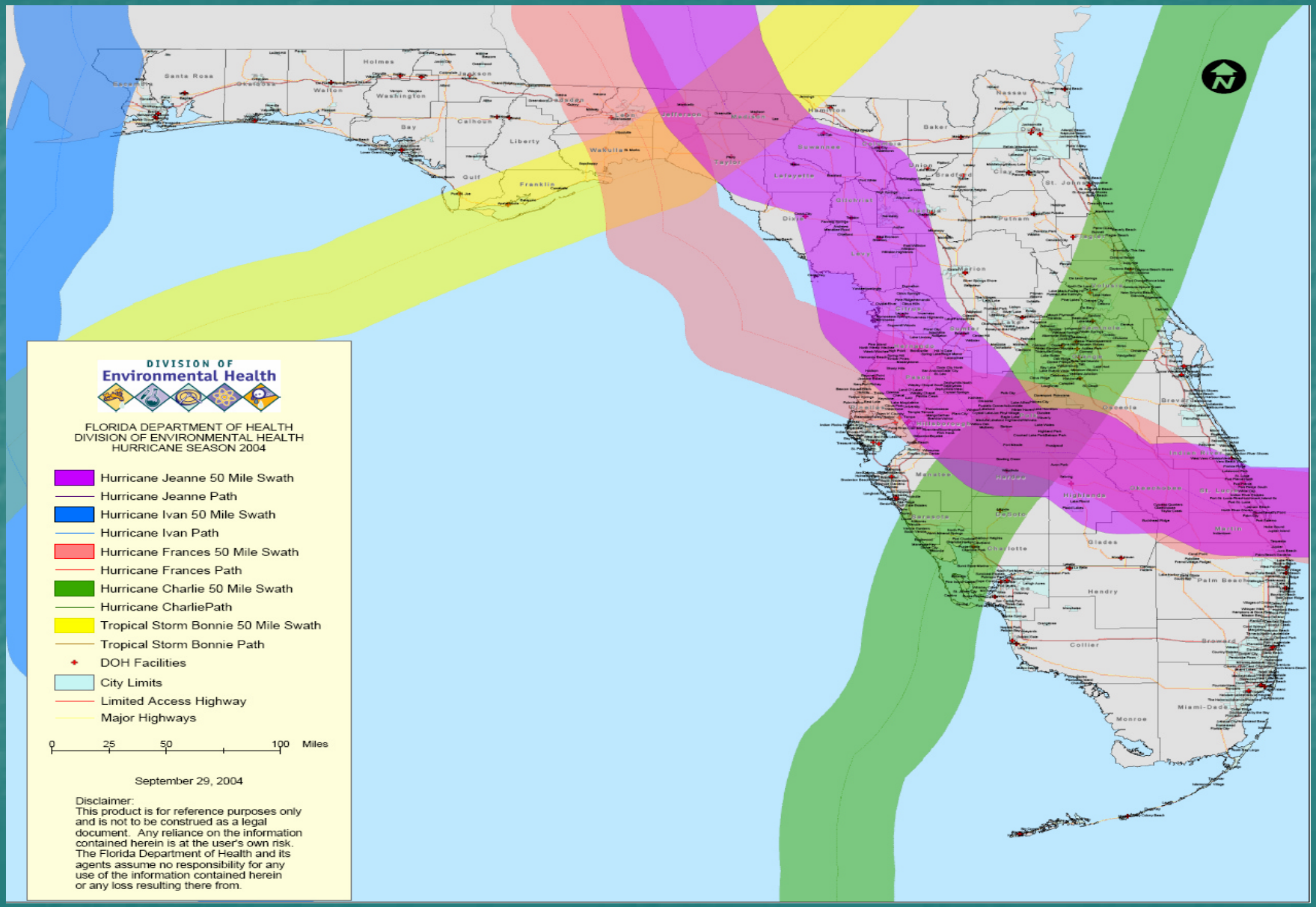
FDOT Hurricane Preparation and Response Recommendations

Central Office

Traffic Engineering and Operations Office

Tahira Faquir, P.E.

In the Path!


DIVISION OF
Environmental Health
FLORIDA DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
HURRICANE SEASON 2004
Hurricane Jeanne 50 Mile Swath
Hurricane Jeanne Path
Hurricane Ivan 50 Mile Swath
Hurricane Ivan Path
Hurricane Frances 50 Mile Swath
Hurricane Frances Path
Hurricane Charlie 50 Mile Swath
Hurricane CharliePath
Tropical Storm Bonnie 50 Mile Swath
Tropical Storm Bonnie Path
DOH Facilities
City Limits
Limited Access Highway
Major Highways
0 25 50 100 Miles
September 29, 2004
Disclaimer:
This product is for reference purposes only and is not to be construed as a legal document. Any reliance on the information contained herein is at the user's own risk. The Florida Department of Health and its agents assume no responsibility for any use of the information contained herein or any loss resulting there from.

The Plan for Safety!

The Aftermath

The Aftermath

(Continued)

The Aftermath

(Continued)

The Aftermath

(Continued)

Areas of Recommendations

- Signal Operations
- Expectations for Signal Restoration
- Mast Arm, Span Wire, and Signal Equipment Issues
- Power Outages and Generator Use at Signalized Intersections
- Maintaining Traffic on Evacuation, Reentry, and Diversion Routes
- Road Rangers
- Transportation Management Center (TMC) Operations
- Intelligent Transportation System (ITS) Field Devices
- 511 Operations
- Web Site Operations
- Dissemination Media
- Microwave Systems, and Communications with Cell Phones and Radios

Before the Hurricane – Signal Operations

What Should Be Done?

- Organize assessment and repair teams in advance
- Develop and maintain a stock of replacement parts and equipment
- Develop emergency response contracts and have them ready to go prior to an emergency
- Improve internal time clocks for traffic signal controllers
- Develop timing plans for evacuations as feasible

Before the Hurricane – Signal Operations

What Should Be Done?

(Continued)

- Establish emergency contracts in advance for quicker restoration
- Consider training traffic operations and other District staff in signal damage assessment and the documentation procedures required by the FHWA
- Create agreements with other state governors' offices to waive liquidated damages for contactors assisting in emergency response situations, if feasible

After the Hurricane

What Should Be Done?

- Install generators to get power back online as soon as possible
- Institute stop control at major intersections if generator power is not feasible
- Retime signals after an emergency in such locations as detour routes and heavily traveled areas
- Evaluate the intersections requiring backup power to determine the best, most secure placement of the emergency generators to provide easy access for connection and maintenance, and to prevent theft

Before and After the Hurricane

What Should Be Done?

- Mast Arm, Span Wire, and Signal Equipment Issues
- Power Outages and Generator Use at Signalized Intersections
- Maintaining Traffic on Evacuation, Reentry, and Diversion Routes

Before and After the Hurricane

What Should Be Done?

(Continued)

- Mast Arm, Span Wire, and Signal Equipment Issues
  - Hanger redesign

Before and After the Hurricane

What Should Be Done?

(Continued)

- Power Outages and Generator Use at Signalized Intersections
  - Establish generator backup for all major signalized intersections
    - Major intersections identified by DTOE
    - Permanent or portable generator installations at intersections
    - Plan for deployment
  - Evaluate intersections to identify if a power panel is readily accessible
    - If it is, connect a generator here
    - Consider intersection reconstructions to include power panel accessibility or redesign of cabinets for generator connection

Before and After the Hurricane

What Should Be Done?

(Continued)

- Consider requiring maintenance contractors to maintain a minimum number of generators to power critical ITS field devices
- Establish a District plan for generator refueling and maintenance during the aftermath of a hurricane or other occurrence that necessitates their placement
- Require LED signal heads for all intersections on the state highway system to minimize power requirements

Before and After the Hurricane

What Should Be Done?

(Continued)

- Maintaining Traffic on Evacuation, Reentry, and Diversion Routes
  - Have traffic signal controller cabinets include standard generator hookups to expedite emergency backup power placement and thereby eliminate the need for an electrician
  - Provide a large inventory of generators in critical areas and make available a surplus of traffic signals
  - Pursue greater ITS deployment not only along the interstates, but also along the major arterials

Area of Controversy

- Signal Head Removal
  - Pros
    - The removal saved signal heads that might have been otherwise destroyed.
    - These signal heads were available for immediate reinstallation.
    - The removal allowed the empty disconnects to survive.
    - The removal lightened the span load and this, in combination with span tightening, saved intersections.
    - The removal allowed the system to be returned to normal operations quicker than otherwise was possible.

Area of Controversy
(Continued)

- Signal Head Removal *(Continued)*
  - Cons
    - Removal of signal heads below the allowable indications required by the MUTCD leaves the counties/state in a vulnerable position should an incident occur due to the lack of indication.
    - Removal of signal heads prior to the storm based on a three-day forecast may result in an unnecessary removal because the hurricane shifts track.
    - The possible replacement of signals by state contractors because the missing signals were thought to be hurricane damaged rather than simply removed.

Overall Recommendation

As a general recommendation, the FDOT Traffic Engineering and Operations Office should develop a plan that addresses the recommendations. Each District should develop its own individual plan that ties into the TEOO plan, and that specifically addresses the unique situations and needs of that District as they relate to the areas covered in this section.

We Don’t Want It To Happen Again