

# A COMPREHENSIVE HURRICANE RESPONSE ACTION PLAN FOR SOUTH FLORIDA

By: Florida Department of Transportation, District 6

## IN THIS CASE STUDY YOU WILL LEARN:

1. How a Hurricane Response Action Plan ensures TSMO practices are used during a major weather event.
2. The benefits of creating detailed checklists for before, during and after a storm.
3. Why redundancy and agency collaboration are essential aspects of maintaining operations during a hurricane.

## BACKGROUND

A Hurricane Response Action Plan (HRAP) for South Florida was created in 2007 following multiple storms hitting the Florida coast, and now serves as a guiding framework for transportation management and operations to follow during emergency weather situations. The goal of the HRAP was to promote public safety and information distribution during these critical times by maintaining the safety of TMC staff, the continuity of operations and the continuity of network connections before, during and after the storm. To achieve this, the plan details an extensive checklist of procedures to safeguard the program's systems, operations and incident management services.

In September 2017, Hurricane Irma made landfall as a Category 5 hurricane with direct impact to Miami-Dade County and most of South Florida. Hurricane Irma, the strongest hurricane to hit South Florida in over a decade, marked the first time the Florida Department of Transportation (FDOT)



District Six Transportation Systems Management and Operations (TSMO) office had to establish a remote command center for transportation management. Even with a remote command center, a full evacuation occurred smoothly due to the HRAP.

## PLANNING AND STRATEGIES

The HRAP was created to ensure TSMO practices were used during a major weather event. It features critical information pertaining to staffing, equipment, procedures, checklists and guidelines. The plan is part of the Standard Operating Guidelines for TSMO and is updated annually to ensure all resources, contacts and procedures are current.

The steps outlined in the HRAP ultimately ensure other agencies related to TSMO, such as first responders, emergency operations centers and public relations, work with FDOT to respond to weather-related incidents and disseminate critical traffic and safety information to the public during a hurricane.

The document also features operational and planning strategies built upon a list of assumptions that are either policy driven, or implementation focused. Additionally, the plan is organized by before, during and after the storm activities to be performed.

## BEFORE THE HURRICANE

Plans before the storm include any activities that need to take place prior to a hurricane hitting landfall. Activities before the storm include:

- Preparing and safeguarding the Transportation Management Center (TMC), Intelligent Transportation Systems (ITS) field equipment and other related operations systems.
- Keeping inventory of additional supplies, generators and redundant systems to ensure there is no system outage during the hurricane.
- Coordinating with partner agencies to confirm point of contacts (POC), roles and responsibilities with the District's Emergency Operations Center (EOC), first responders, traffic signal office and other regional transportation agencies.
- Staffing the TMC, Incident Response Vehicle teams, staging areas and the potential for remote operations are outlined well before the storm to ensure staff can be in place, travel safely during the storm, and ensure redundancy of staffing to system operations.

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### DURING THE HURRICANE

Hurricane response during the storm include activities that need to occur from the time the storm makes landfall until the state of emergency is lifted. Activities during the hurricane include:

- Implementing a shift schedule for on-duty TMC operator staff.
- Monitoring storm related events, third party information sources and field equipment systems for incidents and failures.
- Maintaining communication checks and information sharing with the Emergency Operations Center once per hour throughout the duration of the storm.

### AFTER THE HURRICANE

Activities after the hurricane consist of anything that needs to be done following the storm, due to causation by the storm, and include:

- Performing roll-call to ensure safety of TSMO staff.
- Reestablishing normal TMC operator work schedule.
- Assessing the TMC Building, taking inventory of spare parts and related systems, such as radio communication checks to incident management vehicles.
- Assessing damaged ITS field devices for repair.
- Performing post-hurricane coordination meetings with partner agencies to debrief them on pertinent information such as road closures and resource management.

External communications are also a focus of the HRAP, to ensure the general public is aware of critical information.

The HRAP stresses and reinforces a plan for network redundancy as well as back-up locations and operations to safeguard connection during a hurricane. Those safeguards include:

- **Establishing a connection at the Network Access Point (NAP)**–The NAP is a public network exchange facility that is built 32 feet above sea-level and designed to withstand Category 5 hurricane-level winds and other catastrophes. This connection provides the TMC network with an additional layer of protection and allows the TMC system to be operated from essentially anywhere with an internet connection.
- **Determining a TMC Operations Backup Plan with the Florida's Turnpike Enterprise (FTE)**–The plan allows District staff to physically relocate to FTE's Pompano or Turkey Lake Operations Center and operate the system by connection at the NAP, or virtual private network (VPN) connection to the TMC. This plan is activated if the staff is required to evacuate the SunGuide TMC building for safety reasons.

IT staff conduct testing to ensure the availability of both connection options prior to the hurricane hitting land. During Hurricane Irma, it was determined that maintaining a network connection and relocating key staff to a remote Operations Center in Turkey Lake was the safest and best option for maintaining operations. Once key staff were safely onsite and had access to the system in Turkey Lake, the District ceased operations from the TMC, and remaining staff evacuated per the HRAP.

**With full access to the TSMO software and systems for any location within the FDOT network, staff are able to conduct regular traffic management duties as long as power and ITS devices remained available. Staff gather traffic information from its suite of resources, including closed circuit television cameras, Road Ranger Service Patrols, mobile application, media sources and partner agencies.**

Staff disseminated, applied and communicated the information and plans to the partners who used it to make important traffic and safety decisions during this critical time when power, cellular service and internet connection are limited.

The HRAP is also instrumental in evacuation and recovery support. Before landfall, staff dispatched Road Rangers to facilitate traffic flow along the evacuation route to maintain safety. TMC staff also monitored the area and provided the EOC with hourly updates about roadway conditions and used dynamic message signs (DMS) to post evacuation and safety alerts. After the storm, a fleet of Road Ranger vehicles were dispatched to assist with re-entry efforts. Their presence helped normalize the devastated area more quickly by clearing road-blocking debris and removing stranded vehicles along main highways.



### DEPLOYMENT AND EXECUTION

TSMO staff met daily to execute contingency plans identified as possible scenarios in the HRAP. Managers from operations, maintenance, information technology (IT) and building facilities use the HRAP checklist to complete the requirements of their respective departments. Meetings ensured managers are on the same page of the HRAP and helped identify potential additional issues and scenarios. Internal meetings were held before, during and after the storm. TSMO staff also met with partner agencies frequently to disseminate critical traffic information and provide a damage assessment.

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### OUTCOMES AND CONCLUSION

The HRAP is managed as a living document and is updated annually with input from management, operations, maintenance and IT staff, to capture each department's latest procedures, resources and staff. Annual updates are based on the previous year's hurricane season and any changes that were made to procedures.

Hurricane Irma put the HRAP to the test. The plan helped ensure proper operations and network connections despite the threatening conditions of the storm. More importantly, the HRAP ensured FDOT was a primary source of coordination and information related to traffic management for South Florida during such a severe weather event.

The biggest lesson learned from this event is that an emergency preparation plan is only good if the team who executes it takes preparation efforts seriously, year-round. A plan is only a document with guidelines and procedures. It is up to the team to follow the guidelines and ensure all requirements are up to date so they are prepared for when the big storm hits. This is especially important in the TSMO industry since our communities depend on our program resources for safety and support.



*Florida Department of Transportation personnel repair the foundation of a footbridge.*

### FURTHER INFORMATION

NOCoE Knowledge Center: <https://transportationops.org/knowledge-center>