PEER EXCHANGE SERIES ON STATE AND METROPOLITAN TRANSPORTATION PLANNING ISSUES

MEETING 3:

DISASTER RESPONSE IN TRANSPORTATION PLANNING

Requested by:

American Association of State Highway
and Transportation Officials (AASHTO)

Standing Committee on Planning

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ACKNOWLEDGMENTS

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1.0 Introduction

The Disaster Response in Transportation Planning Peer Exchange was the third meeting in a peer exchange series held as part of National Cooperative Highway Research Program (NCHRP) Project 8-36, Task 69 – Peer Exchange of Best Practices on State and Metropolitan Transportation Planning Issues. The objective of Task 69 was to carry out separate peer review meetings to explore: disaster response issues in transportation planning; public-private project planning; and analysis of work assignments and performance in external positions funded by state departments of transportation. Peer exchanges have proven to be an effective and efficient forum to transfer knowledge across the transportation profession and generate innovative strategies to address complex challenges. Peer exchanges offer a unique opportunity to not only engage in discussion and share experiences and lessons learned, but also identify potential solutions and prioritize areas for additional advancement through research, technical assistance, and other activities.

The goal of the Disaster Response in Transportation Planning Peer Exchange held on May 23, 2007 was to identify ways in which disaster response could be more effectively integrated into State DOT and MPO transportation planning. The meeting was designed to also discuss the linkage between planning and operations—a key to the successful implementation of disaster response plans. Invited practitioners were asked to discuss their experiences with disaster response and recovery in transportation planning as well as share experiences, challenges, and resolutions in an organized and open setting. The peer exchange format allowed for a candid and informative exchange in which participants can advance their knowledge of the topic area and contribute to the evolving practice of incorporating disaster response issues by the transportation planning community. This report serves to document the contributions of peer exchange participants and provides an opportunity to share these findings with the wider transportation community.

Invitations to the peer exchange were extended to state departments of transportation (DOTs), metropolitan planning organizations (MPOs), transit operators, the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA). Participants were selected from across the country with input from the NCHRP 8-36 Task 69 oversight panel to create a mix of organizations with regard to size, jurisdiction, and experience with disaster response and recovery in transportation planning. Appendix A contains the list of participants who attended the peer exchange.

The remainder of this section contains background information on disaster response and recovery in transportation planning taken from a memorandum distributed to participants prior to the peer exchange. The purpose of the memorandum was to give a broad overview of a number of fundamental concepts and questions concerning the role

of disaster response and recovery in transportation planning. For the peer exchange, the memorandum provided a framework to help initiate discussion from the perspective of transportation planning and system management.

Prior to the meeting, participants were asked to respond to a questionnaire related to disaster response and recovery in transportation planning in their jurisdictions in order to filter key topics for further discussion. Section 2.0 contains a summary of these responses with complete responses located in Appendix B. Section 3.0 summarizes the topics covered during the meeting as well as additional insights, research needs, and existing reference material. Furthermore, as a way to bridge the discussion of disaster response and recovery in transportation planning with its practice, several participants were asked to share a case study highlighting their organization's experience with particular aspects of the topic area. The presentations engaged participants in discussing lessons learned and how barriers were overcome. These presentations helped guide the group in critically examining disaster response in transportation planning, specifically in relation to developing plans, implementing plans, and utilizing planning tools. Appendix C contains submitted case study material.

■ 1.1 Topic Background

Events over the past decade have placed a spotlight on the complex nature and numerous challenges faced by transportation practitioners as it relates to dealing with disasters. Forced to the forefront during these events is the importance of the nation's transportation infrastructure in supporting daily life and commerce, as well as the critical role transportation plays in rendering necessary aid to areas impacted by a disaster.

Whether natural or manmade in nature, one need not reflect much farther than the last decade to reference the significantly devastating impact disasters can have on local, regional, and national economies and overall quality of life. With regard to natural disasters, Hurricane Floyd (in 1999) was quickly dubbed "the nation's largest traffic jam in history" as an estimated six million people from five states on the southeast coast fled from the hurricane's path and the massive flooding it created. The 2005 hurricane season provided additional lessons about the importance and logistical feasibility of efficiently mobilizing millions of people in a short period of time, even with the usage of advanced notice.

The traffic gridlock resulting from the Hurricane Rita evacuees served as a particularly good example of how the absence of public education and awareness of "sheltering-in-place" options and benefits can detrimentally impact the ability of the transportation

infrastructure to support a mass evacuation. [1] Recently completed (but yet unpublished) research indicates that 41 percent of the evacuees from the Houston urban area that fled Hurricane Rita were well outside the areas subject to storm surge and, therefore, had no clear need to evacuate.

With regard to man-made disasters, the events of September 11, 2001 provide a chilling example of how our nation's transportation systems can be used as a weapon, but also as the very means by which to expand the scale of a disaster. Transportation systems have long been a popular target, with the 1995 Tokyo subway event (involving the release of sarin gas into the subway system) and the 2004 train bombings in Madrid as two other prominent examples. Intentional acts such as a dirty bomb released in a major seaport/ship channel or even accidental ones such as a major spill of hazardous waste due to mechanical failures at an industrial plant are examples of no-notice events that could have lingering detrimental impacts on the nation's extensive transportation network.

1.1.1 Terminology Overview

One common way to categorize disasters is "advance notice" (e.g., hurricanes, major floods, or widespread fires) or "no-notice" events (e.g., terrorist attacks or major hazmat spills). Given that transportation planning must address "advance notice" and "no-notice" events, both were discussed during the peer exchange. For the purpose of the peer exchange, disaster was defined as a major event that will impact a region or state for an extended period of time and is of a scope/magnitude that overwhelms local authorities and resources to the extent they must rely on support from others (i.e., the state, neighboring regions/states or the Federal government) to address the immediate crisis and related recovery. Scoping the discussion in this manner was based upon the assumption that minor, localized events would not have a significant impact on the long-range transportation planning process and/or related issues.

■ 1.2 State of Current Practice

The transportation planning process is a continuous, comprehensive, and collaborative process to address a wide range of issues, such as mobility, safety, land use, economic development, system efficiency, air quality, and social justice. The transportation planning process ultimately guides the allocation of transportation funding that balances competing priorities, fulfills legal requirements and agency goals, and meets public

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[1] "Sheltering-in-place" refers to an evacuee or group of evacuees finding adequate shelter in their own home or a nearby structurally sound facility, as opposed to traveling long distances to seek shelter.

demand.[2] New planning factors introduced by the Safe Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) illustrate how both safety and security are moving to the forefront of contemporary transportation planning practices and considerations. Under SAFETEA-LU, the security and safety planning provisions have been decoupled so that each is a stand-alone planning factor and receive more consideration in transportation plans.

Currently an approach to disaster response that is being encouraged is an all-hazards approach. This approach has been a cornerstone of the Federal Emergency Management Agency's (FEMA) response program since the agency was first established. It integrates the various emergency plans and activities into a "life cycle" of mitigation, preparedness, response, and recovery (the principles of emergency management) and, when combined with the incident command system, provides a template for interagency coordination that is directly applicable to events stemming from chemical and biological hazards, as well as all other man-made or natural events. A reference guide has been developed by FEMA to provide assistance to state and local organizations, as well as to facilitate improved coordination with the Federal Government.[3] Planning for disasters using this approach serves to improve response for both advanced notice and no-notice events.

Another very useful resource regarding current practice, and perhaps one of the most relevant new sources of information for disaster response in transportation planning, is NCHRP Report 525 – "Incorporating Security into the Transportation Planning Process."[4] A three volume report, this document benchmarks current practice in the United States and serves to illustrate the complex nature of adopting an all-hazard approach as well as integrating the approach as an active part of the overall transportation planning process. For example, figure 1 demonstrates how, using Safety as an example, disaster response issues could be included in the planning process. Effective integration of disaster preparedness into the planning process is critical – particularly in large urban areas where significant populations and regional economies are more vulnerable to major disasters.

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[2] NCHRP Report 525. "Incorporating Security into the Transportation Planning Process." http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_525v3.pdf.

[3] State and Local Guide 101: "Guide for All-Hazard Emergency Operations Planning."

[4] NCHRP Report 525. "Incorporating Security into the Transportation Planning Process." http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_525v3.pdf.

Figure 1.   Inclusion of Safety in the Transportation Planning Process
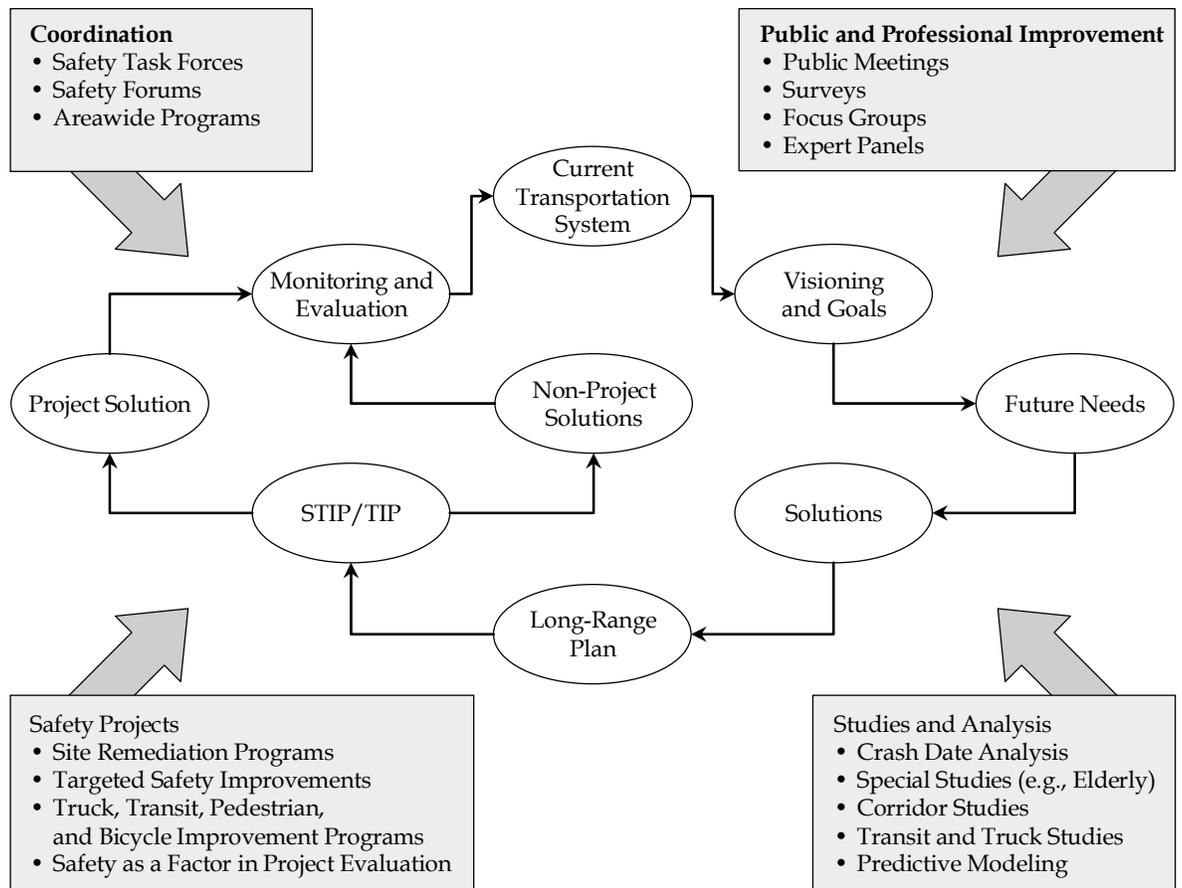
Source: NCHRP Report 525.

Among other things, NCHRP Report 525 concludes that the issue of security (and thereby an all-hazards approach) has not yet effectively been incorporated into the transportation planning process in the United States; although San Francisco, California is cited for its efforts to do so.

Although not focused specifically on the transportation planning process as a metric, another indicator of national preparedness status is illustrated by the Emergency Management Accreditation Program (EMAP). The EMAP standard covers a range of over a dozen topics/issues – including planning – and is based upon the National Fire Protection Association Standard on Disaster/Emergency Management and Business Continuity Programs, 2004 Edition.[5]   Highlighted in Figure 2 are the nine states in the

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[5] Emergency Management Accreditation Program. http://www.emaponline.org.

United States that currently meet the standards for this program. The Accreditation Program is voluntary and is supported by the National Governor's Association and the National Center for Best Practice and can be considered a general reflection of current best practices in the United States.[6]

Figure 2.   States Meeting National Standards for the Emergency Management Accreditation Program

■ 1.3 Planning and Operations

To provide effective disaster preparation and response, the fundamental relationship between planning and operations is essential. Every transportation agency is unique in the way that it links coordination between planning activities and operational functions to ensure that disaster response plans are implemented as intended. The degree of linkage between planning and operational functions also vary by transportation agency. Because no one-size-fits-all, it is important to explore a range of opportunities for improving the coordination between the planning and operational elements of plans so that they fluidly speak to each other in order to ensure proper implementation..

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[6] National Governor's Association. http//www.nga.org.

Some noteworthy developments in transportation planning that improve the link between planning and operations in disaster response include the following:

• Increase in the programming and funding of intelligent transportation system (ITS) technologies. ITS, such as closed-circuit television cameras and real-time traffic dissemination systems, can provide the dual benefit of mitigating the impact of some no-notice events and also can improve the efficiency of response and system management in the aftermath of a disaster.

• Leverage of transit/multimodal resources during a disaster. Figure 3 illustrates how agencies can collaborate by marshalling resources and expanding transportation logistics support in order to implement the transportation element of disaster response.

• Movement from "table-top" exercises to field exercises. Providing disaster response strategies in action-oriented field exercises is one way to more thoroughly test disaster response plans and help address gaps between planning and operations personnel perspectives and/or plans.

Figure 3.   Use of Public School Buses Post Katrina and Rita in Many Gulf Coast Evacuation Plans

■ 1.4 Challenges for Incorporating Disaster Response in Transportation Planning

Fundamental challenges exist in planning for and managing both advance notice and no-notice disasters that will, unfortunately, only become more complicated and difficult as land use patterns develop, climate changes occur, and terrorists become more sophisticated. Following are some of the main challenges to integrating disaster response preparation into transportation planning.

One element affecting disaster response is the tremendous population growth in high hazard areas, such as coastal counties and wildlife areas. For example, the Southeast "sunbelt" is a rapidly growing region with a population increase of 32 percent between 1970 and 1990. Much of this growth occurred in coastal counties, which are projected to grow another 41 percent between 2000 and 2025. Given that populations are growing in coastal areas susceptible to unpredictable weather conditions, it may be challenging for land use and transportation planning to keep pace with the demands of population growth. Furthermore, as a consequence of global climate change, it is predicted that the percentage of coastal areas impacted by a storm will increase due to storm surge and tide height, which will effect the populations of these areas.

Given the unique challenges posed by each disaster that can occur, coordination with the public, within an agency, and between agencies (e.g., state and Federal) can often be an issue. Clarifying roles and building trust need to occur before an event. Given recent events, many transportation agencies have become skilled at determining the vulnerability of their assets to both natural and man-made disasters. However, transportation agencies are still learning how best to involve each other in disaster response. Although collaboration is an important issue in the planning process, it is acutely important with regard to disaster response where planning may be coordinated across transportation modes and extend beyond regional and state boundaries. There currently is concern that, in the wake of 9/11, scenarios involving terrorist activities are being overemphasized, and that scenarios, such as hurricanes and other more-frequently occurring disasters, are not getting the proper funding or planning attention they deserve.

A disaster response challenge is the need to provide aid and mobility to those with special needs like the elderly, the disabled, and transit dependent households. These mobility dependent populations heavily rely on public resources, which may not be available during a disaster. For example, the demand for mobility assistance and a responsive emergency management readiness capacity are increasing rapidly in areas along the Gulf Coast that have experienced tremendous population growth. In addition, the increasing number of elderly population in these regions is of particular concern during evacuations. This segment of the population is highly dependent on outside sources of mobility, and they require unique transportation and sheltering support services. The U.S. Census Bureau estimates that those 65 years or older will more than double by the year 2050 –

from a current level of 35 million (approximately 11 percent of the U.S. population) to 79 million (approximately 20 percent of the population) – making one in five Americans a citizen with "special needs."[7,8]

Other challenges to incorporating disaster response in transportation planning include[9]:

- Making disaster response a relevant, visible, and broadly understood concept, like safety, which has clear implications for transportation planning;

- Clarifying disaster response and security planning roles of transportation agencies in relation to specialized Federal, state and local agencies;

- Resolving misconceptions about the responsibilities of the multitude of metropolitan and rural area stakeholders;

- Increasing costs to the planning process as a result of including special considerations, like disaster response; and

- Lack of disaster response-related performance measures and quantifiable data (e.g., response criteria).

■ 1.5 Moving Disaster Response in Transportation Planning Forward

Transportation planning processes involve a host of diverse data, tools and techniques to analyze options, and conduct public outreach – all meant to help evaluate prospective transportation projects and services that shape the nation's transportation landscape. Transportation planning processes at the state and regional level are complex. These processes have comprehensive methodologies and involve the consideration of a range of factors, including safety and security, and must operate in an environment fraught with competing priorities, tradeoffs, and limited funding.

While more effectively integrating disaster response into the transportation planning process represents a significant challenge, it clearly stands as a critical priority for the transportation planning community. As state and local agencies examine how planning processes can address disaster response, the following key areas should be discussed:

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[7] Administration on Aging. Aging into the 21st Century. http://www.aoa.gov/prof/Statistics/ future_growth/aging21/demography.asp.

[8] U.S. Census Bureau. Areas Affected by Hurricane Katrina (Revised). http://ftp2.census.gov/geo/maps/special/HurKat/Katrina_Pop_65+_v2.pdf.

[9] NCHRP Report 525.

- **"Safety" versus "Security"** – Safety has been a factor in developing local and statewide transportation plans for 40 years. How do we establish acceptable definitions of "safety" versus "security"? How can we more clearly define how safety and security are dealt with in state and Federal guidance of the planning process?

- **Adopting an All-Hazard Approach** – Projects that would understandably improve disaster preparedness and response are oftentimes too different or difficult to justify. How can we more effectively link the transportation system needs associated with various "disaster scenarios" to leverage their combined cost-effectiveness and more accurately convey their benefit in the transportation planning decision-making process?

- **Quantifying Benefits of Projects that Aid Disaster Response** – Incorporating disaster response into the traditional planning analyses is difficult, given the relatively rare frequency with which major disasters occur for any particular metropolitan area or region. How can we quantify and convey the benefit of projects that aid disaster response relative to more traditional transportation infrastructure investments and service options?

- **Strengthening the Linkage Between Planning and Operations** – The response to a disaster is driven by operations as opposed to planning activities. There are, however, numerous ways in which good planning can greatly improve disaster response and system continuity of operation(s). What are ways in which we can improve the linkage between agency offices whose daily responsibilities fall within the general categories of planning versus operations?

- **Special Needs Populations** – During and after a disaster mobility and/or aid to those who are mobility dependent needs to be provided. Who is responsible for fulfilling these needs? What are best practices and/or ideas for enhancing this element of disaster response performance in the planning process?

- **"Evacuation" versus "Shelter-in-Place"** – Hurricanes are the most common, recurring disaster in the United States that trigger a mass evacuation or the need to provide structure-in-place facilities and services. As populations continue to grow and retirees migrate to coastal communities in record numbers, it will become increasingly difficult for large numbers of this at-risk populous to mobilize. How do we handle this challenge most effectively in the future? Is adopting a "shelter-in-place" philosophy and supporting policies and building codes (like the State of Florida) the answer? In some cases, citizens decided to evacuate when it is not necessary. What effective strategies and lessons learned can be applied to address these challenges in the transportation planning process?

- **Modeling and Simulation Tools as a Means for Improved Planning** – Modeling and simulation tools are becoming more complex in many ways; they represent increasingly powerful tools for planners to examine a wide range of scenarios, and in much greater depth and detail than ever before.

- **Strategically Involving the Media in Planning Activities** – Post-Hurricane Rita research indicates that out of the top five sources of information that the public relied upon during that disaster, local media rated first, while national media rated third. This suggests that proactively involving the media in transportation plans can

leverage an outside resource to facilitate a more informed public. Is there a threshold for giving the media "too much" information – particularly when it might entail "sensitive" information?

- **Climate Change** – Recent research funded by the U.S. Geological Survey and U.S. Department of Transportation indicates that sea level and temperatures are expected to rise over the next several decades, in some cases, rendering many important coastal evacuation routes submerged and useless. Future climate change may affect the occurrence of natural disasters, which may in turn have implications for transportation planning.

- **Federal Role** – Events in recent years have suggested that there is room for improvement in the area of local-to-state-to-Federal communications and collaboration during disasters. How can this situation be improved? In particular, are there ways the Federal government could focus time, energy, or resources on the transportation planning process that would more effectively aid disaster response at the local, regional, and state levels?

- **Role of the Planning Process** – Much of the planning process focuses on interagency consultation as well as outreach to a multitude of stakeholders. MPOs and state DOTs engaged in this process can facilitate interagency consultation and multi-party discussions about issues related to disaster preparation and response.

2.0 Peer Exchange Material

■ 2.1 Peer Exchange Questionnaire on Disaster Response in Transportation Planning

To establish a common foundation for the peer exchange, each participant was asked to answer the following set of questions regarding disaster response in transportation planning:

1. How is disaster response addressed in your state's long-range transportation plan?

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

    a. Internal departments of your organization (e.g., Operations Division)?

    b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

    c.   Other modal administrations (e.g., transit)?

    d.   Neighboring state or regional agencies?

    e.   Media outlets (e.g., news agencies)?

9.   In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

    a.   Redundancy infrastructure?

    b.   Hazard elimination, reduction, or avoidance?

    c.   Special needs populations?

    d.   Shelter-in-place options?

    e.   Upgrades rather than replacement-in-kind for reconstruction?

    f.   Access control?

    g.   ITS and system management?

10.   What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

11.   What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

12.   What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

■ 2.2 Summary of Peer Exchange Material

The participant responses are summarized in the following tables.

Responding Agency	1. How is disaster response addressed in your state's long-range transportation plan?
Broward Metropolitan Planning Organization (Broward MPO)	The LRTP was updated to address SAFETEA-LU provisions. The Plan utilizes a 6-prong approach in preparing for and responding to disasters: prevention, response, monitoring, recovery, investigation, and learning. The LRTP addresses programs and equipment that facilitate infrastructure security of roadways, airports, seaport, train and bus stations, and the traffic signalization system. The Plan references other modal plans such as the Airport Security Action Plan. The Plan also lists transportation key to disaster response coordination.
District Department of Transportation (DDOT)	Disaster response is indirectly referenced in the LRTP mainly through priorities such as "Further improve interagency coordination for incident management." DDOT has also adopted the Emergency Transportation Annex to the District Response Plan, to guide the District on requirements and policies for emergency transportation disaster response decisions. This annex could be better linked to the LRTP.
Federal Highway Administration (FHWA)	FHWA is looking for transportation planning agencies document or reference in long-range plans activities such as: • Forum for interagency coordination; • Network modeling tools to assess emergency response and evacuation; • Long-term recovery and system adaptation (enhancements or betterments); • Forum for engaging the public and decision-makers; and • Freight movement issues.
Florida Department of Transportation (FDOT)	The magnitude of response is mitigated by analyzing past failures and revising specifications and design criteria to incorporate lessons learned.
Metropolitan Washington Council of Governments (MWCOG)	Recommendations regarding disaster response are provided by a Regional Emergency Support Function #1 (RESF-1) Transportation Committee, which is a component of the greater National Capital Region (NCR) Homeland Security Program. The purpose of the committee is to share ideas and best practices regarding emergency response procedures and protocols for the transportation community. Committee members bring information back from the meetings and influence their state long-range transportation plans.
New Orleans Regional Planning Commission (NORPC)	The Plan does not specifically address disaster response. Disaster response is viewed as an operational issue more than planning issue by DOTD. DOTD coordinates with other operational agencies through Southeast Louisiana Hurricane Task Force, Governor's Office Homeland Security and Emergency Preparedness, Contra Flow Plan and State Police.
Puget Sound Regional Council (PSRC)	Washington State Transportation Commission finalized the Washington Transportation Plan (WTP) in November 2006. Among the key policy recommendations, the WTP calls for clarification on the role of state and local governments in providing personal mobility and freight service in the event of a major disruption to the transportation system or in case of catastrophic events.

Responding Agency	1. How is disaster response addressed in your state's long-range transportation plan?
Texas Department of Transportation (TxDOT)	The Texas Transportation Plan includes a discussion of policies, strategies, and actions to ensure transportation system capacity during emergencies and disasters.
Virginia Department of Transportation (VDOT)	Disaster indirectly addressed through several initiatives within state government such as the Commonwealth Preparedness Working Group – Multidisciplinary group to deal with emergency preparedness and homeland security matters, with a specific subgroup dealing with infrastructure. Transportation is designated as one of the Virginia Emergency Response Team (VERT) agencies that have a primary tasking to a ESF for response operations.

Responding Agency	2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.
Broward MPO	A primary obstacle is the lack of knowledge with regard to disaster preparedness on the part of MPOs and financing this learning curve. The MPO will be hiring a planner with transportation and security expertise in the near future, but is on hold due to budgetary constraints. Closer coordination with the Broward County Emergency Management Agency is another way that our agency will be gaining the knowledge in this field.
DDOT	Institutional Practice/Tradition – Traditionally, DOT's are not set up to be lighting quick agencies that can move large numbers of people and have not been asked to develop sound transportation security polices. To address these new demands, DDOT has established an interagency board and an Incident Command Program to bring emergency policies into daily operations and improve emergency response times.
	Recognition – Emergency transportation practitioners and emergency transportation operation officials are not meeting each other in the middle in regards to how some of these new initiatives can be completed. Without coordinating with DOTs a gap exists between what is stated in emergency plans and what can actually be done.
	Staff – DDOT has one employee dedicated to the development and integration of emergency transportation functions and objectives and recently hired one more person to support with DDOT coordination with emergency training and exercises.
	Prioritization – As an engineering, public works, large scale infrastructure organization only small group within DDOT is truly dedicated to emergency transportation disaster response. Although, the public has also prioritized traffic operations and traveler information, these programs are still in their infancy and are viewed a luxury instead of a priority.
	DDOT TMC – The Traffic Management Center is becoming more than a traffic monitoring hub but an incident command center for transportation emergencies.
	Roadway Operations Patrol – Recently became 24/7 to provide enforcement of the District's quick clearance policy which allows DDOT to close roadways independently of law enforcement when necessary for roadway repairs, and clearance of roadway incidents.

Responding Agency	2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.
FHWA	FHWA has been working with personnel who have lead responsibility for security and emergency response functions so they are more aware of the roles and capabilities of transportation planning both in headquarters and in field offices. However, FHWA also is not the lead for many security-related activities. While our lead personnel have been working with DHS, planning continues to be a step removed.
FTA	Not enough information available on "disaster response" in transit and/or transportation planning. Need more NCHRP studies.
FDOT	• Disaster response related improvements must compete with traffic capacity and safety related projects. • FHWA approval to modify specifications and design criteria is cumbersome. • FHWA and FEMA are the two big Federal reimbursement programs. What they reimburse for, how they reimburse, and the documentation required for reimbursement is very different and causes tremendous confusion for state Departments of Transportation as well as local governments.
H-GAC	H-GAC is not responsible for disaster response related improvements. Our counties, cities and H-GAC's Department of Community Services is responsible for those activities and there are planning dollars set aside to support them on an as-needed basis.
MWCOG	Financial – Since money is not being provided directly by transportation agencies and DHS money is obligated to other projects, many transportation emergency response initiatives go unfunded. Legal – NCR covers three states, so there is the potential for legal problems for any type of cross agency coordination. This is mitigated in the NCR due to the fact that the police and fire communities in the region have been enacting mutual aid plans for decades, and there is the potential to piggyback off these agreements (or use as templates) if and when the transportation community is required to address legal obstacles. Institutional – There is a precedent of regional collaboration due to the existence of the MWCOG for over 50 years however, some barriers still exist. Communication – Agencies developed both voice and data communications in a stovepipe over time, so barriers exist to seamless information sharing. Recent technological advances have helped and the Metropolitan Area Transportation Operations Coordination (MATOC) program is developing protocols and procedures for information sharing across the region.
NORPC	• Federal agencies outside of the FHWA/FTA/FRA transportation network do not know or understand what an MPO is or does. The ESF 14 process duplicates many of the planning functions carried out by the MPO. • FEMA should be required to coordinate with MPOs in large urban centers in order to assist them with recovery planning and infrastructure restoration. • No dedicated FEMA Hazard Mitigation funding to coordinate local plans at the regional level (policy issue).

Responding Agency	2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.
PSRC	For the four-county MPO region, PSRC convened a Security Planning Workshop on July 19, 2006. From this Workshop we learned that there are a lot of different agencies involved in security planning and operations. PSRC continues to carefully evaluate how to complement these efforts.
TxDOT	TxDOT does not document local disaster preparedness plans and improvements in the statewide plan. These processes are typically handled (plan development, funding, communication, etc.) at the local level by local and state law enforcement, local emergency response officials and TxDOT personnel at the corresponding district office in coordination with the Governor's office and Federal agencies (i.e., FEMA).
VDOT	Barriers generally relate to an institutional mindset that transportation planning integration to disaster response do not mix. Communicating emergency preparedness among the agency will help agencies move from a construction only mindset to an operations mindset. However, this communication has had a varying level of positive or negative impact. Another barrier is eligibility and competition for Federal mitigation programs.

Responding Agency	3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?
Broward MPO	Advance notice events are typically strong wind and storm surge events, which generally involve several days in which agencies and the general public can prepare. No-notice events would be tornadoes, terrorist attacks, or other unforeseen events such as fuel explosions resulting from tanker crashes. The MPO handles these types of events differently and does not use an all-hazards approach.
DDOT	DDOT is currently adopting a 3-tier Operation Level system. This is an all-hazards approach to be used when determining the level of resources needed by DDOT to meet the demands of the emergency. It does not matter if it is advance notice or no-notice, as the operation level will shift with how it is effecting our organization and our level of resources.
FHWA	FHWA applies an all-hazards approach. However, there are differences in responding to an event with advanced notice.
FDOT	An all-hazards approach is planned for. Different events are handled as need dictates.
H-GAC	The COG and the MPO are planning organizations. The COG Community and Environmental Department plans for all-hazard events and the MPO looks at events that require evacuation, such as a hurricane or traffic management and mass inoculation.
NORPC	The MPO does not define advance notice and no-notice events. However, the MPO does provide digital photography, demographic, and traffic data to the State Police, Governor's Office Homeland Security, and local Offices of Emergency Preparedness to facilitate event preparation and decision-making.

Responding Agency	3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?
TxDOT	TxDOT does not define advance and no-notice events. However, events are handled differently, with advance notice events a lot of planning can occur prior to the event. TxDOT uses an all-hazards approach in some planning, but we also have specific plans for specific events.
VDOT	Our agency generally follows the NIMS process for defining these events, which generally this falls within an all-hazards approach.

Responding Agency	4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?
Broward MPO	• Emergency Operations Center (EOC)—coordinates with State of Florida emergency personnel in the state's capitol to maintain and develop improvements in security planning. • Emergency Management Agency- has developed and utilizes a Continuity of Operations Plan. • GIS technology—instrumental in storm preparation and response. • Broward County Traffic Management Center (TMC) – continuously manages the County's traffic through various ITS technologies, and it is instrumental in managing congestion during crises.
DDOT	DDOT has used various modeling techniques to improve evacuation transportation planning (e.g., signal timing). A computer program (CapWIN) helps to improve communications across the region from operator to operator via laptop and our TMC is slowly incorporating WebEOC. DDOT is also creating a program (CapTOP), which will filter information into various programs to reduce redundancy when entering information.
FHWA	There may be a need for models and data that look at both the metropolitan area and receiving areas outside the metropolitan boundary. There also may be a need for coordination between MPOs and surrounding non-metropolitan areas on evacuation.
FTA	More research studies and reading material.
FDOT	Evacuation modeling for large urban areas to include those dependent on others for transportation.
H-GAC	H-GAC is currently working on modeling evacuation events. A clear definition of MPO/COG's place in disaster preparation and response as well as training on how to incorporate disaster preparation into our Regional Transportation Plan would be beneficial.
MWCOG	Information sharing across regional agencies via voice, data, and video assists in disaster preparation. In addition, transit agencies are beginning to utilize the Capital Area Wireless Integrated Network (CapWIN), which allows users in the field to access and post data to a shared board. Law enforcement also users CapWIN.

Responding Agency	4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?
NORPC	• Access to Red Cross data regarding facilities information (i.e., shelter locations and capacity). • The MPO collects drainage, water and wastewater system information for emergency planning and recovery purposes, so it would be useful to have agreements in place to also access electrical, gas, cell phone and critical infrastructure information. • Information data sharing and development is presently based on informal agency relationships and it is difficult to overcome institutional cost-sharing barriers, even when agencies are willing to participate jointly in the acquisition of data.
PSRC	PSRC will continue to evaluate how its regional model may be used to support disaster response. PSRC also tracks population, housing, and other demographic data that might be useful for disaster preparation and response.
TxDOT	TxDOT's statewide plan is a policy plan. TxDOT does address the need for project specific improvements when they are included and funded by the Districts and MPOs in their Transportation Improvement Plans and TxDOT's Statewide Transportation Improvement Programs, and eventually constructed/implemented.
VDOT	Our agency is actively working towards modeling roadway traffic data to assist in the development of disaster planning. The development of a standard after action incident review and subsequent lessons learned is also a tool that is currently under review for standardization.

Responding Agency	5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?
Broward MPO	The MPO utilizes a 6-prong approach in preparing for and responding to disasters: prevention, response, monitoring, recovery, investigation, and learning. Hurricane and storm surge preparation provides "practice" scenarios and those who are involved in the process, at all levels of government and private industry, have found that each situation is unique with its own set of challenges and circumstances. Lessons learned from the Hurricane Wilma aftermath in October 2005 centered on best practices in repairing 99% of the traffic signals; delivering water, food, and medical services to disabled and elderly people when they become homebound due to inoperable elevators during power outages; and managing the general public's mobility needs.
DDOT	DDOT participates in various table top exercises, but for the most part they have not been of much use. It should be noted for Capitol Shield 08 (Military Exercise) DDOT is looking to add a field exercise component that would require the emergency quick clearance of a major accident from the roadway to allow for the movement of dignitaries.
FHWA	FHWA has participated in several multi-state, multi-agency exercises, and have plans for more exercises.
FTA	Attend TRB and the Transportation Safety Planning Working Group meeting.

Responding Agency	5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?
FDOT	After each event, we do a "lessons learned" with all our partners (FEMA, FHWA, State agencies, etc.).
H-GAC	Participate in drills held by local municipalities and the state.
MWCOG	Transportation stakeholders are involved in many cross-functional and regional disaster preparedness exercises held in the NCR. The NCR RESF-1 Committee sponsored a Communications and Coordination tabletop exercise (TTX) in November 2006. During this TTX, interjects from other emergency functions were integrated into the scenario, but the primary focus was on transportation related activities. Main findings of the TTX were: 1) need for better communications procedures between and within agencies; 2) desire from center and field transportation operators to collaborate with their counterparts from other agencies at regular meetings; and 3) lack of transportation response plans across the region.
NORPC	• The MPO, in partnership with the chambers of commerce, hosts an annual Hurricane Preparedness Conference to inform the public, local officials, and businesses on the status of hurricane preparations, modeling results, and threats. • The Governor's Office of Emergency Preparedness conducts "Purple Crescent" homeland security training exercises for various types of disaster and response needs and the MPO participates in all of these events.
PSRC	PSRC does not practice implementation of transportation disaster preparation or response plans.
TxDOT	TxDOT has various drills and exercises throughout the year, with the biggest being the annual hurricane exercise. Lessons learned: • Conduct much pre-event training. • Policies or procedures are not remembered from one year to the next. • Communicate changes at the state level down through agency levels. All disaster response personnel are involved in the exercises to some degree, with division and district management employees usually involved in these exercises.
VDOT	VDOT annually participates in at least the following: • One state level EOC functional exercise where participants are generally ESF assigned staff. • One fixed facility state level exercise where participants are ESF and field staff adjacent to the facility. • Two seasonal exercises that involve a wide ranging staff. Typically each exercise results in informal to formal lessons learned. One of the larger lessons learned involved working out incident communication processes, which allowed unfamiliar "players" the opportunity to communicate.

Responding Agency	6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?	
Broward MPO	The MPO works with its partners to ensure that state turnpike tolls are lifted and that variable message signs on the turnpike and Federal interstate roadways provide instructions to motorists. There is also process for opening and locking down the bascule bridges that connect the mainland with intracoastal areas.	
DDOT	• Activate traffic signals to double their normal cycle on emergency routes. • Change the directional flow to PM rush hour operations (some corridors are 6 lane with a 4/2 configuration depending on time of day) on emergency routes. • DDOT owns about 75 variable message boards that are pre-staged across the District. Currently they require operator activation on site, however DDOT is looking to install wireless communications devices so that they can be centrally commanded through the TMC. • Highway Advisory Radio trailers are pre-staged at various locations.	
FHWA	FHWA does not directly control or operate transportation facilities. We do have continuity of operation plans for headquarters and field offices so we can respond during events.	
FDOT	• Contraflow • Variable Message Boards • Hazardous Advisory Radio systems	• Open lanes in construction areas • Increase capacity of rest areas • Lower high mast light poles
H-GAC	H-GAC is not involved, but TXDOT uses contraflow and changeable message signs.	
MWCOG	Variable message signs are used, but many are not connected to networks to provide real time updates. Gaps exist in the position of these signs and more will be needed. The region has begun the process of "hardening" critical transportation assets, such as bridges and tunnels, by installing cameras in intrusion monitoring devices.	
NORPC	• Using traffic data collected thru ITS cameras, the MPO and the state DOT were able to capture and recreate traffic flows and evacuation patterns associated with Hurricane Ivan. This information was subsequently used to adjust the Contra-Flow Lane Plan in advance of Hurricane Katrina, resulting in the successful evacuation of over 1 million people from the Greater New Orleans Area. • One challenge facing a community after a disaster is the re-entry process. Following Hurricane Katrina, the MPO brought together the State Police, DOTD, Parish OEP Directors, and local officials to develop a unified and cooperative 5 parish Re-Entry Plan based on a placard system.	
PSRC	PSRC des not directly control of operate transportation facilities. The PSRC has established a Regional Traffic Operations Committee, which is a group of senior level transportation operators focusing on the regional coordination of 1) traffic signals; 2) traffic operations 3) ITS. This group established a work plan and disaster planning/emergency management is one of the factors of consideration in the current work plan which includes a Regional Concept of Transportation Operations and an ITS Implementation Plan.	

Responding Agency	**6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?**
TxDOT	TxDOT has developed contra flow plans for several highways and has included signs and pavement markings to help drivers using the other side of the roadway. TxDOT has developed evaculanes where the shoulder is used as an extra lane and also developed standardized messages for changeable message signs, with preplanned messages for different areas of the state based on hurricane watch, warning, contra flow conditions, and post contra flow conditions.
VDOT	Adjustments to infrastructure are typically handled through procedures and set processes.

Responding Agency	**7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?**
Broward MPO	The MPO's Programs Section Manager leads disaster response. The MPO is in the process of hiring a Principal Planner to be the key point person and will report to the Programs Section Manager. This person will be trained in the MPO process, safety and security, and statistical research methodology.
DDOT	There are 2.5 people solely responsible for emergency planning. The Office of Emergency Preparedness and Risk Management are housed within the Office of the Director.
	The Emergency Preparedness and Risk Manager – Splits time between the two disciplines and it is mostly a political position rather than a subject matter expert.
	The Homeland Security Coordinator – Is a subject matter expert in transportation planning/operations and Homeland Security initiatives.
	Emergency Preparedness Coordinator – Deals mostly with training and exercises for the department with a background mostly in emergency management. Currently tasked with NIMS compliance.
FHWA	Two people in headquarters work on security and emergency response as a collateral duty.
FTA	Will need to ask FTA Office of Safety& Security.
FDOT	The position has a background in Emergency Management and Operations. During an event, the position reports directly to Secretary of Department. Experience is more important than specialized background or training.
H-GAC	None are responsible for disaster response.
NORPC	The senior planning staff share responsibility depending on the scope and extent of the need (insufficient funding for full-time position). MPO staff needs training.
PSRC	Disaster response is new to PSRC, with one Senior Planner, one Program Manager, and one Associate Planner (with a focus on special needs populations) from the Transportation Division assigned to this area. These staff are responsible for security planning in addition to other collateral duties. These staff have close working relationships with the Data Services and Land Use teams.
TxDOT	District office staff, including the Public Information Officers of each District.

Responding Agency	7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?
VDOT	The Operations and Security Division (OSD), specifically the Transportation Emergency Operations Center (TEOC) section, primarily deals with emergency preparedness and response issues for transportation. The field response is provided by the Asset Management Division (AMD). Overall OSD and AMD report to the Chief of System Operations, who in turn reports to the Agency Commissioner.

All staff within these divisions and sections are provided NIMS training, which varies in amount from their direct involvement/tasking. Exercises are also used as training opportunities and state and Federal emergency preparedness and response training opportunities are also available. |

	8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):
	8a. Internal departments of your organization (e.g., Operations Division)?
	8b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?
	8c. Other modal administrations (e.g., transit)?
	8d. Neighboring state or regional agencies?
Responding Agency	8e. Media outlets (e.g., news agencies)?
Broward MPO	b) Critical partners are public and private school districts and universities. Coordination is required to determine when to close and re-open schools. There are also selected school buildings that were designed for and are used as emergency shelters. This becomes a factor when making closure and reopening decisions.
FHWA	Most coordination with planning functions has been informal.
FTA	a-e) No MOU on file, but we need one.
FDOT	a) Department Procedure

b) State Comprehensive Emergency Management Plan

c) Emergency Management Plans specific to that mode of transportations

d) Emergency Management Assistance Compac (EMAC)

e) State Comprehensive Emergency Management Plan |
| H-GAC | Nothing formal. |

Responding Agency	**8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):**
	8a. Internal departments of your organization (e.g., Operations Division)?
	8b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?
	8c. Other modal administrations (e.g., transit)?
	8d. Neighboring state or regional agencies?
	8e. Media outlets (e.g., news agencies)?
MWCOG	b) The NCR RESF-1 Committee provides an opportunity to collaborate across the NCR. Since the RESF-1 Committee is part of the larger NCR Homeland Security Program, the RESF-1 Chair participates in meetings with representatives from other emergency support functions to discuss homeland security and emergency preparedness issues. The committee is accountable to the regional MWCOG Chief Administrative Officers, which are made up of county and city mangers. The RESF-1 Committee provides input to the NCR Emergency Preparedness Council and is composed of elected officials, and private sector and nonprofit representatives. c) Transportation and transit officials participate on the NCR RESF-1 Committee and maritime and aviation officials have been invited to participate.
NORPC	b) Flood Control – operations and modeling on pump station and flood control structure between USACE, N.O. Sewerage & Water Board, public works departments of Jefferson, Orleans and St. Bernard Parishes, DOTD, and MPO. c) Transportation planning formal agreements between MPO and local transit properties. d) Contra-flow operations bi-state agreement between Louisiana and Mississippi.
PSRC	There is no formal collaboration with our agency currently that is specific to security planning although initial steps have been taken to define our role. The first of which was a Security Planning Workshop which included a regionwide multimodal and multi agency participation.

Responding Agency	8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):
	8a. Internal departments of your organization (e.g., Operations Division)?
	8b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?
	8c. Other modal administrations (e.g., transit)?
	8d. Neighboring state or regional agencies?
	8e. Media outlets (e.g., news agencies)?
TxDOT	a) Meetings and planning sessions in which information is put into plans. Plans are distributed and reviewed. Presentations at conferences are performed to inform others of current operations or plans. Face to face meetings are common, but primarily through GroupWise. We have no formal MOU/MOA other than guidance from our administration.
	b) Same as a) except these meetings are performed locally with very little oversight. The vast majority of disaster response is decentralized; therefore, local plans, face to face meetings, and on-site decision-making work best. State statutes delineate accountability, authority, and responsibility (Governor for statewide events and with the Disaster District Committee Chairman for local events).
	C) TxDOT's public transportation division provides oversight and grant coordination to local transit agencies. Local disaster managers usually work directly with local transit agencies. Rarely would the state public transportation division get involved in disaster response.
	d) Texas is a member of EMAC, which all allows states to assist each other with very few administrative issues (i.e., workman's comp, Federal reimbursement oversight, legal issues for crossing state borders, etc.).
	e) TxDOT has a public information office that works with all media outlets. Decisions on what messages to convey are made by TxDOT administration for large events and the message is carried forward through the public information office. For local events, TxDOT's district Public Information Officers convey messages.
VDOT	b) Efforts are underway to update highway incident management activities.
	d) The EMAC program might be considered a collaboration area.

Responding Agency	**9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:**
	9a. Redundancy infrastructure?
	9b. Hazard elimination, reduction, or avoidance?
	9c. Special needs populations?
	9d. Shelter-in-place options?
	9e. Upgrades rather than replacement-in-kind for reconstruction?
	9f. Access control?
	9g. ITS and system management?
Broward MPO	a) GIS mapping. g) The MPO actively prioritizes ITS projects and programs including design and construction of the TMC, implementation of variable message signs, and consideration of reversible lanes for certain major arterials.
FHWA	FHWA is developing information considering hazard avoidance, enhancements, and access control in the transportation planning process. Information on special needs populations and systems management and operations is already available.
FDOT	a) Parallel bridges/TMCs to monitor closures. b) Lowering of High Mast Light Poles; improvements in design criteria; generators at traffic signals when electricity is out; aggressive installation of critical road signs; aggressive road clearance and debris removal. c) Planning with other agencies to ensure all resources available are utilized. d) Local government issue, but DOT assists (VMB's, signs, etc.) as requested. e) As much is allowed – this is a Federal reimbursement issue. g) TMCs are heavily utilized.
MWCOG	b) The NCR Homeland Security Program sponsored a Hazard Identification and Risk Analysis (HIRA), which considered transportation assets and provided next steps for future planning initiatives and projects to be implements. c) NCR RESF-1 Committee members coordinate to address special needs populations and incorporate suggestions into planning initiatives. d) NCR RESF-1 Committee members provide input into the NCR Evacuation and Sheltering Plan that incorporates shelter-in-place options and is currently under development. f) NCR RESF-1 members coordinate with local law enforcement agencies to address access control in plans. g) The NCR RESF-1 Committee works closely with the Transportation Planning Board's Management, Operations, and Intelligent Transportation Systems (MOITS) Committee, which is tasked with addressing ITS and system management in the region. Many individuals sit on both committees.

	9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:
	9a. Redundancy infrastructure?
	9b. Hazard elimination, reduction, or avoidance?
	9c. Special needs populations?
	9d. Shelter-in-place options?
	9e. Upgrades rather than replacement-in-kind for reconstruction?
	9f. Access control?
Responding Agency	**9g. ITS and system management?**
NORPC	b) The MPO functions as a resource agency for its member parishes, with RPC sponsoring activities such as: the Motorist Assistance Patrol (Incident Management) Program; Regional Traffic Management Center; HAZUS Flood Modeling for post-storm event damage assessment and costing. c) The MPO and the University of New Orleans are working to identify elderly populations and shelter resources for evacuation. d) Shelter-in-place is generally not an option in New Orleans. e) Interstate 10 "Twin Span" Bridge upgraded from 4 to 6 lanes; minor traffic signal equipment upgrades. g) MPO maintains and is presently updating Regional ITS Architecture.
PSRC	9a) The PSRC is currently a stakeholder and has staff playing an advisory role in a study being conducted by the state of Washington on freight Resiliency in time of a disaster. 9b) The majority of security planning/critical infrastructure protection is performed by operating agencies/emergency response agencies/ first-responder agencies (i.e., police, fire, airports, seaports, and transit providers, DOT). 9c) PSRC helped develop a coordinated public transit-human services plan, which will be used to prioritize projects using three sources of Federal funding. The Special Needs committee and PSRC staff are working to explore means to incorporate emergency management issues such as evacuation and sheltering into the special needs coordinated plan. There is also a UASI study being lead by King County regarding evacuation and shelter. 9d) There is also a UASI study being lead by King County regarding evacuation and shelter. 9g) PSRC des not directly control of operate transportation facilities. The PSRC has established a Regional Traffic Operations Committee, which is a group of senior level transportation operators focusing on the regional coordination of 1) traffic signals; 2)traffic operations 3) ITS. This group established a work plan and disaster planning/emergency management is one of the factors of consideration in the current work plan which includes a Regional Concept of Transportation Operations and an ITS Implementation Plan.
TxDOT	The statewide plan does not include specific references, with these issues addressed in many local transportation plans. TIPs and the STIP do include specific projects that address the above issues as determined/prioritized by local planning processes.

	9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:
	9a. Redundancy infrastructure?
	9b. Hazard elimination, reduction, or avoidance?
	9c. Special needs populations?
	9d. Shelter-in-place options?
	9e. Upgrades rather than replacement-in-kind for reconstruction?
	9f. Access control?
Responding Agency	**9g. ITS and system management?**
VDOT	a-b) Critical infrastructure security reviews provide an opportunity to ensure that there is adequate redundancy when applicable. c-d) The agency provides standard means to communicate travel information to special needs populations. There is consistent work with the state emergency management agency in this area. e) VDOT conducts basic activities with respect to Federal public assistance programs. f) VDOT participates in a interoperable access control program as well as standard credentialing (FRAC).

Responding Agency	**10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?**
Broward MPO	Disaster preparation is handled by the Emergency Management Agency (EMA). Storm surge and strong wind events seem to be the primary focus in our region.
FHWA	There are a variety of examples in different states and regions. Some of the leading examples are in California and Florida where there is a history of government preparing hazard response. There are noteworthy examples in metropolitan areas including the Capital Regions Council of Governments in Hartford, Connecticut; Hampton Roads, Virginia; Huston-Galveston Area Council in Texas; Metropolitan Council of Governments in Washington, DC; Baltimore, Maryland region.
FDOT	• Flip signs • Exit mile post numbers painted on shoulders • Traffic counters at critical locations • Alternate power source for traffic signals
H-GAC	Not involved.
MWCOG	Planning initiatives provided the cornerstone for all emergency response functions and provide the greatest cost/benefit return. Major planning gaps exist for response operations and communications procedures.

Responding Agency	10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?
NORPC	• Elevation of low-lying flood prone roadway sections or spot locations on evacuation routes. • Contra-Flow Evacuation Plan. • Hotel/Motel industry has developed tourist an evacuation plan using private charter buses. • Train and bus charters for evacuation of non-motorists and mobility impaired.
PSRC	PSRC will be facilitating this discussion within the context of the 2009 Transportation Improvement Program.
TxDOT	TxDOT has done evaculane projects and have also added ITS cameras and detection devices in the rural areas. TxDOT added approximately 30 cameras along evacuation routes to help monitor flow, speed, and other roadway conditions. TxDOT is evaluating improvements to "choke points" noted during the last evacuation. TxDOT has applied for Homeland Security funds for these areas; however, the Texas does not have a special funding source for these projects.
VDOT	Not applicable as the agency deals statewide. However, one example is the all-hazard traffic control gates on the I-64 corridor, since this project covers multiple regions and is generally still in progress.

Responding Agency	11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?
Broward MPO	The MPO is a partner in implementing the EMA's COOP. A COOP specific to the MPO's operations will also be developed.
FHWA	FHWA is incorporating security and emergency response into the strategic plan. For planning, FHWA is looking at coordination at the state and metropolitan level.
FDOT	Lessons learned exercises.
H-GAC	Modeling tools.
MWCOG	The HIRA was a first step in addressing assessing the potential benefits of disaster preparation for the transportation sector. Individual agencies assess risk when submitting project concept papers for DHS funds.
NORPC	Criteria used for prioritization includes roadway functional class, traffic volume, and estimated costs. The projected volumes of roadway traffic are during a worst-case hurricane and the order of magnitude estimated cost to construct the recommended improvement. The projected volume figure was divided by the estimated cost figure providing a per-dollar effectiveness score for each project. DOTD and the MPO have informally agreed to give priority to addressing deficiencies on hurricane evacuation routes. Consideration should be given to creating a funding set-aside from the state's FHWA formula funds for this purpose.
PSRC	PSRC has not established a systematic approach for assessing the potential benefits of disaster preparation or response-related transportation projects.

Responding Agency	11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?
TxDOT	None are included in the statewide plan. The District and MPO TIPs and TxDOT's STIP contain highway and transit projects that, if constructed/implemented, address the above issues. District and MPO needs (i.e., specific projects) are determined/prioritized through local planning processes outlined in metropolitan transportation plans and TxDOT's Project Selection Process.
VDOT	Overall general priorities fall within: 1) greatest life safety impact / benefit; 2) quickest means to provide incident response and stabilization; and 3) greatest means to reduce loss of property / infrastructure. The application varies and there is no set methodology for inclusion in the funding stream.

Responding Agency	12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?
Broward MPO	If MPOs are expected to adequately address disaster response in transportation planning, then it follows that the Federal government (FEMA, FHWA, FTA, and TSA) should be actively involving and training MPOs in the process. Funding allocations through DHS could also be used to research and determine the protocol for MPOs in allocating funding for reconstruction and preventative measures.
DDOT	• FHWA to provide stronger guidance on transportation emergency guidance and tie it to funding so local communities will see it as a priority. • Clarify the role between the U.S. DOT and DHS as it relates to emergency transportation issues. For example, monitoring bridges and tunnels using ITS equipment, who should pay, and how it becomes a priority over other transportation locations.
FHWA	FHWA is developing technical information and engaging Federal, state, and metropolitan agencies. FHWA considers its role as providing leadership and support for state and metropolitan needs as well as direct Federal-to-Federal coordination.
FTA	Better coordination with Dept Homeland Security Regional Transit Security Strategy.
FDOT	• Cooperation. • Have similar requirements and criteria for eligibility and invoice documentation.
H-GAC	Define the role of the MPO in disaster planning and response.
MWCOG	The greatest Federal role would be to provide best practices and funding solely earmarked for emergency response projects so they are not competing against a larger pool of priorities. Daily operational concerns trump emergency preparedness initiatives, thus funding from a Federal agency earmarked for disaster planning for transportation agencies is the only way to get these projects to move forward.

Responding Agency	**12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?**
NORPC	• Fund additional personnel to existing agencies (i.e., MPO and local DPWs) to assist them instead of FEMA trying to re-invent the process for data gathering, communications, and prioritization of capital recovery needs. • Need FEMA to have consistent policies and on site decision-makers with authority to make decisions that stick. • Consideration needs to be given to a block grant funding concept based on local accountability with state or Federal oversight in lieu of Project Worksheets and Damage Impact Report forms. • Sections in the FHWA ER Manual need to be adjusted to make it easier to deal with large disasters and to accommodate congressional aid packages being sent into disaster areas.
PSRC	• Joint guidance. • Coordination. • Cooperation. • Most locals take and "all-hazards" approach while at the Federal level this is handled in various agencies. Guidance with an "all-hazards" approach. • There are many types of funding pots that are applicable to projects and studies in security, emergency management, preparedness, recovery, critical infrastructure protection etc but they are all stovepiped and possible synergies in terms of multi-agency coordination are not being taken advantage of.
TxDOT	Better coordination, communication, and local mobilization on the part of response agencies at the state and Federal level, including FEMA and the National Guard.
VDOT	The Federal government could provide greater funding and training for planning and preparation. Changes are underway at the Federal level to render an opinion as to whether response operations have changes. On the recovery end, it would be nice to designate one agency (i.e., FHWA) to lead all roadway recovery issues versus the current and sometimes awkward split between FEMA and FHWA public assistance and emergency relief programs. The Strategic Highway Safety Plan might be one venue to incorporate disaster planning/emergency response in the transportation sector. One pitfall might be that disaster planning/emergency response is small in the overall picture. Perhaps consider greater emphasis on the National Response Plan, which covers the entire gauntlet, including transportation, of emergency management.

3.0 Peer Exchange Meeting Summary

■ 3.1 Overview of Discussion Topics

Under national transportation legislation – SAFETEA-LU – the security and safety planning provisions have been decoupled. Each is now a stand alone planning factor, thereby receiving more consideration in metropolitan and statewide transportation plans. However, many transportation agencies are at different stages of drafting and adopting these planning factors into their transportation plans, with many still in the process of defining how these planning provisions, specifically security, apply to their particular state or region. Furthermore, a range of security threats exist across the nation from natural to man-made disasters, which means that the depth and emphasis on disaster response in transportation planning in one region is likely to differ from another region.

Integrating disaster response and preparedness into transportation plans is not just a Federal requirement, but a recognized critical component, particularly in large metropolitan areas where populations and regional economies may be vulnerable to meteorological and security threats. At the local level, major events have the potential to overwhelm agencies' ability to respond and recover and may also have mid- to long-term detrimental impacts. To further complicate matters, disaster response, and preparedness planning is often conducted by a number of different agencies (i.e., local emergency responders, regional planning agencies, state offices of homeland security, state departments of transportation, and Federal agencies).

The May 23, 2007 peer exchange in Houston, Texas provided an opportunity to identify ways in which disaster response could be more effectively integrated into statewide and metropolitan transportation planning. The meeting was designed to also discuss the linkage between planning and operations—a key to the successful implementation of disaster response plans. The peer exchange offered a forum for individuals from various public agencies with a range of experience in this type of planning to share experiences, perspectives, and new ideas. Having this mix produced a lively atmosphere enabling a candid and informative exchange in which participants could advance their knowledge of the topic area and contribute to the evolving understanding of their potential role in disaster response strategies regardless of an agency's previous experience.

Participants discussed a range of issues related to disaster response in transportation planning. The main focus areas where participants engaged in dialogue are summarized in the following section.

3.1.1 Main Discussion Topics

Addressing Disaster Response in Long-Range Planning

The planning community is versed in thinking multimodally, working across governments and jurisdictions, and employing a systems perspective – all of which are skills that can be useful in disaster response planning. Therefore, the long-range transportation planning process provides an opportunity to address issues related to preparing for and managing evacuation. Disaster response is addressed in statewide and metropolitan long-range plans, but surprisingly it is typically only indirectly referenced (additional details included in Section 2.0, Question #1). A few LRTPs include specific strategies and potential actions; however, most LRTPs only list emergency preparedness as a priority or initiative. A few LRTPs address disaster response issues through listing key emergency response partnerships. While several participants noted that knowing who to contact before a disaster occurs is essential, it was considered an indirect way of addressing disaster response. Other LRTPs included regional evacuation routes or a list of key tools and equipment essential to successful implementation of disaster response plans. These tools range from ITS technology (e.g., variable message boards) to cargo screening machines.

To improve the inclusion of disaster response in LRTPs, some participants suggested that transportation agencies review existing emergency operations plans to evaluate whether there are implications for the region's long-range plan and policies. However, given budgetary limitations, transportation agencies may have difficulty in committing resources necessary for conducting consultation and comparison activities with emergency operations professionals and plans.

Another issue raised during the peer exchange was how transportation projects that result from an event affect the traditional transportation planning process. Participants specifically addressed whether transportation projects related to disaster preparedness or response can be funded when they were not originally programmed in a LRTP or the State Transportation Improvement Program (STIP). In other words, participants questioned whether these types of projects must conform to traditional transportation planning processes, such as STIP amendments, even though they were a result of a natural or man-made disaster. Participants concluded that, in terms of rebuilding transportation infrastructure after an event, if a states' Governor declares an emergency action, then these types of projects are not subject to an amendment.

Linking Planning and Operations

Many peer exchange participants acknowledged the importance of fostering a symbiotic relationship between transportation planners and personnel responsible for transportation operations. However, how to accomplish this remains unclear. Planning and operations practitioners often function within their respective silos and do not proactively communicate information, such as strategies and activities, to each other that may prove valuable in an emergency. In fact, breaking down stovepipes is commonly acknowledged

in transportation circles as an important goal for transportation practitioners. To illustrate the disconnect between the two functions, one participant used an example stating that operations practitioners focus on fixing a bridge while planners focus on what options users have while the bridge is being fixed. Another participant noted that their agency actively engages jurisdictions in defining operation oriented responsibilities before an event occurs (i.e., debris removal).

Many participants felt that efforts to link planning and operations should be part of the process of developing transportation plans. Some participants suggested that this can be accomplished, for example, by piggybacking on efforts already underway that bring together planning and operations, even if they relate to projects or programs outside of disaster response. Participants also noted that pedestrian evacuation routes as well as the effects of urban to rural evacuation should be addressed through a planning/operations linkage. For example, one participant whose region was severely damaged after a hurricane noted that decisions to relocate after an event may impact long-range transportation planning as well as workforce housing.

Several participants identified operations plans (e.g., emergency of operations plans (EOPs) and continuity of operations plans (COOPs)) as one way to link the disciplines of planning and operations. Operations plans are often coordinated by a lead agency, typically an emergency management department, that works closely with transportation agencies during development of the plan. County level EOPs (required in some jurisdictions), are also expected to be coordinated with both the state EOP and the DOT EOP. Emergency plan development creates the opportunity to compile expertise from different facets of planning and operation departments, fostering communication and information sharing throughout departments.

Several participants suggested that special events provide an opportunity to test emergency procedures and strengthen the linkage between planning and operations. Events, such as large festivals, create a real-time situation to practice evacuation strategies, communication procedures, test equipment, and coordination among agencies. By incorporating emergency policies and procedures into a special event, agencies position themselves to take away lessons learned from a large scale field exercise as opposed to learning lessons after a real disaster. Sometimes the lessons learned from these exercises can be small, as was the case when one participant realized that two agency acronyms sounded the same in radio communications. Other times, the lessons learned can be large, such as an additional on-ramp is needed on an evacuation route. Other benefits of testing emergency procedures during special events included understanding the importance of a robust regional interoperable communication system, customizing intelligent systems, and recognizing a need for addressing evacuation planning for pedestrians and the mobility dependent. Furthermore, many participants felt that field or practice exercises can help to address the gap between emergency management agencies and transportation agencies by actively engaging all partners (i.e., local, regional, and state agencies and to the extent possible, Federal). Should an actual disaster occur, many peer exchange participants felt that that having had field training can be key to effective disaster response.

Another approach to linking planning and operations cited by peer exchange participants was to establishing performance measures and benchmarks to quantify response and recovery expectations. For example, one participant's agency utilized metrics that focused on post event debris removal that delineated specific time periods for removal and the quantity to be removed. For this agency, the use of performance measurement married planning and operations in order to set expectations and identify responsibilities for delivering such expectations. The agency accomplished this effort by drilling down from the state to the local level to gain buy-in. The performance measures helped establish common goals and served as an accountability tool. In the long-term, performance metrics may even help to identify planning and infrastructure needs. Some participants went even farther stating that establishing aggressive metrics can drive transportation planning.

Linking planning and operations is not an easy endeavor. The timeline that operations departments' use tends to be more immediate than planning activities, which tend to cover a timeframe of a few years to a twenty-year planning horizon. As a result, a disconnect emerges. With such different time horizons, finding ways to partner planning with operations can be challenging. Since long-range activities may not always appear on an operations departments' radar screen, several participants suggested that MPOs look to areas where they can relate to operations, such as by sharing closed circuit camera activities and partnering with law enforcement.

Coordination and Communication

While participants recognized the essential importance of coordinating with regional and state partners, several participants noted that DOTs do not traditionally command a disaster response effort and in fact their potentially beneficial involvement has been slowly recognized by those "in charge." For example, one participant noted that repeated attempts to be alerted of advance notice business closures due to severe weather conditions were overlooked. The agency suggested that having this advance notice would greatly aid the agency in preparing their transit systems, such as adding rail cars, to handle larger than expected crowds trying to get home at a particular time of day. Furthermore, emergency responders, not transportation agencies, are usually "on the scene" but transportation agencies may have useful real-time information through Traffic Management Centers.

Jurisdictions are in different stages of coordinating their planning processes with each other. For Border States, which typically share a piece(s) of major infrastructure, coordination between jurisdictions is essential. For example, in addition to actually being a target, bridges and tunnels can easily become choke points should a disaster occur. When working across jurisdictions, many participants highlighted the importance of consistently engaging interjurisdictional players, including the state police, but also noted the inherent challenges of doing so.

Furthermore, some tactical issues may need to be coordinated with local responders, resulting in the inclusion of more stakeholders (e.g., military installations). Coordination and communication is also key with intermodal planning partners. Resources, such as

private railroads and transit services, can supplement public assets to move people and goods. This can be especially important when planning for populations with special needs, which many participants stated has not been a traditional part of the disaster relief dialogue. For example, transit service is its own entity with their own responsibilities for security, yet there exists an inherent difficulty in mobilizing transit dependent populations.

Communication and coordination can always be improved as challenges persist. For example, one participant noted the strain placed on the agency from having to navigate between the different cultures of two Federal agencies (i.e., FEMA versus FHWA) after an event. Given jurisdictional boundaries, another challenge agencies face is dividing responsibility for contracting services necessary to prepare or recover from an event. Participants discussed how disparate agency agendas, such as those of a state and those of a region, can be counterproductive to fostering coordination and communication between local, regional, and state agencies. Approaches to building or existing strengthening relationships recommended by peer exchange participants are detailed below:

- Establish and foster personal relationships with partners before emergencies occur (i.e., regularly meet with state police);

- Piggyback on efforts already underway that bring together stakeholders;

- Involve the business community (i.e., via chamber of commerce) to foster partnerships with the private sector;

- Explore opportunities to supplement resources (i.e., private buses);

- Engage in practice exercises;

- Maintain a list of key partners for disaster response actions;

- Coordinate all plans with the local and regional agencies to ensure concurrence of plans and support of the state plan;

- Provide aggressive training between local and Federal agencies;

- Ensure interoperable communications between field personnel (i.e., trailers with Internet satellite connectivity);

- Review the relationship between the national response plan, the state plan, and local plans to gleam a long-range planning objective;

- Consider alternative roles, such as being a technical resource, as opposed to being directly involved in unified command;

- Investigate opportunities to break down silos;

- Effectuate a regional system's perspective (i.e., transit); and

- Utilize resources, such as MPOs, for public outreach and establishing consistent messages across a region.

Resources for Disaster Response and Preparedness

Given the current funding climate, many participants suggested that transportation agencies explore ways in which dedicated sources for transportation planning can be extended to include activities related to disaster response. Funding for disaster response could also be integrated into the existing planning process, for example, by highlighting planned projects with disaster response components (i.e., consider whether a planned project is also an evacuation route). Strategically considering the connection between security or disaster response and the general scope of a project may translate into a more efficient use of limited funds. Marrying the objectives of security or disaster response with a congestion relief project, for example, can actually build efficiency into a project.

Funding limitations mean that agencies with different priorities are all competing for similar pots of money. For example, funding is generally limited for preventative measures, such as elevating flood-prone roads, and, as a result agencies are often placed in a position where they must react. As a consequence, participants noted the importance of exploring alternative funding mechanisms. While there is no earmark or dedicated funding source for emergency preparedness for transportation, agencies are beginning to explore funding from the Department of Homeland Security (DHS). One option may be to partner with law enforcement in order to receive DHS funding. Another option is a new offering of grants from FTA for regional transit security. Many transportation agencies are challenged to secure funding, but there may be opportunities to creatively fill this gap by, for example, including MPOs involved in hazard mitigation since they are not eligible for hazard mitigation grants.

A number of participants expressed concern regarding their current staffing limitations. Agencies often have limited staff available to bridge the communication between transportation emergency management with responders, to coordinate plans with agencies, and to process post-disaster paperwork required to receive funding. One participant noted that their agency's ability to implement plans is compromised by their limited staffing resources. Cumbersome reimbursement processes, particularly with FEMA, are another draw on resources. For example, FEMA and FHWA have different processes and guidelines for qualifying reimbursable expenses, which further burdens an agency's limited resources to abide by guidelines and complete paperwork. Furthermore, participants noted that reimbursements can be problematic for counties and agencies that are cash poor.

Participants explored opportunities to maximize limited resources, which include:

- Assign key staff as disaster response personnel;

- Add disaster/security elements to projects already in the programming pipeline;

- Build projects now using standards that will withstand future events;

- Utilize consultant staff to process reimbursement paperwork (note that such assistance may actually be a reimbursable cost by certain Federal agencies);

- Encourage Federal agencies to simplify the reimbursement processes;

- Develop a records retention plan to maintain the integrity of data and documents (participants noted that this action is extremely important for accounting and reimbursements);

- Establish better coordination between FEMA and U.S. DOT for evaluating pre-existing conditions;

- Document pre-existing infrastructure conditions (i.e., create a visual record to document the Federal-Aid network);

- Pre-let contracts on a standby basis in order to bypass procurement issues;

- Insert contract stipulations for contractor workloads to ensure that contractors used during emergencies are not overextended;

- Conduct a thorough hazard identification and risk analysis perhaps using funding from DHS and U.S. Army Corps of Engineers (USACE) for a specifically defined area in order to inform investments through proper assessment of risk (this assessment may also help to justify projects when applying for DHS funding);

- Request clarification or flexibility on emergency repairs versus permanent repairs;

- Establish Federal block grants for disaster response versus current reimbursement processes; and

- Update the ER guidance manual regarding how aid is defined and include consideration for mega-catastrophes.

Defining Federal, State, and Regional Roles

Integrating transportation into the disaster response dialogue has often been an uphill climb for transportation agencies. Many peer exchange participants noted that disaster response has typically been beyond the purview of transportation and that the attention now being paid to transportation has been relatively recent. It takes time to become an established partner largely because it takes time to build relationships as well as institutionalize coordination and communication between agencies. Furthermore, applying traditional planning processes to disaster response can be difficult, given that disasters happen in real-time while transportation planning generally occurs over a longer time horizon. Emergency management is often implemented at the local level and transportation planning is conducted at multiple levels of government, which makes having defined roles for transportation agencies and their practitioners an important

ingredient in mitigating the negative impact of an event. For example, states are accountable to Federal regulations and must comply with Federal guidelines like the National Incident Management System (NIMS). However, several participants were uncertain of their role in incorporating NIMS and requested guidance on who should be receiving NIMS training.

Federal transportation legislation dictates that transportation agencies include security as a provision in statewide and metropolitan long-range plans. To that end, many transportation agencies are evaluating the role they play in *considering* security efforts in long-range planning. Even FHWA has multiple departments where security issues are handled (i.e., planning; freight; operations/incident management; operation/continuity of operations; and infrastructure risk assessment). To help the planning community comply with these regulations, some participants suggested that it would useful if FHWA funded pilot projects to support and encourage activities that included disaster response in transportation planning. These activities may be eligible for state planning and research (SPR) and metropolitan planning (PL) funds.

Communication between Federal transportation agencies and FEMA was one area that several participants suggested warrants improvement. Some participants noted that FHWA has designated field personnel and FEMA has rotating personnel in short tours for a disaster, so it is difficult to build mutual awareness, relationships, and trust. Another example cited was the disparate funding and contracting requirements of Federal agencies. The discussion included suggestions that FHWA either exercise flexibility or update the ER Manual to better define guidelines for emergency repairs and permanent repairs (e.g., the ER Manual does not allow funding for safety repairs like highway lighting). In terms of contracting requirements, some participants suggested that FHWA support pre-let contracts on a standby basis, which is a practice supported by FEMA.

As previously mentioned, state DOTs traditionally focus on engineering and public works while the responsibility for security and disaster response operations has traditionally been outside the DOT mission. In order to better address disaster response and coordinate emergency procedures throughout their DOT, one participant's agency gathered expertise from different functions of their DOT (i.e., planning and operations) as a way to break down stovepipes and create synergy between departments for a common goal. Another participant DOT responds to this charge by focusing on expediting their DOTs' core functions when an event occurs. These actions are examples of ways that DOTs are attempting to address disaster response in transportation planning.

Since MPOs do not own or maintain transportation infrastructure, their role in disaster response is inherently different than that of a DOT. For example, MPOs are limited in their ability to influence infrastructure whereas a DOT, for example, can identify alternate power sources for transportation equipment (i.e., traffic signals). However, many participants maintained that there exists an opportunity to engage MPOs. For example, MPOs are not typically involved in the Emergency Support Function (ESF) #1 process, yet they often express local priorities within existing plans. MPOs can also provide coordination between partners given their familiarity with elected and non-elected leadership "on the ground." Emergency management agencies typically interact with

Federal partners when an event occurs, but many participants suggested that MPOs have skills, contacts, and relationships to offer and that their resources and knowledge are often underutilized. For example, one participant MPO is applying their current and forecast scenario modeling tools for planning for disaster response.

As noted by one participant, the role of MPOs in post-disaster rebuilding efforts can be significant. MPOs can provide much needed assistance to municipalities hard hit by natural or man-made disasters. Reduced staff levels can be supplemented with the skills and expertise of MPO planners during the recovery process. One participant MPO assisted a municipality's recovery by reviewing flood elevation, building permits, and electricity usage as indicator of places where residents fleeing a disaster have returned. Several participants observed that other opportunities for MPOs to become engaged in disaster response in transportation planning, either before or after an event, include:

- Sharing a comprehensive directory of contacts that details the roles and responsibilities of local public and private entities;

- Providing linkages to businesses in the region in order to foster partnerships both before and after an event;

- Targeting areas for recovery (i.e., redevelopment zones);

- Advocating "smart growth" policy and practices;

- Forecasting demand management;

- Providing a GIS-based database for aerial, water, and sewage infrastructure mapping (i.e., map business development opportunities to match with recovery areas and transportation infrastructure); and

- Helping coordinate re-entry plans using tiered placards.

Rebuilding Transportation Infrastructure after a Disaster

Transportation professionals often note the importance of connecting transportation planning with land use, yet the increasing demand to live in high risk areas serves to further burden transportation systems. Several participants suggested that land use decisions take into consideration the potential effects of natural and man-made events. For example, states can become proactive in assessing risk and mitigation for security purposes and can also incorporate into their risk assessment an evaluation of inhabited areas susceptible to sea level increases and precipitation. Another suggestion for states when evaluating and prioritizing transportation infrastructure was to expand assessment criteria in order to recognize what infrastructure can be repaired or rebuilt the fastest as a way to expeditiously restore conditions after a disaster.

Participants also discussed whether projects built after an event should be built to their original specifications or to a higher standard. Cost efficiency benefits can be realized

when using improved design standards and upgraded technology when rebuilding damaged infrastructure. Many participants noted that infrastructure is typically restored to its original standard largely due to the fact that doing so can be eligible for emergency relief funds and does not require a STIP amendment, even though it may not be the most cost efficient course of action. The issue of whether historic standards should be applied when rebuilding transportation infrastructure after an event was also discussed. Many participants felt that efforts should be made to apply prevailing historic standards to applicable infrastructure as part and parcel of rebuilding projects. However, applying historic standards can often bring added costs and schedule delay. Some states may also find it difficult to secure funding and conduct the necessary environmental review due to cash flow problems after a disaster. For example, even if a project is funded under the ER program, it must still follow the National Environmental Policy Act (NEPA) process and other environmental laws. However, these projects generally follow simpler, faster review paths than similar projects that are not emergency replacements of facilities.

■ 3.2 Considerations for Future Research and Development

Peer exchange participants noted that they have witnessed the responsibilities of their agencies grow to address disaster preparedness and response. Peer exchange participants acknowledged that planning processes are evolutionary and have identified the following topic areas for future research and development consideration:

- Develop a guidebook that details a methodology for conducting hazard identification, risk analysis, and security assessment with a link to smart growth concepts.

- Launch an initiative that would help practitioners evaluate and prioritize appropriate infrastructure for retrofit before an event occurs. This initiative would likely borrow from FEMA's Project Impact initiative, which is directed at shifting emergency management to damage prevention as opposed to responding to damage.

- Provide guidance on identifying and establishing key partnerships with peer agencies that conduct hazards modeling as well as agencies operating at different levels of government (i.e., U.S. Army Corps of Engineers).

- Prepare case studies as well as guidance on how sheltering and pet plans can be included in the field of disaster response.

- Evaluate the potential feasibility of Federal block grant funding for disaster relief as an alternative to traditional reimbursement processes.

- Update the ER Manual to better define guidelines for emergency repairs and permanent repairs as well as consider definitions for aid directed at mega-catastrophes.

- Explore pilot projects to support and encourage activities that seek to include disaster response in transportation planning.

■ 3.3 Resources

During the peer exchange, participants discussed the following resources, which provide useful guidance regarding the practice of incorporating disaster response in transportation planning:

- American Association of State Highway and Transportation Officials:

  – Special Committee on Transportation Security
    http://security.transportation.org

- American Planning Association:

  – *Planning for a Disaster-Resistant Community*
    http://www.planning.org/katrina/pdf/PlanDisasterResistant.pdf

- Federal Emergency Management Agency:

  – *Guide for All-Hazard Emergency Operations Planning (State and Local Guide (SLG) 101)*
    http://www.fema.gov/plan/gaheop.shtm

  – *Planning for Post-Disaster Recovery and Reconstruction*
    http://www.fema.gov/pdf/rebuild/ltrc/fema_apa_ch3.pdf

- Federal Highway Administration:

  – *Managing Pedestrians During Evacuation of Metropolitan Areas*
    http://ops.fhwa.dot.gov/publications/pedevac/index.htm

  – *Emergency Relief Manual*
    http://www.fhwa.dot.gov/reports/erm/index.cfm

- Federal Transit Administration:

  – *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 Oceanic and Atmospheric Administration, National Hurricane Center:

- – *The Deadliest, Costliest, and Most Intense United States Tropical Cyclones From 1851 to 2006*
  http://www.nhc.noaa.gov/Deadliest_Costliest.shtml

- Transportation Research Board:

  – National Cooperative Highway Research Program (NCHRP) Report 525, *Surface Transportation Security, Volume 3: Incorporating Security into the Transportation Planning Process*
  http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_525v3.pdf

Appendix A

Peer Exchange Participants

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Appendix B

Participant Submitted Peer Exchange Material

■ B.1 Broward Metropolitan Planning Organization

1. How is disaster response addressed in your state's long-range transportation plan?

   In its Long-range Transportation Plan (LRTP), Florida's Broward MPO utilizes the 6-prong approach delineated in the response to Question 5). Specifically, the Plan has been updated recently to address SAFETEA-LU provisions. In the Plan are listed other transportation partners that MPO staff coordinate with including the Broward County's traffic engineering, mass transit, aviation, and seaport staff; Florida Department of Transportation; and the South Florida Regional Transportation Authority. The LRTP addresses programs and equipment that facilitate infrastructure security of roadways, airports, seaport, train and bus stations, and the traffic signalization system. Tools include dynamic message signs along the interstate and turnpike network, video detection system along I-95, service patrols on the interstate, plans for a TSA airport facility and incorporation of an Explosive Device System, new aviation baggage screening areas. The LRTP lists an Airport Security Action Plan as well. Cargo gate control systems and closed circuit television monitoring, security command centers, and special gamma ray units for detection are some of the Port Everglades Port technology listed in the LRTP.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   One of the primary obstacles is the lack of knowledge with regard to disaster preparedness on the part of MPOs and financing this learning curve.

   The Broward MPO will be hiring a planner with transportation and security expertise in the near future. Hiring a planner at this time is on hold due to budgetary constraints. Closer coordination with the Broward County Emergency Management Agency is another way that our agency will be gaining the knowledge necessary in this field.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

    Advance notice events are typically strong wind and storm surge events in Broward County, Florida which generally involve several days in which agencies and the general public can prepare. No-notice events would be tornadoes, terrorist attacks, or other unforeseen events such as fuel explosions resulting from tanker crashes.

    Yes.

    No.

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

    In Broward County, the single most critical tool is the Emergency Operations Center (EOC) and the Emergency Management Agency staff that are the nucleus for all security planning in Broward County. The EOC facility is a sound, windowless structure with state-of-the-art communications technology and an experienced staff that coordinates with State of Florida emergency personnel in the state's capitol to maintain and develop improvements in security planning. With a fully functional The Emergency Management Agency has developed and utilizes a Continuity of Operations Plan (COOP). More information about their function may be accessed at: http://www.broward.org/disaster/welcome.htm. A second critical tool is the Geographic Information Systems (GIS) technology that has been instrumental in storm preparation and response. It is essential to have sufficient numbers of GIS-trained staff that are on-call to assist in evacuation, outreach following events, and clean-up. Undoubtedly, this would be true in addressing the impacts of manmade disasters such as terrorist events, as well. As a key partner to Broward County government, MPO staff members are available to assist, and have assisted, in GIS-related work, food and water delivery, handling phone calls from the public, etc., following storm events. A third critical component is the Broward County Traffic Management Center (TMC) operated in partnership between the Florida Department of Transportation and Broward County government. This is the center that continuously manages the County's traffic through various ITS technologies and it is instrumental in managing congestion during crises, thereby assisting in maintaining the County's security and well-being.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

    The Broward MPO utilizes a 6-prong approach in preparing for and responding to disasters: prevention, response, monitoring, recovery, investigation, and learning. Hurricane and storm surge preparation provides "practice" scenarios for the region that, in recent years, include a few episodes of preparation annually. Often hurricanes that might have impacted the county blow to the north or south of region at which point, the preparation has been a practice for the "real disaster." Every practice and every hurricane event becomes a learning experience and those who are involved in the process, at all levels of government and private industry, have found that each situation is unique with its own set of challenges and circumstances.

Lessons learned following the response to the Hurricane Wilma aftermath in October 2005 centered on best practices in repairing 99% of the traffic signals; delivering water, food, and medical services to disabled and elderly people when they become homebound due to inoperable elevators during power outages; and managing the general public's mobility needs.

In reality all levels of government, private industry, and residents are involved in both the practice and preparation/response to hurricane and storm surges in Broward County.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

The Broward MPO works with its partners to ensure that when necessary, state turnpike tolls are lifted and variable message signs provide instruction to motorists on the turnpike and Federal interstate roadways throughout the region. There is also a well-used and organized process for opening and locking down the numerous bascule bridges that connect the mainland with the intracoastal areas that run north to south along Broward County's coastland.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

At this time, the MPO's Programs Section Manager is the lead in handling disaster response. However, the MPO is in the process of hiring a Principal Planner who will be the key point person.

The Principal Planner will report to the Programs Section Manager.

This person will be trained in the MPO process, safety and security, and statistical research methodology.

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

   a. Internal departments of your organization (e.g., Operations Division)?

   b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

Critical partners in disaster response are the public and private school districts and universities. Close coordination is required to determine when to close and re-open schools. There are also selected school buildings that were designed for and are used as emergency shelters. This becomes a factor when making closure and reopening decisions (i.e., the Broward School District did not reopen following Hurricane Wilma until 1) all school shelters were deactivated and 2) all school facilities were again fully operational with at a minimum, electricity restored and temporary roof repairs completed. Traffic signalization must also be in working order so that school buses can operate.)

   c. Other modal administrations (e.g., transit)?

d. Neighboring state or regional agencies?

e. Media outlets (e.g., news agencies)?

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

   a. Redundancy infrastructure?

   GIS mapping.

   b. Hazard elimination, reduction, or avoidance?

   c. Special needs populations?

   d. Shelter-in-place options?

   e. Upgrades rather than replacement-in-kind for reconstruction?

   f. Access control?

   g. ITS and system management?

   The Broward MPO actively prioritizes ITS projects and programs including design and construction of the Traffic Management Center, implementation of variable message signs, and consideration of reversible lanes for certain major arterials.

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

    Disaster preparation is handled by the Broward County Emergency Management Agency (EMA). Storm surge and strong wind events seem to be the primary focus in our region.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

    The Broward MPO is a partner in implementing the EMA's Continuity of Operations Plan (COOP). Once the MPO has filled the new Principal Planner position, a COOP specific to the MPO's operations will be developed.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

    If MPOs at the local level of government are expected to adequately address disaster response in transportation planning, then it follows that the Federal government – FEMA, FHWA, FTA, and TSA – should be actively involving MPOs in the process and training MPOs. Funding allocations through Homeland Security could also be used to research and determine the protocol for MPOs in allocating funding for reconstruction and preventative measures.

■ B.2 District Department of Transportation

1. How is disaster response addressed in your state's long-range transportation plan?

   It is only indirectly stated in the long-range plan, mostly through transportation safety and operation initiatives. Examples in the 2005 CLRP:

   Priority 1 – *"Further improve safe, effective, and optimized use of traffic signals and other traffic control devices, and provide annual reports on transportation operations improvement programs."*

   Priority 2 – *"Further improve interagency coordination for incident management."*

   Both of these priorities speak directly to performance of the transportation network that would impact disaster response, but never does it state this as a potential outcome or to strengthen it as a must do for the region.

   By not stating how these priorities could assist in disaster response they ultimately fall short of truly being integrated and useful during disaster response. Things like signal integration amongst jurisdictional boundaries or State service patrolmen supporting county roads during an incident are not properly addressed.

   Outside of the Transportation Planning Board's long-range plan the District has adopted the Emergency Transportation Annex to the District Response Plan, to guide the District on requirements and policies for emergency transportation disaster response.

   This annex speaks mostly to policy and operational decision-making, but maybe it should also include a level of strategic development to ensure the District is moving closer to full implementation and more in line with the "State" CLRP.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   Institutional Practice/Tradition – *I believe the way in which we go about business is a primary obstacle. Traditionally, DOT's are not set up to be lighting quick agencies. I think when mud/snow covers a roadway we can get out there and clear the road but outside of that it is deemed not a DOT responsibility. Things like acquiring transportation resources to move large numbers of people, providing traveler information to responders brining in the SNS, and developing sound transportation security polices are examples of new ground and a shift to normal DOT practice that hasn't been fully recognized. Practitioners have recognize this but not the agencies themselves.*

   We have established an interagency board specifically to try and bring emergency policies into daily operations or have our staff ready to go in the event of an emergency. The board is called the emergency transportation board.

We have also established an Incident Command program that will bring better command and control and faster response times for pushing out DOT resources.

Recognition – *I think emergency transportation practitioners and emergency transportation operation officials are not meeting each other in the middle in regards to how some of these new initiatives can be completed under current operational practices. Since the creation of Homeland Security after 9/11, a whole new school of thought has been created on what emergency transportation means and should do. However, this new philosophy has never been truly coordinated with the DOT so a gap between what is stated in emergency plans and what can actually be done has been identified. I think a lot of State EMA's in developing their state response plans just placed the State DOT as lead agency for ESF#1 because it will flow in unison with the Federal plan. The problem becomes that the functions of the state DOT and Federal DOT are different.*

DDOT has one employee (myself) dedicated to the development and integration of emergency transportation functions and objectives this unfortunately seems to be more of an anomaly than the norm. We have recently hired one more person to support with DDOT coordination with emergency training and exercises.

Prioritization – *There is a small group within DDOT that is truly dedicated to emergency transportation disaster response. But that's just it, a small group which in a lot of ways is appropriate. The core of a DOT should not be refocused, we are an engineering, public works, large scale infrastructure organization, and we need to stick to our roots. However, the public has also prioritized that DOT's focus also on traffic operations and traveler information hence, Intelligent Transportation Services (ITS), Highway Advisory Radio, etc. These types of programs are still in their infancy but need to be brought along at a faster rate because they go directly to disaster response. If you look at the primary focus of where funding goes it is on construction and maintenance and traffic operations is still viewed as a luxury when it should be a priority. (***SIDENOTE – I do realize SAFETEA-LU does permit a lot of funding for congestion relief and safety initiatives, however how this translate to supporting emergency response still seems to be missing)*

DDOT TMC – *The Traffic Management Center is becoming more than a traffic monitoring hub but an incident command center for transportation emergencies. The TMC has over 15 modes in which to receive emergency information which includes most recently access to the Police/Fire Computer Aided-Dispatch (CAD) system. It is a 24/7 center that dispatches our service patrol (Roadway Operations Patrol) and serves as our point of entry for emergency notification and activation.*

Roadway Operations Patrol – *Recently became 24/7 to provide enforcement of the District's quick clearance policy. The core procedure that they have that is important to point out is they can run public safety response lights and have full authority as public safety officers. This allows us to close roadways independently of law enforcement when necessary for roadway repairs, and to truly provide quick clearance of roadway incidents. Also it should be pointed out that our service patrol is called Roadway Operations. This is significant because it tells the community and our agency partners that the work we do is not a courtesy but mandatory.*

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

We are currently adopting a 3 tier Operation Level system. This is an All-Hazard approach to be used when determining the level of resources needed by DDOT to meet the demands of the emergency. It does not matter if it is advance notice or no-notice, as the operation level will shift with how it is effecting our organization and our level of resources.

OPERATION LEVELS

Operation Level 1 (Normal Operations – EMA Level 1)

Level one is normal operations for DDOT. During the course of normal operations, DDOT is engaged in emergency preparedness, training, and exercise activities to ensure continual readiness. Operations plans are reviewed and updated, and equipment checked to ensure readiness should the need arise.

Characteristics

- *Limited staff requiring overtime due to an isolated emergency event;*

- *Special event requiring minimal additional staffing;*

- *Metro operating under normal conditions with normal delays;*

- *All emergency routes are operating under 'normal' conditions;*

- *DDOT facilities are open and operational; and*

- *District of Columbia under a severe weather watch.*

Operation Level 2 (EMA Level 2-3)

Level two is activated by a significant event that alters or effects part of DDOT's daily operation. One or more of DDOT's Administrations are affected by the event and the event requires the Directors notification (not necessarily action). DDOT facilities and nonessential personnel continue normal operations. The EMA EOC will be partially staffed, but a state of emergency may or may not be declared. The DDOT Incident Commander will be activated to support incident and/or Area Command. ESF#1 may be activated.

Characteristics

- *DDOT Employee or contractor severely injured/killed during assigned tour of duty;*

- *2 or more primary emergency routes or metro stations closed due to incidents (i.e., floods, accidents) during peak travel times;*

- *First Amendment demonstrations resulting in significant rolling street closures;*

- *DDOT facility closed for an extended period of time and requiring staff relocation;*

- *Significant bridge, tunnel, and/or roadway damage requiring emergency closure and construction for prolonged period of time;*

- *An evacuation of 10 or more families and/or extended closure of a section of the District;*

- *Activation of DDOT essential personnel and contractors due to perceived emergency threat (i.e., possible trees down due to ice or hurricane force winds);*

- *4 inches or less of snow;*

- *25 or more requests for tree removal;*

- *25 or more signalized intersections malfunctioning;*

- *School, Tourist Bus, or Private Carrier (i.e., Greyhound, Chinatown) accident within the District; and*

- *Aviation accident or Heavy Rail derailment*

Operation Level 3 (EMA Level 4-5)

Level three is triggered by a significant emergency event affecting the entire District of Columbia. The Director is requested to the Mayor's Consequence Management Team. All DDOT essential employees are activated, and nonessential employees are likely sent home and normal operations halted. DDOT is operating under ESF#1 and a Presidential Declaration has been declared (or going to be).

Characteristics

- *Presidential Disaster Declaration Declared;*

- *DDOT Offices closed to non-essential employees;*

- *Immediate response required for major transportation infrastructure damaged due to terrorism or natural disaster;*

- *6 or more primary emergency routes and/or metro stations are immediately closed;*

- *100 or more request for tree removal (10 requiring immediately removal due to public safety concerns);*

- *4 or more inches of snow; and*

- *100 signalized intersections malfunctioning with at least half along major arterials.*

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

We have used various modeling techniques to improve our evacuation transportation planning. One type of model was used to assess appropriate signal timing should we need to activate one of our 19 emergency routes. We also used a model to assess potential corridors for supporting a pedestrian walk out during an emergency.

We use a computer program called CAPWIN to improve communications across the region from operator to operator via laptop and our TMC is slowly incorporating WebEOC. We are also in preliminary stages of creating a program called CAPTOP, which will take the various computer programs used by the TMC operators and filter information into the various programs so that the operator is not having to enter the same information into various locations. CAPTOP utilizes GIS and ultimately improve the DDOT response.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

See attached (Fastforward I and II AAR).

We also participate in various table top exercises but for the most part they have not been of much use to us. It should be noted for Capitol Shield 08 (Military Exercise) we are looking to add a field exercise component that would require the emergency quick clearance of a major accident from the roadway to allow for the movement of dignitaries. This will be a first for us.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

On our emergency routes we activate the traffic signals to double their normal cycle.

On our emergency routes change the directional flow to PM rush hour operations (some corridors are 6 lane with a 4/2 configuration depending on time of day).

Due to the District Historical laws we own about 75 variable message boards (fixed boards are not allowed). These are pre-staged across the District. Currently they require operator activation on site, however we are looking to install wireless communications devices so that they can be centrally commanded through the TMC.

We have Highway Advisory Radio trailers pre-staged at various locations.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

We have 2.5 people solely responsible for emergency planning. Within the Office of the Director is the Office of Emergency Preparedness and Risk Management.

The Emergency Preparedness and Risk Manager – *Splits their time between the two disciplines. Mostly a political position than a subject matter expert.*

The Homeland Security Coordinator – *(myself) Tasked with being a subject matter expert in both transportation planning/operations and Homeland Security initiatives. I have a Master's degree in Emergency Management (received prior to 9/11) and a degree in urban planning. Spent time with the Texas Dept. of Transportation as a planner and as a private consultant on homeland security initiatives.*

Emergency Preparedness Coordinator – *Deals mostly with training and exercises for the department. Currently tasked with getting us NIMS compliant. Background is mostly from the Emergency management field.*

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

   a. Internal departments of your organization (e.g., Operations Division)?

   b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

   c. Other modal administrations (e.g., transit)?

   d. Neighboring state or regional agencies?

   e. Media outlets (e.g., news agencies)?

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

   a. Redundancy infrastructure?

   b. Hazard elimination, reduction, or avoidance?

   c. Special needs populations?

   d. Shelter-in-place options?

   e. Upgrades rather than replacement-in-kind for reconstruction?

   f. Access control?

   g. ITS and system management?

   We have recently formed the Emergency Transportation Board established to

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

    Not exactly sure what this question means, sorry. I feel this question assumes we have systematic approach to our madness.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

    Provide stronger guidance on transportation emergency guidance and tie it to some type of funding string so local communities find it to be a priority (FHWA).

    Clarify the role between the U.S. DOT and DHS as it relates to emergency transportation issues. Things like monitoring bridges and tunnels using ITS equipment who should pay for it and how does this become a priority over more transportation needed locations.

■ B.3 Federal Highway Administration

1. How is disaster response addressed in your state's long-range transportation plan?

   FHWA is looking for transportation planning agencies or transportation planning offices to consider activities such as the following:

   - *Provide a forum for interagency coordination;*

   - *Apply network modeling tools to assess emergency response and evacuation;*

   - *Address long-term recovery and system adaptation (enhancements or betterments);*

   - *Provide a forum for engaging the public and decision-makers; and*

   - *Address issues specific to freight movement.*

   These activities then would be documented in the long-range transportation plan or be included by reference.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   Within our agency we have been working with the personnel who have lead responsibility for security and emergency response functions so they are more aware of the roles and capabilities of transportation planning both in headquarters and in field offices. However, our agency also is not the lead for many security-related activities. While our lead personnel have been working with DHS, planning continues to be a step removed.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

   We apply an all-hazards approach. However, there are differences in responding to an event with advanced notice.

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

   There may be a need for models and data that look at both the metropolitan area and receiving areas outside the metropolitan boundary. There also may be a need for coordination between MPOs and surrounding non-metropolitan areas on evacuation.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

    We have participated in several multi-state, multi-agency exercises and have plans for more exercises.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

    We do not directly control or operate transportation facilities. We do have continuity of operation plans for headquarters and field offices so we can respond during events.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

    Two people in the headquarters unit work on security and emergency response as a collateral duty.

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

    a. Internal departments of your organization (e.g., Operations Division)?

    b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

    c. Other modal administrations (e.g., transit)?

    d. Neighboring state or regional agencies?

    e. Media outlets (e.g., news agencies)?

    Most coordination with planning functions has been informal.

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

    a. Redundancy infrastructure?

    b. Hazard elimination, reduction, or avoidance?

    c. Special needs populations?

    d. Shelter-in-place options?

    e. Upgrades rather than replacement-in-kind for reconstruction?

    f. Access control?

    g. ITS and system management?

We are developing information on considering hazard avoidance, enhancements, and access control in the transportation planning process. Information on special needs populations and systems management and operations already is available.

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

    We have found a variety of examples in different states and regions. Some of the leading examples are in California and Florida where there is a history of government preparing for responding to hazards. We also have found noteworthy examples in several metropolitan areas including the Capital Regions Council of Governments in Hartford, Connecticut; Hampton Roads, Virginia; Huston-Galveston Area Council in Texas; Metropolitan Council of Governments in Washington, D.C.; Baltimore, Maryland region.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

    We are incorporating security and emergency response into our strategic plan. For planning, we are looking at coordination at the state and metropolitan level.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

    We are developing technical information and engaging Federal, state and metropolitan agencies. We consider our role to provide leadership and support for state and metropolitan needs as well as direct Federal-to-Federal coordination.

■ B.4 Federal Transit Administration

1. How is disaster response addressed in your state's long-range transportation plan?

   Federal agency, N/A.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   Not enough information available on "disaster response" in transit and/or transportation planning. Need more NCHRP studies.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

   Federal agency, N/A.

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

   More research studies. More reading material.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

   Attend TRB. Attend Transportation Safety Planning Working Group Meeting.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

   Federal agency, N/A.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

   Will need to ask FTA Office of Safety & Security.

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

   a. Internal departments of your organization (e.g., Operations Division)?

   b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

   c. Other modal administrations (e.g., transit)?

   d. Neighboring state or regional agencies?

   e. Media outlets (e.g., news agencies)?

   No MOU on file, but we need one.

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

   a. Redundancy infrastructure?

   b. Hazard elimination, reduction, or avoidance?

   c. Special needs populations?

   d. Shelter-in-place options?

   e. Upgrades rather than replacement-in-kind for reconstruction?

   f. Access control?

   g. ITS and system management?

   Federal agency, N/A.

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

    Federal agency, N/A.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

    Federal agency, N/A.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

    FTA better coordinated with Dept Homeland Security Regional Transit Security Strategy.

■ B.5 Florida Department of Transportation

1. How is disaster response addressed in your state's long-range transportation plan?

   The magnitude of response is mitigated by analyzing past failures and revising specifications and design criteria to incorporate lessons learned.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   Disaster response related improvements must compete with traffic capacity and safety related projects.

   FHWA approval to modify specifications and design criteria is cumbersome when work ER reimbursement is involved.

   FHWA and FEMA are the two big Federal reimbursement programs. What they reimburse for, how they reimburse, and the documentation required for reimbursement is greatly different and causes tremendous confusion for state Departments of Transportation as well as local governments.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

   An All-Hazards approach is planned for. Different events are handled as need dictates.

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

   Evacuation modeling for large urban areas to include those dependent on others for transportation.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

   Unfortunately, Florida gets plenty of practice with actual events. After each event we do a "lessons learned" with all our partners (FEMA, FHWA, State agencies…, etc.).

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

   Contraflow/Variable Message Boards/Hazardous Advisory Radio systems/open lanes in construction areas/increase capacity of rest areas/lower high mast light poles.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

Emergency Management and Operations background. During event position reports directly to Secretary of Department. Experience is more important than specialized background or training.

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

    a. Internal departments of your organization (e.g., Operations Division)?

Department Procedure.

    b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

State Comprehensive Emergency Management Plan.

    c. Other modal administrations (e.g., transit)?

Emergency Management Plans specific to that mode of transportations.

    d. Neighboring state or regional agencies?

EMAC.

    e. Media outlets (e.g., news agencies)?

State Comprehensive Management Plan.

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

    a. Redundancy infrastructure?

Parallel bridges/Traffic Management Centers to monitor closures.

    b. Hazard elimination, reduction, or avoidance?

Lowering of High Mast Light Poles, improvements in design criteria, generators at traffic signals when electricity is out, aggressive installation of critical road signs, aggressive road clearance and debris removal.

    c. Special needs populations?

Planning with other agencies to ensure all resources available are utilized.

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d. Shelter-in-place options?

Local government issue, DOT assists (VMBs, signs, etc.) as requested.

    e. Upgrades rather than replacement-in-kind for reconstruction?

As much is allowed – this is a Federal reimbursement issue.

    f. Access control?

    g. ITS and system management?

Traffic Management Centers are heavily utilized.

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

   Flip signs/exit mile post numbers painted on shoulders/traffic counters at critical locations/ alternate power source for traffic signals.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

   Lessons learned exercises.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

   Cooperate with each other!!! Have similar requirements and criteria for eligibility and invoice documentation.

■ B.6 Houston-Galveston Area Council

1. How is disaster response addressed in your state's long-range transportation plan?

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   We are not responsible for disaster response related improvements. Our counties, cities, and H-GAC's Department of Community Services are responsible for those activities. We have planning dollars set aside to support them on an as-needed basis.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

   The COG and the MPO are planning organizations. The COG Community and Environmental Department plan for all-hazard events. The MPO looks at events that require evacuation, such as a hurricane or traffic management, such as mass inoculation.

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

   We are currently working on modeling of evacuation events. It would be helpful to define the MPO/COG's place in disaster preparation and response. We could use training on how to incorporate disaster preparation into our Regional Transportation Plan.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

   We participate in drills held by local municipalities and the state.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

   Our agency has nothing to do with this, but TxDOT uses contraflow and changeable message signs.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

   None are responsible for disaster response.

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

    a. Internal departments of your organization (e.g., Operations Division)?

    b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

    c. Other modal administrations (e.g., transit)?

    d. Neighboring state or regional agencies?

    e. Media outlets (e.g., news agencies)?

    Nothing formal.

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

    a. Redundancy infrastructure?

    b. Hazard elimination, reduction, or avoidance?

    c. Special needs populations?

    d. Shelter-in-place options?

    e. Upgrades rather than replacement-in-kind for reconstruction?

    f. Access control?

    g. ITS and system management?

    Houston TranStar would better answer these questions.

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

    You would need to talk with cities and counties; we're not that involved.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

    Modeling tools.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

    Please define the role of the MPO in disaster planning and response…no one knows.

■ B.7 Metropolitan Washington Council of Governments

1. How is disaster response addressed in your state's long-range transportation plan?

   The Metropolitan Washington Council of Governments (MWCOG) Human Services, Planning, and Public Safety (HSPPS) Department is a non operational coordinating body which works with the states (Maryland, Virginia, and the District of Columbia) and local jurisdictions surrounding Washington DC. Although the Washington MPO is housed at COG as well (as the Transportation Planning Board), the department I work for (HSPPS) is not and official transportation planning agency.

   Thus, we have no direct influence in long-range transportation plans for the three states. Recommendations regarding disaster response are provided by a Regional Emergency Support Function #1 (RESF-1) Transportation Committee, which is a component of the greater National Capital Region (NCR) Homeland Security Program. The RESF structure in the NCR Homeland Security Program mirrors the annexes of the National Response Plan (NRP). This committee is made up of practitioners at the local and state level. Many of the state members provide input their state long-range transportation plan.

   The purpose of the committee is to share ideas and best practices regarding emergency response procedures and protocols for the transportation community. Thus, by meeting monthly, committee members are able to bring information back from the meetings, and influence their state long-range transportation plans.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   Financial

   Since there is the perceived notion of tremendous amounts of U.S. Department of Homeland Security funding available for disaster response, many state and local transportation agencies rely on these DHS funds to support emergency preparedness and response initiatives and do not budget agency funds for this topic area. In reality, the DHS funds do not address all the gaps in disaster preparedness across all emergency functions, and transportation interests take a back seat to law enforcement, fire service, emergency management, and health sector needs. Since money is not being provided directly by transportation agencies and DHS money is obligated to other projects, many transportation emergency response initiatives go unfunded.

   Legal

   Since the NCR covers three states (including the District of Columbia), there is the potential for legal problems for any type of cross agency coordination. This is mitigated in the NCR due to the fact that the police and fire communities in the region have been enacting mutual aid plans for decades, and there is the potential to piggyback off these agreements (or use as templates) if and when the transportation community is required to address and legal obstacles.

Institutional

Although the NCR is made up of three different states, there has been a precedent of regional collaboration due to the existence of the MWCOG for over 50 years. The relationships facilitated by MWCOG have helped to mitigate institutional barriers to collaboration, but some barriers still exist.

Communication

Since each agency developed communications (both voice and data) in a stovepipe over time, barriers exist to seamless information sharing. Recent technological advances of the issue have helped to solve the technical problems of sharing information (such as data exchange hubs which can push information to and from disparate computer systems), but the protocols and procedures for the proper use and handling of the information of other agencies is lagging. In the NCR, this is beginning to be addressed by the Metropolitan Area Transportation Operations Coordination (MATOC) program. This program is tasked to develop the protocols and procedures for information sharing across the region.

FHWA and FEMA are the two big Federal reimbursement programs. What they reimburse for, how they reimburse, and the documentation required for reimbursement is greatly different and causes tremendous confusion for state Departments of Transportation as well as local governments.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

   N/A

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

   Information sharing across regional agencies via voice, data, and video assists in disaster preparation. In addition, transit agencies are beginning to utilize the Capital Area Wireless Integrated Network (CapWIN), a program that allows users in the field to access and post data to a shared board about emergency events. There are also law enforcement users on CapWIN.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

   Transportation stakeholders are involved in many cross-functional and regional disaster preparedness exercises held in the NCR.

   More specifically, the NCR RESF-1 Committee sponsored and Communications and Coordination tabletop exercise (TTX) in November 2006 for transportations stakeholders. During this TTX, interjects from other emergency functions were integrated into the scenario, but the primary focus was on transportation related activities. The main finding of this exercise were: the need for better communications procedures both between and within agencies

to share information as an event escalates; transportation operators (both in centers and in the field) desire the opportunity to collaborate with their counterparts from other agencies at regular meetings (note: the NCR RESF-1 Committee is primarily made up of managers and planners with the mission of emergency response); and there is a lack of transportation response plans across the region.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

   The NCR has variable message signs that can be used during emergency response, but many are not connected to networks to provide real time updates. Additional, many gaps exist in the position of these signs, and more are needed in the future. Additionally, the region has begun the process of "hardening" critical transportation assets such as bridges and tunnels by installing cameras in intrusion monitoring devices.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

   N/A

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

   a. Internal departments of your organization (e.g., Operations Division)?

   N/A

   b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

   Through the NCR RESF-1 Committee, transportation emergency preparedness officials have the opportunity to collaborate across the NCR. Since the RESF-1 Committee is part of the larger NCR Homeland Security Program, the RESF-1 Chair participates in meetings with representatives from other emergency support functions such as law enforcement, fire service, emergency management, and health officials to discuss homeland security and emergency preparedness issues. Additionally, the committee is accountable to the regional MWCOG Chief Administrative Officers (CAO Committee) made up of county and city mangers. Finally, the RESF-1 Committee provides input to the NCR Emergency Preparedness Council made up of elected officials, and representatives from the private and nonprofit sector.

   c. Other modal administrations (e.g., transit)?

   The NCR RESF-1 Committee has participation from both transportation and transit officials. Additionally, maritime and aviation officials have been invited to participate.

   d. Neighboring state or regional agencies?

See item b.

   e. Media outlets (e.g., news agencies)?

N/A

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

   a. Redundancy infrastructure?

N/A

   b. Hazard elimination, reduction, or avoidance?

The NCR Homeland Security Program sponsored a Hazard Identification and Risk Analysis (HIRA) which considered transportation assets and provided next steps for future planning initiatives and projects to be implements.

   c. Special needs populations?

NCR RESF-1 Committee members coordinate with others address special needs populations (some committees at MWCOG address this concern), and incorporate their suggestions into planning initiatives.

   d. Shelter-in-place options?

NCR RESF-1 Committee members are providing input into the NCR Evacuation and Sheltering Plan currently under development. This plan incorporates shelter-in-place options.

   e. Upgrades rather than replacement-in-kind for reconstruction?

N/A

   f. Access control?

NCR RESF-1 members coordinate with local law enforcement agencies to address access control in plans.

   g. ITS and system management?

The NCR RESF-1 Committee works closely with the Transportation Planning Board's Management, Operations, and Intelligent Transportation Systems (MOITS) Committee which is tasked with addressing ITS and system management in the region. Many individuals sit on both committees.

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

    Planning initiatives provided the cornerstone for all emergency response functions, and provide the greatest cost/benefit return. Major planning gaps exist for response operations and communications procedures.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

    The Hazard Identification and Risk Analysis (HIRA) conducted by the NCR Homeland Security Program was a first step in addressing assessing the potential benefits of disaster preparation for the transportation sector. Additionally, individual agencies have assessed risk when submitted project concept papers for DHS funds.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

    The greatest role the Federal government can plan in the NCR in regards to disaster response planning and implementation would be to provide best practices and funding solely earmarked for emergency response projects so they are not competing against a larger pool of priorities. Daily operational concerns will always trump any emergency preparedness initiative, thus funding from a Federal agency (whether the source be DOT or DHS) earmarked for disaster planning for transportation agencies is the only way to get these projects to move forward.

■ B.8 New Orleans Regional Planning Commission

1. How is disaster response addressed in your state's long-range transportation plan?

   The Plan does not specifically address disaster response.

   Disaster Response is viewed as an operational issue more than planning issue by DOTD.

   DOTD coordinates with other operational agencies thru Southeast Louisiana Hurricane Task Force (15 parishes); Governor's Office Homeland Security and Emergency Preparedness; Contra-Flow Plan; and State Police.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   Federal agencies outside of the FHWA/FTA/FRA transportation network do not know or understand what an MPO is or does. The ESF 14 process duplicates many of the planning functions carried out by the MPO. FEMA should be required to coordinate with MPOs in large urban centers in order to assist them with recovery planning and infrastructure restoration.

   No dedicated FEMA Hazard Mitigation funding to coordinate local plans at the regional level (policy issue).

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

   The MPO does not define advance notice and no-notice events. However, the MPO does provide digital photography, demographic, and traffic data to the State Police, Governor's Office Homeland Security, and local Offices of Emergency Preparedness to facilitate event preparation and decision-making.

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

   Access to Red Cross data regarding facilities information, i.e., shelter locations and capacity.

   While this MPO collects drainage, water, and wastewater system information, it would be useful to have Agreements in place to also access electrical, gas, cell phone, and critical infrastructure information. This is a coordination issue between Homeland Security and other governmental agencies such as U.S. DOT. There is an important need to keep such data updated and readily accessible for emergency planning and recovery purposes. Information data sharing and development is presently based on informal agency relationships. It's difficult to overcome institutional cost-sharing barriers even when agencies are willing to participate jointly in the acquisition of data.

These databases are essential for inputs into various disaster planning and recovery planning models.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

    The MPO in partnership with the chambers of commerce host an annual Hurricane Preparedness Conference (which is re-broadcast over Cox cable) to inform the public, local officials, and businesses on the status of hurricane preparations, modeling results, and threats.

    The Governor's Office of Emergency Preparedness conducts "Purple Crescent" homeland security training exercises for various types of disaster and response needs. The MPO participates in all of these events.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

    Using traffic data collected thru ITS cameras, the MPO and state DOT were able to actually capture and subsequently recreate traffic flows and evacuation patterns associated with Hurricane Ivan. This information was subsequently used to adjust the Contra-Flow Lane Plan in advance of Hurricane Katrina, resulting in the successful evacuation of over 1 million people from the Greater New Orleans Area.

    One of the real challenges facing a community after a disaster is the re-entry process. Following Hurricane Katrina, the MPO has brought together the State Police, DOTD, Parish OEP Directors, and local officials for development of a unified and cooperative 5 parish Re-Entry Plan based on a placard system.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

    The senior planning staff share the responsibility depending on the scope and extent of the need (insufficient funding for full-time position). The MPO staff is in need of training.

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

    a. Internal departments of your organization (e.g., Operations Division)?

    b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

    Flood Control: operations and modeling on pump station and flood control structure between USACE, N.O. Sewerage & Water Board, public works departments of Jefferson, Orleans and St. Bernard Parishes, DOTD, and MPO.

    c. Other modal administrations (e.g., transit)?

Formal Agreements between MPO and local transit properties on transportation planning.

    d. Neighboring state or regional agencies?

Bi-state Agreement between Louisiana and Mississippi on Contra-Flow operations.

    e. Media outlets (e.g., news agencies)?

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

    a. Redundancy infrastructure?

    b. Hazard elimination, reduction, or avoidance?

The MPO functions as a resource agency for its member parishes. RPC sponsored activities include: the Motorist Assistance Patrol (Incident Management) Program; the Regional Traffic Management Center; HAZUS Flood Modeling for post-storm event damage assessment and costing.

    c. Special needs populations?

The MPO is working with the University of New Orleans to identify elderly populations and shelter resources for evacuation.

    d. Shelter-in-place options?

Shelter-in-place is generally not an option in N.O.

    e. Upgrades rather than replacement-in-kind for reconstruction?

Interstate 10 "Twin Span" Bridge upgraded from 4 to 6 lanes; minor traffic signal equipment upgrades.

    f. Access control?

    g. ITS and system management?

MPO maintains and is presently updating Regional ITS Architecture.

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

Elevation of low-lying flood prone roadway sections or spot locations on evacuation routes.

Contra-Flow Evacuation Plan

Hotel/Motel industry has developed tourist evacuation plan using private charter buses.

Use of trains and bus charters for evacuation of carless population and mobility impaired.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

Criteria used for prioritization includes roadway functional class, traffic volume, and estimated costs. The projected volumes of roadway traffic during a worst-case hurricane event and the order of magnitude estimated cost to construct the recommended improvement. The projected volume figure was divided by the estimated cost figure providing a per-dollar effectiveness score for each project.

DOTD and MPO has informally agreed to give priority to addressing deficiencies on hurricane evacuation routes. Consideration should perhaps be given to establishing a funding set aside out of the state's FHWA formula funds for this purpose.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

Fund and send additional personnel to existing agencies (i.e., MPO and local DPWs) to assist them in their work instead of FEMA trying to re-invent the process for data gathering, agencies contact and communications; and prioritization of capital recovery needs.

Need for FEMA to have consistent policies and key decision-makers on site with the authority to make decisions that stick.

Consideration needs to be given to a block grant funding concept based on local accountability with state or Federal oversight in lieu of Project Worksheets and Damage Impact Report forms.

Sections in the FHWA Emergency Relief Manual need to be adjusted to make it easier to deal with large disasters and to accommodate congressional aid packages being sent into disaster areas.

■ B.9 Puget Sound Regional Council

1. How is disaster response addressed in your state's long-range transportation plan?

   The Washington State Transportation Commission finalized the state's Washington Transportation Plan in November 2006. Among the key Policy Recommendations, the WTP calls for clarification on the role of state and local governments in providing personal mobility and freight service in the event of a major disruption to the transportation system or in case of catastrophic events.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   For the four-county MPO region, PSRC convened a "Security Planning Workshop" on July 19, 2006. From this Workshop we learned that there are a lot of different agencies involved in security planning and operations. PSRC continues to carefully evaluate how to complement these efforts.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

   N/A

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

   PSRC will continue to evaluate how its regional model may be used to support disaster response. PSRC also tracks population, housing and other demographic data that might be useful for disaster preparation and response.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

   At this time PSRC does not "practice" implementation of transportation disaster preparation or response plans.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

   In April 2007 the PSRC established a Regional Traffic Operations Committee. This group of senior level transportation operators will be focusing on 1) Traffic signal coordination, 2) regional traffic operations (Active Traffic Management) at the arterial and freeway levels and 3) Intelligent Transportation Systems (ITS). This group will be establishing a work plan within the next few months. Disaster response planning has been discussed as a focus area.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

Disaster response is new to PSRC. At this point there is one Senior Planner and one Program Manager from the Transportation Division assigned to this area. Generally speaking, the two PSRC staff responsible for "security" planning have other collateral duties including safety, Congestion Management Process, and Transportation System Management and Operations. These two staff members have close working relationships with the Data Services and Land Use teams.

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

    a. Internal departments of your organization (e.g., Operations Division)?

    b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

    c. Other modal administrations (e.g., transit)?

    d. Neighboring state or regional agencies?

    e. Media outlets (e.g., news agencies)?

As mentioned earlier, PSRC convened a "Security Planning Workshop" on July 19, 2006. This is PSRC's initial collaborative action. PSRC will continue to convene these workshops. There have been actions to improve transportation security in Washington State and the Puget Sound region at all levels: statewide, regionally, at the county level and at a local level. In addition to roadway efforts, these include consideration of maritime, air and transit facilities.

STATEWIDE

Overall statewide leadership in security planning in Washington is provided by the Emergency Management Division of the Washington Military Department. The Emergency Management Division administers grants from the Federal Homeland Security Department and assists the Governor in coordinating homeland security activities in the state. Two main advisory groups provide policy direction to the EMD and to the Governor: the Emergency Management Council and the Domestic Security Executive Group.

The Emergency Management Council includes representatives from the following:

- *State Patrol;*
- *Association of Sheriffs and Police Chiefs;*
- *Department of Ecology;*
- *Building Officials;*
- *Military Department;*
- *Search and Rescue;*

- *City Officials;*

- *Local Emergency Management Directors;*

- *Local Fire Chiefs;*

- *Fire Protection Bureau;*

- *State Emergency Management Directors;*

- *Department of Health;*

- *County Sheriffs;*

- *Department of Natural Resources;*

- *Private Industry;*

- *Association of County Officials; and*

- *Member-at-large.*

The EMC receives support on security issues from a statewide Committee on Homeland Security. One of the actions of the EMD and the Committee on Homeland Security has been the development of the Washington Statewide Homeland Security Plan. The strategic objectives of the plan are to:

- *Reduce Washington State's vulnerability to acts of terrorism, and natural or technological hazards.*

- *Prevent, deter, defend against, and dissuade terrorist attacks from occurring within Washington State.*

- *Prepare citizens, government, tribal nations, and businesses at all levels to effectively respond in the event of any emergency including a terrorist attack.*

- *Minimize the damage and effectively respond to and recover from attacks and natural or technological emergencies that do occur.*

The plan includes goals specifically oriented to transportation security:

Goal 3.6 (prevention), To support our economy and communities by keeping people, businesses and government moving and operating with safe and secure transportation systems.

Goal 7.2.1.4 (resources), In support of the National Incident Management System (NIMS) implementation develop a resource plan for managing and employing resources in advance of an incident.

The second major group advising the EMD and the governor is the Domestic Security Executive Group, which consists of the following members:

- *TAG/Director, Military Department (Chair);*

- *Director, Emergency Management Division;*

- *Chief, Washington State Patrol;*

- *Secretary of Health;*

- *Secretary of Transportation;*
- *Director, Department of Agriculture;*
- *Director, Department of Ecology;*
- *Director, Department of Information Services;*
- *Director, Office of Financial Management; and*
- *Governor's Senior Staff.*

In addition to the two main groups advising the EMD, an E-911 Advisory Committee has been formed and reports to the EMD on issues related to the Emergency 911 system in the state. This committee allocates funds generated from a cell phone tax to regions for the development of E-911 centers.

One of the primary roles of the EMD is to distribute Department of Homeland Security funds within the state. The U.S. Department of Homeland Security distributes some homeland security funds as grants to specific implementing agencies, but those that are not are distributed by EMD. The state is divided into nine regions. Funds are allocated to each of these regions based on the overall need as determined by the EMD. Each of the four counties in the Puget Sound region is in a different EMD region. King County and Pierce County are each their own region but Snohomish and Kitsap counties are each grouped with two other counties.

Each of the EMD regions is led by a Regional Coordinator, and there is generally a Homeland Security Council/Emergency Management Advisory Committee organized for each region. The implementation of homeland security and most other security activities is the responsibility of county-based emergency management departments or individual entities such as the airports, seaports, Washington State Ferries, the transit agencies, or cities. Other Federal departments besides.

COUNTY EMERGENCY MANAGEMENT DEPARTMENTS

Much of the emergency response in the Puget Sound is planned for and initiated at the county level in the Puget Sound region. Each of the four counties in the Puget Sound region has initiated Homeland Security planning and preparations in addition to the ongoing emergency management preparations that have gone on. The counties each have Emergency Management Departments that have prepared a variety of security plans. The elements in these plans are as follows:

King County (Region 6)

- *Critical Infrastructure Plan*
- *County Emergency Plan*
- *Hazard Identification Vulnerability Plan*
- *Regional Hazard Mitigation Plan*
- *Regional Disaster Response Plan*

Kitsap County (Region 2)

- *Kitsap County Hazard Identification and Vulnerability Analysis (Sept 2004)*
- *Kitsap County Multi-Hazard Identification Plan (Aug 1999)*
- *Comprehensive Disaster Recovery Plan (Dec 2003)*
- *Comprehensive Emergency Management Plan (Dec 2003)*

Pierce County (Region 5)

- *Comprehensive Emergency Management Plan (June 1998/Revised and Updated 2003)*
- *Natural Hazards Mitigation Plan*
- *Hazard Identification and Vulnerability Assessment*
- *Mt. Rainier Volcanic Hazards Plan*

Snohomish County (Region 1)

- *Snohomish County Comprehensive Emergency Management Plan*
- *Snohomish County Natural Hazards Mitigation Plan*
- *Hazard Identification and Vulnerability Assessment (2004)*

MARITIME

Maritime security in the Puget Sound has been largely shaped by the National Maritime Transportation Safety Act (NMTSA) of 2002. The Coast Guard works with Area Maritime Security Committees to develop a security plan for each area that is consistent with a National maritime Security Plan.

Currently, cargo leaving foreign ports for the United States is searched before departure, and a list of the cargo is mandatory. Before arrival in Seattle, the Coast Guards will refer to the list when performing another search of the vessel's cargo. Vessels bound for the United States are now required to submit a formal security plan in advance, detailing how they intend to secure engine rooms and other restricted areas, and spelling out plans for terrorism-related evacuations. Trucks traveling in and out of the port must pass through a Vehicle and Cargo Inspection System that uses gamma rays to scan the contents of containers, which is then matched against manifests. The Port of Seattle has also employed canine detection teams, radiation detection devices, X-ray machines, and physical inspections to monitor cargo and screen for drugs, explosive devices, chemical weapons, etc. Marine Safety and Security Teams often patrol critical areas in fast-response boats, escorting ferries and cargo vessels when appropriate.

The Washington State Ferries (WSF) is part of the Washington State Department of Transportation and is considered part of the state highway system. As such, it is policed by the Washington State Patrol. Under the WSF security measures, all vehicles are subject to screening while waiting in holding lanes for the next ferry to arrive. Bomb sniffing dogs have also been used for screening of vehicles and passengers waiting to board the ferries. WSF has prohibited and restricted many potentially dangerous items from its ferries (including guns,

explosives, propane tanks, and hazardous materials). Once they have boarded, passengers are required to remain on the vessel unless permitted by the captain to leave. WSF also urges passengers to be alert to suspicious behavior and comply with security measures and procedures.

AIR

At Sea-Tac International Airport, security is planned by a security department of the airport to meet the requirements of the Department of Homeland Security and the Transportation Security Administration (TSA). Security activities at the airport cover commercial passenger, air cargo, general aviation, and air space security. The TSA, FAA, WSDOT, and airport operators are working to improve safety and security at general aviation airports while retaining the commercial aviation industry's ability to meet the needs of the flying public.

Commercial Passenger Security – *The Transportation Security Administration, Federal Aviation Administration, Port of Seattle, and airlines have undertaken a broad range of efforts aimed at protecting aircraft in flight and airport passenger terminals from terrorist acts. Numerous enhanced security measures have been implemented at Sea-Tac Airport.*

These include increased presence of law enforcement personnel throughout the airport and enhanced screening equipment and procedures (every bag is now checked for explosives using the latest technology screening machines). All screening is now performed by Transportation Security Administration (TSA) personnel. Canine explosive teams with bomb-sniffing dogs have been expanded. Restrictions have been placed on parking in front of the passenger terminal. Only ticketed passengers are allowed beyond the airport security screening stations. The airport and airlines have implemented enhanced TSA restrictions on what can be brought on board planes. Airfield access restrictions have been significantly enhanced, and the airport is implementing a new badge program using biometric access code technology (finger printing) for all employees who have access to restricted areas of the airport.

Air Cargo Security – *On November 17, 2003, the TSA published an Air Cargo Strategic Plan, focused on security. The plan's four objectives are to: 1) enhance shipper and supply chain security; 2) identify elevated risk cargo through prescreening; 3) identify technology for performing targeted air cargo inspections; and 4) secure all-cargo aircraft through appropriate facility security measures. Since its creation after September 11, 2001, TSA has moved steadily to strengthen air cargo security. The Strategic Plan represents a major new commitment by TSA to build aggressively on that foundation and substantially improve the security environment for the nation's aviation system. TSA, FAA, regional airport operators, and air cargo carriers are working together to begin implementing these air cargo security objectives.*

General Aviation Security – *The U.S. Department of Transportation and Transportation Security Administration (TSA) have also established improved security measures for general aviation airports. At the national level, methods used to increase general aviation security have, to date, mostly fallen into four areas: 1) airspace and operational restrictions; 2) intercept operations – the Department of Defense has increased airborne flight monitoring assets and combat air patrols on an ongoing and random basis; 3) scrutiny of pilots, crews, passengers and aircraft on the ground; and 4) communication and education.*

At the airport level, the following security measures have been recommended by the National Association of State Aviation Officials (NASAO) to enhance security at all public use general aviation airports: 1) secure unattended aircraft, 2) report unusual and suspicious activity, 3) develop airport security plans, 4) increase public awareness and education, 5) monitor airport property and users, 6) control movement in the aircraft operating area (AOA), 7) prevent unauthorized AOA access, and 8) develop standards for new pilot ID Smart Cards and identification verification systems.

TRANSIT

The transit authorities in the Puget Sound have initiated security activities to protect passengers and employees. These have included expanded electronic surveillance, police patrols, and use of bomb detecting canine patrols particularly in areas of high vulnerability such as the Seattle transit tunnel. Emergency procedures are also practiced in drills conducted by the transit authorities. The Washington State Transit Association has formed a Transit Security Council to discussion security issues statewide.

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

   a. Redundancy infrastructure?

   b. Hazard elimination, reduction, or avoidance?

   c. Special needs populations?

   d. Shelter-in-place options?

   e. Upgrades rather than replacement-in-kind for reconstruction?

   f. Access control?

   g. ITS and system management?

The majority of security planning is performed by emergency response agencies, first-responder agencies such as police and fire, service providers such as airports, seaports, and transit providers, or the Washington State Department of Transportation.

PSRC will continue to convene and facilitate discussions to improve coordination and public understanding of regional security planning. Two program areas that PSRC is heavily involved with include planning for Special Needs Populations and ITS and System Management.

Special Needs Populations: *PSRC has helped develop a coordinated public transit-human services plan to meet the growing demand for special needs transportation. The plan will be used to prioritize projects using three sources of Federal funding. PSRC will be hosting a panel discussion this summer to discuss disaster planning for Special Needs Populations.*

ITS and System Management: *In April 2007 the PSRC established a Regional Traffic Operations Committee. This group of senior level transportation operators will be focusing on: 1) Traffic signal coordination; 2) regional traffic operations (Active Traffic Management) at the arterial and freeway levels; and 3) Intelligent Transportation Systems (ITS). This group*

will be establishing a work plan within the next few months. Disaster response planning has been discussed as a focus area. PSRC is also participating with WSDOT in a Feasibility Study on Active Traffic Management.

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

    PSRC will be facilitating this discussion shortly within discussions of the upcoming 2009 Transportation Improvement Program.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

    At this time PSRC has not established a systematic approach for assessing the potential benefits of disaster preparation or response-related transportation projects. As mentioned above, PSRC will be facilitating this discussion shortly within discussions of the upcoming 2009 Transportation Improvement Program.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

    Joint guidance would be exceptionally helpful.

■ B.10 Texas Department of Transportation

1. How is disaster response addressed in your state's long-range transportation plan?

   Page 42 of the Texas Transportation Plan (1994) includes a discussion of Policy 17- Ensure Transportation System Capacity During Emergencies and Disasters. Strategy 17.1 – Designate emergency evacuation routes for priority maintenance and funding includes the following:

   Potential Action 17.1.1 – Adopt designated and recommended Hurricane Evacuation Routes and the Nuclear Emergency Evacuation Routes as part of the Texas Multimodal Transportation System.

   Potential Action 17.1.2 – Fund projects in state and MPO transportation improvement programs (STIP/TIPs) that improve or maintain designated emergency evacuation routes.

   Potential Action 17.1.3 – Evaluate current air medical evacuation system service levels, both public and private, to identify areas with no service or areas that are underserved.

   Potential Action 17.1.4 – Ensure that connections between rural transit services and intercity passenger carriers and air facilities are adequate to meet demand during public health and safety emergencies.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   TxDOT does not document local disaster preparedness plans and improvements in the statewide plan (see answer to Question #1).These processes are typically handled (plan development, funding, communication, etc.) at the local level by local and state law enforcement, local emergency response officials and TxDOT personnel at the corresponding district office in coordination with the Governor's office and Federal agencies such as FEMA.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

   TxDOT does not define advance and no-notice events.

   Yes, these events are handled differently- with advance notice events, a lot of planning can occur prior to the event.

   Yes, our agency uses an all-hazards approach in our planning, but we also have specific plans for specific events as well. TxDOT does not limit planning to all-hazards.

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

TxDOT does not document local disaster preparedness plans and improvements in the statewide plan. TxDOT's statewide plan is a policy plan which is discussed in the answer to Question #1. TxDOT does address the need for project specific improvements when they are included and funded by the Districts and Metropolitan Planning Organizations in their Transportation Improvement Plans and TxDOT's Statewide Transportation Improvement Programs, and eventually constructed/implemented.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

TxDOT has various drills and exercises throughout the year. The biggest exercise is the hurricane exercise in the spring of each year.

Lessons learned:

- *There needs to be a lot of training prior to an event.*

- *People tend to not remember the policies or procedures from one year to the next.*

- *Changes at the state level need to be communicated down through agency levels.*

At various times all disaster response personnel are involved in the exercises to some degree or another. Usually, the division and district management employees are involved in these exercises.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

TxDOT has developed contra flow plans for several of our highways. We have included signs and pavement markings to help drivers that are using the other side of the roadway. We have also developed evaculanes on some of our roadways. This is when we use the shoulder as an extra lane. We have also developed standardized messages for our changeable message signs. We have preplanned messages for different areas of the state based on hurricane watch, warning, contra flow conditions, and post contra flow conditions.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

District office staff, including the Public Information Officers of each District.

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

   a. Internal departments of your organization (e.g., Operations Division)?

TxDOT has meetings to discuss pertinent issues. We have planning sessions in which information is taken down to be put into plans. Plans are distributed and reviewed for input. Presentations at conferences are performed to inform others of current operations or plans, etc. There are many face to face meetings but primarily through GroupWise. We have no formal MOU/MOA other than guidance from our administration

b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

Same as a., except these meetings are performed locally with very little state or state agency oversight. The vast majority of disaster response is decentralized, therefore, local plans, face to face meetings, and on-site decision-making work best. Also, state statutes delineate accountability, authority, and responsibility, which resides specifically with the Governor for statewide events, and with the Disaster District Committee Chairman for local events.

c. Other modal administrations (e.g., transit)?

TxDOT has a public transportation division that provides oversight and grant coordination to local transit agencies. Local disaster managers though usually work with the local transit agencies directly as they are needed. Only in very, very rare cases would our state public transportation division get involved in disaster response.

d. Neighboring state or regional agencies?

Texas is a member of EMAC (Emergency Management Assistance Compact) – this compact allows states to assist each other with very few administrative issues (i.e., workman's comp, Federal reimbursement oversight, legal issues for crossing state borders, etc.). As for collaboration, the answer is the same as a.

e. Media outlets (e.g., news agencies)?

TxDOT has a public information office that works with media outlets in every form of media. The decisions on what messages to convey are made with agency administration for large events, and then the message is carried forward through our public information office. For localized events, TxDOT has district Public Information Officers that can convey the necessary message.

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

a. Redundancy infrastructure?

b. Hazard elimination, reduction, or avoidance?

c. Special needs populations?

d. Shelter-in-place options?

e. Upgrades rather than replacement-in-kind for reconstruction?

f. Access control?

g. ITS and system management?

The statewide plan does not include specific references to any of the above. The issues are addressed in many of the local transportation plans. TIPs and STIP do include specific projects that address the above issues as determined/prioritized through the local planning process.

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

We have done projects for evaculanes (added signs and markings to let people know when and where to use the shoulder as a lane). We have also added ITS cameras and detection devices in the rural areas. We added approximately 30 cameras along the evacuation routes to help us monitor flow, speed and other roadway conditions. We are also evaluating "choke points" that we saw during the last evacuation and trying to determine the best way to improve these areas. We applied for some Homeland Security funds for these areas; however, the state of Texas does not have a special funding source for these projects. We are trying to take care of them as fast as we can.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

None are included in the statewide plan. The District and MPO TIPs and TxDOT's STIP contain highway and transit projects that if constructed/implemented, address the above issues. District and MPO needs (i.e., specific projects) are determined/prioritized through the local planning processes outlined in metropolitan transportation plans and TxDOT's Project Selection Process which can be accessed at:

http://www.dot.state.tx.us/services/transportation_planning_and_programming/utp.htm.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

Better coordination, communication, and local mobilization on the part of the response agencies at the state and Federal levels of government which include FEMA and the National Guard.

■ B.11 Virginia Department of Transportation

1. How is disaster response addressed in your state's long-range transportation plan?

   Disaster while not directly addressed in the transportation six year plan directly, there are several other initiatives within state government that link to it. Some examples include the following:

   Commonwealth Preparedness Working Group – Multidisciplinary group to deal with emergency preparedness and homeland security matters. Specific subgroup to deal with infrastructure.

   Executive Order 102 – Implementation of NIMS.

   Executive Order 44 – Preparedness Initiatives in State Government

   Additionally transportation is designated as one of the Virginia Emergency Response Team (VERT) agencies that have a primary tasking to a emergency support function (ESF) for response operations.

2. What are the primary obstacles your agency faces in trying to integrate disaster response-related improvements into the transportation planning process (e.g., financial, legal, institutional, communication)? Explain how your agency is working to overcome these obstacles.

   Some of the barriers relating to disaster planning in transportation generally relate to an institutional mindset that transportation planning integration to disasters do not mix. Much of this can be attributed to the ongoing movement from a construction to operations mindset which is in progress. Additionally much of this deals with how emergency preparedness is communicated among the agency. It has been observed that various levels of communications to staff have had a varying level of positive of negative impact.

   Another barrier with the integration of disaster preparedness to transportation planning is eligibility. For example, transportation is solicited to participate in one Federal level mitigation program that if not carefully observed can interfere with another Federal program for emergency recovery assistance. Further many of the Federal mitigation programs are so competitive that transportation it barely makes it worthwhile to come to the table.

3. How does your agency define advance notice and no-notice events? Does your agency handle these types of events differently? Or does your agency use an all-hazards approach?

   Our agency generally follows that National Incident Management System (NIMS) process for defining these events. Generally this falls within an all-hazards approach.

4. What tools (e.g., research, data, modeling) have/would help your agency incorporate disaster preparation or response in your transportation plans and programs?

   Our agency is actively working towards modeling of roadway traffic data to assist in the development of disaster planning. The development of a standard after action incident review and subsequent lessons learned is also a well used tool that has been used in the past and is currently under review for standardization.

5. How does your agency "practice" implementing your transportation disaster preparation or response plans? What lessons has your agency learned from these exercises? Who is involved in these exercises?

   Each year our agency participates in at least the following:

   One state level EOC functional exercise – Participants are generally ESF assigned staff.

   One fixed facility state level exercise – Participants are ESF and field staff adjacent to the facility.

   Two seasonal (winter and spring) exercises – These are wide ranging involving field maintenance staff to administrative staff to ESF assigned staff.

   Typically each exercise results in informal to formal lessons learned. One of the larger lessons learned basically involved around working out incident communication processes. Much of this allowed unfamiliar "players" the opportunity to communicate which surely helped during real life events.

6. In what ways does your agency adjust infrastructure to handle an event (e.g., reversible lanes, changeable message signs)?

   Adjustments to infrastructure are typically handled through procedures and set processes.

7. What position(s) (e.g., planner, engineer) in the transportation planning unit of your organization is responsible for disaster response? What is the reporting relationship between that person or group and other units of your organization? What specialized background or training has that person or unit received?

   Operations and Security Division (OSD), specifically the Transportation Emergency Operations Center (TEOC) section, is the primary area within the agency that deals with emergency preparedness and response issues for transportation. The field response is provided by the Asset Management Division (AMD). Overall OSD and AMD report to the Chief of System Operations who in turn reports to the Agency Commissioner.

   All staff (within the above mentioned divisions and sections) are provided NIMS training which varies in amount from their direct involvement/tasking. As involvement permits, exercises are also used as training opportunities. State and Federal emergency preparedness and response training opportunities are also available.

8. How does your agency collaborate with (if this collaboration is captured in a formal MOU/MOA, please bring copies with you):

   a. Internal departments of your organization (e.g., Operations Division)?

   b. External organizations (e.g., law enforcement, local government staff, elected officials, etc.)?

   There are efforts underway to update or re-frame highway incident management activities.

   c. Other modal administrations (e.g., transit)?

   d. Neighboring state or regional agencies?

   Emergency Management Assistance Compact program might be considered a collaboration area based on this question.

   e. Media outlets (e.g., news agencies)?

9. In what ways does your agency's transportation planning process incorporate disaster response issues, such as:

   a. Redundancy infrastructure?

   Critical infrastructure security reviews provide some opportunity to ensure that there is adequate redundancy when applicable.

   b. Hazard elimination, reduction, or avoidance?

   Critical infrastructure security reviews provide some opportunity to ensure that there is adequate redundancy when applicable.

   c. Special needs populations?

   The agency provides standard means to communicate travel information to special needs populations. Also there is consistent work with the state emergency management agency in this area.

   d. Shelter-in-place options?

   The agency provides standard means to communicate travel information to special needs populations. Also there is consistent work with the state emergency management agency in this area.

   e. Upgrades rather than replacement-in-kind for reconstruction?

   The agency conducts basic activities with respect to Federal public assistance programs.

   f. Access control?

The agency participates in program to have an interoperable access control program as well as standard credentialing (FRAC).

    g.   ITS and system management?

10. What types of disaster preparation or response projects have you found to be most viable for consideration in your region? What evaluation criteria have you used to advance these viable projects in the face of competition for scarce resources?

Not applicable as the agency deals statewide. However one example might be the All-Hazard traffic control gates on the I-64 corridor. This project covers multiple regions and is generally still in progress.

11. What kinds of methods or systematic means for assessing the potential benefits of disaster preparation or response-related transportation projects in your region has your agency developed? How does your agency include these projects in your planning/funding process?

Overall general priorities fall within 1) Greatest life safety impact/benefit, 2) Quickest means to provide incident response and stabilization, and 3) Greatest means to reduce loss of property/infrastructure. The application varies and there is no set methodology for inclusion in the funding stream at this time.

12. What role could the Federal government fulfill to better support disaster response planning and implementation issues? Which agencies would be involved (e.g., FEMA, TSA, FHWA, FTA)?

In the transportation arena, the Federal government could provide greater funding and training in the planning/preparation side of things. There are many changes underway the Federal level to render an opinion to whether response operations have changes. On the recovery end, it would be nice to either designate one agency, such as FHWA, to lead all roadway recovery issues versus the current sometimes awkward split between FEMA and FHWA public assistance and emergency relief programs.

GENERAL *– The Strategic Highway Safety Plan (SAFETEA-LU) might be one venue to incorporate disaster planning/emergency response in the transportation sector. The one pitfall might be that disaster planning/emergency response might be small in the overall grand picture. One might consider greater emphasis on the National Response Plan which covers the entire gauntlet, including transportation, of emergency management.*

Appendix C

Participant Submitted Case Study Material

■ **Peer Exchange Case Studies on Disaster Response in Transportation Planning**

Several peer exchange participants were asked to prepare a specific case study to share at the peer exchange. Overviews were presented in variety of formats (e.g., verbal, written, or PowerPoint) that most appropriately conveyed each case study. This appendix contains submitted material from the following three participants:

1. District Department of Transportation;

2. New Orleans Regional Planning Commission; and

3. Houston-Galveston Area Council.

■ C.1 District Department of Transportation

District Department of Transportation's
Emergency Preparedness Program

Joe Kammerman
Homeland Security Coordinator
May 23, 2007

Transportation Planning and Emergency Management

"It's about the people!"

Coordinate

Cooperate

Communicate

Commitment

Complex

between local, regional and federal
stakeholders on Emergency Preparedness issues.
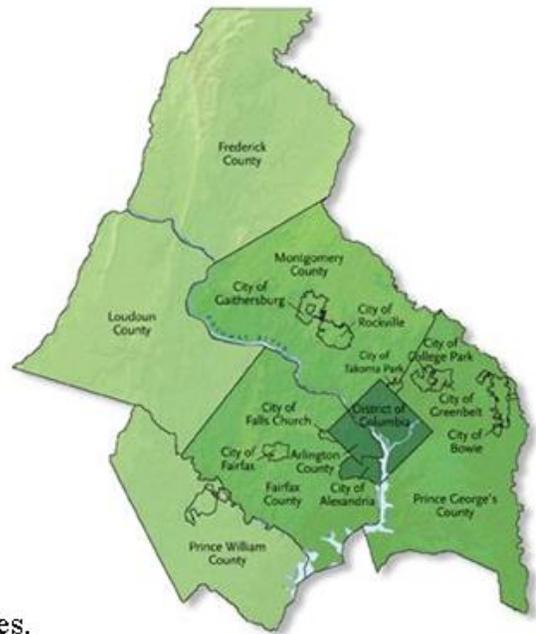
District Department of Transportation

- Primary agency responsible for the maintenance and operation of the District's Surface Transportation Network.

- Includes:
  - 1,100 miles of right-of-way
  - 241 bridges
  - 1,600 miles of sidewalk
  - 453 miles of alleys

District Department of Transportation

- 700 employees+ • Engineering/ Public Works

- State and Local Responsibilities
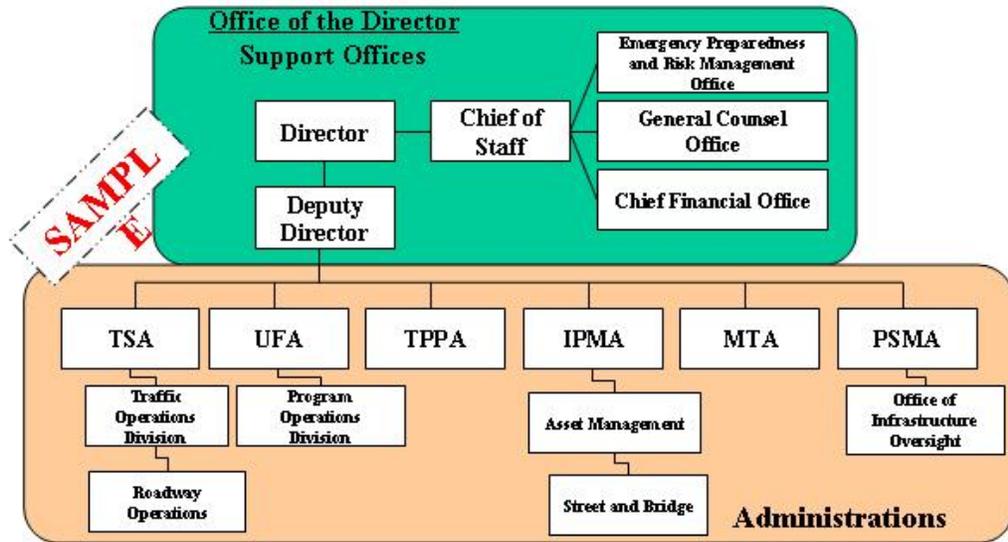
District Department of Transportation
Operations

- Maintain
  - Traffic Signals
  - Street Lights
  - Parking Meters
  - Street Signs
- Quick clearance of traffic incidents and emergency detours and traveler information
- Engineering
  - Bridge and Tunnel Design
  - Roadway Improvements
  - Great Streets Initiatives
- Policy
  - Travel Demand Modeling and Forecasting
  - Transit subsidies

- Public Space
  - Dispense permits
  - Inspect permits
  - Enforce permits
- Trees (along right-of-way)
  - Plant trees
  - Trim tress
- Snow removal
- Street Maintenance
  - Fill pot holes
  - Repave roadways
- Monitor traffic operations 24/7

Current Emergency Program

Roadway Operations
Patrol

Intelligent
Transportation Systems

Traffic Management
Center

Emergency
Preparedness Office

The Road Ahead
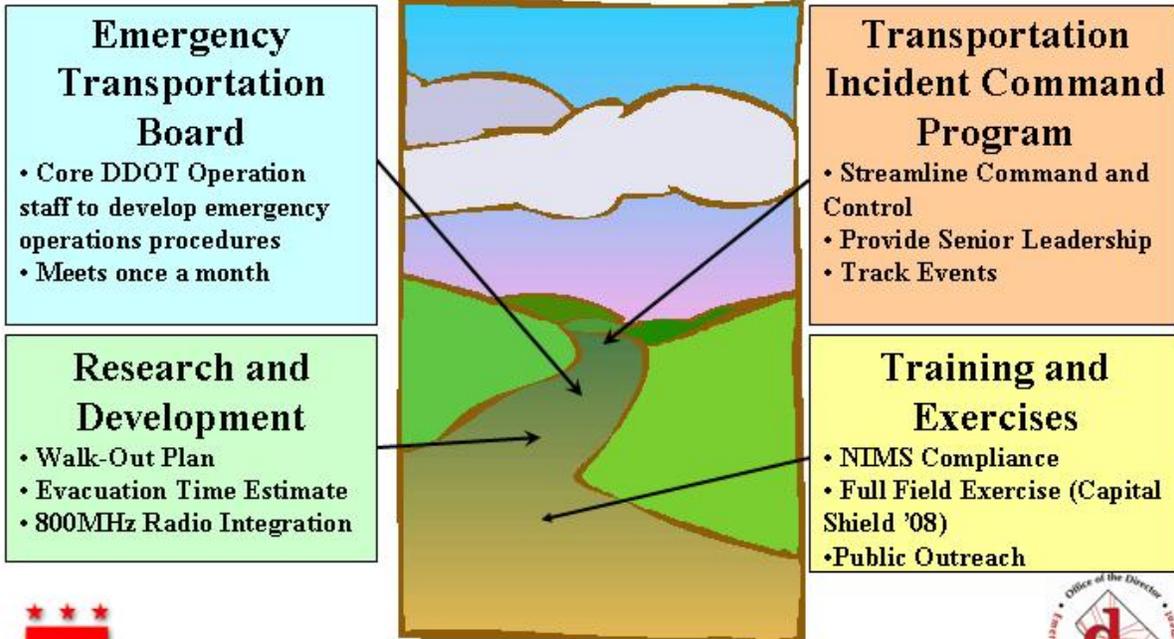
Emergency Transportation Board

- Core DDOT Operation staff to develop emergency operations procedures
- Meets once a month

Research and Development

- Walk-Out Plan
- Evacuation Time Estimate
- 800MHz Radio Integration

Transportation Incident Command Program

- Streamline Command and Control
- Provide Senior Leadership
- Track Events

Training and Exercises

- NIMS Compliance
- Full Field Exercise (Capital Shield '08)
- Public Outreach

Questions

?

www.ddot.dc.gov and click on

Emergency preparedness

■ C.2   New Orleans Regional Planning Commission

Disaster Response Transportation Planning in Post-Katrina New Orleans

New Orleans Region

Southeast Louisiana Region with Major Transportation Network
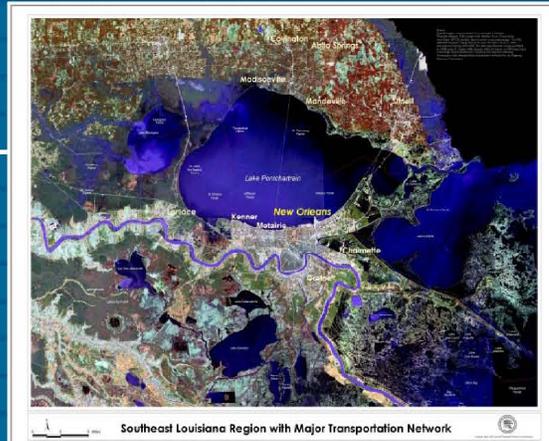
The Katrina Effect

Background Information

2002 Landsat 7 Enhanced Thematic Mapper Plus
TM / Panchromatic Merge Satellite Imagery
(Produced by the LA. Dep't. of Environmental Quality)

Time Magazine 9/02/2005

Approximate extent of flooding on September 4

Digital Globe
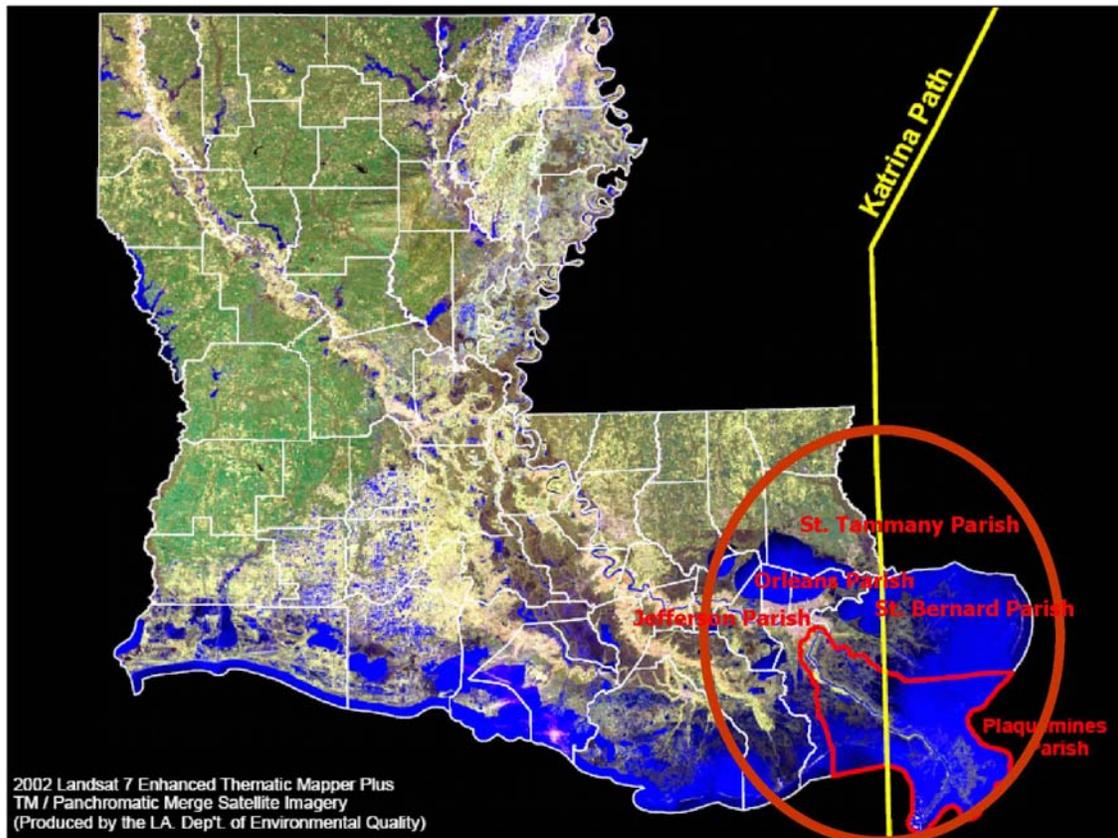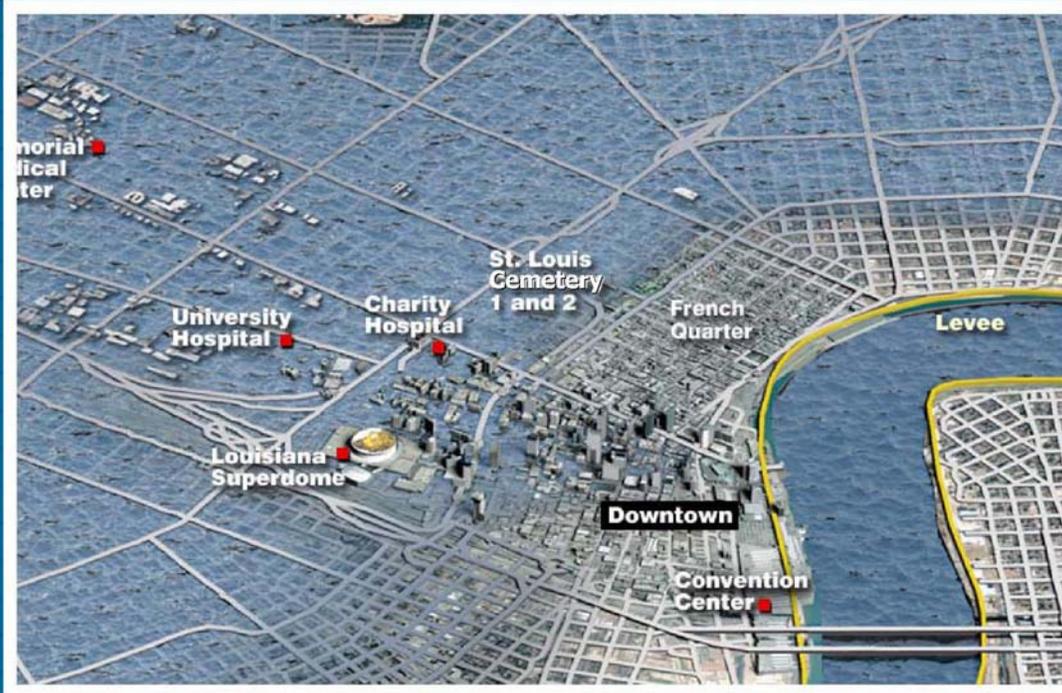
Time Magazine 9/02/2005

AP Photo by Bill Feig, The Advocate

Intermodal Transportation Issues

Partnering Agreement for a successful Flood Protection Program for Greater New Orleans

Army Corps of Engineers
DOTD
Levee Districts
Parish Engineers
Sewerage & Water Board
RPC

Partnering Agreement
12 Jan 2007

We, the Stakeholders who have an interest in the successful development of the Lake Pontchartrain "Permanent Pump Station Project", pledge to share information, develop ideas and work together as equal Partners to develop a flood protection program. We strive to promote public creditability through open, honest, forthright and timely communication between members and the public. We commit to continue the review of options and alternative solutions leading to the final solution. Respecting the human and natural environment, the final solution is intended to operate economically, efficiently and reliably to protect the life, property of the community.

Disaster Response Transportation Planning

Evacuation

Transportation System Repair

Evacuation Planning

Evacuation Information – Interstate Network – Emergency Phone Nos. & Radio Stations

State Hurricane Evacuation Zones

LEGEND
- Interstate Highways
- US Highways
- Louisiana Evacuation Routes
- Mississippi State Highways
- Mississippi River
- Intracoastal Waterway
- Urban Areas
- Parishes/Counties
- Interstate Highway Shield
- US Highway Shield
- State Highway Shield
- Shelter Information Points

Gulf of Mexico

Contra-Flow Plan

Metropolitan New Orleans Contraflow Plan

Traffic Data From Hurricane Ivan

Traffic Count Data Graphed in relation to path of the storm to establish bettering evacuation timing and change contra-flow lane locations and design

Traffic Operations Improvements for Evacuation of Southeast Louisiana

I-12 @ US 190

Causeway North

Prepared By:
New Orleans Regional Planning Commission

Clearview @ I-10 Contra-Flow

Contra-Flow East

I-10 @ I-12 & I-59

Traffic Operations Improvements
for Evacuation of
Southeast Louisiana
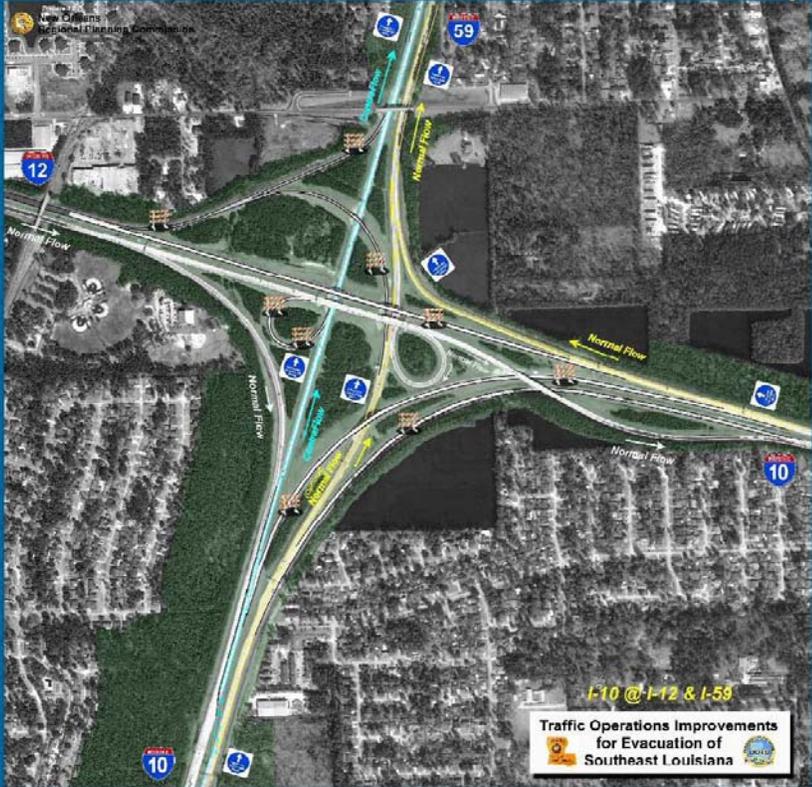
Camera Locations in the CBD
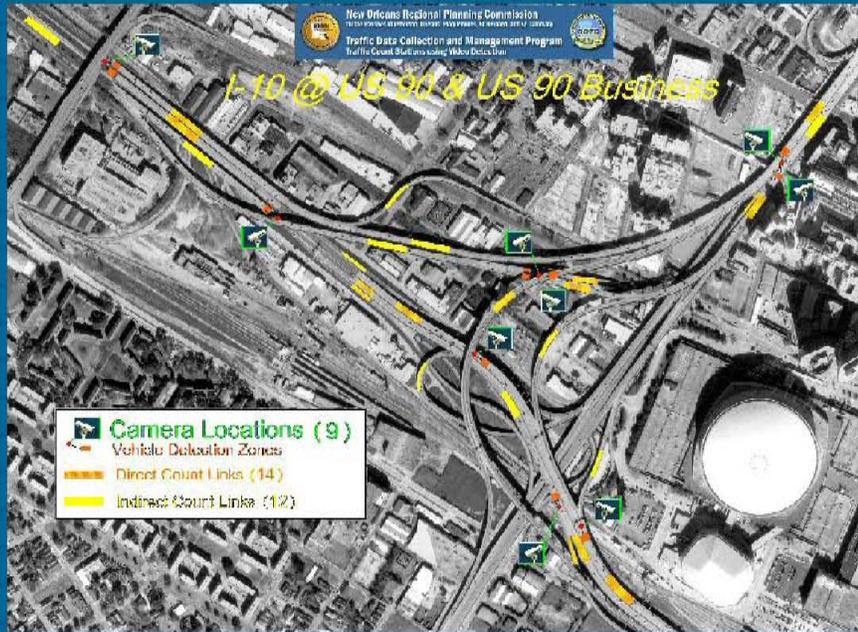
Orleans Evacuation Sites

Evacuation Points Central New Orleans, Louisiana

Site Name	Address	CITY	ST	ZIP	Evacuation Population Focus Group	Evacuation Transportation
Harrah's Casino	512 S. Peters St.	New Orleans	LA	70130	Tourists	private bus
Morial Convention Center	900 Convention Center Blvd.	New Orleans	LA	70130	Carless city population	public charter bus
Union Passenger Terminal	1001 Loyola Ave.	New Orleans	LA	70113	Mobility Impaired pop	train
Sheraton New Orleans	500 Canal St.	New Orleans	LA	70130	Tourists	private bus

Streets Flooded 8/31/05 - Katrina

New Orleans & Jefferson Katrina Street Inundation Flooding 8/31/05
New Orleans, Louisiana Post-Katrina Area

Streets Flooded 9/05/05
1 wk post Katrina

New Orleans & Jefferson Katrina Street Inundation Flooding 9/02/05
New Orleans, Louisiana Post-Katrina Area
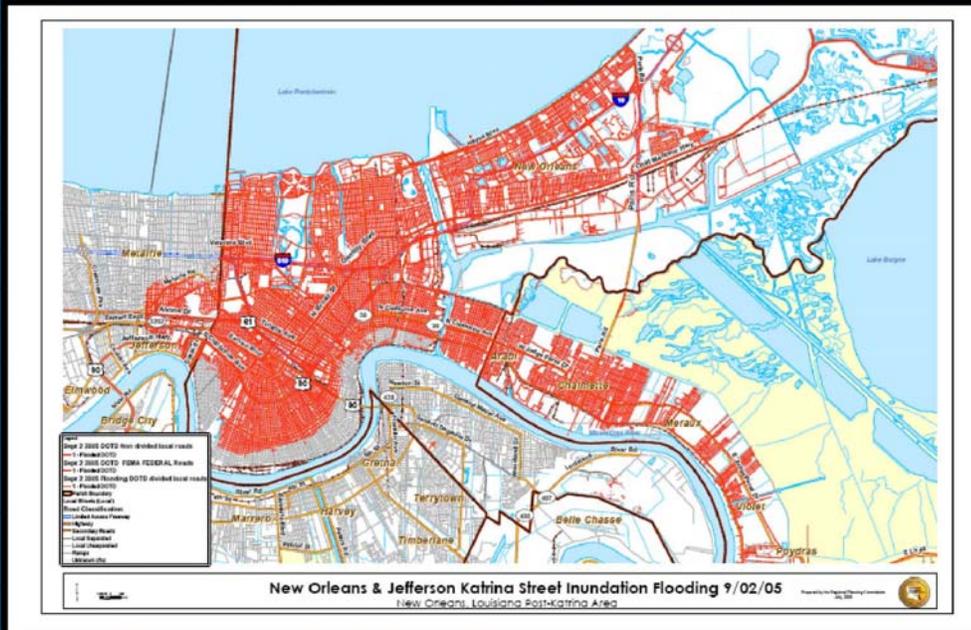
Street Signals Flooded by Katrina
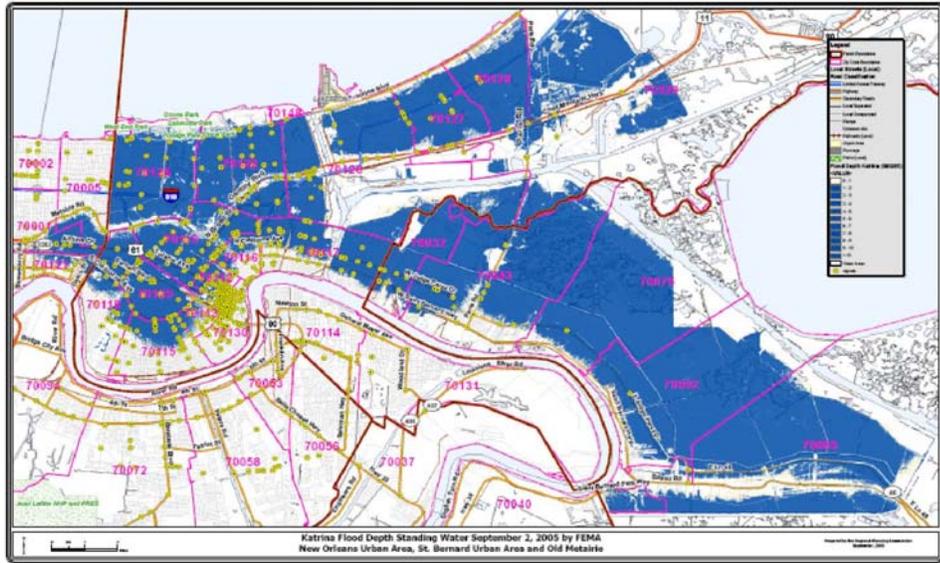
Proposed Transportation Solutions
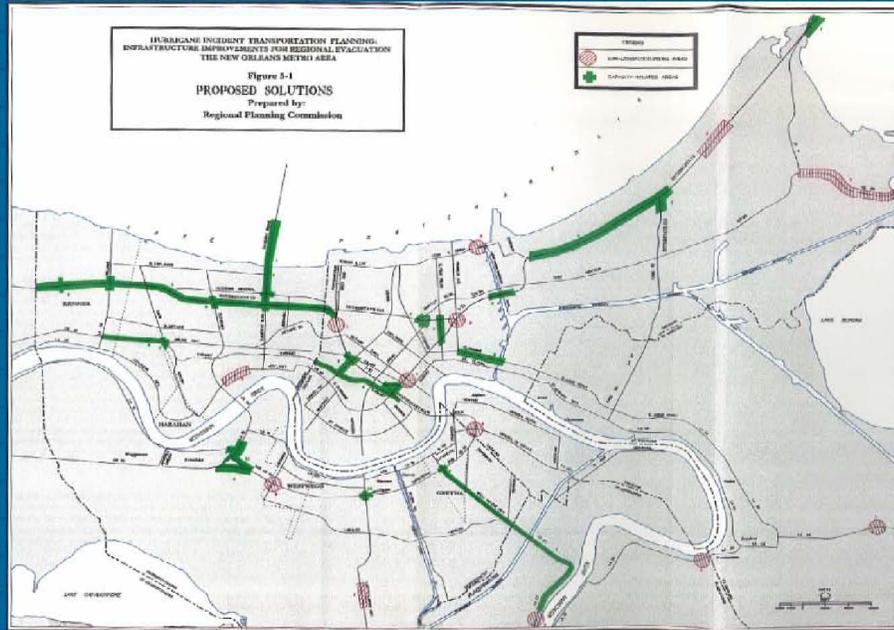
Post-Katrina Transportations Projects

New Orleans Restoration Needs (Funded & Unfunded) by Roadway Sections
New Orleans, Louisiana Post-Katrina Area
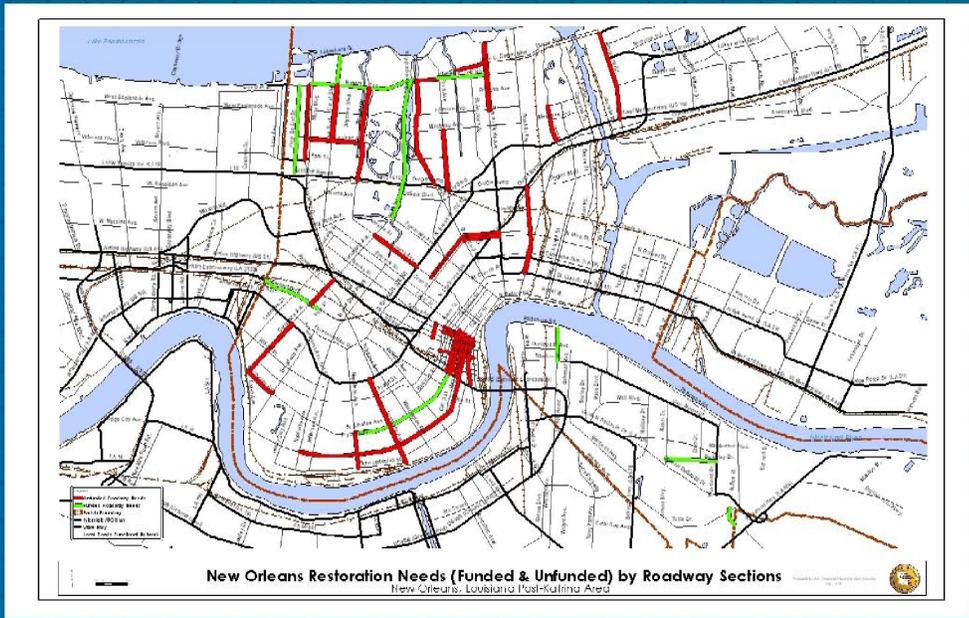
New Demographics

Who lives Where & Who is Planning on Living Where

Carless Population Orleans

Orleans Parish Households without Vehicles
Based on Census 2000
1 dot stands for 1 household
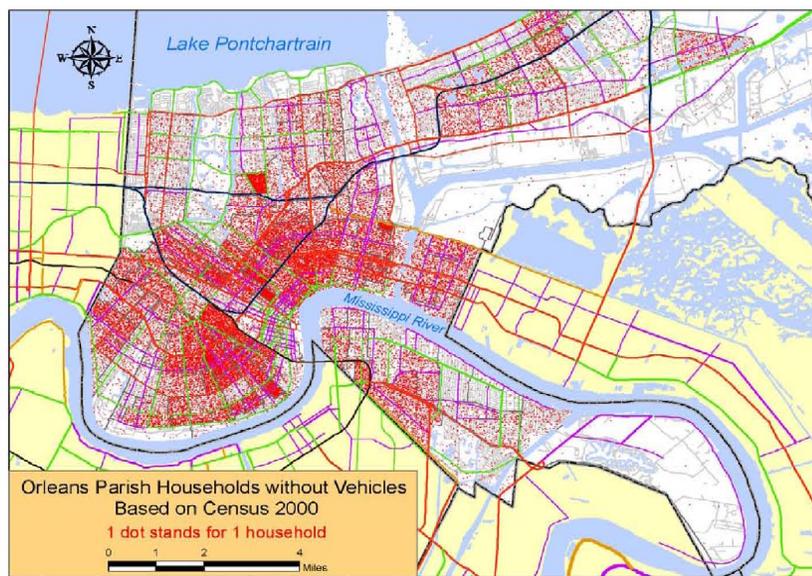
Access to Transit for Carless Households

The New Orleans Area Transit System and Location of Households Without Vehicles in 2000 by Block Group*
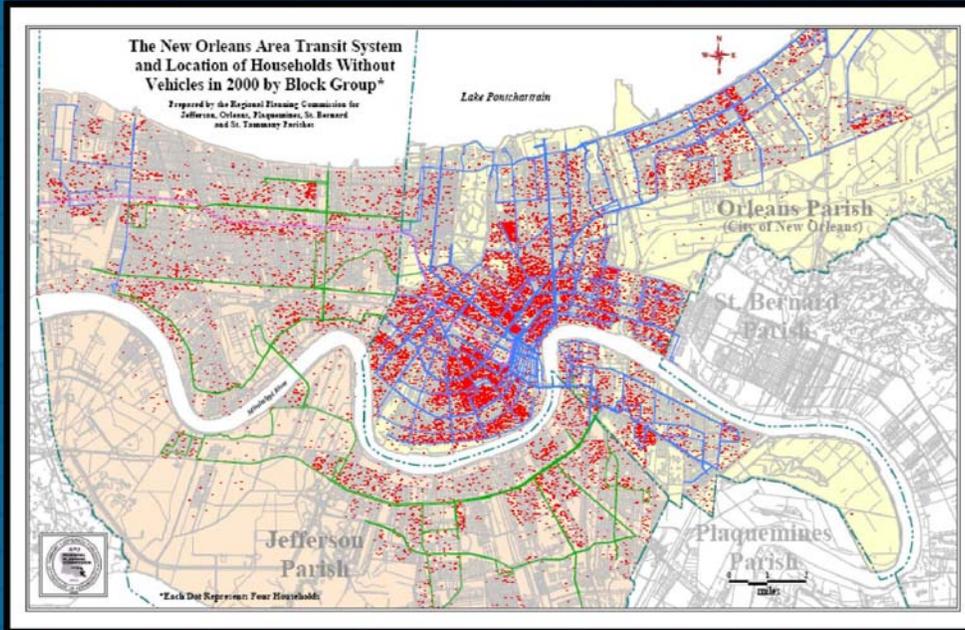
Access to Transit for Lower Income Households

The New Orleans Area Transit System and Median Household Income in 1999 by Block Group
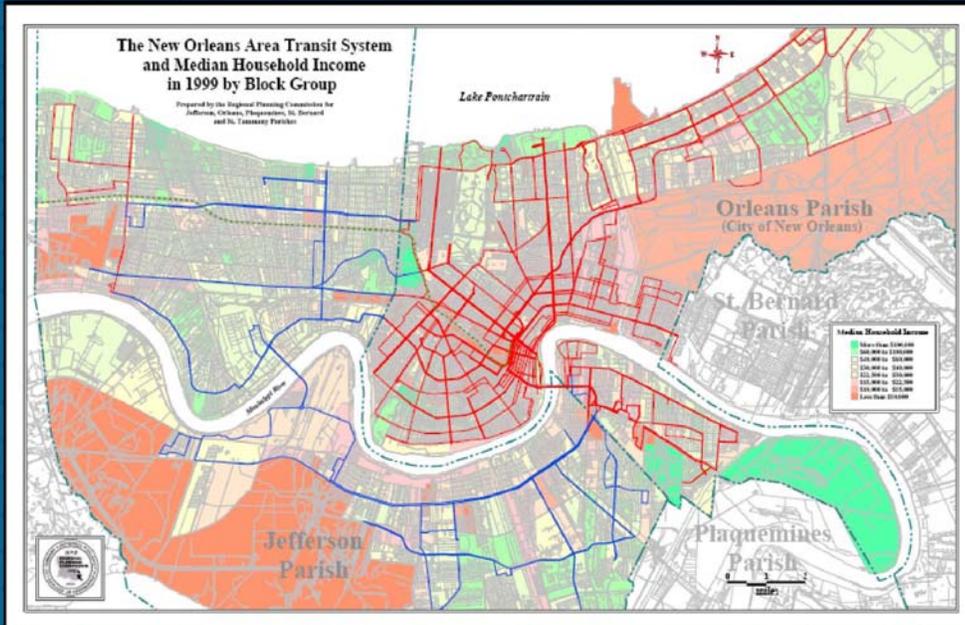
Industrial Park Cluster

New Orleans Regional Business Park

Manufacturing Cluster Flooded by Katrina

Manufacturing Industry Cluster - South Shore & Flooding 9/02/05

Life Sciences Cluster Flooded by Katrina

Utility Activity Index Post-Katrina
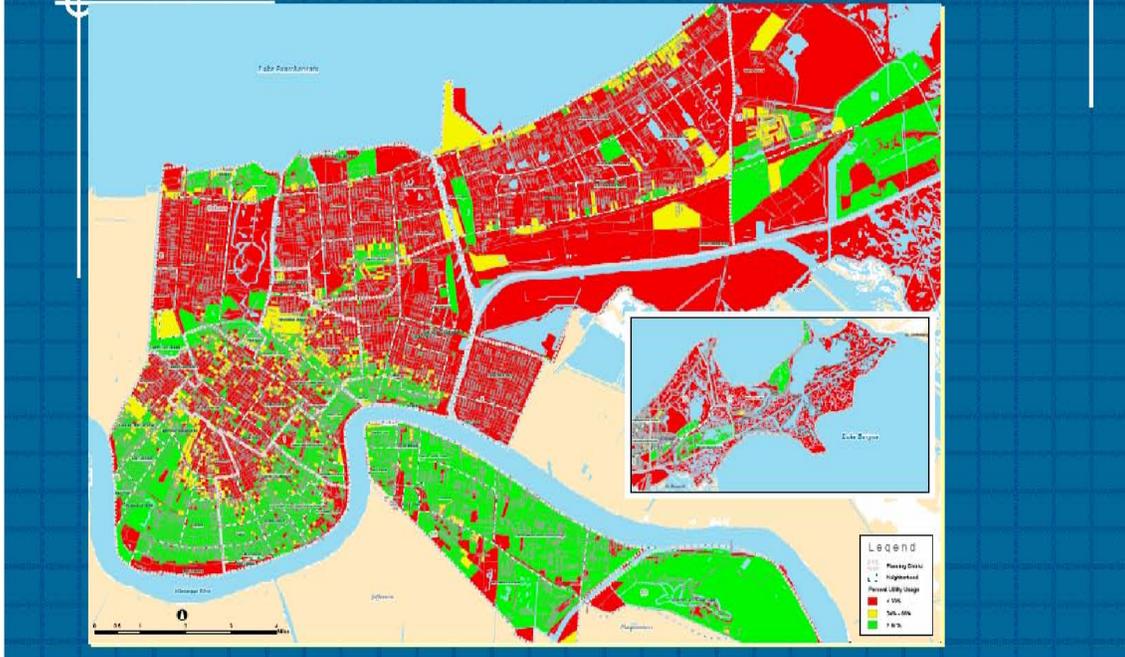
Building/Renovation/Demoltion Permits November 2006

Recovery Target Zones w/ Street Improvement Programs
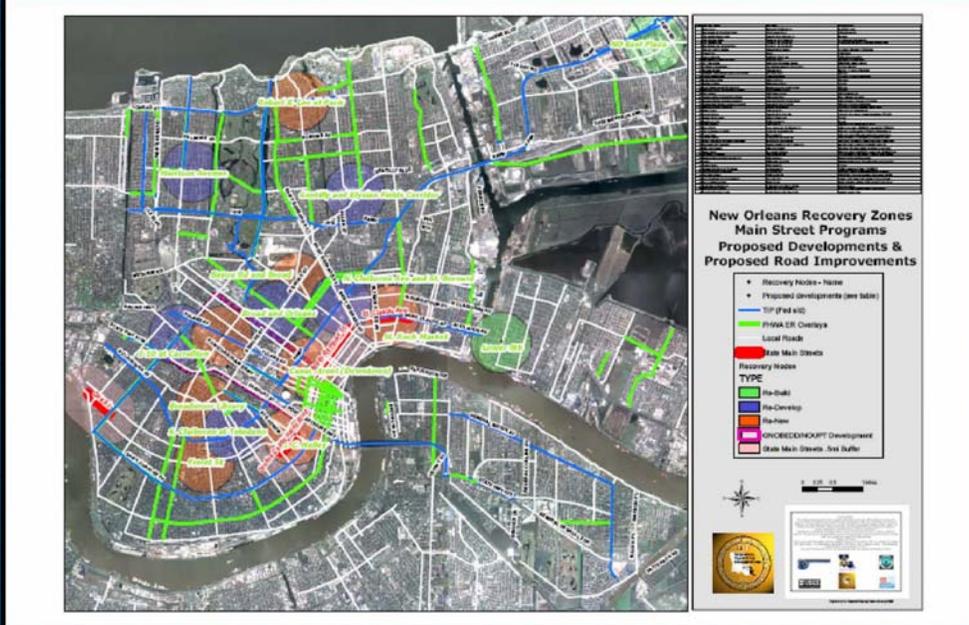
■ C.3 Houston-Galveston Area Council
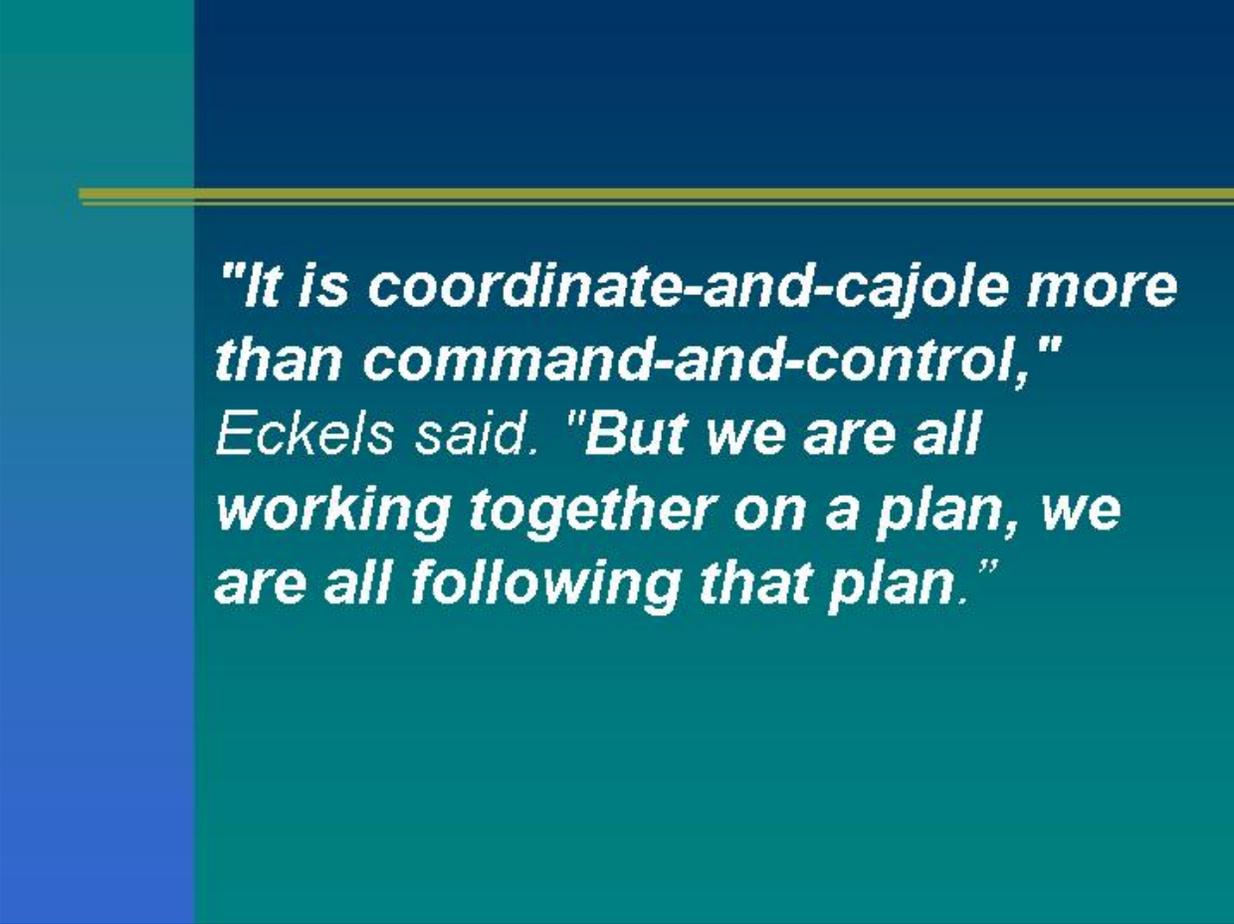
"It is coordinate-and-cajole more than command-and-control," Eckels said. "But we are all working together on a plan, we are all following that plan."

Hurricane Rita Track

Wikimedia Commons: Created using User:jdorje/Tracks. The background image is from NASA. Tracking data from the National Hurricane Center.

What happened?

- Estimated 1 to 1.5 million people attempted to evacuate the city

- Transportation network was overwhelmed and broken down to "parking lot" status

- Some people spent more than 24 hours on the evacuation routes

- Fatal accidents, abandoned cars, and other safety issues

Fleeing

Source: William E. King

Fact Finding Meetings

- Towing Industry Coordination (1/12/06)
- ISD Coordination (1/18/06)
- Fueling (1/24/06)
- Aerial Surveillance Assets (1/26/06)
- Upland Flood Risk (2/1/06)
- TXDPS/TTI/TXDOT (2/9/06)
- METRO and Private Bus Companies (2/15/06)

- Communication (2/22/06)
- Media Interface (2/28/06)
- Hospitals (3/1/06)
- Ship Channel Industry Coordination (3/3/06)
- Nursing Homes (3/15/06)
- Receiver Counties (3/24/06)
- Home Health Care (3/28/06)

Critical Issues

- Traffic Management Plan
- Command and Control
- Evacuating People with Special Needs
- Moving Fuel
- Public Education

Current Activities

Region
- Recommendations Report
- **Evacuation Modeling**
- Hurricane/Severe Storm Center
- **Public Outreach Plan**
- Identifying Those Needing Assistance
- Securing Transportation
- **Traffic Management Plan**

State
- Contraflow Plans
- Relief Centers
- Sheltering Plan
- Towing
- Fueling
- 311
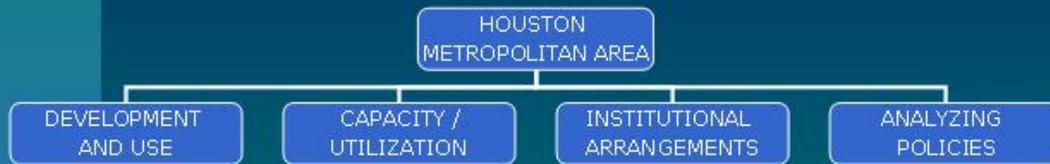
Houston Evacuation DTA
Existing Models and Data

- Tool is an add-on to existing H-GAC travel demand model in Cube
  - Basic highway networks from regional model
  - Adjustments to network based on event parameters
  - Network modifications may vary across time horizon of event
    - Flooding of low-lying links
    - Failure/closure of facilities
    - Reversal of freeway lanes

Efforts

- Develop hourly trip tables for normal daily traffic
- Developed Rita evacuation demand trip table for entire 72-hours period
- Validate Normal Daily Scenarios
  - Show directional speed difference in peak period
  - VMT and speeds
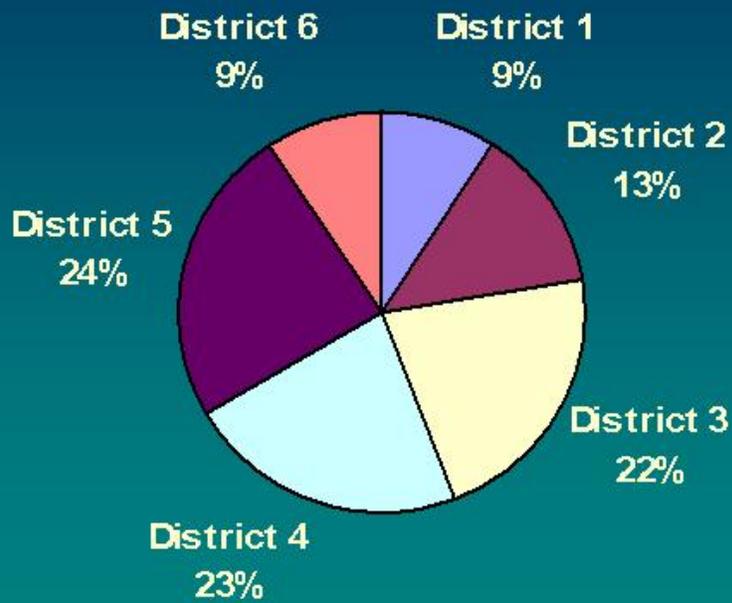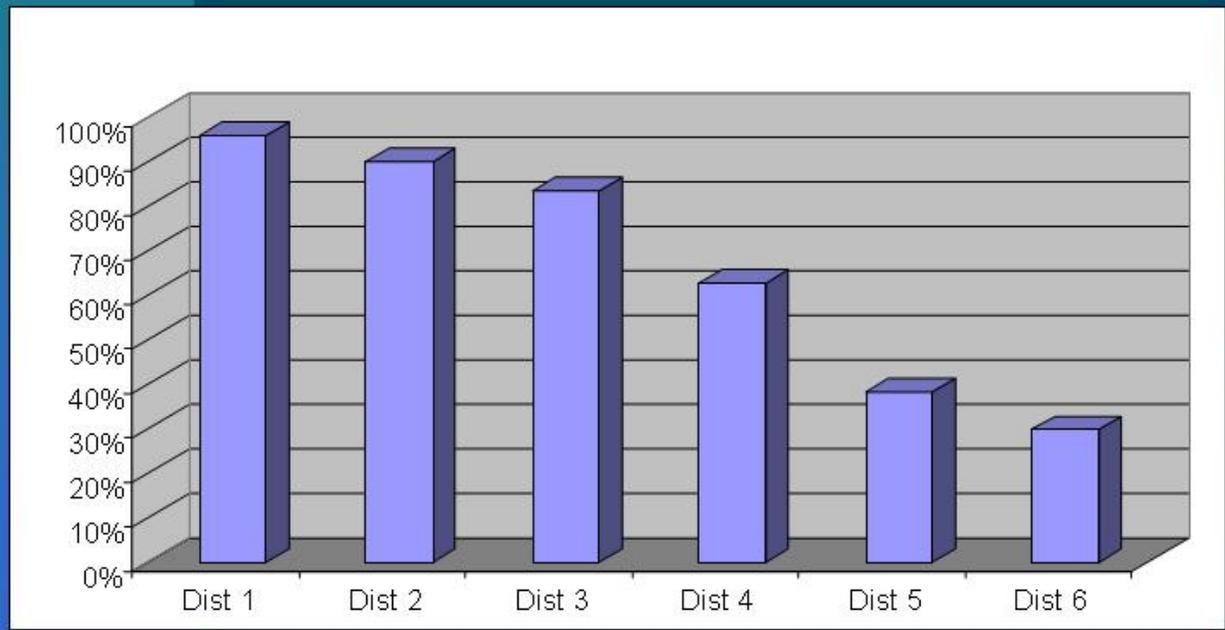- Use Evacuation Network
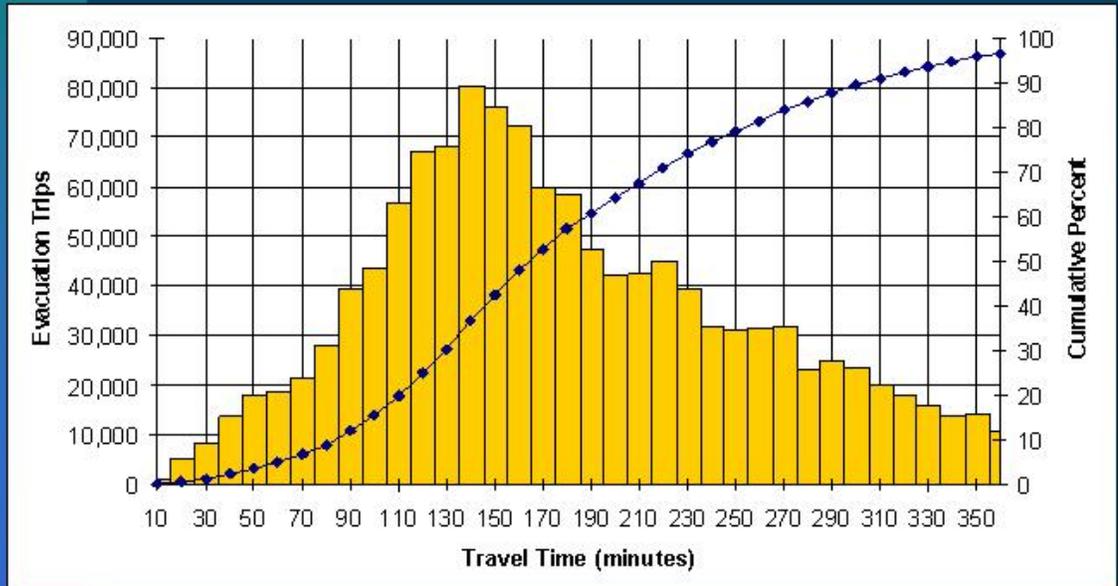
Evacuation Analysis
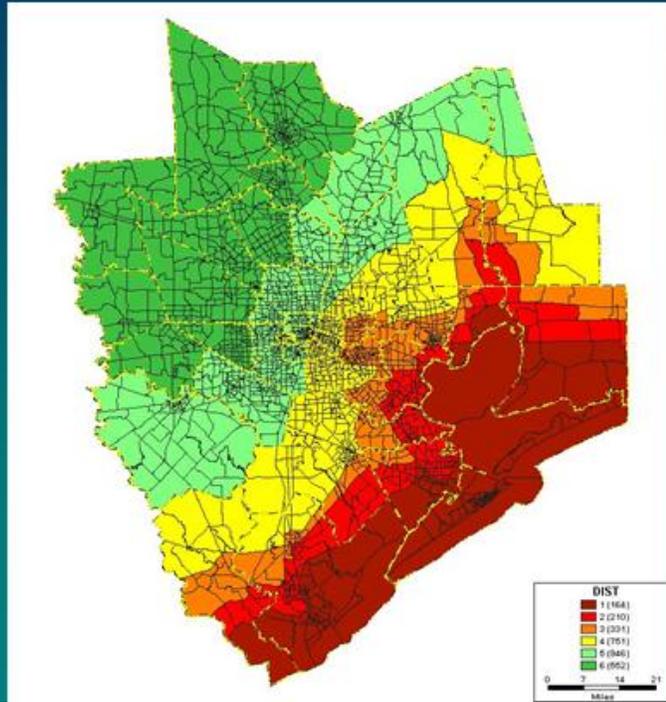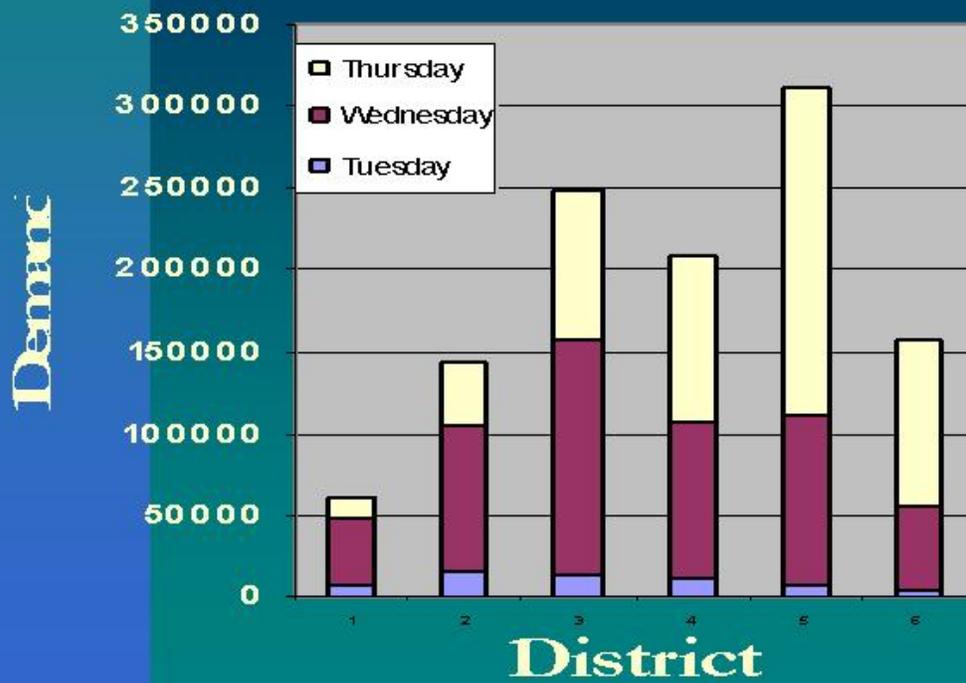
Evacuation Route and Destination
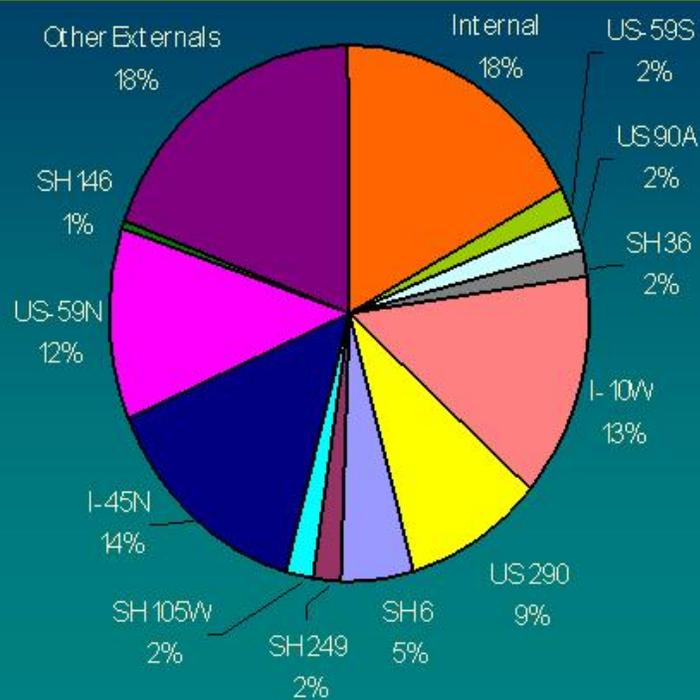
Internal Evacuation (Sept 20-22)

Percentage of Households Evacuating

Long Evacuation Trip Lengths

Progress To Date

- Travel volume, speed and resident survey data collected and coded
  - Observed network speeds, volumes
  - Evacuee departure time, dest., veh occ.
- Hourly trip tables for 3 day evacuation event completed
  - "Normal" background traffic
  - "Evacuation" traffic
- Coding new network characteristics (Intersections, ramps)

Progress to Date/Issues

- Completed initial travel assignments
  - Created "normal day" trip tables for validation of models
  - "Size-ing" travel demand, network capacity
  - Modeling Computational constraints
  - Software Issues

Current Work

- Resolving model approach to problem
  - Data retention
  - Simulation assumptions
- Reworked model results under review
- Increased network detail
- Decreased model compute time
- Completed Product???

For More Info

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