



I-95 Corridor Coalition

Regional Evacuation Planning Guide



**I-95 CORRIDOR
COALITION**

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I-95 Corridor Coalition Regional Evacuation Planning Guide

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I-95 Corridor Coalition

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Executive Summary

Recent events have riveted attention on the need to improve existing practices for evacuating the public from hazardous circumstances. These hazardous events have included hurricanes (e.g., Katrina, Rita) and the 9/11 terrorist attacks. Evacuations may need to occur for other reasons as well including other types of major natural and technological (intentional or unintentional) disasters.

The I-95 Corridor Coalition is comprised of the Eastern Seaboard states from Maine to Florida. Each of these states faces the potential need to evacuate its citizens to safe harbors, possibly into neighboring states. A major focus for the Coalition has been to work on challenges that involve multiple states and where cross-border coordination is essential. Transportation practitioners realize that mass evacuations often involve multiple states, and coordination across state lines thus becomes critical. Recent events that required Coalition states to plan for prospective evacuation across state lines have included:

- Hurricane Katrina in 2005 (evacuees airlifted, bussed, etc. to Coalition and other states)
- Hurricane Isabel in 2004
- Democratic National Convention in 2004
- Republican National Convention in 2004
- Northeastern blackout in 2003
- The 9/11 attacks on New York and Washington in 2001
- Hurricane Floyd in 1999

The goal of this project was to provide a ready reference tool -- a Cross-Border Evacuation Planning Guide -- which Coalition Members could use to improve their overall multi-state evacuation planning processes. Through a Corridor-wide Survey and Information Exchange Forum, the project explored improving planning approaches, including partnerships and working relationships between states; fortifying the existing emergency response and incident management capabilities of each state; improving the safety and mobility efficiency of en-route evacuees that cross state borders; increasing the effectiveness of information sharing between states; and improving cross-border coordination of real-time emergency operations between states.

Conducted in two parts, this project first researched available resources and conducted a Corridor-wide Survey, whose overall findings included:

- The Coalition states are at varying stages of cross-border evacuation planning with nearly all survey respondents indicating that additional planning must occur.
- Past experience affects current planning in terms of levels of urgency in thinking about cross-border evacuations.
- All Coalition States need to enhance cross-border evacuation planning, coordination, and awareness.



- Coalition states have different motivations for thinking about cross-border evacuations, for example:
 - In terms of hazards, such items as nuclear power plant failures drive the need for evacuation planning in some northern states, while hurricanes frequently drive such planning in the southeast and the Mid-Atlantic region.
 - Relative to cross-border evacuations, some states focus on getting their citizens out of harm's way by moving them to other states while other states focus on the need to receive citizens from other states.
- Across the Coalition states, evacuees may be evacuating from different types of places and be engaged in diverse activities. For example, tourists leaving one of the many beach resorts from Florida to Maine due to an approaching hurricane may have different needs and concerns than those leaving a downtown area due to a no-notice catastrophic event.
- Some states indicated a need to plan to minimize the flow of evacuees across state borders as much as possible, perhaps on the basis that evacuees can often be best served within their own state without the complication of moving to another state and seeking services such as food and shelter there. Of course, in more geographically condensed locations and/or where urban centers are positioned near a state border (e.g., New York City, Florida's Panhandle, Washington, D.C.), cross-border evacuation planning is a must.
- Those states that have established traffic incident management programs view those programs as providing major value to evacuation efforts.

Survey respondents also suggested a number of potential Coalition activities which would be beneficial, including:

- Sponsoring and coordinating inter-jurisdictional and interagency meetings of various types,
- Aiding in the development of appropriate systems and tools,
- Supporting relevant planning and research,
- Facilitating training and exercising across state borders, and
- Securing funding for worthwhile projects.

The second part of this project incorporated survey findings and further explored best practices through an information exchange forum – a November 8, 2007 Evacuation Planning Summit on cross-border evacuations. A summary of recommendations resulting from this Summit is included in the Regional Evacuation Planning Guide, and Summit presentations can be found on the I-95 Corridor Coalition's Coordinated Incident Management Program Track Committee website at http://www.i95coalition.org/meeting_cim.html.

Concluding the Guide is a Chapter on Multijurisdictional Evacuation Planning and Implementation – Where to Start, and includes a Planning Roadmap, a Planning Checklist, and an Information Gathering Form which can be readily utilized by Coalition Members as they work to enhance their cross-border evacuation plans. Also included is a snapshot of I-95 Coalition activities and systems which can assist planning efforts.



1 Introduction

1.1 *Project Background*

Recent events have riveted attention on the need to improve existing practices for evacuating the public from hazardous circumstances. These hazardous events have included hurricanes (e.g., Katrina, Rita) and the 9/11 terrorist attacks. Evacuations may need to occur for other reasons as well including other types of major natural and technological (intentional or unintentional) disasters.

The Maine-to-Florida geography encompassed by the I-95 Corridor Coalition ranges from rural environments to dense urban areas. Commonplace, however, is that an evacuation scenario could easily impact multiple jurisdictions/states. Transportation practitioners realize that mass evacuations must involve planning and coordination with multiple jurisdictions and transportation/public safety agencies. Coordination across state lines and other joint borders thus becomes critical.

Facing the need to evacuate citizens to safe harbors, possibly into neighboring states, a major focus of Coalition work has been on challenges that involve multiple states and jurisdictions where cross-border coordination is essential. When evacuees from one state enter another state, for example, they need to:

- Proceed along a continuous, well-marked evacuation route,
- Learn the latest traffic and traveler information,
- Locate a shelter,
- Find food or fuel,
- Obtain assistance from relief, responder or other organizations.

In the last few years, the state-of-the practice has markedly improved. As with any planning effort, there is ongoing work to be done, including the broad recognition that:

- Additional best practice guidance needs to be developed and disseminated;
- Additional planning at the federal, state and local levels of government for evacuation needs to occur;
- More training and exercising are necessary to ensure effective implementation of evacuations; and
- Increased coordination must occur across state/jurisdictional borders.

Evacuation practices are developing against the backdrop of an emerging discipline called Emergency Transportation Operations (ETO) at state departments of transportation (DOTs). ETO includes the range of incidents that state DOTs may face, from basic traffic incidents to the need to evacuate many thousands of people from a hurricane or other emergency situation. Meanwhile, public transportation agencies are also working to improve their plans for rapidly moving people. In addition to working within their respective modal spheres, highway and public transportation agencies need to coordinate, in some cases across state borders such as within the New York and Washington, DC metropolitan areas.



1.2 Project Purpose

While other best practice guidance on evacuations is being developed, this project focused on the multi-state, cross-border issues that must be addressed for successful and effective evacuations. Certain evacuation issues pertain to a given state or locale while others potentially transcend state boundaries, and it is the latter which this project addresses through development of this best practices Guide for evacuation planning with multi-state implications. Key project questions included:

- What are the primary cross-border transportation issues relative to multi-state evacuations?
- Who within state DOTs needs to address these issues?
- How can these issues best be addressed?

The Goal of the project was to provide a ready reference tool -- a Cross-Border Evacuation Planning Guide -- which Coalition Members could use to improve their overall multi-state evacuation planning processes. Through a Corridor-wide Survey and Information Exchange Forum, the project explored improving planning approaches, including partnerships and working relationships between states; fortifying the existing emergency response and incident management capabilities of each state; improving the safety and mobility efficiency of en-route evacuees that cross state borders; increasing the effectiveness of information sharing between states; and improving cross-border coordination of real-time emergency operations between states.

1.3 Planning Guide Overview

This Cross-Border Evacuation Planning Guide contains the following sections:

Cross-Border Evacuations: Important Considerations and Concepts (Chapter 2) focuses on the important considerations and concepts relative to cross-border evacuations (e.g., what are they, why are they important). The section also describes typical stakeholders involved in cross-border evacuations and typical responsibilities they may have. Two past instances of cross-border evacuations are also highlighted.

Project Survey and Forum Findings (Chapter 3) describes the findings from a survey conducted among the states and covers a range of topics (e.g., lead state agency for evacuations, past cross-border evacuation experience, status of coordination with other states, areas where additional coordination is needed). This section also includes information on lessons learned, illustrative cross-border evacuation practices utilized in Coalition states and tools to assist in planning and implementation of cross-border evacuations. Overall findings describe findings as identified through the survey or identified from other sources. Included are survey respondents' suggestions as to future Coalition activities with regard to cross-border evacuations, as well as Evacuation Summit outcomes which list specific actions which could be taken by the Coalition to assist states with evacuations and other emergency management activities.

Multijurisdictional Evacuation Planning and Implementation – Where to Start (Chapter 4) includes a roadmap and checklist to assist in preparing for, and implementing, a cross-border evacuation coordination effort with other states. A list of I-95 Coalition activities and systems which can assist cross-border evacuation planning is also included.

2 Cross-Border Evacuations: Important Considerations and Concepts

I-95 Corridor Coalition States have been planning for evacuation implementation within their own state borders but have also recognized that effective planning and implementation can be important across state borders. To effectively plan and implement evacuations, a substantial amount of coordination may be required with neighboring states. For example, the southeastern states, which regularly face the threat of hurricanes, have taken significant steps to enhance cross-border evacuation planning and implementation, and other Coalition states have also focused their cross-border evacuation planning to cover a wide range of potential events.

2.1 *What Are Cross-Border Evacuations?*

Evacuations occur for a multitude of reasons, ranging from natural events to intentional and non-intentional human-made events. In many instances, the evacuation will occur within a single state. For example, a hazardous material spill may cause the evacuation of a few people to many thousands but, unless these people live near a state border, they will probably remain in their home state during the evacuation. Concomitant with this, the evacuation will primarily or totally be handled within the state by that state's government and regional/local levels of government.

Sometimes, however, evacuations of necessity must be across state lines. Recent events which required Coalition states to plan for prospective evacuation across state lines have included:

- Hurricane Katrina in 2005 (evacuees airlifted, bussed, etc. to Coalition states)
- Hurricane Isabel in 2004
- Democratic National Convention in 2004
- Republican National Convention in 2004
- Northeastern blackout in 2003
- The 9/11 attacks on New York and Washington in 2001
- Hurricane Floyd in 1999

While hurricanes very commonly lead to cross-border evacuations, they are not the only cause, as is obvious from the above list. In fact, given the current threat of terrorism and the increasing complexity of societal support systems (e.g., electrical grids, pipeline networks, the internet), planners must anticipate that intentional and unintentional human-caused events may also trigger a need for cross-border evacuations.



In the above hurricane events, evacuees may have fled their homes by finding the path of least resistance or by heading to the surest likelihood of a safe haven from a storm or other event. On 9/11, many people were commuting into and, after the event, out of New York City and Washington, D.C. from or to their residences in other states. The bottom line is that people were crossing state borders and multiple jurisdictions.

2.1.1 Cross-Border Evacuation: September 11, 2001 Terrorist Attacks

The New York City and Washington, DC metropolitan areas are two of the most institutionally complicated in the country, in part because they are located at the intersection of several states. When both the World Trade Center and the Pentagon were attacked on September 11, 2001, many people left the vicinity of those attacks in what were essentially informal, no-notice evacuations and crossed state lines in doing so.

Existing transportation agency procedures and/or capabilities in both instances helped people evacuate and enabled agency personnel to make adjustments to the transportation network. For example, New York City Transit began emergency operations within minutes of the attack on the World Trade Center. TRANSCOM alerted transportation management centers several states away of potential traffic and transportation issues in the New York and Washington areas. In the Washington area, traffic signal timing was changed to enable quicker outflows from the Washington, DC's downtown area to suburban jurisdictions in Maryland and Virginia.

However, in both metropolitan areas after these events, what was quickly realized was that more coordination must occur between a myriad of agencies with somewhat different missions (e.g., transportation, public safety), and at different levels of government (e.g., federal, state, local). Some regional organizations span two or more states (e.g., Metropolitan Washington Council of Governments), and these are often well-placed to assist in planning for cross-border evacuations. As a result of the September 11th experience, significant steps have been taken in both of these metro areas to improve the ability to evacuate people across state borders.

2.1.2 Cross-Border Evacuation: 1999 Hurricane Floyd

In September 1999, Florida, Georgia, North Carolina and South Carolina implemented evacuations in response to Hurricane Floyd, which collectively was cited as the largest peacetime evacuation in U.S. history up until that time. Several million people evacuated coastal areas to move away from the broad path of the storm. Evacuees crossed state lines, especially those moving from Florida north.

Officials from each state moved to implement evacuations. After the incident, jurisdictions noted that more interstate coordination was a necessity. For example, transportation and other officials had little information from other states relating to evacuee numbers and flows on which to base their own planning and implementation decisions. Hurricane Floyd has often been cited as a wakeup call for more coordination between states on cross-border evacuation planning for hurricanes.



In fact, among other improvements, the Evacuation Traffic Information System (ETIS) was developed to enable enhanced information sharing and planning between southeastern states. ETIS is a single database containing information that all states can access regarding evacuations. This allows states to be notified of events in other states that may affect traffic patterns in their own states. Also under development is the Coalition's STIX program – Southern States Traffic



Incident Exchange Program – which will assist Coalition Members in alerting neighboring jurisdictions about incidents which could impact the region.

2.2 Why Are Cross-Border Evacuations Important?

As noted above, the need for cross-border evacuations is more than theoretical. Cross-border evacuations have occurred in the past and will occur again. This is ever truer as the population grows, as people continue to spread to areas that may be more susceptible to disasters and, in recent years, as metropolitan areas face terrorist risks.

In comparing the examples above, cross-border evacuations were necessary both in notice (e.g., hurricane) and no-notice (e.g., terrorist attack) events. Also note that the movement occurred both in heavily populated metropolitan areas and through more sparsely populated rural areas. Therefore, planning for cross-border evacuations is important for:

- Natural, and intentional and non-intentional human-caused events,
- Notice and no-notice events, and
- Metropolitan and rural areas.

States that have done their own internal evacuation planning have adopted plans, procedures, protocols, routes, etc., that may or may not be congruent with those of other neighboring states. In most evacuation incidents, the time to coordinate is non-existent or extremely limited. Without advance preparations, evacuees may cross a state border and find the rules quite different from the state they just left. Planning between states is vital to ensure the evacuees can cross the borders without finding themselves suddenly set adrift.

2.2.1 Why Are Cross-Border Evacuations Relevant to the Coalition?

The Coalition is composed of the District of Columbia and the 16 states along the I-95 Corridor. Each of these states faces a variety of threats. Hurricanes and tropical storms are of concern up and down the Corridor. Terrorist attacks on the heavily populated urban areas, some of which are also financial, government or other centers, are considered of continuing high potential threat. The industrial nature of many Coalition states, checkered with many chemical and nuclear power plants and crisscrossed by transportation networks, pose the risk of both intentional and non-intentional manmade events.

Unlike other states and regions, many Coalition states are geographically small, have limited routes on which to flee, have metropolitan areas that span state borders or sit close to state borders or have other characteristics that almost guarantee cross-border evacuations in response to certain types of events. This is why the need for improved planning for cross-border evacuations and, ultimately, their implementation is a concern of the Coalition and its Members.

2.3 Typical Stakeholders

For purposes of this project, three major stakeholders were identified at the state level with – depending on the state – some degree of planning and operational responsibility for evacuations. These included the state DOT, the state police and the state emergency management agency. The states differ in where they assign the responsibility for evacuations, as further delineated in Chapter 3 – Survey Findings.



At a minimum, these three agencies typically need to work together within the state to ensure successful evacuations. However, these same agencies most likely also need to coordinate with their counterparts in other states where cross-border evacuations might occur. Furthermore, given the breadth of many evacuations, a number of other agencies and private organizations may be involved in helping to plan and implement evacuations – both within a given state and across state boundaries. Such other entities include:

- State/Regional Toll Authorities
- Other State Agencies (e.g., health departments)
- Federal Agencies (e.g., Federal Highway Administration, Federal Transit Administration, Federal Emergency Management Agency)
- Regional/Local Transportation Agencies (e.g., transit, highway)
- Regional/Local Public Safety (e.g., emergency management agencies, police, fire, emergency medical services)
- Regional/Local Planning Agencies (e.g., councils of government, planning authorities)
- Media and Other Private Sector Organizations (e.g., radio and television broadcasters, intercity passenger carriers, trucking companies, towing companies, volunteer services organizations, shelter providers)

And, depending on the issues and topics at hand, personnel at a range of levels within an organization may be required to help plan and implement cross-border evacuations. These include:

- Senior Appointed/Elected Officials (e.g., governors, DOT secretaries, state police superintendents)
- Mid-level Transportation and Emergency Management Managers (e.g., DOT directors of system operations, police commanders)
- Headquarters Administration and Planning Staff (e.g., disaster planning, highway design, transit planning)
- Transportation Management Center/Emergency Operations Center Staff
- Field Operations Staff (e.g., state troopers, highway service patrols, transit supervisors)

To supplement this Guide, the reader is directed to a primer published by FHWA in December, 2006 -- "Using Highways during Evacuation Operations for Events with Advance Notice" -- which provides a substantial discussion of stakeholder roles and responsibilities. While the primer is mostly focused on single-state evacuation considerations, these same stakeholders will generally need to be a part of cross-border coordination.

2.3.1 Typical Protocols and Responsibilities

Most if not all states have an emergency operations plan (EOP) under which emergency functions for the state are handled. Generally, the different types of emergency functions are referred to as Emergency Support Functions (ESFs). Responsibilities for these ESFs are then typically assigned



to a primary state agency with other second agencies in support. For example, in most if not all states, state DOTs are given the primary role in support of the Transportation ESF and quite often the Public Work ESF as well.

In many cases, key state agencies also have an EOP, which should be coordinated with the statewide EOP. These EOPs may in turn have subsidiary plans (e.g., evacuation plans, debris removal plans), which support an overall emergency response and recovery effort. The EOP for the agency or agencies responsible for evacuations should reference at least high-level considerations surrounding evacuations. Then, as noted, subsidiary plans may provide the detail on the conduct of evacuations. In some states, the EOP and subsidiary plans should explicitly address cross-border evacuations because of their likely importance in certain types of events.

Coordinating all of those agencies isn't a simple thing and [is] very difficult to practice. We sit down and do tabletop exercises where we go over who's going to do what, but a disaster of this magnitude is something that is very difficult to simulate or really practice. So, we rely on really well-trained, capable people that can adapt and adjust to whatever the situation is to get the job done.

*Colonel Richard Bachmann
U.S. Air Force
During evacuation operations supporting
Hurricane Katrina response and recovery*

Broadly speaking, at the state level, state DOTs and the state police will generally manage and operate evacuations, as each of these have highway operations responsibilities. In some states, the state DOT will lead; in others the state police will lead. What is clear is that in the typical state the DOT and state police need to work together seamlessly to provide a well managed evacuation and their roles and responsibilities, including onsite leadership and coordination, must be pre-defined and practiced. Meanwhile, the emergency management agency – while typically not managing evacuation operations per se – will provide statewide coordination of

evacuation-related information and help to optimally allocate state resources based on requests from the relevant agencies.

Post 9/11, the Federal Government created the National Response Plan (NRP) and the National Incident Management System (NIMS), which together are meant to coordinate and standardize the approach to incidents between and within governmental levels. The application of NIMS, with its requirement for use of the Incident Command System, certain types of standardized training, etc., should help states coordinate better when responding to events and implementing evacuations.

At a more basic level, evacuation procedures may be found in a host of standard operating procedure manuals, etc. In addition to broader, more comprehensive evacuation plans, standard operating procedures should enable operational personnel to communicate and coordinate within their own state (e.g., state DOT, State Police, etc.), but also to do the same with their counterparts who may be just across the state border performing similar functions. For example, one state's transportation management center (TMC) should have procedures in place enabling quick contacts with the neighboring state's TMC. A DOT district along the border with evacuation routes that continue or potentially continue into the adjoining state's district should know who they need to contact in the event of an evacuation, and what procedures are to be implemented. In metropolitan areas, the standard operating procedures may need to be even more detailed, as other agencies such as transit may need to be part of the evacuation planning and operations.



2.4 Critical Planning Items in Coordinating Cross-Border Evacuations

The technical planning items of cross-border coordination shown in the table below were developed based on information gathering from a variety of sources. This list was then included in the survey transmitted to the states as part of this project to ascertain whether, and how effectively, the states were coordinating with other states. The state responses, which ranged from high degrees of coordination to no coordination, are described at greater length in the next Chapter -- 3 *Project Survey and Forum Findings*.

Table 1: Critical Planning Items in Coordinating Cross-Border Evacuations below lists the items which jurisdictions need to consider and provides a brief explanation as to their importance. These items assume not only coordination, but also the states' taking affirmative steps to change and conform their own plans, procedures, etc., to enable effective cross-border evacuations. One step short of this is the sharing of plans such that neighboring states and other jurisdictions can compare plans and have at least a rudimentary understanding of how another state will implement an evacuation.

Table 1: Critical Planning Items in Coordinating Cross-Border Evacuations

Critical Planning Items	Importance of Item
Evacuation Definitions & Terminology	Common definitions and terminology will ensure that state officials understand one another while planning for cross-border evacuations and, most importantly, when conducting such evacuations. Common definitions and terminology will also make it easier for evacuees if reflected in highway signs and other informational mechanisms.
Evacuation Route Planning	Consideration should be given to ensuring that evacuation routes continue across state borders to ensure evacuees are not left at the border without a clear route and appropriate guidance.
Evacuation Modeling Tools / Techniques	To ensure that evacuation route planning is conducted using similar assumptions, the development and use of modeling tools and techniques between states where cross-border evacuations are likely to occur should be coordinated.
Evacuation Operating Procedures	As with common definitions and terminology, common operating procedures for evacuations will help ensure that state officials can effectively communicate with one another and remove a source of potential confusion for evacuees.
Contra Flow Procedures	Contra Flow raises particular issues at state borders where coordination is vital for traffic flow and safety. A quick and uncoordinated transition from Contra Flow lanes to normal lanes can raise havoc among evacuees, significantly slow the evacuation and raise considerable safety issues.
Traffic Signal Timing at Border Crossings	While many evacuees will take Interstate highways or travel rural routes with few traffic signals, some evacuees will be traveling in more urban areas along arterials with traffic signals. States (and regional and local governments) will need to coordinate signal timing to ensure optimal traffic flows across state borders.
Static Signing (e.g., evacuation route, contra flow signing)	Common signing reduces the possibility of confusion among evacuees about routes and evacuation procedures, thereby facilitating quicker movement of evacuees out of the danger zones and helping to reduce the risk to life and property.



Critical Planning Items	Importance of Item
Transportation Management Information Exchange	Efficient exchange of current and predicted traffic flow and other information can help neighboring states anticipate and prepare for evacuation-related traffic. Some of this information may also be available through coordination mechanisms such as the federal Evacuation Liaison Team, especially in the southeastern states.
Traveler Information Exchange	As evacuees travel across the state border, they will presumably anticipate the receipt of traveler information that is consistent between the states. Otherwise, inconsistencies can lead to confusion, hesitancy to act or even wrong decisions. Coordinating the traveler information messages between the states will facilitate the evacuation. This also applies to the media, which must ensure its messages are consistent.
Integrating Systems (e.g., transportation management, traveler information systems)	The integration of systems can be a far-reaching step but may be beneficial in some instances. Alternatively, there are other tools that are designed to provide information across state borders. Examples include the I-95 Corridor Coalition’s Information Exchange Network (IEN) and other tools under development.
Integrating Communication Systems (e.g., radio systems, commercial wireless push to talk networks)	As evacuees do not stop at state borders, neither should the communications tools that state agencies use to convey information. In some instances, communications “systems” are already “integrated” through the development of common technologies, procedures, protocols, etc. For example, wire line and wireless phones and e-mail are developed such that they can essentially be used ubiquitously. On the other hand, a state agency radio system, such as those used by the state DOT, may not be capable of linking to the neighboring state’s radio system, yet radio is a common means of communications between highway field operations staffs.
Exercising	Joint exercises between adjoining states help to ensure two or more states are ready to effectively implement and manage a cross-border evacuation. Involving the right people to manage the evacuation in the exercise is critical, as evacuation managers need to know who to contact in other bordering states during a cross-border evacuation.
Training	Joint training – in addition to the joint exercises – can help ensure neighboring state agencies are working “off of the same script”. Such training will help ensure that the common practices agreed to between states can be put into practice.
Resource Sharing (e.g., personnel, supplies, vehicles)	Resource sharing between states may enable better overall response to evacuations. For example, sharing portable trailers with a variety of different devices may help state agencies better do their jobs while aiding the movement of evacuees as well. This may be done through mutual aid agreements. A well known mutual aid agreement utilized by the states is the Emergency Management Assistance Compact (EMAC).
Multi-modal Options (e.g., transit, aviation)	In many instances, evacuations may be aided by the use of other than privately owned automobiles. Public transit, school bus and private bus fleets will often be utilized. Rail, ferry and even aviation may provide other means for evacuation. Therefore, especially around urban areas, these options should be considered and coordinated across state boundaries.



Critical Planning Items	Importance of Item
Public Education	Clearly, public education is a useful tool in areas of one state where evacuations may be needed. But public education can be equally useful across borders so that the public on both sides of the border understands the potential for evacuations and the likely effects on their transportation and other support systems.
Evacuee Support (e.g., gasoline, shelter, food)	As evacuees stream into one or more neighboring states, they will seek a range of goods and services. Particularly important are shelter, food and gasoline. To the extent pre-arrangements are made to accommodate these needs and coordination occurs after the evacuation begins, the evacuees will have a safer and more secure evacuation. Moreover, there will likely be fewer incidents requiring intervention by public safety officials and fewer diversions from other important duties.
Re-entry Procedures	As evacuees want to return to their home states, coordination between states on re-entry procedures can help the evacuees in their return as well as ensure optimal use of roadways.
Post-event Assessments	Post-event assessments between two or more states involved in a cross-border evacuation can help ensure better results in future evacuations if lessons are learned and put into practice.

As has become clear from recent evacuation experience, when states plan for evacuations, they also need to consider the evacuation of people with special needs and potentially animals as well – both farm animals and pets.

2.5 *Post-Event Assessments*

Post-event assessments are critical for a number of lessons can be learned after event occurrences. Cataloging these lessons learned and then sorting through them to identify best practices is important. Moreover, identifying those existing systems and tools that were helpful, as well as noting potential systems and tools that do not exist but would be useful, are also important. In the survey administered as part of this project, questions were asked about lessons learned, best practices and useful systems and tools; those findings are presented in the next Chapter of this Guide.



3 Project Survey and Forum Findings

This section reports on the salient project findings from the Regional Evacuation Guide survey (see Appendix 1 for Project Methodology and Survey Form) and Evacuation Summit held on November 8, 2007 in Baltimore, MD.

The survey was developed with inputs based on a literature review and from a list of cross-border evacuation planning issues. The survey inquired about the following:

- The roles and responsibilities of the survey respondents and/or their agencies;
- The lead state agency for evacuations;
- Perceived primary hazards and threats;
- Prior experience with cross-border evacuations;
- Current level of cross-border coordination with other states;
- Technical planning areas of cross-border evacuation coordination;
- Lessons learned from prior evacuation experience; and
- Existing and needed systems and tools.

This survey was sent to the state DOT, state police and state emergency management agency in each of the 16 Coalition member states and the District of Columbia as well as a few related agencies in some states (e.g., toll authorities).

The survey results are shown below through a combination of narrative and tables.

3.1 Roles and Responsibilities

The table below summarizes agency roles and responsibilities derived from survey results.

Table 2: Roles and Responsibilities of Survey Respondents and/or Their Agencies

State Department of Transportation
<ul style="list-style-type: none"> • Managing the transportation component of evacuation. • Coordinating with multiple partners (e.g., emergency management agency, state police), on issues dealing with local, regional and contra flow evacuations. • Coordinating DOT efforts involving the designation, management and operation of hurricane evacuation routes with state police and emergency management agencies. • Coordinating with various agencies in developing evacuation plans for the state including contra flow and re-entry plans. • Requesting transportation resources from emergency management and other agencies. • Providing traveler information through websites, 511, dynamic message signs, highway advisory radio and media to facilitate a safe and efficient evacuation.



State Emergency Management Agency
<ul style="list-style-type: none"> • Facilitating regional planning process for developing evacuation plans. • Developing and maintaining evacuation plans in coordination with various agencies. • Working closely with various agencies (e.g., state DOTs, state police) to manage evacuation response. • Coordinating resource requests with state DOTs and other agencies.
State Police
<ul style="list-style-type: none"> • Providing the first line of on-scene response to emergencies. • Providing knowledge of on-scene damage information and identifying needed resources. • Informing the emergency management agencies of the on-scene conditions and progress of evacuation. • Implementing contra flow plans in the field in conjunction with various agencies (e.g., state DOTs, state police, fire departments, emergency management agencies). • Developing plans, policies, and implementing various strategies for evacuation and detour route planning. In addition, gaining consensus with all stakeholders while ensuring a coordinated effort.

3.2 Lead and Supporting Agencies for Evacuations

This table shows the lead agency for evacuations in a given state as well as other supporting agencies referenced by respondents. Depending on the state, the state DOT, state police or emergency management agency may be the lead agency. Generally speaking, where one is shown as the lead, the other two are shown in supporting roles. Additionally, other agencies may be shown in the supporting role.

Table 3: Lead and Supporting State Agencies for Evacuation

State	Lead Agency	Other Referenced Supporting Agency(ies)
Florida	Florida Division of Emergency Management	<ul style="list-style-type: none"> • Florida Department of Transportation • Florida Department of Law Enforcement • Florida Highway Patrol
Georgia	Georgia Department of Transportation	<ul style="list-style-type: none"> • Georgia Emergency Management • Georgia State Patrol
South Carolina	South Carolina Highway Patrol	<ul style="list-style-type: none"> • South Carolina Department of Transportation • South Carolina Emergency Management Division
North Carolina	North Carolina Emergency	<ul style="list-style-type: none"> • North Carolina Department of Transportation • North Carolina State Highway Patrol



State	Lead Agency	Other Referenced Supporting Agency(ies)
	Management	
Virginia	Virginia Department of Emergency Management	<ul style="list-style-type: none"> • Virginia Department of Transportation • Virginia State Police • Virginia National Guard
District of Columbia	District Department of Transportation	
Maryland	Maryland Department of Transportation	<ul style="list-style-type: none"> • Maryland State Police
Delaware	Delaware Department of Transportation (lead agency for ESF 1 and ESF 3)	
New Jersey	New Jersey State Police, Office of Emergency Management	<ul style="list-style-type: none"> • New Jersey Department of Transportation
New York (NYSP – Region 8)	Transportation Infrastructure Group in the Operations Section	
Connecticut	Connecticut Department of Transportation	<ul style="list-style-type: none"> • Department of Emergency Management and Homeland Security • Department of Public Safety • Environmental Protection • Police Chief's Association • State Fire Administrator
Rhode Island	Rhode Island Emergency Management Agency	<ul style="list-style-type: none"> • Rhode Island Department of Transportation • Rhode Island State Police • Rhode Island National Guard
Massachusetts	Massachusetts Highway Agency	<ul style="list-style-type: none"> • Massachusetts State Police
New Hampshire	New Hampshire Department of Transportation	<ul style="list-style-type: none"> • Department of Resources & Economic Development • Department of Marine Patrol • Department of Pupil Transportation • Department of Aeronautics • Department of Safety's Homeland Security & Emergency Management Bureau • New Hampshire State Police



3.3 Relationship of State Traffic Incident Management Program to Evacuation Activities

Most of the states surveyed have a Traffic Incident Management (TIM) Program in place. In most instances the TIM program had some relationship to the evacuation program or activities. For example, survey respondents indicated that:

- In Florida, traffic incident management and evacuation planning and operations work together.
- In South Carolina, the concepts from traffic incident management are used to mitigate incidents that would impede traffic flow on designated evacuation routes.
- Evacuation planning and operations is built off of day to day incident management and traveler information.
- In Virginia, evacuation planning and operations from a transportation perspective are run by the same organizations. Incident management program expands to encompass evacuation operations, augmented by additional resources.
- In Maryland, evacuation planning and operations are activities the traffic incident management program does on a smaller scale daily while dealing with incident impacts. Being the operational experts of the roadway networks, they already had relationships with all the key players and agencies necessary for planning for evacuations.
- In New Jersey, personnel from the incident management program are actively involved in the development and refining of all-hazard plans for contra flow use of four corridors. Trans-Hudson River contra flow plans are currently being developed, involving the personnel responsible for the actual implementation.
- In Vermont, the incident traffic management program is largely focused around the emergency planning zone associated with the Vermont Yankee nuclear power plant in Vermont. The broader effort at evacuation planning and operations includes expansion to the remainder of the state and focuses on connecting local routes to larger state routes for evacuations from one part of the state to another or out of state.

3.4 Perceived Hazards and Threats

As reported by the survey respondents, the following table shows the hazards and threats perceived to most likely lead to cross-border evacuations. A majority of agencies surveyed listed flooding, hurricanes, weapons of mass destruction and nuclear plant failure as hazards that can prompt a cross-border evacuation. These are also the hazards and threats that prompt states to coordinate with other nearby states.



Table 4: Hazards and Threats Most Likely to Lead to Cross-Border Evacuation

State	Natural Disaster			Terrorist Attack ¹	Other Human-induced ²	
	Fire	Flooding	Hurricanes	WMD	Nuclear Plant Failure	Chemical Release
Florida	√	√	√	√	√	√
Georgia			√			
South Carolina	√	√	√	√	√	√
North Carolina		√	√	√	√	
Virginia			√			
District of Columbia		√	√	√	√	√
Maryland		√	√	√	√	√
Pennsylvania (PennDOT District 6)	√	√	√	√	√	√
Delaware	√	√	√	√	√	√
New Jersey		√	√	√	√	
New York (NYSP – Region 8)	√	√	√	√	√	√
Connecticut			√	√	√	
Rhode Island		√	√			
Massachusetts		√	√	√	√	√
New Hampshire	√	√	√	√	√	√
Vermont		√		√	√	
Maine	√	√	√	√	√	

3.5 Previous Cross-Border Evacuation Coordination Experience

The table below shows Coalition states' actual experience with cross-border evacuation planning and/or implementation as reported by survey respondents. This real-world experience shows that natural disasters, terrorist attacks and other human-induced hazards and threats or their potential have all resulted in cross-border evacuation planning and/or implementation.

¹ Massachusetts also noted the use of conventional explosives as a possible stimulus to a cross-border evacuation.

² Delaware also noted pandemic flu or other biological issues as possible stimuli to a cross-border evacuation.



Table 5: Previous Cross-Border Evacuation Planning and Implementation Coordination Experience

Event	State(s) Reporting Coordination	Coordinating States
Hurricane Floyd, 1999	Florida	Alabama, Georgia, South Carolina
	Georgia	Florida
	South Carolina	Florida, Georgia, North Carolina
	North Carolina	South Carolina, Virginia
Terrorist Attacks, 2001	District of Columbia	Maryland, Virginia
	Rhode Island	Connecticut, Massachusetts, New York
	New York	Connecticut, New Jersey, New York
Blackout, 2003	New Jersey	New York
Democratic National Convention, 2004	New Hampshire	Massachusetts
Republican National Convention, 2004	New York	Connecticut, New Jersey, New York
Hurricane Isabel, 2004	Delaware	District of Columbia, Maryland, New Jersey, New York, Pennsylvania, Virginia
Hurricane Katrina, 2005	Georgia	Louisiana, Mississippi
	Rhode Island	Victims airlifted to Rhode Island from affected areas

3.6 Key Lessons Learned from Coalition Practitioners

Below are suggestions made by survey respondents relative to what they have learned from their experiences:

- Know your neighbors before an event occurs. Have meetings before the hurricane season to ensure each state is knowledgeable of construction projects and other issues that might affect evacuations. *Paul Clark, FDOT*
- There is a definite need for multi-state table top exercise and information sharing. *Major Walter Landon, Maryland State Police (MSP)*
- The need to meet annually with your counterparts from neighboring states to talk about your plans and their plans and to meet the people you will be dealing with in an emergency situation. *Eric C. Pitts, GDOT*
- Traffic operations, planning, emergency responders and emergency operation centers need to join together and agree on a concept of an operations plan that can be placed into effect instantly. *Emmanuel Anastasiadis, Pennsylvania Department of Transportation (PennDOT)*
- Time is a big factor when evacuating, you can't wait until the last minute. Media exposure is also vital. Educate the public before and during hurricane season on what to expect. *Captain Larry Smith, Georgia State Police (GSP)*



- Delaware is working with adjacent states to ensure that there is agreement on required shared data and the quality of the data. *Gene Donaldson, DelDOT*
- Think outside your borders. We picked up lane closures on I-95 the day we [North Carolina] evacuated. We should have done this the day before when South Carolina evacuated. *Kelly Damron, NCDOT*
- Regular face-to-face coordination meetings and tabletop exercises are vital to the success of any plan. These exercises highlight inadequacies in your plan and potential conflict. Include corporate world assets in the planning and exercise process. *Michael F. Pilsbury, New Jersey Department of Transportation (NJDOT)*
- It is important to forge relationships among other state agencies as well as agreeing on standardization of planning and terminology. Also key to sit in on other states' evacuation planning as well as invite them to yours. Local players are key in gathering information for plans and operations. *Alvin Marquess, Maryland State Highway Administration (MDSHA)*
- Use the counties as building blocks and state agencies to handle cross-cutting issues and insure continuity across borders. Overlay detour route planning with evacuation route planning. *Sergeant Ira S. Promisel, New York State Police (NYSP)*

3.7 Coordination with Other States

The survey respondents indicated their states are generally coordinating with other Coalition states to adequately plan and implement cross-border evacuations. Of the 16 states and the District of Columbia, 12 indicated they are coordinating with all of the appropriate states. Most of the remaining states indicated they are coordinating with one or more of the other states with which they need to plan cross-border evacuations. Two northern states also indicated they are coordinating with Canada.

The states were asked to assess whether their current levels of coordination were adequate across the critical planning items for cross-border evacuation. In general, most of the states surveyed agreed that – while they are currently doing some coordination -- more needs to be done in all of the planning areas of cross-border evacuation. Many also responded that they may need to do more coordination in the critical planning items in which they are not currently coordinating. *Table 6: State Coordination Across Critical Planning Items* below reflects the state responses³.

³ 15 states responded to this part of the survey. One of the responding states did not provide a response for the Evacuee Support critical planning item.



Table 6: State Coordination Across Critical Planning Items

Critical Planning Items	# of States Adequately Coordinating	# of States Needing To Do More Coordination	# of States That May Need to Consider Doing More Coordination	# of States With No Need To Coordinate
Evacuation definitions and terminology	3	7	5	0
Evacuation route planning	5	10	0	0
Evacuation modeling tools/techniques	1	9	5	0
Evacuation Operating Procedures	2	11	2	0
Contra flow procedures	0	6	4	4
Traffic signal timing at border crossings	1	7	4	3
Static signing	3	7	3	2
Transportation management information exchange	5	9	1	0
Traveler Information Exchange	2	11	2	0
Integrating systems	1	8	6	
Integrating communication systems	0	8	6	1
Exercising	1	9	5	0
Training	1	9	5	0
Resource Sharing	0	13	1	0
Multi-modal options	0	9	6	0
Public education	0	9	6	0
Evacuee support	0	10	4	0
Re-entry procedures	0	10	5	0
Post-event assessments	0	11	4	0



3.8 Illustrative Practices

Below are illustrative practices used by Coalition states, as related by survey responses, for preparing for, or implementing, evacuations:

- FDOT selected 50 count locations specifically to support evacuation needs. These stations provide hourly vehicle counts, average speed, and historical data for a specific day and time. Some stations have video cameras and a number support the five designated contra flow plans in the State. The count data was especially useful in coordinating with the State of Georgia in making a decision not to open contra flow lanes on I-75 in Georgia. FDOT provided the Georgia transportation officials with evidence that traffic demand was dropping, which made opening of the I-75 contra flow lanes in southern Georgia unnecessary. *Paul Clark, FDOT*
- Georgia has utilized an annual conference with Florida, Alabama and South Carolina to meet and discuss each other's plans. We have also hosted daily planning calls for transportation agencies during an actual event. *Eric C. Pitts, GDOT*
- The establishment of the DelMarVa Emergency Task Force (DETF) composed of representatives from Delaware, Maryland and Virginia state, county and local emergency management agencies and other agencies has improved emergency planning, training and operations between the states. *Gene Donaldson, DelDOT*
- The Regional Evacuation Committee is an outgrowth of the Southeastern Pennsylvania Regional Counterterrorism Task Force (SEPARCTTF). The committee is part of the Transportation subcommittee to the group, joining others that include law enforcement; fire; EMS; hospitals; public health; schools; HazMat; utilities; communications; and training. The major project on the table right now is the development of an Emergency Evacuation Transportation Plan. Participants include PennDOT; the City of Philadelphia; regional county emergency managers; Pennsylvania State Police; local police; transportation professionals from New Jersey and Delaware and the Delaware River Port Authority. *David Wolfe, PennDOT*
- While not an I-95 Corridor Coalition state, West Virginia convened the West Virginia Urban-Rural Evacuation Conference in August 2006. This two-day conference brought together representatives from West Virginia, Virginia and the District of Columbia as well as a representative from the DelMarVa Task Force referenced above. West Virginia convened this conference in part due to the belief that it would be a haven for evacuees from Coalition states, especially the Washington, DC metropolitan area. *Major Walter Landon, MSP*
- The DOT, New York State Police, and the State Emergency Management Office are co-located at the Hudson Valley Traffic Management Center (HVTMC) to foster closer coordination. *Ira S. Promisel, NYSP*
- Staff level relationships are a good starting point, but need to follow through with upper management. *Katherine Trapani, Rhode Island Statewide Planning*



- The Federal Government developed the Evacuation Liaison Team (ELT), which is a federally staffed coordination and information management team that works in conjunction with the FEMA Regional Response Coordination Center (RRCC) to facilitate multi-state hurricane evacuations. The team was formed after Hurricane Floyd to increase traffic management coordination across State Borders during an evacuation. The ELT helps States share with other State and Federal emergency management, public safety, and transportation agencies timely and accurate evacuation traffic information during hurricanes through ETIS and other means. Along with coastal States, the ELT also included States that serve as hosts during evacuations. *Greg Jones, FHWA*

3.9 Tools and Approaches

Survey respondents suggested useful available tools as well as some that are needed. Some important available tools include:

- Array of intelligent transportation systems technologies, e.g., 511, regional incident management information sharing systems, dynamic message signs, cameras, detectors, highway advisory radio
- System integration (e.g., computer-aided dispatch and advanced transportation management systems)
- Evacuation Traffic Information System (ETIS)
- Various geographic information system applications
- Modeling and simulation software
- Reliable communications
- 1-800-TRAFFIC

Some tools that survey respondents would like to see developed include:

- Toolkits for developing plans
- Enhanced modeling tools
- Better implementation of ETIS
- Improved information exchange systems
- More (and more reliable) detection
- More reliable and interoperable multi-state communications

Some important approaches suggested by survey respondents included:

- Formal planning groups
- Sharing of plans
- Development of coordinated plans
- Information sharing agreements
- Resource agreements
- Tabletop exercises
- Relationships with media
- Public education
- Coordination with Evacuation Liaison Team (where applicable)
- Use of NIMS



3.10 Overall Survey Findings

In summary, the survey provided the following overall findings:

- The Coalition states are at varying stages of cross-border evacuation planning with nearly all survey respondents indicating that additional planning must occur.
- Past experience affects current planning in terms of levels of urgency in thinking about cross-border evacuations.
- All Coalition States need to improve cross-border evacuation planning, coordination, and awareness.
- Coalition states have different motivations for thinking about cross-border evacuations, for example:
 - In terms of hazards, nuclear power plant failures drive the need for evacuation planning in some northern states, while hurricanes tend to drive such planning in the Southeast up through the Mid-Atlantic region.
 - Relative to cross-border evacuations, some states focus on getting their citizens out of harm's way by moving them to other states while other states focus on the need to receive citizens from other states.
- Across the Coalition states, evacuees may be evacuating from different types of places and be engaged in diverse activities. For example, tourists leaving one of the many beach resorts from Florida to Maine due to an approaching hurricane may have different needs and concerns than those leaving a downtown area due to a no-notice catastrophic event.
- Some states indicated a need to plan to minimize the flow of evacuees across state borders as much as possible, perhaps on the basis that evacuees can often be best served within their own state without the complication of moving to another state and seeking services such as food and shelter there.
- Those states that have established traffic incident management programs view those programs as providing major value to evacuation efforts.

3.11 Survey Respondents' Suggestions

Survey respondents suggested the following items with which the Coalition could assist:

Coordination Meetings

- Host more region-specific or bordering state evacuation workshops (e.g., New England states) on a regular basis.
- Convene regular evacuation planning coordination meetings, perhaps using the I-95 Corridor Coalition's Coordinated Incident Management Track regional meetings as the focal point.
- Facilitate coordination and planning with non-Coalition states.



- Include the states' homeland security and emergency management agencies in coordination meetings and related activities.

Systems and Tools

- Develop cross-state border evacuation route maps.
- Further populate the Coalition's Incident Management clearinghouse with evacuation-related information.
- Continue to develop the Integrated Corridor Analysis Tool (ICAT).
- Develop a web-based corridor incident reporting system that includes feeds from deployed evacuation monitoring systems.
- Develop a graphical display of traffic flows during evacuations.
- Develop a multi-agency portal (or use existing one) to provide current and secure emergency contact information.
- Initiate a southern version of the 1-800-TRAFFIC phone service.
- Take the lead in developing center-to-center links between states.

Planning and Research

- Identify more precisely those geographic areas of the Coalition where cross-border evacuations are likely to occur.
- Better define evacuation needs and requirements where cross-border evacuations are most likely to occur.
- Identify available and needed resources for cross-border evacuations.
- Coordinate and document the synchronization of bordering states' evacuation plans.
- Help states assess their evacuation routes that cross borders.
- Look for methods to identify in real-time which hotels have vacancies and gas stations have fuel along evacuation routes.
- Further research cross-border evacuation best practices.
- Standardize and plan for enhanced traffic monitoring and modeling practices throughout the Coalition.
- Provide guidance for a general concept of operations to be used by the States for cross-border evacuations.
- Develop or encourage uniform practices and standards across all I-95 states (or at least within regions of the overall Coalition).
- Research specific topic areas (e.g., transient tourist populations at beach resorts and likely evacuation patterns, effect of WMD attack at central downtown locations).
- Assist with Corridor-wide detection strategies.

Training and Exercising

- Support more training and education for Coalition members on evacuations.
- Provide a platform that states could exercise in order to be better ready for managing a catastrophic event.
- Coordinate training and a tool-box approach for lessons learned by member states (e.g., Florida, Georgia, South Carolina).



- Offer seminars with lessons learned, etc. from non-Coalition states that have experience (e.g., Louisiana, Mississippi, Alabama, Texas).

Funding

- Secure funding and administer projects that will coordinate the efforts of states in the development of regionally based plans for cross-border evacuations.
- Request the federal government to continue funding for transportation infrastructure technology and hardening to enable continuing performance during emergencies.
- Provide funding for interconnecting the individual States for robust communication and data sharing.
- Provide funding for the development of enhanced traffic monitoring and modeling practices throughout the Coalition.
- Develop templates and standards for use in planning and grant proposals.

3.12 Evacuation Summit Outcomes

Following up on the project survey, an Evacuation Planning Summit was sponsored by the Coalition on November 8, 2007 to share ideas and further discuss areas in which the Coalition could provide assistance. Summit presentations are available at http://www.i95coalition.org/meeting_cim.html. Resulting from this information sharing forum, Coalition Members saw the following items as potential evacuation planning follow-up activities:

1. Provide Additional Resource Tools
 - Central Library of Evacuation Plans
 - Location of resources (shelters, hospitals, etc.) throughout the corridor
 - Involve Emergency Management Personnel
 - Encourage information sharing/trading
2. Coordinate various regional/local plans with State and Federal Plans (e.g., FEMA)
 - Develop working group to take lessons learned (checklist) and cross-reference among plans
 - Clarify where DOT plan ends and FEMA role picks up
 - Promote an all hazards and multi-region approach
 - Identify and provide multi-state, multi-discipline training
 - Explore best practices regarding Contra Flow and NIMs
 - Explore ESF software available
3. Identify who, other than first responders/public safety, DOT should be involved, and their roles
 - Hospitals, schools, etc.
 - Establish a logistics subcommittee
 - Define a crosswalk between ESF levels
 - Define what evacuees are looking for when they evacuate



- Determine best information dissemination practices
 - Public Education
 - Communications
 - Collect data regarding various technologies (clearinghouse)
 - How evacuation models are best integrated with travel demand models
- 4. Provide specific guidance with expert advice
 - Develop an Evacuation Planning Toolkit and Workshop, similar to Quick Clearance Workshop
 - Peer-to-Peer discussions
 - Host regional workshops and/or combined I-95 Coalition events with a targeted audience such as the Incident Management Track, Regional Highway Operations Groups (HOGs) Meetings, Traveler Information Track, etc.
 - Define evacuation roles/responsibilities at the statewide, metropolitan, and local operational and planning levels
 - Outsourcing of services
 - Responsibilities/training of contractors
 - Model languages/agreements



4 Multi-jurisdictional Evacuation Planning and Implementation – Where to Start

Whether initially developing or enhancing an existing cross-border evacuation plan, there are certain starting points which should be reviewed and referenced. This Chapter provides tools which can be utilized in this effort.

4.1 Roadmap to Developing and Implementing a Regional Evacuation Plan

This Roadmap, applicable both intra-jurisdictionally and inter-regionally, provides guidance as to overall activities and coordination required in planning and implementing a Regional Evacuation Plan. Modifications should be identified depending upon your jurisdictional requirements. The Evacuation Planning Activities included below represent stages within a series of implementation milestones. As required, coordination should occur with additional Disciplines/Groups (e.g., Department of Homeland Security, EPA, FEMA, FHWA, and other pertinent entities).

L=Lead Discipline, typically multiple ; ●= Partner

Evacuation Planning Activity	Dept Emerg Mgmt	DOT	Police	MPOs	TMC	Fire	EMS	Towing	Road Maint	Service Patrols	Media
Establish Your Baseline – Where is your jurisdiction re. evacuation planning? Where does Executive Leadership stand? Is there a budget for Evacuation Planning and implementation should the need arise?	L	L	L	●	●	●	●	●	●	●	●
Identify current Evacuation counterparts in each pertinent State/Local discipline and contact them.	L	L	L	●	●	●	●	●	●	●	●
Hold an Evacuation Planning Team Kick-Off Meeting and start establishing working relationships.	L	L	L	●	●	●	●	●	●	●	●
Identify Champions in each discipline and select/recruit 1-2 to lead the overall effort.	L	L	L	●	●	●	●	●	●	●	●
Identify Roles and Responsibilities	L	L	L	●	●	●	●	●	●	●	●
Maintain frequent update communications with the entire Team (emails, conference calls, etc.)	L	L	●	●	●	●	●	●	●	●	●
Develop Concept of Operations – which subsequently becomes your Evacuation Plan – for all major travel routes in your jurisdiction.	L	L	L	●	●	●	●	●	●	●	●
Determine involved Agency needs including interagency communications and technologies needs to enact a mass evacuation.	L	L	L	●	●	●	●	●	●	●	●
Execute Operational MOUs	L	L	L	●	●	●	●	●	●	●	●



Evacuation Planning Activity	Dept Emerg Mgmt	DOT	Police	MPOs	TMC	Fire	EMS	Towing	Road Maint	Service Patrols	Media
Test your Plan by tabletop or computer simulation exercise and modify accordingly.	L	L	L	•	•	•	•	•	•	•	•
Finalize your Evacuation Plan and distribute it to each pertinent person in all agencies which are involved in mass evacuations. Encourage broad distribution.	L	L	L	•	•	•	•	•	•	•	•
Enact Inter-Agency Communications and information exchange, as applicable, Regional/Corridor-wide.	L	L	L	•	•	•	•	•	•	•	•
Train all key evacuation personnel/ responders in enacting your Evac. Plan.	L	L	L	•	•	•	•	•	•	•	•
Pre-Educate the Traveling Public on what to do in emergency evacuation situations.	L	L	L	•	•	•	•	•	•	•	L
The Finish Line...Provide ongoing Team communications to reinforce Evacuation Readiness. Update your Plan every 1-2 years or earlier if needed. Continue Training and Exercise of the Plan.	L	L	L	•	•	•	•	•	•	•	•

4.2 Planning Checklist

This checklist is for your use in thinking through the steps required to effectively coordinate with other states/jurisdictions and agencies/entities to plan and execute evacuations that cross state and jurisdictional borders. There are two sections in this checklist – the first addresses steps internal to your state, and the second addresses steps pertinent to external planning activities.

Internal Coordination & Pre-Planning
<i>The steps below are focused on activities within your own state and will help establish a baseline before meeting with a neighboring state(s).</i>
<input type="checkbox"/> Identify those in your agency that need to be involved.
<input type="checkbox"/> Identify those in other agencies from your state that need to be involved.
<input type="checkbox"/> Form an internal state working group and identify leader(s). ⁴
<input type="checkbox"/> Identify the hazards that have a <u>reasonable</u> likelihood of causing a cross-border evacuation.
<input type="checkbox"/> Given the hazards, identify the geographic/jurisdictional areas where cross-border coordination is needed.
<input type="checkbox"/> Determine with which neighboring states you will need to coordinate.

⁴ The formation of a working group can occur at different points in the process, depending on how early the leader(s) feel there is a need to bring together a group of stakeholders.



Determine what discussions may already be underway on related topics with those states and determine whether cross-border evacuation can appropriately become part of those discussions.

Determine whether your own state has adequately coordinated and planned evacuations internally and whether it should take additional improvement steps before initiating cross-border coordination activities.

Determine on which critical planning items⁵ your states will likely need to coordinate:

- Evacuation Definitions & Terminology
- Evacuation Route Planning
- Evacuation Modeling Tools / Techniques
- Evacuation Operating Procedures
- Contra Flow Procedures
- Traffic Signal Timing at Border Crossings
- Static Signing (e.g., evacuation route, contra flow signing)
- Transportation Management Information Exchange
- Traveler Information Exchange
- Integrating Transportation Systems (e.g., traveler information)
- Integrating Communication Systems (e.g., radio)
- Exercising
- Training
- Resource Sharing (e.g., personnel, supplies, vehicles)
- Multi-modal Options (e.g., transit, aviation)
- Public Education
- Evacuee Support (e.g., gasoline, shelter, food)
- Re-entry Procedures
- Post-event Assessments

Determine what resources may be needed to undertake a multi-state coordination effort.

Determine whether higher level support is necessary before proceeding.

External Coordination & Planning

The steps below focus on the coordination with neighboring state(s).

Identify likely agencies and staff from other states that need to be involved.

Contact other state personnel to determine their interest in coordination.

Set up a face-to-face meeting (or conference call) between appropriate contacts.

⁵ See Chapter 2.4 for more description of these critical planning items.



- Discuss with the other state(s) the following:
 - The hazards that drive the need for cross-border evacuation.
 - The geographic/jurisdictional areas where coordination is needed.
 - Status of evacuation planning on both sides of the border.
 - The possible number and types of people, vehicles, animals, etc., crossing the border (in either direction) and their likely mode of transport (e.g., transit bus, car, on foot).
 - Status of any existing or needed coordination around critical planning items:
 - Evacuation Definitions & Terminology
 - Evacuation Route Planning
 - Evacuation Modeling Tools / Techniques
 - Evacuation Operating Procedures
 - Contra Flow Procedures
 - Traffic Signal Timing at Border Crossings
 - Static Signing (e.g., evacuation route, contra flow signing)
 - Transportation Management Information Exchange
 - Traveler Information Exchange
 - Integrating Transportation Systems (e.g., traveler information)
 - Integrating Communication Systems (e.g., radio)
 - Exercising
 - Training
 - Resource Sharing (e.g., personnel, supplies, vehicles)
 - Multi-modal Options (e.g., transit, aviation)
 - Public Education
 - Evacuee Support (e.g., gasoline, shelter, food)
 - Re-entry Procedures
 - Post-event Assessments

Determine whether higher level support from one or more states is required to sustain the effort.

Determine whether additional resources (e.g., consultants) are needed to sustain the effort.

Determine whether changes in policies/procedures/laws/etc. are necessary.

Determine whether formal agreements are necessary to facilitate coordination.

Determine what tools are available to assist the coordination effort (e.g., multi-state



evacuation planning software, traffic count detection).
<input type="checkbox"/> Determine whether other programs (e.g., traffic incident management) are coordinating and can supplement or facilitate this effort.
<input type="checkbox"/> Consider next steps, for example: <ul style="list-style-type: none"> <input type="checkbox"/> Forming a multi-state working group and identifying a leader(s). <input type="checkbox"/> Briefing senior management in the respective organizations. <input type="checkbox"/> Resolving to meet on a regular basis. <input type="checkbox"/> Developing a plan outlining how coordination will occur. <input type="checkbox"/> Sharing evacuation plans. <input type="checkbox"/> Sharing real-time and archived traffic flow, etc., data. <input type="checkbox"/> Coordinating on modeling efforts. <input type="checkbox"/> Developing information sharing agreements. <input type="checkbox"/> Developing resource sharing agreements. <input type="checkbox"/> Participating in multi-state training and exercising. <input type="checkbox"/> Planning for enhanced multi-state communications during hazard events. <input type="checkbox"/> Jointly meeting with the media to explain the need for coordination. <input type="checkbox"/> Jointly developing public education campaigns.

4.3 Preliminary Data Gathering Form

This form is intended to help state agencies consider and gather the types of information they will need to begin or enhance coordination with other states for planning and implementation of cross-border evacuations. Supplementing the Roadmap in section 5.1 above, it should also aid in determining who and where to outreach for assistance in this effort.

Person(s) Completing this Form	
Name(s):	Date:
Agency(ies):	Title(s):
Phone(s):	Email(s):
Needs, Goals and Objectives	
A. To the extent they have been defined, briefly describe your needs, goals and objectives in coordinating with other states on cross-border evacuations:	
Needs:	
Goals:	
Objectives:	



Prior Experience			
B. List your state’s prior experience with evacuations across state borders and any documentation, lessons learned, after action reports, etc., that may be useful in improving your cross-border evacuation expertise:			
Event	Year	Involved States	Documentation
Related Programs and Plans			
C. List existing programs, plans, agreements, etc., in your agency or others that can help support cross-border evacuation planning and implementation efforts:			
<input type="checkbox"/> Traffic Incident Management Program Description of support:			
<input type="checkbox"/> ITS/Operations Program Description of support:			
<input type="checkbox"/> General Emergency Response Program Description of support:			
<input type="checkbox"/> Hurricane Response Program Description of support:			
<input type="checkbox"/> Evacuation Plans (e.g., hurricane, nuclear, terrorist) Description of support:			
<input type="checkbox"/> Resource Sharing Agreements Description of support:			
<input type="checkbox"/> Other: _____ Description of support:			
Components Within Your Agency That Need to Participate			
D. List the organizational components within your agency that need to participate to support cross-border evacuation planning and implementation efforts:			
<input type="checkbox"/> Contact(s):			
<input type="checkbox"/> Contact(s):			



Contact(s):

Agencies Within Your State That Need to Participate

E. List the agencies within your state that need to participate to support cross-border evacuation planning and implementation efforts:

State Department of Transportation (DOT)

Office of Secretary/Modal Agencies and Contacts:

State Toll Authorities

Agency(ies) and Contacts:

State Emergency Management Agency (EMA)

Agency and Contacts:

State Police

Agency and Contacts:

Regional / Local Transportation Agencies (e.g., transit, highway)

Agency(ies) and Contacts:

Regional / Local Public Safety (e.g., EMAs, police, fire, emergency medical services)

Agency(ies) and Contacts:

Private Sector Organizations (e.g., intercity passenger carriers, railroads)

Organization(s) and Contacts:

Other:

Organization(s) and Contacts:

Hazards / Threats

F. Select the types of hazard / threats that would most likely force an evacuation from your state to another state:



<p>Natural Disaster:</p> <p><input type="checkbox"/> Fire</p> <p><input type="checkbox"/> Flooding</p> <p><input type="checkbox"/> Hurricanes</p> <p><input type="checkbox"/> Other: _____</p>	<p>Terrorist Attack:</p> <p><input type="checkbox"/> Weapons of Mass Destruction</p> <p><input type="checkbox"/> Other: _____</p>	<p>Human-Induced Hazards</p> <p><input type="checkbox"/> Nuclear Plant Failure</p> <p><input type="checkbox"/> Chemical Release</p> <p><input type="checkbox"/> Other: _____</p>
--	---	--

Geographic/Jurisdictional Areas Where Coordination Needs to Occur

G. List the geographic/jurisdictional areas in your state where you may need to coordinate with neighboring states:

<p><input type="checkbox"/></p>

Coordination with Other States

H. List the states with which your agency will need to directly coordinate:

<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>



I. For those states you checked above, is your agency currently coordinating with:

All of these states Some of these states None

List the states with which your agency is currently coordinating:

Status of Coordination

J. If coordination is already initiated, determine the status of coordination on the following evacuation items (*Note: You may need to repeat completion of the checklist below for each state with which you will be coordinating.*):

a. Evacuation Definitions & Terminology	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
b. Evacuation Route Planning	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
c. Evacuation Modeling Tools / Techniques	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
d. Evacuation Operating Procedures	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
e. Contra Flow Procedures	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
f. Traffic Signal Timing at Border Crossings	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
g. Static Signing (e.g., evacuation route, contra flow signing)	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
h. Transportation Management Information Exchange	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
i. Traveler Information Exchange	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
j. Integrating Systems (e.g., transportation management, traveler information systems)	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
k. Integrating Communication Systems (e.g., radio systems, commercial wireless push to talk networks)	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
l. Exercising	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
m. Training	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need



n. Resource Sharing (e.g., personnel, supplies, vehicles)	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
o. Multi-modal Options (e.g., transit, aviation)	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
p. Public Education	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
q. Evacuee Support (e.g., gasoline, shelter, food)	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
r. Re-entry Procedures	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need
s. Post-event Assessments	<input type="checkbox"/> Already in progress <input type="checkbox"/> Not yet started <input type="checkbox"/> No need

Neighboring State Agencies With Which to Coordinate

K. List the types of agencies with which you will need to coordinate in neighboring states and list any known contacts at those agencies (*Note: You may need to repeat completion of the checklist below for each state with which you will be coordinating.*)

- Adjacent State Departments of Transportation (DOTs)
Agency and Contacts:
- Adjacent State Toll Authorities
Agency(ies) and Contacts:
- Adjacent State Emergency Management Agencies (EMAs)
Agency and Contacts:
- Adjacent State Police
Agency and Contacts:
- Adjacent Regional / Local Transportation Agencies (e.g., transit, highway)
Agency(ies) and Contacts:
- Adjacent Regional / Local Public Safety (e.g., EMAs, police, fire, emergency medical services)
Agency(ies) and Contacts:
- Private Sector Organizations (e.g., intercity passenger carriers, railroads)
Organization(s) and Contacts:
- Other:
- Other:



Other:

Other:

Systems and Tools

L. List the systems/tools which you will need to plan and implement cross-border evacuations:

Intelligent Transportation Systems Technologies, e.g., 511, regional incident management information sharing systems, dynamic message signs, cameras, detectors, highway advisory radio)

Have Need to Develop, Acquire or Enhance NA

System Integration (e.g., computer-aided dispatch, emergency management systems and advanced transportation management systems)

Have Need to Develop, Acquire or Enhance NA

Communications Systems

Have Need to Develop, Acquire or Enhance NA

Geographic Information Systems

Have Need to Develop, Acquire or Enhance NA

Modeling and Simulation Software

Have Need to Develop Acquire or Enhance NA

Information Exchange Systems

Have Need to Develop, Acquire or Enhance NA

Toolkits for Developing Evacuation Plans

Have Need to Develop, Acquire or Enhance NA

Other:

Have Need to Develop, Acquire or Enhance NA

Next Steps



M. List your next steps in enhancing cross-border evacuation coordination:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

4.4 I-95 Corridor Coalition Activities and Systems Assisting Cross-Border Evacuation Planning and Implementation

The I-95 Corridor Coalition provides additional resources which can assist you in your Evacuation Planning efforts. Some of these are listed below, and additional projects and programs are described in more detail on the Coalition's website at www.i95coalition.org. Supplementing this list is the project Bibliography -- Appendix 2 of this Guide, which provides researched sources in the preparation of this Guide.



Coordinated Incident Management Program Track Committee

This committee serves to facilitate, support, and enhance the coordination and implementation of interagency efforts in response to major incidents and special events of regional significance along the I-95 Corridor to minimize adverse impacts on the public. Under this committee are five Highways Operations Group regions that have frequent meetings over the course of each year to share the latest information on incident management and best practices. Evacuations are one topic regularly discussed in these meetings. Meeting schedules are available at <http://www.i95coalition.org/calendar.html>.

Best Practices for Border Bridge Incident Management – This and other pertinent reports are available through www.i95coalition.org.

Contra Flow Evacuation Workshop

The Coalition was a sponsor of this important event in February 2006 along with the Florida Department of Transportation, the American Association of State Highway and Transportation Officials and the Federal Highway Administration. This workshop brought participants from all over the Coalition and beyond to discuss best approaches to the use of Contra Flow in evacuations. Presentations can be obtained at <http://www.teachamerica.com/ContraFlow/index.html>.

Information Exchange Network (IEN)

The IEN is a real-time information exchange network designed to interconnect Coalition member agency facilities. The network includes workstations among a cross-section of member agencies with data and maps in a graphical environment for inputting and displaying current operational corridor-wide information. The system facilitates connection to and information sharing between Traffic Management Centers. Information relating to evacuations can be transmitted through the Corridor using the IEN.

Information Systems Network (ISN)

The ISN project is broadly examining long-term Coalition member agency needs for the electronic sharing of relevant, appropriate real-time information in two application areas:

- Long-distance traveler information systems
- Transportation management and operations during major incidents, emergencies and disasters.

The goal is to make information readily accessible to Coalition members from other adjacent or more geographically remote agency legacy systems, as appropriate. Coalition members utilizing this real-time information can then use it in their decision-making processes or as input to their own systems. It is anticipated that the ultimate beneficiary of the information will be the long-distance traveler including those evacuating.

Integrated Corridor Analysis Tool (ICAT)

The I-95 Corridor Coalition is developing a geographic information system (GIS)-based transportation network for the 16-state Coalition region and a linked database with information about the region's roads, traffic volumes, and travel patterns. ICAT will help Coalition members coordinate multi-state transportation planning, investment, and operations planning. As part of ICAT development, a tool is planned that will enable Coalition members to test alternative multi-state evacuation routes and emergency transportation scenarios.



Appendices

APPENDIX 1

Project Methodology

Overall Approach

This project consisted of three technical tasks leading to two major outcomes, those being (1) development of this Regional Evacuation Guide and (2) planning and coordination of an Evacuation Summit on cross-border evacuations held in November 2007.

Information-Gathering Task

The first task focused on information collection, analysis and synthesis relative to cross-border evacuations. Information was collected from a variety of sources including case studies, guidance documents, websites and the presentations and other documentation from the February 14-15, 2006 Contra Flow workshop held in Orlando, Florida. To catalog this information, a bibliography of reviewed materials was maintained and may be found in Volume II: Appendices.

From the collected materials, a list of critical planning issues relative to multi-state evacuations was developed. To test the planning issues, a survey was developed and conducted with lead state DOT and other state agency evacuation staff, as described below.

Development of Regional Evacuation Guide Task

The objective of the second technical task was to develop this Regional Evacuation Guide to be used by Coalition (and potentially other) states in planning for evacuations where coordination is needed with nearby states. This Guide focuses specifically on understanding the relationships and considerations involved in multi-state evacuation planning. This Guide was developed from the information gained in the information gathering task, as well as survey and Evacuation Forum conducted during the project.

Plan, Develop and Hold Evacuation Summit Task

In order to ensure sharing of the information derived during this project, a corridor-wide, one-day evacuation workshop was held. The focus of the evacuation workshop was to test the concepts, best practices, and other information that are in the Guide. Just as importantly, the workshop was meant to help stimulate the coordination process. The workshop was designed to attract representatives from state DOTs and their public safety/emergency management counterparts as well as others from federal, state and local agencies, and national associations that have a keen interest in cross-border evacuations.



Project Working Group Guidance

To provide advice and input to the project a Coalition Member Working Group was established, and the Coalition gratefully acknowledges these persons' participation during the course of this project:

- Paul Clark, Florida Department of Transportation (FDOT)
- Kelly Damron, North Carolina Department of Transportation (NCDOT)
- Gene Donaldson, Delaware Department of Transportation (DelDOT)
- Paul Jodoin, Massachusetts Highway Department (MassHighway)
- Greg Jones, Federal Highway Administration (FHWA)
- Gary Millsaps, Georgia Department of Transportation (GDOT)

The group provided inputs on the survey, the draft outline of the Guide, the Regional Evacuation Guide itself and the Evacuation Summit.

Survey Approach

The survey included questions relating to the following:

- Perceived need to coordinate and plan for evacuations where evacuees travel to other states;
- Current level of coordination with other states on evacuation planning;
- Motivations generating the need to plan for evacuations with prioritization, i.e., what are the key threats;
- Identification of which other states a given state will need to coordinate with to ensure effective evacuations (e.g., North Carolina – Virginia, New York (City) – New Jersey, Florida – Georgia);
- Perceived key issues in coordination with other states (e.g., synchronization of traveler information); and
- Lessons learned in coordinating with other states.

The survey was conducted with state DOTs and other state contacts in each of the 16 Coalition states and the District of Columbia. The survey respondents included the lead state DOT staff member(s) for evacuation, the primary counterparts of the lead state DOT members at state emergency management and police agencies, and tolling authorities. The state DOT contact was asked to coordinate with the state agencies. This coordination happened in some states but not all. In all but one state providing surveys, the state DOTs responded. In some states, the state police and/or emergency management agency also responded. If there were differences in responses, the state DOT response was used.

The overall results were collated and analyzed to provide better understanding of the issues relating to multi-state cross-border evacuations. The survey results provide a snapshot of cross-border evacuation status along the Corridor. Additionally, very useful information was also provided by certain regions within a State, though these may not have reflected a full statewide



perspective. For example, in Pennsylvania, the survey was completed by the Pennsylvania Department of Transportation’s District Six, which covers Philadelphia and vicinity. The survey response from New York State was received from Region Eight of the New York State Police, which covers the lower Hudson Valley region.

Project Survey Form

The following survey form was used to gather information for this project.

I-95 Corridor Coalition Survey on Coordination of Coalition States on Transportation Components of Evacuation

This survey is designed to capture information about coordination between I-95 Corridor Coalition states on the transportation components of cross-border evacuations. Specifically, this survey looks at:

- The need for I-95 Corridor Coalition states to coordinate on evacuations across state borders,
- Areas where the need to coordinate is particularly important, and
- The current status of cross-state evacuation coordination.

The information collected from this survey will be used to develop a plan to improve the ability of Coalition states to implement evacuations across state borders.

If you have questions about this survey and completing it, please call or e-mail Imran Inamdar, Telvent Farradyne, at 301-816-4351 or Imran.Inamdar@telvent.abengoa.com. Survey responses can be e-mailed to Imran Inamdar or faxed to 301-816-1884.

General Information	
Name:	Date:
Agency:	Title:
Phone:	Email:
1. Briefly describe your personal evacuation-related roles/responsibilities relating to transportation:	
2. Under your state’s emergency operations plan or equivalent, which agency has the lead for planning and implementing the transportation aspects of evacuations including cross-border evacuations?	



Hazards / Threats

3. Select the types of hazard / threats that would most likely force an evacuation from your state to another state:

Natural Disaster:

- Fire
- Flooding
- Hurricanes
- Other: _____

Terrorist Attack:

- Weapons of Mass Destruction
- Other: _____

Human-Induced Hazards

- Nuclear Plant Failure
- Chemical Release
- Other: _____

Coordination with Other States

4. If forced to evacuate across state borders due to the hazards / threats listed above, with which other states would your agency need to directly coordinate from a transportation perspective:

- | | |
|--|---|
| <input type="checkbox"/> Maine | <input type="checkbox"/> Delaware |
| <input type="checkbox"/> New Hampshire | <input type="checkbox"/> Maryland |
| <input type="checkbox"/> Vermont | <input type="checkbox"/> District of Columbia |
| <input type="checkbox"/> Massachusetts | <input type="checkbox"/> Virginia |
| <input type="checkbox"/> Rhode Island | <input type="checkbox"/> North Carolina |
| <input type="checkbox"/> Connecticut | <input type="checkbox"/> South Carolina |
| <input type="checkbox"/> New York | <input type="checkbox"/> Georgia |
| <input type="checkbox"/> New Jersey | <input type="checkbox"/> Florida |
| <input type="checkbox"/> Pennsylvania | <input type="checkbox"/> Other: _____ |

5. For those states you checked above, is your agency currently coordinating on transportation aspects of evacuation with:

- All of these states Some of these states None

List the states that your agency is currently coordinating with:

6. Describe briefly your state's prior experience with evacuations across state borders:

Event	Year	Involved States



<p><i>e.g., September 11th Terrorist Attack</i></p>	<p>2001</p>	<p><i>District of Columbia, Maryland, and Virginia</i></p>
--	-------------	--

7. If working with neighboring states on cross-border evacuation preparedness from a transportation perspective, are you jointly coordinating:

<p>a. Evacuation Definitions & Terminology Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>b. Evacuation Route Planning Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>c. Evacuation Modeling Tools / Techniques Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>d. Evacuation Operating Procedures Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>e. Contra Flow Procedures Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>f. Traffic Signal Timing at Border Crossings Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>g. Static Signing Across State Borders (e.g., evacuation route, contra flow signing)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>h. Transportation Management Information Exchange Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>



<p>i. Traveler Information Exchange Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>j. Integrating Systems Across State Borders (e.g., transportation management, traveler information systems)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>k. Integrating Communication Systems Across State Borders (e.g., radio systems, commercial wireless push to talk networks)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>l. Exercising Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>m. Training Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>n. Resource Sharing Across State Borders (e.g., personnel, supplies, vehicles)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>o. Multi-modal Options Across State Borders (e.g., transit, aviation)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>p. Public Education Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>q. Evacuee Support Across State Borders (e.g., gasoline, shelter, food)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>
<p>r. Re-entry Procedures Across State Borders</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Yes - need to do more <input type="checkbox"/> No - may need to consider <input type="checkbox"/> No need</p>



s. Post-event Assessments Across State Borders

- Yes Yes - need to do more No - may need to consider
 No need

8. If coordinating the transportation components of evacuations with neighboring states, with what types of agencies do you coordinate:

- Adjacent State Departments of Transportation (DOTs)
- Adjacent State Toll Authorities
- Adjacent State Emergency Management Agencies (EMAs)
- Adjacent State Police
- Adjacent Regional / Local Transportation Agencies (e.g., transit, highway)
- Adjacent Regional / Local Public Safety (e.g., EMAs, police, fire, emergency medical services)
- Private Sector Organizations (e.g., intercity passenger carriers, railroads)
- Other: _____

9. For those agencies you checked above, at what levels within the agencies have relationships been established:

- Senior Appointed / Elected Officials
- Mid-level Transportation and Emergency Management Managers
- Headquarters Planning, Administration, Etc., Staff
- Transportation Management Center / Emergency Operations Center Management Staff
- Field Operations Staff
- Other: _____

Systems and Tools

10. What types of systems / tools have been beneficial with regard to planning for, and implementing, cross-border evacuations from a transportation perspective:



11. What types of system / tools are needed to assist in planning for, and implementing, multi-state evacuations from a transportation perspective?

Lessons Learned and Recommendations

12. Assuming that your state has a traffic incident management program, describe the relationship between the traffic incident management program and evacuation planning and operations:

13. Describe any lessons learned that may be beneficial to other states with regards to cross-border evacuations from a transportation perspective:

14. What can the I-95 Corridor Coalition do that might help facilitate multi-state evacuation preparedness from a transportation perspective?

Thank you for your time and the information provided.



State Agencies Receiving the Survey

State	Agencies
Maine	Maine DOT
	Maine Turnpike Authority
	Maine State Police
	Maine Emergency Management Agency
New Hampshire	New Hampshire DOT
	New Hampshire State Police
	New Hampshire Office of Emergency Management
Vermont	Vermont Agency of Transportation
	Vermont State Police
	Vermont Emergency Management Agency
Massachusetts	Massachusetts Highway Department
	Massachusetts Turnpike Authority
	Massachusetts State Police
	Massachusetts Emergency Management Agency
Rhode Island	Rhode Island DOT
	Rhode Island State Police
	Rhode Island Emergency Management Agency
Connecticut	Connecticut DOT
	Department of Emergency Management and Homeland Security
New York	New York State DOT
	New York State Thruway Authority
	New York State Police
	New York City Police
	NY State Emergency Management Office
New Jersey	New Jersey DOT
	New Jersey Turnpike Authority
	New Jersey State Police
Pennsylvania	Pennsylvania DOT
	Pennsylvania Turnpike Commission
	Pennsylvania State Police
	Pennsylvania Emergency Management Agency



Delaware	Delaware DOT
	Delaware State Police
	Delaware Emergency Management Agency
Maryland	Maryland State Highway Administration
	Maryland Department of Transportation
	Maryland Transportation Authority
	Maryland State Police
	Maryland Emergency Management Agency
District of Columbia	District DOT
	Metropolitan Police
	DC Emergency Management Agency
Virginia	Virginia DOT
	Virginia State Police
	Virginia Department of Emergency Management
North Carolina	North Carolina DOT
	North Carolina Highway Patrol
	North Carolina Division of Emergency Management
South Carolina	South Carolina DOT
	South Carolina Highway Patrol
	South Carolina Emergency Management Agency
Georgia	Georgia DOT
	Georgia State Police
	Georgia Emergency Management Agency
Florida	Florida DOT
	Florida Highway Patrol
	Florida Emergency Management Agency



APPENDIX 2

Project Bibliography and Resources

Document Title	Source	Author-Presenter	Web Address	Type	Date	Cross-Border Evacuation Directly Discussed?
"Reverse-Laning" I-65 in Alabama for Hurricane Evacuations	Alabama Department of Transportation		http://www.rsip.lsu.edu/anb10-3/Resources/Alabama_2003.pdf	Presentation	Apr-06	No
A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and the Response to Hurricane Katrina	The Select Bipartisan Committee to Investigate the Preparation for and the Response to Hurricane Katrina		http://www.gpoaccess.gov/serialset/creports/katrina.html	Document	Feb-06	No
A Methodology to Establish Hurricane Evacuation Zones	Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina	Chester Wilmot & Nandagopal	http://www.rsip.lsu.edu/anb10-3/Resources/C_Wilmot_05_TRB_Presentation.pdf	Presentation	Jan-05	No



Document Title	Source	Author-Presenter	Web Address	Type	Date	Cross-Border Evacuation Directly Discussed?
A National Perspective on Hurricane Evacuation Traffic Operation and Management: Policies, Practices, Needs, and Research	Louisiana State University - Hurricane Center	Brian Wolshon	http://www.rsip.lsu.edu/anb10-3/Resources/LSU-Hurricane_Evacuation.pdf	Presentation	Apr-06	No
A Network Flow Model for Lane-based Evacuation Routing	University of Utah	Tom Cova	http://www.rsip.lsu.edu/anb10-3/Resources/Cova_Presentation_2004.pdf	Presentation	Jan-04	No
A Review of the Procedures Associated with Devising Emergency Evacuation Plans	The University of Sydney Australia	Peter Stopher & Rahaf Alsnih	http://www.rsip.lsu.edu/anb10-3/Resources/Stopher_Presentation_1_2004.pdf	Presentation	Jan-04	No
Summary Review on the Importance of Transportation Planning, Preparation and Execution during a Mass Evacuation	TRB	William Lewis Breckinridge VII, Tawab Fazil Najafi, Marc Rouleau USN, James D. Ekberg USN & Ehsan Mamaghani-zadeh	http://pubsindex.trb.org/document/view/default.asp?lbid=801407	Document	Nov-06	Yes



Document Title	Source	Author-Presenter	Web Address	Type	Date	Cross-Border Evacuation Directly Discussed?
Agency Coordination and Traffic Issues	Mississippi Department of Transportation	Donna Lum	http://www.rsip.lsu.edu/anb10-3/Resources/Mississippi_2003.pdf	Presentation	Apr-06	Yes
Alabama - Reverse Laning I-65	Alabama Department of Transportation	George Conner	http://www.teachamerica.com/contraflow/07_AL_I65/index.html	Presentation	Feb-06	
Alternatives to Road Building to Improve Hurricane Evacuation in Coastal South Carolina			http://www.law.sc.edu/environmental/papers/200511/eas/farrell.pdf	Document	Apr-05	No
Analysis of Contraflow Evacuation Initiation and Termination Policies	Louisiana State University - Hurricane Center	Laurence Lambert	http://www.rsip.lsu.edu/anb10-3/Resources/Lambert_Presentation.pdf	Presentation	Apr-06	No
Analysis of Florida's One-Way Operations for Hurricane Evacuation	Florida Department of Transportation		http://www.rsip.lsu.edu/anb10-3/Resources/Analysis_of_Florida_s_One-Way_Operations_for_Hurricane_Evacuation.pdf	Document	Mar-02	No
Analysis of Techniques for Estimating Evacuation Times for Emergency Planning Zones	Battelle	Thomas Urbanik, Arthur Desrosiers, Michael K. Lindell & C. Richard Schuller		Document	Jun-80	No



Document Title	Source	Author-Presenter	Web Address	Type	Date	Cross-Border Evacuation Directly Discussed?
Benefits of ITS During Hurricane Evacuations	Florida Department of Transportation	Gene Glotzbach	http://www.rsip.lsu.edu/anb10-3/Resources/GeneG-Workshoppresentation.ppt	Presentation	Apr-04	No
Best Practices in Emergency Transportation Operations Preparedness and Response: Results of the 2002 and 2003 FHWA Workshops	FHWA		http://ops.fhwa.dot.gov/publications/etopr/best_practices/etop_workshop.htm	Document	Jan-04	Yes
Catastrophic Disasters: Enhanced Leadership, Capabilities, and Accountability Controls Will Improve the Effectiveness of the Nation's Preparedness, and Recovery System	United States Government Accountability Office (GAO)		http://www.gao.gov/new.items/d06618.pdf	Document	Sep-06	Yes
Catastrophic Hurricane Evacuation Plan Evaluation: A Report to Congress	U.S. Department of Transportation in cooperation with the U.S. Department of Homeland Security		http://www.fhwa.dot.gov/reports/hurricanevacuation	Document	Jun-06	Yes



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Communicating with the Public Using ATIS During Disasters: Concept of Operations	U.S. Department of Transportation	Mala Raman & Carol Zimmerman – Battelle, Todd Kell & Chris Bausher - PBS&J	http://www.itsdocs.fhwa.dot.gov/PODOCS/REPTS_TE/14262.htm	Document	Mar-06	No
Comprehensive Emergency Management Plan 2004: Florida	State of Florida		http://floridadisaster.org/documents/CEMP/BasicCEMP.pdf	Document	Feb-04	Yes
Contra Flow Workshop	Florida Department of Transportation		http://www.teachamerica.com/ContraFlow/ContraFlow.pdf	Website	Feb-06	Yes
Contraflow Traffic Operations for Hurricane Evacuation	LSU Hurricane Center	Brian Wolshon	http://www.rsip.lsu.edu/anb10-3/Resources/LSU_Contraflow.pdf	Presentation	Apr-06	No
Contraflow Transportation Network Reconfiguration for Evacuation Route Planning	Minnesota Department of Transportation		http://www.lrrb.org/pdf/200621.pdf	Document	Aug-06	No



Document Title	Source	Author-Presenter	Web Address	Type	Date	Cross-Border Evacuation Directly Discussed?
Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants	US Nuclear Regulatory Commission, FEMA	Brian K. Grimes & John W. McConnell		Document	Nov-80	No
Delaware Hurricane Evacuation Study	Delaware Division of Emergency Planning and Operations			Document	Dec-90	No
Delaware Incident Event Transportation Management	Delaware Department of Transportation	Tricia Faust	http://www.rsip.lsu.edu/anb10-3/Resources/Delaware_2003.pdf	Presentation	Apr-06	No
Developing a Contra Flow Plan	Texas Department of Transportation	Margaret Moore	http://www.teachamerica.com/contraflow/04_TX_ContraFlow/index.html	Presentation	Feb-06	
Development of a Dynamic Planning Tool for Emergency Evacuations Under Australian Conditions	The University of Sydney Australia	Peter Stopher & Rahaf Alsnih	http://www.rsip.lsu.edu/anb10-3/Resources/Stopher_Presentation_2_2004.pdf	Presentation	Jan-04	No
DHS Universal Task Lists All Scenarios	Department of Homeland Security			Spreadsheet	Jul-04	Yes



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Disaster Response and Recovery Resource for Transit Agencies	Federal Transit Administration		http://www.transit-safety.volpe.dot.gov/publications/safety/DisasterResponse/PDF/DisasterResponse.pdf	Document	Aug-06	No
Emergency Evacuation Report Card	American Highway Users Alliance		http://www.highways.org/pdfs/evacuation_report_card2006.pdf	Document	Jun-05	No
Emergency Ferry System Proposal	Georgia Department of Transportation		http://www.rsip.lsu.edu/anb10-3/Resources/Georgia_2003_-_Part_2.pdf	Presentation	Apr-06	No
Emergency Transportation Practices in North Carolina	North Carolina Department of Transportation	Kelly Hutchinson	http://www.rsip.lsu.edu/anb10-3/Resources/North_Carolina_2003.pdf	Presentation	Apr-06	No
Emergency Transportation Initiatives	Federal Highway Administration	Brandy Hicks	http://www.rsip.lsu.edu/anb10-3/Resources/Emergency_Transportation_Initiatives.pdf	Presentation	Apr-06	No
Evacuating Florida and the 2003 Hurricane Season	Florida Department of Transportation	Florida	http://www.rsip.lsu.edu/anb10-3/Resources/Florida_2003.pdf	Presentation	Apr-06	No
Evacuating Florida in 2004	Florida Department of Transportation	Paul Clark	http://www.rsip.lsu.edu/anb10-3/Resources/Clark-FHWA_NHC_Presentation.ppt	Presentation	Apr-04	No
Evacuation Liaison Team 2003	2005 Transportation Research Board Annual Meeting, Washington D.C.	Essan Radwan	http://www.rsip.lsu.edu/anb10-3/Resources/E_Radwan_05_TRB_Presentation.pdf	Presentation	Jan-05	No



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Evacuation Planning, Human Factors, and Traffic Engineering	TR News Pg 13-17	Reuben B. Goldblatt & Kevin Weinisch	http://onlinepubs.trb.org/onlinepubs/trnews/trnews238evacplanning.pdf	Journal Article	Jun-05	No
Evacuation Research - Recent Developments and Continuing Initiatives	Louisiana State University - Hurricane Center	Brian Wolshon	http://www.rsip.lsu.edu/anb10-3/Resources/FHWAWorkshopPresentation-Wolshon.pdf	Presentation	Apr-04	No
Evacuation Risks - An Evaluation	U.S Environmental Protection Agency	Joseph M. Hans, Jr. & Thomas C. Sell		Document	Jun-74	No
Evaluation of Emergency Evacuation Strategies for Downtown Event Traffic Using a Dynamic Network Model	Minnesota Department of Transportation	Eli Kwon & Sonia Pitt	http://www.rsip.lsu.edu/anb10-3/Resources/E_Kwon_05_TRB_Presentation.pdf	Presentation	Jan-05	No
FDOT and Contra-Flow	Florida Department of Transportation	Paul Clark	http://www.rsip.lsu.edu/anb10-3/Resources/FDOT_and_Contraflow.pdf	Presentation	Apr-06	No
Federal Response to Hurricane Katrina - Lessons Learned			http://www.whitehouse.gov/reports/katrina-lessons-learned.pdf	Document	Feb-06	Yes
FEMA: Ready for 2006 Hurricane Season	FEMA		http://www.fema.gov/news/newsrelease.fema?id=25061	News Article	Apr-06	No



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FHWA 2003 Northeast Blackout Report	USDOT	Allan J. DeBlasio, Terrance J. Regan, Margaret E. Zirker, Katherine S. Fichter & Kristin Lovejoy	http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/14021.htm	Document	May-04	Yes
FHWA 2004 Democratic National Convention Report	USDOT	Allan J. DeBlasio, Terrance J. Regan, Margaret E. Zirker, Joshua Hassol & Craig Austin	http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/14120.htm	Document	Jan-05	Yes
FHWA and Evacuations	Federal Highway Administration	Regina McElroy	http://www.teachamerica.com/contraflow/18_FHWA/index.html	Presentation	Feb-06	No
Five Years Post 9/11, One Year Post Katrina: The State of America's Readiness	The United States Conference of Mayors	Michael A. Guido	http://www.mayors.org/uscm/newspress_releases/documents/disasterpreparednesssurvey_2006.pdf	Document	Jul-06	No



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Florida Contraflow Study by PBS&J	Florida Department of Transportation		http://www.rsip.lsu.edu/anb10-3/Resources/Analysis_of_Florida_s_One-Way_Operations_for_Hurricane_Evacuation.pdf	Document	Mar-02	No
Florida's Contra Flow Plans	Florida Department of Transportation	Paul Clark	http://www.teachamerica.com/contraflow/13_FL/index.html	Presentation	Feb-06	No
Florida's Contraflow Plan - Experience and Improvement	Florida Department of Transportation	John Hibbard	http://www.itsaz.org/annualconference/2006/floridasoutheastcontraflow.pdf	Presentation	Jun-06	Yes
From Chris to Contraflow - How the Big Easy became the worst possible hurricane disaster (and what we're doing about it)	Louisiana Department of Transportation	George Gele	http://www.rsip.lsu.edu/anb10-3/Resources/GeleEdit.pdf	Presentation	Apr-04	Yes
GAO Jenkins Testimony Regarding Emergency Preparedness and Response to Major Incidents	United States Government Accountability Office	William O. Jenkins	http://www.gao.gov/new.items/d06467t.pdf	Testimony	Mar-06	Yes
GAO Transport-Disadvantaged Populations in Evacuations 120006.pdf	United States Government Accountability Office		http://www.gao.gov/new.items/d0744.pdf	Document	Dec-06	No



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GAO Walker Testimony regarding Katrina Response Lessons Learned	United States Government Accountability Office	David M. Walker	http://www.gao.gov/new.items/d06442t.pdf	Testimony	Mar-06	Yes
GDOT Traffic Incident Response Matrix	Georgia Department of Transportation			Document		No
Georgia Contra Flow Experience	Georgia Department of Transportation	Eric Pitts	http://www.teachamerica.com/contraflow/11_GA/index.html	Presentation	Feb-06	No
Georgia Hurricane Preparedness	Georgia Department of Transportation	Bryant Poole	http://www.rsip.lsu.edu/anb10-3/Resources/PooleNatlHurriConf-April2004.pdf	Presentation	Apr-04	No
Houston-Galveston Area Evacuation and Response Task Force: Recommendations Report	Houston-Galveston Area Evacuation and Response Task Force		http://www.h-gac.com/NR/rdonlyres/erqa5kk72vbhigsiwb5fxau6pgecl2j7jxswghfrovbgsuuars25lpwmhiqjgxeqqfcnxexj6kfy6qblvjv2p6xnh/Houston-Galveston+Area+Evacuation+and+Response+Task+Force+Report.pdf	Document	Apr-06	Yes
Hurricane Season in Florida: Lessons Learned	University of Central Florida	Essan Radwan	http://www.rsip.lsu.edu/anb10-3/Resources/E_Radwan_05_TRB_Presentation.pdf	Presentation	Jan-05	Yes
Hurricane Evacuation Plan Phase 1	Rhode Island Department of Transportation			Document	Aug-06	Yes



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Hurricane Evacuations Alabama	Alabama Department of Public Safety	Patrick Manning	http://www.teachamerica.com/contraflow/08_AL_HP/index.html	Presentation	Feb-06	No
Hurricane Isabel - Lessons Learned	Virginia Department of Transportation	James Mock	http://www.rsip.lsu.edu/anb10-3/Resources/Mock-VDOT-NHC2004.ppt	Presentation	Apr-04	No
Hurricane Isabel Assessment	U.S. Army Corps of Engineers		http://www.csc.noaa.gov/hes/docs/postStorm/Isabel_PostStorm_Summary.pdf	Document	Mar-05	Yes
Hurricane Katrina: A Nation Still Unprepared	The Senate Committee on Homeland Security and Governmental Affairs		http://hsgac.senate.gov/index.cfm?Fuseaction=Links.Katrina	Document	May-06	No
Hurricane Liaison Program	2004 Transportation Research Board Annual Meeting, Washington D.C.	Peter Stopher & Rahaf Alsnih	http://www.rsip.lsu.edu/anb10-3/Resources/Stopher_Presentation_1_2004.pdf	Presentation	Jan-04	No
Hurricane Preparedness	Georgia Department of Transportation	Bryant Poole	http://www.rsip.lsu.edu/anb10-3/Resources/Georgia_2003_-_Part_1.pdf	Presentation	Apr-06	No
I-95 Corridor Coalition Border Bridge Tech Memo	I-95 Corridor Coalition	Cliff Conklin & J.D. Schneeberger		Document	Aug-06	Yes



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Identification and Analysis of Factors Affecting Emergency Evacuations	U.S. Nuclear Regulatory Commission		http://www.nei.org/documents/NRC_Emergency_Evacuation_Study.pdf	Document	Jan-05	No
Interim National Preparedness Goal: Homeland Security Presidential Directive 8: National Preparedness	U.S. Department of Homeland Security		http://www.ojp.usdoj.gov/odp/docs/InterimNationalPreparednessGoal_03-31-05_1.pdf	Document	Mar-05	No
ITS to the Rescue	FHWA	Vince Pearce	http://www.transitweb.its.dot.gov/eto/eto_rescue.htm	Document		Yes
Lessons From Katrina and Rita: What Major Disasters Can Teach Transportation Planners	Victoria Transport Policy Institute	Todd Litman	http://www.vtpi.org/katrina.pdf#search='Lessons%20From%20Katrina%20and%20Rita%3A%20What%20Major%20Disasters%20Can%20Teach%20Transportation%20Planners'	Document	Sep-05	Yes
Metro Evacuation Traffic Management Plan - Minnesota	Minnesota Department of Transportation			Document	Jan-07	No
Mississippi Contra Flow Operations	Mississippi Department of Transportation	Bob Chapman & Capt. Karon Bridges	http://www.teachamerica.com/contraflow/06_MS/index.html	Presentation	Feb-06	No
Modeling and Analysis of Evacuation Contraflow Termini...post-Ivan Applications in LA	American Society of Civil Engineers (ASCE)	Brian Wolshon	http://www.rsip.lsu.edu/anb10-3/Resources/B_Wolshon_ASCE_StCD_05_Presentation.pdf	Presentation		Yes



Document Title	Source	Author-Presenter	Web Address	Type	Date	Cross-Border Evacuation Directly Discussed?
Modeling Hurricane Evacuation Traffic: Testing the Gravity and Intervening Opportunity Models as Models of Destination Choice in Hurricane Evacuation	Louisiana Transportation Research Center and Department of Civil and Environmental Engineering	Chester Wilmont, Naveen Modali & Bin Chen	http://www.ltrc.lsu.edu/pdf/2006/for_407.pdf	Document	Sep-06	Yes
Multi-State Hurricane Conference - Brunswick, Georgia	Georgia Department of Transportation			Agenda	May-06	
National Incident Management System	U.S. Department of Homeland Security		http://www.dhs.gov/interweb/assets/library/NIMS-90-web.pdf	Document	Mar-04	No
National Planning Scenarios			http://media.washingtonpost.com/wp-srv/nation/nationalsecurity/earlywarning/NationalPlanningScenariosApril2005.pdf	Document	May-05	No
National Response Plan - Notice of Change	Department of Homeland Security		http://www.dhs.gov/xlibrary/assets/NRP_Notice_of_Change_5-22-06.pdf	Document	May-06	Yes
National Response Plan	U.S. Department of Homeland Security		http://www.dhs.gov/dhspublic/interrapp/editorial/editorial_0566.xml	Document	Dec-04	Yes
National Response Plan	Department of Homeland Security		http://www.dhs.gov/xlibrary/assets/NRP_FullText.pdf	Document	Dec-04	Yes



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National Review of Hurricane Plans and Policies	Louisiana State University - Hurricane Center	Brian Wolshon, Elba Urbina & Marc Levitan	http://www.rsip.lsu.edu/anb10-3/Resources/National_Review.pdf	Document	Jun-05	Yes
Nationwide Plan Review: Phase 2 Report	U.S. Department of Homeland Security in cooperation with the U.S. Department of Transportation		http://www.dhs.gov/interweb/assets/library/Prep_NationwidePlanReview.pdf	Document	Jun-06	Yes
New Frontiers in Emergency and Incident Management Training	TR News Pg 18-22	Kaan Ozbay	http://pubsindex.trb.org/document/view/default.asp?lbid=758736	Journal Article	Jun-05	Yes
New Orleans Contraflow Evacuation Segment Traffic Simulation Models	Louisiana State University - Hurricane Center	Brian Wolshon	http://www.rsip.lsu.edu/anb10-3/Resources/Wolshon_Presentation_2004.pdf	Presentation	Jan-04	No
New Orleans Experience in Hurricane Ivan: Lessons Learned and Potential Improvements	Louisiana State University - Hurricane Center	Brian Wolshon	http://www.rsip.lsu.edu/anb10-3/B_Wolshon_05_TRB_Presentation.pdf	Presentation	Jan-05	Yes
North Carolina I-40 Lane Reversal Plan	North Carolina Department of Transportation	Kelly Damron	http://www.teachamerica.com/contraflow/09_NC/index.html	Presentation	Feb-06	
North Carolina's Hurricane Operations	North Carolina Department of Transportation		http://www.rsip.lsu.edu/anb10-3/Resources/NC_evacuation_planning.pdf	Presentation		No



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NTOC Talks News Letter: July 5, 2006: With Evacuations, Practice Makes Perfect	National Transportation Operations Coalition		http://www.ntoctalks.com/articles/hurricane.php	Document	Jul-06	No
Overview of the Louisiana Contra Flow Plan	Louisiana Department of Transportation and Louisiana State Police	Stephen Glascock & Lt. Chris Bodet	http://www.teachamerica.com/contraflow/05_LA/index.html	Presentation	Feb-06	Yes
Panic or Reasoned Response? The Human Element in Transportation Planning for Emergency Situations	The Louis Berger Group, Inc.	Deborah Matherly	http://www.rsip.lsu.edu/anb10-3/Resources/Matherly_Presentation_2004.pdf	Presentation	Jan-04	Yes
Performance Assessment Contraflow Evacuation Termination Points	Louisiana State University - Hurricane Center	Brian Wolshon	http://www.rsip.lsu.edu/anb10-3/Resources/2004NHCPresentation-Wolshon.pdf	Presentation	Apr-04	No
Planning Concepts and Decision Criteria for Sheltering and Evacuation in a Nuclear Power Plant Emergency	National Environmental Studies Project	Michael K. Lindell, Patricia A. Bolton, & Ronald W. Perry	http://www.osti.gov/energycitations/product.biblio.jsp?osti_id=5530372	Document	Jun-85	No
Planning for the Worst Norfolk VA Evacuation				Presentation		No
Portable Evacuation Monitoring System (PEMS) Product Overview	Trichord, Inc., SmartTek Systems, Inc.			Presentation	Apr-06	No



Document Title	Source	Author-Presenter	Web Address	Type	Date	Cross-Border Evacuation Directly Discussed?
Post Katrina Stakeholder Session on Evacuation and Sheltering	Virginia Department of Emergency Management			Document	Jan-06	No
Project Idea for ICAT w Evac Reference	I-95 Corridor Coalition			Document		Yes
Recommended Practices for Hurricane Evacuation Traffic Operations	Texas Transportation Institute	Andrew J. Ballard & Darrell W. Borchardt	http://tti.tamu.edu/documents/0-4962-P2.pdf	Document	Apr-06	No
Regional Emergency Coordination Plan	Metropolitan Washington Council of Governments (MWCOG)		http://www.mwcog.org/security/security/download/RECP_final.pdf	Document	Sep-02	No
Regional Emergency Evacuation Transportation Coordination Annex	Metropolitan Washington Council of Governments (MWCOG)		http://www.mwcog.org/uploads/committee-documents/pl5fV1820040331132619.pdf	Document	Mar-04	Yes
Regional Evacuation Modeling - A State-of-the-Art Review	US Department of the Army	Frank Southworth	http://www.ornl.gov/~webworks/cppr/y2003/rpt/46280.pdf	Document	Mar-91	No



Document Title	Source	Author-Presenter	Web Address	Type	Date	Cross-Border Evacuation Directly Discussed?
Remarks by Homeland Security Secretary Michael Chertoff at the National Emergency Management Association Mid-Year Conference	Department of Homeland Security	Michael Chertoff	http://www.dhs.gov/dhspublic/interrapp/speech/speech_0268.xml	Speech and Statements	Feb-06	No
Report not last word on hurricane evacuation	The Daily News	Kelly Hawes	http://news.galvestondailynews.com/story.lasso?ewcd=03caa2ed8838088&-session=TheDailyNews:CF918B420a34f25803PYH1117315	Newspaper Article	Feb-06	No
Report: Government 'passivity' did most damage in Katrina	Transportation Research Board (TRB)	Deborah Matherly, The Louis Berger Group, Inc.	http://www.rsip.lsu.edu/anb10-3/Resources/Matherly_Presentation_2004.pdf	Presentation	Jan-03	Yes
Reverse Lane Standards and ITS Strategies Southeast United States Hurricane Study Technical Memorandum Number 1	US Army Corps of Engineers	PBS&J	http://ops.fhwa.dot.gov/Weather/best_practices/CaseStudies/020.pdf	Document	Jun-00	Yes
Reverse Laning During Hurricane Ivan	Alabama Department of Transportation	George Conner	http://www.rsip.lsu.edu/anb10-3/Resources/G_Conner_05_NHC_Presentation.pdf	Presentation		No



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Review of Policies and Practices for Hurricane Evacuation II: Traffic Operations, Management, and Control	American Society of Civil Engineers (ASCE)	Brian Wolshon, Elba Urbina Hamilton, Marc Levitan & Chester Wilmot	http://www.asce.org/files/pdf/hurricane/Evacuation_and_Shelters/Review_of_Policies_and_Practices_for_Hurricane_Evacuation~_II._Traffic_Operations,_Management,_and_Control.pdf	Document	Aug -05	No
Review of Policies and Practices for Hurricane Evacuation I: Transportation Planning, Preparedness, and Response	American Society of Civil Engineers (ASCE)	Brian Wolshon, Elba Urbina, Chester Wilmot & Marc Levitan	http://www.asce.org/files/pdf/hurricane/Evacuation_and_Shelters/Review_of_Policies_and_Practices_for_Hurricane_Evacuation~_I._Transportation_Planning,_Preparedness,_and_Response.pdf	Document	Aug -05	Yes
Review of the Procedures for Emergency Evacuation Planning	University of Sydney, Australia	Rahaf Alsnih & Peter Stopher		Document	Mar-04	No
RIDOT TMC Hurricane Preparedness Action Items and Plan Development	Rhode Island Department of Transportation	Joana Conklin		Document	Aug -06	Yes
Serious game teaches emergency responders	FCW.com News	Wade-Hahn Chan	http://www.fcw.com/article94706-06-05-06-Print	Newspaper Article	Jun-06	No



Document Title	Source	Author-Presenter	Web Address	Type	Date	Cross-Border Evacuation Directly Discussed?
Sharing Information between Public Safety and Transportation Management Agencies for Traffic Incident Management (Report 520)	National Cooperative Highway Research Program (NCHRP)		http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_520.pdf	Document	May-04	Yes
South Carolina 2006 Hurricane Evacuation Plan	South Carolina Department of Transportation	Dick Jenkins	http://www.teachamerica.com/contraflow/10_SC/index.html	Presentation	Feb-06	
South Carolina Hurricane Evacuation Plan 2002	South Carolina Department of Transportation		http://www.rsip.lsu.edu/anb10-3/Resources/SC_evacuation_planning_23-Feb-02 .pdf	Presentation		Yes
South Carolina Hurricane Evacuation Program	South Carolina Department of Transportation	Brett Harrelson	http://www.rsip.lsu.edu/anb10-3/Resources/South_Carolina_2003 .pdf	Presentation	Apr-06	No
Statement By Homeland Security Secretary Michael Chertoff Before the Senate Committee on Homeland Security and Governmental Affairs	U.S. Department of Homeland Security	Michel Chertoff	http://www.dhs.gov/dhspublic/display?theme=45&content=5421&print=true	Document	Feb-06	No
Statewide Evacuation Plan	Delaware Division of Emergency Planning and Operations			Presentation		Yes



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Summary of Regional Hurricane Traffic Operations Workshop	FHWA		http://www.itsdocs.fhwa.dot.gov/podocs/repts_te/13788_files/13788.pdf	Document	Feb-02	Yes
Task Force on Evacuation, Transportation and Logistics: Final Report to the Governor	The State of Texas		http://www.governor.state.tx.us/divisions/press/files/EvacuationTaskForceReport.pdf	Document	Feb-06	No
The Do's and Don'ts of Contra Flow	Florida Department of Transportation	Lap Hoang	http://www.teachamerica.com/contraflow/20_Dos/index.html	Presentation	Feb-06	
The Effect of Catastrophic Events on Transportation Systems Operations and Maintenance - Comparative Analysis	U.S. Department of Transportation	Allan J. DeBlasio, Terrance J. Regan, Margaret Zirker, Kate Fichter, Kristin Lovejoy & Dan Morin		Document	May-04	No
The Federal Response to Hurricane Katrina: Lessons Learned	U.S. Department of Homeland Security		http://www.whitehouse.gov/reports/katrina-lessons-learned.pdf	Document	Feb-06	No
The Lexus and the Olive Tree Concept Related to Public Safety and Transportation in the Post-9/11 World	I-95 Corridor Coalition	Henry de Vries	http://www.i95coalition.org/PDF/The%20Lexus%20and%20the%20Olive%20Tree%20Concept.pdf	Document	Oct-03	Yes



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Traffic Analysis of North Carolina I-40 Lane Reversal Plan	North Carolina State University	Billy Williams	http://www.rsip.lsu.edu/anb10-3/Resources/B_Williams_05_TRB_Presentation.pdf	Presentation	Jan-05	Yes
Traffic Operations for Hurricane Evacuation	TRB	Andrew J. Ballard & Darrell W. Borchardt	http://pubsindex.trb.org/document/view/default.asp?lbid=801804	Document	Jan-07	No
Traffic Simulation Tools for Evacuation Planning	University of Florida	Kenneth Courage	http://www.teachamerica.com/contraflow/16_Simulation/index.html	Presentation	Feb-06	No
Transit and Evacuation	Washington Metropolitan Area Transit Authority (WMATA)		http://www.vaemergency.com/newsroom/events/pdf/Greenwald_Public_Transit.pdf	Presentation	Apr-06	No
Transit's Role in Florida's Emergency Response	Center for Urban Transportation Research (cutrlines), University of South Florida		http://www.cutr.usf.edu/pdf/vol160206_web.pdf	Journal	Jun-05	No
Transportation Evacuation Planning and Operations Workshop	USDOT		http://ops.fhwa.dot.gov/publications/tepo_wksp/main.htm	Document	Mar-05	Yes
TxDOT Corpus Christi District Hurricane Evacuation Needs	Texas Department of Transportation	Bryan Wood	http://www.rsip.lsu.edu/anb10-3/Resources/Texas_2003_-_Part_1.pdf	Presentation	Apr-06	No



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TxDOT FHWA Grant Program Update	Texas Department of Transportation	Bryan Wood	http://www.rsip.lsu.edu/anb10-3/Resources/Texas_2003_-_Part_2.pdf	Presentation	Apr-06	No
TxDOT, Contra Flow and the Hurricane Rita Experience	Texas Department of Transportation	Scott Alley	http://www.teachamerica.com/contraflow/03_TX_Rita/index.html#	Presentation	Feb-06	No
USDOT/FEMA Evacuation Liaison Team Standard Operating Procedures	USDOT			Document	Nov-05	Yes
Using Highways During Evacuation Operations for Events with Advance Notice	USDOT FHWA		http://www.ops.fhwa.dot.gov/publications/evac_primer/primer.pdf	Document	Dec-06	Yes
Virginia's Lane Reversal Plan	Virginia Department of Transportation and Virginia State Police	Perry Cogburn & Maj. Thomas Martin	http://www.teachamerica.com/contraflow/12_VA/index.html	Presentation	Feb-06	No
Vision 2010: Enhanced National Capabilities for Emergency Transportation Operations	FHWA, USDOT			Document	Jan-04	Yes