



# Hurricane Michael

## Response, Recovery and Lessons Learned

September 25, 2019  
Bay County

Gulf of  
Mexico





# Pre-Landfall

## Tropical Outlook (NHC)

Latest Information As Of: 2 PM EDT October 5, 2018

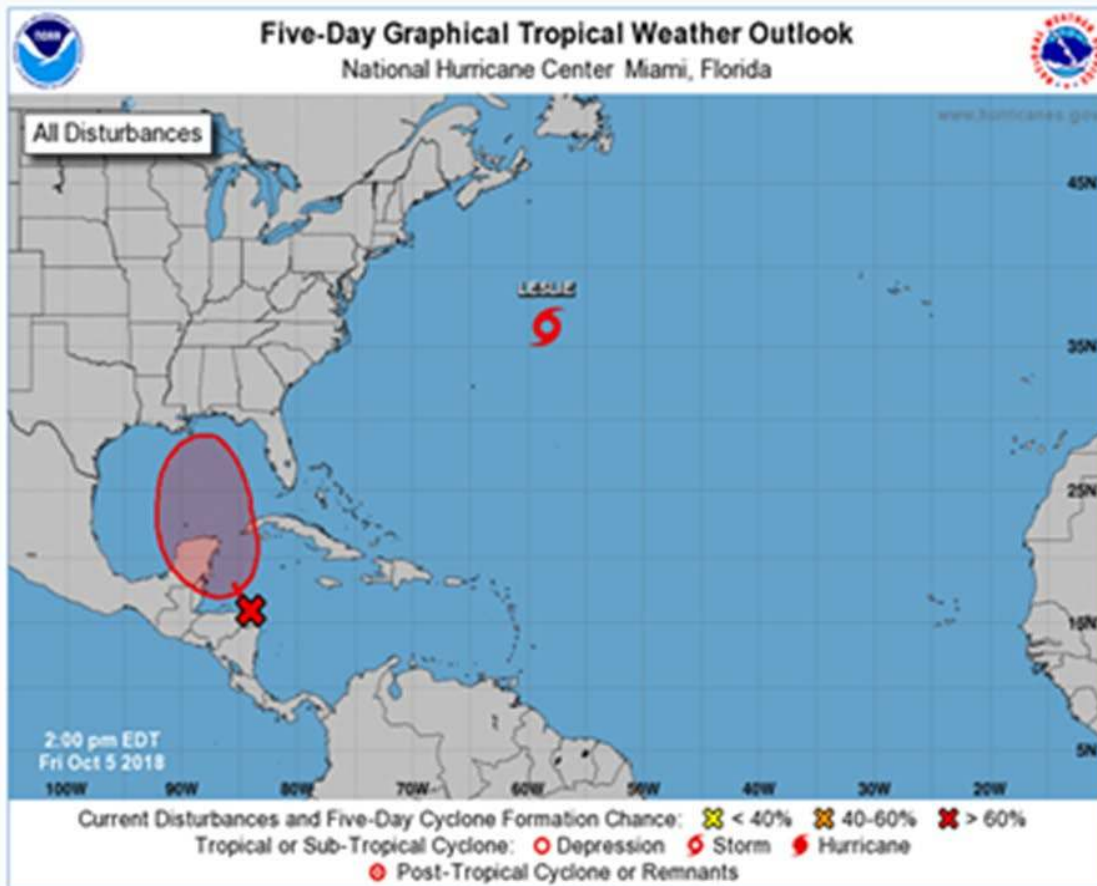
Weather Forecast Office

Tallahassee

Issued October 5, 2018 2:13 PM ET



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



### Things to Know For the Tri-State Area

- Area of tropical activity has a **70% chance of development in the next 5 days**
- There is **low confidence** for future track and intensity
- Regardless of development, this system will **increase rain chances** for the FL Big Bend and Panhandle towards the middle of next week
- Continue to monitor this system through the holiday weekend

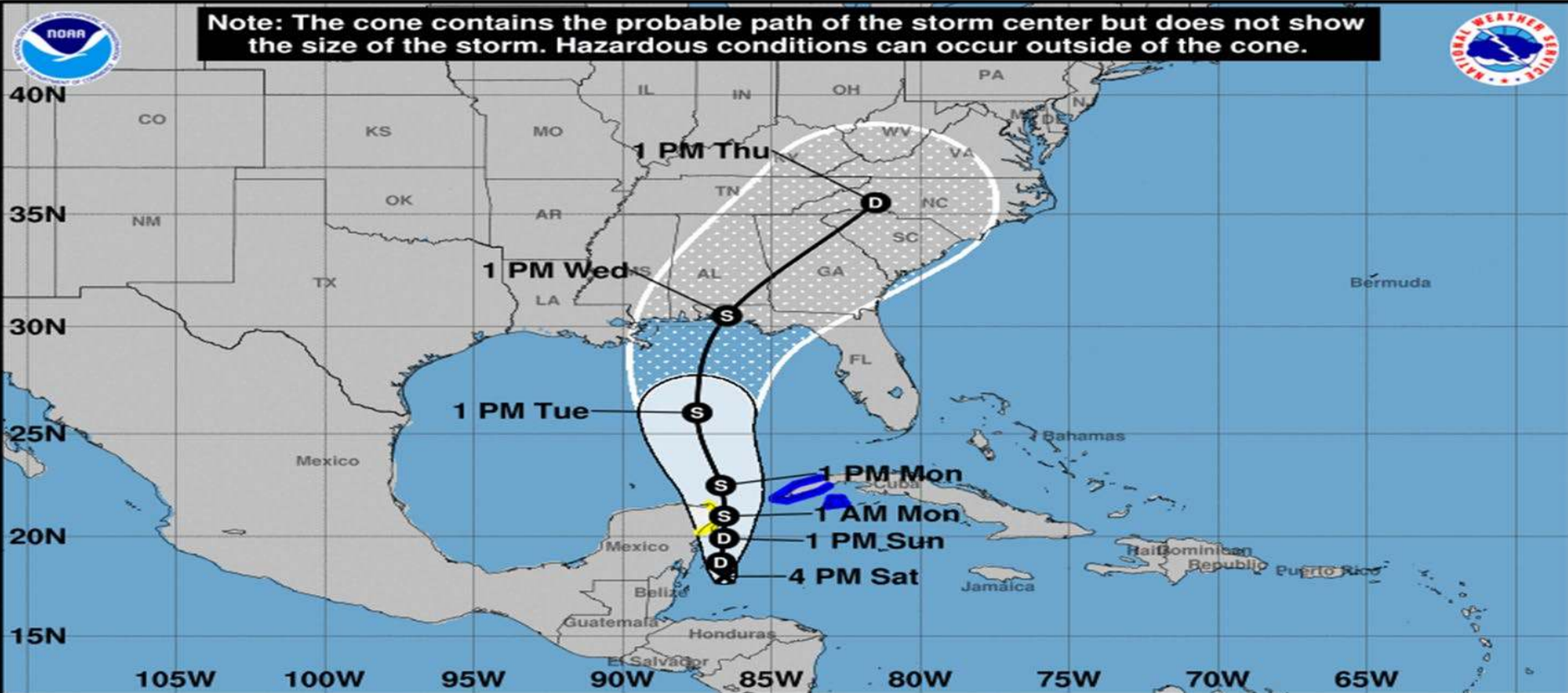




# Pre-Landfall

## 1<sup>ST</sup> ADVISORY – SATURDAY, 10/6 @ 1600

**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.**



**Potential Tropical Cyclone Fourteen**  
 Saturday October 06, 2018  
 4 PM CDT Advisory 1  
 NWS National Hurricane Center

**Current information: x**  
 Center location 18.0 N 86.6 W  
 Maximum sustained wind 30 mph  
 Movement NW at 6 mph

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

<b>Potential track area:</b>	<b>Watches:</b>	<b>Warnings:</b>	<b>Current wind extent:</b>
Day 1-3 Day 4-5	Hurricane Trop Stm	Hurricane Trop Stm	Hurricane Trop Stm



# Pre-Landfall (Sunday)

**Due to  
Holiday  
Weekend  
minimal  
staff was  
requested  
to report to  
the EOC**

**1<sup>ST</sup> NWS-  
TAE  
Conference  
Call Held**

**Basic Plans  
Reviewed  
(Shelter,  
Debris,  
Fuel, etc.)**

**Notification  
of ESF  
Partners  
and  
Emergency  
Service  
staff of  
Level 2  
activation  
on Monday**

**Local State  
of  
Emergency  
(LSE)  
Discussed**

**Press  
Conference  
Scheduled  
for 10/8**





# Pre-Landfall (Monday)

**Level 2 (partial) Activation**

**Executive Policy Group (EPG) Meeting**

**Citizen Information Center (CIC) Activated**

**NWS Deploying LNO (1<sup>ST</sup> TIME)**

**LSE Declared**

**Evacuation Decisions Made**

**Resource Planning/Ordering**

**Shelter Set-Up Begins**



# Pre-Landfall (Tuesday)

Level 1 Activation



Government/Schools Closed



Mandatory Evacuations Begin (Zones A/B/C)



(3) Shelters Opened



Debris Contractors/Monitors on Stand-By



EOC Support Team Arrives



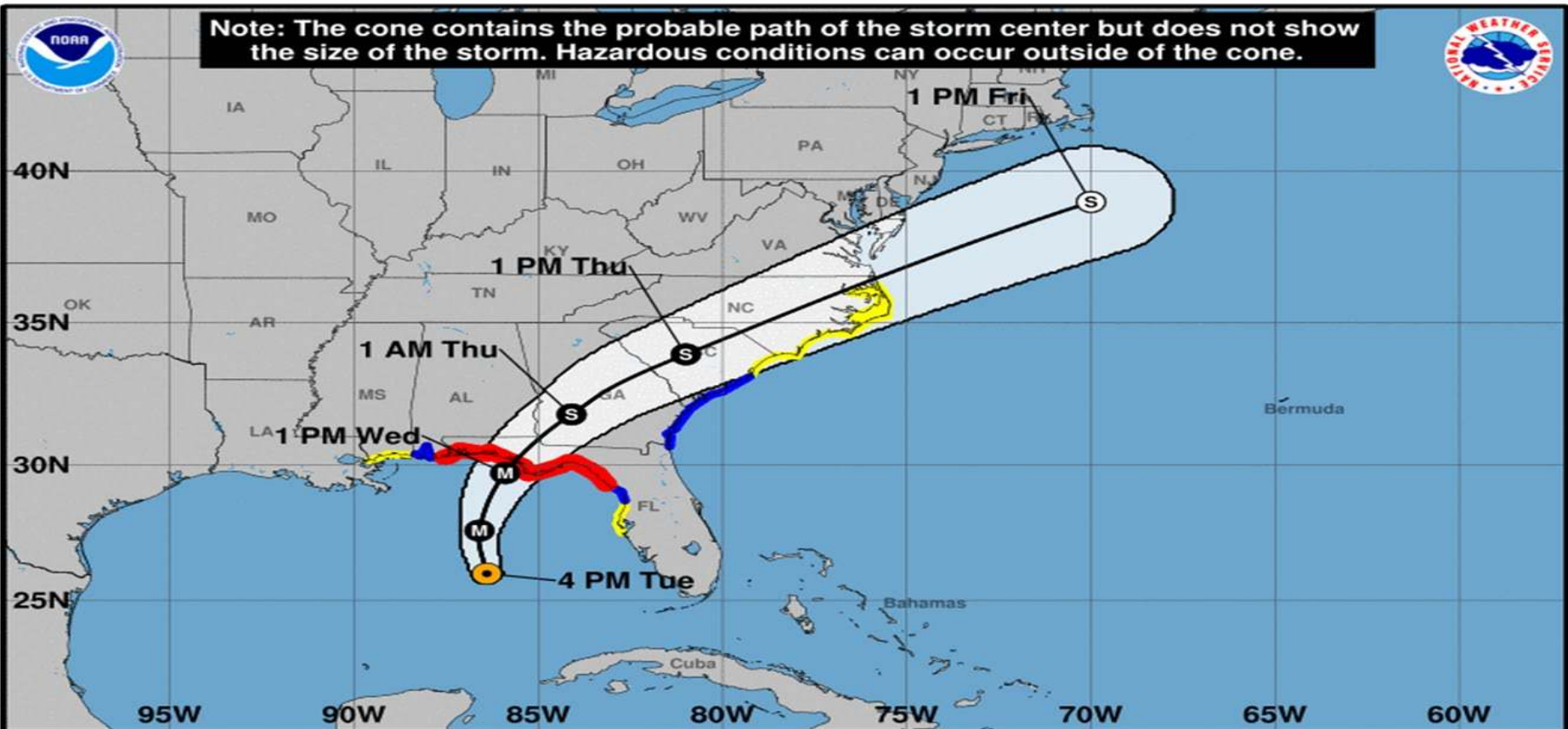
NOW Forecast to be a Strong CAT 3, Possible CAT 4 (Less Than 72 Hours From 1<sup>ST</sup> Advisory)





# Pre-Landfall (Tuesday)

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 Michael**  
 Tuesday October 09, 2018  
 4 PM CDT Advisory 13  
 NWS National Hurricane Center

**Current information:** ●  
 Center location 26.0 N 86.4 W  
 Maximum sustained wind 120 mph  
 Movement N at 12 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



# Landfall (Wednesday)

**Early Morning Messaging of Shelter- In-Place**

**Emergency Services Ceased @ 0730**

**Bridges "CLOSED" @ 0900**

**EOC Commercial Power Lost @ 12:48**

**EOC Communications Lost @ 12:53**

**911 Inundated with Calls for Hours**





# Activation Timeline

EOC Partners  
Notified Sunday,  
10/7/2018 1200

Governor Scott  
Declaration  
Sunday,  
10/7/2018 1300

EOC Activated  
to Level 2  
Monday,  
10/8/2018 0700

LSE Declared  
Monday,  
10/8/2018 1300

Shelter at Merritt  
Brown Open  
Tuesday, 10/9/2018  
1630

Shelters at Bozeman  
and Northside Open  
Tuesday, 10/9/2018  
1000

EOC Activated to  
Level 1 Tuesday,  
10/9/2018 0800

Evacuations Begin  
for Zones A, B, & C  
Tuesday, 10/9/2018  
0600

Cessation of Fire,  
EMS, and LE  
Services  
Wednesday,  
10/10/2018 0730

EOC Lost  
Commercial Power  
Wednesday,  
10/10/2018 1250

EOC Lost All  
Communications  
Wednesday,  
10/10/2018 1253

Hurricane Michael  
Landfall  
Wednesday,  
10/10/2018 1300

**73**  
**HOURS**



# Overview of Impact

## Total Estimated Bay County Damage – \$661 million

Bay County was forever changed by the magnitude of destruction brought by Hurricane Michael. As the population center of the region and ground zero for the storm's landfall, Bay County residents experienced the worst impacts of the **near-Category 5 storm**, and the fallout continues today:

- 25 deaths in Bay County
- 17 million cubic yards of debris in Bay County (out of the estimated 20 million cubic yards total across the impact zone)
- Estimated 20,000 residents were displaced immediately post-storm
- 13 percent of Bay County students never returned post-storm
- Three schools closed by county post-storm
- 69 percent of residential homes in Panama City alone were damaged
- Bay Medical Center forced to shrink to one quarter its previous size
- Panama City Mall closed
- More than 33,000 applicants for FEMA assistance in Bay County were denied
- \$3 billion in timber losses



**Fiscally Constrained Counties** (marked in orange) receive **100%** federal reimbursement post-storm.

**Bay County** was the hardest hit by Hurricane Michael and is the **only** county in the impact area **that does not qualify for 100%** reimbursement.

Where a storm hits can be just as impactful as the strength of the storm...

County/Storm	Annual Budget	Storm Impact per capita
Miami Dade County/ Hurricane Irma	\$7.4 billion	\$135
Bay County/ Hurricane Michael	\$362.2 million	\$3,647

### Bay County Activities to Date:

- Removed more than 8.5 million cubic yards of debris in unincorporated Bay County. More than 15.9 million cubic yards has been removed countywide
- Received 45 days of 100-percent debris removal reimbursement, which will cover approximately \$85 million of an estimated \$350 million total cost of debris removal
- Have borrowed -- so far -- \$250 million to pay vendors with un-reimbursable interest of just over 3 percent after three years; working on more expedited FEMA reimbursement.

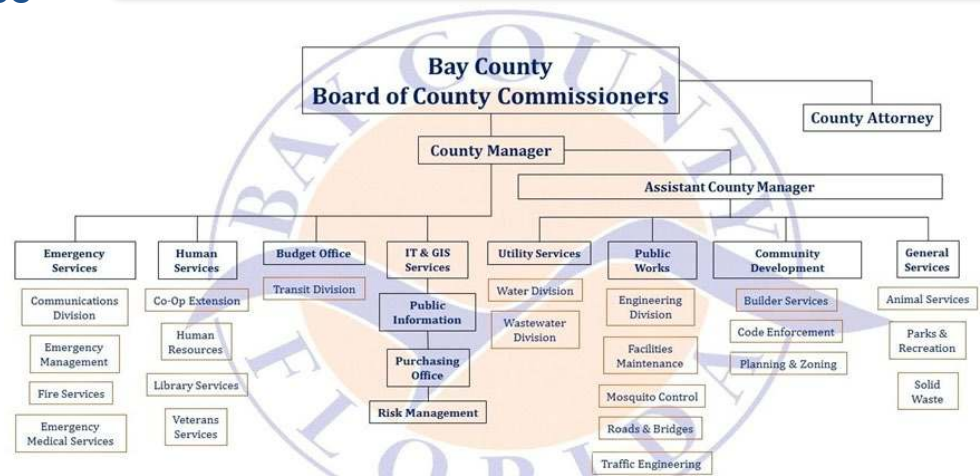






# Initial Response and After Action

- Bay County EOC activated on Oct. 8 and served as the central command and communication center for all critical local, state, and federal personnel.
- 21 Incident Management Teams assisted from Florida and eight other states.
- More than 750 personnel worked in the EOC daily during the first 30 days
- More than 2,500 first responders from Florida and other states; Fire/EMS & Law Enforcement
- Florida Water/Wastewater Agency Response Network
  - Over 400 utility workers along with equipment, tools, generators, pumps, pipes, and fittings deployed from throughout Florida to assist
- Divisions cross trained and assisted in immediate areas of need
- After Action Report from FSU



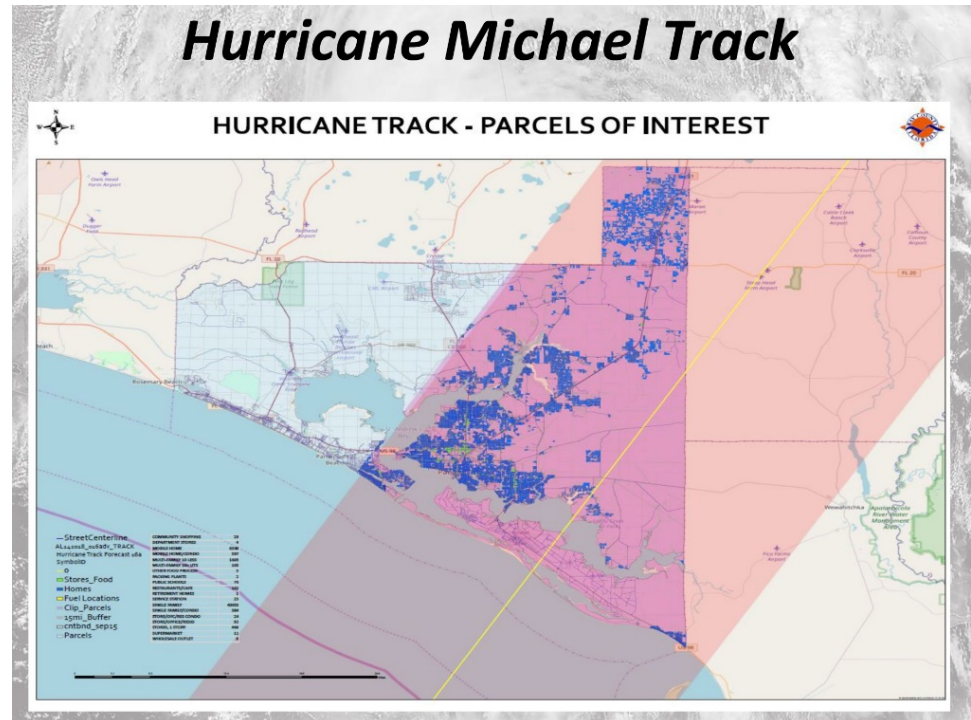


# Storm Damage

- On October 10, 2018 Bay County received a Category 5 Hurricane with sustained winds of 160 mph and wind gust over 200 mph.

- 25 deaths in Bay County
- 10.1 million cubic yards of debris in Bay County
- Estimated 20,000 residents were displaced immediately post-storm
- 13 percent of Bay County students never returned post-storm
- Three schools closed by county post-storm
- 69 percent of residential homes in Panama City alone were damaged
- Total of \$3 billion in timber losses (3 million acres in Florida)

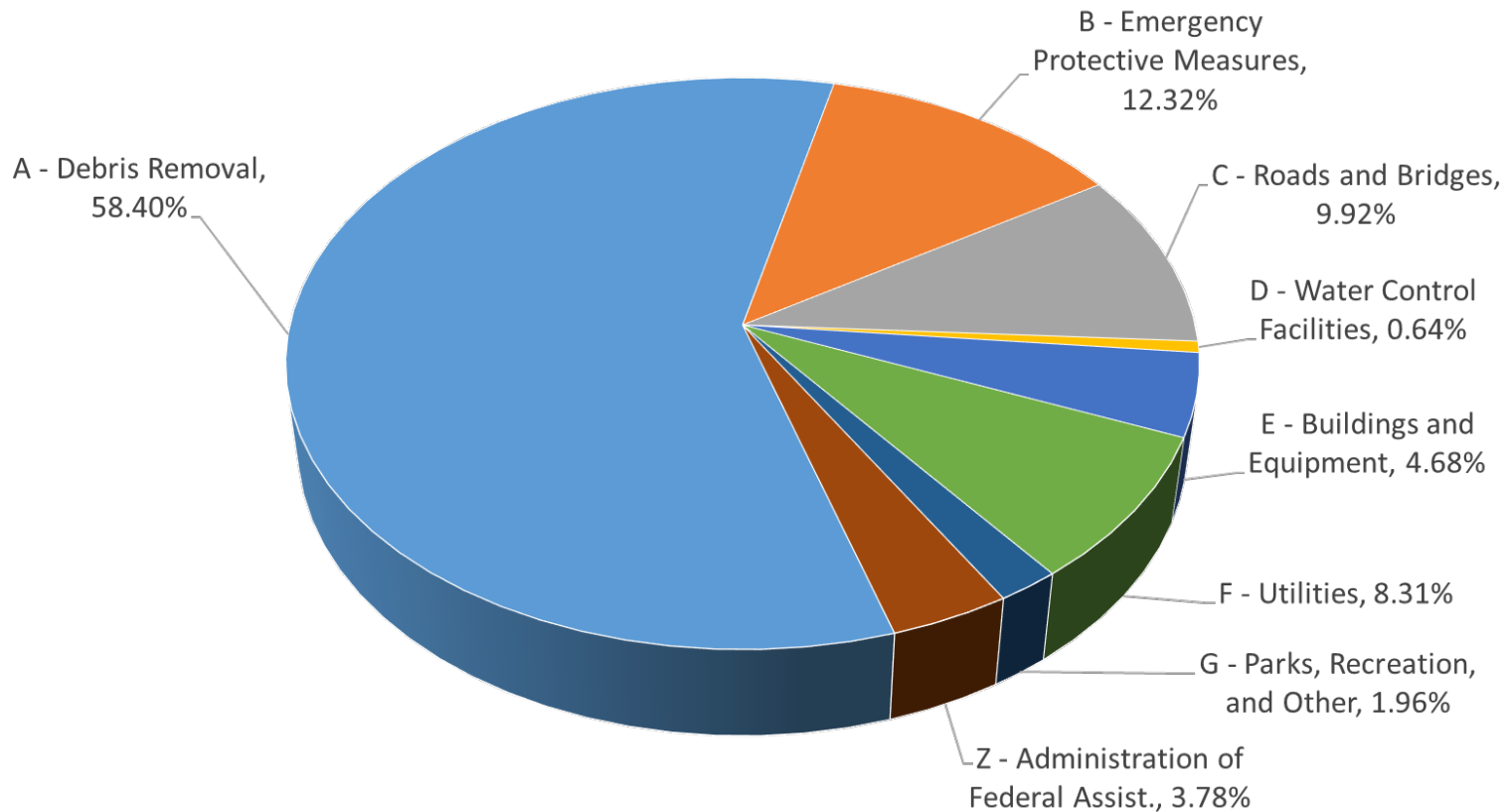
- Michael was the third-most intense Atlantic hurricane to make landfall in the US in terms of pressure and the fourth-strongest land falling hurricane in the U.S., in terms of wind speed.





# Impact

## Bay County Damage Inventory by Category \$661M Total







# Damage





# Impact

## Storm Debris Totals as of 09/09/2019

BAY ROW		Cubic Yards
	County	8.42M
	Mexico Beach	750K
	Panama City	3.36M
	Callaway	1.07M
	Springfield	710K
	Lynn Haven	1.28M
	Parker	550K
	Panama City Beach	30K
	FDOT	602K
		<b>16.77M</b>



- Unincorporated County ROW, Direct & Waterways/Canals: **10.2M CY** of Debris
  - 6.81M CY Vegetative
  - 1.61M CY C&D
  - 1.19M CY Waterways / Canals
  - 0.59M CY Direct to Landfill
- All of Bay County (ROW only) including Cities 16.77M CY
- All Florida Counties ROW storm debris totals 33+M CY
- At times, we had over 300 trucks working on debris pickup in the Unincorporated County alone with 20 DMS sites for all municipalities.
- Disposed approximately 250 boats from the salvage operations.





# Hurricane Expenditures

	9/20/2019	Payments	P.O.s	Debris invoices not paid
FEMA A- DEBRIS REMOVAL OPER	5808301	\$ 145,185,523.18	\$ 3,938,411.50	\$ 17,764,413.42
FEMA A- DEBRIS REMOVAL CAP	5808302	\$ 53,726.47		
FEMAB - EMPG PRTV MSRS OPE5808303		\$ 17,168,188.60	\$ 1,546,360.07	
FEMA B - EMPG PRTV MSRS CAP	5808304	\$ 2,526,592.40	\$ 335,531.70	
FEMA C-ROADS & BRIDGES	5808305	\$ 99,630.31	\$ 220,682.30	
FEMA D-WATER CNTRL FAC	5808306	\$ 239,910.33	\$ 173,814.71	
FEMA E-BLDGS & EQUIP OP	5808307	\$ 162,825.15	\$ 52,961.05	
FEMA E-BLDGS & EQUIP CAP	5808308	\$ 12,341,376.07	\$ 12,904,414.20	
FEMA F-UTILITES	5808309	\$ 678,037.73	\$ 165,650.00	
FEMA G-PARKS & REC, OTHER	5808310	\$ 71,172.69	\$ 2,004,070.41	
FEMA Z - ADMIN COST	5808311	\$ 5,865,605.70		
Disaster O/T	5101405	\$ 3,933,873.52		
		\$ 188,326,462.15	\$ 21,341,895.94	\$ 17,764,413.42

Disaster inventory of projects is on going, this amount is likely to go up.

**\$ 227,432,771.51**

Payments without O/T \$ 184,392,588.63





# Damage



**Cell Sites Down  
10/11/18**

ALABAMA	70
FLORIDA	733
GEORGIA	554

Source: FCC







# City of Mexico Beach







# Tyndall Air Force Base





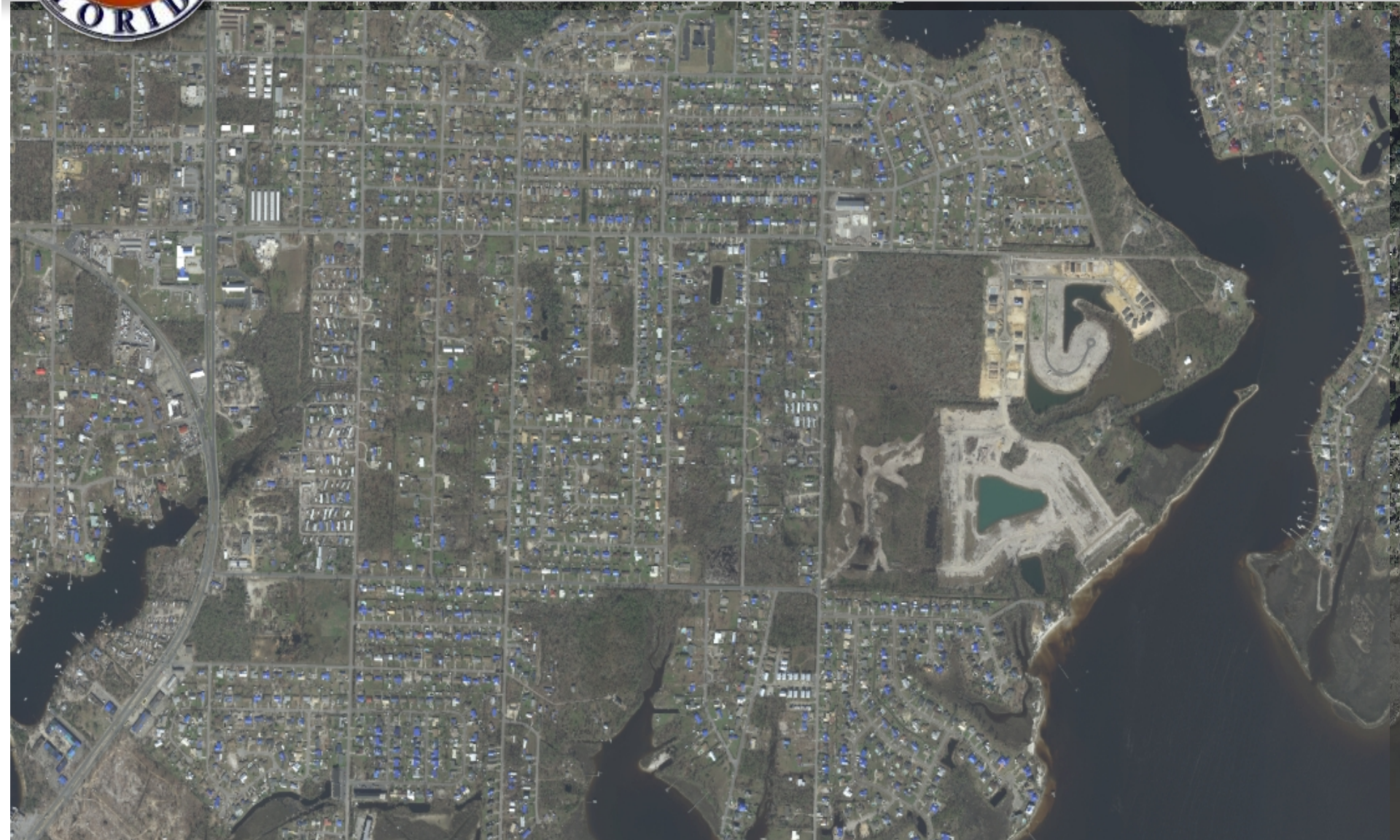


# Impact, Ad-valorem





# City of Callaway







# City of Panama City







# Public Works

## Road and Bridges and Engineering:

### After Storm

- Worked with National Guard, US Forestry, to clear all Bay County owned roadways within 7 days. (1,500 Miles)
- Cleared routes from Hospitals to expedite patient evacuations.
- Provided site preparation for base camps.
- Inspected 51 County bridges to ensure structural integrity.

### Currently

- Clearing County owned stormwater systems. (28 Basins)
- Repairing right of way shoulders
- Removing illegally placed debris from roadways and demolishing destroyed facilities.





# Public Works

## Facilities:

- Performed damage assessment and initiated remediation work at 110 sites. Sites included County Jail, Courthouse, Government Center, District Attorney's Office, and the County Library. County facility damages exceed \$60,000,000.
- Coordinating final repairs to above County facilities damaged by the storm.
- Staff provided assistance to First Responder staging sites.
- Assisted in finding temporary sites for displaced staff.
- Constructing temporary / permanent staff locations within Government Center



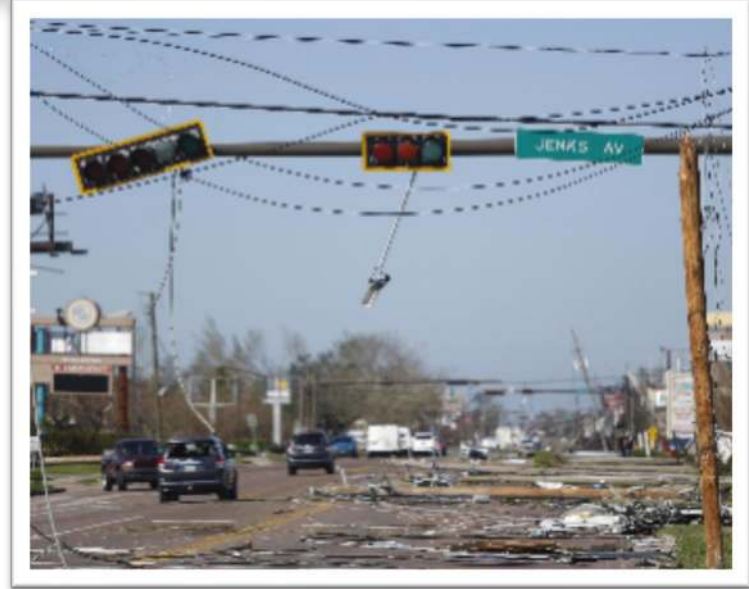




# Public Works

## Traffic Engineering:

- Completed Type 1 signal repairs.
- Retimed signals to help restore stable traffic flow.
- Restored fiber optic communications
- Still repairing County's 15,000 traffic signs knocked down by storm.
- Rebuilding Street Lights







# Recovery

## Task Force



Plan available online was adopted by BOCC 8-6-19

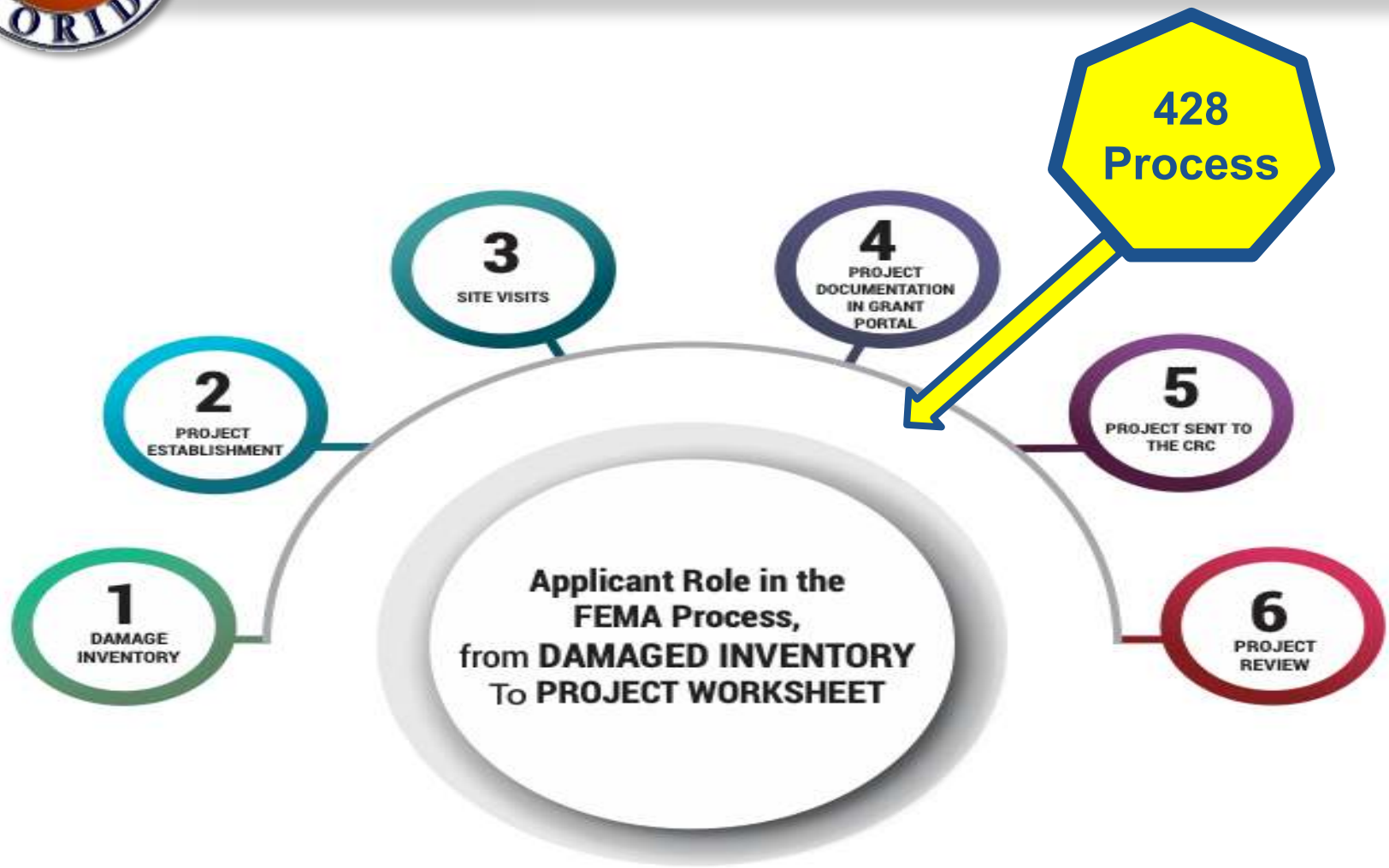


# Damage





# FEMA







# FEMA

The Alternative Project Process (428 Process) allows Bay County to:

1. Submit detailed permanent work projects to FEMA based on fixed estimates , Bay County agrees to be responsible for actual costs that exceed the estimate
2. Use all or part of the excess funds for cost-effective activities that reduce the risk of future damage, hardship, or suffering from a major disaster and other activities to improve future Public Assistance operations or planning (must be mutually agreed upon by the FEMA and the applicant)





# Employment

- Job losses are greater than initially thought. Latest data from July indicates a decrease of 2,400 jobs over the last year in non-agricultural employment. The unemployment rate (3.8 percent) remains flat over last year. Following the storm, more than 10,000 individuals applied for Disaster Unemployment, though those requests have diminished at this point.
- No accurate data about how many workers left the area is available without a Census count.
- Job seeker visits to the Workforce Center are the lowest they have ever been, and employers continue to experience a severe workforce shortage.
  - ❖ More job orders at Career Source Gulf Coast than in the last 30 years.
  - ❖ Too few applicants for employers' needs, despite an influx of individuals to the area to work on recovery, placing added pressure for employees within the service industry.
  - ❖ Housing remains a huge issue: recruiting workers remains difficult due to limited housing and rental options.





# Recovery

## Cost Mitigation Strategies

- Insurance
- Federal and State Partners
- Triumph, grant to county and municipalities to mitigate ad-valorem loss
- Modification of Small County Surtax to allow Bay County to levy tax - unsuccessful
- Local Match Waiver with Governor's Office, awaiting response
- Change from 75%/25% FEMA funding to 90%/10% – Received for Cat A & B only
- First 45 days Cat A & B expedited project 50% funding - Received
- Second 45 days of Category A – Awaiting response
- Community Disaster Loan (CDL) Program – Awaiting response
- Catastrophe Bonds – researching
- Legislature Funding – State budget passed, received approximately \$9M



# Communicating w/o Communications

- Verification of Information
- Local vs. National Media
- Find Your Media Team
- Think Old School
  - ❖ Loud Speakers
  - ❖ Banner Plane
  - ❖ Google Voice
  - ❖ Gmail Account
  - ❖ Radio
  - ❖ Flyers with first responders
  - ❖ Variable message boards







# Communicating w/o Communications

- Multiple phone carriers
- Walkie Talkies for PIO Team
- Assign a scribe and take a bunch of pictures
- Turn off Facebook private messaging before the storm
- Post someone out of the area with social media access
  - ❖ Oct. 1 -- 13,568 Facebook likes
  - ❖ Dec. 31 -- 35,340 Facebook likes
  - ❖ Aug. 15 – 38,411





# Technologies that Worked

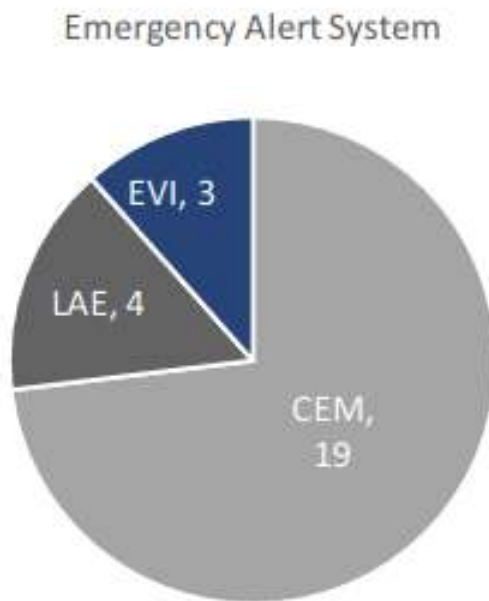
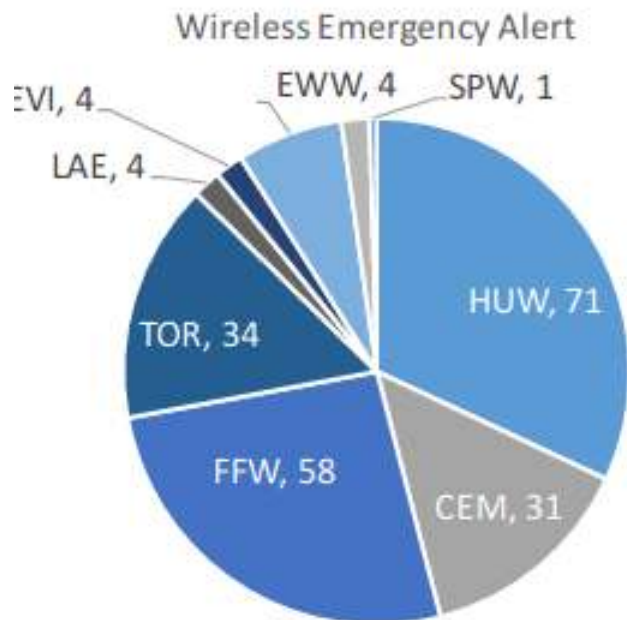
- WEA
- AlertBay
- 211
- FM Radio
- Escambia County donated and hosted a webpage for Bay County recovery





# Emergency Alert System

**222** WEA alerts and **26** EAS alerts were issued between October 8<sup>th</sup> and 15<sup>th</sup> of 2018 in response to the hurricane. The National Weather Service was responsible for **182** WEAs. Affected states and local alerting authorities sent a combined total of **40** WEAs and **26** EAS alerts.



The following event codes were utilized throughout the hurricane in Florida, Georgia, South Carolina, North Carolina, and Virginia:

- Hurricane Warning (**HUW**)
- Civil Emergency Warning (**CEM**)
- Flash Flood Warning (**FFW**)
- Tornado Warning (**TOW**)
- Local Area Emergency (**LAE**)
- Evacuation Immediate (**EVI**)
- Storm Surge Warning (**SSW**)
- Extreme Wind Warning (**EWW**)
- Shelter in Place Warning (**SPW**)

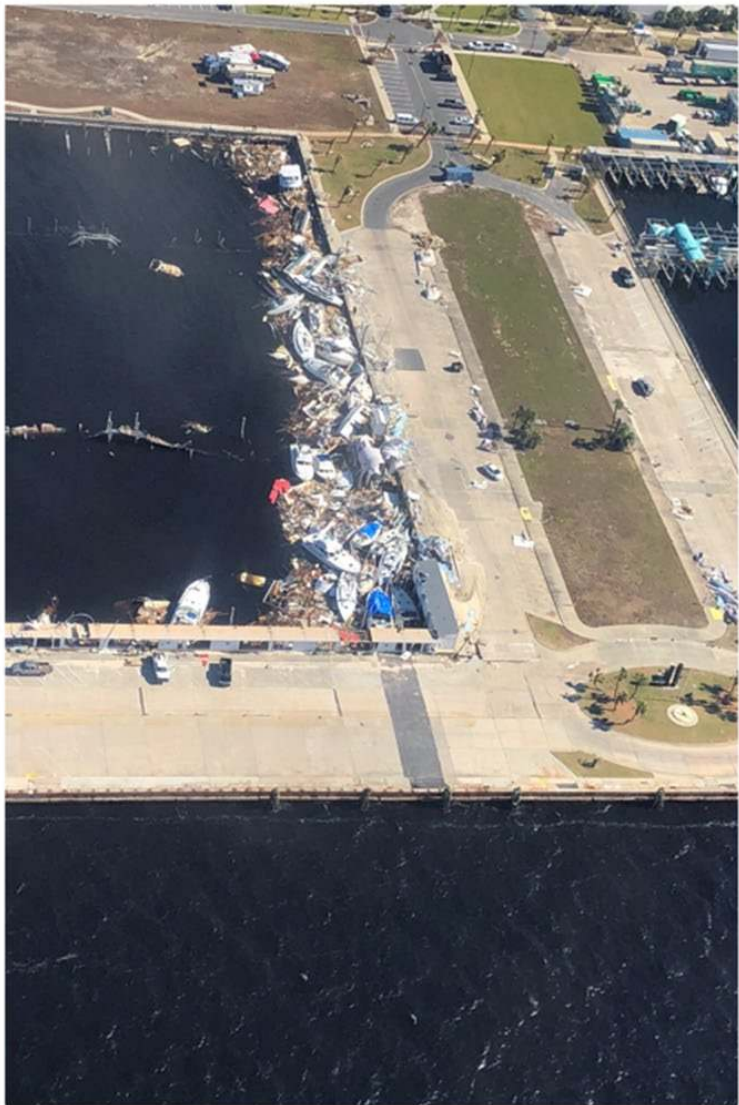


FEMA





# Damage





# Once Comms were Restored

- ❖ Press Releases
- ❖ Battle Rhythm
- ❖ Healthcare Lists
- ❖ Press Conference
- ❖ WebEOC (Limited)
- ❖ Radio Interviews
- ❖ Canva





What Breaks Your  
Heart?

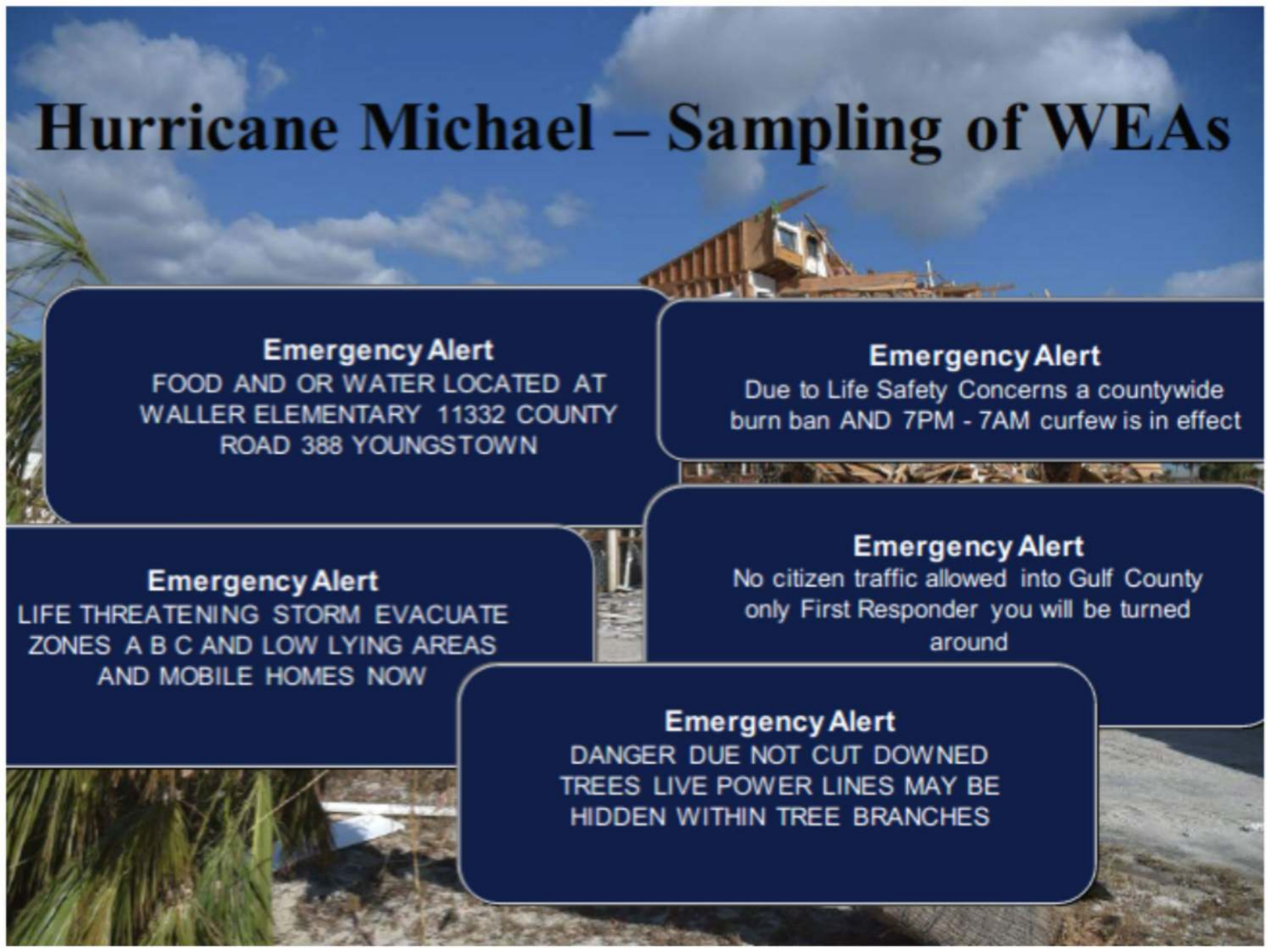




# Showing Genuine Emotion is Effective



# Hurricane Michael – Sampling of WEAs



## Emergency Alert

FOOD AND OR WATER LOCATED AT  
WALLER ELEMENTARY 11332 COUNTY  
ROAD 388 YOUNGSTOWN

## Emergency Alert

Due to Life Safety Concerns a countywide  
burn ban AND 7PM - 7AM curfew is in effect

## Emergency Alert

LIFE THREATENING STORM EVACUATE  
ZONES A B C AND LOW LYING AREAS  
AND MOBILE HOMES NOW

## Emergency Alert

No citizen traffic allowed into Gulf County  
only First Responder you will be turned  
around

## Emergency Alert

DANGER DUE NOT CUT DOWNED  
TREES LIVE POWER LINES MAY BE  
HIDDEN WITHIN TREE BRANCHES



**HURRICANE MICHAEL**

HURRICANE MICHAEL CATEGORY 4 Track the storm: [cnn.com/hurricane](http://cnn.com/hurricane)

**HURRICANE MICHAEL CAT:2 110 MPH**

Panama City, Apalachicola, Tampa

VOICE OF: MARK BOWEN | BAY COUNTY EMERGENCY SERVICES CHIEF

**EMERGENCY OFFICIAL: "NO EXCUSE" NOT TO LEAVE**

HURRICANE MICHAEL CAT:2 WINDS 110 MPH GUSTS 130 MPH

**abc WORLD NEWS TONIGHT WITH DAVID MUIR**

**HURRICANE MICHAEL HEADS TOWARD FLORIDA**

Weather ALERT

HURRICANE MICHAEL CAT:2 WINDS 110 MPH GUSTS 130 MPH

RAINFALL FORECAST	
HEAVIEST RAIN	WEDNESDAY WED NIGHT
RAINFALL	8-12" +
75 MPH + WIND GUSTS	WEDNESDAY WED NIGHT

# THE WALL STREET JOURNAL

October 12, 2018  
UMV: 43,634,142

## Hurricane Michael Pummels the Florida Panhandle

Stares the most powerful on record to hit the region, from lowest Georgia and Carolina



In Panama City Beach, a popular tourist destination with beachfront hotels and condos, tourists-development tax collections hit records nearly every month this year, said Dan Rowe, chief executive of Visit Panama City Beach, which promotes the area.

"We have been whacked a few different times," he said, citing Hurricane Ivan in 2004 and Hurricane Opal in 1995. "Each time, we recovered quickly and stronger than ever."

TALLAHASSEE, Fla. — Hurricane Michael roared ashore Wednesday as one of the most powerful storms ever to hit the U.S., toppling homes, trees and power lines in its path through the Florida Panhandle.

The Category 4 storm, one that meteorologists estimated winds of 155 miles an hour, made landfall near Panama City Beach, Fla., in a region crisscrossed with tourist beaches and fishing villages. After rapidly intensifying over the Gulf of Mexico, Michael ranked as the strongest storm to hit the Southeast since at least 1950, when record-keeping began, according to the National Oceanic and Atmospheric Administration.

# USA TODAY

October 12, 2018  
UMV: 36,842,180

## 'It looks like a bomb went off': Tropical Storm Michael menaces Southeast; 7 dead



Panama City and Panama City Beach are heavily dependent on tourism. About 17 million visitors annually sun themselves on the 27 miles of soft sand beaches. Officials are optimistic they can be up and running again soon.

The beaches at least were largely unaffected by the storm, which hit the east side of Panama City hardest. Panama City Beach, a separate town, is west of there.

Panama City Beach is particularly popular with residents of Georgia, Alabama, Tennessee, Kentucky, Texas, Florida, Missouri and Illinois because it's a relatively easy drive for most Southerners and has the closest beaches to the Midwest. The city has had a record-breaking tourism year. Visits were up 10.2 percent before the storm hit.

Officials promised they'll be back open for business as fast as possible, so tourists can enjoy Thanksgiving's "Beach Home for the Holidays" and a 10,000-beachball drip for

**BREAKING NEWS**

'LIFE-THREATENING' STORM SURGE EXPECTED UP TO 12 FEET

**HURRICANE MICHAEL**

WIND: 120 MPH  
CATEGORY: 3  
MOVING: N at 12 MPH  
270 MI S OF APALACHICOLA, FLORIDA

**'LIFE-THREATENING' STORM**

HURRICANE TO BRING DANGEROUS STORM SURGE, DAMAGING WIND

- MEDIA COVERAGE 80 Hour Period
- 35 National and International Media Interviews
- 8 Press Conferences
- 20+ Media Outlets





- Build a Public Information Network (PIN) -- use it!
- Deploy/take classes
- Partner with other agencies
- Leverage other agencies resources
- Get to know your elected representatives and their staffers





- In field PIOs are extremely valuable
- Get to know PIOs throughout the state
- Find and brief task team PIOs if possible





# Other Considerations . . .

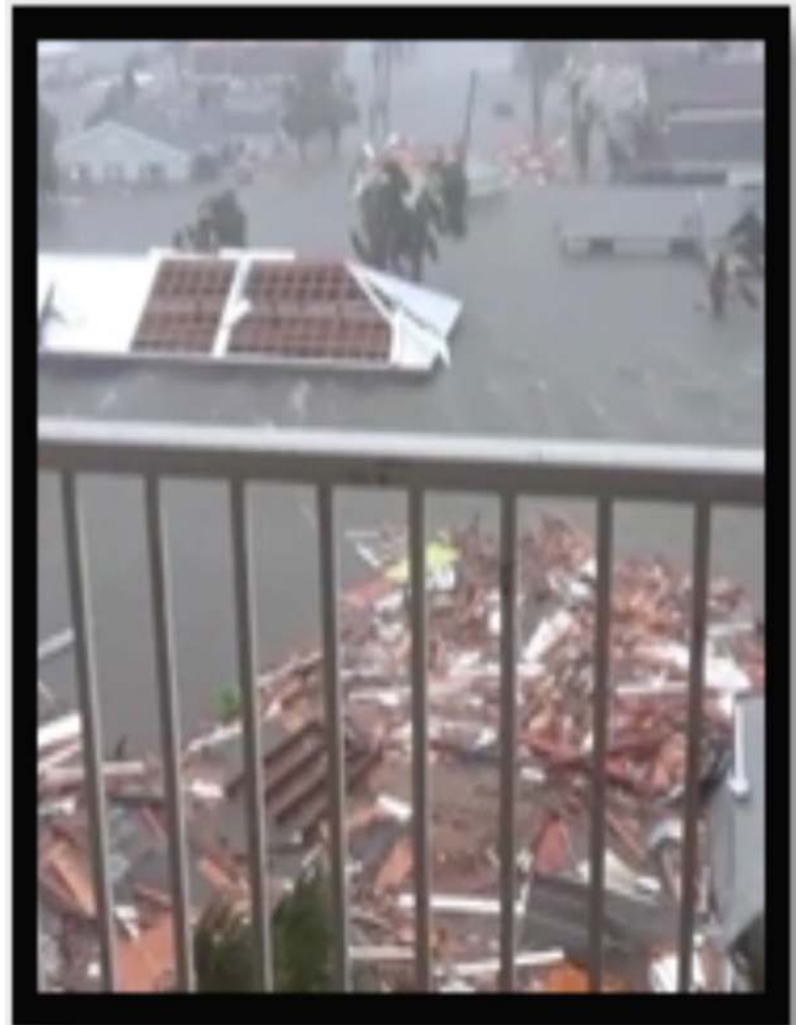
- Have maps/local information (fact sheets) available for out-of-town responders
- Consider your work space
  - ❖ A "Go" Bag - Professional clothes, comfortable shoes and BLANKETS!
  - ❖ Security in front of work space and media room
  - ❖ Lead PIO - Don't be a martyr!
  - ❖ Have a Liaison!







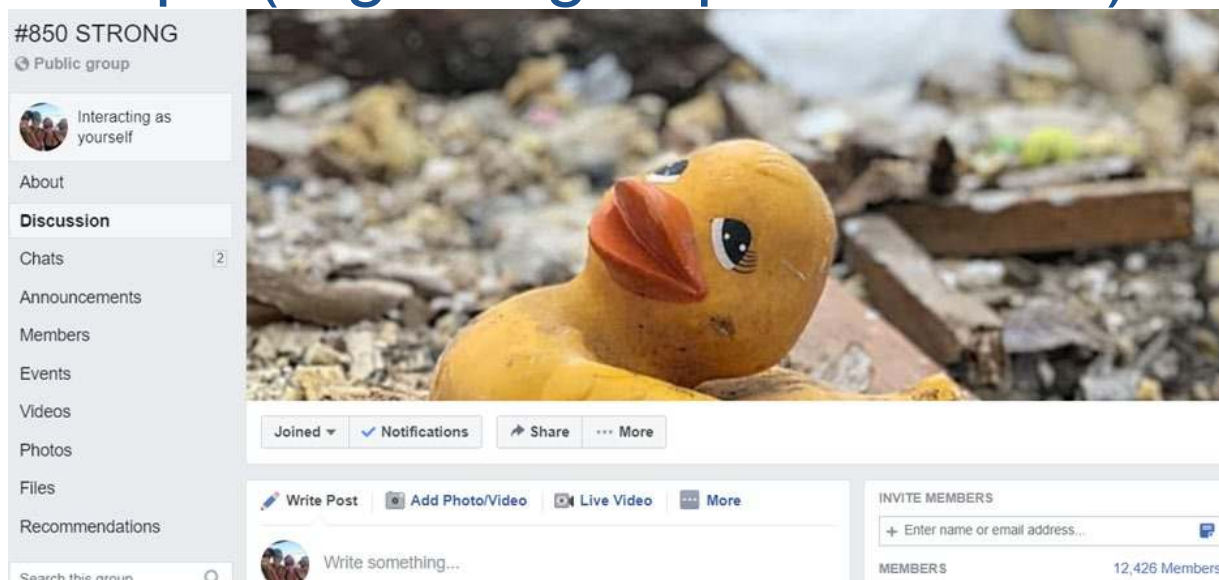
# Damage





# #RumorControl

- Number of deaths
- Location of food, water
- Inaccurate information from other media sources
- Elected officials/other municipalities
- 850 Groups (organic groups will occur)

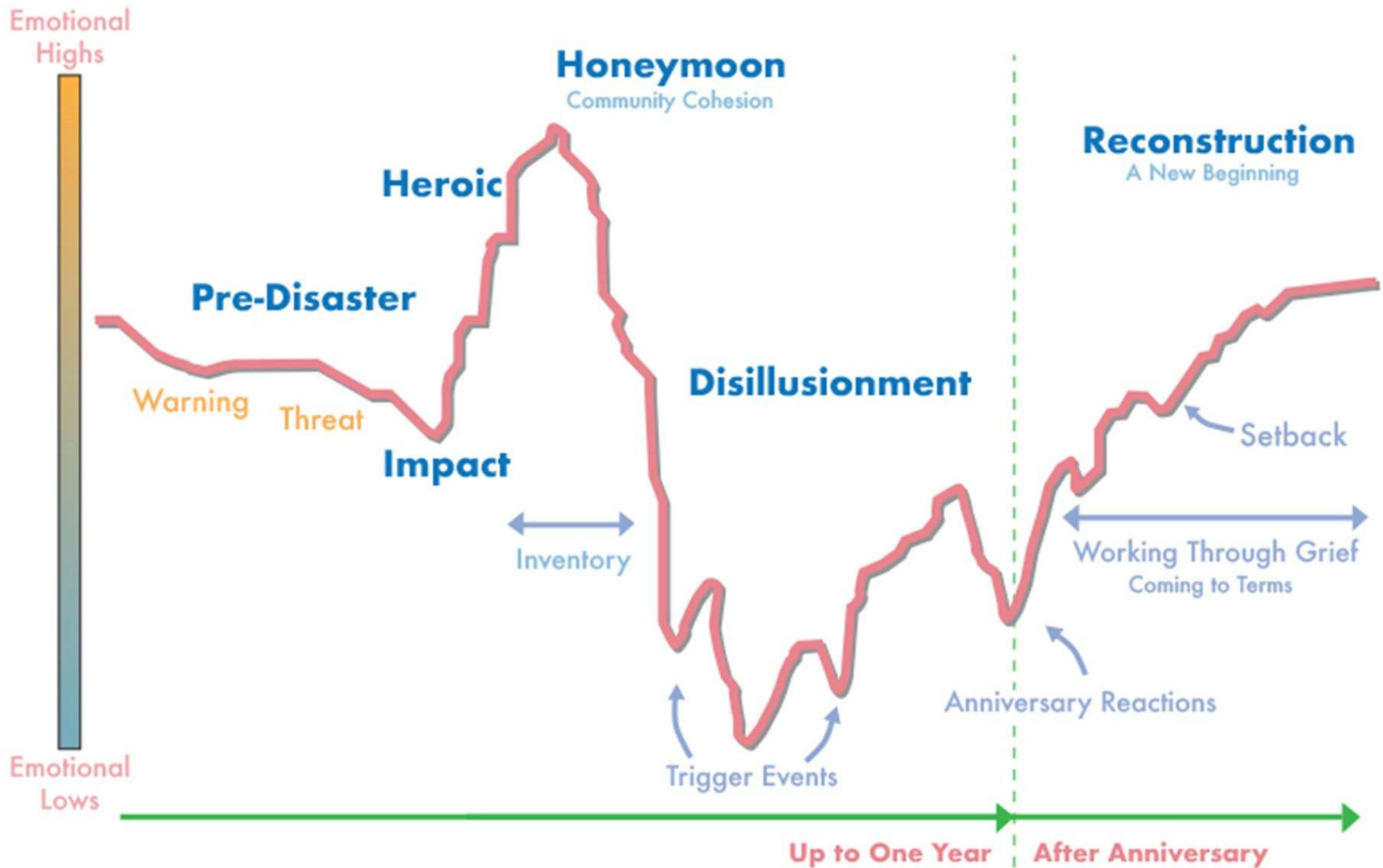


Determine your "OFFICIAL" information sources and communicate them now!





# Phases of Disaster





# Reducing Disaster Losses:

A Primer on Hazard  
Mitigation Planning and  
Projects





# Introductions

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# History of Hazards

# Natural Hazard Impacts are **Inevitable**







# What is mitigation and why does it work?

Mitigation actions reduce or eliminate the loss of life and property by lessening the impact of disasters.

# Mitigation

Reducing the loss of life and property  
by lessening the impact of disasters

**Recovery**  
Putting a community  
back together after a  
disaster



**Preparedness**  
Getting people and  
equipment ready to  
quickly and  
effectively respond to  
a disaster before it  
happens

**Response**  
Saving life and property  
during and immediately  
after a disaster

# Hazard Mitigation

- ✓ Reduces human loss
- ✓ Reduces property damage
- ✓ Reduces business interruption
- ✓ Reduces repair costs and damages
- ✓ Enables Communities to recover faster following a disaster
- ✓ Mitigation may also reduce flood insurance premiums





# Loss Avoidance

A 2012 Federal Emergency Management Agency (FEMA) study shows that implementation of mitigation measures can also provide these benefits:

- Increased property values from reducing a structure's vulnerability and, hence, insurance premiums
- Increased property value leading to a strengthened tax base (which also then provides opportunity for continued investment in the local community)
- Increased resiliency and ability for local communities to recover more quickly from a natural disaster
- Improved safety of the neighborhood through building code improvements and reduction of the presence of damaged structures.
- Repetitive flood loss property conversion to additional green space for the community
- Opportunities to use acquired space for improved recreational services
- Added social benefits such as confidence for the future and ease of mind pending a disaster event

***The loss avoidance assessment demonstrates that mitigating the risk of natural hazards in Florida is a sound investment.***

# Hurricane Matthew

## Loss Avoidance Study

136 mitigation projects were evaluated by FDEM.

- 40 of the 136 projects analyzed were impacted by Hurricane Matthew, benefitting over 4,400 structures.
- The 40 projects had a combined capital cost of \$19.2 million in 2016 dollars. Without mitigation, damages to the project sites affected by DR-4283 would have cost approximately \$81.1 million.
- The aggregate ROI for the event is 422 percent, with an average project ROI of 97 percent.



# Hurricane Matthew

## Average Costs and Benefits per Project Type

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Project Type	Number of Projects	Average Project Cost	Average Project Benefit	Average Project ROI
Elevation	8	\$279,850	\$72,320	34%
Acquisition	14	\$717,470	\$230,710	34%
Drainage	6	\$781,600	\$12,840,540	917%
Mitigation Reconstruction	1	\$343,220	\$35,210	10%
Wind	12	\$97,110	\$1,640	3%



# Return on Investment

- Resiliency Studies
- Build Out/Safe Growth Analysis
- Loss Avoidance
- Benefit-Cost Analysis
- Economic Impact Analysis
- Qualitative Analysis



Loss Avoidance Assessment  
Tropical Storm Debby



**Uniform Mitigation Verification Inspection Form**  
 Maintain a copy of this form and any documentation provided with the insurance policy

Inspection Date: _____		
<b>Owner Information</b>		
Owner Name: _____		Contact Person: _____
Address: _____		Home Phone: _____
City: _____	Zip: _____	Work Phone: _____
County: _____		Cell Phone: _____
Insurance Company: _____		Policy #: _____
Year of Home: _____	# of Stories: _____	Email: _____

NOTE: Any documentation used in validating the compliance or existence of each construction or mitigation attribute must accompany this form. At least one photograph must accompany this form to validate each attribute marked in questions 3 through 7. The insurer may ask additional questions regarding the mitigated feature(s) verified on this form.

1. **Building Code:** Was the structure built in compliance with the Florida Building Code (FBC 2001 or later) OR for homes located in the HVHZ (Miami-Dade or Broward counties), South Florida Building Code (SFBC-94)?

- A. Built in compliance with the FBC: Year Built \_\_\_\_\_. For homes built in 2002/2003 provide a permit application with a date after 3/1/2002: Building Permit Application Date (MM/DD/YYYY) \_\_\_\_/\_\_\_\_/\_\_\_\_.
- B. For the HVHZ Only: Built in compliance with the SFBC-94: Year Built \_\_\_\_\_. For homes built in 1994, 1995, and 1996 provide a permit application with a date after 9/1/1994: Building Permit Application Date (MM/DD/YYYY) \_\_\_\_/\_\_\_\_/\_\_\_\_.
- C. Unknown or does not meet the requirements of Answer "A" or "B"

2. **Roof Covering:** Select all roof covering types in use. Provide the permit application date OR FBC/MDC Product Approval number OR Year of Original Installation/Replacement OR indicate that no information was available to verify compliance for each roof covering identified.

2.1 Roof Covering Type:	Permit Application Date	FBC or MDC Product Approval #	Year of Original Installation or Replacement	No Information Provided for Compliance
<input type="checkbox"/> 1. Asphalt/Fiberglass Shingle	____/____/____	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> 2. Concrete/Clay Tile	____/____/____	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> 3. Metal	____/____/____	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> 4. Built Up	____/____/____	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> 5. Membrane	____/____/____	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> 6. Other _____	____/____/____	_____	_____	<input type="checkbox"/>

- A. All roof coverings listed above meet the FBC with a FBC or Miami-Dade Product Approval listing current at time of installation OR have a roofing permit application date on or after 3/1/02 OR the roof is original and built in 2004 or later.
- B. All roof coverings have a Miami-Dade Product Approval listing current at time of installation OR (for the HVHZ only) a roofing permit application after 9/1/1994 and before 3/1/2002 OR the roof is original and built in 1997 or later.
- C. One or more roof coverings do not meet the requirements of Answer "A" or "B".
- D. No roof coverings meet the requirements of Answer "A" or "B".

3. **Roof Deck Attachment:** What is the weakest form of roof deck attachment?

- A. Plywood/Oriented strand board (OSB) roof sheathing attached to the roof truss/rafter (spaced a maximum of 24" inches o.c.) by staples or 6d nails spaced at 6" along the edge and 12" in the field. -OR- Batten decking supporting wood shakes or wood shingles. -OR- Any system of screws, nails, adhesives, other deck fastening system or truss/rafter spacing that has an equivalent mean uplift less than that required for Options B or C below.
- B. Plywood/OSB roof sheathing with a minimum thickness of 7/16" inch attached to the roof truss/rafter (spaced a maximum of 24" inches o.c.) by 8d common nails spaced a maximum of 12" inches in the field. -OR- Any system of screws, nails, adhesives, other deck fastening system or truss/rafter spacing that is shown to have an equivalent or greater resistance 8d nails spaced a maximum of 12 inches in the field or has a mean uplift resistance of at least 103 psf.
- C. Plywood/OSB roof sheathing with a minimum thickness of 7/16" inch attached to the roof truss/rafter (spaced a maximum of 24" inches o.c.) by 8d common nails spaced a maximum of 6" inches in the field. -OR- Dimensional lumber/Tongue & Groove decking with a minimum of 2 nails per board (or 1 nail per board if each board is equal to or less than 6 inches in width). -OR- Any system of screws, nails, adhesives, other deck fastening system or truss/rafter spacing that is shown to have an equivalent

Inspectors Initials \_\_\_\_\_ Property Address \_\_\_\_\_

\*This verification form is valid for up to five (5) years provided no material changes have been made to the structure.  
 OIR-B1-1802 (Rev. 01/12) Adopted by Rule 690-170.0155 Page 1 of 4

# Insurance Discounts

- OIR 1802 – Uniform Wind Mitigation Verification Inspection Form
- Risk reduction on a site-by-site basis may reduce premiums
- Community Rating System – Variety of credits available



# Social & Economic Impacts





# Roles in Disaster Recovery and Mitigation

What can we do to reduce or eliminate future risk to lives and property from man-made or natural disasters?



## County role in mitigation and funding

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Community messaging and leadership

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Hazards analysis and action identification

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Grant program and project management

---

Holistic plans integration

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Code compliance

# Disasters are Local



BOCC



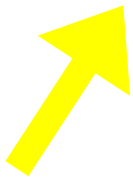
State



Federal



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# Funding Sources

## State



## Federal



# The Robert T. Stafford Act



United States federal law designed to bring an orderly and systemic means of federal natural disaster assistance for state and local governments in carrying out their responsibilities to aid citizens.



Only communities, tribes, and states with a FEMA-approved mitigation plan are eligible to receive mitigation funds following a presidentially-declared disaster.



Additionally, the development of a hazard mitigation plan provides an opportunity to reduce disaster losses through mitigation planning and resulting projects.

# The Disaster Mitigation Act of 2000...

- Revises and broadens the scope of existing disaster relief programs;
- Encouraging the development of comprehensive disaster preparedness and assistance plans, programs, capabilities, and organizations by the States and by local governments;
- Achieving greater coordination and responsiveness of disaster preparedness and relief programs;
- Encouraging individuals, States, and local governments to protect themselves by obtaining insurance coverage to supplement or replace governmental assistance;
- Encouraging hazard mitigation measures to reduce losses from disasters, including development of land use and construction regulations; and
- Providing Federal assistance programs for both public and private losses sustained in disasters.



# Mitigation Planning Cycle

1. Assess  
(Assess risk)

2. Strategize  
(Develop the plan)

3. Implement  
(Implement the projects)

4. Evaluate  
(Evaluate project performance)



Why?

States and local jurisdictions are required to have a FEMA approved LMS Plan:

*“... to be eligible for project grants under HMGP... and other grant programs such as the Pre-Disaster Mitigation Program.”*

(DMA 2000)

# Who Has A Plan?



All 67 Florida counties have an approved Local Mitigation Strategy



Many Florida municipalities have adopted these plans



Jurisdictions with approved plans are eligible for mitigation funding



# What's in the LMS Plan?

Planning process documentation

Hazard risk and vulnerabilities assessment

Mitigation goals and objectives

Mitigation actions/ projects

Description of process to prioritize and implement plan



## Mitigation Strategy

The mitigation strategy serves as *the long-term blueprint* for reducing the potential losses identified in the risk assessment.

Was there progress in local mitigation efforts?

Were there any changes in priorities?

# LMS Working Group Members

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- Emergency management staff
- Public works and building department staff
- Public officials
- County and city planners
- Critical structures proprietors (i.e., schools, hospitals, law enforcement facilities)
- Floodplain managers, CRS coordinators
- Agencies, businesses and organizations
- John Q. and other stakeholders







# Integration with Existing Plans

An LMS must explain how the local government incorporated the mitigation plan into other planning mechanisms, when appropriate, as a demonstration of progress in local mitigation efforts.





## Updating Hazard Data

“...the plan update **shall** continue to describe occurrences of hazards included in the previously approved plan *and discuss new occurrences of hazard events.*



# Updated risk assessment also includes:

- Re-assessing Vulnerability
  - New or changed structures
  - Clearly addressing repetitive loss properties (now required)
  - Re-evaluating potential loss estimates
  - Analyzing past five-year changes and new development trends
- Clarifying multi-jurisdictional risks





# Vulnerabilities Update

- Updates to inventories of existing structures in hazard areas, including new development or redeveloped areas
- Potential impacts of future land development, including areas that may be annexed in the future
- New buildings that house special high-risk populations (*i.e.*, elderly, low-income, disabled)
- **Completed mitigation actions that reduced overall vulnerability**



# Updating Inventory of Structures

- Building stock
- Critical facilities
- Transportation systems
- Lifeline utility systems
- Communications systems & networks
- High potential loss facilities
- Hazardous material facilities
- Economic elements
- Special consideration areas
- Historic, cultural & natural resources areas



**FloridaDisaster.ORG**  
DIVISION OF EMERGENCY MANAGEMENT

## Florida Division of Emergency Management

- Serves as the state's liaison with federal and local agencies on emergencies of all kinds
- Provides technical assistance to local governments as they prepare emergency plans and procedures



# Bureau of Mitigation

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- State Mitigation Strategy
- Floodplain Management Office
- Hazard Mitigation Grant Program
- Hurricane Loss Mitigation Program
- Flood Mitigation Assistance Program
- Pre-Disaster Mitigation Grant Program



# State Mitigation Strategy



Identifies hazards and assess risks to the state of Florida and then identifies goals and objectives to address those hazards and risks



Current Florida Enhanced State Hazard Mitigation Plan (SHMP) is approved until 2023



Intended to reduce death, injuries, and property losses caused by natural hazards in Florida

# State Floodplain Management Office

FDEM serves as the State Coordinating Agency of the National Flood Insurance Program (NFIP)

Promotes and ensures sound land use development in floodplain areas in order to promote the health and safety of the public, minimize loss of life and property, and reduce economic losses caused by flood damages

Works with Florida's municipalities and counties to administer their local flood damage reduction regulations





## The National Flood Insurance Program

- Aims to reduce the impact of flooding on private and public structures
- Provides affordable insurance to property owners, renters and businesses and by encouraging communities to adopt and enforce floodplain management regulations
- Helps mitigate the effects of flooding on new and improved structures
- Reduces the socio-economic impact of disasters by promoting the purchase and retention of general risk insurance, but also of flood insurance, specifically

# Community Rating System (CRS)

**The NFIP Community Rating System (CRS)** recognizes, encourages, and rewards – by offering flood insurance premium adjustments – community and State activities that go beyond NFIP minimum requirements to:

- Reduce and avoid flood damage to insurable property
- Strengthen and support the insurance aspects of the NFIP
- Foster comprehensive floodplain management

CRS is a voluntary program and provides for reductions of flood insurance premiums by 5%-45% for policy holders with insurable property in flood zones located within CRS communities.

The CRS recognizes 19 creditable activities organized under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction, and Warning and Response.

# Hazard Mitigation Grant Program

- Authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act
- Assists states, local governments, private non-profit organizations and Indian Tribes in implementing long-term hazard mitigation measures following a major disaster declaration
- Federally-funded but administered by the Florida Division of Emergency Management
- Projects submitted for funding consideration delegated to each county's Local Mitigation Strategy Working Group (LMS)





# Florida's Proactive Rule – 27P-22

Locals set mitigation project priorities through Local Mitigation Strategy (LMS) groups.

Tiered allocation process:

Tier I - Declared counties:  
funded based on pre-  
defined LMS priorities

**Tier II - Declared  
counties:** remaining Tier I  
funds reallocated to  
declared counties

Tier III: Any Tier I & II  
funding that is not  
utilized by declared  
counties applied to  
undeclared counties

Application submittal process

# Hurricane Loss Mitigation Program

Specialized, state-funded mitigation program aimed at minimizing damages caused by hurricanes

Annual budget of \$7 million, provided by the Florida Hurricane Catastrophe Trust Fund

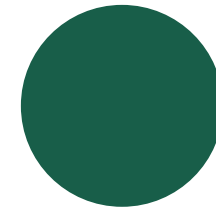
Funding activities promote property resiliency through retrofits made to residential, commercial, and mobile home properties; public education and public information; and hurricane research activities

- Funded by FEMA and administered through a partnership with the Florida Division of Emergency Management (FDEM)
- Provides resources to assist states, tribal governments, territories and local communities in their efforts to reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program (NFIP)
- Open application cycle



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## Flood Mitigation Assistance Program





# Pre-Disaster Mitigation Grant Program

Funded by FEMA and administered through a partnership with the Florida Division of Emergency Management (FDEM)

Provides resources to assist states, tribal governments, territories and local communities in their efforts to implement a sustained pre-disaster natural hazard mitigation program

Applicants and subapplicants must have a FEMA approved mitigation plan as of the application deadline

Open application cycle

# Cost-Share Requirements

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<b>Programs</b>	<b>Mitigation Activity (Percent of Federal / Non-Federal Share)</b>
HMGP	75/25
PDM	75/25
PDM – subgrantee is small impoverished community	90/10
PDM – Tribal Grantee is small impoverished community	90/10
FMA – insured properties and planning grants	75/25
FMA – repetitive loss property <sup>(2)</sup>	90/10
FMA – severe repetitive loss property <sup>(2)</sup>	100/0



## Who is Eligible?

- Units of Local Government
- Water / Wastewater
- Public Works
- Utilities
- Road Department
- Private Non-Profit
- State Agencies



# General Eligibility Requirements

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## Requirements

- Technically feasible
- Cost-effective
- Environmentally sound
- Compliant with historic preservation requirements
- Effective solution to the problem



# Types of Mitigation Projects

**Acquisition:** Acquiring and relocating/demolishing structures from hazard-prone areas

**Retrofit:** Retrofitting structures to protect them from floods, high winds, earthquakes, or other natural hazards

**Elevation:** Elevating existing structures to avoid flooding damages

**Drainage:** Constructing certain types of minor and localized flood control projects

# Critical Functions



Hospitals



Police /  
Fire



Government



Water /  
Wastewater



Schools



Transportation



Parks



Utilities





# Minor Flood Control

# St. Augustine Seawall – Flood Mitigation Project

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SUCCESSFUL MITIGATION STORIES – NORTH EAST FLORIDA

PROJECT: St. Augustine Seawall – Flood Mitigation Project

IN PROGRESS



SUCCESSFUL MITIGATION STORIES – NORTH EAST FLORIDA

PROJECT: St. Augustine Seawall – Flood Mitigation Project

IN PROGRESS



# PROJECT : Alleyway Stormwater Improvement

PROJECT TYPE: Drainage

LOCATION: Umatilla

BEFORE MITIGATION PICTURES



AFTER MITIGATION PICTURES

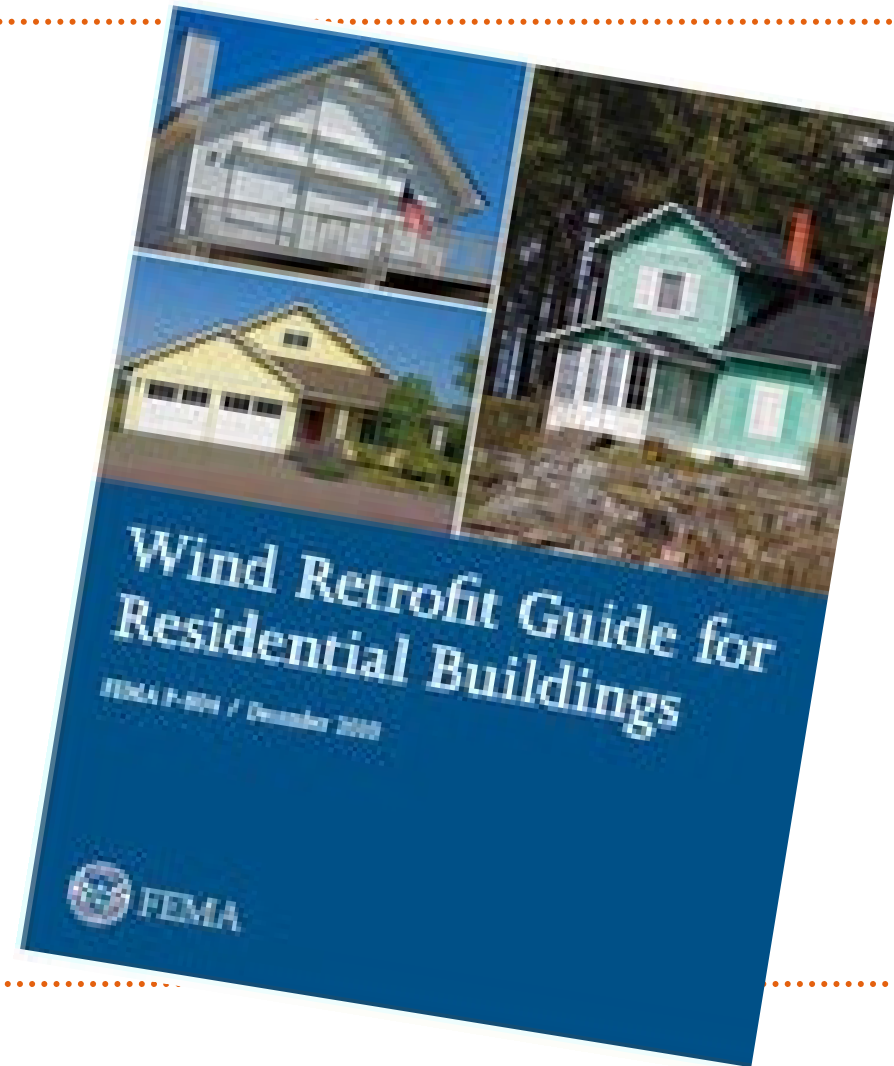




# Residential Wind Mitigation

## Whole Envelope Protection:

- ✓ Shutters
- ✓ Ingress/Egress Openings
- ✓ Garage Doors
- ✓ Roof Deck Attachment
- ✓ Roof-to-wall Connections
- ✓ Gable-end Bracing



# Above Code Construction

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**PROJECT :** City of Jacksonville, Marine and Land based Fire Station #40

**PROJECT TYPE:** Code Plus

**LOCATION:** Jacksonville

## AFTER MITIGATION PICTURES



## SCOPE OF WORK

The Scope of Work for this proposed hazard mitigation project is to provide protection for marine and land based Fire Station #40 located at 9350 Heckcher Drive, Jacksonville, FL 32226; by elevating living quarters, hardening the structure to 150 mph winds and flooding initiating from storm surge. Specifically, project proposed to elevate all building utility systems, including: water and sewer holding tanks, LP gas connections and electrical components. The facility is to have all fenestrations designed for large missile impact.

**Project Number:**  
HMGP 1679-16R

# Common Residential Flood Mitigation Projects



## Elevation

Physically raising an existing structure to the Base Flood Elevation or higher



## Mitigation Reconstruction

**Total** demolition of the structure and construction of code-compliant and hazard-resistant structures on elevated foundation systems



## Acquisition/ Demolition

Demolishes the structure and removes all slabs, pools, fencing, shrubs, etc. Property maintained as open space into perpetuity.



# Successful Elevation Project

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# **Grant Management Tips**

**Grant  
Project  
Lifecycle**

Funding  
availability

Application

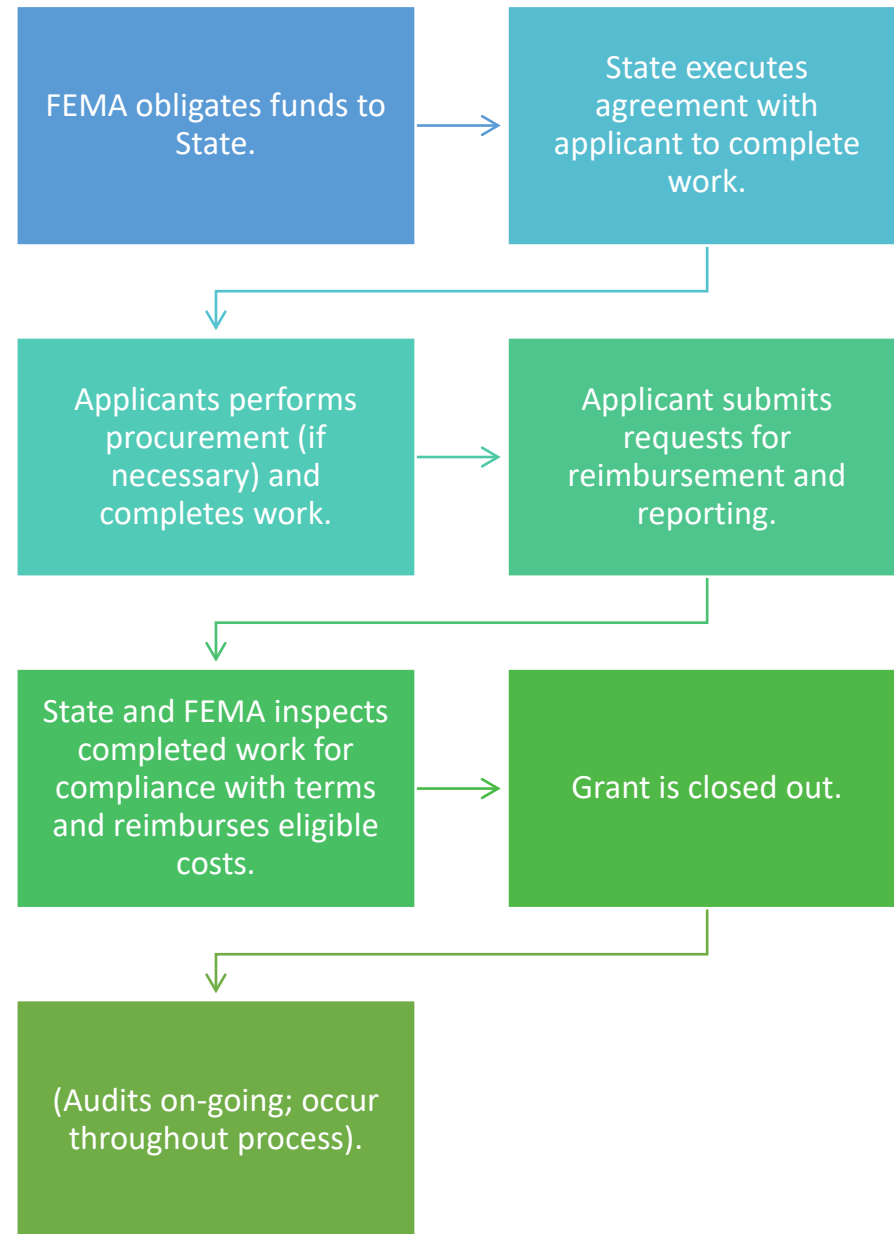
Grant  
Agreement  
Execution

Progress  
Monitoring

Completion  
and Evaluation



# Grant Implementation



# Non-Federal Match Funding

Match can be a combination of any type of allowable cost borne by non-Federal sources.

Match must be identified in grant application and agreement.

Cost-share requirements can be met by third party in-kind services, including volunteer labor.

Limited Federal funding sources may be used for match.

Sufficient source documentation required in accordance with applicable program guidance and 2 CFR 200.

# Subrecipient Implementation and Responsibilities

Read and understand the grant agreement as well as the 2 CFR 200. Submit any questions to the State for clarification prior to beginning work.

Point of Contact – Maintain a consistent POC (where possible) throughout the project lifecycle.

Scope of Work and Budget – Report scope and budget deviations to the State project manager as soon as possible and obtain grant modifications where necessary.

Period of Performance – request period of performance extensions in a timely manner when needed.

Environmental Conditions- understand and abide by the special conditions contained within the grant.

Documentation – Maintain robust records of all activities associated with the grant.



# Disaster Recovery Reform Act of 2018

- Signed into law as part of the [Federal Aviation Administration Reauthorization Act of 2018](#).
- These reforms acknowledge the shared responsibility for disaster response and recovery, aim to reduce the complexity of FEMA, and build the nation's capacity for the next catastrophic event.
- Contains approximately 50 provisions that require FEMA policy or regulation changes for full implementation, as they amend the [Robert T. Stafford Disaster Relief and Emergency Assistance Act](#).
  - **Public Assistance Program Improvements**
  - **Prioritization of Facilities**
  - **Guidance on Evacuation Routes**
  - **Expanded Individuals and Households Assistance**
  - **Guidance on Hazard Mitigation – Acquisition**
  - **Hazard Mitigation Grant Program for Resilience**

# BRIC - Building Resilient Infrastructure and Communities

- Under development by FEMA and its partners
- Will be funded through the Disaster Relief Fund as a six percent set aside from estimated disaster grant expenditures
- FEMA envisions that this program will incentivize new, innovative large infrastructure projects
- Activities and projects that will break the cycle of disaster damage, reconstruction, and repeated damage

# LONG-TERM RECOVERY

The Servium Group, Inc.



# Introduction

- Florida-based firm serving local and state governments for 22+ years
- Comprehensive services for implementing and managing disaster recovery funding through all phases of recovery
- Project team comprised of experienced professionals who have managed more than \$6 billion in federal and state funds
- Clients include small, mid-size and large municipalities and counties

# FEMA Funding

- Maximizing FEMA requests for eligible costs critical to long-term funding
- FEMA damage assessments significantly impact long-term funding allocations at the federal and state level
- FEMA and all other recovery funds received will be considered Duplication of Benefits and may reduce long-term recovery funds for specific projects
- There are communities we work with that are still fighting FEMA disallowed costs more than a decade after a disaster.

# CDBG-DR

- Community Development Block Grant - Disaster Recovery funds assist with:
  - Housing Recovery: Single-Family Homes
  - Housing Recovery: Multi-Family Homes
  - Economic Development/Commercial Revitalization
  - Infrastructure



# Housing Recovery

- Single-family home:
  - Rehabilitation
  - Reconstruction/Replacement
  - Mobile home replacement
  - Rental unit rehabilitation
- Multi-family home:
  - Affordable/workforce housing
  - Rehab and new construction

# Economic Development

- Economic Development can include:
  - Focus on job creation
  - Attract new business
  - Expand existing businesses
  - Repair/development of infrastructure for commercial purposes
  - Commercial revitalization
  - Assist existing businesses with damage

# Infrastructure

- Infrastructure and neighborhood revitalization can include:
  - Water lines
  - Sewer lines
  - Lift stations
  - Utilities



# Projects

- Hurricane Andrew Recovery – Homestead, Florida
- Hurricane Katrina Recovery – Mississippi
- Hurricane Charley – Charlotte and DeSoto counties, FL
- Hurricane Ike – Galveston, Texas
- Hurricane Sandy – New York
- Restore Louisiana – 2016 Floods
- Hurricane Wilma and Tropical Storm Frances – Key West
- Hurricanes Hermine and Matthew – Florida
- Hurricane Irma – Florida

# Other Funding

- Other funding sources:
  - USDA Rural Economic Development
  - Economic Development Administration (EDA)/Department of Commerce
  - FEMA Hazard Mitigation Grant Program (HMGP)
  - Florida Housing SHIP

# Disaster Recovery

- Recovery is a marathon, not a sprint
- FEMA funds phase is just the beginning
- Information and education is critical for county staff and citizens
- Planning for long-term recovery should begin now
- Technical assistance for short-term and long-term recovery is reimbursable by FEMA and HUD for disaster recovery grant programs



# Contact Us

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