

Don  
Avery



Rulx  
Belizaire



# **WELCOME TO THE MONROE COUNTY TRAFFIC INCIDENT MANAGEMENT TEAM MEETING**

Alex  
Mirones



Felix  
Lopez



## **JUNE 30, 2021**



**Florida Department of Transportation District Six**

*Transportation Systems Management & Operations*

1001 NW 111th Ave, Miami, FL 33172

(305) 470-5757 • SunGuide.info



# Monroe County Traffic Incident Management (TIM) Team Meeting June 30, 2021

FDOT District Six

## 7 Mile Bridge Run

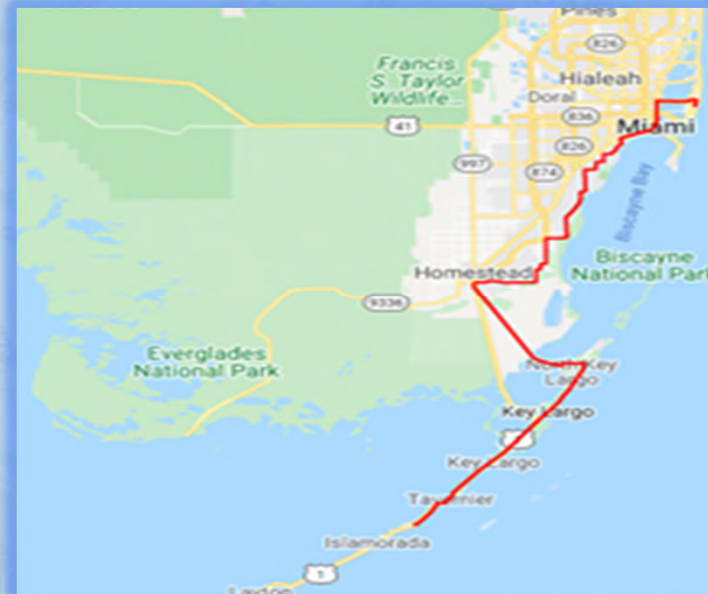
- April 17, 2021
- Three Hour Bridge Closure
- 6:00AM – 9:00AM
- Dynamic Message Signs

**SATURDAY 6AM TO 9AM  
CLOSURE  
AT 7 MILE BRIDGE**



## Autism Awareness Bike to the Beach Event

- April 17, 2021
- 100 Miles
- Miami to the Florida Keys
- Monitored by TMC Cameras



## Card Sound Road Brush Fire

- May 1, 2021 to May 5, 2021
- Over 18,000 Acres
- Full Closure Coordination
- Monitored by TMC Cameras
- DMS Support

**CARD SOUND ROAD  
CLOSED**





Road Ranger of the Year: Yoelnis Banobre  
TMC Operator of the Year: Bryan Salcedo

## Hurricane Response Action Plan (HRAP)

### Operational and Planning Strategies

- Updated for 2021 Season
- Before, During, and After the Storm
- 24/7, Remote Operations
- DMS Support

### Traffic Signals

- Support Evacuations with Timing Adjustments
- MCSO & KWPD Coordination



- Stock Island to Key Largo - Operating Since July 1, 2018
- City of Key West - Operating Since July 1, 2020
- Signalized Intersection Improvements
  - Burton Drive
    - New Traffic Signal
    - July 2021 – Anticipated Completion January 2022
  - Sombrero Beach Road
    - Crosswalk/Pedestrian Improvements
    - Anticipated Completion End of June 2021
- Emergency Signals MM 1.4 to MM 106.5
  - Upgrading with New Controllers and Communication
  - Integrated into the MCTSS
  - July 2021 – Anticipated Completed in September 2021
- HAWK Signals – City of Key West
  - 3 New HAWKs from Bertha Street to Smathers Beach
  - Currently at 60% Design Phase



In preparing for MCTSS O&M, District Six made **significant investments** in the signal system, communications and the SunGuide TMC upgrades

## MCTSS includes:

- 35 Traffic Signals
- 6 Pedestrian Hybrid Beacons
- 9 Emergency Signals
- 22 Flashing Beacons

## ITS coverage on US 1

- 51 Closed-circuit television (CCTV) Cameras
- 12 Dynamic Message Signs (DMS)
- New Microwave Communication Backbone





## Corridor Characteristics

### Average Annual Daily Traffic (AADT)

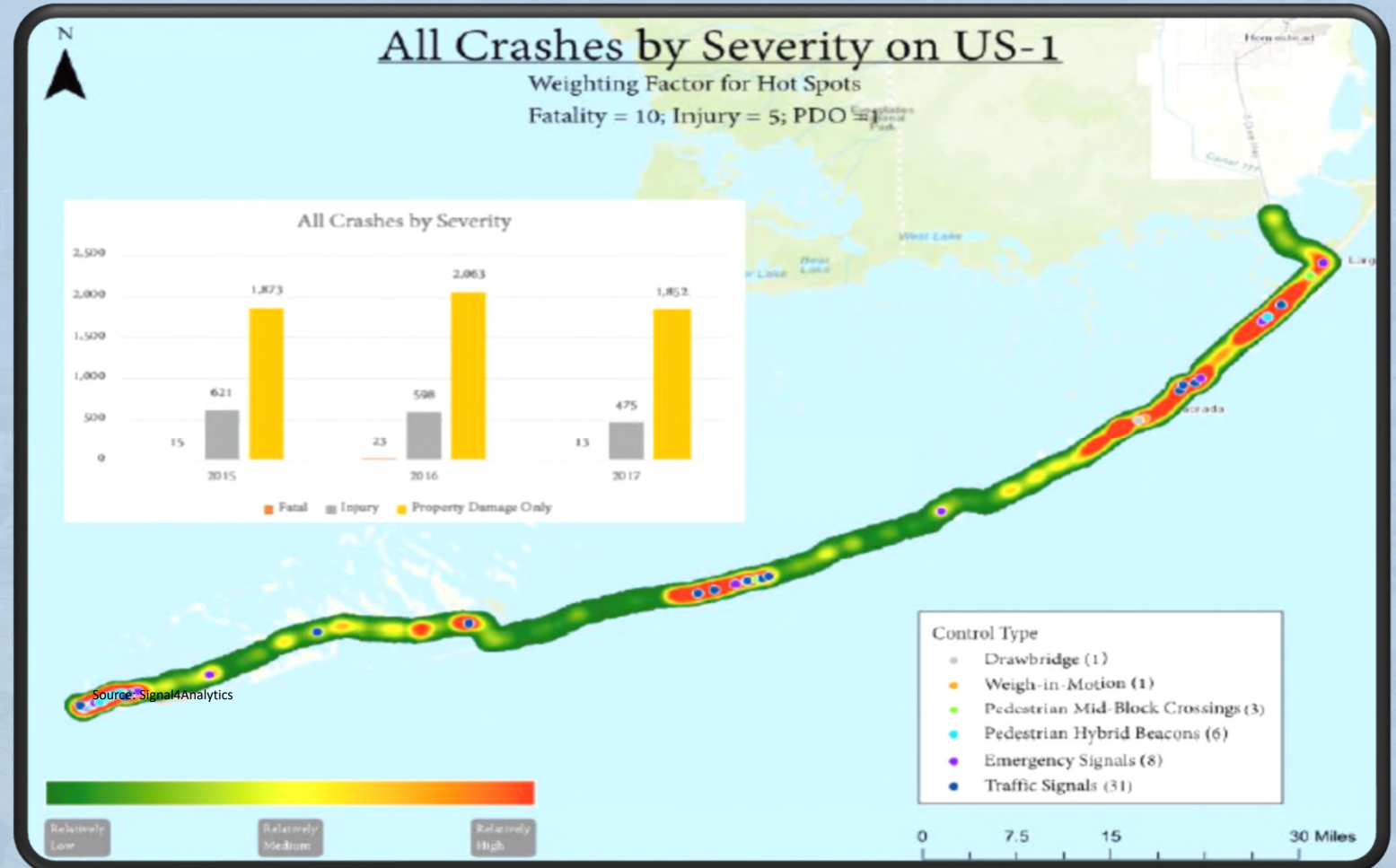
- 10,000 to 35,000 vehicles/day

### Average truck traffic

- 4% to 12%

### Crash History (2015-2017)

- 7,533 total crashes
- 51 fatal crashes
- 359 ped/bike crashes



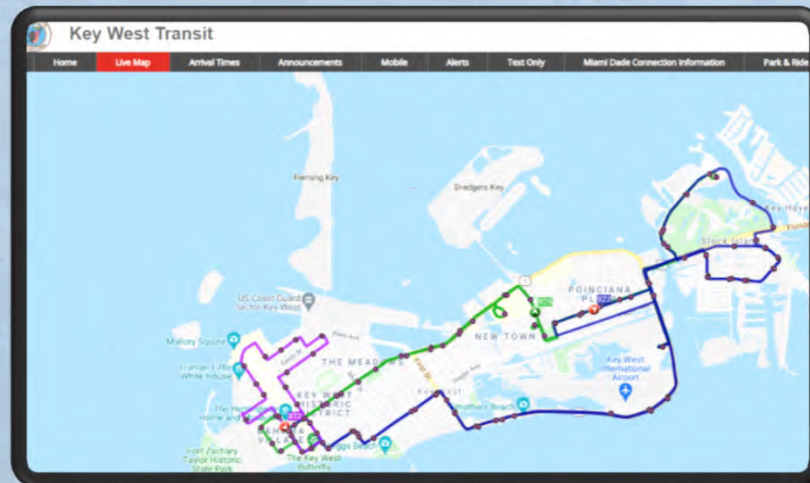
## Transit Service

### Miami-Dade Transit Bus

- Route 301 - Dade Monroe Express
  - Florida City to Marathon Key (MM 50)

### Key West Transit

- Lower Keys Shuttle
- City Routes
  - North Line
  - South Line
- Duval Loop



## Project Requirements

### CV Applications

- **CVO06** – Freight Signal Priority
- **CVO08** – Smart Roadside and Virtual WIM
- **PS03** – Emergency Vehicle Preemption
- **PT09** – Transit Signal Priority
- **TM04** – CV Traffic Signal System
- **TM18** – Drawbridge Management
- **VS12** – Pedestrian and Cyclist Safety
- **VS02** – Vehicle to Vehicle (V2V) Basic Safety

**Automated Traffic Signal Performance Measures (ATSPM)**

**Security Credential Management System (SCMS)**

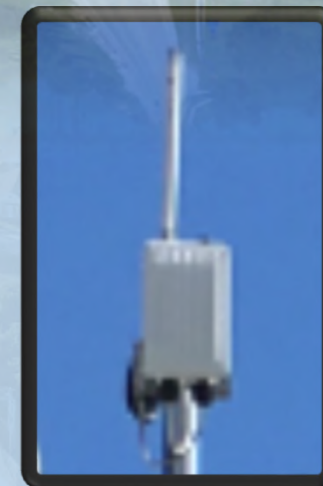
**Smartphone Application**

- Potential OBU emulator



## Project Requirements

- **59 Road Side Units**
  - Dedicated Short Range Communication (DSRC) and Cellular Vehicle-to-Everything (C-V2X) Capable, not dual active
- **250 On-board Units**
- **CCTV cameras**
- **Managed Field Ethernet Switches (MFES)**
- **Detection System**
  - Video Vehicle Detection System (VVDS)
  - Loops
- **Data Storage**
- **Technical Support Services (3 years post acceptance)**
- **Training, Warranty, Spare Parts**



## Anticipated Project Benefits

**Keys COAST project is aligned with FDOT's Vital Few**

- **Enhance Mobility**
  - Reduce travel time for motorists, freight, transit
  - Reduce number of stops for emergency responders
- **Improve Safety**
  - Improve pedestrian/bicyclist safety
  - Reduce red light violations
- **Inspire Innovation**
  - Build CV
  - ATSPM Capability



## Project Schedule / Timeline

**2019**

- Systems Engineering
- Project Development
- Stakeholder Coordination

**2020**

- Procurement
- Initiate Before Study
- Stakeholder coordination

**2021**

- Project Letting
- Begin Project Deployment
- Stakeholder coordination

**2022**

- Project Deployment
- Integration and Testing
- Stakeholder coordination

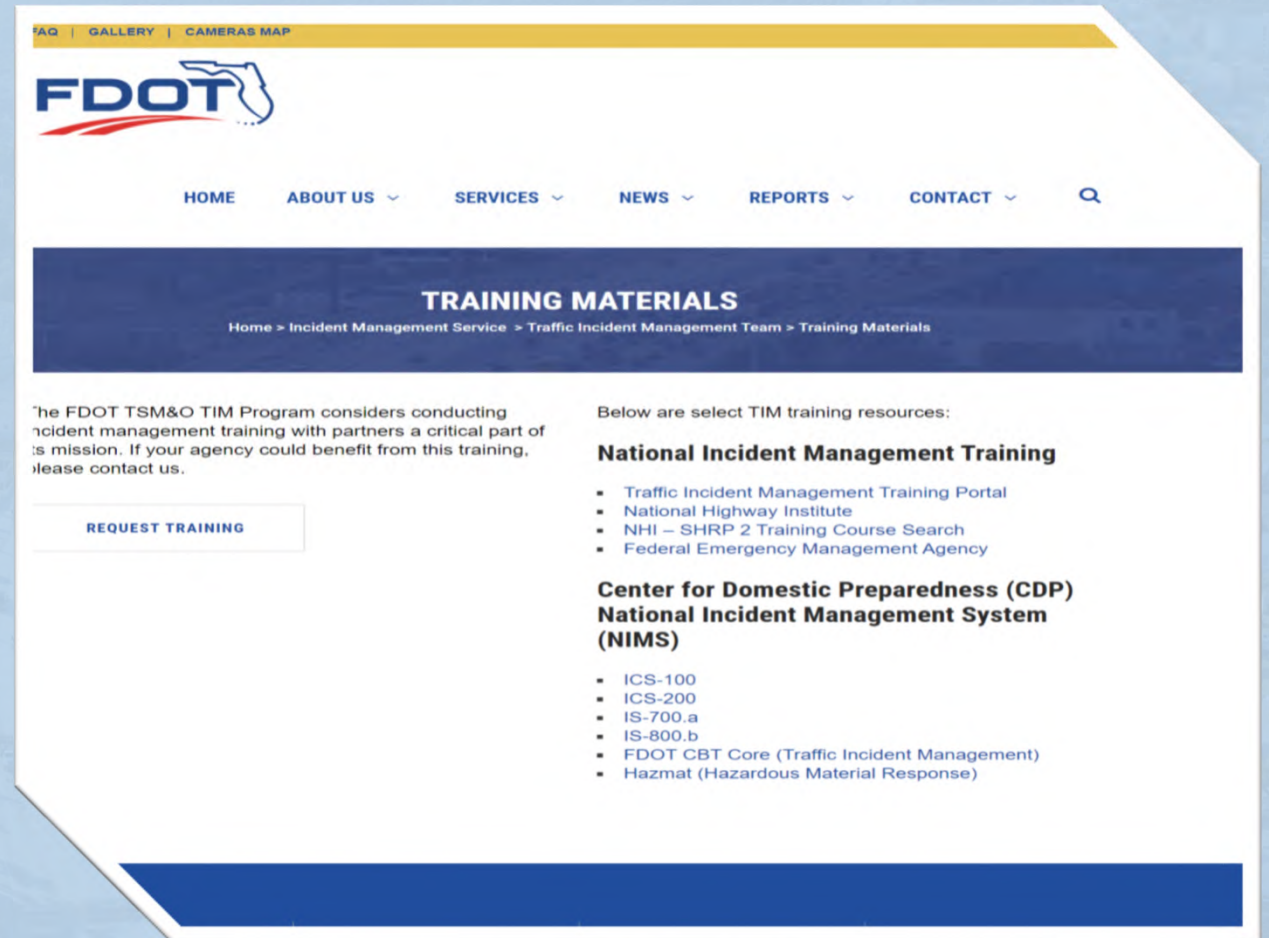
**2023**

- Project Operational
- After Study - Evaluation

## FDOT District Six - SunGuide.info

### Features

- Quarterly TIM Newsletters
- Important News Flashes
- TIM Webpage
  - Responder Training Registration
  - Contact TIM Team
  - Incident Management Dashboard
    - <https://sunguide.info/incident-management-service/tim-team/>



The screenshot shows the FDOT TIM Training Materials webpage. At the top, there is a navigation bar with links for FAQ, GALLERY, and CAMERAS MAP. Below this is the FDOT logo and a main navigation menu with links for HOME, ABOUT US, SERVICES, NEWS, REPORTS, and CONTACT, along with a search icon. The main content area is titled "TRAINING MATERIALS" and includes a breadcrumb trail: Home > Incident Management Service > Traffic Incident Management Team > Training Materials. A paragraph of text states: "The FDOT TSM&O TIM Program considers conducting incident management training with partners a critical part of its mission. If your agency could benefit from this training, please contact us." Below this text is a "REQUEST TRAINING" button. To the right, under the heading "Below are select TIM training resources:", there are two sections: "National Incident Management Training" with a list of resources including Traffic Incident Management Training Portal, National Highway Institute, NHI - SHRP 2 Training Course Search, and Federal Emergency Management Agency; and "Center for Domestic Preparedness (CDP) National Incident Management System (NIMS)" with a list of resources including ICS-100, ICS-200, IS-700.a, IS-800.b, FDOT CBT Core (Traffic Incident Management), and Hazmat (Hazardous Material Response).

## FL511.com

- Live Streaming Video

## FL511 Mobile App

- List of Events with Associated Camera
- Voice Interaction
- Road Closures

## Responder's Site

- SunGuide.info
- Exclusive to First Responders & Stakeholders
- View Multiple Cameras at Once





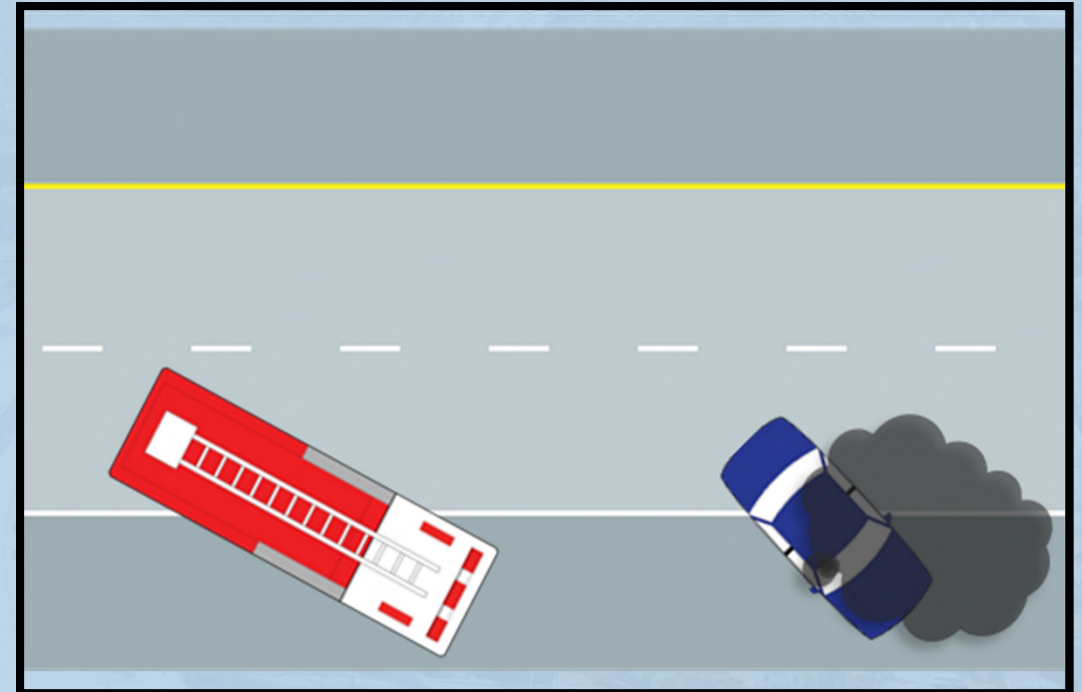
## National TIM Responder Training Program

### Updates

-  District In-person Trainings
-  Register on SunGuide.info
-  [www.nhi.fhwa.dot.gov](http://www.nhi.fhwa.dot.gov)

### Upcoming Trainings

-  September 2021
-  November 2021
-  March 2022



## Incentive Based - Complex Recovery Contract



## What is RISC?

- RISC is a rapid deployment program for heavy wreckers and support equipment to quickly open the highway
- RISC gets the right equipment to the scene quickly through contracts and incentives
- RISC vendors are pre-qualified, FHP rotation companies, ensuring high quality service



## RISC Activation Vehicle Criteria

- Tractor Trailer (DOT Class 8)
- Trucks over 16,000 lbs. (DOT Class 5, 6, 7)
- Motor Homes & Motor Coaches (DOT 5 & 6)
- Busses (16 passenger or more)
- Large yacht type boats
- Mobile Homes, Modular Homes, Modular Buildings
- Aircraft

**If it is big or involves lots of debris**



## What is RISC? An FDOT Contract

- Managed at the FDOT District level
  - Incentives are funded and paid by FDOT
- ✓ An incentive for timely arrival of all equipment
- AND*
- ✓ For clearing the travel lanes (90 Minutes)



## RISC Equipment Requirements

- Two heavy-duty wreckers that are minimum 50 and 50/35 tons, one of which must be a rotator
- Maintenance of Traffic (MOT) Support Vehicle:
  - Cones, signs, arrow boards, absorbent, air tools, flood lights, etc.



## Equipment: Why Activate RISC?

### Additional equipment is standard deployment:

- MUTCD approved signs and stands (4)
- Generator - Light stands (4)
- Air Compressor - air tools
- Cut Saw and Cutting Torch
- Gas operated blowers
- 2X4s, nails, tarps, plastic stretch wrap
- Hand trucks (2), docking plate, pallet puller
- 200 lbs absorbent, trash can liners
- 60 additional 36" cones, 12 dozen flares
- Spill kits and numerous other items
- Fuel Pump

## Why Activate RISC?

### Rotation Wrecker

- Specific wrecker request (1 or 2 wreckers)
- If additional wreckers or equipment are needed after arrival, recovery stops or is delayed.

VS.

### RISC

- Two minimum rated 50 ton and 50/35 ton wreckers (one must be a rotator)
- and a Maintenance of Traffic (MOT) Support Vehicle
- and Traffic control and added equipment



## Why Activate RISC?

RISC is a “Total Package” that handles vehicles, cargo, debris, spills, traffic control, etc.

The **RISC** contractor is responsible for the “removal and clearance of ALL crash vehicles, cargo, debris, and non-hazardous vehicle fluids from all travel lanes.”

## RISC Activations

- Any decision to activate RISC should be supported by all involved agencies and on-scene responders
- If there is a question about the need for activation, it should be covered in an After-Action Review or TIM Team Meeting – Not at the scene of the incident



## Who Can Activate RISC?

- FHP Troop E
- Monroe County Sheriff's Office
- FDOT SunGuide TMC





**Felix Lopez**  
IM Program Manager

[Felix.Lopez@sunguide.info](mailto:Felix.Lopez@sunguide.info)

Office: 305-640-7353

Mobile: 305-606-2727

## Contact Information



**Rulx Belizaire**  
IM Coordinator

[Rulx.Belizaire@sunguide.info](mailto:Rulx.Belizaire@sunguide.info)

Desk: 305-640-7316

Mobile: 305-733-6060

# ALERT TODAY, ALIVE TOMORROW



# Thank You! Questions?

# FTE Emergency Management Plans

# Pre-storm Operations

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- Suspension of non-emergency work
- Increase Traffic Monitoring
- Increase Road Ranger patrols
- STARR wrecker plan deployment

# Pre-storm Operations

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- EOC Activation
- Fuel Monitoring and Plans
- Strike Teams



# Pre-storm Operations

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- Traffic Management Plans
- Toll Suspension
- ESU

# ESU Plan Overview

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- The Turnpike has two separate plans.
- Our Southern plan which runs from North of Boynton Beach to Osceola Parkway (MP 88-249)
- Northern plan which runs from SR 50 Winter Garden to US 301 Wildwood (MP 270-304).
- Both plans can run independently or simultaneously.
- Both plans on the Turnpike use the outside shoulder.
- We only have Northbound evacuation plans
- We do not have plans for returning traffic.

# Post-Storm Operations

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- Cut and Toss
- Damage assessment and recovery
- Strike Teams
- Re-entry Coordination



# TRAFFIC MANAGEMENT PLAN (TMP)

## OPERATIONAL PLAN

### FOR US 1 AT PALM DRIVE

Presented by: Saud Khan  
LAST UPDATE: 05/17/2021





## OPERATIONAL PLAN

The FHP, FDOT District 6 , FDOT T/Pike and Miami Dade County have developed a TMP to maximize the northbound traffic flow on US 1 thru the Palm Drive (SW 344<sup>th</sup> Street) intersection. This choke point if left unattended during a Keys evacuation could result in unsafe backups for evacuees. If this plan is implemented before the backup takes place it has a strong chance of preventing unnecessary delays. The plan is attached for reference. A contact list with the Names, Email, and Phone numbers of all staff for the current hurricane season is included in this plan.

The operational plan will define triggers, assign responsibility, identify team members and provide a sequence order of implementation.



- **MANAGEMENT**

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- **TRIGGER (S)**

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- **NOTIFICATIONS**

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- **PHASES**

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- **MONITORING MOT DEVICES**

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- **DURATION**

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- **EMERGENCY COORDINATING OFFICERS (ECO)**



The management team is responsible for the decision to implement Phase 1 of the TMP. They will take into consideration all available information (staff, time of day, special events, timing, and equipment availability) and make the decision to initiate Phase 1.

## COMMAND STAFF:

- FHP Troop E Miami-Dade County Commander
- FDOT District 6 Maintenance Engineer
- FDOT Turnpike Maintenance Engineer
- In addition to making the decision to implement the plan they will be responsible for notifying all other stakeholders under their area of responsibility of the activation.
- Also included in the Management Team Email group are members of FHP, Miami-Dade County and FDOT who will provide information and critical support in the event of a request.

## SUPPORT STAFF:

- Miami-Dade Miami-County Traffic Engineer
- FHP Troop E Miami-Dade County
- FHP Troop K Miami-Dade County Alternate
- FDOT District 6 South Dade Maintenance Engineer
- FDOT District 6 South Dade Operations Manager
- FDOT District 6 Emergency Coordinating Officer
- FDOT District 6 TMC Manager
- FDOT District 6 Monroe County EOC rep.
- FDOT District 6 Maintenance of Traffic Specialist
- FDOT Turnpike Emergency Coordinating Officer
- FDOT Turnpike TMC Manager

1. Mandatory Evacuation of any group or section of the Florida Keys.

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2. State, County, or Traffic Operations Request.





## NOTIFICATON

- **FDOT DISTRICT 6 MONROE COUNTY EOC LIAISON** will normally be the first person to become aware of an ordered or planed evacuation. The liaison will notify the Palm Drive TMP Management Team via email (or by phone if internet is unavailable). A contact list with the Names, Email, and Phone numbers of all staff for the current hurricane season is included in this plan.
- Upon receiving the request, members will first respond back to the liaison (as well as all others copied in on the original email) or other requestors that:
  - A) Have received the request
  - B) That they will relay the decision of the team as well as start time of the implementation of the TMP as soon as possible.
- If the requestor does not receive any receipt email within 15 minutes they shall contact members of the Team via phone until they reach a management team member.

An aerial photograph of a road intersection. A large red rectangular overlay is positioned in the center of the image, containing white text. The background shows a multi-lane road with a median, surrounding buildings, parking lots, and greenery. A blue banner at the top right contains the text 'PHASE 1 (ACTIVATION)'.

## PHASE 1 (ACTIVATION)

- The Miami- Dade County Traffic Engineer will have staff implement special signal timing and provide estimated time that this will begin.

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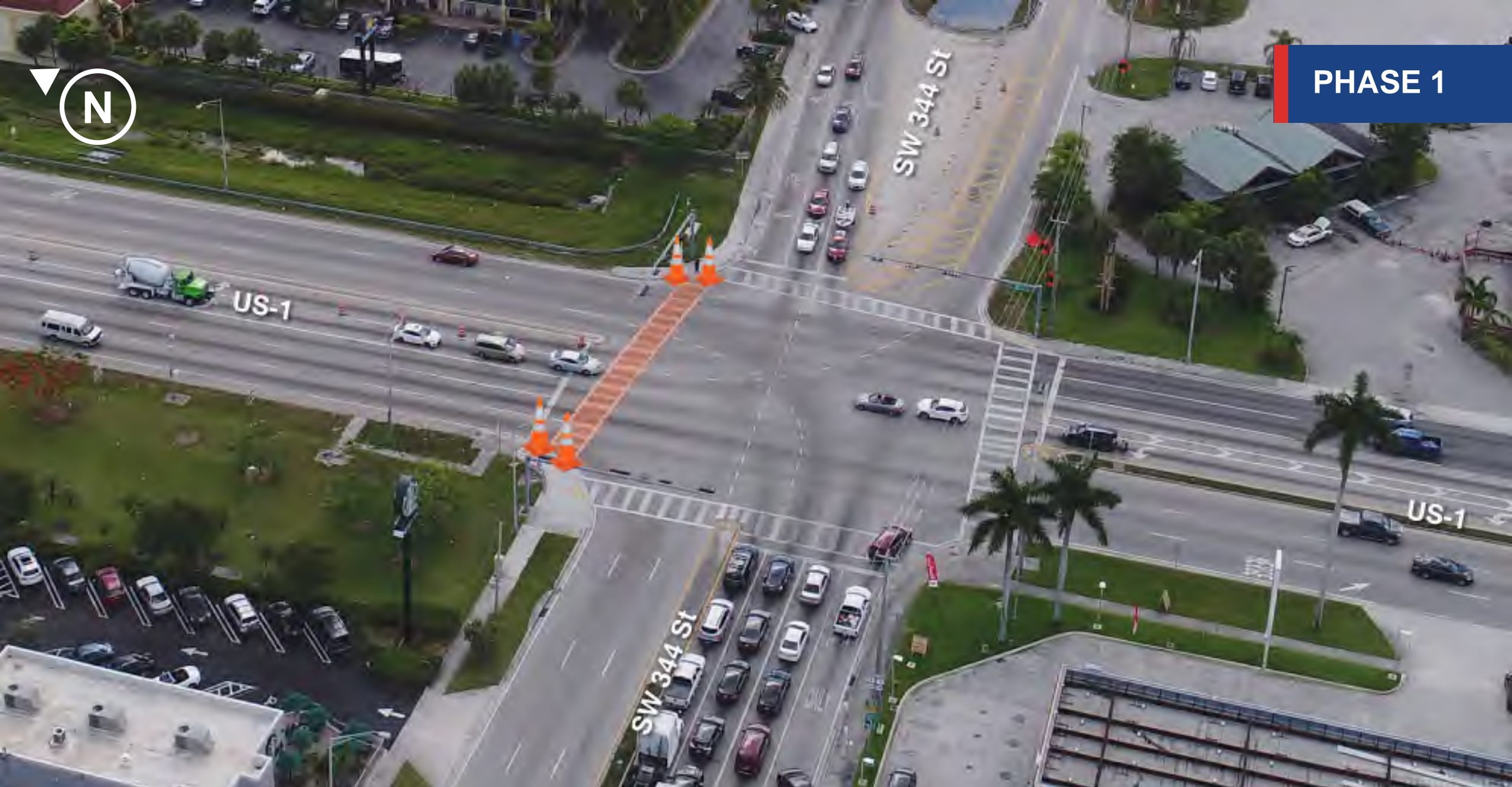
- FHP will assign and deploy staff to the site. They will notify the team of the name and contact information of the Officer in Charge (OIC) as well as estimated time of arrival.

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- FDOT D-6 Maintenance Staff will stage all needed MOT devices supplied by T/Pike to pre-determined locations.

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- FHP will monitor and evaluate the need to close the northbound left turn lane to Krome Avenue as per the plan.





## PHASE 2-6 (ACTIVATION)

- Activation of all additional phases is at the direction of the FHP OIC with Traffic Control Devices installed by FDOT staff.



Monitor the northbound left-turn lane at US 1 and Krome Avenue, If left turning vehicles spill onto the through lane affecting evacuation traffic flow, the north US 1 to north Krome Avenue left-turn lane shall be closed to traffic.

**REQUIRED MOT TO CLOSE TURN LANE**

Approximately 15 to 20  
Traffic Cones

Portable “No Left-Turn” Signs  
(R3-2) to be Placed in the  
Median (2 or 3 signs)





SW 167 Ave

SW 344 St

ROAD CLOSED

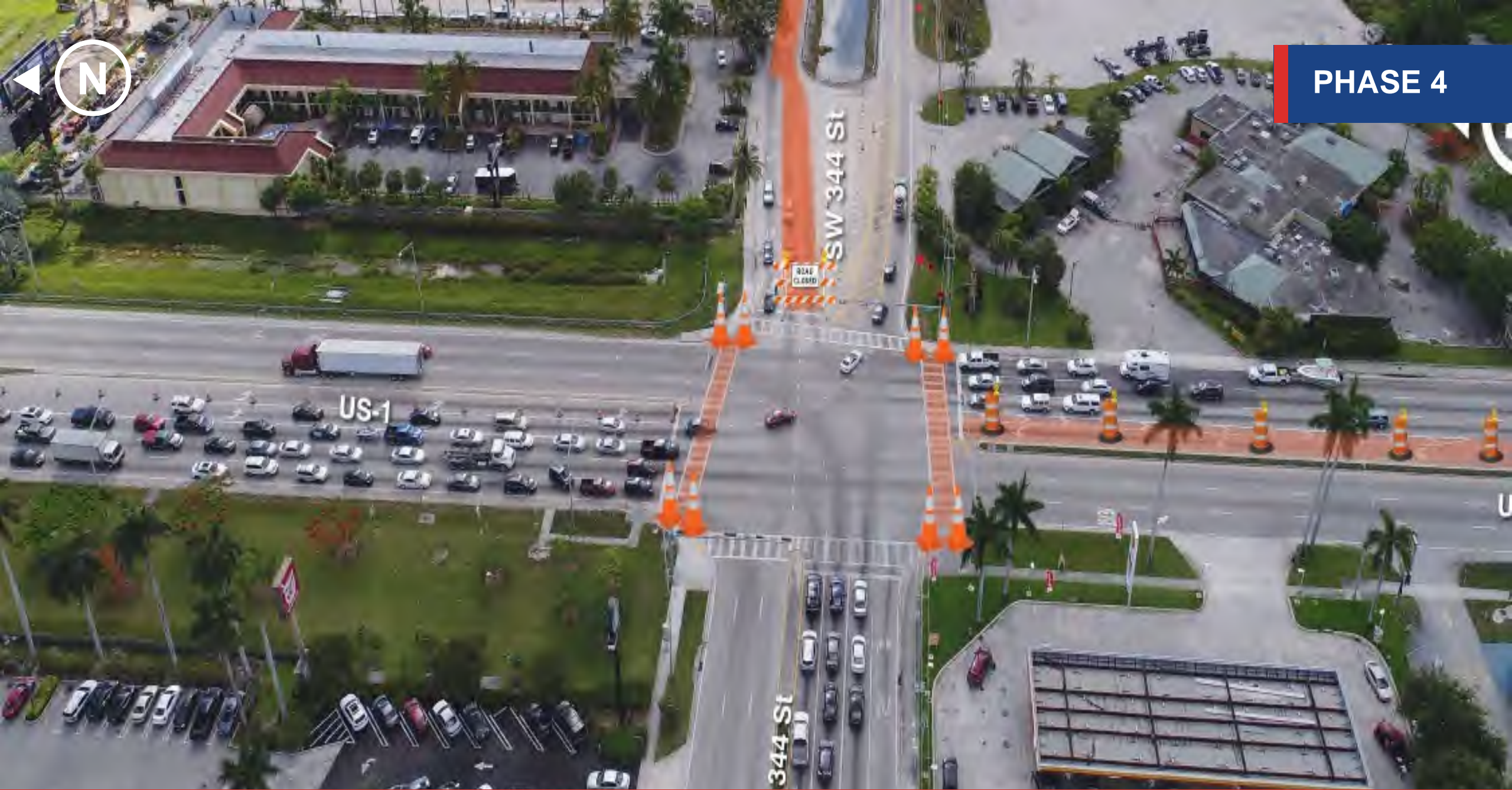
US-1



ELIMINATE TRAFFIC FROM EAST APPROACH AT THE US-1/PALM DRIVE INTERSECTION









**PHASE 5**



**PHASE 6**



- The FHP Troop E on site constantly monitor traffic conditions.

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- Miami Dade County, FDOT D6 TMC Manager and Florida Turnpike Manager will remotely monitor the Palm Drive intersection as well as the US-1 corridor. They will relay traffic conditions to the OIC as well as other management staff. FHP Troop E will also monitor on site.

## MOT DEVICES



- Supply and placement of Traffic Control Devices by the FDOT D-6 South Dade Maintenance Engineer (or designee).
- Additional support, if required, will be supplied by the Turnpike. The South Dade ME will provide the contact information of district field staff to the OIC as soon as it is known.



## DURATION



- The duration shall be decided by the command staff based on field observations as well as other factors. They will inform the entire Team of their decision. The signalization component of Phase 1 can run unattended and will be monitored remotely. OIC may also dispatch officers to monitor off-site.



## EMERGENCY COORDINATING OFFICERS

- The individual Emergency Coordinating Officers (ECO) will track the progress and report the status to State and outside agencies as needed. As well provide support as requested by the command staff.



# QUESTIONS?



**ferrovial**  
services

**Solutions for  
Traffic Incident Management  
Monroe County**



About Ferrovial Services:

- Founded in 1952 originally focus on railway projects
- Ferrovial's developments focuses on transportation infrastructure p  
mainly in the United States and Canada

E6M77 Contract Information

- 5 Year Contract – Start July 1<sup>st</sup> 2020

Asset Maintenance Scope of Services:

- Roadway
- Highway lighting, High Mast Light Poles & Utilities
- Weigh Station Maintenance
- Structures maintenance
- Traffic Signal Maintenance
- Vegetation maintenance
- Permit Coordination
- RCI administration

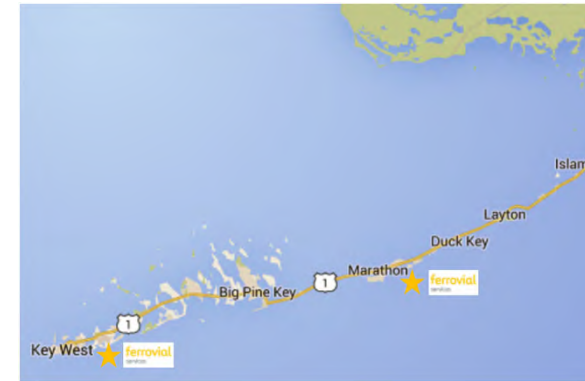
## Your Local Support Team:

### MANAGEMENT

- Patrick Cotter – Regional Manager
- Humberto ‘Bert’ Serrano – Project Manager
- Gabriel Guevara – Deputy Project Manager
- Joel Majgier – Operations Efficiency Manager
- Simon Gutierrez – New FDOT Project Manager for Monroe County

### FIELD OPERATIONS

- Jorge Giralt – Superintendent (North MM66-MM127)
- Richard Ugalde – Superintendent (South MM66-MM0)
- Juan China – Inspector (North)
- Dean Richardson – Inspector (South)
- 20 on staff asset maintenance technicians



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## TRAFFIC INCIDENT MANAGEMENT

Ferrovial Services promotes cohesive resources for Monroe county's response Teams to clear incidents and hazards from roadways expeditiously.

### HOW WE CAN HELP

- Long term/short term traffic control
- Debris removal
- Transportation infrastructure damage repairs

### OUR PROGRAMS AND PROTOCOLS

- Assist RISC deployments (Rapid Incident Scene Clearance)
- Assist SunGuide and dispatch
- Assist FHP & MCSO – Road Ranger
- CDC Guidelines for Covid19 – Responder facial covering and equipment disinfection

### OUR APPROACH

- **Strategic:** TIM Training, safe vehicle positioning, scene safety, traffic management, responder safety, quick clearance, prompt, reliable communications.
- **Tactical:** Policies and Procedures for Incident Response Clearance, avoid secondary crashes
- **Support:** Working with our partners (FDOT, Municipalities, FHP, MCSO, Motorist

CUSTOMER SERVICE REQUEST – INCIDENT ASSISTANCE PROTOCOL



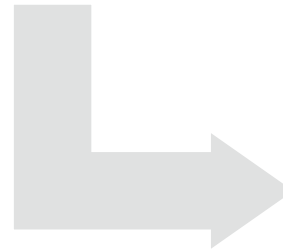
- **Customer Service Request** received:  
Ferrovial Services  
Phone/Email/\*Hotline  
for after hours)



- **Average 3mins** from call to action
- **Less than 20 mins** response time for MOT, incident assistance
- **18 Accidents** logged
- **6 MOT** this year



- **Dispatch** Customer Service Request to Superintendent \*Text and call to After Hours OnCall Team



- **Response Team deployed**; incident reported logged in Survey123 portal and Customer Service Request Log (Shared with FDOT)

Ferrovial Services

## HOT PHONE

### 24 Hour Emergency

Call to Report:

- ➔ Traffic Control
- ➔ FDOT property damage
- ➔ Roadway Hazards



## TRAFFIC INCIDENT MANAGEMENT

### CUSTOMER SERVICE REQUEST – Log examples:

The screenshot displays a web interface for managing customer service requests. At the top, there are tabs for "Message List" and "Change Message Query". Below this, there are several controls: a "Retrieve Messages" button, "Delivery Details" dropdowns (set to "Show only when Selected" and "Printable (PDF)"), and "Notes" dropdowns (set to "Show for all Messages"). Action buttons include "Download Checked Messages", "Check All", and "Uncheck All".

The main content area shows a message with the following details:

- 67) ID: 47881, THOMAS BRIETWEISE, June 27, 2021 09:42 AM EDT
- Micheal Kew West Police Dept
- 305-809-1000
- Mile Marker: 4
- Services Needed: A Car Hit The Light
- The Light Is Out.
- Caller ID: 3058091000

Below the message details, it states "Escalation cleared June 27, 2021 09:45 AM EDT (rizaguirre)".

A table of messages is shown below:

ID	Time	Message Content
0001.	Jun 27 09:42 AM EDT	FERROVIAL SERVICES Master ID 0000931345 MESSAGE SENT
0002.	Jun 27 09:43 AM EDT	Thomas Brietwiese Cell Phone OUTCALL: Outcall Success - Spoke Directly With THOMAS
0003.	Jun 27 09:45 AM EDT	Thomas Brietwiese Cell Phone OUTCALL: ESCALATION CLEARED

- Average 3mins from call to action
- Less than 20 mins onsite response time for MOT, incident assistance.
- 18 Accidents logged
- 6 MOT this year

# HURRICANE SEASON 2021

## 2021 June Monroe County TIM Meeting



Florida Department of  
**TRANSPORTATION**

*Improve Safety, Enhance Mobility, Inspire Innovation*

*Kennard "Chip" Kasper  
Meteorologist-in-Charge*

*Jon Rizzo  
Warning Coordination Meteorologist*



**Florida Keys**  
WEATHER FORECAST OFFICE

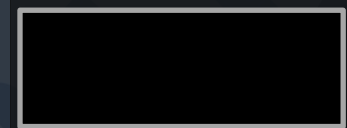


facebook.com/NWSKeyWest



@NWSKeyWest

<http://www.weather.gov/key>





# HURRICANE SEASON 2020

**\*\*\*6th straight year with at least one named storm prior to the official start of the Atlantic hurricane season**

**\*\*\*Most named storms in a 170 years of record keeping with 30, 14 hurricanes (7 major), and 22 storms had watches/warnings for land areas or made landfall**

**\*\*\*Most U.S. landfalls with 11, surpasses 9 back in 1916**

**5 tropical storms (Bertha, Cristobal, Fay, Beta, Eta (2))**

**6 hurricanes (Hanna, Isaias, Laura, Sally, Delta, Zeta)**

**4 landfalls in Louisiana (TS Cristobal, H Laura, H Delta, H Zeta)**

**8 landfalls along the Gulf Coast (Cristobal, Hanna, Laura, Sally, Beta, Delta, Zeta, Eta)**

**\*\*\*Only the second time on record having 5 or more tropical cyclones at the same time**

**\*\*\*Tied with 1886 and 1985 for the most hurricane landfalls in season for the U.S.**



**Florida Keys**  
WEATHER FORECAST OFFICE

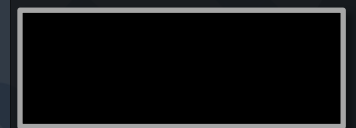


<http://www.weather.gov/key>

[facebook.com/NWSKeyWest](https://www.facebook.com/NWSKeyWest)

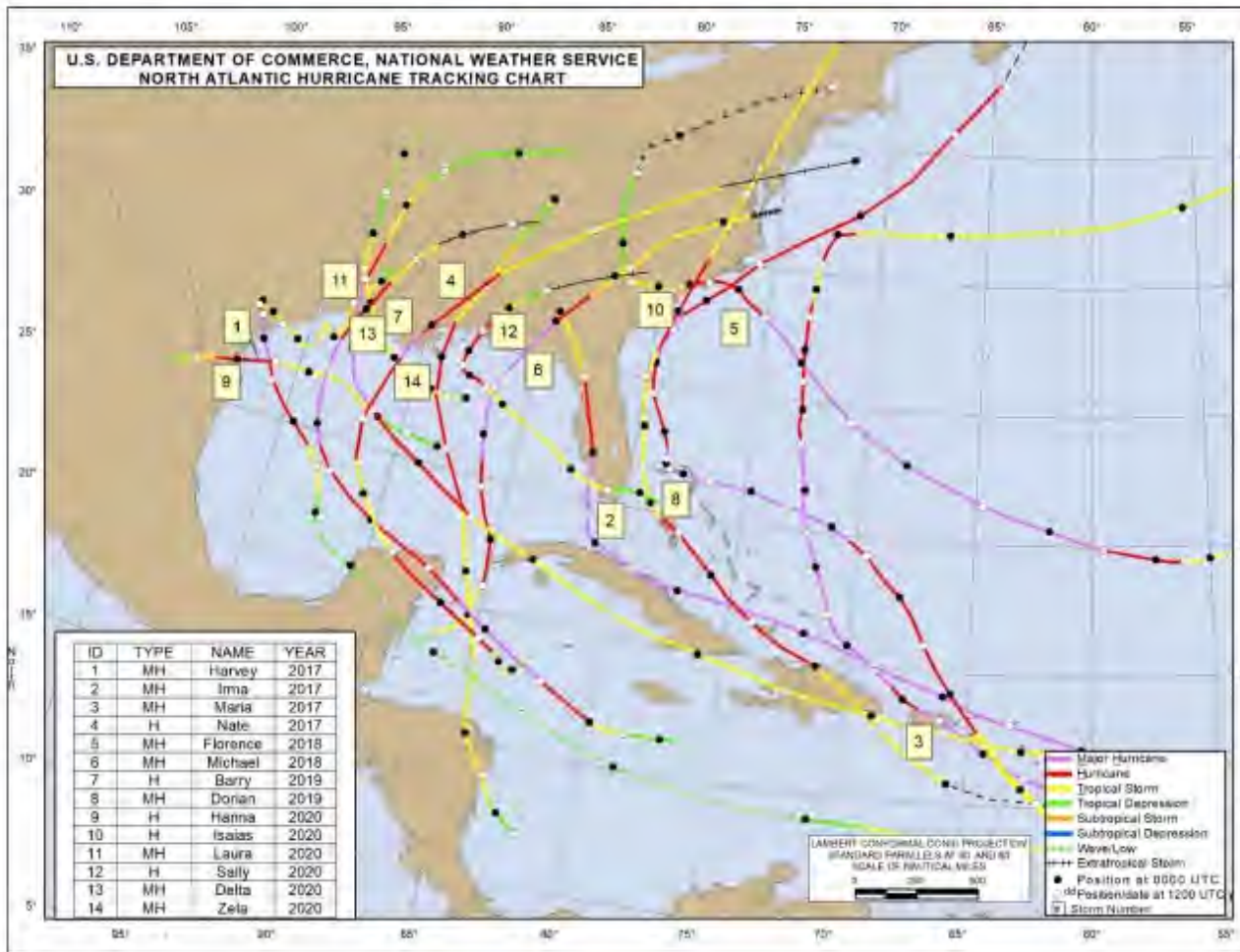


[@NWSKeyWest](https://twitter.com/NWSKeyWest)





# Yes, it has been active



• **14** hurricanes have made landfall in the U.S. since 2017 (6 were major)

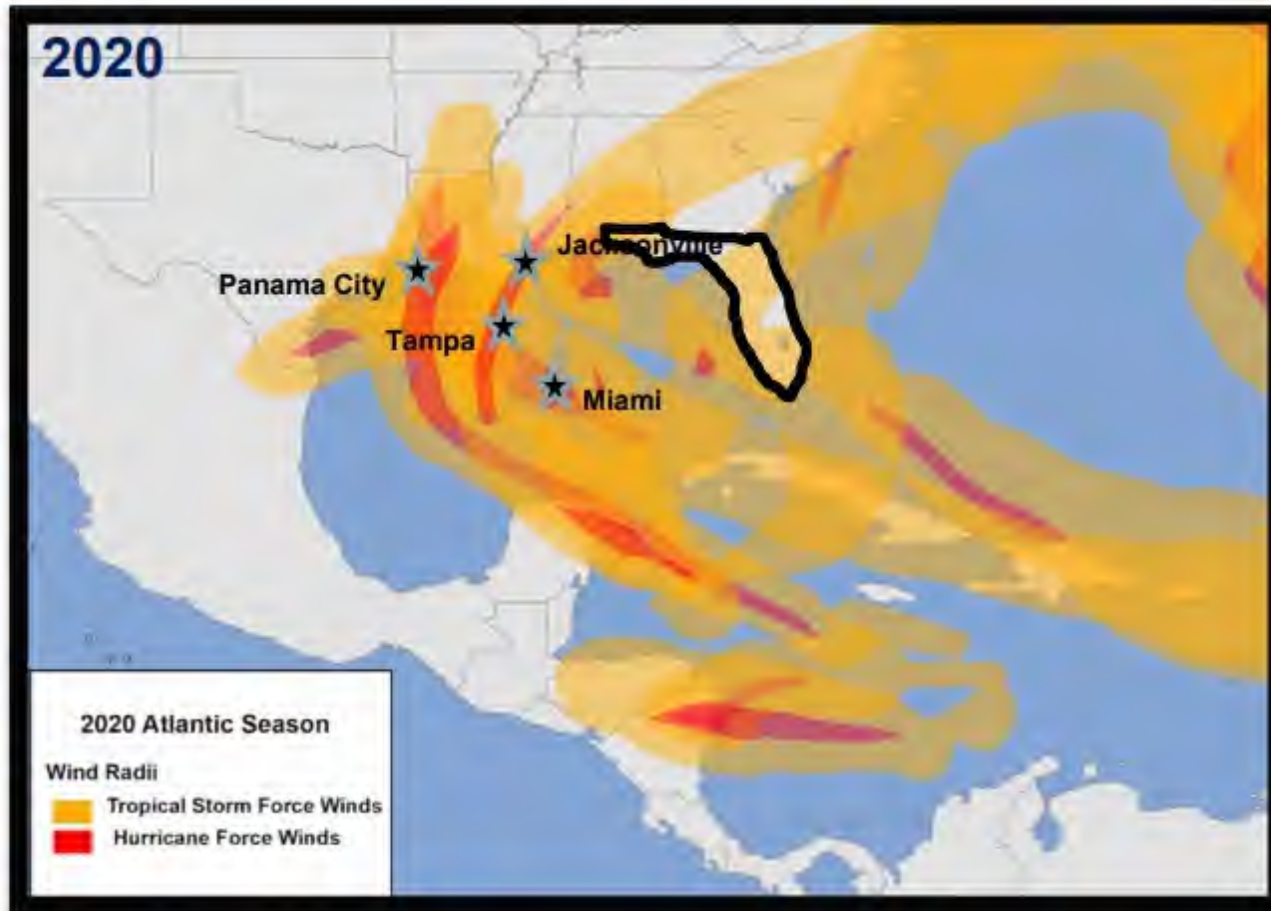
• Total U.S. Damage:  
• **\$353 Billion**

• Number billion dollar storms:  
• **12**

• Number 10 billion dollar storms:  
• **6**



# Florida, what if?



# HURRICANE SEASON 2021


*In the event that more than 21 named tropical cyclones occur in the Atlantic basin in a season, any additional storms will take names from this alternate list of names approved by the World Meteorological Organization:*

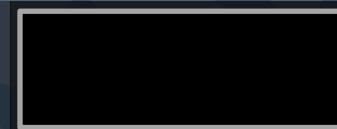
Adria	Lucio
Braylen	Makayla
Caridad	Nolan
Deshawn	Orlanda
Emery	Pax
Foster	Ronin
Gemma	Sophie
Heath	Tayshaun
Isla	Viviana
Jacobus	Will
Kenzie	



**Florida Keys**  
WEATHER FORECAST OFFICE



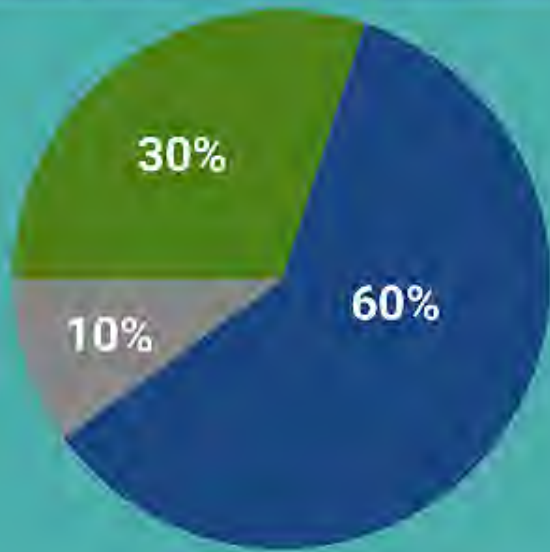
<http://www.weather.gov/key>  
[facebook.com/NWSKeyWest](https://www.facebook.com/NWSKeyWest)  [@NWSKeyWest](https://twitter.com/NWSKeyWest)



# HURRICANE SEASON 2021



## 2021 Atlantic Hurricane Season Outlook



■ Above-normal ■ Near-normal ■ Below-normal season

Season probability

Named storms

13-20

Hurricanes

6-10

Major hurricanes

3-5

NOAA

Be prepared: Visit [hurricanes.gov](http://hurricanes.gov) and follow @NWS and @NHC\_Atlantic on Twitter.

May 2021



**Florida Keys**  
WEATHER FORECAST OFFICE



[facebook.com/NWSKeyWest](https://www.facebook.com/NWSKeyWest)



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<http://www.weather.gov/key>

# The Hurricane "Threat" - Hazards



**Damaging  
Sustained  
Winds**



**Storm Surge**



**Tornadoes/  
Waterspouts**



**Flooding  
Rain**



**Powerful  
Waves,  
Current,  
Surf**



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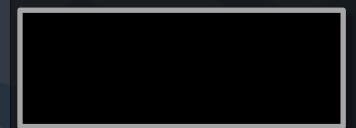
[http://www.weather.gov/key](https://www.weather.gov/key)  
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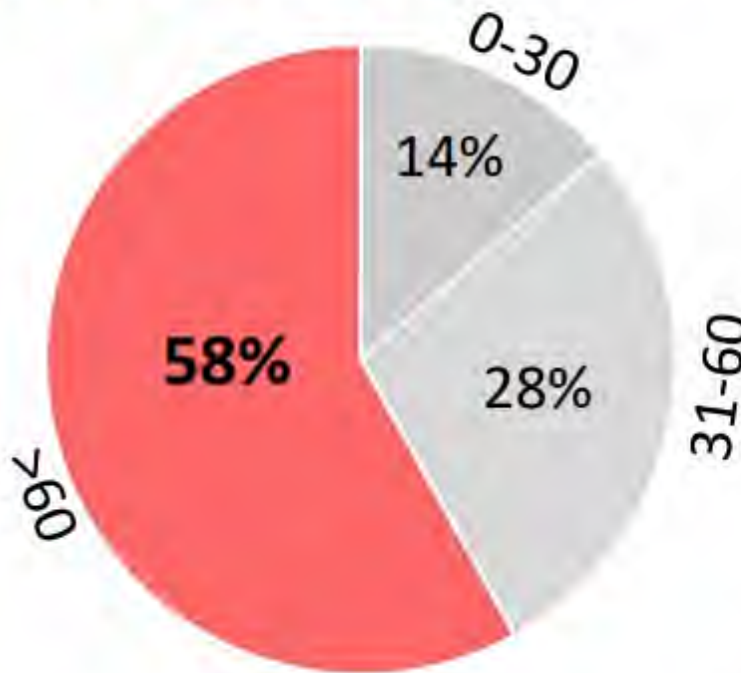
# The Hurricane “Threat” – other facets

- Every landfalling hurricane produces a unique “footprint”.
- Forecasts are imperfect.
- Separating your true **RISK** from the **NOISE** is difficult, and both are constantly changing.



# Indirect Fatalities

“The storm is past me, I’m safe now”



1963-2012 indirect deaths (heart attacks, power problems (e.g., no A/C, lights, medical equipment), etc.). Outnumber direct deaths in some storms.

Based on Rappaport and Blanchard (2016)

8 *times* as many victims age over 60 as under 21 years old

Rappaport and Blanchard, 8/1/2015



# Hurricane Irma Fatalities - 17

Source: Monroe County Medical Examiner



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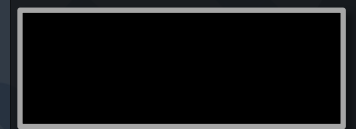


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# Hurricane Irma Fatalities - 17

Source: Monroe County Medical Examiner

**DROWNING: 3**



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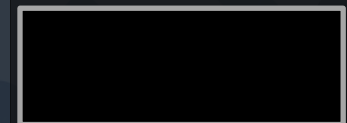


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# Hurricane Irma Fatalities - 17

Source: Monroe County Medical Examiner

**DROWNING: 3**

**PHYSICAL ALTERCATION: 1**



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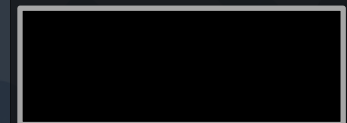


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# Hurricane Irma Fatalities - 17

Source: Monroe County Medical Examiner

**DROWNING: 3**

**PHYSICAL ALTERCATION: 1**

**MOTOR VEHICLE ACCIDENT: 1**



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# Hurricane Irma Fatalities - 17

Source: Monroe County Medical Examiner

**DROWNING: 3**

**PHYSICAL ALTERCATION: 1**

**MOTOR VEHICLE ACCIDENT: 1**



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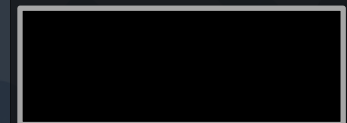


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# Hurricane Irma Fatalities - 17

Source: Monroe County Medical Examiner

**DROWNING: 3**

**PHYSICAL ALTERCATION: 1**

**MOTOR VEHICLE ACCIDENT: 1**

**CLEANING UP DEBRIS: 1**



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# Hurricane Irma Fatalities - 17

Source: Monroe County Medical Examiner

**DROWNING: 3**

**PHYSICAL ALTERCATION: 1**

**MOTOR VEHICLE ACCIDENT: 1**

**CLEANING UP DEBRIS: 1**

**ACCIDENTAL SLIP/FALL: 1**



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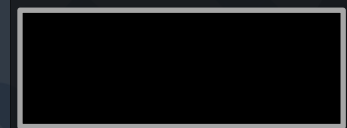


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# Hurricane Irma Fatalities - 17

Source: Monroe County Medical Examiner

**DROWNING: 3**

**PHYSICAL ALTERCATION: 1**

**MOTOR VEHICLE ACCIDENT: 1**

**CLEANING UP DEBRIS: 1**

**ACCIDENTAL SLIP/FALL: 1**

**UNDERLYING MEDICAL: 10 (2 of which involved falls)**



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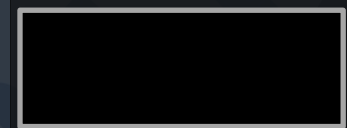


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# Hurricane Irma Fatalities - 17

Source: Monroe County Medical Examiner

**DROWNING: 3**

**PHYSICAL ALTERCATION: 1**

**MOTOR VEHICLE ACCIDENT: 1**

**CLEANING UP DEBRIS: 1**

**ACCIDENTAL SLIP/FALL: 1**

**UNDERLYING MEDICAL: 10 (2 of which involved falls)**

**DEMOGRAPHICS: 13 aged 55+ (range 47 - 87); 14 male;**



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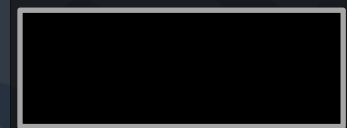


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# Indirect Fatalities

- Hurricane Laura: 7 Direct Fatalities (Wind 5, 2 Rip Current)  
34 Indirect Fatalities (16 from carbon monoxide)
- Since 2017: 14 Hurricane Landfalls, 6 Were Major Hurricanes  
7 Storm Surge Fatalities
- Preliminary 2020: 46 Direct Fatalities (Rip Currents 16, Wind 14, Freshwater 9, Marine 3, Surge 2, Tornado 2) 51 Indirect, with at least 19 carbon monoxide.

Historically, storm surge is the leading cause of fatalities in tropical systems.





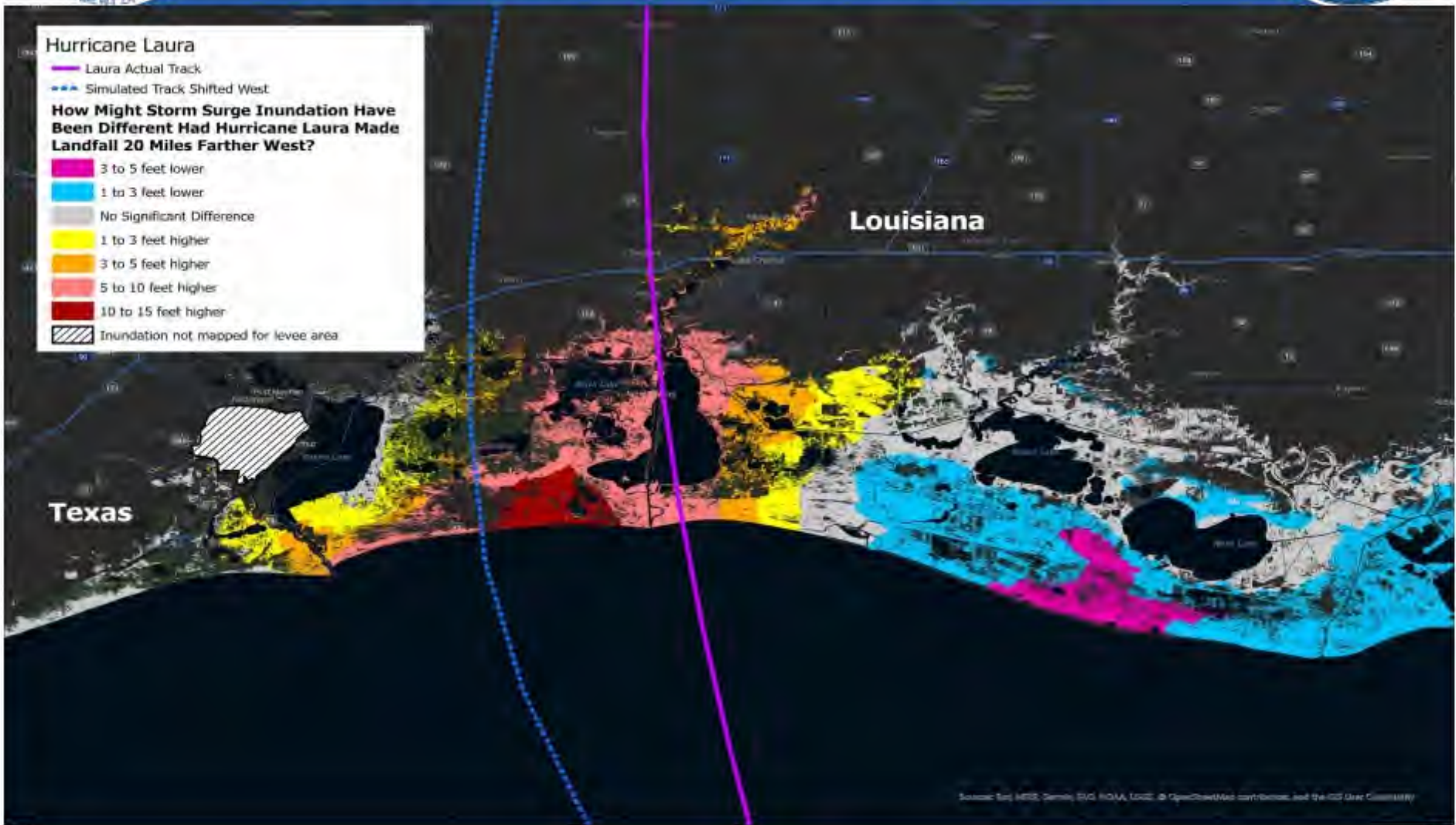
# Little Wiggles Matter

**Hurricane Laura**

- Laura Actual Track
- Simulated Track Shifted West

**How Might Storm Surge Inundation Have Been Different Had Hurricane Laura Made Landfall 20 Miles Farther West?**

- 3 to 5 feet lower
- 1 to 3 feet lower
- No Significant Difference
- 1 to 3 feet higher
- 3 to 5 feet higher
- 5 to 10 feet higher
- 10 to 15 feet higher
- Inundation not mapped for levee area

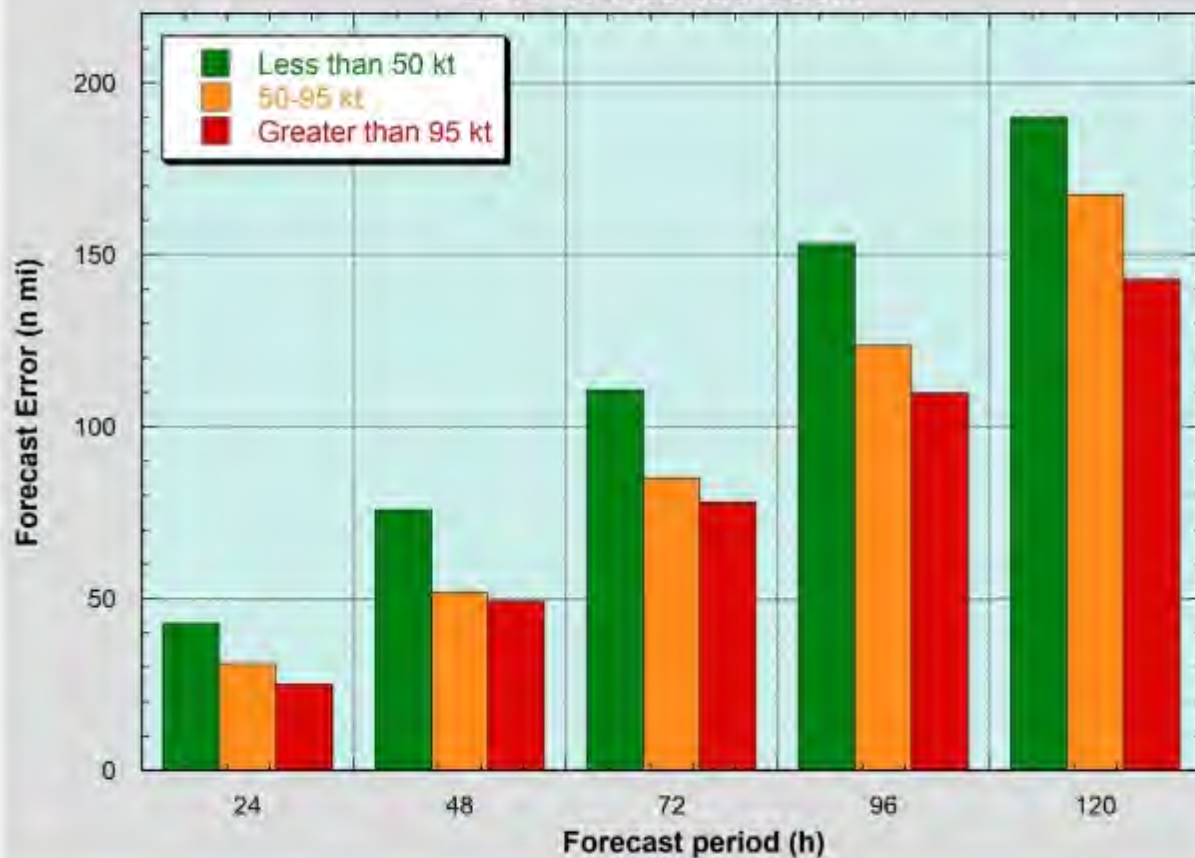


Source: Sea, Wind, Storm, Surge, NOAA, NOAA, © OpenStreetMap contributors, and the GIS User Community



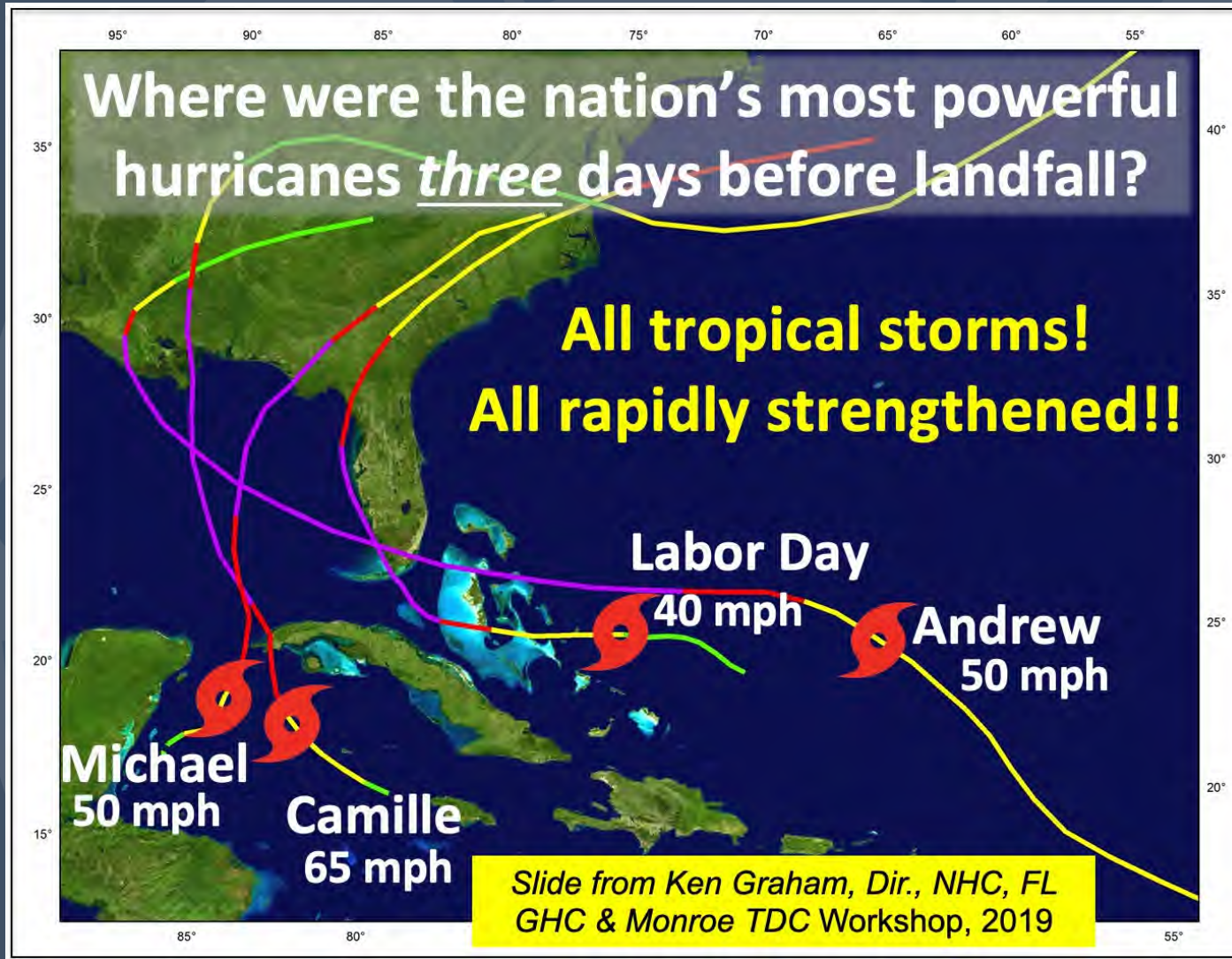
# Every Storm Is Different

**NHC Official Track Forecast Errors by Intensity  
2015-19 Atlantic Basin**



**As the initial intensity of the storm increases, NHC average track error gets smaller!**

# Four Category 5 United States Landfalls



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# Four Category 5 United States Landfalls



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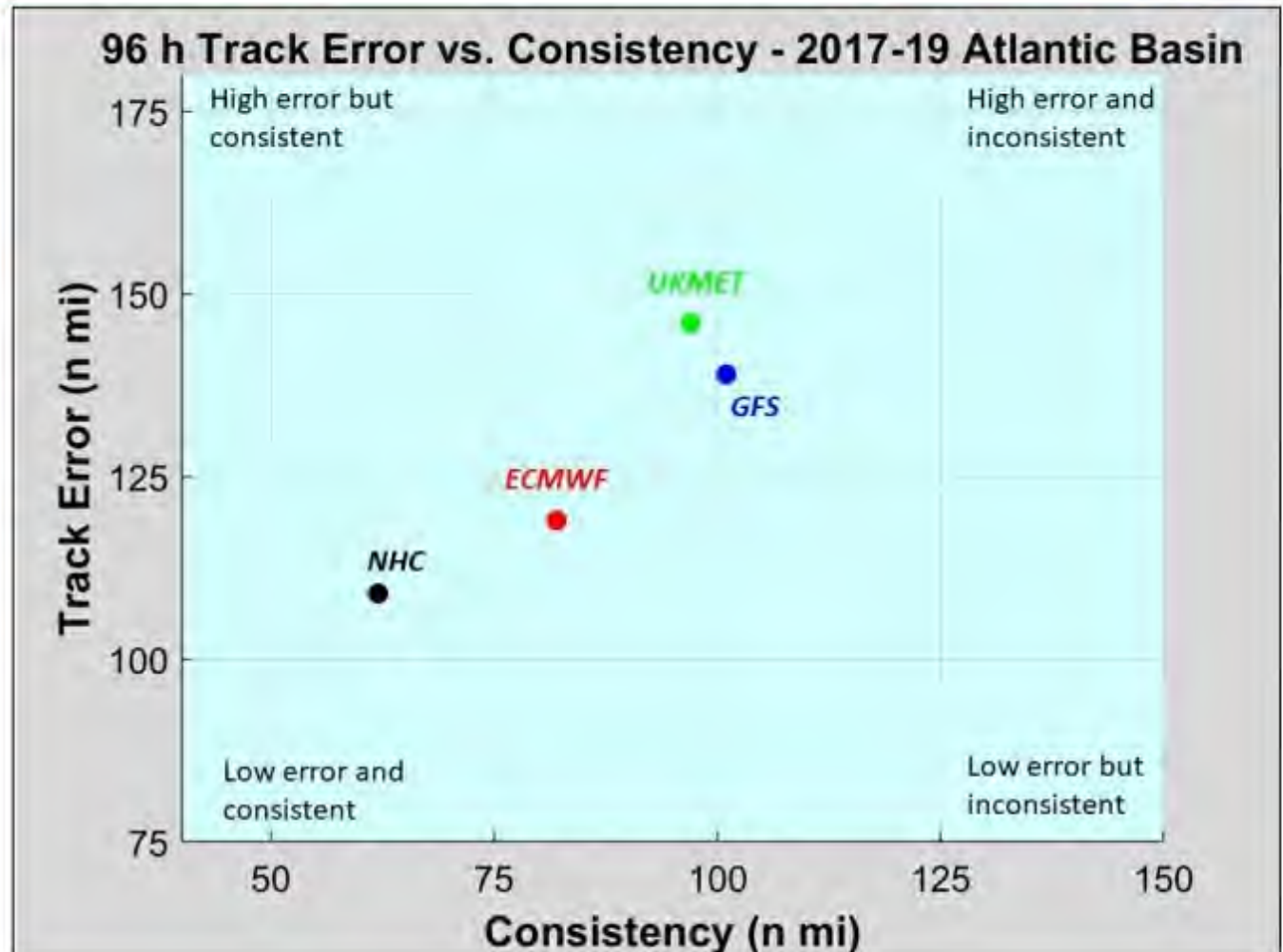


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# Deterministic Concerns

The forecast from NHC has a lower average track error and is more consistent than any individual model overall



# Forecast Accuracy

## Forecast Models



*Be careful looking at one run of one model. We are looking at more than 50!*





# *Local NWS Web Sites:*



**Florida Keys National Weather Service:**

<https://www.weather.gov/key/>

**Florida Keys Tropical Webpage:**

<https://www.weather.gov/srh/tropical?office=key>

**Florida Keys Tropical Cyclone History:**

<https://www.weather.gov/key/hurricanehistory>



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# NWS Operations & Services

(Hurricane Season)

## Florida Keys Tropical Webpage:

<https://www.weather.gov/srh/tropical?office=key>

- **One-Stop Shop** for all tropical related local forecast information
- **Active Storms** tab becomes active when NHC initiates Tropical Cyclone advisories

NATIONAL WEATHER SERVICE  
NWS Southern Region Tropical Webpage  
Southern Region Headquarters  
Local Forecast Offices A-1 Local Forecast Offices B-2 Area Forecast Centers Center Weather Service Units Regional HQ  
NWS Key West homepage Provide Feedback on this Webpage

Outlook Threats and Impacts Satellite Radar Social Media Preparedness Links

There are currently no active storms in the North Atlantic, Caribbean Sea, or Gulf of Mexico.

Two-Day Graphical Tropical Weather Outlook  
National Hurricane Center Miami, Florida

Five-Day Graphical Tropical Weather Outlook  
National Hurricane Center Miami, Florida

Special Tropical Weather Outlook  
NWS National Hurricane Center Miami, FL  
955 AM EST Tue Dec 1 2020

For the North Atlantic...Caribbean Sea and the Gulf of Mexico:  
A gale-force, non-tropical low pressure system is centered between the Madeira islands and the Azores. This system has become less organized during the past 24 hours, and environmental conditions are expected to become less conducive for development as the system moves southward during the next day or two. Although subtropical development is not unlikely, this system will continue to produce strong winds and locally heavy rains in the Madeira



Florida Keys  
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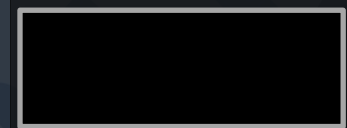


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# Coping With Hurricane Season

**5** THINGS TO KNOW ABOUT  
WHERE TO GET HURRICANE INFO



**1** Television - Tune in to your trusted local news source.

**2** Phone - Access [mobile.weather.gov](http://mobile.weather.gov) on your mobile phone and get Wireless Emergency Alerts.

**3** Radio - Receive forecast information and news on your NOAA Weather Radio.

**4** Social Media - Follow official government agencies, trusted media partners, and share critical info with friends and family.

**5** Computer - Access information from [weather.gov](http://weather.gov), [ready.gov](http://ready.gov) and [flash.org](http://flash.org).

For more Hurricane Safety Information, visit [weather.gov/hurricanesafety](http://weather.gov/hurricanesafety)

Use Trusted Sources  
for information.

<http://weather.gov/key>  
<http://hurricanes.gov>



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# Beware False Weather Information

## Trusted sources are mimicked

- Including: fake headlines, content, and graphics

## Expect fake weather information with significant weather events:

- before (usually sensationalized model or forecast info),
- during (regurgitated old events),
- immediately after significant events (manipulated images)

## Fake information typically appears in the form of:

- sensationalized worst case scenarios,
- “hijacked” credible sources,
- the sharing of old images and manipulated graphics

## Be able to identify fake weather information:

- Does the image make sense? (I.E., the right season/time, or geographic area, posted by a new account? Can it be validated through a web search?)

## STOP THE SPREAD OF FALSE WEATHER INFORMATION

- False weather information can go viral & impact decisions people make regarding their own safety & the safety of their families.



Example of “hijacked” credible source using NOAA logo



# BEFORE...



Call  
(305) 295-1316

CH: 2 or CH: 5  
102.4MHz FM 102.4MHz FM

# WEATHER INFO

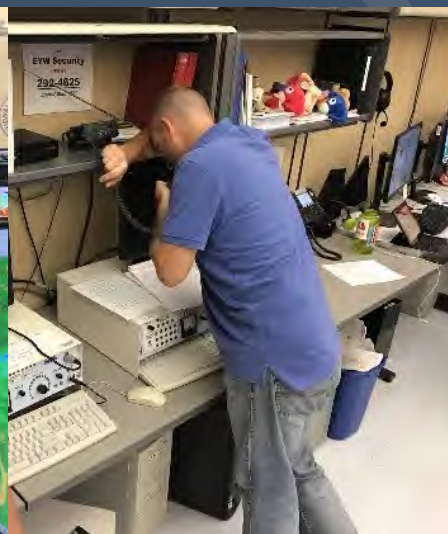
US National Weather Service Key West Florida

Scan here to visit our website: [weather.gov/key](http://weather.gov/key)

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# DURING...



# AFTER...



Call (305) 295-1316

CH: 2 or CH: 5  
123.456 MHz 123.457 MHz

**WEATHER INFO**

US National Weather Service Key West Florida

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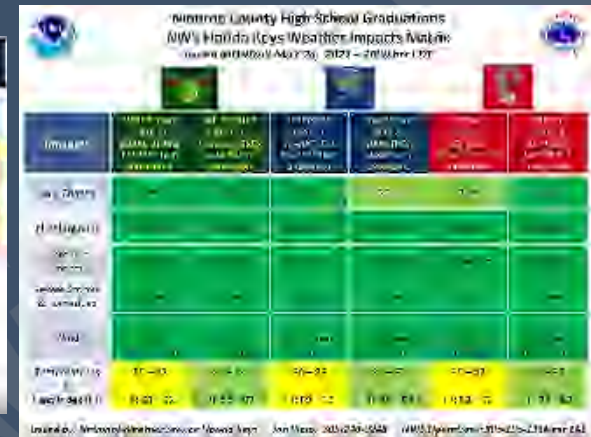
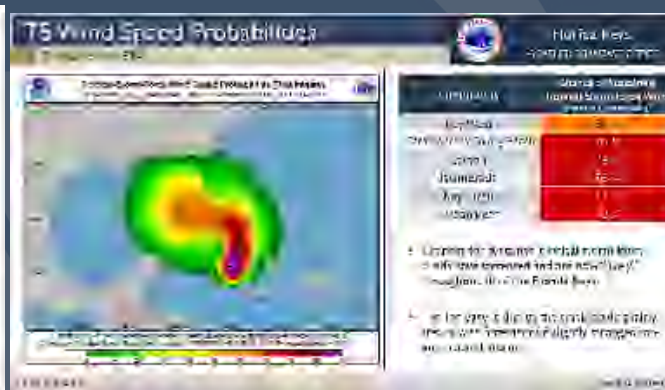


# NWS Support to Core Partners:



## Impact-Based Decision Support Services:

- Telephone Consultations
- E-mail Briefings
- “Spot” Forecasts
- Training
- Deployments (EOCs, Command Centers)



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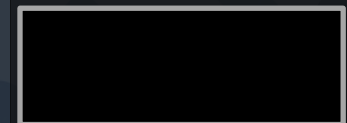


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# Hurricane Preparedness

**Hurricane Preparedness**  
**DETERMINE YOUR RISK**



Hurricanes bring many hazards to U.S. coastlines and inland areas, including storm surge along the coast, inland flooding due to heavy rainfall, tornadoes, strong wind, rip currents and large waves.

- Storm surge
- Strong winds
- Tornadoes
- Inland flooding
- Rip currents

weather.gov/hurricane

**Hurricane Preparedness**  
**DEVELOP AN EVACUATION PLAN**



Find out today if you live in a hurricane evacuation zone and identify trusted sources for receiving evacuation orders. Plan for multiple options on where to go and how to get there. Have a go bag for supplies and a plan for your pets. Be prepared to leave immediately if ordered to evacuate.

- Find out if you live in an evacuation zone
- Plan several routes
- Have a go bag for supplies
- Plan for your pets
- Follow evacuation orders if given

weather.gov/hurricane

**Hurricane Preparedness**  
**ASSEMBLE DISASTER SUPPLIES**



Make a list of supplies and assemble them before hurricane season begins. Have enough food and water for each person for at least three days. Fill your prescriptions and have medicine on hand. Radios, batteries and phone chargers are also must-haves. Gas up your vehicle and have cash on hand.

- Food & water
- Medicine & prescriptions
- Keep gas tank full
- Radio, batteries, phone chargers
- Cash on hand

weather.gov/hurricane

**Hurricane Preparedness**  
**GET AN INSURANCE CHECKUP**



Check in with your insurance agency before hurricane season. Remember that flood insurance must be obtained separately. Prepare your home and vehicles according to your policy. Know where your insurance documents are located and take them with you if evacuating. Visit [floodsmart.gov](http://floodsmart.gov) for more.

- Check with your agent
- Keep documents with you
- Know your policy
- Consider flood insurance

weather.gov/hurricane

**Hurricane Preparedness**  
**STRENGTHEN YOUR HOME**



There's a lot you can do around your home to help protect it from hurricane winds. Before hurricane season, trim trees on your property and get approved window coverings. Ahead of storms, collect loose outdoor items, secure all doors on your property, and find a safe location for your vehicle.

- Cover windows
- Secure loose outdoor items
- Trim trees
- Move vehicle to a safe location
- Secure all doors

weather.gov/hurricane

**Hurricane Preparedness**  
**HELP YOUR NEIGHBOR**

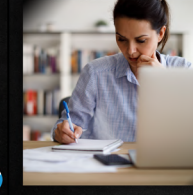


Many people, especially senior citizens, rely on the assistance of neighbors before and after hurricanes. Help your neighbors collect the supplies they'll need before the storm. Assist them with evacuation if ordered to do so, or check on them after it's safe for you to head outside.

- Help your neighbors prepare
- Help your neighbors evacuate
- Check in after the storm passes

weather.gov/hurricane

**Hurricane Preparedness**  
**COMPLETE A WRITTEN PLAN**



Writing down your hurricane plan will help you avoid mistakes during an emergency, and ensure everyone in your home is prepared for the storm. Have a list of essential contacts, including outside the potential impact area. Review and practice your plan with your family and friends.

- Have a contact list (family, friends, doctor, vet, utilities)
- Keep your important documents together for quick access
- Have at least one contact outside of the impact area
- Share your plan

weather.gov/hurricane

[www.weather.gov/wrn/hurricane-preparedness](http://www.weather.gov/wrn/hurricane-preparedness)

# Florida Tropical Topics Recorded Webinars

**Florida Tropical Training - 2021**  
Weather.gov > Tallahassee, FL > Florida Tropical Training - 2021

**Tallahassee, FL**  
Weather Forecast Office

**Florida Tropical Training (2021)**

The National Weather Service Offices that cover Florida offered tropical training sessions for emergency managers and the media during the week of May 17. This training covered information from the National Hurricane Center and the Florida Division of Emergency Management, in addition to the four main hazards associated with tropical systems.

Overview   Recordings   Additional Resources

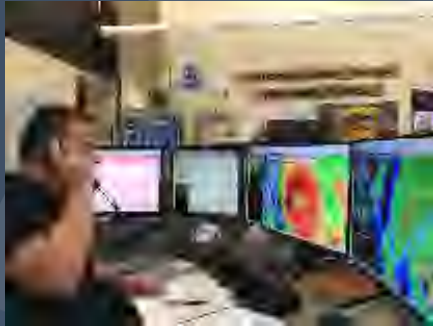
**Tropical Topics Week May 17-21**  
*Daily 2 pm Webinars (1 to 1 1/2 hour duration)*

Day	Topic	Content
Monday, May 17	NHC & FDEM News	National Messaging & NHC Director Ken Graham, FDEM Director Kevin Guthrie
Tuesday, May 18	Wind Threat	Threat Recognition, Impacts & Messaging
Wednesday, May 19	Surge Threat	Threat Recognition, Impacts, Messaging & Vulnerability
Thursday, May 20	Rainfall Threat	Threat Recognition, Impacts, Messaging
Friday, May 21	Tornado Threat	Threat Recognition, Impacts, Messaging

**NWS FLORIDA TEAM**

[https://www.weather.gov/tae/2021\\_Florida\\_Tropical\\_Training](https://www.weather.gov/tae/2021_Florida_Tropical_Training)

# Stay Aware, and Be Prepared!



*kennard.kasper@noaa.gov*  
*305-295-1316 x222*  
*305-304-6712*



*jonathan.rizzo@noaa.gov*  
*305-295-1316 x223*  
*305-240-0248*



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