



Florida Department of Transportation District Six
Transportation Systems Management & Operations
1001 NW 111th Ave, Miami, FL 33172
(305) 470-5757 • SunGuide.info



Monroe Traffic Incident Management (TIM) Team Meeting

FDOT District Six

Operational and Planning Strategies

- Updated Annually
- Policy Activities
 - Identification of TSM&O Critical Staff
 - Backup TMC Locations
- Implementation Activities
 - Photo Database of Field Hub Sites
 - Procurement of Severe Weather Supplies
 - Road Ranger Staging Requirements



Florida Department of Transportation District Six

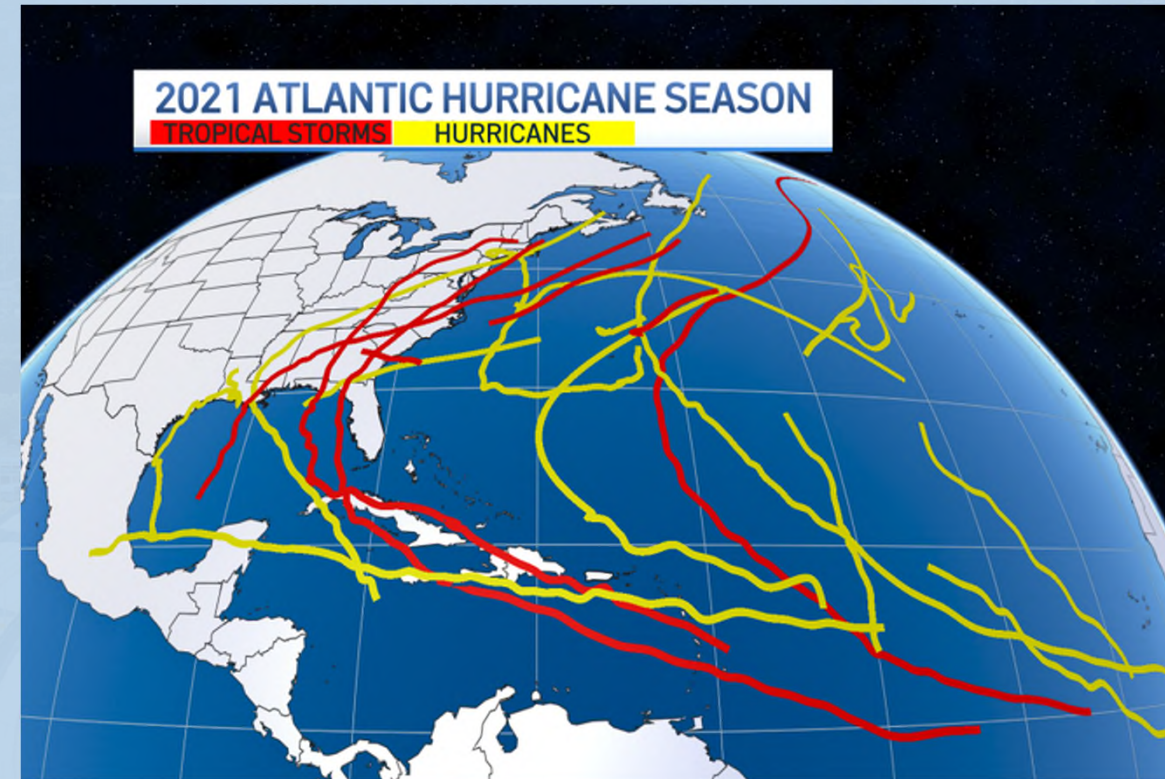
Hurricane Response Action Plan
(HRAP)



May 2022
Version 14

Before the Storm

- FDOT Emergency Operations Center (EOC) and Local Law Enforcement Coordination
- Coordination with Traffic Signal Systems
 - Monroe County Traffic Signal System
 - Miami-Dade County Traffic Signals and Signs
- Dissemination of Information
 - Dynamic Messages Signs (DMSs)
 - Florida 511 (Website and Mobile App)
 - Emails
- Incident Management Support as Needed
- ITS Maintenance Contractor Coordination
 - Fuel for Backup Generators
 - Spare Parts Inventory

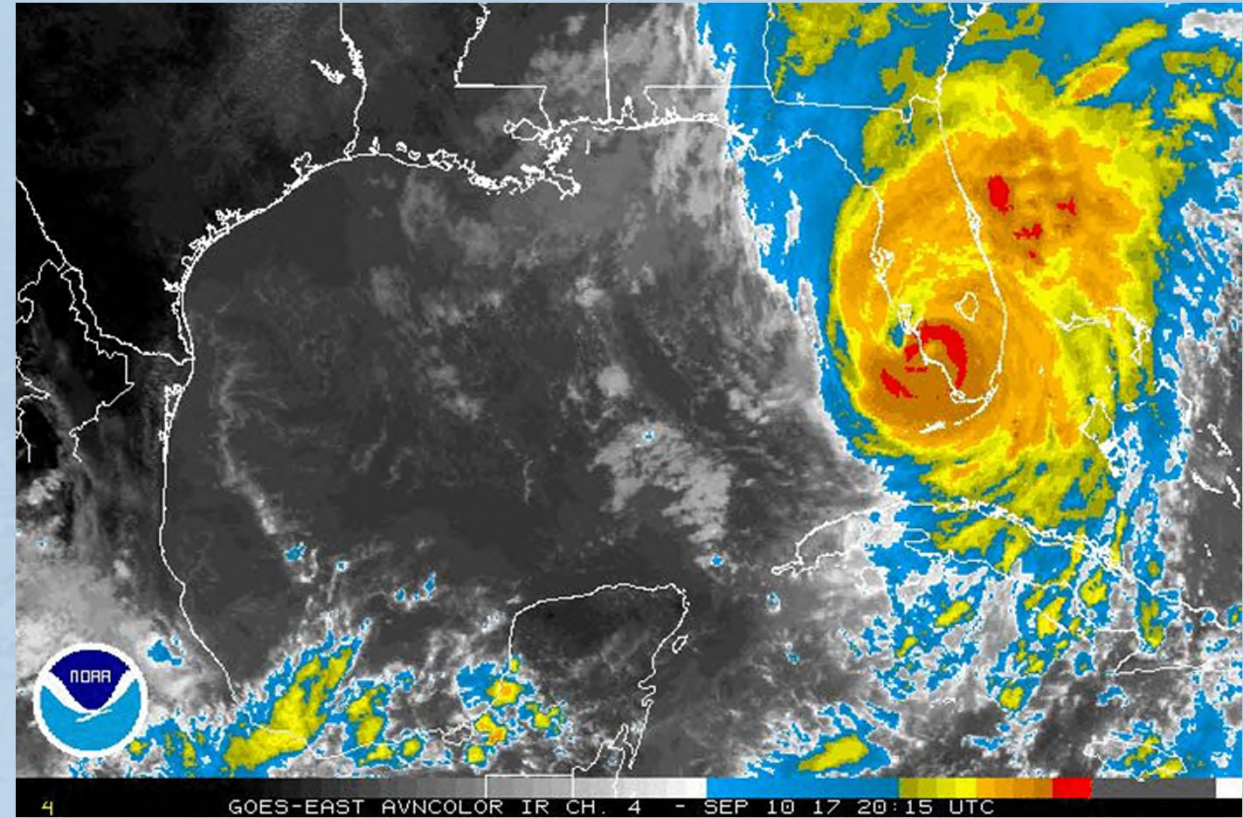


**FLORIDA KEYS
RESIDENTS
EVAC UNDERWAY**

- 35+ MPH Sustained Winds
- TMC Evacuates for Category 3+
- Backup Location - FTE Turkey Lake
- Hourly Updates with EOC
- Checking ITS Devices and Monroe County Traffic Signals System (MCTSS)



TMC Backup Location - FTE Turkey Lake



- Below 35 MPH
- Inventory and Situational Awareness of ITS and MCTSS Devices
- Reestablish Power As Needed
- Checking Communications with ITS Staff
- Incident Management Support as Needed



Wireless Cellular to Microwave

- 100% Devices
- Mile Marker 4 to 127
- Improved Reliability
- High Bandwidth



Details

- February 17, 2022
- Lock Bar Stuck
- Malfunction - 11:55 AM to 1:34 PM
- Heavy Congestion

After-Action Review Meeting

Lessons Learned:

- Notification Sequence
- Fixed and Moveable Bridges

Best Practices:

- MCSO Escort
- Temporary Repair of Sub-marine Cable



Pedestrian Bridge Collapse

- April 14, 2022
- Mile Marker 11
- Structural Issues
- Monroe County Sheriff's Office Detected
- Ferrovial Services Assisted
- Florida Department Environmental Protection



18 Mile Stretch Southbound

- April 26, 2022
- Pickup Truck Fire
- Southbound (SB) Near MM 125
- SB Closed at 4:30 PM
- Incident Led to a Brush Fire



Impact

- April 26, 2022
- Result of Vehicle Fire
- Over 1,117 Acres Burned
- Northbound and Southbound Closed


Incident Management

- Full Closure Coordination
- DMS Support
- CCTV and EOC Support
- Card Sound Road Traffic Detour



USE CARD SOUND
<input type="checkbox"/> <input type="checkbox"/>
WHEN FLASHING



Updates

-  District In-person Trainings
-  Register on SunGuide.info
-  www.nhi.fhwa.dot.gov

Upcoming Trainings

-  September 2022
-  October 2022
-  March 2023

National TIM Responder Training Program Implementation Progress - As of May 23, 2022



In-Person Responder Training
• 19,515 sessions with 441,838 participants



Web-Based Training (WBT)
• 130,937 Total | 84,034 NHI | 11,836 Other
• 35,067 ERSI Responder Safety Learning Network



Total Trained: 586,388

Key West Half Marathon & 5K

- July 23, 2022
- Walk, Run, & Paddle Board
- US 1 Not Impacted



Key Largo Bridge 5K & Half Marathon

- Anticipated November 2022
- Gilbert's Resort to Rowell's Waterfront Park
- Jewfish Creek Bridge Closure Expected
- Dynamic Message Signs



The SMART Ride

- The Southernmost HIV/AIDS Ride
- Anticipated November 2022
- Ride from Miami to Key West
- Approximately 165 Miles



PROTECT YOUR VEHICLE FROM THEFT

WHAT YOU SHOULD KNOW



PARK in well-lit areas.

PUT away valuables.

LOCK cars and windows.

DO NOT leave keys in car.

NEVER leave your vehicle while it's running.



Thank You! Questions?



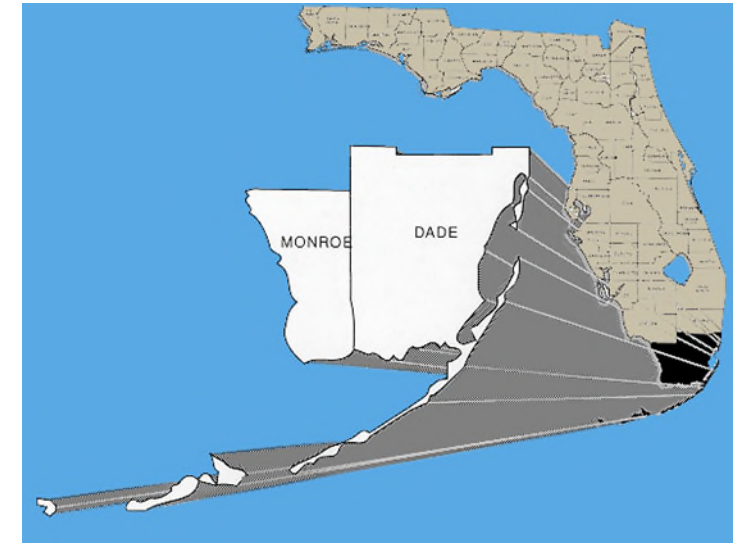
District 6 – Emergency Operations Center

District 6 Emergency Operations Center

D6-EOC is located at the District 6 headquarters in Miami.

All preparedness and response efforts are coordinated from this location.

FDOT Emergency Management is part of the State Emergency Response Team (FLSERT) as the Emergency Support Function leads for ESF#1 – Transportation and ESF#3 – Public Works.



District 6 Emergency Operations Center

- FDOT Emergency Management utilizes in-house forces, consultants and contractors.
- Pre-Storm activities includes the following
 - Clearing the roadway of loose materials
 - Participating in Monroe County EM Meetings
 - Staging Teams for Damage Assessments
- Post-Storm Activities
 - Deploying Teams for Roadway and Structure Damage Assessments
 - FLSERT Tags are distributed for identification. The District EOC can also verify all Team members.
 - Support Counties with resource requests
 - All resource requests needs to be assigned by FDEM to ESF1/3.
 - The District 6 EOC may assist the County EOC will the process.



District 6 Emergency Operations Center

Snake Creek Drawbridge

- The District EOC will closely monitor the Port Conditions posted by the USCG and the sustained winds in the area posted by NWS.
- If there is a lockdown:
 - Public Information will release a notice. This can be found online and provided to Monroe County EOC.
 - Post-storm, inspections will occur to ensure the structure is safe to use and operate.

District 6 Emergency Operations Center



Following

FDOT District 6

@MyFDOT_Miami

District Six encompasses #MiamiDade & #Monroe counties in #SouthFL. FDOT does not respond to direct messages on this account. Follows/Retweets ≠ endorsements

Miami, Florida fdotmiamidade.com Joined November 2011



Crystal Schaefer

District Emergency Management Specialist

Florida Department of Transportation - District 6

1000 NW 111th Ave, Rm 6205B, Miami, FL 33172

Office: 305-640-7371 / Cell: 786-295-7047

Email: Crystal.Schaefer@dot.state.fl.us

Useful Links:

- <https://www.fdot.gov/emergencymanagement/>
- <https://www.fdotmiamidade.com/>
- https://twitter.com/MyFDOT_Miami
- <https://fl511.com/>

ferrovial
services

**Solutions for
Traffic Incident Management
Monroe County**



Your Local Support Team:

MANAGEMENT

- Patrick Cotter – Regional Manager
- Humberto ‘Bert’ Serrano – Project Manager
- Gabriel Guevara – Deputy Project Manager
- Jeffery Flowers – Project Administrator

FIELD OPERATIONS

- Richard Ugalde – Superintendent (North)
- Anthony Barrios – Superintendent (South)
- Juan China – Inspector (North)
- Dean Richardson – Inspector (South)
- 31 on staff asset maintenance technicians



TRAFFIC INCIDENT MANAGEMENT

Ferrovial Services promotes cohesive resources for Monroe county's response Teams to clear incidents, hazards and debris 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 and Monroe County Fire Rescue

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, Motorists)

TRAFFIC INCIDENT MANAGEMENT

THE TEAM EQUIPMENT

Each Ferrovial vehicle carries the following:

- X15 Safety cones
- Heavy Duty garbage bags
- Shovels
- Brooms
- Diesel Absorbent

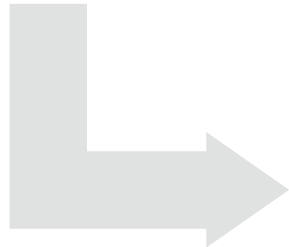
All Ferrovial Services technicians are trained in Advanced Maintenance of Traffic (MOT)



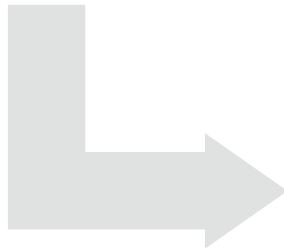
CUSTOMER SERVICE REQUEST – INCIDENT ASSISTANCE PROTOCOL



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



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



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

Over 43 Incident support responses logged since July 2021!

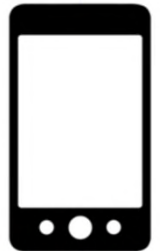


HOT PHONE **ferrovial**
services

24 Hour Emergency Response

Call to Report:

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



305-289-4360





Florida Department of
TRANSPORTATION

Florida's Turnpike Enterprise 2022 Hurricane Outlook

Evacuation Plans

New SR 528 ESU

Family and personal safety first

Maximize flow of existing lanes

One-Way not part of our plans

ESU – North end and South end Mainline
and Beachline plans

Keys to Success:

- Incident Management
- Preparation
- Prevention
- Execution
- Flexibility
- Innovation



Evacuation Plans

- **Toll Suspension**
- **Fuel Plan**
- **Road Ranger Safety Patrol**
- **Wrecker Plan (STARR)**
- **Rapid Incident Scene Clearance (RISC)**
- **ITS & Traffic Monitoring (TMC & SEOC)**
- **Traffic Management Plans**
- **ESU**



Pre-storm Operations

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

Pre-storm Operations

- **EOC Activation**
- **Fuel Monitoring and Plans**
- **Traffic Management Plans**
- **Toll Suspension**
- **ESU**



ESU Plan Overview

The Turnpike has 3 separate plans:

- 1. Our Southern end plan which runs from North of Boynton Beach to Osceola Parkway (MP 88-249)**
- 2. Northern end plan which runs from SR 50 Winter Garden to US 301 Wildwood (MP 270-304)**
- 3. Beachline (SR 528) West Plan (MP 35.5-17) I-95 to SR 417**

Evacuation Plans (Cont.)

Emergency Shoulder Use

All plans can run independently or simultaneously

All plans on the Turnpike use the outside shoulder

We do not have plans for returning traffic.



Turnpike Northern Plan

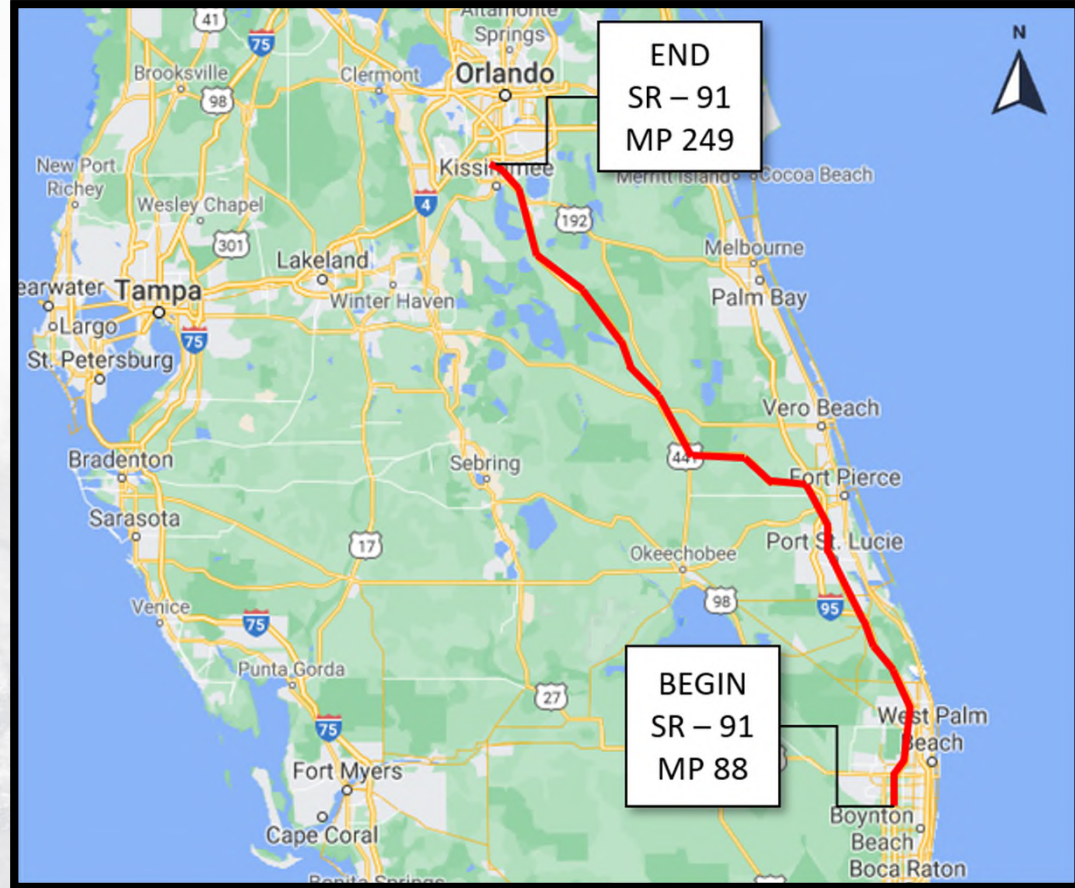
Orlando to US 301 (Exit 272 – Exit 304)

- Total Miles – 32
- Staff – 12
- FHP – 12
- Toll Barrier / Interchanges – 7
- Service Plazas – 1



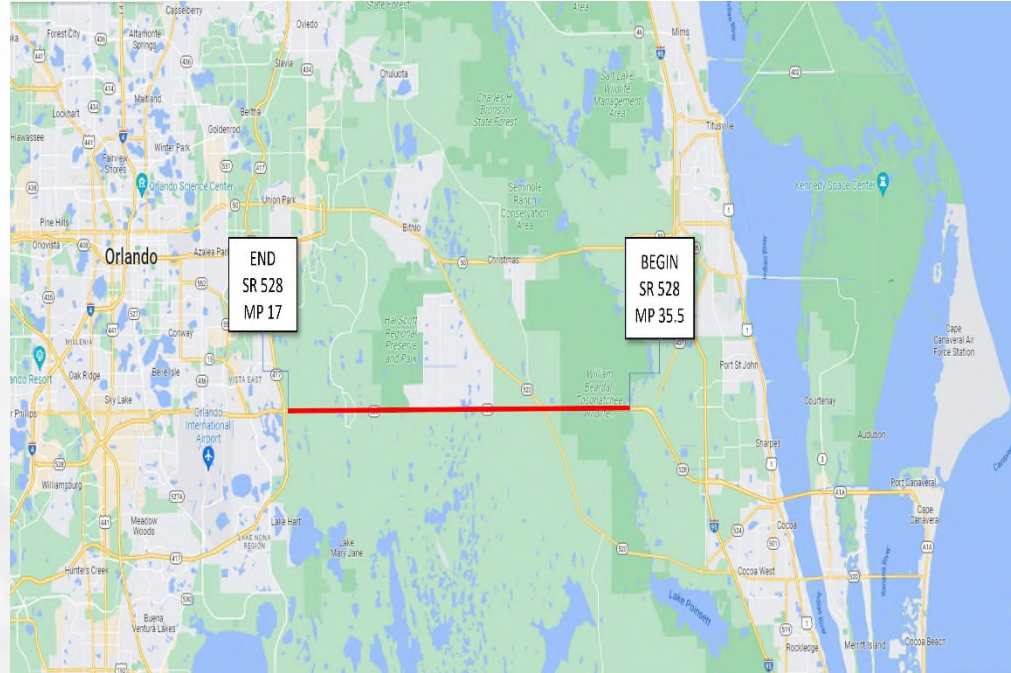
Turnpike Southern End Plan

- Lantana – Osceola Parkway(MP 88 to Exit 249)
- Total Miles – 161
- Staff – 34*
- FHP – 34*
- Toll Barrier – 2
- Interchanges – 18
- Service Plazas – 4



SR 528 Beachline WB

- **Total Miles – 18.5**
- **Staff – 8**
- **FHP – 8**
- **Toll Barrier / Interchanges – 3**



US 1 / Palm Drive Plan



US 1 / Palm Monitoring



View from Turnpike Camera located @ MP 0.3
District 6 camera and DMS visible in the background.

Post-Storm Operations

- **Cut and Toss**
- **Damage assessment and recovery**
- **Re-entry Coordination**





TRAFFIC MANAGEMENT PLAN (TMP)

OPERATIONAL PLAN

FOR US 1 AT PALM DRIVE (SW 344 ST)

Version 1.2

LAST UPDATE: MAY 2022





OPERATIONAL PLAN

The FHP, FDOT District , 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 344th Street) intersection. This choke point if left unattended during a Keys evacuation could result in unsafe backups for the evacuees. If this plan is implemented before the backup takes place it has a strong chance of prevented unnecessary delays.

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



- **TRIGGER (S)**

- **NOTIFICATIONS**

- **MANAGEMENT**

- **STAGES**

- **MONITORING MOT DEVICES**

- **DURATION**

- **EMERGENCY COORDINATING OFFICERS (ECO)**



TRIGGER (S)

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

2. State, County, or Traffic Operations Request.



NOTIFICATION

- **FDOT DISTRICT 6 MONROE COUNTY EOC LIAISON** will normally be the first person to become aware of an ordered or planned evacuation. The liaison will notify the Palm Drive TMP Management Team via email (or by phone if internet is unavailable).
- Upon receiving the request the members will first respond back to the liaison (as well as all others copied on the original email) or other requestors that:
 - A) The request has been received.
 - 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 the members via phone until they reach a management team member.



The Management Team is responsible for the decision to implement any Stage of the TMP and/or the optional closure. The team members will take into consideration all available information including staff, time of day, special events, timing, equipment availability, etc. to make the decision to initiate the Stage.

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

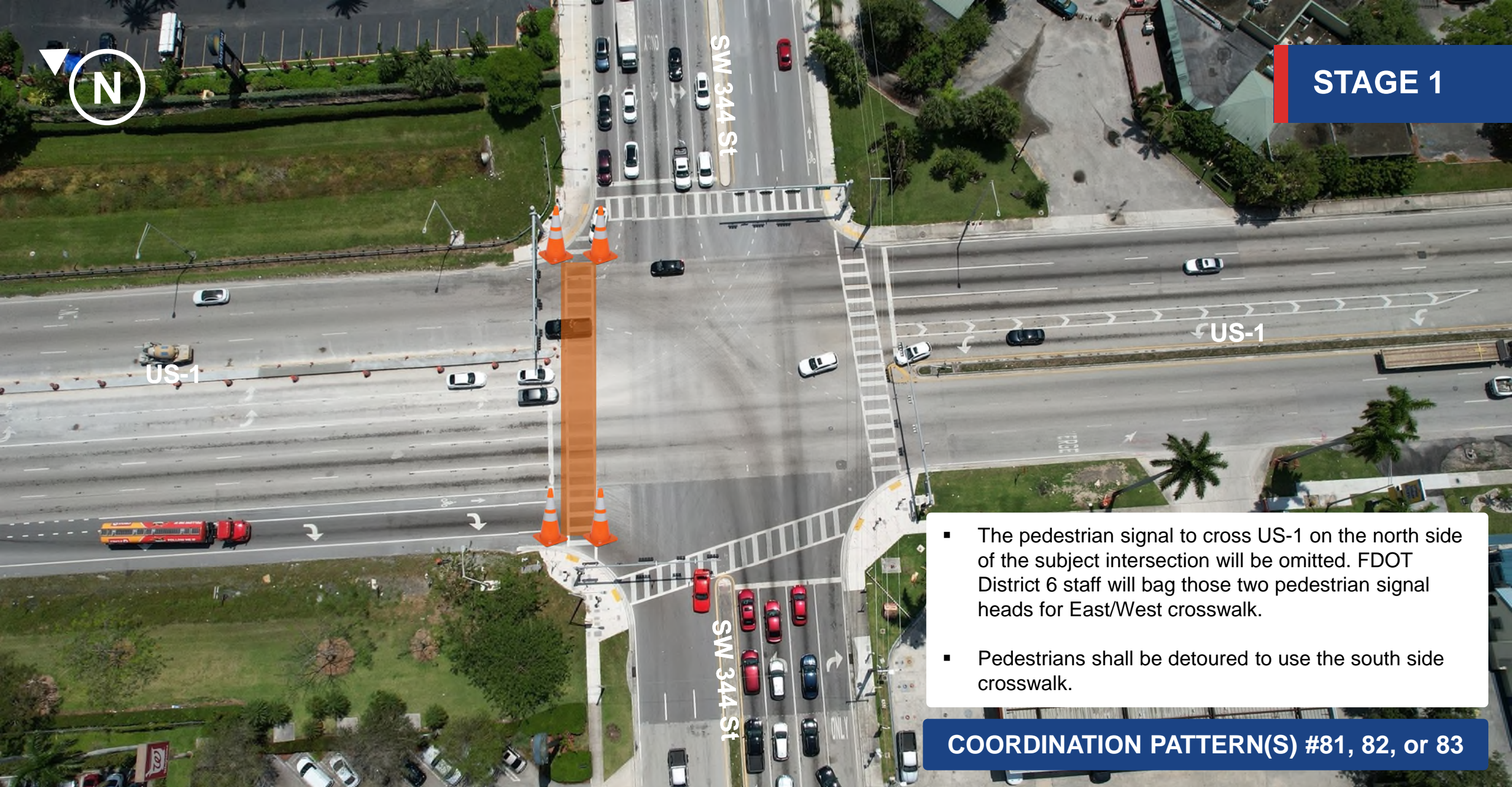


STAGE 1 (ACTIVATION)

- The Miami- Dade County Traffic Engineer will have staff implement special signal timing and provide estimated time that this will begin.
- 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.
- FDOT D-6 Maintenance Staff will stage all needed MOT devices supplied by T/Pike to pre-determined locations as direct by the FHP OIC and close the North leg pedestrian crossing.
- FHP will monitor and evaluate the need to close the northbound left turn lane to Krome Avenue as per the plan.



STAGE 1



- The pedestrian signal to cross US-1 on the north side of the subject intersection will be omitted. FDOT District 6 staff will bag those two pedestrian signal heads for East/West crosswalk.
- Pedestrians shall be detoured to use the south side crosswalk.

COORDINATION PATTERN(S) #81, 82, or 83



STAGES 2-6 (ACTIVATION)

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



STAGE 2

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 NOT 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)



**COORDINATION PATTERN(S) #84,
85, or 86**



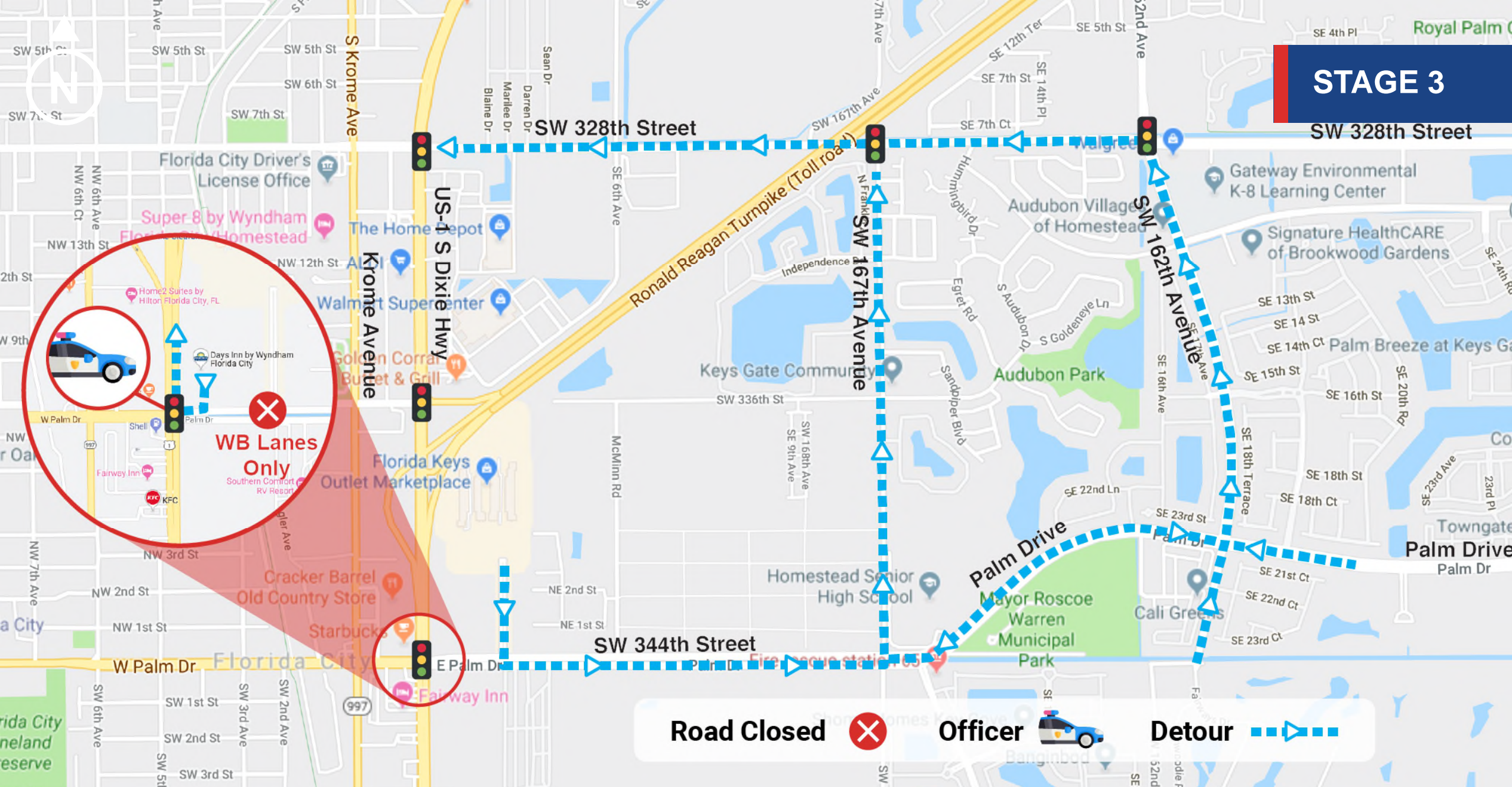


- All the closed/omitted movement(s) in the previous Stage(s) will also be implemented in this Stage.
- The westbound approach will be closed to traffic. Barricades and cones will be installed by FDOT District 6 and Turnpike staff. The traffic from this approach will be detoured to SW 328th St. via SW 167th Avenue.
- A short westbound right turn bay will remain open to provide access to the property in the northeast corner of the subject intersection so vehicles may leave the site and make a right turn northbound onto US-1. This movement will not be signal controlled, and vehicles will turn by available gaps in northbound traffic.



COORDINATION PATTERN #87

STAGE 3



WB Lanes Only

Road Closed



Officer



Detour





- All the closed/omitted movement(s) in the previous Stage(s) will also be implemented in this Stage.
- The pedestrian signal requests to cross US-1 on the south side of the subject intersection will be omitted. FDOT District 6 staff will bag those two pedestrian signal heads for East/West crosswalk.
- The northbound left turn lane will be closed to traffic. Barricades and cones will be installed by FDOT District 6 and Turnpike staff.

COORDINATION PATTERN #88





- All the closed/omitted movement(s) in the previous Stage(s) will also be implemented in this Stage.
- The southbound left turn lanes will be closed to traffic. Barricades and cones will be installed by FDOT District 6 and Turnpike staff.

COORDINATION PATTERN #89



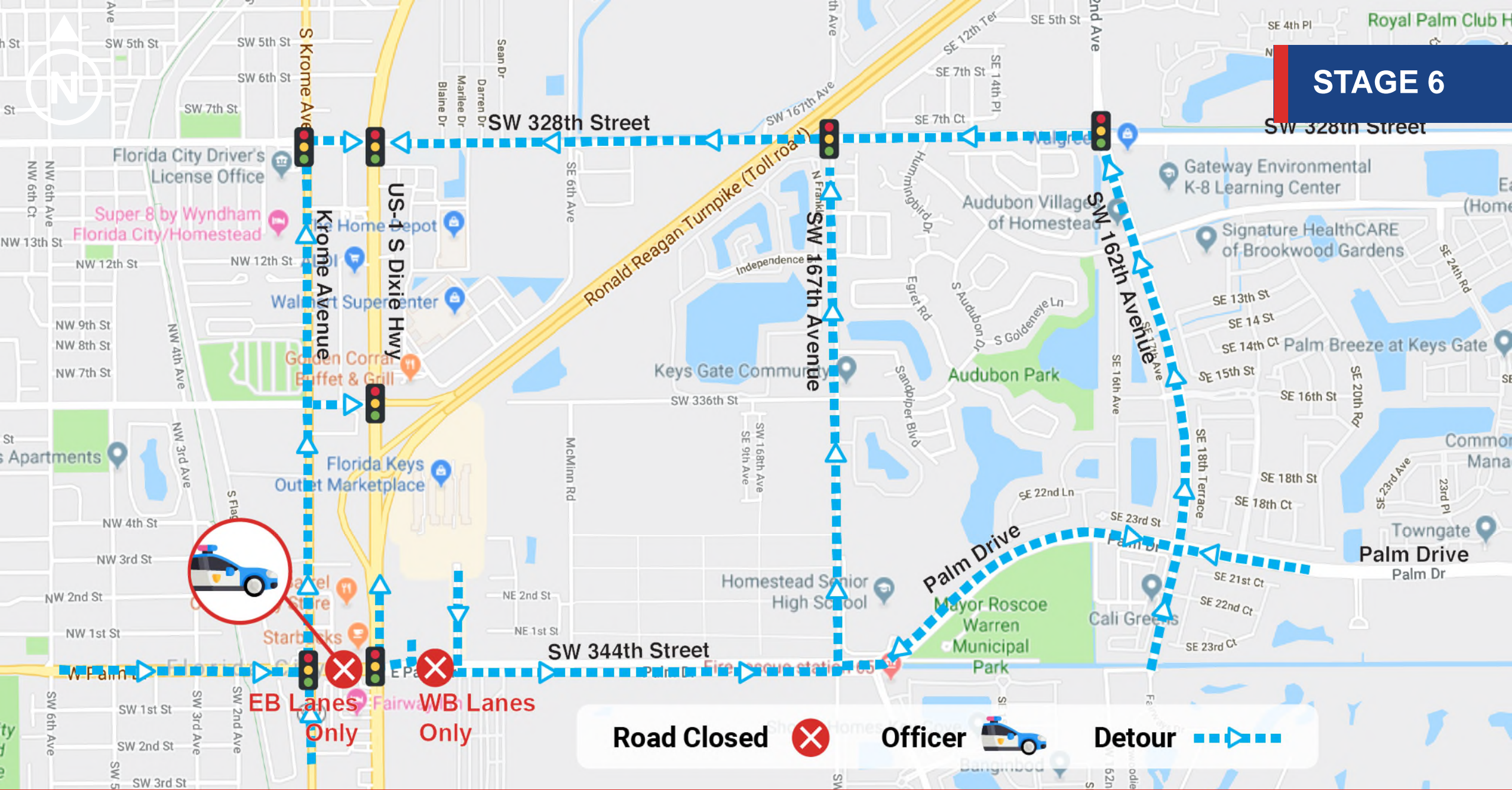


- All the closed/omitted movement(s) in the previous Stage(s) will also be implemented in this Stage.
- The eastbound lanes from west approach will be closed to traffic. Barricades and cones will be installed by FDOT District 6 and Turnpike staff. The traffic from these movements will be detoured to SW 328th St. via Krome Avenue.

COORDINATION PATTERN #90



STAGE 6



An aerial photograph of a highway intersection, likely US-1 and Palm Drive, showing traffic, palm trees, and surrounding buildings. A red semi-transparent box is overlaid on the center of the image, containing white text. In the top right corner, there is a blue banner with the word 'MONITORING' in white capital letters.

MONITORING

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

- 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 STAGE 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.



Thank you!



2022 Monroe County TIM Team Meeting



*Christopher Rothwell
Lead Meteorologist*



Florida Keys
WEATHER FORECAST OFFICE



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

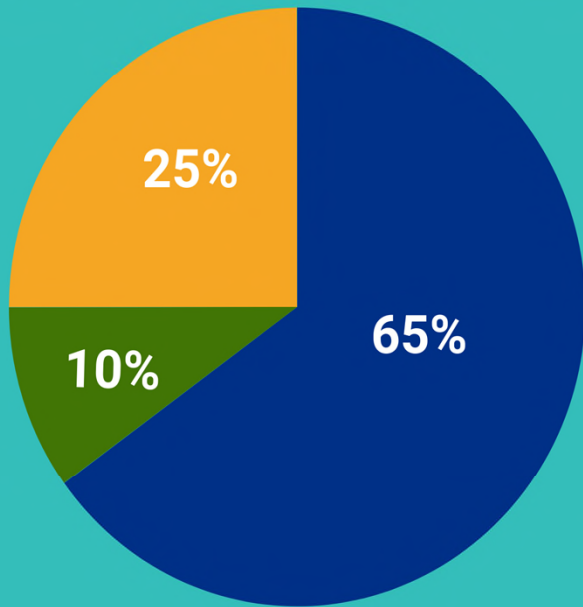


[@NWSKeyWest](https://twitter.com/NWSKeyWest)

July 13, 2022



2022 Atlantic Hurricane Season Outlook



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

Season probability

Named storms
14-21

Hurricanes
6-10

Major hurricanes
3-6

Named (14), Hurricane (7), Major (3)

NOAA

Be prepared: Visit hurricanes.gov and follow @NWS and @NHC_Atlantic on Twitter.

May 2022



Florida Keys
WEATHER FORECAST OFFICE



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



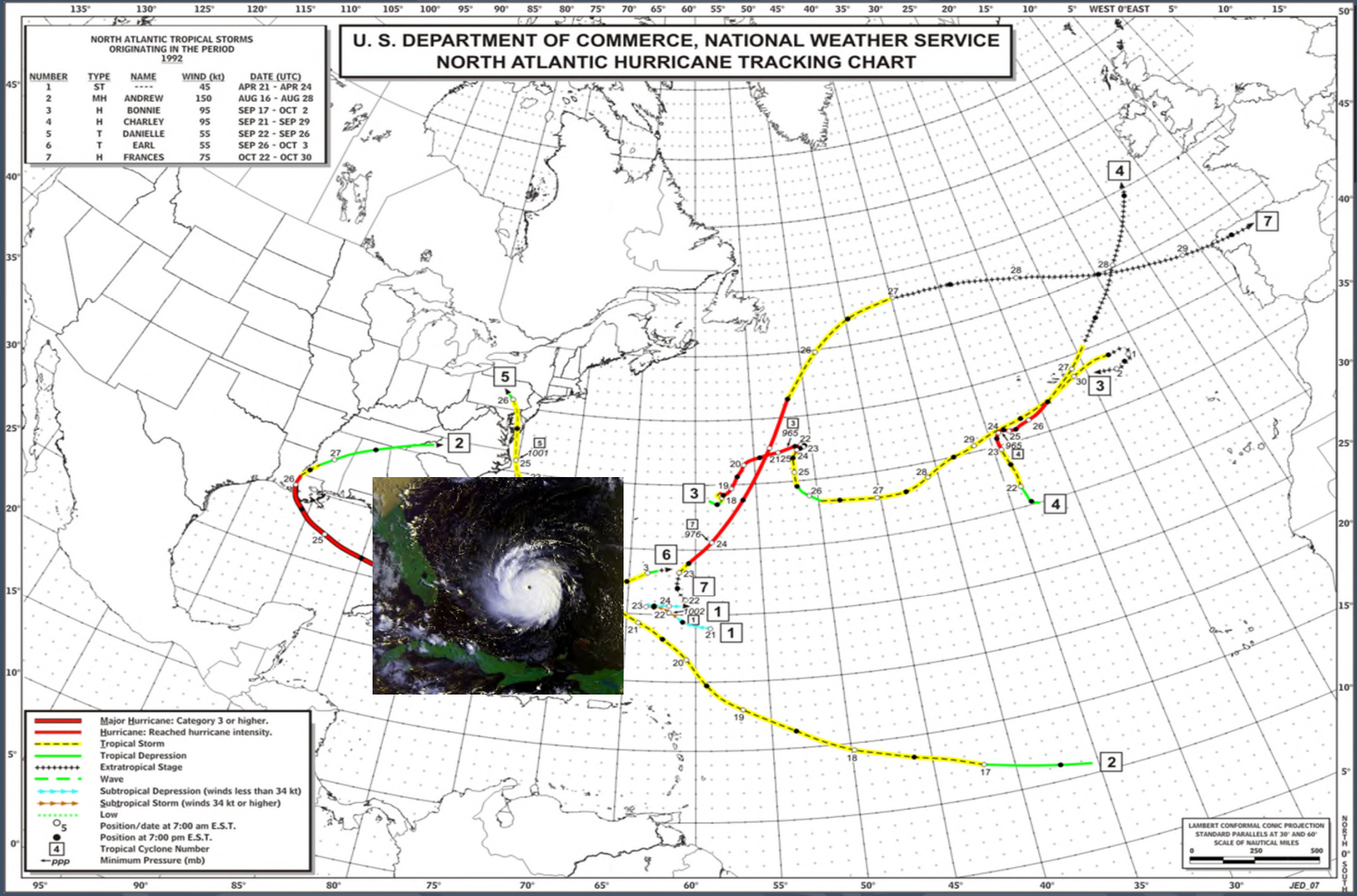
[@NWSKeyWest](https://twitter.com/NWSKeyWest)

July 13, 2022

U. S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE NORTH ATLANTIC HURRICANE TRACKING CHART

NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
1992

NUMBER	TYPE	NAME	WIND (kt)	DATE (UTC)
1	ST	----	45	APR 21 - APR 24
2	MH	ANDREW	150	AUG 16 - AUG 28
3	H	BONNIE	95	SEP 17 - OCT 2
4	H	CHARLEY	95	SEP 21 - SEP 29
5	T	DANIELLE	55	SEP 22 - SEP 26
6	T	EARL	55	SEP 26 - OCT 3
7	H	FRANCES	75	OCT 22 - OCT 30



- Major Hurricane: Category 3 or higher.
- Hurricane: Reached hurricane intensity.
- Tropical Storm
- Tropical Depression
- Extratropical Stage
- Wave
- Subtropical Depression (winds less than 34 kt)
- Subtropical Storm (winds 34 kt or higher)
- Low
- Position/date at 7:00 am E.S.T.
- Position at 7:00 pm E.S.T.
- Tropical Cyclone Number
- Minimum Pressure (mb)
- ppp

LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES
0 250 500
JED 07

Florida Keys

WEATHER FORECAST OFFICE

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

July 13, 2022

NWS Offices Train and Work with Core Partners



Florida Keys
WEATHER FORECAST OFFICE



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



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

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

July 13, 2022

BEFORE...



KEYS TOURISM ADVISORY #5

Sat, Aug 25, 2012 7:57 AM

This advisory is based on information and instructions from Monroe County Emergency Management, the National Hurricane Center and Key West National Weather Service Office. Compiled and transmitted by the Monroe County Tourist Development Council.

Hurricane Warning Up for Florida Keys; Officials Urge Visitors to Leave if They Have the Means to Do So

STORM NAME Tropical Storm Issac	CATEGORY/MAXIMUM SUSTAINED WINDS Tropical Storm/Issac
---	---

CURRENT DISTANCE FROM FLORIDA KEYS 609 miles southeast of Key West	FORWARD DIRECTION, SPEED NW @ 14 mph
--	--

STORM WARNING STATUS FOR KEYS AT TIME OF ADVISORY
Hurricane Warning... Hurricane conditions expected with 24-36 hours

EVACUATION STATUS FOR KEYS VISITORS AT TIME OF ADVISORY
Visitors are urged to leave the Florida Keys

EVACUATION STATUS FOR KEYS RESIDENTS AT TIME OF ADVISORY
Special needs, those in mobile homes and specified risk areas evacuate



National Hurricane Center Graphic

SYNOPSIS

The National Hurricane Center in Miami has issued a hurricane warning for all the Florida Keys. A hurricane warning means that hurricane conditions, with winds 74 mph and above, are expected in the next 24-36 hours.

Monroe County Emergency Management officials are urging visitors to leave the Keys if they have the means to do so safely. For those that can't, officials are directing them to stay inside during the storm.

Emergency officials are preparing to respond to a minimal Category 1 hurricane and numerous hotels throughout the Keys are built to safely accommodate people in storms that are even more powerful.

"If you choose to remain in the Florida Keys during this storm, the only safe place for you to be is inside," said Irene Toner, emergency management director. "Our goal here is to keep everyone safe."

As a last resort, visitors are welcome to stay at Monroe County's storm shelters that are to open Saturday at 2 p.m. Those facilities include Key West High School at 2100 Flagler Ave.; Stanley Switlik School, at mile marker 48 in Marathon and Coral Shores High School at mile marker 90 in Islamorada. Shelters are safe havens, but those go there must bring their own supplies, including bedding, food and medicine. Keys shelters are pet friendly, but if you bring your pet with you, it will be housed in a separate area.

Toner stressed that there was ample time for visitors to leave the Keys in a calm and orderly manner, but urged them to be out before Saturday night as weather conditions are projected to become extremely hazardous beginning early Sunday morning.

There are no commercial airline seats available out of Key West International Airport, according to Peter Horton, county airports director, adding that no commercial flights will operate Sunday and likely not Monday as well.

Monroe County's Emergency Information line at 1-800-955-5504 is to be activated this morning and the Florida Keys tourism council's multilingual visitor assistance line is available at 1-800-771-KEYS.

INFRASTRUCTURE An "X" indicates open and/or operating normally in most or all regions at this time.	<input checked="" type="checkbox"/> U.S. Highway 1	<input checked="" type="checkbox"/> Marathon Airport	<input type="checkbox"/> County Parks
	<input checked="" type="checkbox"/> Electricity	<input checked="" type="checkbox"/> Key West Airport	<input type="checkbox"/> State Parks
	<input checked="" type="checkbox"/> Water	<input checked="" type="checkbox"/> Key West Port	<input checked="" type="checkbox"/> Hospitals

FUTURE TRAVEL TO KEYS?
Delay plans to travel to the Keys during the next few days.

ADDITIONAL HELP AND RESOURCES

facebook.com/floridakeysandkeywest / twitter.com/the/floridakeys
Monroe County Emergency Information: (800) 955-5504
Monroe County Situation Report: www.monroecounty-fl.gov
National Hurricane Center Web site: www.nhc.noaa.gov
Monroe County Sheriff's Office: www.keys911.net
County Public Access Television: Channel 76 on cable

For latest Keys travel status
www.fla-keys.com

TDC Multilingual Visitor Help: (800) 771-KEYS
Greyhound Keys Shuttle: (800) 410-KEYS
Key West Weather: www.weather.gov/keywest
Florida Emergency and Hotel Information:
1-800-342.3557 · FloridaEvacuates.com



Florida Keys
WEATHER FORECAST OFFICE



facebook.com/NWSKeyWest

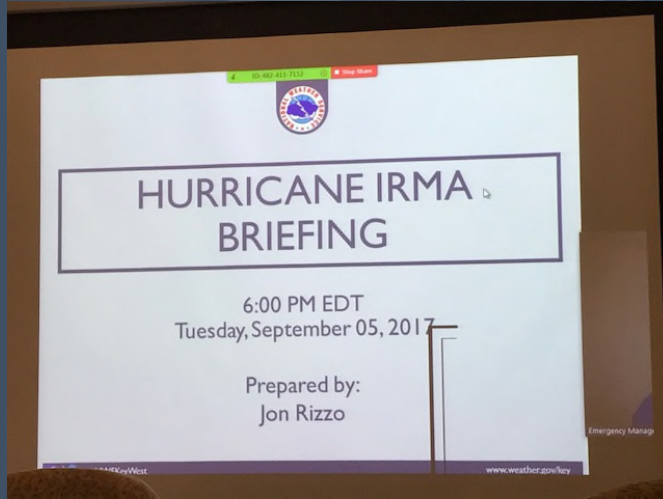


@NWSKeyWest

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

July 13, 2022

Briefings: Monroe County Stakeholder and Incident Command System “Battle Rhythm”



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DURING...



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WCM Deployment

NWS Key West Warning Coordination Meteorologist was deployed to Monroe County EOC (Marathon and Ocean Reef) from September 7th through September 15th (nine days).



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“All Hands On Deck”



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AFTER...



Call (305) 295-1316

CM: 2 or CM: 5
162.400 MHz 162.400 MHz

WEATHER INFO

US National Weather Service Key West Florida

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Post-Storm: Older Analog Phone Lines Still Worked! *Office Becomes a Critical Decision Making Hub*



Agencies: City of Key West, FEMA, Emergency Management, Monroe County

Critical decisions: Bringing in resources for water and power recovery; when to lift the mandatory evacuation, and *paperwork!*



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Top 5 Real Life “gotchas”



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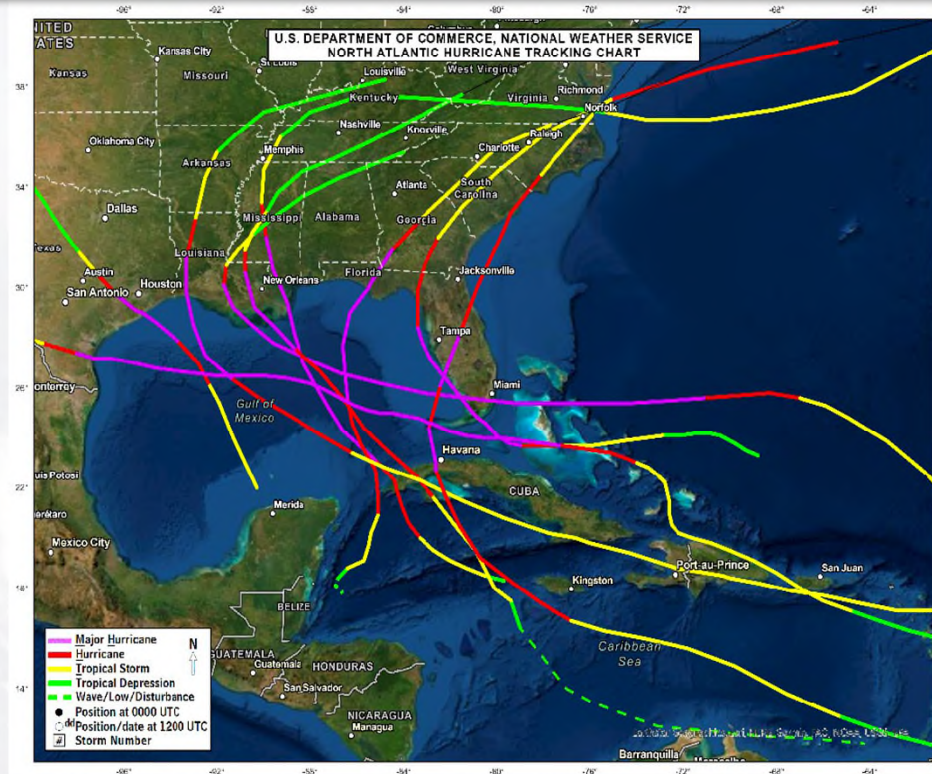
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1. Hurricanes don't care about your timelines

The Nation's Strongest – 150 MPH or Greater
All But 1 Were Tropical Storms 3 Days Before Landfall

U.S. 150 mph+

- 1919 – Storm 2
- 1932 – Storm 2
- 1935 – Labor Day
- 1969 – Camille
- 1992 – Andrew
- 2004 – Charley
- 2018 – Michael
- 2020 – Laura
- 2021 – Ida



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1. Hurricanes don't care about your timelines

The Nation's Strongest – 150 MPH or Greater

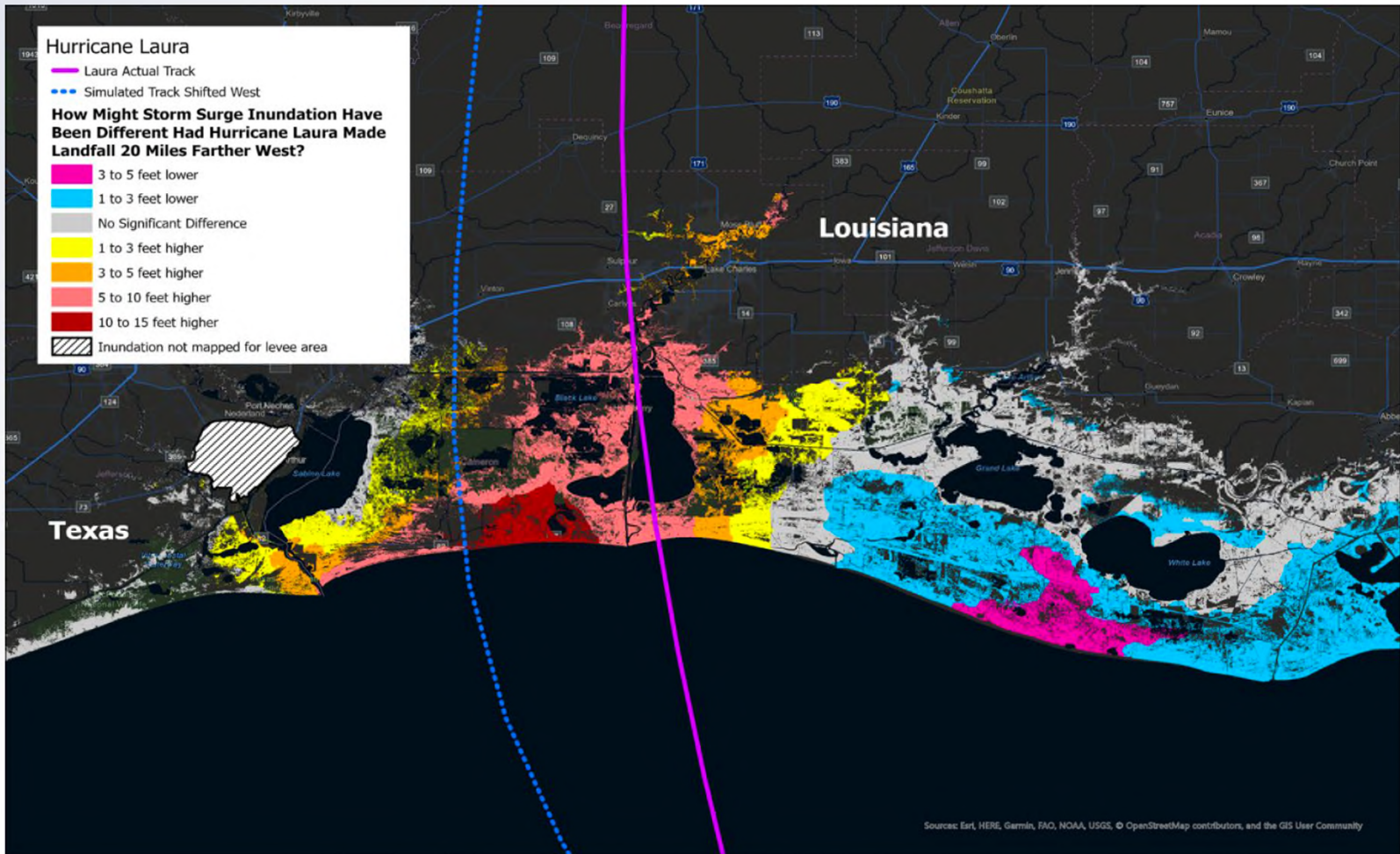
Of the 9 strongest hurricanes that have made landfall in the continental United States:

- Only three had become tropical depressions five days prior to landfall...
- Three days prior to landfall, only one had reached hurricane strength...
- Average time of those nine storms becoming a hurricane: 50 h before landfall...
- Of the four Category 5 hurricanes to strike the US, all were tropical storms three days prior...

*****ALL of the 150 mph or greater hurricanes in the last 100 years were Tropical Storms or less 3 days before landfall*****



2. Little Wiggles Matter



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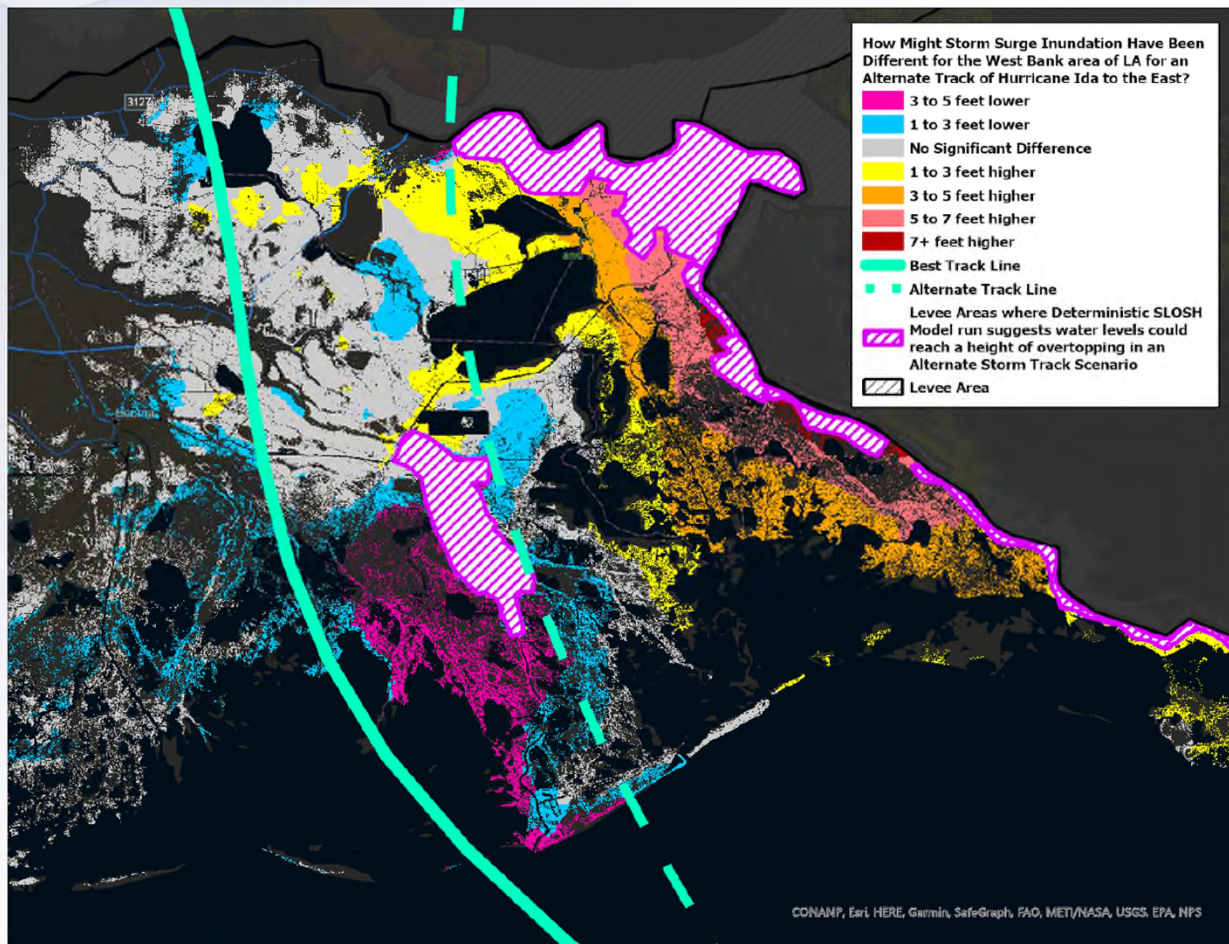
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2. Little Wiggles Matter



Water levels could have been **5 to 7 feet higher** along the **New Orleans West Bank Levee** had IDA tracked approx. 15 miles further east.



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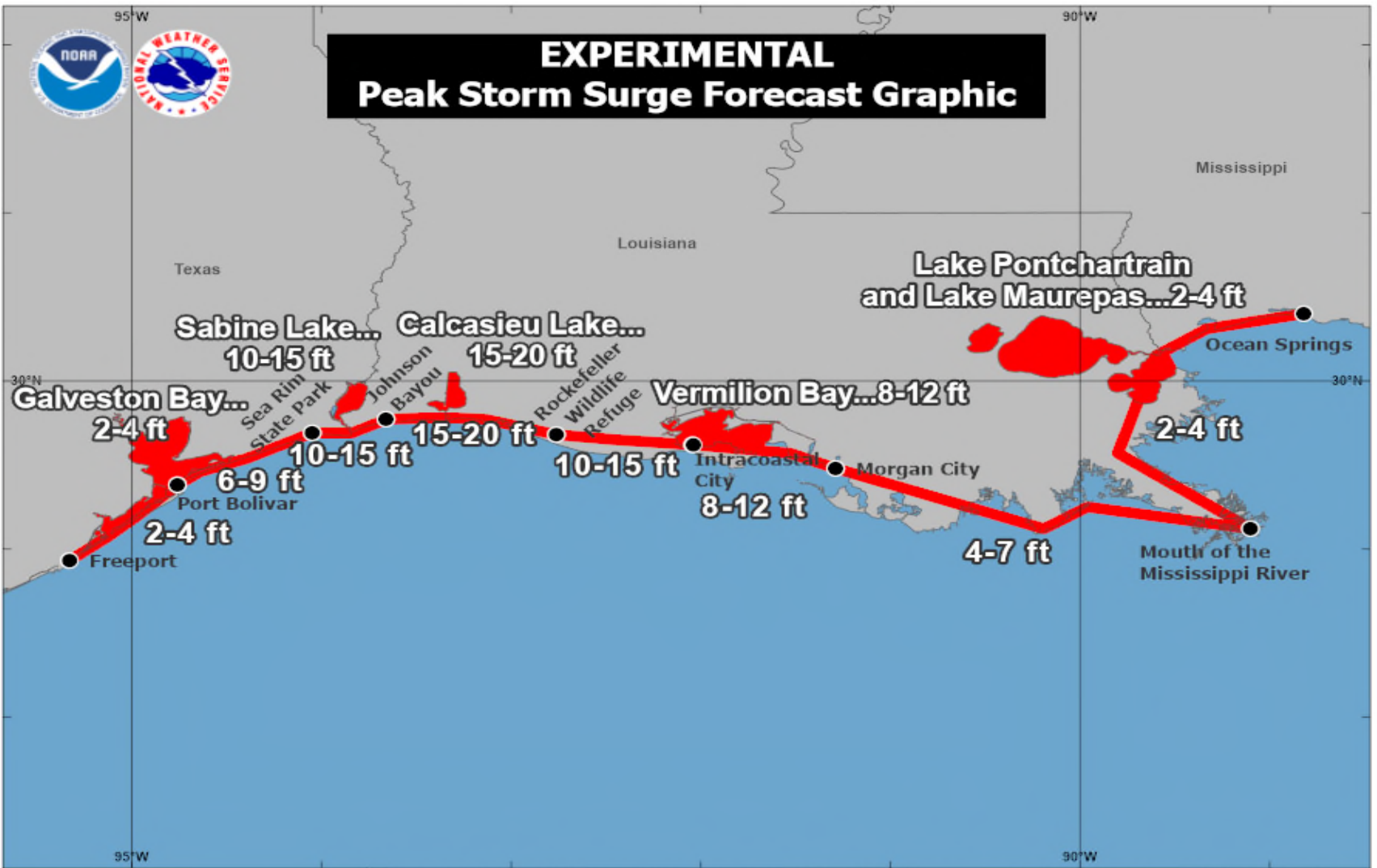
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EXPERIMENTAL Peak Storm Surge Forecast Graphic



Hurricane Laura
Wednesday August 26, 2020
10 AM CDT Advisory 27
NWS National Hurricane Center

The combination of a dangerous storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters moving inland from the shoreline. The water could reach the following heights above ground somewhere within the indicated areas if the peak surge occurs at the time of high tide. The deepest water will occur along the immediate coast near the landfall location, where the surge will be accompanied by large and destructive waves. Surge-related flooding depends on the relative timing of the surge and the tidal cycle, and can vary greatly over short distances.



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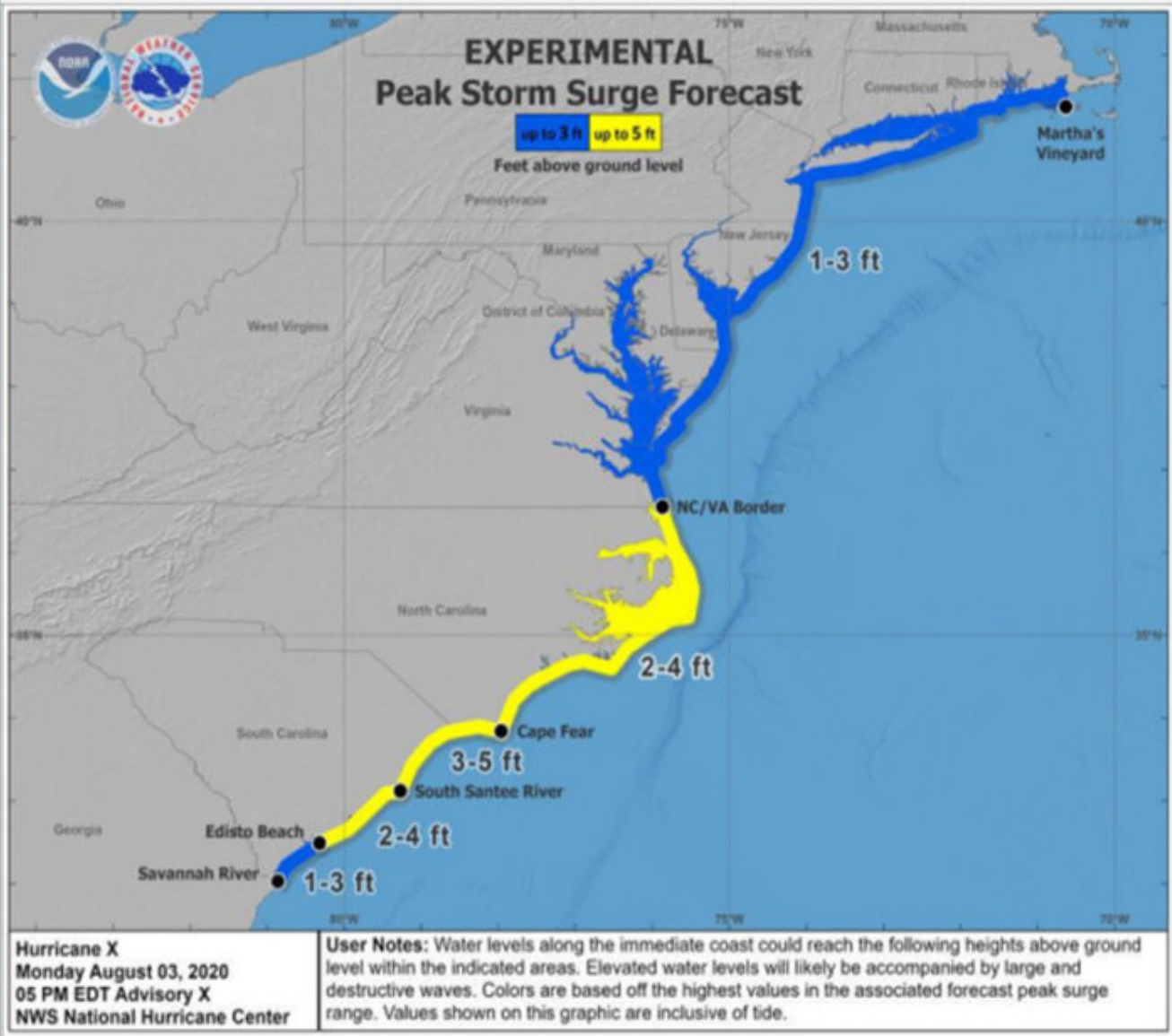


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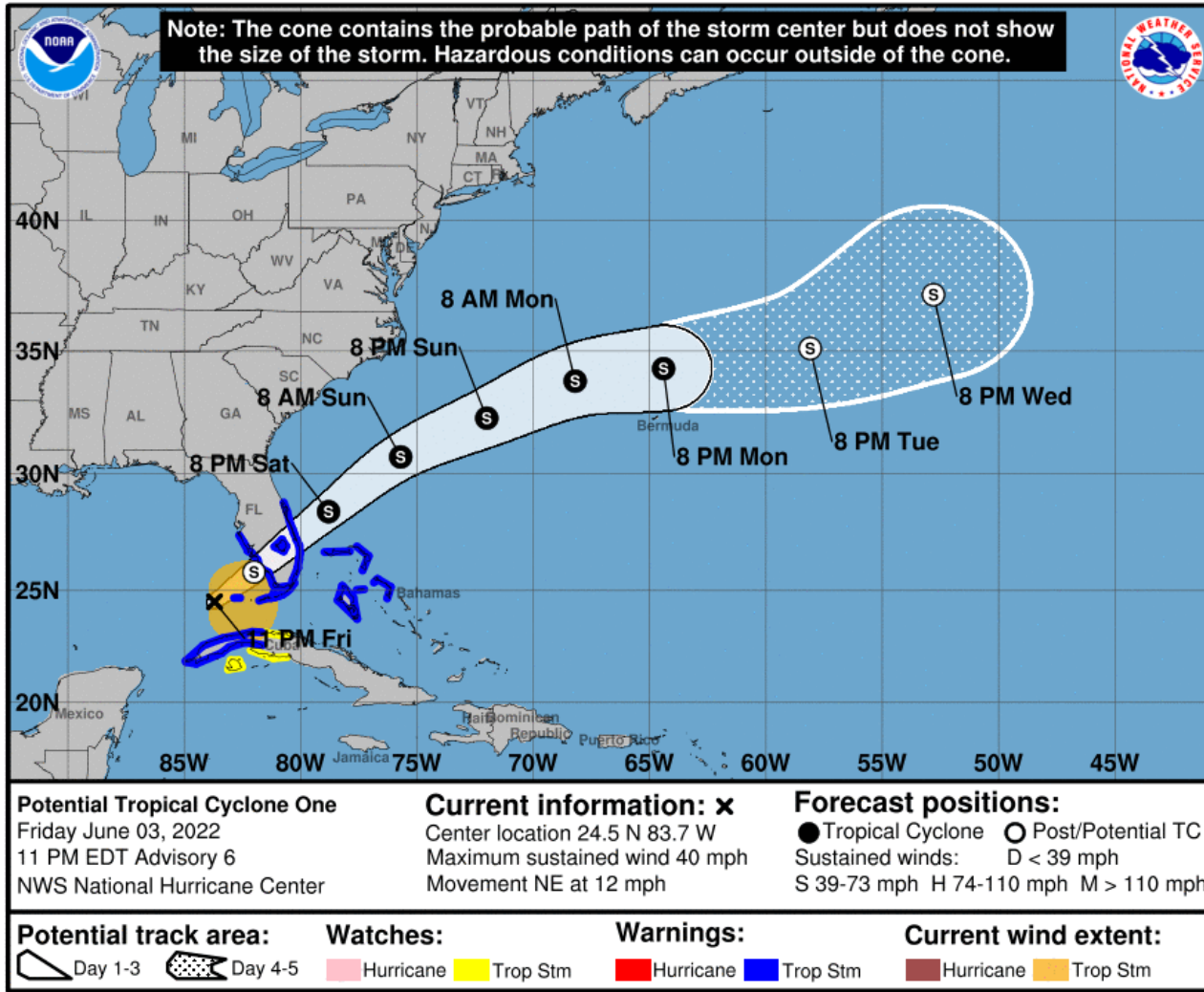


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Situation Overview

Potential Tropical Cyclone ONE



- Do NOT focus on the error track cone to determine your weather impacts!
- The forecast track cone specifies the 2/3 likelihood that the center of this disturbance moves within the cone. Weather impacts will extend well to the south and east of the edge of the forecast track cone.
- Note the warnings extend *WELL OUTSIDE* the error track cone.



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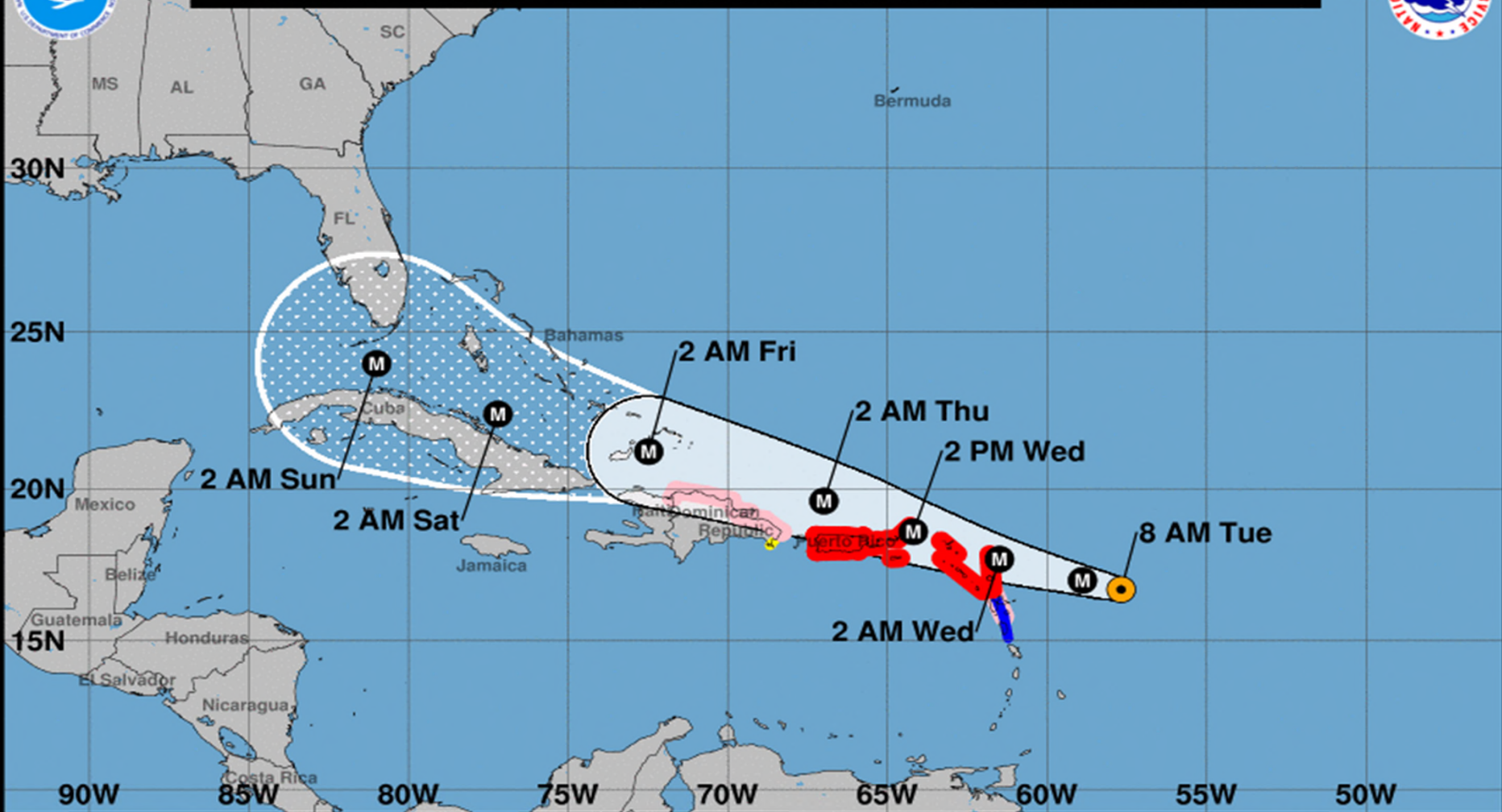
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Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



Hurricane Irma

Tuesday September 05, 2017
8 AM AST Advisory 25
NWS National Hurricane Center

Current information:

Center location 16.7 N 57.7 W
Maximum sustained wind 175 mph
Movement W at 14 mph

Forecast positions:

● Tropical Cyclone ○ Post/Potential TC
Sustained winds: D < 39 mph
S 39-73 mph H 74-110 mph M > 110 mph

Potential track area:

Day 1-3 Day 4-5

Watches:

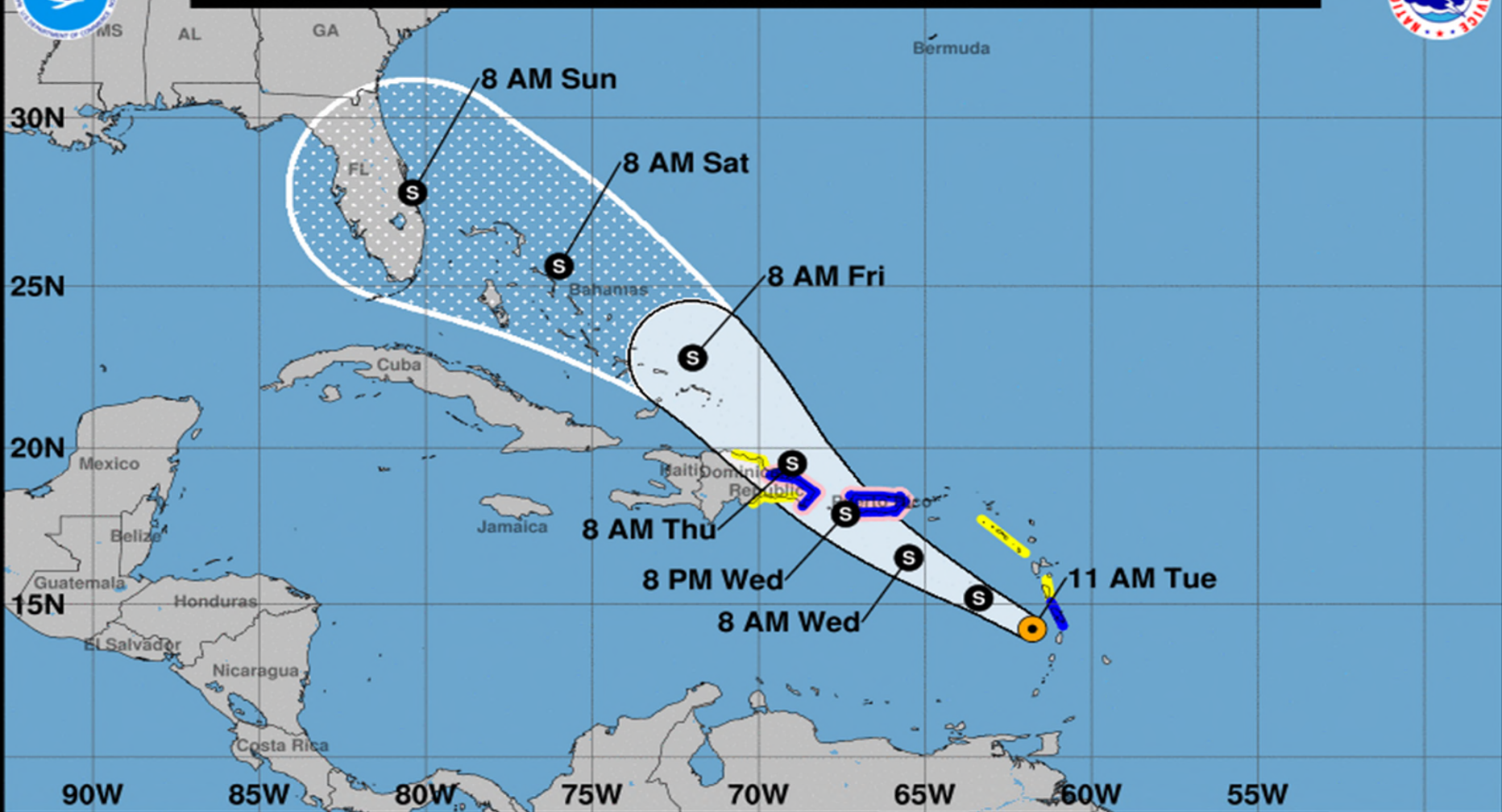
Hurricane Tropical Storm

Warnings:

Hurricane Tropical Storm



Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



Tropical Storm Dorian

Tuesday August 27, 2019
11 AM AST Advisory 13
NWS National Hurricane Center

Current information:

Center location 14.2 N 61.8 W
Maximum sustained wind 50 mph
Movement WNW at 13 mph

Forecast positions:

● Tropical Cyclone ○ Post/Potential TC
Sustained winds: D < 39 mph
S 39-73 mph H 74-110 mph M > 110 mph

Potential track area:

Day 1-3 Day 4-5

Watches:

Hurricane Trop Storm

Warnings:

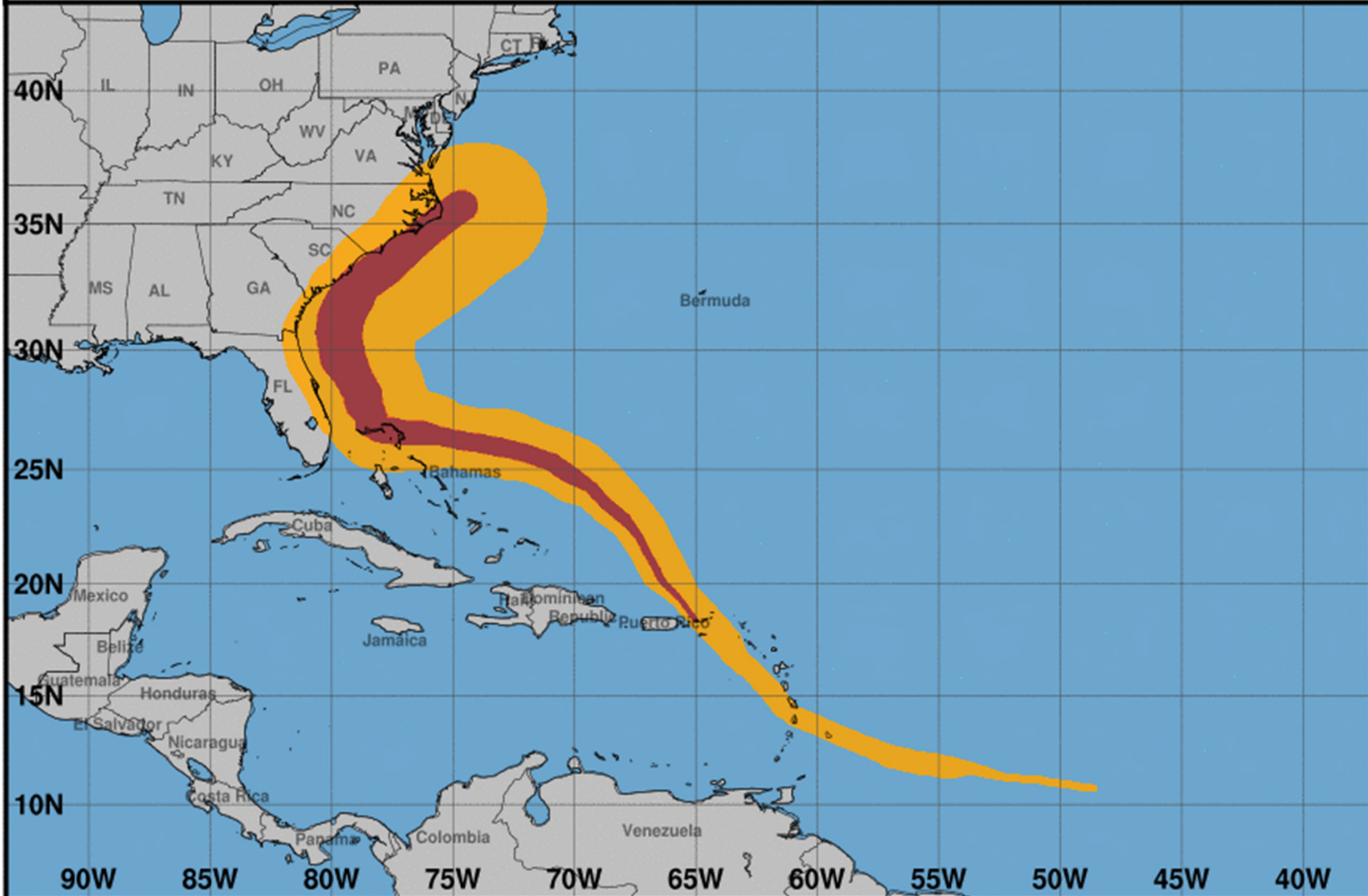
Hurricane Trop Storm



National Weather Service - National Hurricane Center

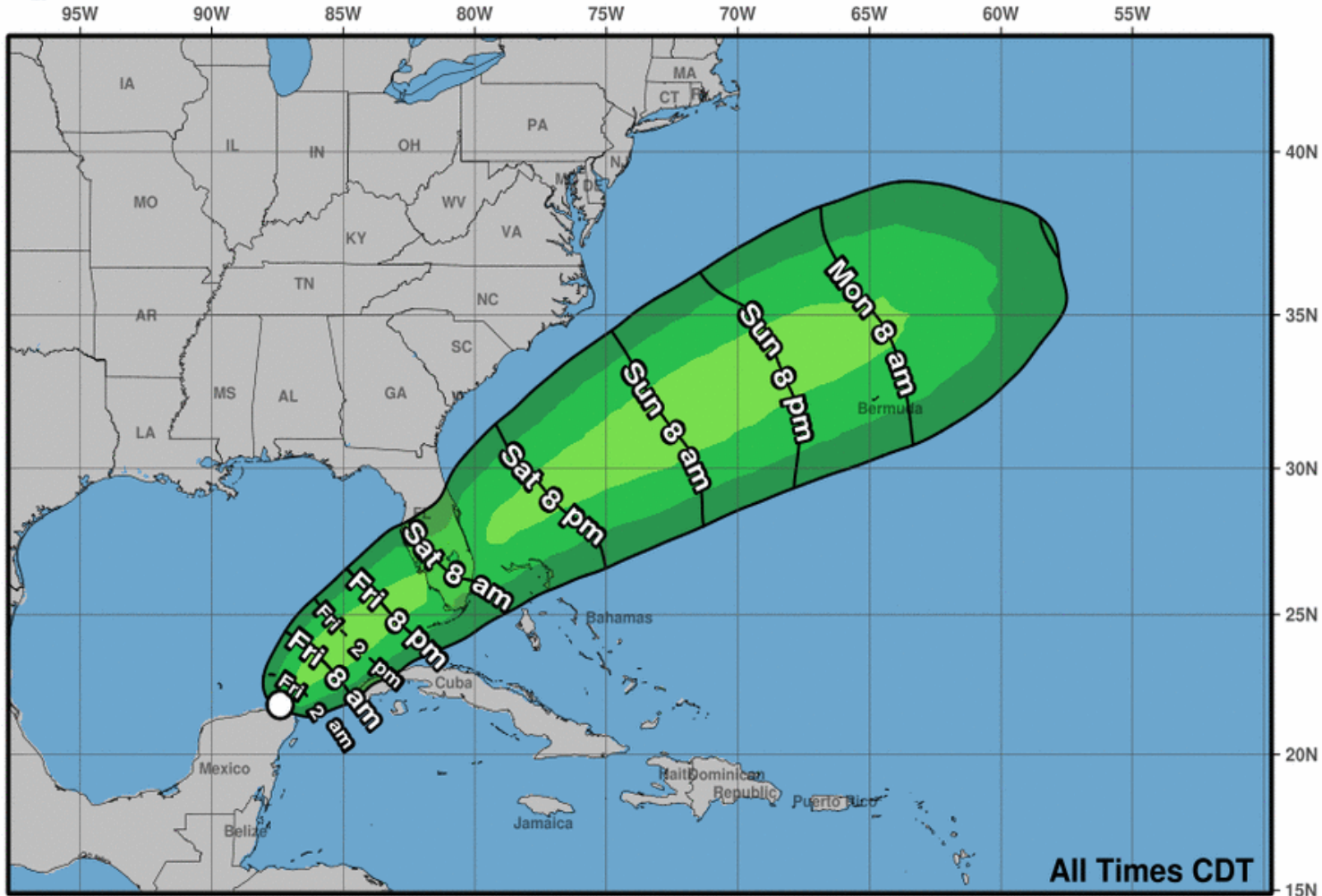


Tropical Storm  and Hurricane  Force Wind Swaths of Dorian
From Advisories 1 Through 53A





Earliest Reasonable Arrival Time of Tropical-Storm-Force Winds



All Times CDT

Potential Tropical Cyclone One
Thu. Jun. 2, 2022 10 pm CDT
Advisory 2

Storm Location & Wind Speed

- < 34 kt (39 mph)
- ◌ 34-63 kt (39-73 mph)
- ≥ 64 kt (74 mph)

5-day chance of receiving sustained 34+ kt (39+ mph) winds

5 10 20 30 40 50 60 70 80 90 100 %



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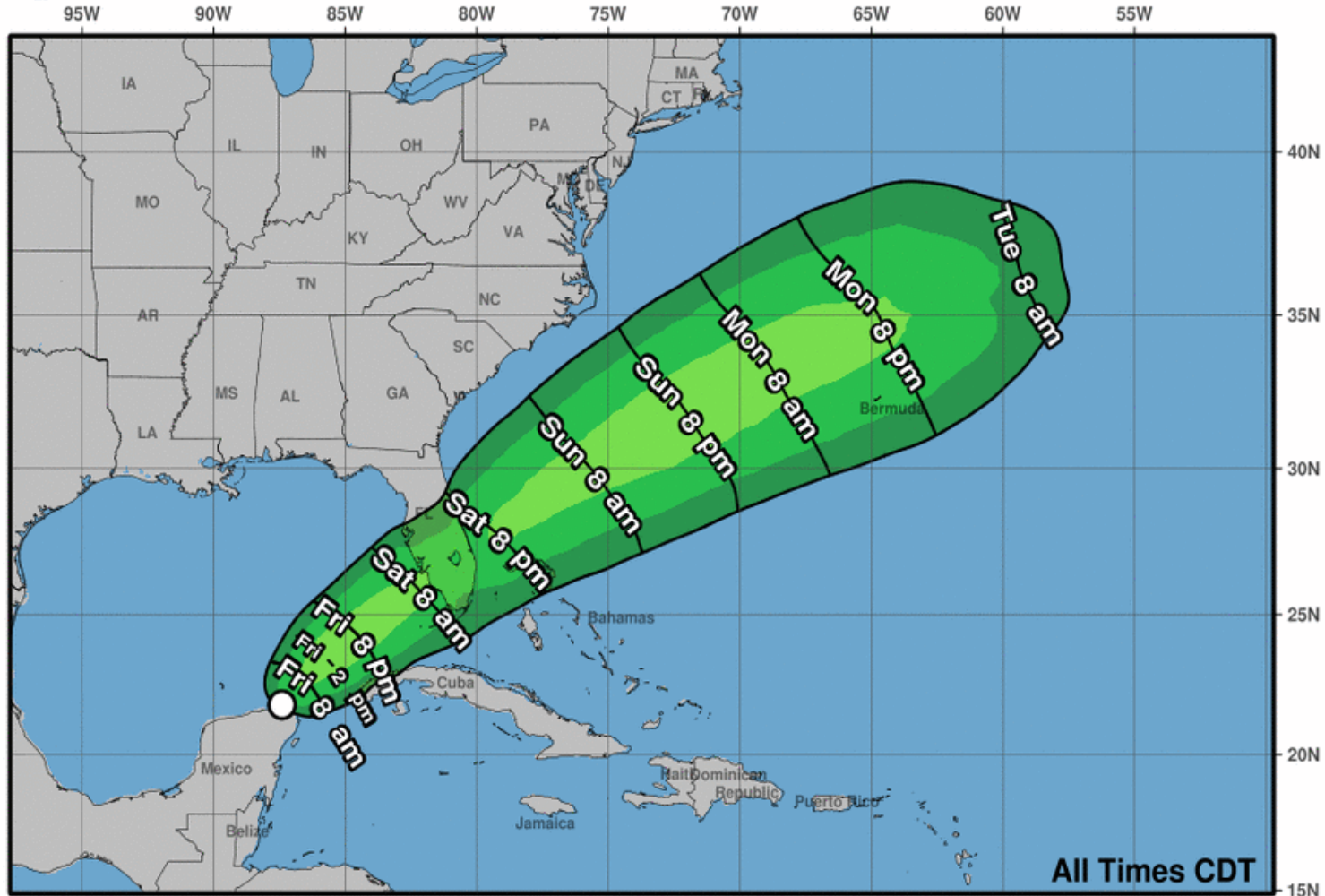
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Most Likely Arrival Time of Tropical-Storm-Force Winds



Potential Tropical Cyclone One
Thu. Jun. 2, 2022 10 pm CDT
Advisory 2

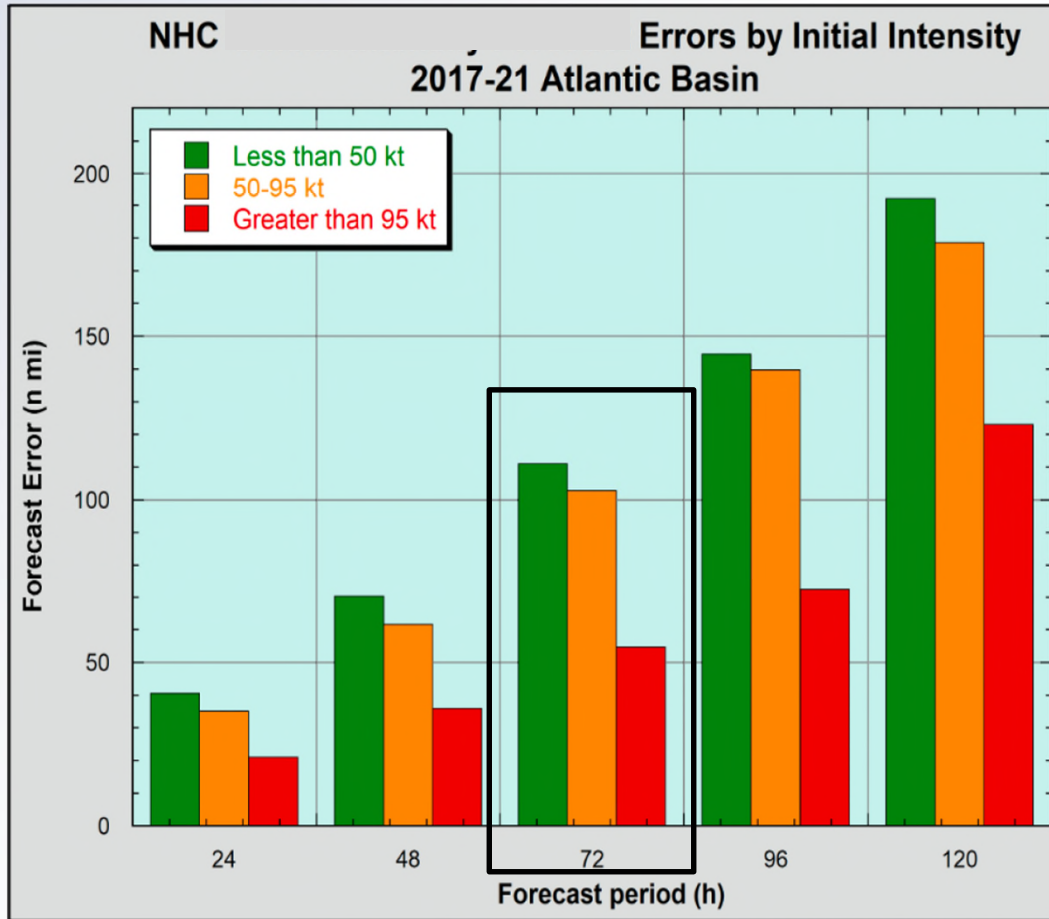
Storm Location & Wind Speed

- < 34 kt (39 mph)
- ◌ 34-63 kt (39-73 mph)
- ≥ 64 kt (74 mph)

5-day chance of receiving sustained 34+ kt (39+ mph) winds

5 10 20 30 40 50 60 70 80 90 100 %

3. Every Storm is Different

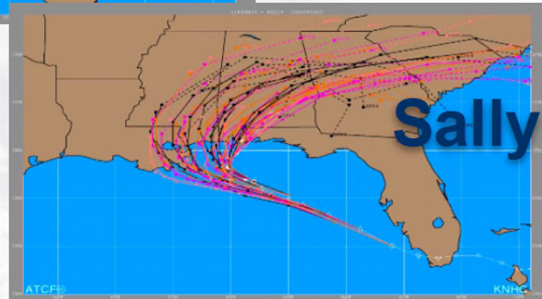
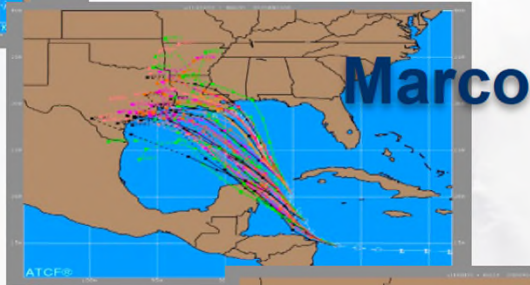
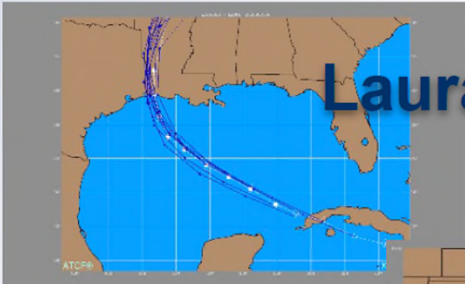


As the initial intensity of the storm increases, NHC average track error gets smaller!

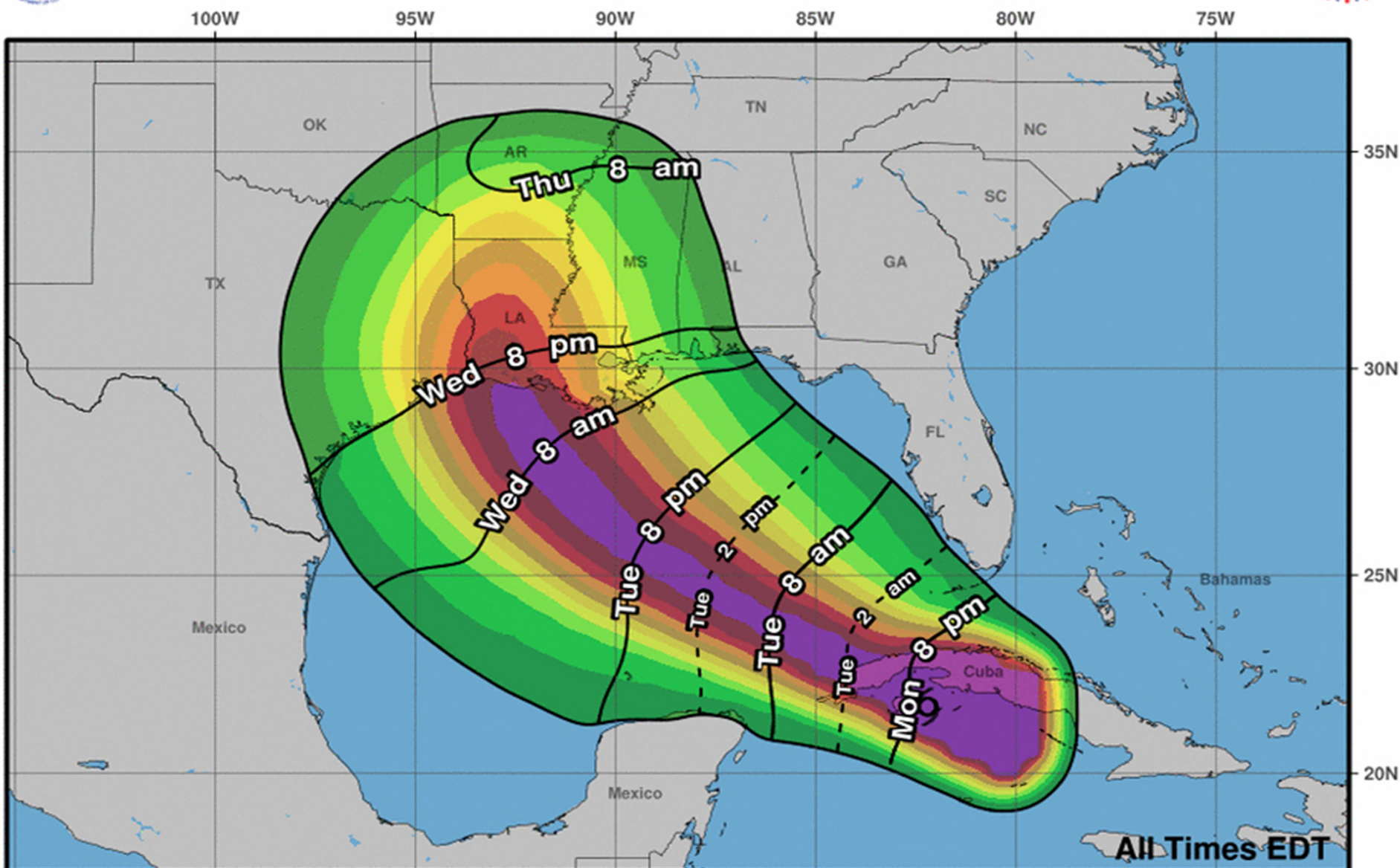


3. Every Storm is Different

Other factors come into play; interaction with other storms, forward speed, wind shear, eyewall structure, and confidence in weather patterns



Most Likely Arrival Time of Tropical-Storm-Force Winds



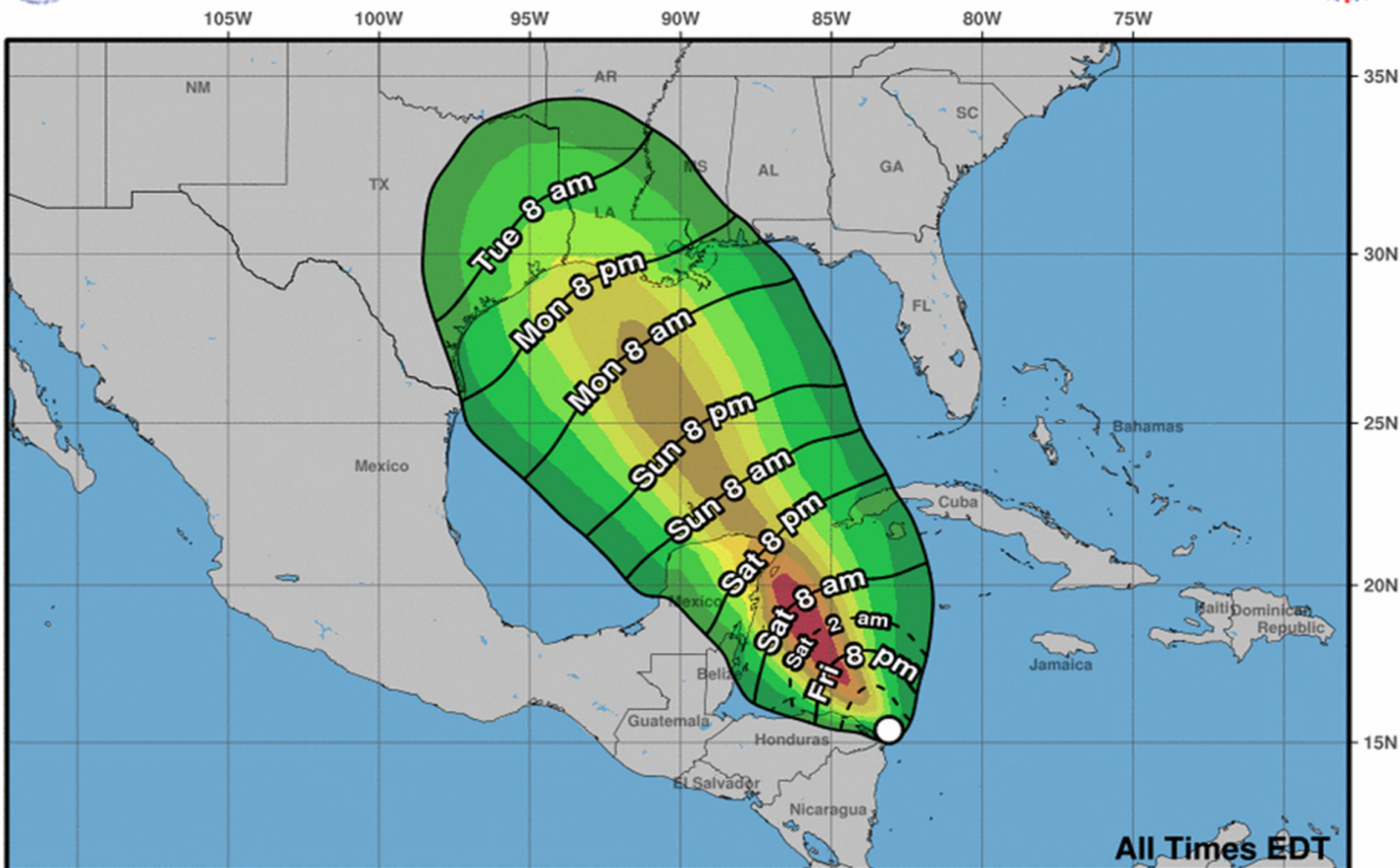
Tropical Storm Laura
Mon. Aug. 24, 2020 5 pm EDT
Advisory 20

Storm Location ○ < 34 kt (39 mph)
& ○ 34-63 kt (39-73 mph)
Wind Speed ● ≥ 64 kt (74 mph)

5-day chance of receiving sustained 34+ kt (39+ mph) winds

5	10	20	30	40	50	60	70	80	90	100 %
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Most Likely Arrival Time of Tropical-Storm-Force Winds



All Times EDT

Tropical Depression Fourteen
Fri. Aug. 21, 2020 5 am EDT
Advisory 4

Storm Location ○ < 34 kt (39 mph)
& ○ 34-63 kt (39-73 mph)
Wind Speed ● ≥ 64 kt (74 mph)

5-day chance of receiving sustained 34+ kt (39+ mph) winds

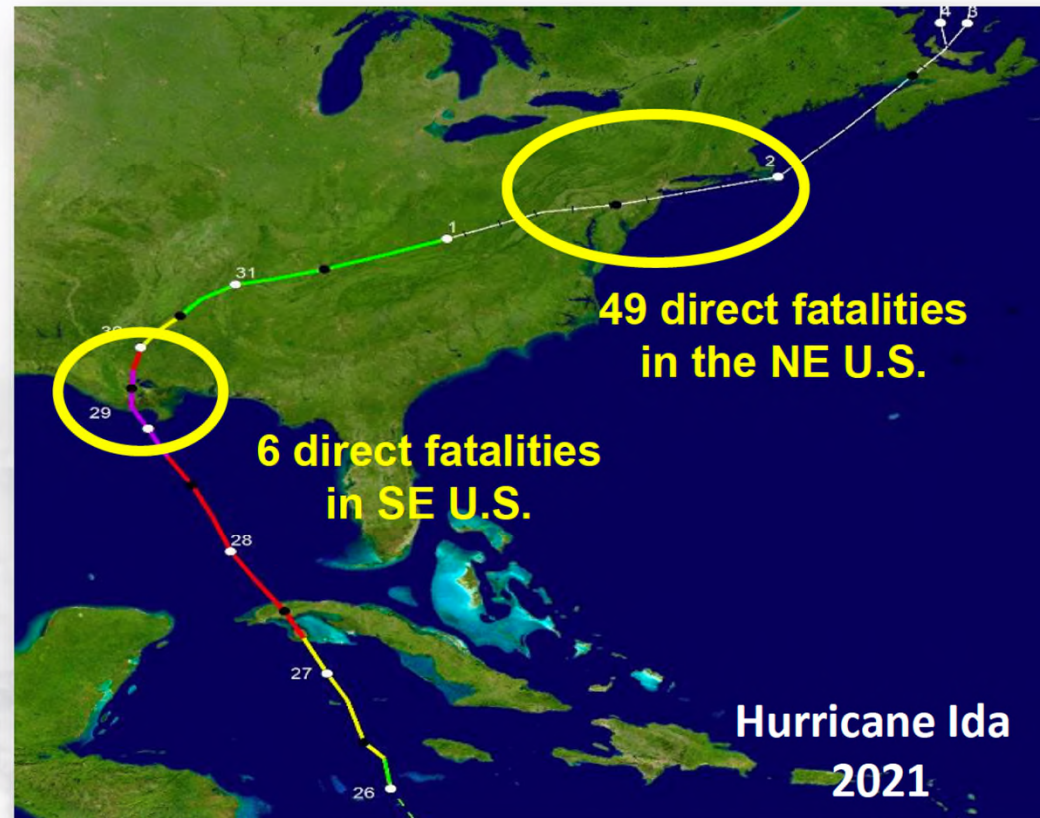
5	10	20	30	40	50	60	70	80	90	100 %
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Ida Direct vs. Indirect Fatalities

55 direct fatalities
4 in Louisiana
2 in Mississippi
49 in the NE U.S.

Primary Causes:

- 51 Freshwater Flooding (mostly NE)
- 2 Wind (Louisiana)
- 1 Storm Surge (Louisiana)
- 1 Tornado (Pennsylvania)



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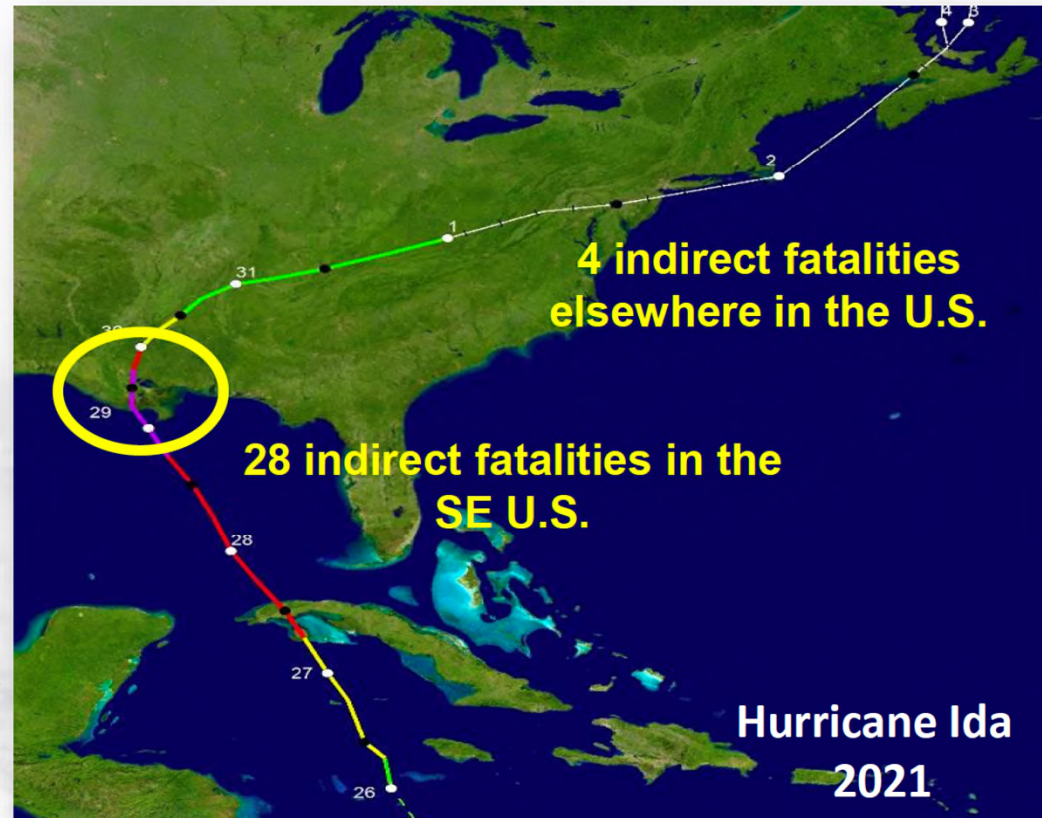
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Ida Direct vs. Indirect Fatalities

32 indirect fatalities
(26 in Louisiana, 2 in Alabama)

Primary Causes:

- 13 heat related
- 6 Carbon Monoxide



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4. Indirect Fatalities*

Since 2017: 16 Hurricane Landfalls, 7 were Major Hurricanes
 8 Storm Surge Fatalities

In the last 4 years, we've lost more people to carbon monoxide poisoning after a storm than we have in storm surge.

**Data refers to the contiguous US*



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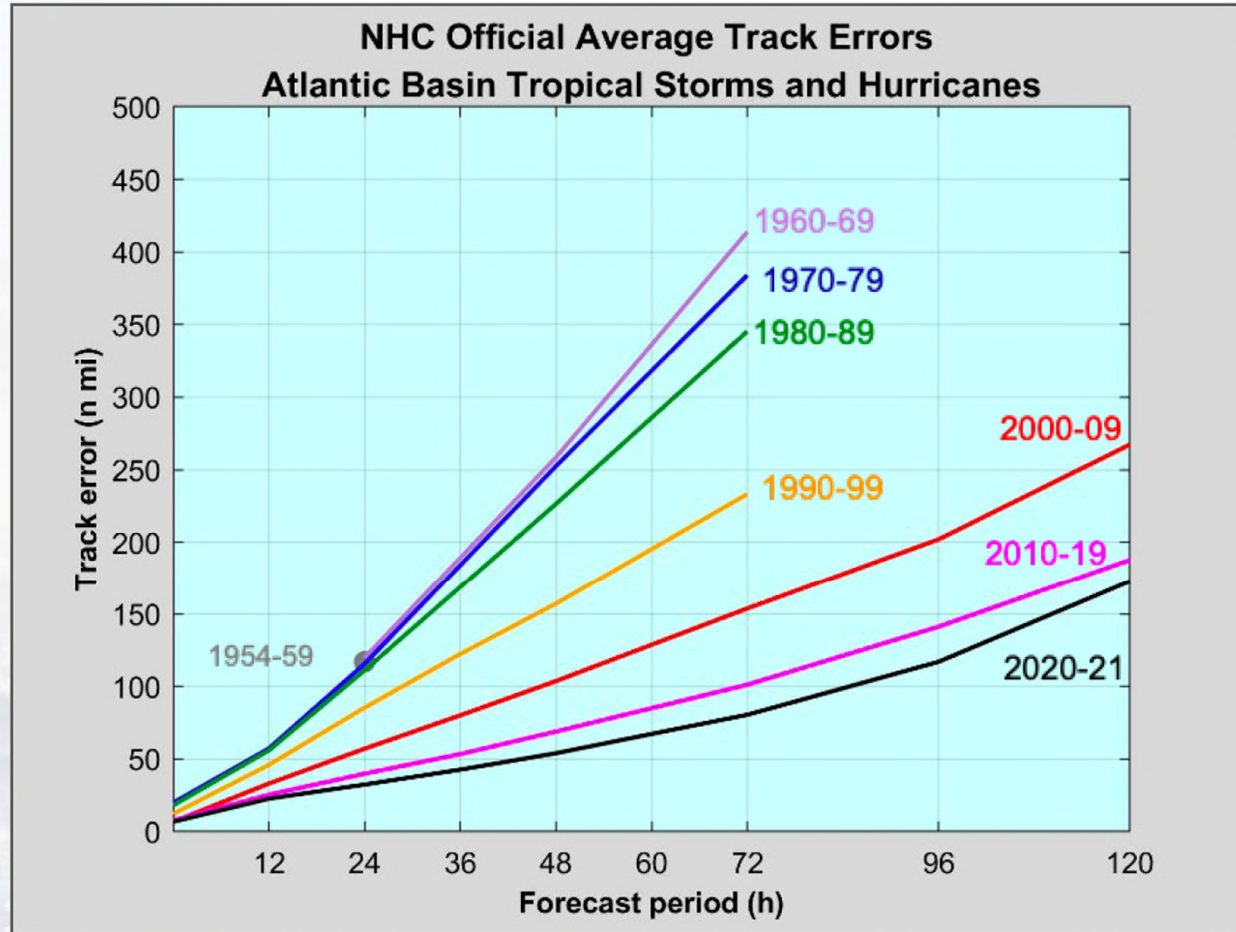


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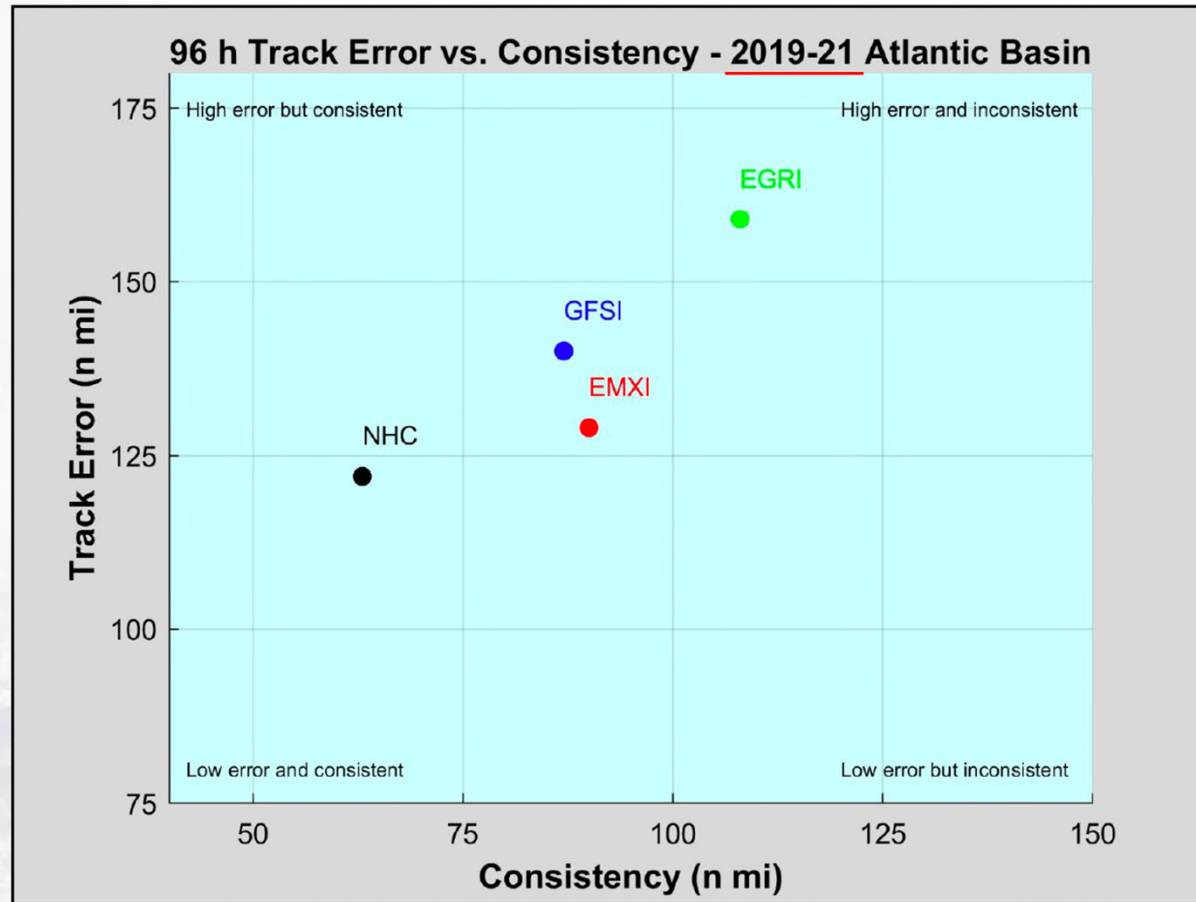
5. Deterministic Concerns

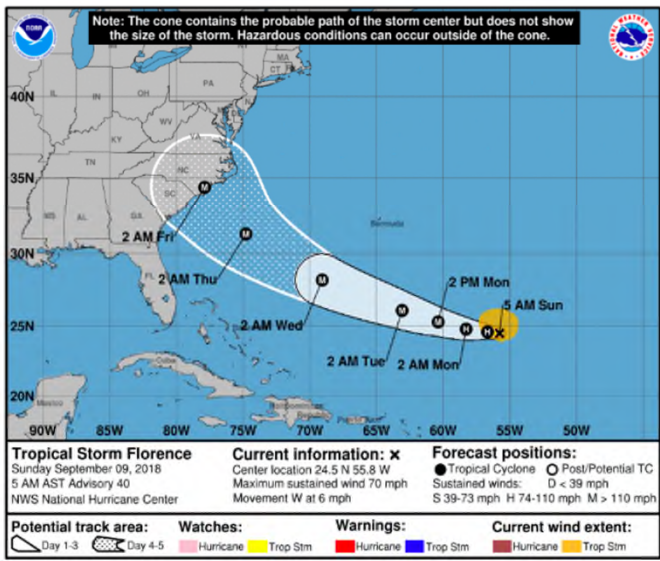
NHC's track forecast errors have steadily decreased over the past 40 years



5. Deterministic Concerns

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





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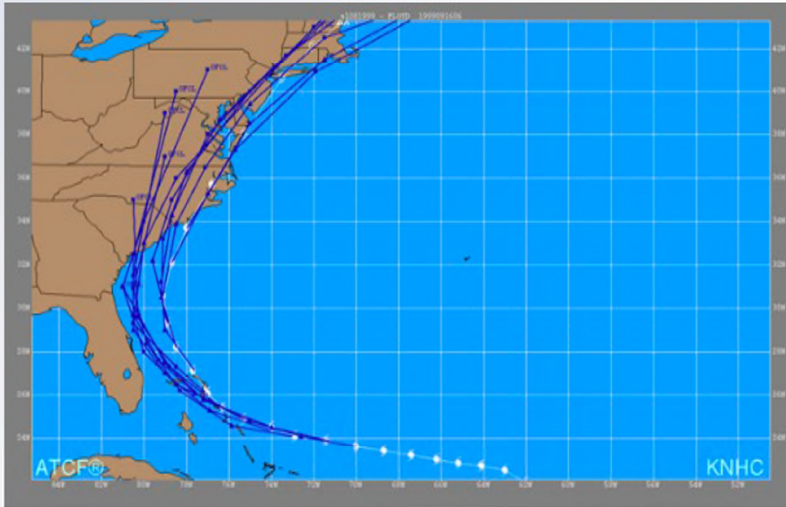
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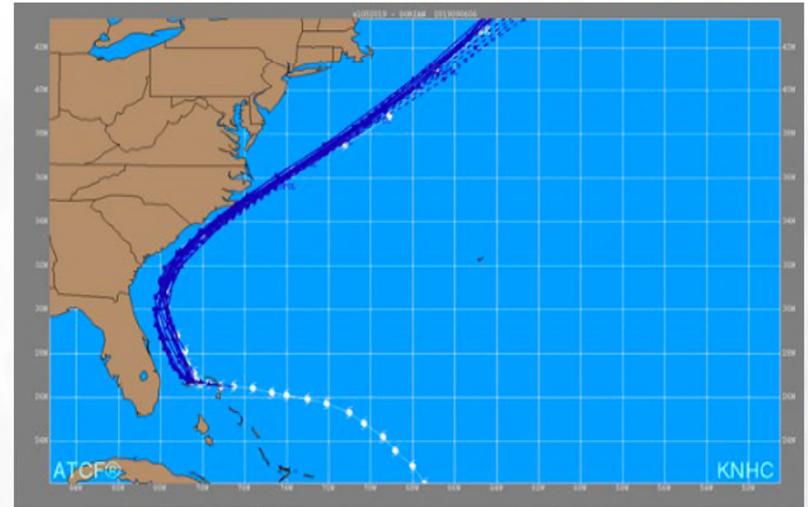
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Why does this matter?



NHC Track Forecasts for Floyd from
06Z 13 Sep - 06Z 16 Sep 1999

2.6 million people evacuated



NHC Track Forecasts for Dorian from
06Z 1 Sep - 06Z 6 Sep 2019

As many as 3 million people NOT evacuated



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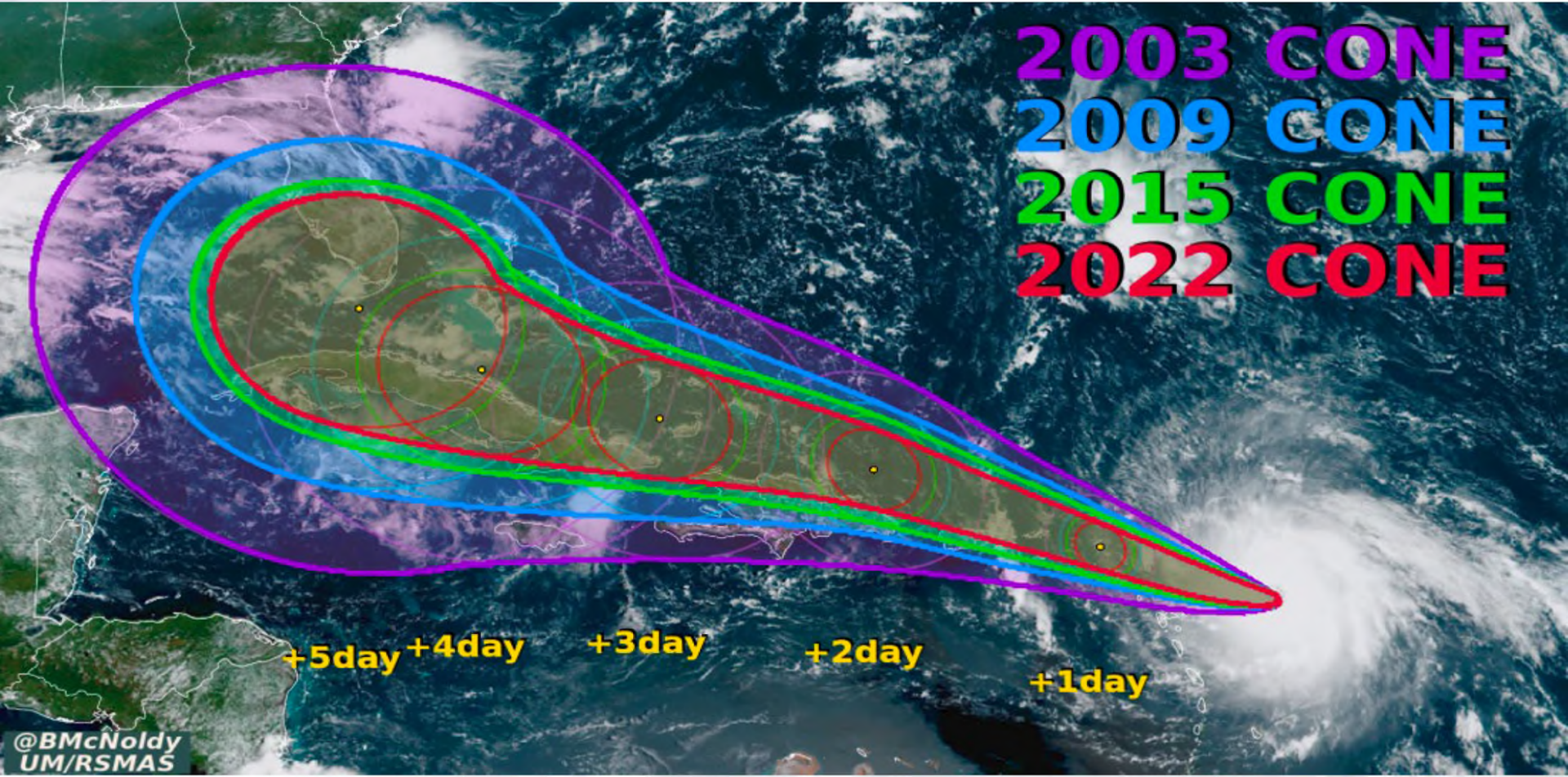
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Uncertainty Over Time



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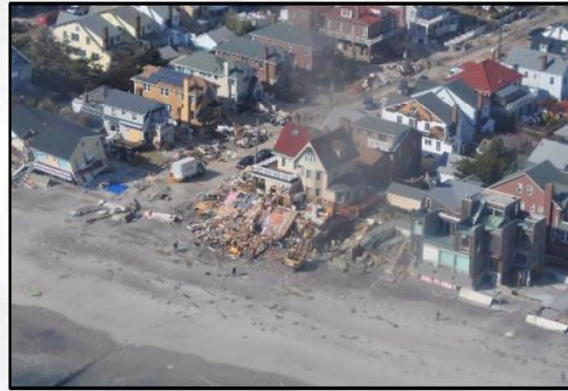


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Bonus! No Such Thing as Storm “Justa”



2010-2020

In the U.S., Category 1 hurricanes* have caused 185 direct deaths \$110 billion

***Irene, Isaac, Sandy, Hermine, Matthew, Nate, Florence, Barry, Hanna, and Isaias**



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Remember, you have these folks...



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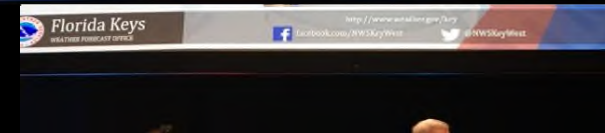
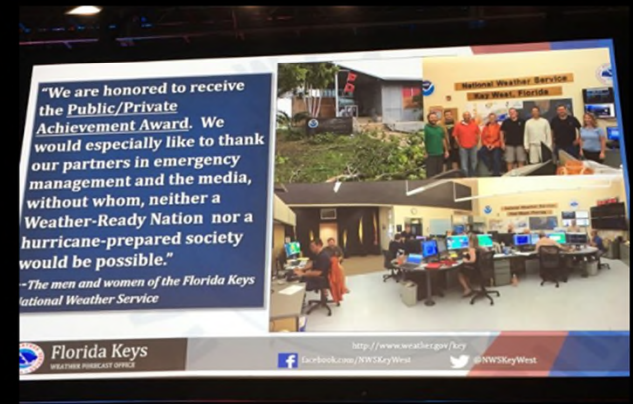
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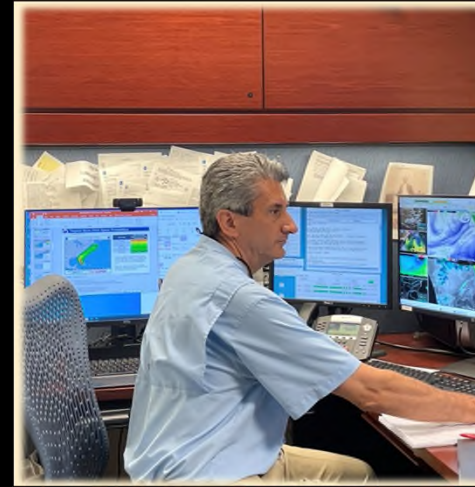
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The National Weather Service *The Florida GHC Public/Private Partnership Award*



2022 Monroe County TIM Team Meeting

There is always so much more to say!



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Chris Rothwell, Lead Meteorologist
chris.rothwell@noaa.gov 305-295-1316 / 601-766-5858



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