



# The Role of Public Transit during State of Emergency Declarations due to Natural Disasters

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CENTER FOR URBAN TRANSPORTATION RESEARCH

## Outline

- Introduction
- Background
- Phases of the Emergency Management Cycle
  - Lessons learned from each phase
- Conclusions



## Introduction

- What is an emergency?
  - A natural disaster affecting a wide area (e.g. flood, hurricane, earthquake), or
  - A catastrophic failure from any external cause, as a result of which:
    - State Governor has declared an emergency and the Secretary of transportation concurred, or
    - President has declared a major disaster under the Stafford Act

Source: FTA Section 5324 Title 49 Chapter 53

## Types of Emergencies

- Any circumstance that disrupts service
  - Natural
    - Tornado
    - Hurricanes
    - Blizzards
  - Manmade
    - Terrorist attacks
    - Mass shooting
    - Suspicious/unattended package



Photo credit: <http://areti-aroundtheworldinenglish.blogspot.com/2014/05/natural-disasters-crossword-puzzle.html>

## Examples of Transit Responses

- New York MTA transported first responders to ground zero during the 9/11 attack (2001)
- Sonoma-Marín Rail Transit continued to operate full service, suspending fares to those in need during, during the northern California wild fires (2018)



September 2001, Transferred from NYC Transit, Corporate Communications, Courtesy of Barbara Orlando, New York Transit Museum Collection, **Transit employees help with the recovery at Ground Zero**

## Examples of Transit Responses

- LYNX provided extended service following the Pulse shooting (2016)
- Houston METRO emerged as one of the heroes of Hurricane Harvey (2017)



The long line of buses along U.S. 59's HOV lane, where 120 of them avoided being flooded.

## Natural Disasters

- Emergencies due to natural disasters can be classified in two categories:
  - Predicted
    - Hurricanes
    - Tropical storms
    - Flooding
  - Unpredicted
    - Earthquakes
    - Tornado
    - Mudslides



## Hurricane Season is HERE – Are You Ready?



## Background – Florida's Hurricanes

One of the most active hurricane seasons was in 2004 with 4 named storms that impacted Florida in a 6 week period:

- Charley: CAT 4 35 deaths \$16B in damages
- Frances: CAT 4 49 deaths \$10.1B in damages
- Ivan: CAT 5 129 deaths \$26.1B in damages
- Jeanne: CAT 3 3,000 deaths \$7.5B in damages

Source: NOAA

## Florida's 2004 Hurricanes



Photo Credit: The Weather Channel

## Hurricane Aftermath – Charley



Punta Gorda, FL

## Hurricane Aftermath – Ivan



**Highway 98**  
between Fort  
Walton Beach  
and Destin in  
the panhandle

Photo Credit: <http://www.strangecosmos.com>

## Florida's 2004 Hurricanes

- Major impact on transit agencies:
  - 60% of fixed route and 89% of Community Transportation Coordinator (CTC) agencies **experienced communication problems**
  - The majority of agencies had **no plans in place** to address those communication problems
  - 30% of Florida fixed route transit agencies did not **maintain a telephone contact** list as part of their emergency planning
  - **Fuel** is very valuable commodity in major storms
    - Alternative fuel sites
    - Alternative power sources

Source: *Transit Emergency Planning and Response Assessment Initiative, 2005*

## Florida's Hurricanes

- 2005 was also very active and two hurricanes hit Florida:
  - Katrina: CAT 5 1,600 deaths \$125B in damages
  - Wilma: CAT 5 87 deaths \$27.4B in damages
  
- 2017 recorded the most powerful hurricane ever tracked
  - Harvey: CAT 4 130 deaths \$125B in damages (hit Texas)
  - Irma: CAT 5 140 deaths \$65B in damages
  - Maria: CAT 5, ~ 1,000 deaths \$90B in damages

## 2017 Hurricanes

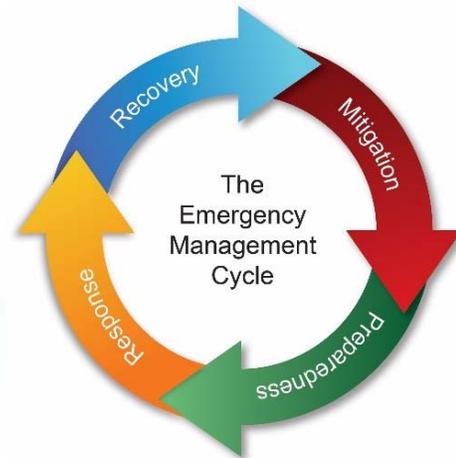


Photo Credit: The Weather Channel

## Phases of The Emergency Management Cycle

- “All hazards” method is a transition from reactive approach to proactive approach
- Four Phases:
  - Mitigation
  - Preparedness
  - Response
  - Recovery

Source: FEMA Training



## Phase 1: Mitigation

- Defined as “sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects”
- Mitigation measures can be part of the recovery phase, but also can be part of the preparedness phase



Photo Credit: Wikimedia Commons

## Phase 1: Mitigation (cont'd)

- Two types of mitigation measures:
  - Structural (use technological solutions like flood protections)
  - Non-structural (legislation, land-use planning such as the designation of nonessential land like parks to be used as flood zones)
- Key points of this phase are:
  - It takes place before and after the emergency occurs
  - It prevents emergencies from happening or minimizes their effects

## Mitigation Lessons Learned

- Don't forget:
  - Check your insurance coverage prior to the onset of the hurricane season
  - Establish MOUs with any agency that may be able to assist in an emergency
    - FDOT MOU with larger transit agencies to provide buses in recovery efforts
    - If your bus yard is prone to flooding, consider getting MOU with DOT to park along tolled overpass shoulders
    - Make agreements with local first responders to provide mutually beneficial assistance
  - Establish a statewide **centralized reporting system**

## Mitigation Lessons Learned (cont'd)

- Mitigation is anything that can minimize damaging effects, such as securing property, strapping down water heaters, anchoring bookshelves to walls, and buying insurance
- Ensure that key personnel have a plan ready at least 3 months prior the hurricane season starts



Photo Credit: Wikimedia Commons

## Questions to Guide Discussion

- Do any of you already have MOUs in place to provide buses in emergencies upon FDOT request?
  - Does your agreement include a defined way of tracking what is provided?
- Are your bus yards subject to flooding?
  - Consider establishing an MOU to find an alternate place to store buses during the storm
- Do you provide assistance of any kind to local first responders?
  - If so, have you done drills/exercises with them included?
  - Did the first responders call you during Irma?

## Phase 2: Preparedness

- Takes the form of plans or procedures designed to save lives and to minimize damage when an emergency occurs
- Some measures of the preparedness phase are:
  - Updating all emergency contacts, at least annually
  - Maintaining interagency communication plans with easily understandable terminology and methods
  - Proper maintenance and training of emergency services
  - Developing and exercising emergency population warning methods
  - Preparing shelters and evacuation plans
  - Stockpiling, documenting inventory, and maintaining disaster supplies and equipment

## Preparedness Resource

- FEMA's Hurricane Toolkit indicates this should have been done a month ago, and should occur every 2<sup>nd</sup> week in May.
  - FEMA Playbook for organizations and includes tabletop exercises
  - [https://www.fema.gov/media-library-data/1409933369110-5d82e4e75ba272f6cefd656ff190c422/prepareathon\\_playbook\\_hurricane\\_final\\_090414\\_508.pdf](https://www.fema.gov/media-library-data/1409933369110-5d82e4e75ba272f6cefd656ff190c422/prepareathon_playbook_hurricane_final_090414_508.pdf)



## Family Preparedness

- If the employees family is not prepared, the employee will not choose work over family in an emergency
- To ensure the employees have plans in place for their home
  - Provide resources to help them develop successful thorough plans <https://www.ready.gov/hurricane-toolkit>
  - 4 step Plan
    - Step 1:** Start by discussing these four questions with your family
      - a) How will I receive emergency alerts and warnings?
      - b) What is my shelter plan?
      - c) What is my evacuation route?
      - d) What is my family/household communication plan?
    - Step 2:** Consider specific needs in your household
    - Step 3:** Fill out Family Emergency Plan
    - Step 4:** Practice your plan

### Safeguard critical belongings

- Identification (pet id tags)
- Financial and legal documentation
- Medical information
- Valuables

## Preparedness Lessons Learned

- Outdated statewide emergency contact lists add to the stress of an emergency situation
- Accommodations for assets, like buses, are not typically possible without prior agreements in place
- Be prepared to feed and shelter the employees that are expected to be available
  - Make sure families of employees are considered in the emergency plans – to increase likelihood of compliance with plan
- Have temporary identification available for the operators who may encounter checkpoints
  - Teach employees how to use statewide **centralized reporting system** (established in the mitigation phase)

## Questions to Guide Discussion

- Do you have an established contact list?
  - When is the last time it was updated?
  - Who is on the list?
    - Safety personnel, risk management, IT, maintenance, and etc.
- What do you do to help ensure your employees have a plan prepared?
  - Do you track their plans?
  - Do you ask for emergency volunteers prior to the onset of hurricane season, or are they required to be available?
    - If required by contract, do you have a waiver for employees with special conditions (i.e. disabled family member)

## Phase 3: Response

- Response is defined as the actions taken to save lives and prevent further damage in a disaster or emergency situation
- The response phase includes the mobilization of the necessary emergency services and first responders in the disaster area
- Response activities may include damage assessment, search and rescue, firefighting and sheltering victims
- Continuous communication and the availability of cohesive guidance will help to ensure that all necessary actions are carried out

## Response Lessons Learned

- The updated contact list will really come in handy in this phase
- Clear constant communication, especially with the shelters, is extremely important
  - Are pets accepted
  - Opening times
  - At capacity
- Satellite phones would be useful on the buses used to access the hardest hit areas
  - No way to communicate challenges at checkpoints and other information
- Buses transporting crew should be escorted
- Ensure employees are using the statewide **centralized reporting system** (established in mitigation phase, taught in preparedness phase)

## Examples to Guide Discussion

- Poor county shelter planning
  - Shelters opened late
  - Higher than expected number of people seeking shelter
  - Buses full of evacuees were turned away from full shelters
    - Had to travel to up to 3 shelter before finding one with space
  - Delays contributed to difficulties in moving all evacuees prior to the stop of service due to wind speeds
- What communication do you have with your local shelters?
  - Do you know when they open, when they are full, if they accept pets...

## Phase 4: Recovery

- It includes all actions taken to maintain a level of safety that will ensure a return to a normal life as soon as practical
- Recovery actions can be
  - Immediate
  - On-going



Photo Credit: Wikimedia Commons

## Phase 4: Recovery (cont'd)

- Recovery phase key points
  - Recovery takes place after the emergency is over
  - Goal of recovery is to resume to normalcy as soon as possible, including resuming normal service
  - Recovery includes making repairs and filing insurance
  - Assessing mitigation, preparedness and response phase actions and refining them for next time are all part of the recovery phase

## Recovery Lessons Learned

- Assess home condition prior to releasing disabled or elderly population
- Equip vehicles in the affected areas with satellite phones
- Establish a safe storage area for critical assets
- Review information from statewide **centralized reporting system** (established in mitigation phase, taught in preparedness phase, used in response phase)



Photo credit:  
<https://fortmyers.floridaweekly.com>



Photo credit: Laura Bohdan, Key West Transit

## Examples and Questions to Guide Discussion

- Schools as shelters
  - After storm passes, schools feel pressure to reopen
  - Elderly or other fragile evacuees sent from shelter to uninhabitable remnants of home
- Did you notice pressure from the schools?
- Do you have a plan in place in case someone is returned to an uninhabitable home?
  - If so, what is your plan?

## Statewide Centralized Reporting System

- Real time log of information that transit personnel can enter, which allows regional or state DOTs the ability to view data immediately
  - Log of:
    - Employee hours worked
    - Fuel used
    - Damage accessed
    - Bus/vehicle identification (tag number, VIN)
    - Mileage of buses (maintenance standpoint)
    - Number of people transported (evacuees, workers)
- Does your agency have a reporting system?
  - Would you like to share it with your peers?

## Conclusions

- You may be asked to perform beyond expected duties
- Plans and agreements result in better prepared transit agencies
- Updated emergency contact lists are imperative
- Better communication with shelters will reduce unnecessary grief
- Temporary ID and access to a satellite phone would benefit responding employees
- A statewide centralized reporting system will allow for seamless communication throughout the emergency

## Resources

- FTA: <https://www.transit.dot.gov/>
- FEMA: <https://www.fema.gov/>
- NOAA: <http://www.noaa.gov/>
- NHC: <https://www.nhc.noaa.gov/>

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