Cycle is a subset of the Emergency Planning Cycle. Preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action. See Figure G-2. Ongoing preparedness efforts among all those involved in emergency management and incident response activities ensure coordination during times of crisis. Moreover, preparedness facilitates efficient and effective emergency management and incident response activities. The cycle involves several phases, as illustrated in the graphic to the right.

Presidential Disaster Declaration

There are several types of responses governments can take in emergency situations. Local and state governments may declare a state of emergency within their jurisdiction, but only the federal government may declare a Presidential disaster declaration or a federal state of emergency. When local and state governments become overwhelmed by an emergency, the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121-5206, establishes a process for a state governor to request assistance from the federal government and obtain a Presidential disaster declaration. The process defines the type and scope of assistance available from the federal government and sets the conditions for obtaining that assistance. FEMA, now part of DHS, is the federal agency then tasked with coordinating the response. (Definition adapted from FEMA document titled: "A Guide to the Disaster Declaration Process and Federal Disaster Assistance.")
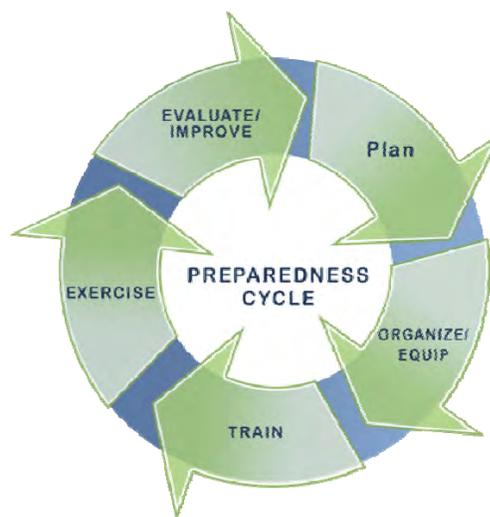
FIGURE G–2

"Preparedness Planning Cycle"

Private Sector

The private sector is the part of the economy that is both run for private profit and is not controlled by the state.

Public Assisted Evacuation Plan (PAEP)

A PAEP is a plan for how to implement an effective government assisted evacuation of the general public. Typically a PAEP uses a timeline to set forth key phases and milestones for evacuation response that should be planned for ahead of time. See Tool 4.1.2.

R

Re-entry

The phase of the evacuation process that involves the ingress of evacuees once conditions are safe and infrastructure (roads, utilities, and housing) and support services (such as law enforcement, stores, schools, and clinics) are up and running. This phase involves coordination between local, county, and state agencies in order to ensure a safe and orderly return of evacuees.

Regional Emergency Assistance Compact (REAC)

A regional mutual aid compact in which multiple states and/or regional governing agencies create an agreement to assist each other in emergency situations. A REAC is essentially a regional Emergency Management Assistance Compact (EMAC). Also see Emergency Management Assistance Compact (EMAC).

Regional Transit Security Working Group (RTSWG)

RTSWGs support region-wide planning to address National Preparedness Goals, including improvements to specific response capabilities and communications, and to identify and fill gaps in regional transit security planning. These groups develop a Regional Transit Security Strategy (RTSS) in coordination with local and regional transit agencies and the local or state EMA. These working groups are established and required through the TSA and required of any municipality receiving Transit Security Grant Program funds, which are administered by DHS.

Registry

In emergency services vocabulary, a registry is a voluntary listing of disabled or vulnerable special needs populations. Registries are considered an essential part of preparedness in some communities and regions, but are often controversial for many reasons. Community communication and outreach, networks, multiple means of communication, and well-prepared communities may replace the perceived need for registries.

Resource Typing

Resource typing is categorizing, by capability, the resources requested, deployed, and used in incidents. Measurable standards identifying resource capabilities and performance levels serve as the basis for categories. Resource users at all levels use these standards to identify and inventory resources and apply for reimbursement. Resource kinds may be divided into subcategories to define more precisely the capabilities needed to meet specific requirements (FEMA).

Risk Management/Risk Assessment

Risk management is the identification and assessment of the threats and hazards that could impact a jurisdiction. The risk assessment is the process of collecting and identifying information about possible threats and hazards and then assigning values to each for the purpose of determining those that have the highest priorities so that plans for action can be developed for addressing them. The jurisdiction can then catalog everything from specific asset vulnerabilities to staffing levels for emergency personnel.

S

Scenarios

Scenarios, outlines, or models of an expected or supposed sequence of events, are an important element in emergency planning. They allow emergency managers, transportation managers, and other key players to think through and practice all the stages of an actual disaster, including coordination, actions, and resource needs. The process, the relationships developed, and the decisions on frameworks and strategies for control and operations that are explored in scenarios will generally lead to better outcomes in actual disaster situations. See National Planning Scenarios.

Service Animal

A service animal is defined under ADA as "a guide dog, signal dog, or other animal individually trained to provide assistance to an individual with a disability." Service animals assist people with disabilities in various activities, such as sight (dog guides) and hearing (hearing dogs).

Often, a service animal enables a person with a disability to live independently. Trained and certified service animals must be allowed to accompany an individual in a taxi, public transport vehicle, or other mode of transportation to a public shelter or any other location; a service animal is not a pet.

Shadow Evacuation

An evacuation in which people who are not in danger (and who have not been advised to evacuate), choose to evacuate and cause an unnecessary burden on the area's transportation infrastructure. A shadow evacuation can subsequently overburden area infrastructure to the point that truly at risk individuals cannot evacuate as directed.

Shelters

A temporary facility that provides housing and basic services until persons can return home or obtain temporary or permanent housing elsewhere. (Definition from FEMA document: "Guidance on Planning for Integration of Functional Needs Support Services in General Population Shelters.")

Sheltering-in-Place

In some situations, the most effective approach to protecting populations is to strongly encourage or force people to stay where they are while taking steps to increase safety (e.g., closing outside vents and sealing doors), such as during chemical spills or air-born related disasters. In other cases, sheltering-in-place is part of an evacuation strategy, where individuals who are not in imminent danger are advised to stay where they are to allow truly at risk individuals to evacuate as well as to prevent a shadow evacuation. (Part of definition adapted from: "Fitting the Pieces Together: Improving Transportation Security Planning in the Delaware Valley.")

Sign Language Interpreter

A sign language interpreter is a person who has been trained to use a system of conventional symbols or gestures made with the hands and body to help people who are deaf or hard of hearing, or have speech impairments communicate. There are different types of sign language interpreters: Tactile, Oral, Signed English, and others, as well as American Sign Language (ASL).

Special Event

While special events can by some definitions include emergencies, this report generally uses the term to mean a planned (or unplanned) gathering of a large amount of people. A planned special event is usually described as those activities that have a known location, scheduled time(s) of occurrence, and similar associated operating characteristics. Special events typically involve increased traffic congestion and require the direct attention of transportation agencies. (Planned special events can include sporting events, concerts, festivals, conventions, parades, fireworks displays, races, sporting games, rallies, seasonal festivals, milestone celebrations, etc.)

Special Needs Populations

No singular definition of the term "special needs" exists, although the term is widely used within the disaster services and emergency management fields. The National Response Framework employs the preferred term "populations with access and functional needs," while CPG 101 emphasizes "whole community planning." See Access and Functional Needs Populations.

T

Target Capabilities List (TCL)

The National Preparedness Guidelines, a statement of the core preparedness goal for the United States, defines 37 specific capabilities that communities, the private sector, and all levels of government should collectively possess in order to respond effectively to disasters. The TCL serves as a reference document as well as a planning, assessment, and training tool. (Portions of definition from: "Fitting the Pieces Together: Improving Transportation Security Planning in the Delaware Valley.")

Traffic Management Center or Transportation Management Center (TMC)

The TMC or Traffic Operations Center (TOC) is the hub of a transportation management system where information about the transportation network is collected and combined with other operational and control data to manage the transportation network and produce traveler information. It is the focal point for communicating transportation-related information to the media and the motoring public. It is a place where agencies can coordinate their responses to transportation situations and conditions. The TMC links various elements of Intelligent Transportation Systems (ITS), such as variable message signs, closed-circuit video equipment, and roadside count stations. These ITS elements enable decision makers to identify and react to an incident in a timely manner based on real-time data. Many EOCs coordinate with TMCs (and fusion centers, if available) to bring together the best possible situational awareness.

Transportation Demand Management (TDM)

Transportation Demand Management (TDM) is any action or set of actions designed to influence the intensity, timing, and distribution of transportation demand, in order to reduce traffic congestion or enhance mobility. TDM is also sometimes referred to as traffic demand management or travel demand management. (Part of this definition was adopted from the FHWA document: "The Transportation Planning Process: Key Issues.")

Transportation Disadvantaged

Transportation disadvantaged populations include individuals who do not have access to personal transportation for reasons of health, disability, level of income, or other reasons. Florida statutes define it as, "Persons who because of physical or mental disability, income status, or age are unable to transport themselves or to purchase transportation and are, therefore, dependent upon others to obtain access to health care, employment, education, shopping, social activities, or other life-sustaining activities, or children who are handicapped or high-risk or at-risk." Also see Access and Functional Needs Populations.

U

Urban Area Security Initiative (UASI)

FEMA grant program to plan for and enhance regional emergency preparedness capabilities related to national security in the highest risk urban areas. UASI funding is typically used in providing planning, training, and other support activities for emergency managers and first responders to prevent, protect against, respond to, and recover from acts of terrorism.

Unified Command

An application of ICS used when there is more than one agency involved with an incident in a single jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command (UC), often the senior person from agencies and/or disciplines participating in the UC, to establish a common set of objectives and strategies and a single Incident Action Plan (IAP) (NIMS 2008).

V

Variable Message Signs (VMS)

See Dynamic Message Signs (DMS).

Videophone (VP)

A VP is a telephone with a video screen that is capable of bi-directional video and audio transmissions for communication between people in real time. VPs are particularly useful to the deaf and speech-impaired who can use them with ASL to facilitate communication.

Voluntary Evacuation

Voluntary evacuation is a type of evacuation where people choose to move from a perceived area of danger to an area of safety either on their own or under the direction of government. People are not required to evacuate under such circumstances, so no penalty is issued for failing to follow a voluntary evacuation. (Definition adapted from: http://definitions.uslegal.com.)

Voluntary Organizations Active in Disaster (VOAD)

National Voluntary Organizations Active in Disaster (VOAD) is a nonprofit membership organization founded in 1970 in response to Hurricane Camille in the Gulf Coast. Members of National VOAD include national nonprofit organizations, whose missions include programs either in disaster preparedness, response, and/or recovery.

Vulnerable Populations

Vulnerable populations include those who are made especially vulnerable by their financial circumstances, place of residence, health, age, personal characteristics, functional or developmental status, ability to communicate effectively, and presence of chronic illness or disability. Examples include the elderly, people with disabilities, and young children. See Access and Functional Needs Populations.

W

Whole Community Planning

Planning that engages the whole community by using a process that represents the actual population in the community and involves community leaders, the private sector, and all community stakeholders. Figure G-3 illustrates key elements and stakeholders in the whole community spectrum. FEMA's CPG 101 emphasizes that this type of whole community planning yields the most realistic and complete plans.

FIGURE G-3:

Image from CitizenCorps website:http://citizen-corps.gov/getstarted/toolkit/principles.shtm.

Note: Given the similarity in the topic areas and the interest to keep definitions uniform, the majority of the definitions in this glossary were reproduced from the *TCRP Report 150: Communication with Vulnerable Populations: A Transportation and Emergency Management Toolkit* and additional definitions were adopted from the *NCHRP Report 525: Surface Transportation Security, Volume 16, A Guide to Emergency Response Planning at State Transportation Agencies.* Several other documents were used as sources for the definitions in this glossary including the FEMA document titled, "Guidance on Planning for Integration of Functional Needs Support Services in General Population Shelters" (2006); the Delaware Valley Regional Planning Commission document titled, "Fitting the Pieces Together: Improving Transportation Security Planning in the Delaware Valley" (2010); FEMA's "National Incident Management System" (2008); and the individual references also noted with various other terms in this Glossary.

USEFUL RESOURCES

TRANSIT COOPERATIVE RESEARCH PROGRAM (TCRP) AND NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)

a. Security Publications

    i. *ACRP Report 12: An Airport Guide for Regional Emergency Planning for CBRNE Events* (2008). Guidance for plans for events involving chemical, biological or radiological (CBR) agents, or detonation of nuclear or explosive devices

    ii. *HMCRP Report 5: A Guide for Assessing Community Emergency Response Needs and Capabilities for Hazardous Materials Releases* (2010)

    iii. *TCRP Report 150: Communication with Vulnerable Populations: A Transportation and Emergency Management Toolkit* (2011) How to create a communication process to reach vulnerable populations regarding their transportation options in emergencies. This toolkit provides a guiding framework and tools for constructing a scalable, adaptable communication process built on a network of agencies from public, private, and nonprofit sectors.

    iv. *TCRP TRB Special Report 294: The Role of Transit in Emergency Evacuation* (2008) Explores the roles that transit systems can play in accommodating the evacuation, egress, and ingress of people from and to critical locations in times of emergency.

    v. *TCRP Report 86: Public Transportation Security, Volume 10: Hazard and Security Plan Workshop Instructor Guide for Rural, Small Urban, and Community-Based Public Transportation System Operations* (2005).

vi.   NCHRP Research Results Digest 333/TCRP Research Results Digest 90,
A Guide to Planning Resources on Transportation and Hazards (2008).
Security-related research and resources, and an introduction to interdisciplinary
research and applications undertaken by the hazards research community.

vii.   *NCHRP Report 525/TCRP Report 86, Vol. 9: Guidelines for Transporta-
tion Emergency Training Exercises* (2005) For use by transportation
systems and emergency responders in the planning, design, develop-
ment, implementation, and evaluation of drills and exercises.

viii.   *NCHRP Report 525/TCRP Report 86, Vol. 8: Continuity of Operations
(COOP) Planning Guidelines for Transportation Agencies* (2005). Guid-
ance for efficiently resuming transportation agency operations follow-
ing a terrorist attack or other natural or man-made disasters.

ix.   *NCHRP Synthesis 392: Transportation's Role in Emergency Evacuation and Reentry*
(2009). (Wolshon). A comprehensive and systematic review of current practice for evac-
uation and repopulation, considering the use of modes for low-mobility individuals.

x.   *NCHRP Report 525, Vol. 16: A Guide to Emergency Response Planning at State
Transportation Agencies* (2009). A Guide to recommendations for use by state trans-
portation agencies in planning and developing their organizational functions, roles,
and responsibilities for emergency response within the all-hazards NIMS context.

xi.   *NCHRP Report 525, Vol. 16: Appendix L--White Paper on Emer-
gency Response Functions and Spreadsheet Tool for Emergency Response
Functions* (2009). Defines, compares, and contrasts the functions as-
sociated with (a) day-to-day incident management activities and (b) multi-
agency emergency response activities in order to define and target state DOT
job functions, research, training, and committee related activities.

xii.   *NCHRP Report 525, Vol. 6: Guide for Emergency Transportation
Operations* (2005). Guidance for state DOTs to coordinate activities
with law enforcement, fire service, and emergency management.

xiii.   *NCHRP Report 525, Vol. 15: Costing Asset Protection: An All-Hazards
Guide for Transportation Agencies* (CAPTA) is designed as a planning tool
for top-down estimation of both capital and operating budget implications of
measures intended to reduce risks to locally acceptable levels. The guide is
supplemented online with a downloadable Microsoft® PowerPoint slide show
and CAPTool, a spreadsheet tool for implementing the CAPTA methodology.

b.   Other Selected Relevant, Useful TRB Publications

    i.   *TCRP Report 106/NCHRP Report 536: From Handshake To Compact: Guidance to Foster Collaborative, Multimodal Decision Making* (2005)

    ii.   *NCHRP Report 690: A Guidebook for Successful Communication, Cooperation, and Coordination Strategies Between Transportation Agencies and Tribal Communities* (2011) VEROGRAM

USDOT; FHWA

a.   Emergency Transportation Operations

    i.   http://www.ops.fhwa.dot.gov/publications/publications.htm#eto- Examples of useful detailed resources include the following:

    ii.   FHWA's Emergency Transportation Operations Publications Series Presents: The Best of Traffic Incident Management, Traffic Planning for Special Events and Evacuation & Disaster Planning (CD) FHWA-HOP-10-053

    iii.   "Operational Concept: Assessment of State of the Practice and State of the Art in Evacuation Transportation Management" includes examples of needed resources (mostly highway) for each stage of evacuation planning, response and recovery. (FHWA 2006).

    iv.   Evacuating Populations With Special Needs—Routes to Effective Evacuation Planning Primer Series (HTML, PDF 21MB) FHWA-HOP-09-022

    v.   Information Sharing Guidebook for Transportation Management Centers, Emergency Operations Centers, and Fusion Centers (HTML, PDF 3MB) FHWA-HOP-09-003

    vi.   Using Highways For No-Notice Evacuations—Routes to Effective Evacuation Planning Primer Series (HTML, PDF 20.9MB) FHWA-HOP-08-003

    vii.   Routes to Effective Evacuation Planning Primer Series: Using Highways During Evacuation Operations for Events with Advance Notice (HTML, PDF 2.8MB) FHWA-HOP-06-109

b.   Planned Special Events–same FHWA website address as above/ publications.htm

c.   Incident Management–same address as above/publications.htm

d.   Summary/analysis of evacuations by year/incident/scale/location (domestic only) over the last few years

DHS/FEMA

a. **Mass Evacuation Incident Annex to the National Response Framework (June 2008)**

    i.   Establishes the criteria under which Federal support to mass evacuations is provided.

    ii.   Provides a concept of operations for Federal-level mass evacuation support.

    iii.   Identifies the agencies and organizations involved in a federally supported mass evacuation.

    iv.   Defines the roles and responsibilities of Federal entities in planning, preparing for, and conducting mass evacuations in support of state, tribal, and local authorities.

    v.   Identifies guidelines to improve coordination among Federal, state, tribal, and local authorities when Federal evacuation support is required.

b. **Emergency Management Assistance Compact (EMAC)**

    i.   Inter-state mutual aid

    ii.   Intra-state mutual aid

    iii.   www.fema.gov/pdf/emergency/nrf/EMACoverviewForNRF.pdf

c. **National Mass Evacuation Tracking System**

d. **Hazards U.S. Multi-Hazard Model (HAZUS-MH)**

    i.   Standardized methodology and software program available on-line to estimate potential losses from earthquakes, floods and hurricane winds

e. **Technical Assistance (TA) Catalog**

    i.   Evacuation planning program that is offered to states and local governments. The three types of TA available are: Information Resources, Models, Templates and Samples, and On-Site Workshops, which includes:

        1. An evacuation planning annotated bibliography

        2. Public outreach and education resources to support evacuation

        3. Evacuation planning needs and capabilities assessment

        4. Evacuation plan template (w/ chemical, biological, radiological, nuclear, and explosive incident templates in the Appendices)

5. Memorandum of Agreement/Memorandum of Understanding template and guidance

6. Workshops to demonstrate how to apply key evacuation principles and methodologies.

f.   National Incident Management System, United States Department of Homeland Security, Federal Emergency Management Agency, Washington, DC, December 2008, 170pp. [Online] Available: http://www. fema.gov/pdf/emergency/nims/NIMS_core.pdf [2010, August 25].

g.   Resource Typing

i.   The NIMS Incident Resource Inventory System (NIMS-IRIS) tool which FEMA has developed to assist emergency responders with inventorying resources. The software allows emergency responders to enter resources based on FEMA typed and user defined types.

1. Users can select specific resources for mutual aid purposes based on mission requirements, the capability of resources, and response time.

ii.   NIMS has classified over 120 resources for Tier I support. States are allowed to type other resources for Tier II (primarily intrastate) support.

h.   National Planning Scenarios

i.   Target Capabilities List (TCL)

i.   Respond Mission: Citizen Evacuation and Shelter in Place Section (p377)

1.   Identifies relationship with Emergency Support Functions (ESFs)

2.   Defines key activities

a. Critical tasks

b. Preparedness metrics

3.   Capability/Activity process flow

j.   Reimbursement and Eligible Costs

i.   State declared emergency (state funds)

1.   Which states have this?

      ii.   Federal declaration

          1.   Presidential disaster declaration

          2.   Emergency declaration

              a. Coordinate with state/FEMA ahead of time for an evacuation order

              b. Emergency protective measures

              c. Up to $5 million

              d. Category B Public Assistance only

k. Catastrophic Incident Annex–NRF-CIA (2008)

      i.   Protocols to pre-identify and rapidly deploy key essential resources (e.g., medical teams, search and rescue teams, transportable shelters, medical and equipment caches, etc.) when state, tribal, and local response efforts are overwhelmed

      ii.   DHS/FEMA designated primary responsibility in charge of mass evacuations

l. Evacuee Support Planning Guide

      i.   July 2009 publication; focused more on reception and evacuees than on evacuation itself

      ii.   Definition of evacuation: Organized, phased, and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas, and their reception and care in safe areas

      iii.   Evacuee Support Concept of Operations Template (FEMA P-760A)

m. Developing and Maintaining Emergency Operations Plans (CPG 101) Version 2–Nov 2010

      i.   Transportation evacuation plan development guide

      ii.   Description of the planning process

n. Guidance on Planning for Integration of Functional Needs Support Services in General Population Shelters Nov 2010

      i.   Guidance

      ii.   Checklists

o.   The "Whole Community" Initiative

    i.   Uses planning assumptions for catastrophic disasters that are based on the worst-case scenarios. These scenarios are designed to challenge preparedness at all levels of government and force innovative, non-traditional solutions as part of the response strategy to such events.

    ii.   Identifies the highest priority tasks necessary to save and sustain lives and stabilize a community or region during the crucial first 72 hours after a catastrophe.

STATE AND MUNICIPAL PLANS AND GUIDANCE

Regions vary in size, complexity, hazards, and needs for coordination. The following are examples of plans and templates that may help a region discern the level of detail needed for its particular situation, and potentially simplify the end product. The simpler templates referenced here (e.g., Alaska and British Columbia) may be more useful to a smaller region than the detailed outlines provided in the Guide in Step 5. Likewise, some regions' emergency managers may prefer the annex format (e.g., San Diego or Washington, D.C. MWCOG) to the stand-alone evacuation coordination plan. These six examples were identified through the research; their inclusion here is not intended as an endorsement, but as a demonstration of the variety of plans tailored to unique circumstances, as well as to the broad common frameworks. Major components and organization are similar among all the plans; and the process to develop and maintain the plans remains as described in the steps of the Guide. There is no single "right" answer- the process of developing relationships while gathering information and making collaborative decisions is the key to a successful plan.

a.   Florida Evacuates.com

    i.   Use of 511 for evacuation information

    ii.   Apps for smart phones and tablets

           1. Uses GPS to determine location of nearest shelter

           2. Turn-by-turn directions

b.   New Jersey Regional Mass Evacuation Planning Studies

    i.   Overview of differentiating factors in evacuation decisions

    ii.   Expected evacuation behaviors based on different characteristics

           1. Minority, age, pets, past evacuation, perception of risk, etc.

    iii.   UASI versus non-UASI regional differences and capabilities

c. King County, Washington, templates

i. Evacuation template outline (single jurisdiction)

ii. Evacuation resources

iii. Evacuation overview

iv. Evacuation checklist

King County Template Overview and King County Template Resources. These are companion guides to the King County Evacuation Template Outline and Evacuation Planning Checklists that are cited in Step 5 as the primary source for the Generic Outline and Checklists. The Overview (45 pages) describes major planning and coordination required to prepare for evacuation. Resources (31 pages) describes the types of resources that will likely be required-from local ordinances through physical materials. They are available at the same website cited for the Outline and Checklists, access verified April 29, 2012 at: *http://www.kingcounty.gov/safety/prepare/EmergencyManagementProfessionals/Plans/EvacuationTemplate.aspx*

d. Alaska Templates for Borough Evacuation Planning

The State of Alaska prepared a template for evacuation for the use of each of its communities or boroughs. It is in Word format and available to customize to local needs. It provides a good, straightforward template especially applicable to smaller regions with less complex coordination requirements. The central document is 23 pages plus appendices extending it to 39 pages. The 7 major sections include I. Introduction, II. Concept of Operations, III. Roles and Responsibilities, IV. Direction and Control, V. Increased Readiness Levels, VI. Administration and Support, and VII. References. The 10 Appendices include 1) Emergency Contact Information, 2) General Evacuation Checklist, 3) Evacuation Order Report, 4) Evacuation Routes, Potential Evacuation Areas, Shelter Information, Special Facility Inventory, Special Needs Population Procedures, Traffic and Perimeter Control Procedures, and Pre-Evacuation Contact Database. (Search for "Alaska Evacuation Planning Template")

e. Atlanta, Georgia, Checklists

The Atlanta Regional Evacuation Coordination Plan begins with useful First Hour Checklists: guides for chief elected officials, county/ city managers, emergency managers and other decision makers in the Metro Atlanta area. The region is divided into 12 zones, each with anticipated evacuation routes mapped out. It is anticipated that most incidents will require evacuation between and among zones, rather than evacuating

the entire area. The first 6 pages include the cover and the first hour checklists. The plan consists of 58 pages. With appendices, the entire document is 115 pages. The plan is designated For Official Use Only. A copy may be located on-line but because of its designation, we recommend that anyone wishing to review the report contact the Atlanta Regional Commission or Georgia Emergency Management Agency.

e. British Columbia, Canada, Guidelines

BC Evacuation Operational Guidelines. This 55 page document provides succinct (17 pages) guidance on key principles of evacuation, supplemented by checklists, templates on messages and other topics, and similar useful information for a basic evacuation plan. Accessed most recently April 29, 2012 at *http://www.pep.bc.ca/management/Evacuation_Operational_Guidelines.pdf*

f. San Diego, California, Evacuation Annex

Unified San Diego County Emergency Services Organization Operational Area Emergency Plan Annex Q: Evacuation. The Evacuation Annex (93 pages) provides a good example of the annex form of evacuation plan. It addresses operations including security and has been tested and improved through various wildfire and other emergencies. It was developed as a regional guide, to also serve as a template for local jurisdiction evacuation annexes. The evacuation annex begins on page 578 of the full plan. Link access verified April 29, 2012. *http://www.sdcounty.ca.gov/oes/emergency_management/protected/docs/2010_Complete_Plan_w_Annexes.pdf*

g. Metropolitan Washington Council of Governments (MWCOG), Washington, DC. Regional Emergency Evacuation Transportation Coordination Annex

Metropolitan Washington Council of Governments Regional Emergency Coordination Plan—Annex 6 is the Regional Emergency Evacuation Transportation Coordination Annex. MWCOG is a complex region; COG is an independent, nonprofit association comprised of elected officials from 22 local governments (counties and cities, including the District of Columbia), members of the Maryland and Virginia state legislatures, and members of the U.S. Congress. The base plan and RESF sections (26 pages) include the regional communications coordination protocols, and is available to the public at: *http://www.mwcog.org/uploads/pub-documents/pF5eVl820120224112049.pdf* Link access verified April 29, 2012. The annexes are being revised and are not currently available to the public, but will be posted at this site when they are ready for release.

GUIDANCE RELATED TO POPULATIONS WITH ACCESS AND FUNCTIONAL NEEDS (IN ADDITION TO TCRP, FHWA, AND FEMA GUIDANCE)

a. Guidance on Planning and Responding to the Needs of People with Access and Functional Needs, Office for Access and Functional Needs, California Emergency Management Agency, June 30, 2009.

b. Effective Emergency Management: Making Improvements for Communities and People with Disabilities, National Council on Disability, August 12, 2009.

c. Emergency Management Research and People with Disabilities—A Resource Guide, U.S. Department of Education (NIDRR), Washington, DC 2008–summarizes many different research efforts, with particular interest in alert mechanisms for different populations.

d. Transportation Equity in Emergencies: A Review of the Practices of State Departments of Transportation, Metropolitan Planning Organizations, and Transit Agencies in 20 Metropolitan Areas, FTA, May 2007.

e. Emergency Preparedness and Response for Vulnerable Populations, COMTO, July 2007.

f. Report to Congress on Catastrophic Hurricane Evacuation Plan Evaluation, U.S. Department of Transportation in cooperation with the U.S. Department of Homeland Security, June 1, 2006.

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Chen, M., L. Chen, and E. Miller-Hooks, City of Houston. 2007. "Traffic Signal Timing for Urban Evacuation." ASCE Journal of Urban Planning and Development–Special Emergency Transportation Issue. March 2007, Vol. 133, No. 1, pp. 30–42.

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King County (King County Office of Emergency Management). 2008. "KC UASI Evacuation Template Project: Template Overview." King County Office of Emergency Management, Renton, WA. May 19, 2008.

TRB (Transportation Research Board). 2008. *TRB Special Report 294: The Role of Transit in Emergency Evacuation*, Summary pages 6 and 7, referring to a major Department of Homeland Security study and a U.S. Department of Transportation study following Hurricanes Katrina and Rita and its own research.

Abbreviations and acronyms used without definitions in TRB publications:

A4A	Airlines for America
AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
MAP-21	Moving Ahead for Progress in the 21st Century Act (2012)
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation