Perspectives on Disaster Responses

Case Study:
Hurricane Katrina
The First Four Days

- Tropical Depression Twelve
- Tropical Storm Katrina
- Category 1 hurricane
- Weakens to tropical storm
- Strengthens to Category 2 over Gulf of Mexico
Hurricane Katrina
August 26, 2005
11 AM EDT Friday
NWS TPC/National Hurricane Center
Advisory 12
Current Center Location 25.1N 89.1W
Max Sustained Wind 80 mph
Current Movement W at 7 mph

- Current Center Location
- Forecast Center Position
- H Sustained wind > 74 mph
- Potential Day 1-3 Track
- Tropical Storm Warning
- Tropical Storm Watch
Saturday August 27th

- Strengthens to Category 3, and doubles in size
- Louisiana implements Evacuation Plan
- Highway contra-flow on key routes
- Evacuation orders
- Shelters begin opening
- Staging disaster resources
- Activating disaster response teams
- Presidential emergency declarations
• Upgraded to a Category 5
• Turns toward Mississippi and Louisiana
• Mayor orders evacuation of New Orleans
• Alabama and Mississippi evacuate low-lying areas
• Hurricane Katrina affects evacuations
• Contra-flow ceases
• 1.2 million people evacuated in Louisiana
• Many shelters opened
• Superdome becomes “shelter of last resort”
• Federally deployed teams
• Federal commodities staged
Monday August 29th

- Landfall as a Category 4 hurricane
- Moves inland and weakens
- Storm surge
- Fatalities
- Damage
- Transportation impact
- Power outage
- Communications outage
- Damage to medical facilities
- Superdome roof damaged
- Levees overtopped and breached
- Pumping stations incapacitated
- Lack of information
- Search and rescue is top priority
Tuesday August 30th

- Levee breaches confirmed
- New Orleans floods
- Facilities damaged
- Communications impact on response
- Establishing incident command structure
- Key response missions
- Drinking water and wastewater facilities
- Search and rescue
- “Lily pads”
Post-Landfall Evacuation

• State and local officials organize a mass evacuation
• The Superdome
• FEMA requests
• Department of Transportation responds
• Other locations
• Evacuee airlift
Other Challenges

- Looting
- Law enforcement challenges
- Impact on response operations
- Impact on service restoration
- Federal law enforcement assistance
- Basic concept of incident management
- Adapting to local impact
- Military control
- Joint task force established
- Military response figures
Additional Challenges

- Federal communication resources
- Communication industry recovery
- Ongoing response resource needs
- Fuel for generators
- Supplies for responders
- Additional federal response supplies
- Providing public reassurance
Perspectives on Disaster Responses

Highways
• Approximately 2900 employees
  • 900 in headquarters/2000 in field offices

• 1 office in each state capital
• 3 federal lands highway offices
• 5 resource centers
• 2 admin support teams

Daily interface with State highway agencies/DOT
• Obtain and maintain situational awareness
• Facilitate communications
• Conduct damage assessments
• Provide technical advice and assistance
• Administer the emergency relief funding program
• Provide personnel to support DOT, FEMA, and State operations
Katrina: Louisiana

- I-10 and US-11 bridges destroyed
- Major projects still under construction
- FHWA approved $1.211 billion dollars
Katrina: Mississippi

- US Highway 90 and major bridges destroyed
- Ferry service initiated
- Major projects completed in 2009
- FHWA approved $1.074 billion dollars
The Role of Transit in Disaster Response/Emergency Evacuation

- 6000 agencies receive funding from Federal Transit Administration

- Public transportation is important during disasters, especially for evacuations

- Especially for the disabled and those who cannot self-evacuate
Transit Challenges During Hurricane Katrina

Local transit vehicles:
- Moved to high ground, but stranded by high water when the levees broke
- Most operators had evacuated

Challenges with outside vehicles:
- Finding them
- Finding/training operators willing to go into harm’s way
- Organizing/coordinating various offers
- Providing food, shelter and supplies for operators
- Protecting vehicles and equipment
- Union and insurance issues
- Ensuring adequate communication between vehicles/transit systems
The Role of Transit in Disaster Response/Emergency Evacuation

More Recent Storms:
- 2008 – 3rd most costly hurricane season, behind 2004/2005
- 4th busiest season since 1944
- Up to $44 billion in damage (2008 USD)
- The first time 4 or more Category 4 storms have formed in one year since 2005 (which had 5)

Transit’s Role:
- Transit played a larger, well-coordinated role in evacuation
- Preparing for the Storm/Securing Affected Transit Fleets
- Facilitating/participating in evacuations
- Local shuttling of evacuees to pickup points/staging areas for the long-haul evacuation by ground/air
- Assisting in movement of evacuees at shelter locations
- Re-establishing transit routes after a storm
The transit agency was now an integral part of the New Orleans City Assisted Evacuation Plan (CAEP)
- New Orleans RTA used 40 transit buses to move 9,000+ people over two days
- 17 pickup points throughout New Orleans, then moved evacuees to the long haul evacuation site at the Union Passenger Terminal (UPT)
- Transit agencies in evacuation destination cities also helped with local movement of evacuees
- The role of transit in movement of evacuees is critical – especially for the disabled and others who cannot self-evacuate
- Transit should have a role in emergency management plans -
- Transit should be represented at emergency operations centers (EOCs)
- The Importance of Mutual-aid Agreements between transit systems – following the model of the utility industry - FTA/APTA ERPP example (www.aptaerpp.com)
FRA established a series of conference calls the day after Katrina.

Provided advice, regulatory relief and coordination:
- emergency preparedness and coordination for large railroads
- hours of service
- equipment handling
- Embargoes (line closures for safety conditions)
- 24/7 crisis management communications
- federal relief efforts

Developed Emergency Contact List for affected Short Lines.
What Did FRA Learn From Katrina?

- There were 26 short line railroads in the affected area and 12 of them suffered damage ranging from several thousand dollars to $60 million dollars, totaling overall to $85 - $90 million.

- Despite pre-panning, several areas of improvement were documented:
  - FEMA coordination with railroads and local responders
  - Propositioned materials and gasoline for recovery
  - Access to rail properties in restricted areas
  - Submerged equipment and locomotives
  - Accounting for Haz Mat cars
  - Backup communication plans
  - Debris removal
  - Federal relief dollars
• Developed Emergency Contact Plan to keep in constant communication with affected Short Lines

• Coordinated info and activities with Feds and Class 1 railroads
  – Longer lead time in instructions on moving Haz Mat and locomotives
  – Remaining equipment moved to high ground and secured
  – Inventory and tracking of all Haz Mat
  – 24/7 communications with FRA at USDOT CMC
  – Stratified coordination with Feds, Military and States
How Did Katrina Help Us With Rita?

- There were 16 short line railroads in the affected area and 3 of them suffered serious damage

- **We learned and planned better:**
  - Good coordination with railroads and local responders
  - Materials and gasoline for recovery were available in limited quantities
  - Immediate access to rail properties in restricted areas
  - No reported submerged equipment or locomotives
  - Haz Mat cars were accounted for and secured out of harm’s way
  - Backup communication plans worked in almost all cases
  - Debris removal coordinated through FEMA and States
  - Federal relief dollars from single-purpose grant from Congress
Perspectives on Disaster Responses

The Evacuation of New Orleans
Evacuation

- No pre-existing Federal capability
- NRP federal role is advisory
- No National Response Plan agency roles
- No pre-existing contracts or plans
- Largest civilian population movement in US history
• Few verifiable numbers
• Superdome
• Media estimates
  – 80% of New Orleans evacuated
  – 90,000 people remain
Self-Evacuation
And then levees broke...
• **Wednesday, August 31**
  
  – Request for buses
  
  – DOT tasked
  
  – Airport accepting emergency flights
  
  – Buses and a fleet manager are onsite.
  
  – DOD tasked
  
  – Airport opens two runways
  
  – 194-201 buses onsite
Evacuees
The Challenge – Destinations
• **Thursday, September 1**
  – FAA teams
  – FEMA tasks DOT
  – Two military flights.
  – DOT coordinates air evacuation
  – Tasking for buses increases
  – 27,700 by bus
• Timeframe
• “Operation Air Care”
• Charter flights

• 17 Air carriers
Destinations

• 21 States
• 38 locations
• FAA
• DOT
• DOD
• TSA
• LANG
• Various
• FEMA
• Airlines and charters
• Others
Airlift Challenges

- Space
- Schedule
- Loading
- Destinations not ready
- Communications with destinations
- Simultaneous medical evacuation
- Uncoordinated volunteer flights
- Search and rescue air operations
- VIP visits
- Pets
## Airlift Evacuee Estimate

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Bus Marshalling

• I-10 at Mile Marker 218.5
• Eastbound I-10 Weigh Station
• Exit 209 Texaco Truck Stop
Bus Staging
More Buses
Evacuation Train
• People wouldn’t leave
• “Variety”
• Cleanup
• Airport opens
• Air evacuation complete
Summary

• 25,000 by air and 215,000 by bus
• 5-day period
• Cost
• Contracts
• Planning