



## State Public Transportation Division Involvement in State Emergency Planning, Response, and Recovery

### DETAILS

0 pages | | PAPERBACK

ISBN 978-0-309-43606-9 | DOI 10.17226/23102

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## NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Subject Areas: IA Planning and Administration; VI Public Transit

Responsible Senior Program Officer: Gwen Chisholm Smith

# Research Results Digest 326

## STATE PUBLIC TRANSPORTATION DIVISION INVOLVEMENT IN STATE EMERGENCY PLANNING, RESPONSE, AND RECOVERY

This digest summarizes the findings of NCHRP Project 20-65 (13). The research was conducted by AECOM Consult, Inc., Arlington, Virginia.

### RESEARCH BACKGROUND

The purpose of this research is to document existing and best policies and practices of state transit divisions pertaining to weather-related emergencies. This research includes state involvement in emergency planning, response, and recovery. It identifies lessons learned from recent emergencies, key issues associated with the involvement of state public transportation divisions, and best practices. The results of both a national survey of state transit divisions, in-depth interviews with selected states, and copies of or links to various resources related to emergency management are included in the report.

### SUMMARY OF FINDINGS

In exploring the issue of state transit division roles, several different models of emergency management coordination emerge. In general, emergency response and coordination begins at the local level with the local emergency operations center, and, depending on the size of the disaster, the local emergency operations center works in coordination with the state emergency operations center. However, involvement and coordination points for the state transit division and transit systems vary between states. Section 4 presents and describes several models: maximum, medium, and minimum levels of coordination.

State transit division roles vary between states: this report describes possible roles for state transit. Each of the possible roles listed below is an emergency preparedness, response, or recovery activity where one or more state transit divisions have been involved effectively. State transit divisions are able to appraise their roles in supporting emergency management, taking into consideration their specific needs and resources, in order to determine if taking on any of these activities would benefit emergency management in their state.

### Emergency Preparedness

- Promote communications between transit systems and their local Emergency Management Agency (EMA), since effective emergency management begins at the local level.
- Convene a safety and security forum where emergency management topics could be discussed.
- Conduct statewide training/technical assistance on emergency management issues with an emphasis on small urban and rural systems; provide a template of an emergency response plan for transit systems.
- Encourage transit systems' participation in a mutual aid agreement and ensure coordination between their state's mutual aid agreement and the

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American Public Transportation Association's (APTA) national emergency response network.<sup>1</sup>

- Develop an inventory database of transit agency resources and share the inventory database with state and local EMAs.
- Communicate best practices among transit systems on special topics, such as evacuation of special needs populations.

## Emergency Response

- Coordinate public transportation emergency response, mainly with state Department of Transportation (DOT), state EMA, and transit systems as needed, including asset coordination to support special needs populations.

## Emergency Recovery

- Coordinate with Federal Emergency Management Agency (FEMA) and other EMA organizations and assist transit systems in understanding and accessing FEMA reimbursement processes.
- Implement innovative programs to facilitate economic recovery such as the Washington State bus pass program.

In order to secure federal funding for emergency management and homeland security, state and local agencies must comply with the provisions of the National Incident Management System (NIMS) and the National Response Plan (NRP). In both of these documents, jurisdictions are highly encouraged to maintain and exercise mutual aid agreements. Section 4 summarizes various types of mutual aid agreements existing at the national and state levels.

At the national level, the model for mutual aid is the Emergency Management Assistance Compact (EMAC). This governance structure will promote the integration of emergency management professionals and resources into a robust state system of mutual aid. EMAC solves problems upfront in the areas of reimbursement, licensure, and liability. Some states have created an intrastate statewide emergency management assistance compact, which functions similarly to the EMAC but is an agreement between counties or other entities within the state rather than between states. One example of an intrastate agreement is Ohio's IMAC (Intrastate Emergency Assistance Compact).

Some states have also developed a transit-specific mutual aid agreement. Washington state transit division maintains and exercises a public transportation emergency response mutual aid agreement. The signatory agencies include public and non-profit public transportation providers in the state. Another example of a transit specific agreement is a recent effort by APTA<sup>2</sup> to organize a national transit emergency response network. The network would consist of a call down list and transit assets inventory for those agencies that have volunteered to assist in an emergency. APTA would coordinate a transit emergency response when a responsible agency (presumably state EMA or FEMA) calls upon APTA for mutual aid.

The concluding chapter focuses on future research on related topics. These areas are as follows:

- Pros and cons of various types of Mutual Aid Agreements for public transportation.
- Factors affecting the role of the state transit division.
- Observations on existing federal practices.
- Special needs population data system.
- Vehicle type classification inventory guidance for state and local emergency managers.
- Provider inventory data systems: public and private.

## 1. INTRODUCTION AND RESEARCH APPROACH

### Introduction

The recent experience with Hurricanes Katrina and Rita raised awareness of transportation and public transportation related issues and coordination problems in emergency management situations; the response to these and other recent disasters also demonstrated that there are some states that are better prepared than others to respond effectively during and after a disaster. The purpose of this research was to determine what lessons can be learned from disaster responses in past years and to uncover best practices.

### *Hazards, Emergencies, and Disasters*

Hazards exist everywhere, in every community and can be natural, technological, or man made. Emergencies are caused by a hazard; can occur every day in any community; and may require a response from local first responders including fire, police, or EMS.

The vast majority of emergencies can be easily managed. A disaster is an emergency event that is of such magnitude that it overwhelms the local emergency response capacity to manage the event without outside assistance. If the state response capacity is overwhelmed, the Governor may request a Federal disaster declaration so that financial assistance and support from the federal government is made available through the Federal Emergency Management Agency (FEMA). Although this report focuses on weather-related disasters, it recognizes that the best practice is to develop all-hazards plans and procedures.

Table 1 shows the number of Major Disaster Declarations for the years 2001 through 2006. The majority of these have been weather-related natural disasters; the non-weather-related disasters are italicized in the table.

The phases of emergency management are as follows:

- **Preparedness:** education, planning, and actions taken to be ready for any possible emergency.
- **Response:** actions taking place immediately following an event to address immediate needs and public health and safety.
- **Recovery:** the process of helping individuals and communities to return to a sense of normalcy.

- **Mitigation:** efforts made to lessen the impact of disasters (this phase complements with Preparedness: This report regards the process as three phases).

This report documents practices, best practices, lessons learned, and issues according to these phases of management when applicable.

### *State and Local Coordination*

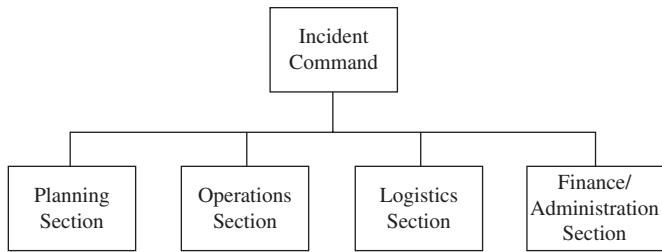
Local emergency managers, fire, and police are generally the first responders. Local and state emergency management agencies' actions are driven by Emergency Operations Plans (EOPs). EOPs identify the roles and responsibilities of the responding agencies (and of key officials) for a wide range of situations. EOPs are guided by a command structure (see Figure 1) called the Incident Command System (ICS), which puts one person in charge.

Although this report is primarily addressed to state public transportation directors, in order to ensure that public transportation is integrated into the emergency management process, both the public transportation division of state DOTs and the transit agencies must be integrated into the emergency planning process and meet with the appropriate state and local counterparts in emergency management. State as well as local

**Table 1** Major disaster declarations, 2001–2006.

Major Disaster Declarations	2001	2002	2003	2004	2005	2006	Total
<i>Earthquake</i>	2	2	—	1	—	1	6
<i>Fire</i>	—	—	—	—	—	1	1
Flooding	5	2	1	4	1	2	15
Hurricane	—	1	7	10	11	—	29
Severe Ice Storm or Severe Freeze	1	4	6	1	1	1	14
Severe Storms, Flooding, Tornadoes, Mudslides, or High Winds	25	24	29	36	23	36	173
Severe Winter Storm or Snowstorm, Flooding, or Mudslides	4	2	4	2	7	6	25
<i>Terrorist Attack</i>	2	—	—	—	—	—	2
Tornadoes	1	1	2	1	2	1	8
Tropical Storm Related Severe Storm, Flooding, and Mudslides	—	—	1	1	—	—	2
Tropical Storm, Depression, or Cyclone	5	5	1	10	2	—	23
Typhoon	—	5	2	1	1	—	9
Wildfires	—	2	2	1	—	2	7
Winter Storms	—	1	1	—	—	—	2
<b>Subtotal of Weather-related Disasters</b>	<b>41</b>	<b>47</b>	<b>56</b>	<b>67</b>	<b>48</b>	<b>49</b>	<b>308</b>
<b>Total</b>	<b>45</b>	<b>49</b>	<b>56</b>	<b>68</b>	<b>48</b>	<b>50</b>	<b>316</b>

Source: FEMA <http://www.fema.gov/news/disasters.fema#em>



**Figure 1** Emergency response process: ICS structure.

officials may be included in disaster planning and exercises, as appropriate. Recognizing this issue, the researchers interviewed representatives from state public transportation divisions, local transit agencies, and state emergency management and local emergency management agencies.

Many states have formed Emergency Management Assistance Compacts (EMAC) with other states. EMACs are agreements between two or more states that allow assets from one state to be brought into another state in a disaster. FEMA recognizes these agreements, and thus a state that assists another state during an emergency can be eligible for federal reimbursement for their assistance in the disaster. In addition to EMACs, intrastate mutual aid agreements generally exist between counties for supplies, equipment, materials, personnel, and other resources. In some cases, transit agencies may have their own mutual aid agreements with other transit systems.

### *Role of Public Transportation*

The primary focus of this report is on the role of the state public transportation division in emergency management; however, in order to understand what their role is, it is important to review briefly the role of public transportation in an emergency.

The most visible role of public transportation is often in evacuation planning and execution. Transit agencies have physical assets including buses, trains, fleet maintenance facilities, passenger facilities, and personnel at their disposal—all of which can be useful in an evacuation and during a disaster response. In some cases, transit facilities could be used as shelter during an emergency. In the simplest sense, warming buses can be used in the case of extreme winter weather and cooling buses during heat waves in areas not generally subject to continuous extreme heat (e.g., Chicago heat wave of 2001).

Populations with special needs are a critical group that can benefit from effective coordination and use

of public transportation assets before and during a natural disaster. Special needs populations include persons with disabilities, those who are medically dependent, prisoners, elderly people, and, in some cases, children who may be separated from a parent or adult during a natural disaster. A key role for public transportation may involve providing transportation to evacuation points for persons with special needs in coordination with other care givers. Transit has a unique capacity in providing mobility to persons with disabilities because of the Americans with Disabilities Act (ADA) and related services. Pre-existing contracts or agreements with hospitals or medical personnel to assist in taking care of evacuees on board transit may be necessary as well.

Not all natural disasters require evacuations; another issue that public transportation must address is maintaining operations (and the safety of those operations) during and after a natural disaster. Following a natural disaster, the quick restoration of transit operations, including damage and impact assessment and restoration of transit infrastructure where necessary, is a primary concern. This can be especially important to maintaining public health and safety and is critical in facilitating economic recovery following a natural disaster because public transit helps transport people to jobs and schools. Transportation system restoration is one of the Emergency Support Functions identified in the National Response Plan (NRP) used by FEMA when responding to disasters and is discussed later in this report. Most states have plans that replicate the NRP.

Transit agencies also provide transportation to evacuees and emergency workers. According to the interviews with state transit divisions and transit agencies, several states issued bus passes to refugees of Hurricane Katrina coming to their states after the event. In addition, transit agencies in New York State and Florida arranged transportation for power companies after storms.

### *Research Approach*

The focus of this research is on the state transit division's role in emergency management including preparedness, response, recovery, and mitigation. To investigate this topic, a literature review was conducted of FEMA; National Emergency Managers Association (NEMA); and FTA guidance and publications, congressional reports, and other publications. In addition, representatives of state transit divisions, state emergency management agencies, local transit

operators, and local emergency management agencies were surveyed and/or interviewed. Several research instruments were developed to facilitate these surveys and interviews:

- A web-based survey on state transit division involvement in emergency management was distributed to the state transit division of all 50 states. The contact list for this survey was generated from the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Public Transportation (SCOPT) representatives list. The survey asked states whether they had an emergency response plan, if they had (a) participated in the response to an emergency, (b) participated in emergency response exercises, (c) assessed emergency preparedness of the transit operating agencies in their state, and (d) inquired about lessons learned and best practices. In total, 38 survey responses were received out of 50 states contacted. In addition, a follow-up survey was conducted on whether or not transit agencies were part of an intrastate mutual aid agreement and if this agreement guaranteed cost reimbursement. The follow-up survey also asked if there is an emergency coordinator in the state DOT and, if so, asked for the name and contact information of this emergency coordinator.
- A full set of telephone interviews was conducted with five states: California, Florida, Mississippi, Ohio, and Pennsylvania. In addition, partial sets were conducted with New York, Washington, and Virginia. A full set of interviews includes interviews with representatives from four agencies in the state: (1) the state transit division, (2) the state emergency management agency, (3) a local transit operator, and (4) a local emergency management agency. A partial set of interviews included some but not all of these agencies. Select lessons learned and best practices are included from these partial sets. The telephone interviews were aimed at understanding the general structure of emergency management in each state, how state transit fits into that structure, and the role of state transit within the state's emergency management framework. The purpose of the full set of interviews was to get several perspectives on the state transit division's role. The initial interview in each state was conducted with the state transit division.

Names and contact information for emergency management and transit contacts were requested from the state transit representative.

- A 1-day panel session was convened on August 6, 2007, with eight representatives from transit agencies, state transit divisions, and state and local emergency management. The purpose of the panel discussion was to review the project findings and receive feedback from the panelists through a moderated discussion of the various findings. The focus of the panel was on the role of state transit and on developing a future research agenda.

### *Research Results*

The results of the survey, telephone interviews, and panel meeting provided a range of perspectives on the role of the state transit division in emergency management. Section 2 of this report presents key findings of the literature review. The surveys and interviews provide insight into the emergency management communication and operations structure and the role of state transit within this structure for various states; these findings are presented in Section 3. Section 4 presents lessons learned and best practices by topic, focusing on the potential roles of state transit. Finally Section 5, the concluding chapter, focuses on areas needing further research and presents possible future research topics.

## **2. LITERATURE REVIEW**

State transit division's role in emergency management is the primary focus of this research; however, literature on this topic is sparse. This section presents major points of relevant reports on evacuation and transit agencies' role in weather-related disaster response and recovery. Detailed information is presented in the Appendix.

The Senate report pointed out that the Louisiana Department of Transportation and Development failed to arrange transportation for evacuation in the pre-storm stage of Hurricane Katrina, and the City of New Orleans was unprepared to help people evacuate as many buses from the city's own fleet were submerged.

In the Congressional Research Service (CRS) report for Congress, the Post-Katrina Act authorized the Department of Homeland Security (DHS) to approve state and local use of federal grant program funding for establishing evacuation program and plans.

The FTA report on disaster response and recovery resource recommended transit agencies should, either by themselves or through their local government, develop pre-established Mutual Aid Agreements with other key agencies in the same and adjoining areas.

The FTA-funded report on transportation equity in emergencies suggested that targeted outreach and assistance measures, as well as coordination among local transportation and emergency management agencies would help local agencies be better prepared to assist populations with specific needs in emergencies.

### 3. SURVEY AND INTERVIEW FINDINGS

#### Baseline Survey

The research team conducted a brief internet survey of state transit divisions in all 50 states and received 38 responses. The focus of this survey was on emergency preparedness, planning, and response. Later in this research effort, a follow-up survey was conducted on intrastate mutual aid agreements in all 50 states and received 32 responses. Most of the responses were from states that had responded to the initial survey.<sup>3</sup>

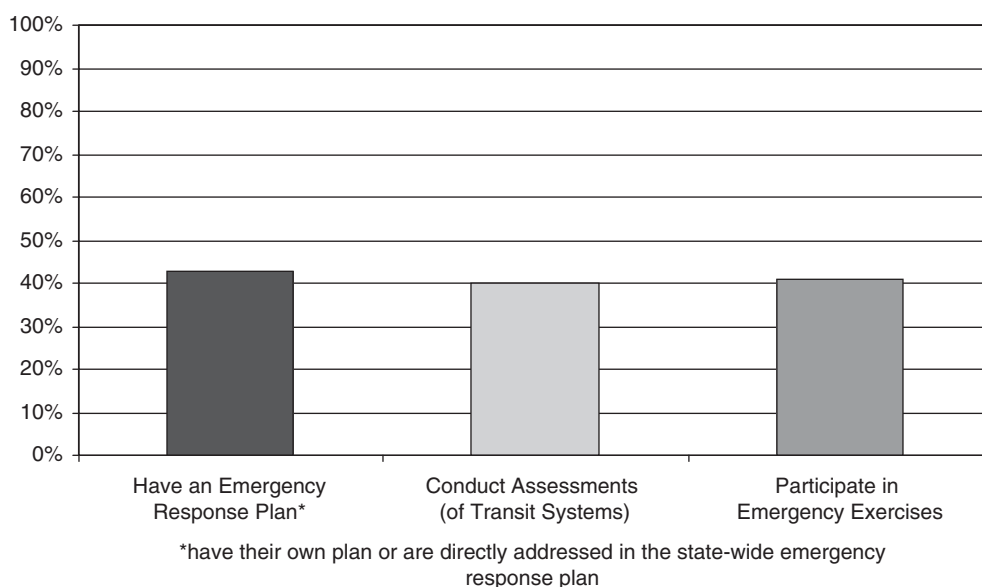
#### Initial Internet Survey

In Figure 2, 43% of the state transit divisions that responded to the initial survey have an emergency response plan, which are either an independent

emergency response plan or an annex or part of the state-wide emergency response plans. Forty percent of the survey respondents have assessed emergency preparedness of transit agencies by checking on the agencies' plans and/or call down lists, and 41% of the survey respondents have participated in emergency exercises.

Approximately 81% of the survey respondents stated that they have learned lessons from hurricanes Katrina, Rita, or other recent weather-related emergencies. The catastrophic event in the Gulf Coast reminded many state transit divisions of the importance of emergency preparedness. Many states and transit systems began developing or enhancing their emergency response plans and emergency call down lists after the event of Katrina.

Several states alleged that there appears to be a lack of recognition among state and local emergency managers of public transportation providers' role in emergency management. In addition, several states experienced problems with FEMA reimbursement after their participation in the hurricane evacuation and in the post event recovery. The Alabama transit division manager wrote: "Transit systems throughout the state responded to demands for transportation services from Hurricane Katrina evacuees who were housed temporarily in the state parks. Although the State authorized these services, FEMA disallowed associated expenses because the services were not deemed essential. FEMA advised that future response and recovery



**Figure 2** Online survey of state transit divisions. (Response rate: 38 out of 50 states)

activities should be coordinated with local EMAs in order to ensure the eligibility of transit expenses.”

Approximately 20% of the survey respondents believed they have best practices that they would consider worthy of adoption by other state public transit divisions. Six state transit divisions have developed safety, security and emergency management programs to guide the emergency planning and response for local transit and intercity public transportation. In addition, Ohio Department of Transportation (ODOT) introduced its communication system called “InPhonet” to update Ohio’s transit systems on important information and emergencies. The information is recorded on the telephone or computer and is transmitted simultaneously to key personnel at transit systems by telephone, cell phone, and/or email.

*Follow-Up Survey*

Figure 3 summarizes the results of the follow-up survey on mutual aid agreements.

The results of the survey presented in Figure 3 show that 9% of the responding states (three states) have a transit specific mutual aid agreement and in 6% of the states (two states) transit is part of an intrastate mutual aid agreement. However, transit is not part of a mutual aid agreement in 61% of the states, and 24% of the responding states were unsure if transit was part of a mutual aid agreement.

For the five states where there is either a transit specific mutual aid agreement or where transit is part

of an intrastate mutual aid agreement, three states confirmed that the agreement assures transit agencies reimbursement of its costs in responding to a request for aid.

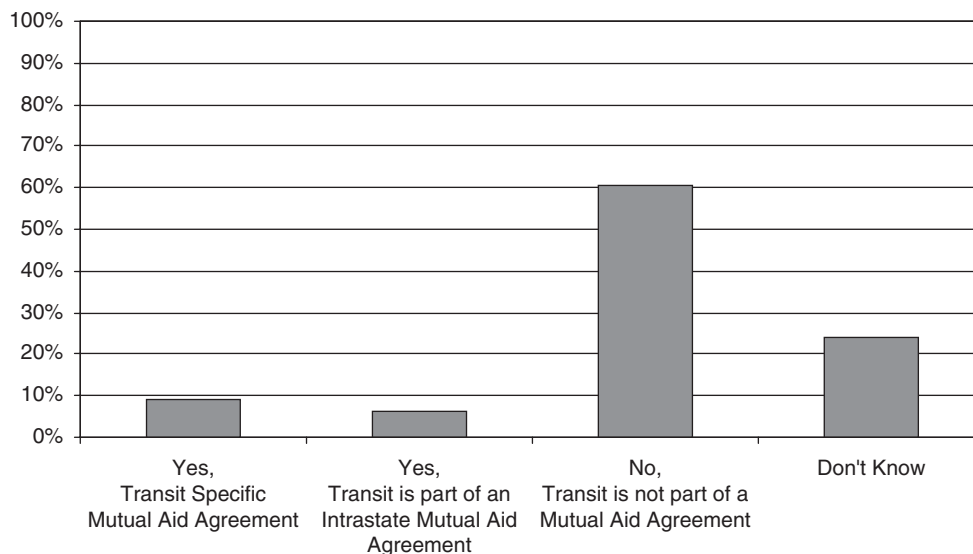
The survey also asked if there is an emergency coordinator in the state DOT and if so for the name and contact information of this emergency coordinator.

**Telephone Interviews**

The research team interviewed state transit divisions, local transit agencies, and emergency management offices from selected states: Florida, Mississippi, California, Ohio, Pennsylvania, New York, Virginia, and Washington. Table 2 shows a summary of interviews conducted.

The role of the state transit division in emergency management varies from state to state, ranging from coordinating all phases of emergency management for transit in the state, such as planning, response and recovery, to no involvement unless activated by the state emergency management agency (EMA) through ESF#1.<sup>4</sup>

In most cases, the local EMA is the focal point of communication. It calls upon local resources, mutual aid within the state, and possibly the state emergency operations center (EOC) when the regional resources are overwhelmed. Specific coordination structure models vary from state to state and are discussed in Section 4.



**Figure 3** Intrastate mutual aid agreements. (Response rate: 33 out of 50 states)



**Table 2** Summary of interviews conducted.

State	State Transit	State EM	Local Transit (number/type)	Local EM	Other
California	✓	✓	Rural and Commuter Rail	✓	
Florida	✓	✓	2 Rural Systems	✓	
Mississippi	✓	✓	Small Urban and Rural	✓	
New York	✓		Medium Size Urban		
Ohio	✓	✓	Small Urban/Rural	✓	State DOT
Pennsylvania	✓		Large Urban		
Virginia	✓				
Washington	✓				

### Florida

The state transit division in Florida DOT has grown into a leading player in all phases of emergency management since 2004 when the state was hit by five storms in 6 weeks. The division united transit systems throughout the state to function as a connected and smoothly running organization in emergency situations. Not only has the division had a call down list of every transit system in the state, but also it had an inventory list of equipment. Meanwhile, the division ensures that each transit provider is connected with the local EMA—the executive director of a transit agency is part of the local EMA and each transit system has a representative with a seat in the local emergency operation center (EOC) during an emergency. Furthermore, the division provides a book on lessons learned and training on emergency management to transit systems.

In addition, the state transit division has administered a mutual aid agreement with transit systems all over the state. The state transit division experienced problems with reimbursement from FEMA and the state covered costs incurred by transit systems that FEMA didn't approve.

### Mississippi

The Mississippi state transit division provided emergency management training and hired a consultant to help small urban and rural transit systems develop their emergency response plans. The transit division's role is not clearly defined in the state emergency operations plan and the division is often left out of the emergency management process entirely—unless contacted by a transit system or even more rarely called upon by the DOT representative in the state emergency management office. Since public transportation has not been viewed as a key player by

the state EMA, it is not included in a mutual aid agreement and most transit systems are not connected to their local EMA. The state transit division, which assisted local transit systems in getting reimbursement from FEMA and/or FTA, discovered difficulties in getting FEMA and FTA funding in some cases.

### California

The California state transit division has taken significant steps in organizing transportation emergency preparedness workshops across the state for local agencies, transit operators, and emergency responders. To date, the state transit division has successfully organized seven workshops for about 1,200 participants. The workshops focused on lessons learned from past emergencies and identified key issues that must be addressed in order to improve transit emergency preparedness. In 2006, the California state transit division hosted two regional workshops on emergency response and recovery for urban transit managers, port authority managers, emergency managers, first responders, and those responsible for national response assets. The conferences included lectures on lessons learned and tabletop exercises. As part of the 2006 workshop, the state transit division developed a "Transit Emergency Planning Guidance" and provided templates for transit agencies to assist them in developing their own emergency response plans and MOUs (see [www.dot.ca.gov/hq/MassTrans/Safety-Security.html](http://www.dot.ca.gov/hq/MassTrans/Safety-Security.html)). The state transit division is planning three additional workshops across the state for small urban and rural systems in spring 2008. Additionally, as part of its statewide transit security coordination, the state transit agency provides technical assistance to rural public transit operators in developing emergency response plans, training materials, as well as working with agencies to incorporate "Best Security Practices" into their transportation system security.

The transit division's role is not clearly defined in the state emergency operations plan, but the state emergency management office is in contact with the state transit office and could call upon them if necessary to assist in coordination if transit resources are deemed necessary. Some transit systems in the state are not connected to their local EMA, especially small and rural agencies. The local EMA generally has a mutual aid agreement with other counties but the transit system is not included. The state transit division hasn't been involved in recovering costs from FEMA or other EMA.

### *Ohio*

The ODOT Office of Transit strongly encourages transit systems to be directly connected with their local EMA. Furthermore, the division provided a template for rural transit systems to develop their own emergency response plan. ODOT's Office of Transit hasn't had much involvement in an emergency response but could serve in a support role if it is called upon by the emergency coordinator of ODOT. The Ohio IMAC (Intrastate Emergency Assistance Compact) managed by Ohio EMA covers services, supplies, equipment, materials, personnel, and other resources of participating counties within the state of Ohio. Since the transit systems are not included in the mutual aid agreement, reimbursement could be an issue if transit systems were involved in providing services related to an emergency. ODOT's Office of Transit hasn't been involved in recovering costs from FEMA or other EMA.

### *Pennsylvania*

The Pennsylvania state transit division has been involved in emergency management exercises for large systems as a participant, but not as an organizer. The transit division has not been involved in emergency management for small urban or rural systems; however, it should be noted that for the last 20 to 30 years in Pennsylvania there has also not been a substantial emergency event, and certainly not one which substantially impacted transit or required transit for evacuation or other assistance. Large urban transit systems in Pennsylvania, such as SEPTA, have a direct connection with the state and local EMA and receive sufficient funding, including federal funding, for emergency planning and exercises. Small urban and rural systems do not receive federal funding and may not be in direct contact with their local EMA. There is no formalized assistance agreement for transit. The state and local EMA officials are working on

mutual aid agreements between counties and with adjacent states. It is unclear whether this agreement would include public transportation. The Pennsylvania state transit division hasn't been involved in recovering costs from FEMA or other EMA.

### *New York*

The New York State DOT's (NYSDOT) Public Transportation Bureau strongly recommends a multi-modal approach when considering impacts to the transportation system and as a resource before, during, and after an emergency. The Department's Public Transportation Bureau plays a role during an emergency if called on by the state to coordinate transit resources, which could include such things as transit construction equipment, in addition to more standard transit resources. NYSDOT's Public Transportation Bureau maintains an inventory of public transportation assets in the state. In addition, the bureau has sponsored transit personnel at emergency management classes and organized tabletop drills that included small, medium, and large urban systems (rural systems have generally not been included in these drills). There is no formalized assistance agreement in place for transit systems. The division noted that there is no relief funding program available for FTA as there is for FHWA, and, in some cases, the state has paid for the expenses incurred by transit systems in emergency response because FEMA disallowed certain costs.

### *Virginia*

The Virginia state transit division's role in emergency management is a support role in which they may act as liaison between transit agencies and state DOT and emergency management if called upon in an emergency. The Virginia state transit division has provided emergency management training and assisted transit systems in preparing emergency response plans. Some transit systems in Virginia are not integrated into local emergency response plans, and others are integrated but are not aware that they are part of the plan. The Virginia transit division regards it as one of its major tasks to promote awareness of public transportation's role in emergency planning, response, and recovery. A mutual aid agreement exists in Virginia that covers county assets throughout the state. If a transit system is not part of the county assets, it would not be included in the agreement. The state transit division has not been involved in cost reimbursement for emergency response.

## Washington

The Washington state transit division encourages transit systems to get involved in regional emergency management. The division also realizes the need to promote the awareness of public transportation's role in emergency planning, response and recovery. In addition, the division noted that funding from the Department of Homeland Security (DHS) only goes to the large urban systems, while the small urban and rural systems do not receive this funding and are still unprepared for emergency situations. This year, the division, in partnership with the WA Transit Insurance Pool and the WA Transit Association, organized the first bus safety and security conference. The conference included emergency management workshops that provided information specific to bus systems. The audience represents transportation providers from a wide variety of public and non-profit public transportation providers across the state, both urban and rural, and first responders and law enforcement.

The state transit division administers a mutual aid agreement with the transit agencies. Each transit agency voluntarily signs on as a party to the multiparty agreement. Providing mutual aid is not mandatory to the signatory agencies, and it depends on their ability and willingness to assist when an emergency situation arises. The division has been involved in reimbursement; for example, the division reimbursed transit agencies for the actual costs of bus passes issued to Hurricane Katrina refugees. FEMA originally turned down the division's request, but later reimbursed the division for the expenses.

Table 3 summarizes the major roles of the state transit division, and whether or not transit systems in the state are connected to their local emergency management office.

## 4. LESSONS LEARNED AND BEST PRACTICES

This section describes lessons learned and best practices uncovered through surveys, interviews, and the panel session. It begins with a discussion of several possible models for the role of the state transit division in working with and coordinating with the state emergency management agencies. The second section reviews several specific emergency planning, response, and recovery roles that state transit divisions have played in various states and concludes with a discussion of mutual aid agreements including interstate, intrastate, and transit specific agreements.

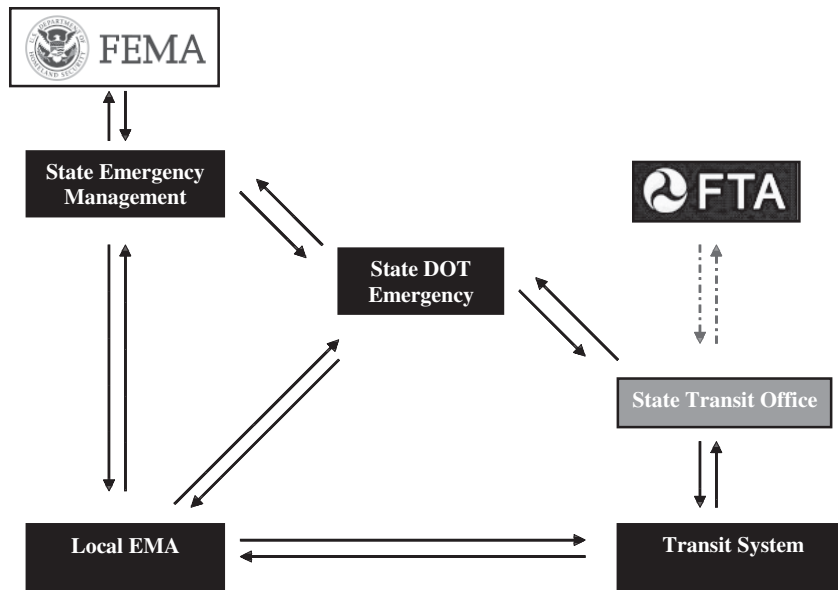
### Relative Role of State Transit

In exploring the issue of state transit division roles, several different models of emergency management coordination emerge. In general, emergency response and coordination begins at the local level with the local emergency operations center, and, depending on the size of the disaster, the local emergency operation center works in coordination with the state emergency operations center. However, involvement and coordination points for the state transit division and transit systems vary between states.

This section presents and describes several models. The intent of this section is only to describe these models and not to infer or imply that a particular model is ideal or better than another model. In fact, no one model is likely to work for every state, and the best model for any particular state will depend on each state's political and geographical structure and the nature, intensity, and frequency of the disasters it tends to experience.

**Table 3** Transit division role in emergency management.

	<b>Involved in EM Education/ Training Assistance</b>	<b>Maintain a Transit System Inventory List</b>	<b>Administer Transit Mutual Aid Agreement</b>	<b>Involvement in Reimbursement</b>	<b>Linkage between Local EMA and Transit Agencies</b>
<b>Florida</b>	Yes	Yes	Yes	Yes	Yes
<b>Mississippi</b>	Yes	No	No	Yes	Varies by County
<b>California</b>	Yes	No	No	No	Varies by County
<b>Ohio</b>	Yes	No	No	No	Yes
<b>Pennsylvania</b>	No	No	No	No	Varies by County
<b>New York</b>	Yes	Yes	No	Yes	Varies by County
<b>Virginia</b>	Yes	No	No	No	Varies by County
<b>Washington</b>	Yes	No	Yes	Yes	Varies by County



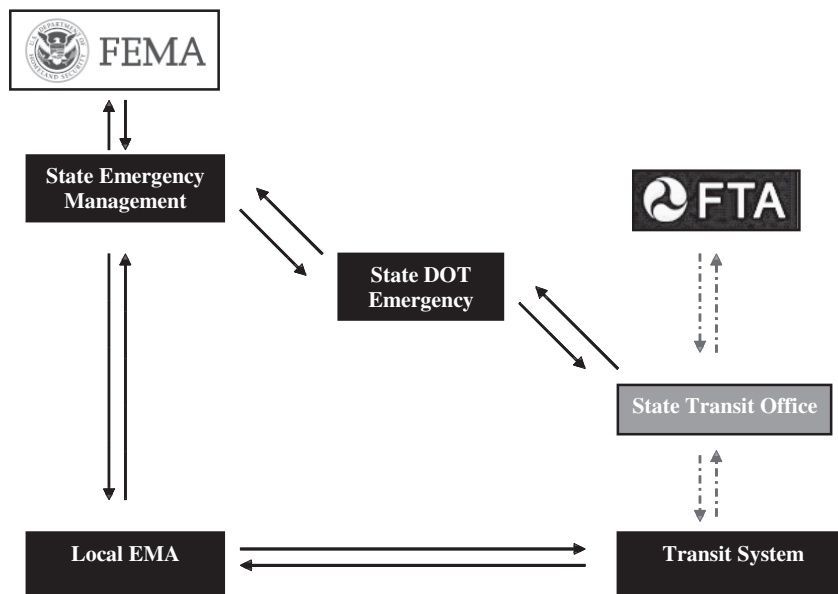
**Figure 4** Maximum level of coordination model.

The first model shown in Figure 4 reflects the maximum level of coordination between emergency agencies and the transportation sector in emergency response; thus, most lines in Figure 4 are solid to demonstrate these direct links. This is characteristic of Florida’s emergency management structure.

In this model, transit systems are integrated into the local emergency operations plan. In addition, the state transit division plays a leading role in organizing transit resources at the time of an emergency. Meanwhile, the state DOT not only works with the state EMA as

the primary responder to ESF#1—Transportation, but also communicates directly with the local EMA to obtain situational awareness on the local level. (At the federal level, the Federal Transit Administration (FTA) is generally not involved in emergency operations and thus the “dashed” arrows are shown connecting to FTA).

Figure 5 reflects a medium level of coordination between emergency agencies and the transportation sector in emergency response. Ohio is one example of a state with this structure. In this model, the transit



**Figure 5** Medium level of coordination model.

division is activated by the state EMA and DOT when transit resources are requested by the local EMA. Under these circumstances, the state transit division works with state EMA through the emergency coordinator in the state DOT. The local EMA is responsible for the coordination with transit systems at the local level. Most of the lines are solid with the exception of the link between the transit division and the transit agency, since the transit agency is supposed to work with the local EMA rather than the state transit division.

Figure 6 reflects the minimum level of coordination between emergency agencies and the transportation sector in emergency response. Mississippi is one example of a state with this structure. In this model, the link between the transit operating agencies and local EMA is not well established (as represented in Figure 6 by “dashed” lines). The state transit division and often the transit systems as well are not included in emergency management planning, response, and recovery.

### Emergency Management Activities of State Transit

State transit division roles vary between states; the following discussion describes possible roles for state transit. Each of the items mentioned is an emergency preparedness, response, or recovery activity where one or more state transit divisions have been involved effectively. State transit divisions are able to

appraise their roles in supporting emergency management, taking into consideration their specific needs and resources, in order to determine if taking on any of these activities would benefit emergency management in their state.

#### Emergency Preparedness

- Promote communications between transit systems and their local EMA, since effective emergency management begins at the local level.
- Convene a safety and security forum where emergency management topics could be discussed.
- Conduct statewide training/technical assistance on emergency management issues with an emphasis on small urban and rural systems; provide a template of an emergency response plan for transit systems.
- Encourage transit systems’ participation in a mutual aid agreement and ensure coordination between their state’s mutual aid agreement and APTA’s national emergency response network.<sup>5</sup>
- Develop an inventory database of transit agency resources and share the inventory database with state and local EMA.
- Communicate best practices among transit systems on special topics, such as evacuation of special needs populations.

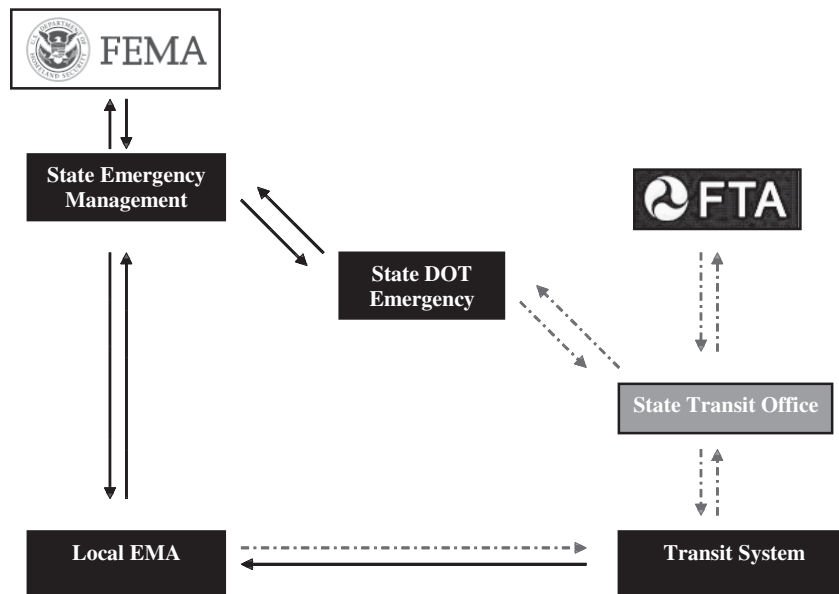


Figure 6 Minimum level of coordination model.

### *Emergency Response*

- Coordinate public transportation emergency response, mainly with state DOT, state EMA, and transit systems as needed, including asset coordination to support special needs populations.

### *Emergency Recovery*

- Coordinate with FEMA and other EMA organizations and assist transit systems in understanding and accessing FEMA reimbursement processes.
- Implement innovative programs to facilitate economic recovery such as the Washington State bus pass program.

## Mutual Aid Agreements

In order to secure federal funding for emergency management and homeland security, state and local agencies must comply with the provisions of the National Incident Management System (NIMS) and the National Response Plan (NRP). In both of these documents, jurisdictions are highly encouraged to maintain and exercise mutual aid agreements.

### *Interstate and Intrastate Agreements*

At the national level, the model for mutual aid is the Emergency Management Assistance Compact (EMAC). This governance structure will promote the integration of emergency management professionals and resources into a robust state system of mutual aid. EMAC solves problems upfront in the areas of reimbursement, licensure, and liability. It is assumed that mutual aid agreements function similarly on the state and local level. Some states have also created an intrastate statewide emergency management assistance compact, which functions similarly to the EMAC but is an agreement between counties or other entities within the state rather than between states. One example of an intrastate agreement is Ohio's IMAC (Intrastate Emergency Assistance Compact).

### *Transit Specific Mutual Aid Agreements*

On top of the statewide mutual aid agreement that covers county assets,<sup>6</sup> Washington state transit division maintains and exercises a public transportation emergency response mutual aid agreement. The signatory agencies include public and non-profit public transportation providers in the state.

The mutual aid agreement has been activated once since it was promulgated: in 2005, the Washington state transit division coordinated public transportation service for more than 2,500 Hurricane Katrina refugees. The transit systems participating in this joint effort provided bus passes to refugees for 2 months. After the event, the transit division had to reimburse the transit systems for the costs of bus passes because FEMA did not initially approve the reimbursement request. FEMA pointed out that the refugees in Washington State had been staying in temporary lodging scattered around the area rather than congregated camps implied in FEMA's policy. The transit division finally convinced FEMA that the situation was special and the service was essential for the refugees to recover and become self-sufficient after the disaster.

The mutual aid agreement played an important role in reimbursement since the agreement stipulates that the reimbursement rate should be "at its usual and customary rates for its actual costs."<sup>7</sup> Therefore, it was not necessary to negotiate the rate with FEMA after the event. Secondly, because the mutual aid agreement was in place in advance, the transit division was able to request different wage levels for different areas from FEMA.

Another example is a recent effort by APTA to organize a national transit emergency response network. The network would consist of a call down list and transit assets inventory for those agencies that have volunteered to assist in an emergency. APTA would coordinate a transit emergency response when a responsible agency (presumably state EMA or FEMA) calls upon APTA for mutual aid.

## 5. CONCLUSIONS AND SUGGESTED RESEARCH

This report provided background on emergency management and transit, reviewed state transit emergency management practices in various states, and summarized best practices and lessons learned. These best practices and lessons learned may be helpful to state transit divisions in improving their existing emergency management plans, policies, and practices. The public transportation focus and related best practices documented in this report should help make states and state transit divisions more aware of the public transportation issues in emergency management and the role of public transportation in an emergency.

Based on the research, it is evident that not all states are alike and that there are potentially different

capabilities of state transit divisions to support their state and local emergency management efforts. The primary role that state transit divisions exercise to support the population in dealing with emergencies is to provide leadership and education to transit systems in their state on emergency preparedness, response and recovery and to encourage proactive emergency planning and mitigation efforts.

This final section provides suggestions for future research on related topics, based on suggestions from the panel meeting that the researchers conducted. These areas are:

### Pros and Cons of Various Types of Mutual Aid Agreements for Public Transportation

Further research into mutual aid agreements as they relate to transit would be valuable for example: (1) researching best practices in various states such as Washington, California, Florida, and Ohio, (2) evaluating separate mutual aid agreements for public transportation, and (3) examining how to include transit assets in an existing state and local mutual aid agreement.

With a separate mutual aid agreement for public transportation, a mutual aid action can take place with less coordination from the local EMA. Some outstanding questions include: Does it create confusion in the command and control procedures at the time of an emergency? Would FEMA or other EMA reimburse the costs for a mutual aid action that they did not specifically authorize, or alternatively what sort of command structure, communication, and documentation is necessary to ensure that the action is reimbursable?

Some transit assets are not currently covered in the statewide mutual aid agreement. Research questions include: could transit systems be included in the statewide mutual aid agreement by signing the statewide agreement?

On one hand, it makes sense to have an agreement in advance with the state EMA that guarantees reimbursement; on the other hand, it would be useful to determine how a separate mutual aid agreement works for the transit system.

### Factors Affecting the Role of the State Transit Division

There is no one-size-fits-all model for the role of the state transit division. The appropriate role of

each state transit division is decided by the specific needs and resources of each state. The relevant factors include the number of disaster declarations and the intensity of disasters in the state, the capabilities of the state EMA, and political will.

Research concerning factors affecting the role of the state transit division with respect to preparedness assessment and best practices would be useful for the state transit directors, state DOT, and possibly state emergency managers.

### Observations on Existing Federal Practices

FTA does not have an emergency relief funding program as FHWA does. Large urban transit systems are eligible for UASI (Urban Area Security Initiative) grants from DHS. Small urban and rural transit systems tend to have little or no funding for emergency planning, training, and exercises. A study might focus on funding sources for emergency management in the state transit division and FTA, or other sources of federal funds such as DHS.

Federal regulations require transit agencies that desire to provide charter services to make good faith efforts to determine whether local private charter operators are able to provide the service. The transit agencies should document such efforts by notifying the American Bus Association and the United Motor Coach Association of the proposal to provide the service.<sup>8</sup> Some outstanding questions include: Should an emergency response activity be exempted from the requirement? What role should transit and charter operators play respectively in providing transportation services at the time of an emergency?

### Special Needs Population Data System

The Hurricane Katrina disaster has raised concern that government at all levels is not well prepared to assist members of the public who, by virtue of their age, ability, income, national origin, or medical history, will have specific mobility, sheltering, communications, or other special needs in emergency events. Knowledge of special needs populations is critical for transit systems to provide transportation for people with special needs in emergencies.

Number and location of special needs populations might be found in several agencies, such as paratransit services, senior services, and rehab centers. Other resources include faith- or cultural-based, social service and other non-profit organizations. In some states,

local EMA advertises evacuation assistance annually through the media, encouraging people with specific needs to register at their local EMA. A study might examine the best practices in outreach to people with special needs and determine what role transit should play in developing, administering, or maintaining a special needs population database, and how to integrate the knowledge of special needs populations into evacuation plans.

### Vehicle Type Classification Inventory Guidance for State and Local Emergency Managers

Emergency managers are often not familiar with the various types of vehicles and their capacity and capabilities; thus, a research project to develop vehicle-type classification guidance for state and local emergency managers could be helpful to emergency managers to better utilize transit in an emergency.

### Provider Inventory Data Systems—Public and Private

There are both public and private transportation providers who could prove to be a valuable resource to emergency managers during an emergency. However, their capacities and resources are not documented or available to emergency management organizations. One area of future research is to create guidelines for developing an inventory data system. Maryland has developed a system and could serve as a case study, but other practices should be researched as well. In addition to the guidelines research, this study should also provide information on (1) protocols for accessing resources in the database and (2) how to structure these contracts (i.e., whether to set up standby contracts) through a mutual aid agreement or under separate contracts and pricing issues.

### ENDNOTES

<sup>1</sup>Information about the network is covered in Transit Specific Mutual Aid Agreements in Section 4.

<sup>2</sup>Further information on APTA’s Emergency Response and Preparedness Program (ERPP), APTA’s online “mutual aid” tool, is available at <http://www.aptaerpp.com/home>.

<sup>3</sup>Some responses came from states that had not responded to the initial survey, and some states

who responded to the initial survey did not respond to the follow-up survey.

<sup>4</sup>The National Response Plan (NRP), issued by the Department of Homeland Security, identifies the U.S. Department of Transportation (DOT) as a primary responder to Emergency Support Functions No. 1 “ESF-1”—Transportation. Similarly, each state DOT is the primary responder to ESF-1 in the state emergency operation plan. Transit division in DOT is likely to be called upon if there is a transit need. For details, please visit [http://www.dhs.gov/xprepresp/committees/editorial\\_0566.shtm](http://www.dhs.gov/xprepresp/committees/editorial_0566.shtm)

<sup>5</sup>Information about the network is covered in Transit Specific Mutual Aid Agreements in Section 4.

<sup>6</sup>Transit systems are not part of county assets in Washington State.

<sup>7</sup>Public Transportation Emergency Response Mutual Aid Agreement by the transit division at the Washington State DOT.

<sup>8</sup>This requirement is discussed in FTA report “Disaster Response and Recovery Resource for Transit Agencies” Section 2.

### AUTHOR ACKNOWLEDGMENTS

The research reported herein was performed under NCHRP Project 20-65(13), “State Public Transportation Division Involvement in State Emergency Planning, Response, and Recovery” by AECOM Consult, Inc.

Scott Baker, Senior Consulting Manager, AECOM Consult was the principal investigator. He was supported by Stacey Schwarcz, Senior Consultant, AECOM Consult; Ying Chen, Analyst, AECOM Consult; and subject matter expert Jane Bullock, Partner, Bullock & Haddow, LLC.

Inputs from several states helped to inform this report. Among the major contributing state departments of transportation were: California; Florida; Mississippi; New York; Ohio; Pennsylvania; Virginia; and Washington. Representatives from an additional 37 states completed web-based surveys for this effort. In addition, several transit agencies, state emergency management agencies, and local emergency management agencies participated in telephone interviews.

Errors and omissions remain the responsibility of the principal investigator notwithstanding the generosity of the participants to the research.



## APPENDIX: LITERATURE REVIEW

A complete list of literature reviewed is as follows:

### 1. Senate Report, “Hurricane Katrina: A Nation still Unprepared, Executive Summary and Findings, Report of the Senate Committee on Homeland Security and Governmental Affairs” (May 2006)

The summary and findings report revealed failures of different levels of the government in evacuating people. During the pre-storm stage, the Louisiana Department of Transportation and Development (DTD), charged under the state’s emergency operations plan with arranging transportation for evacuation in emergencies, had done nothing to prepare for that responsibility prior to Katrina.

The City of New Orleans was unprepared to help people evacuate, as many buses from the city’s own fleet were submerged; while, at the same time, officials had not arranged in advance for drivers for those buses that were available. In addition, the City did not finalize its negotiations with Amtrak, riverboat owners, and others to pre-arrange transportation alternatives before Katrina struck the city. The best solution New Orleans had for people without transportation was a private-citizen volunteer carpool initiative called “Operation Brother’s Keeper.”

The Louisiana Office of Homeland Security and Emergency Preparedness did not exercise sufficient oversight to ensure that the Louisiana DTD would fulfill its responsibilities under the state’s April 2005 plan. In addition, the federal government did not engage state or local authorities in discussions about transportation alternatives for those lacking means for pre-landfall evacuation.

FEMA and the U.S. DOT, charged under the National Response Plan with supporting state and local government transportation needs (including evacuation) in emergencies, did little to plan for the possibility that they would be called on to assist with post-landfall evacuation needs. Despite the state’s continued requests over the course of the next 2 days, FEMA did not direct the U.S. DOT to send buses until 2 days after the landfall.

To view the report, please visit [http://hsgac.senate.gov/\\_files/Katrina/ExecSum.pdf](http://hsgac.senate.gov/_files/Katrina/ExecSum.pdf)

### 2. CRS Report for Congress, “Federal Emergency Management Policy Changes after Hurricane Katrina, A Summary of Statutory Provisions” Congressional Research Service (November 15, 2006)

This CRS report summarizes information on the emergency management modifications adopted by Congress in response to the widespread call for change. The Post-Katrina Act authorized the Department of Homeland Security (DHS) to approve state and local uses of federal grant program funding for establishing evacuation programs and plans, preparing for the execution of evacuation plans, and conducting evacuation exercises.

To view the report, please visit <http://www.fas.org/sgp/crs/homsec/RL33729.pdf>

### 3. White House Report, “The Federal Response to Hurricane Katrina Lessons Learned” (February, 2006)

The White House report makes the following recommendations on evacuation:

- Designate U.S. DOT as the primary federal agency responsible for developing the federal government’s capability to conduct mass evacuations when disasters overwhelm state and local governments. U.S. DOT should, in coordination with HHS, DOD, VA, DHS, and the American Red Cross plan, train and conduct exercises for the timely evacuation of patients and transportation of medical supplies and personnel.
- DHS should require state and local governments, as a condition for receiving Homeland Security grants, to develop, implement, and exercise emergency evacuation plans and to cooperate fully with all Federal evacuation activities.

- DHS should, in coordination with U.S. DOT, evaluate all state evacuation plans as well as the evacuation plans of the 75 largest urban areas.

To view the report, please visit <http://www.whitehouse.gov/reports/katrina-lessons-learned/>

#### **4. FTA Report “Disaster Response and Recovery Resources for Transit Agencies” (August 2006)**

Based on lessons learned from Hurricane Katrina and other events, FTA has documented practices and procedures to improve emergency preparedness. The purpose of this Disaster Response and Recovery Resource for Transit Agencies is to provide local transit agencies and transportation providers with useful information and best practices in emergency preparedness and disaster response and recovery.

The resources provide summary information for the role of federal agencies and states in disaster response. It also includes best practices and links to more specific resources and more detailed information for local agencies concerning critical disaster related elements, such as emergency preparedness, disaster response, and disaster recovery.

To view the report, please visit [www.fta.dot.gov/assistance/research/research\\_6314.html](http://www.fta.dot.gov/assistance/research/research_6314.html)

#### **5. FTA-Funded Report, “Transportation Equity in Emergencies: A Review of the Practices of State Departments of Transportation, Metropolitan Planning Organizations, and Transit Agencies in 20 Metropolitan Areas,” National Technical Information Service/NTIS (Final Report May 2007)**

This report reviews the extent to which transit providers, metropolitan planning organizations, and state DOTs in selected metropolitan regions in the United States and Puerto Rico are identifying and addressing the needs of populations that may be especially vulnerable in the event of a natural or man-made disaster. The report suggests that targeted outreach and assistance measures as well as coordination amongst local transportation and emergency management agencies would help local agencies be better prepared to assist populations with specific needs in emergencies.

To view the report, please visit [www.fta.dot.gov/documents/FINAL\\_TCR\\_Emergency\\_Response\\_v2\\_4-07-edit\(5\).doc](http://www.fta.dot.gov/documents/FINAL_TCR_Emergency_Response_v2_4-07-edit(5).doc)

#### **6. The California Department of Transportation (Caltrans), Division of Mass Transportation: “Response and Recovery Conference after Action Report” (November 2006)**

The report summarized outstanding issues for both the transit and emergency management communities in California regarding transit safety, security, and emergency preparedness and response, as well as the successes and lessons learned on the coordination of the workshops on emergency response and recovery. The Division of Mass Transportation of Caltrans hosted two workshops for transit managers, port authority managers, emergency managers, first responders, and those responsible for national response assets. The conference includes lessons-learned lectures and tabletop exercises.

To view the report, please visit [http://www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/Security\\_October\\_AAR\\_Final\\_Report.pdf](http://www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/Security_October_AAR_Final_Report.pdf)

#### **7. Ohio Emergency Management Agency: “Plan Development and Review Guidance for Local Emergency Operations Plan” (September 2007)**

This guidance was prepared to assist in the development and maintenance of local Emergency Operations Plans, to outline the planning process, and to set a standard for the information that should be contained in a local jurisdiction’s emergency operations plan. The guidance includes procedures to implement and coordinate an evacuation, which require the local EMA to identify the agencies that would assist in conducting an evacuation.

## 8. State Emergency Operations Plan

- Virginia <http://www.vaemergency.com/library/index.cfm>
- Ohio <http://www.ema.ohio.gov/plans.asp>
- North Carolina <http://www.nccrimecontrol.org/index2.cfm?a=000003,000010,000025,000185,000189>
- Massachusetts\* [www.mass.gov/mema](http://www.mass.gov/mema)
- Illinois\* <http://www.state.il.us/iema/>
- Alabama <http://ema.alabama.gov/Alabama%20Emergency%20Management%20Agency/Downloads/Downloads.htm>
- Florida [http://floridadisaster.org/internet\\_library.htm](http://floridadisaster.org/internet_library.htm)
- California [http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/EMGuide/\\$file/EMGuide.pdf](http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/EMGuide/$file/EMGuide.pdf)

\*The plan document was not available on the website



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