

**PALM BEACH COUNTY  
BOARD OF COUNTY COMMISSIONERS**

**WORKSHOP SUMMARY**

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**Meeting Date:** May 25, 2021

**Department:** Administration

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**I. EXECUTIVE BRIEF**

**Title:** Update on FEMA's Proposed Flood Maps for Eastern Palm Beach County

**Summary:** In December 2019, the Federal Emergency Management Agency (FEMA) published preliminary Flood Insurance Rate Maps (FIRMs) for eastern Palm Beach County. FIRMs and associated Flood Insurance Study (FIS) reports provide information on the existence and severity of flood hazards that are used to establish flood insurance premiums. In 2020, Palm Beach County (County) conducted a review and evaluation of the data and methods used by FEMA to prepare the preliminary FIRMs. Based on technical issues, concerns and deficiencies identified during this evaluation, the County, in February 2021, initiated the development of additional technical information for use during FEMA coordination and to support the submittal of a formal appeal of the preliminary FIRMs. The intent of the County's technical work is to ensure that the FIRMs and FIS reports provide accurate and appropriate flood hazard information. FEMA's 90-day appeal period for the preliminary FIRMs started April 16, 2021 and ends July 15, 2021. Staff will provide an overview of the results of the technical work conducted to date and provide potential forward paths related to filing an appeal. Staff will also summarize coordination activities with FEMA and other local governments and stakeholders. Districts 1, 2, 3, 4, 5 and 7 (MJ)

**Background and Policy Issues:**

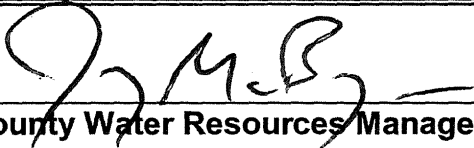
The National Flood Insurance Program (NFIP) is a federal program intended to reduce flood damage through locally adopted and enforced floodplain regulations and provide protection for property owners by enabling the purchase of federally-backed flood insurance. FEMA is responsible for administering the NFIP and periodically updates information on flood hazards. In 2013, FEMA initiated the Coastal Flood Risk Study Project for the South Florida Study Area, which includes Palm Beach, Broward, Miami-Dade and Monroe Counties. At the September 22, 2020 BCC Workshop, staff presented key findings of the County's review and evaluation of FEMA's data and methods. In March 2021, the County requested that FEMA delay implementation of the appeal period until all affected stakeholders can be fully engaged in the process; FEMA has not yet responded to this request. Based on coordination with FEMA to date, the technical issues, concerns and deficiencies related to the FIRMs identified by the County will not be resolved by FEMA unless additional information is submitted as part of an appeal.

**Attachments:**

- 1. Presentation


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**Recommended by:**

  
County Water Resources Manager

5-9-2021  
Date

**Approved By:**

  
County Administration

5/14/21  
Date

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2021	2022	2023	2024	2025
Capital Expenditures					
Operating Costs					
External Revenues					
Program Income(County)					
In-Kind Match(County					
NET FISCAL IMPACT					
#ADDITIONAL FTE					
POSITIONS (CUMULATIVE					

Is Item Included in Current Budget? Yes X No       
Does this item include the use of federal funds? Yes      No X

Budget Account No:  
Fund 1400            Dept 600            Unit 6107            Object 3401

B. Recommended Sources of Funds/Summary of Fiscal Impact:

C. Departmental Fiscal Review:

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III. REVIEW COMMENTS:

A. OFMB Fiscal and/or Contract Dev. and Control Comments:

Lisa Martin 5/21/21  
OFMB 5-5-21 MG 5/5

Eric S. Jambou 5/7/21  
Contract Dev. & Control

B. Legal Sufficiency

[Signature] 5/11/21  
Assistant County Attorney

C. Other Department Review

\_\_\_\_\_  
Department Director

(THIS SUMMARY IS NOT TO BE USED AS A BASIS FOR PAYMENT.)

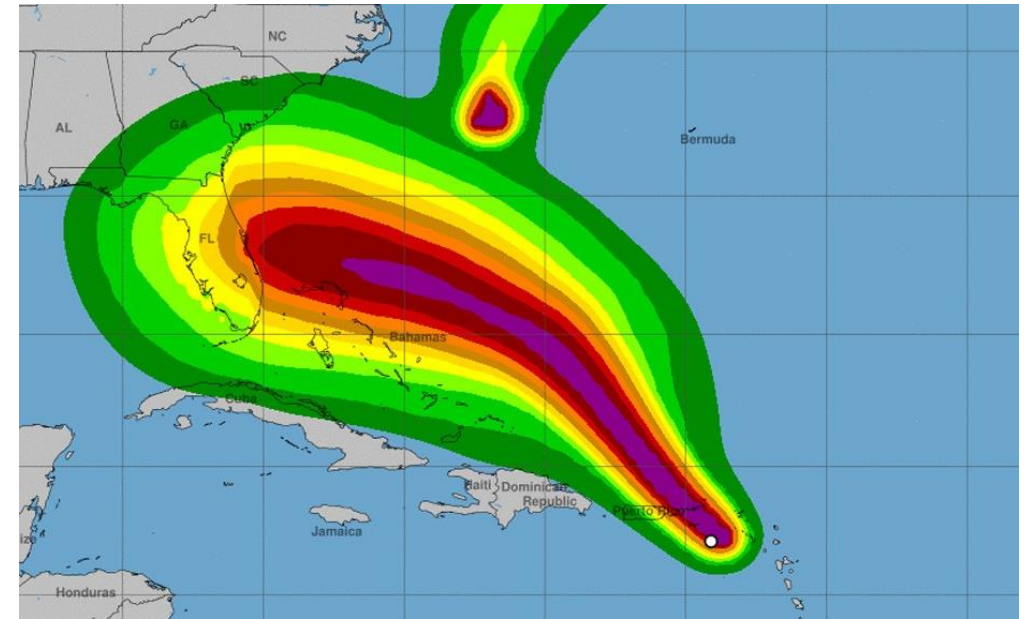
# UPDATE ON FEMA'S PROPOSED FLOOD MAPS FOR EASTERN PALM BEACH COUNTY



**BCC Workshop  
May 25, 2021**

# AGENDA

- Background and History
- FEMA Process and Appeals
- Completed and Ongoing Activities
- Key Findings
- Additional Information
- Activities of Other Affected Counties
- Anticipated Next Steps
- Direction Requested





# BACKGROUND AND HISTORY

The National Flood Insurance Program (NFIP) is a Federal program intended to:

- Reduce flood damage through locally adopted and enforced floodplain regulations, and
- Provide protection for property owners by enabling the purchase of federally-backed flood insurance.

The Federal Emergency Management Agency (FEMA) is responsible for administering the NFIP.

Flood Insurance Study (FIS) reports and Flood Insurance Rate Maps (FIRMs), prepared by FEMA, provide flood hazard information that is used to establish flood insurance premiums.

FEMA periodically updates information on flood hazards.

# BACKGROUND AND HISTORY (CONT'D)

Existing flood maps in Palm Beach County are based on coastal storm surge analyses that rely on data and tools from the 1970s.

In 2013, FEMA initiated the Coastal Flood Risk Study Project for the South Florida Study Area (Coastal Study), which includes Palm Beach, Broward, Miami-Dade and Monroe Counties.

In December 2019, FEMA published preliminary FIRMs and FIS reports for eastern Palm Beach County.

In 2020, the County conducted a review and evaluation of the data and methods used by FEMA to prepare the preliminary FIRMs.

Based on technical issues, concerns and deficiencies identified, the County, in February 2021, initiated the development of additional technical information for use during FEMA coordination and to support the submittal of a formal appeal of the FIRMs.

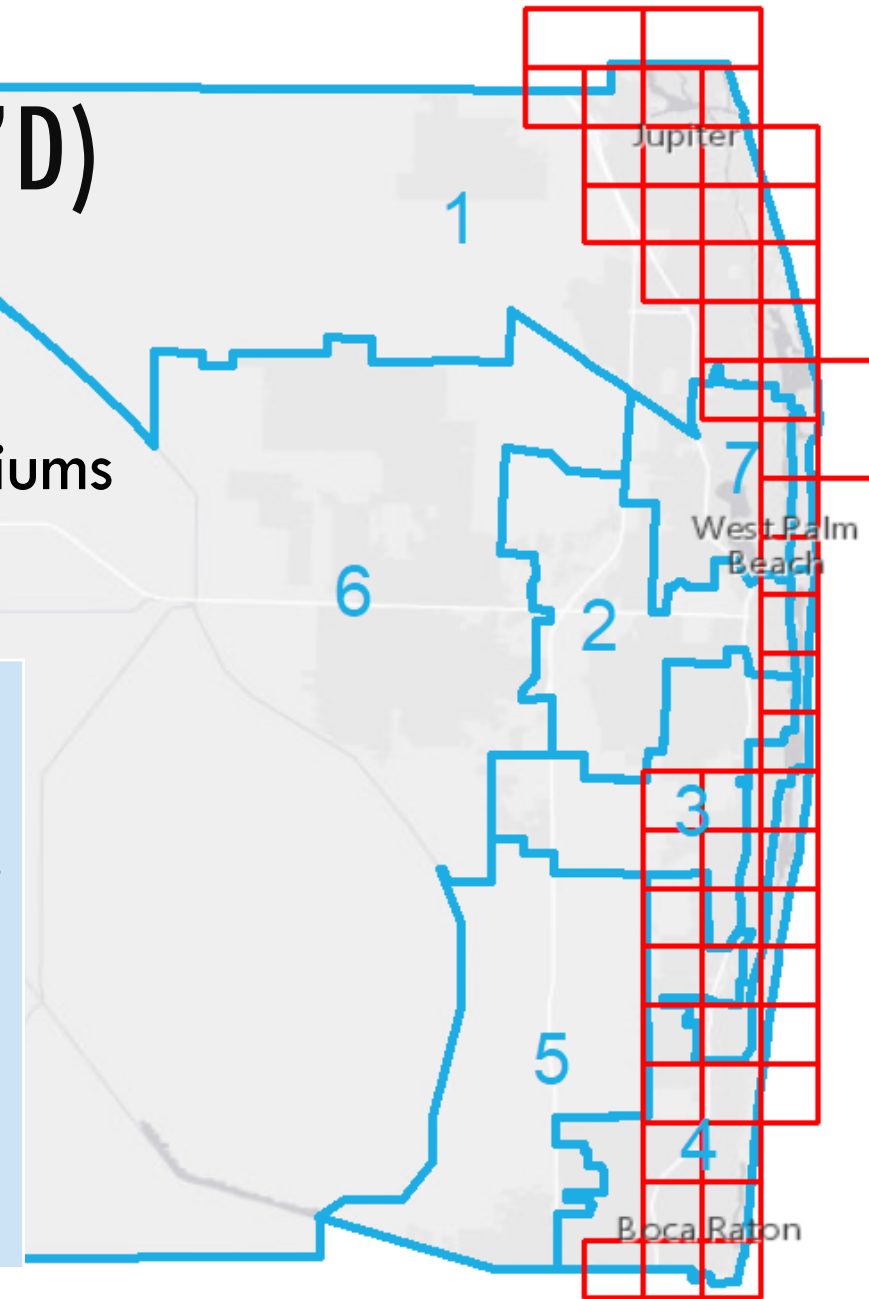


# BACKGROUND AND HISTORY (CONT'D)

FEMA is updating the Special Flood Hazard Area (SFHA) for the 1% annual chance (aka 100-year) event – which is the basis for flood insurance premiums

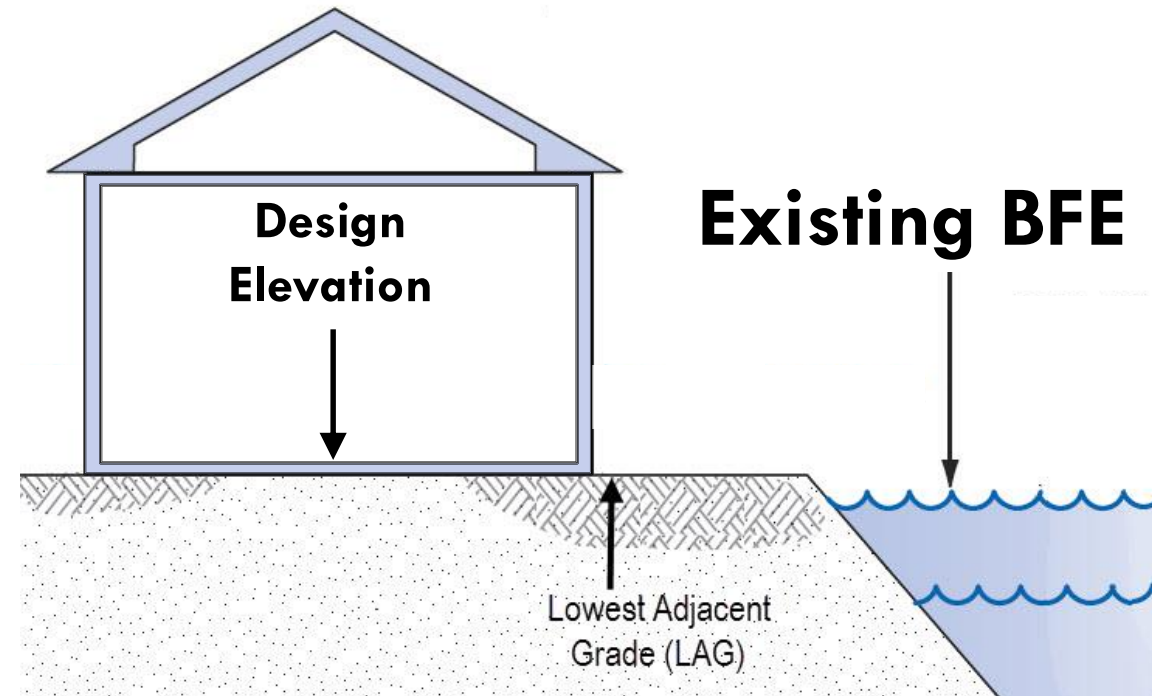
## Municipalities Affected:

Boca Raton Boynton Beach Briny Breezes Delray Beach Gulfstream Highland Beach Hypoluxo Juno Beach	Jupiter Jupiter Inlet Colony Lake Park Lake Worth Beach Lantana Manalapan North Palm Beach Ocean Ridge	Palm Beach Palm Beach County Palm Beach Gardens Palm Beach Shores Riviera Beach South Palm Beach Tequesta West Palm Beach
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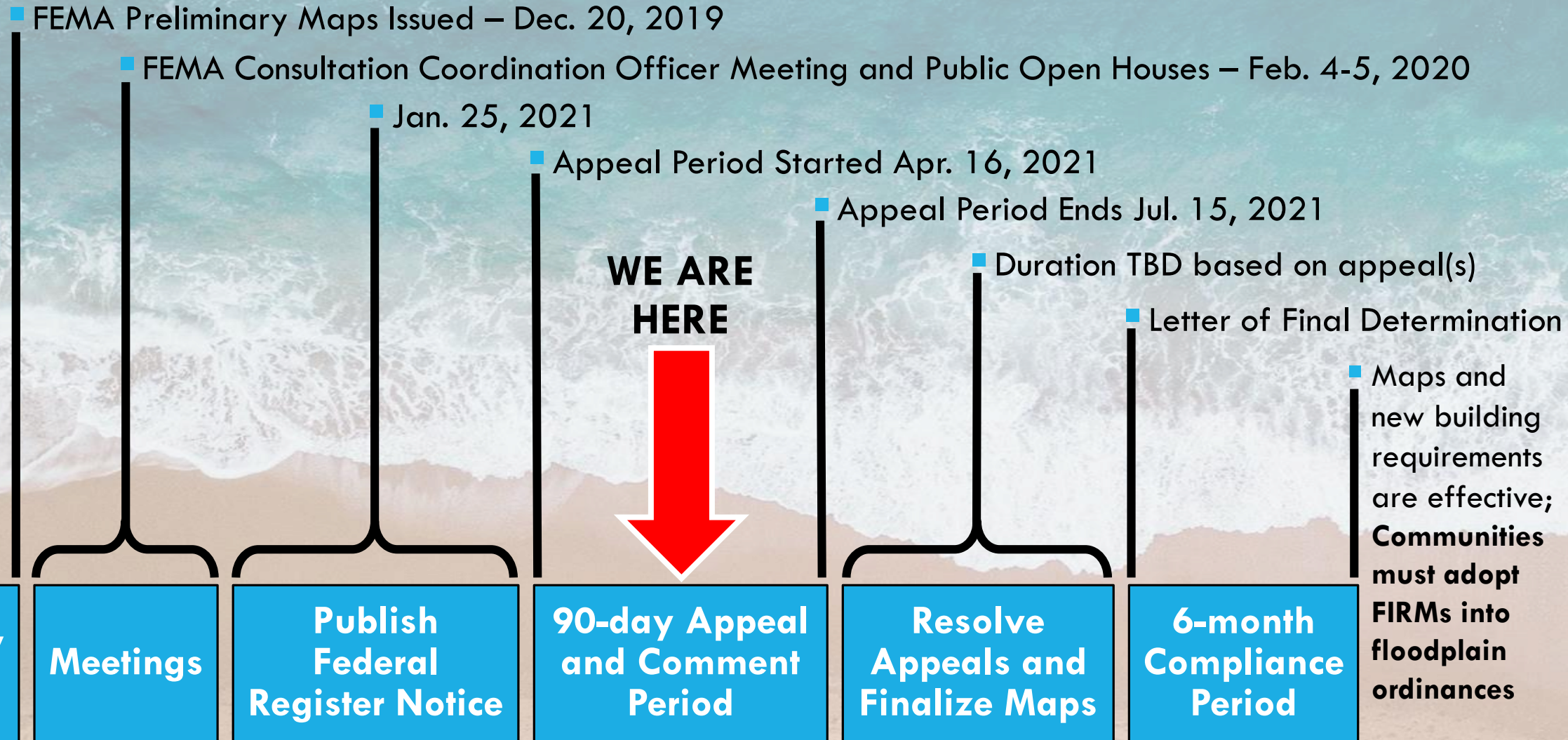
# BACKGROUND AND HISTORY (CONT'D)

- FEMA defines **Base Flood Elevations (BFEs)** within the SFHA
- **BFEs** are elevations to which surface water is expected to rise to or exceed during the base flood (aka 1% annual chance flood or 100-year flood)
- The **design elevation** is the elevation that all new and substantially improved buildings must be elevated to in order to lower the risk of flood damage
- **Design elevations** are typically higher than **BFEs**
- Higher **BFEs** may prevent property owners from making improvements to existing structures





# FEMA PROCESS AND APPEALS



# FEMA PROCESS AND APPEALS (CONT'D)

- Any community or individual property owner can **appeal** proposed changes to flood hazard information or **comment** on preliminary FIRMs and FIS reports
- An appeal must be based on **data and documentation** showing the proposed flood hazard information shown on the preliminary FIRM or in the FIS report is **scientifically or technically incorrect**
- **Appellants need to demonstrate** better methodologies, assumptions or data exists and **provide alternative analyses** that incorporate those methodologies, assumptions, or data if appropriate
- The **results must show an overall change in the flood hazard information** shown on the preliminary FIRM and/or in the FIS report



# COMPLETED AND ONGOING ACTIVITIES

- **Consultant Task Order #1** approved – Jan. 15, 2020
- **Water Resources Task Force** briefing – July 23, 2020
- **League of Cities (LOC) Environmental Committee** briefing – Sep. 2, 2020
- **Board of County Commissioners (BCC) Workshop** briefing – Sep. 22, 2020
- **Transmittal of Consultant Deliverables to FEMA** – Oct. 5, 2020
- **LOC Board of Directors** briefing – Oct. 21, 2020
- **FEMA Coordination** meeting – Nov. 17, 2020
- **Local Mitigation Strategy Working Group** briefing – Dec. 9, 2020
- **Consultant Task Order #2** approved – Feb. 9, 2021
- **Community Rating System Users Group** briefing – Feb. 18, 2021
- **County requests FEMA delay appeal period** – Mar. 19, 2021
- **Economic Council of PBC Policy Committee** briefing – Apr. 14, 2021
- **State Floodplain Management Office** briefing – May 3, 2021
- **BCC Workshop** briefing – May 25, 2021 **TODAY**
- **Coordination with Other Counties and Cities** **ONGOING**



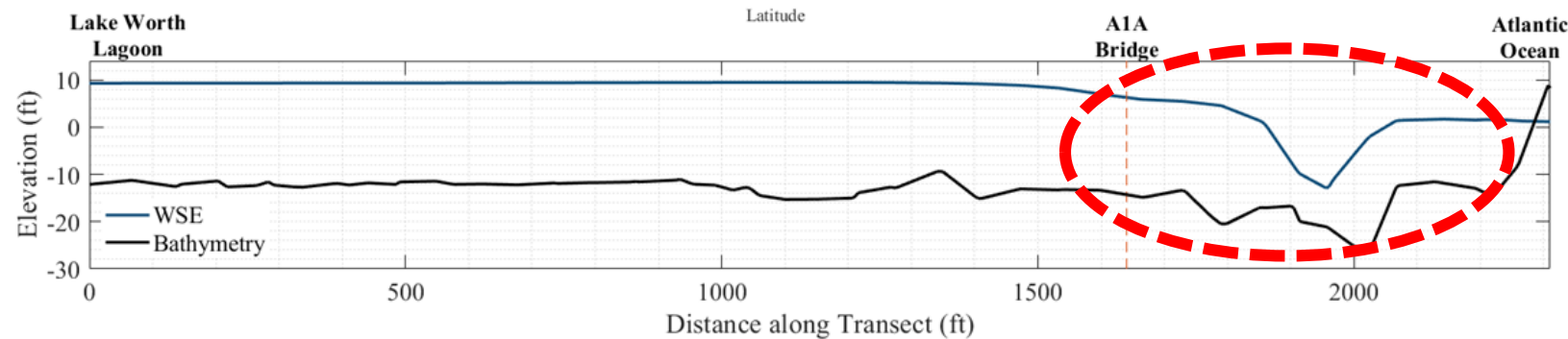
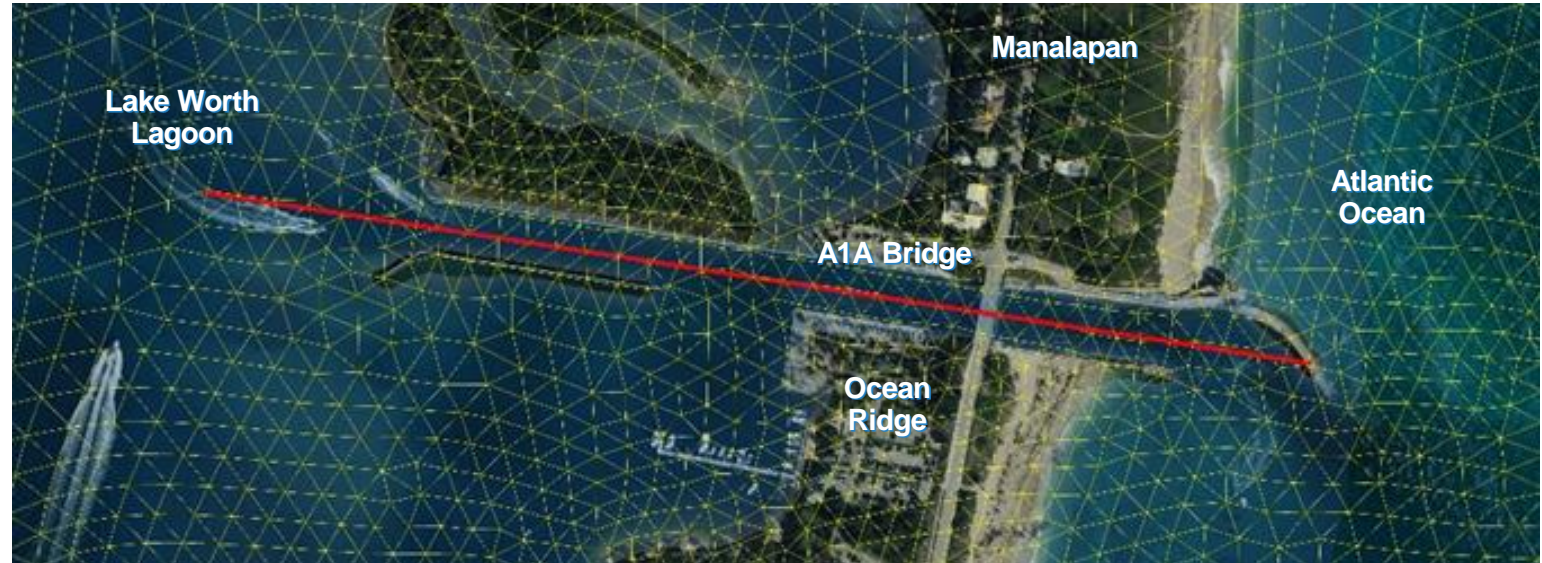


# KEY FINDINGS FROM PALM BEACH COUNTY'S REVIEW AND EVALUATION OF FEMA'S COASTAL STUDY (TASK ORDER #1)

- Differences were observed between the County's elevation data and FEMA's elevation data within the Special Flood Hazard Area (SFHA)
- SFHA net increase of ~1,900 acres (as compared to 2017 FIRMs)
- Many areas have higher Base Flood Elevations (BFEs) as compared to the 2017 FIRMs
- Agreement between measured and FEMA-simulated water levels was less than favorable
- FEMA's model setup had limited accuracy in simulating storm surge
- FEMA's validation storms may not have been appropriate given the magnitude of the storm surge generated, the regional extent of the surge, locations of water level measurements and limited measured data
- FEMA's results appear to have been impacted by larger than desirable model grids
- There were several locations where FEMA's model was insufficient to accurately model hydrodynamic and coastal flooding processes

# KEY FINDINGS FROM TASK ORDER #1 (CONT'D)

- FEMA's model did not allow water to flow out through the **Boynton Inlet** creating unrealistic water surface elevations in the inlet and **Lake Worth Lagoon**



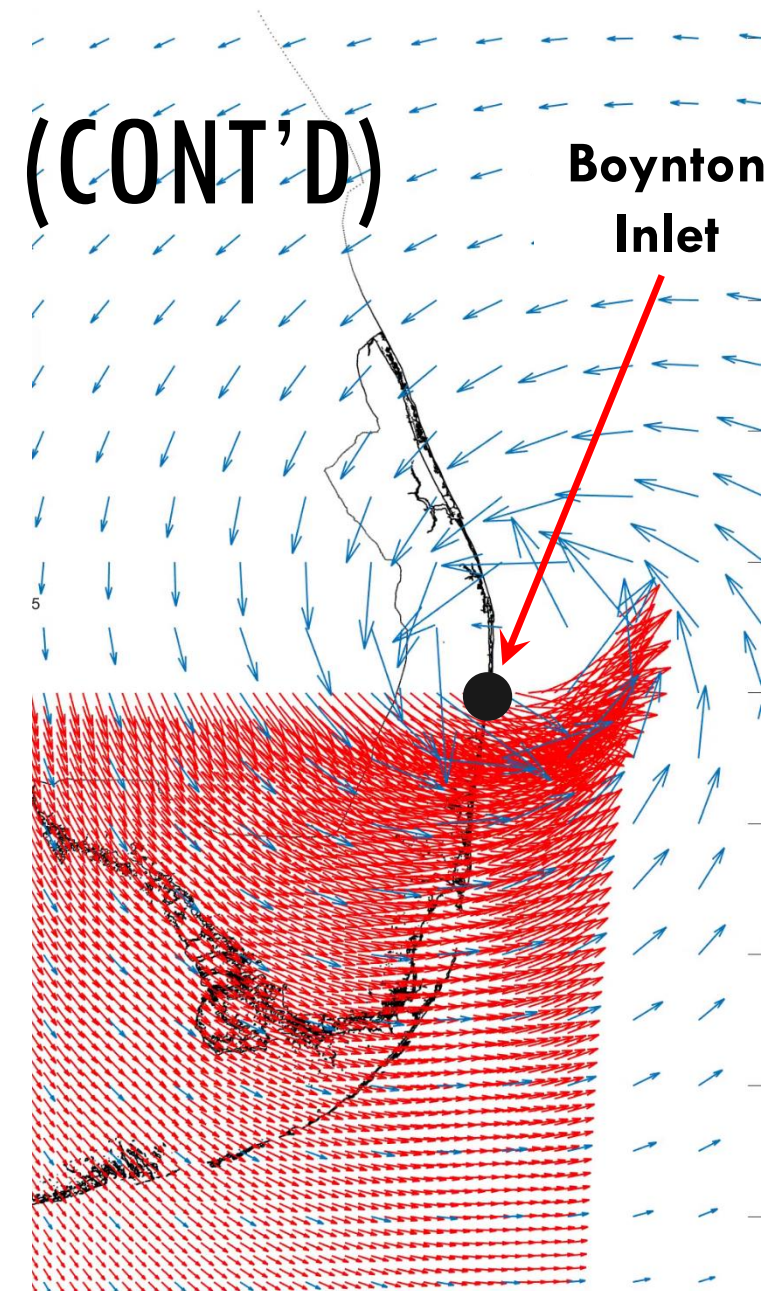
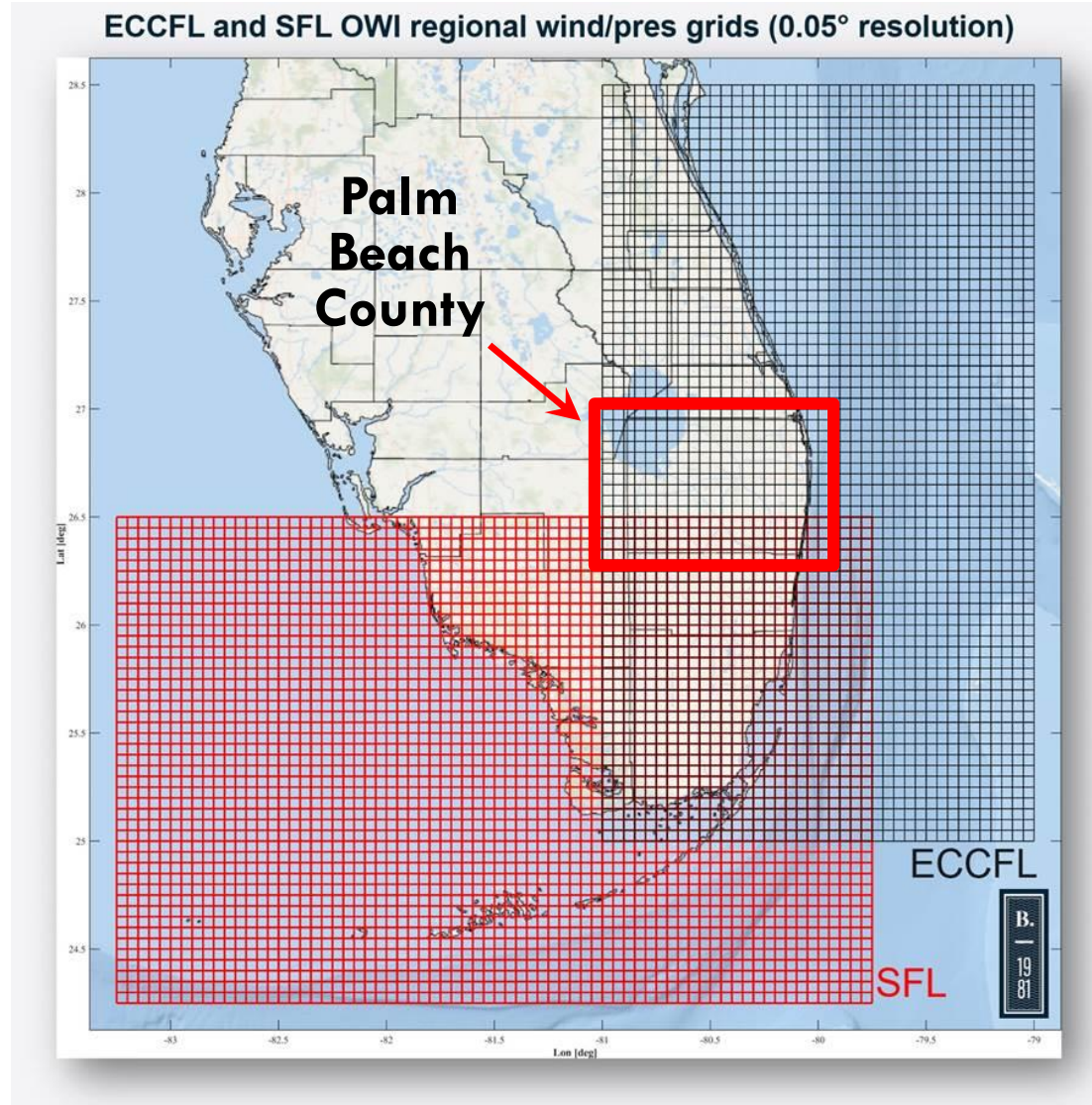
WSE = Water Surface Elevation

Bathymetry = elevation of underwater terrain



# KEY FINDINGS FROM TASK ORDER #1 (CONT'D)

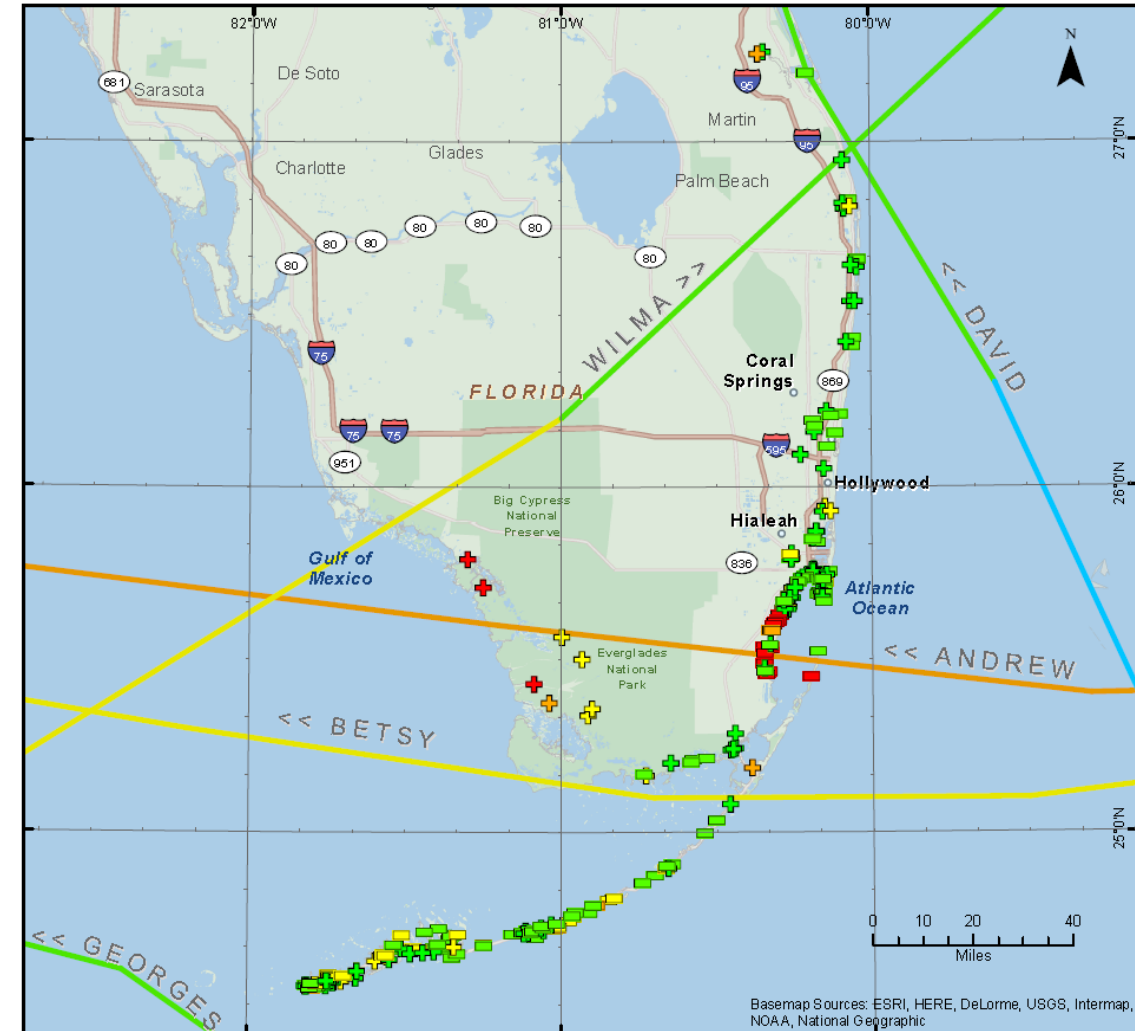
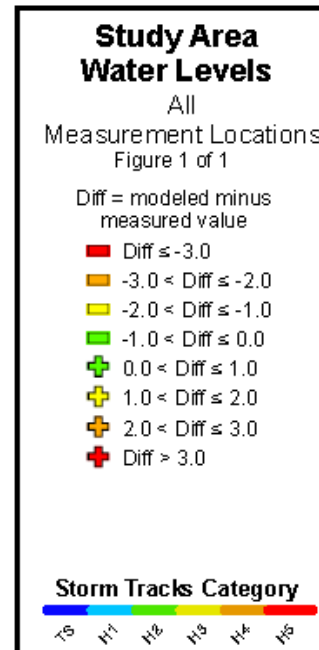
- FEMA's model results appear to have been impacted by model grids





# KEY FINDINGS FROM TASK ORDER #1 (CONT'D)

- FEMA's validation storms are not representative for Palm Beach County
- Hurricane Betsy (1965)
- Hurricane David (1979)
- Hurricane Andrew (1992)
- Hurricane Georges (1998)
- Hurricane Wilma (2005)

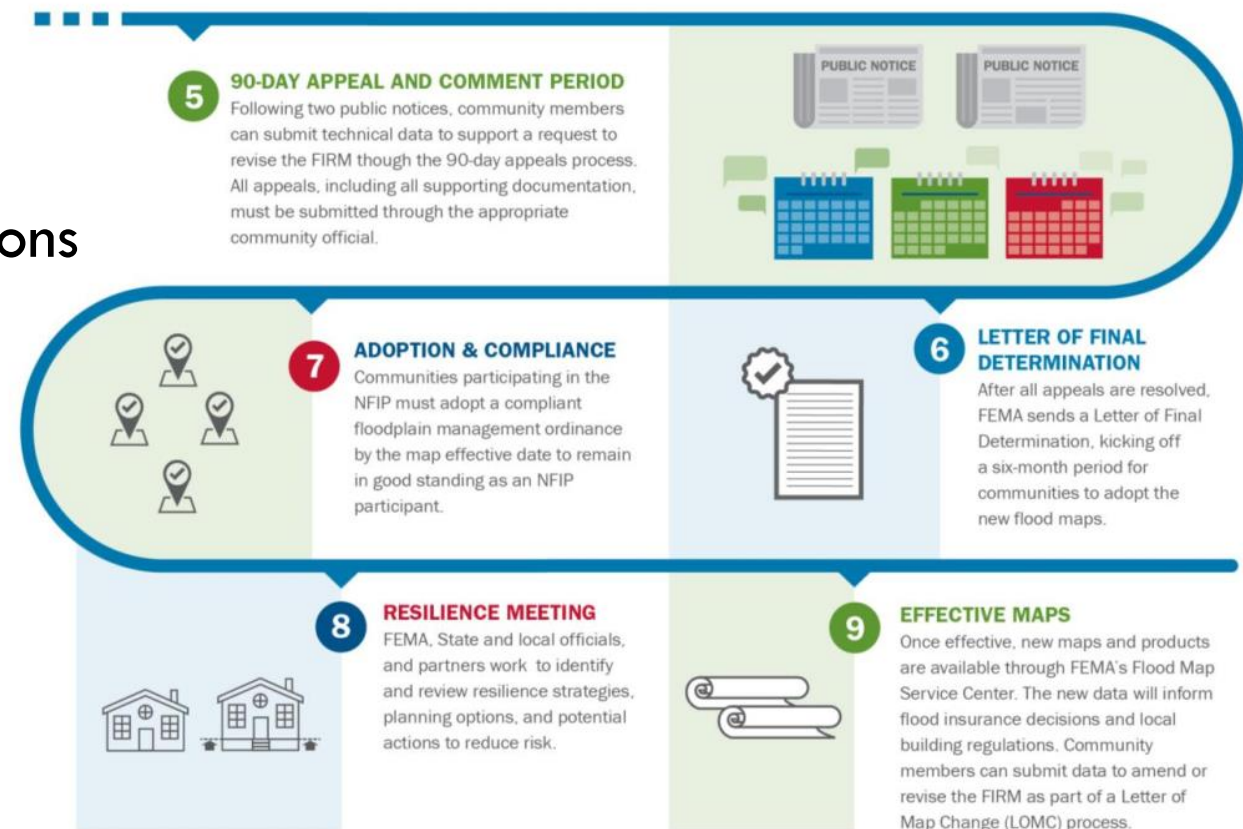


# MODELING TO SUPPORT AN APPEAL OF FEMA PRELIMINARY FLOOD INSURANCE RATE MAPS (TASK ORDER #2)

Approved by BCC and Initiated in February 2021

## Key Activities

- Inlet Hydraulics Improvements
- Wind and Pressure Field Grid Corrections
- Validation Storm Improvements
- Appeal Assistance



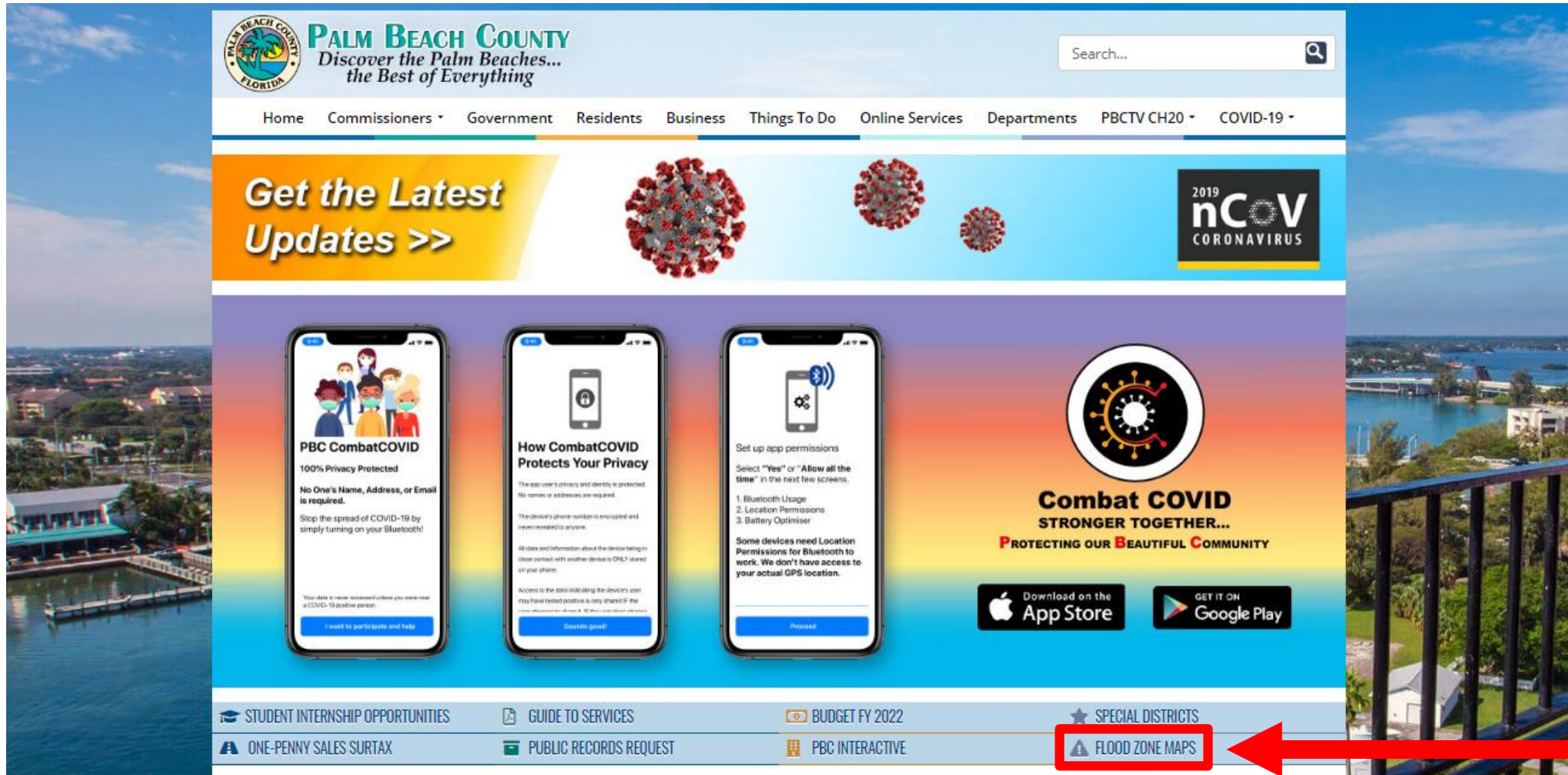
# KEY FINDINGS FROM TASK ORDER #2

- **FEMA's model does not properly represent the Boynton Inlet; model refinement leads to lower water levels near the inlet; additional work to determine the impact on BFEs is ongoing**
- **Flood risk may not be properly estimated** due to the FEMA model's lack of high resolution wind and pressure field data
- **Other potential model issues have been identified** and are being investigated in detail
- **Potential issues may have led to higher than expected BFEs** in Palm Beach County



# ADDITIONAL INFORMATION

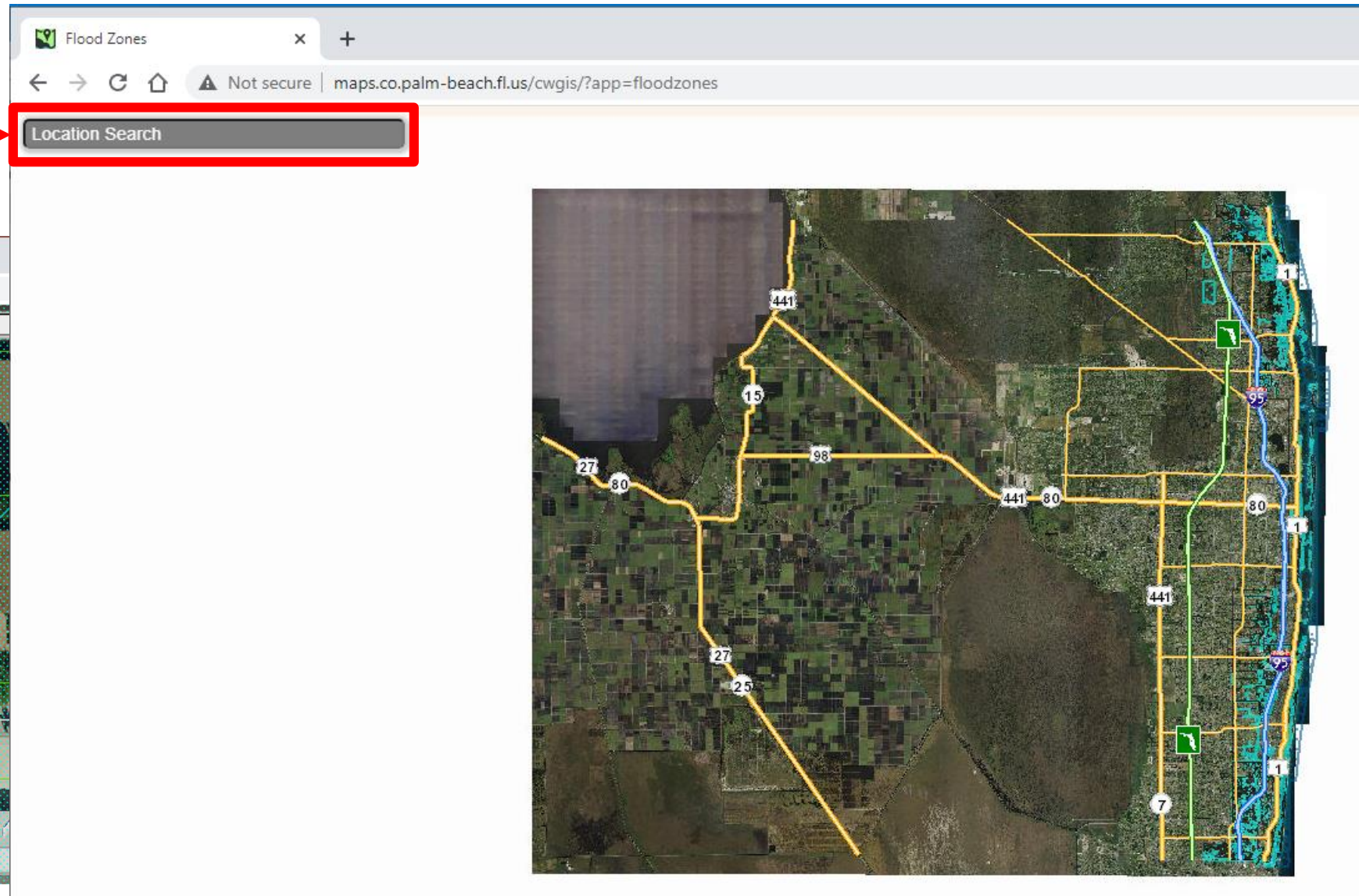
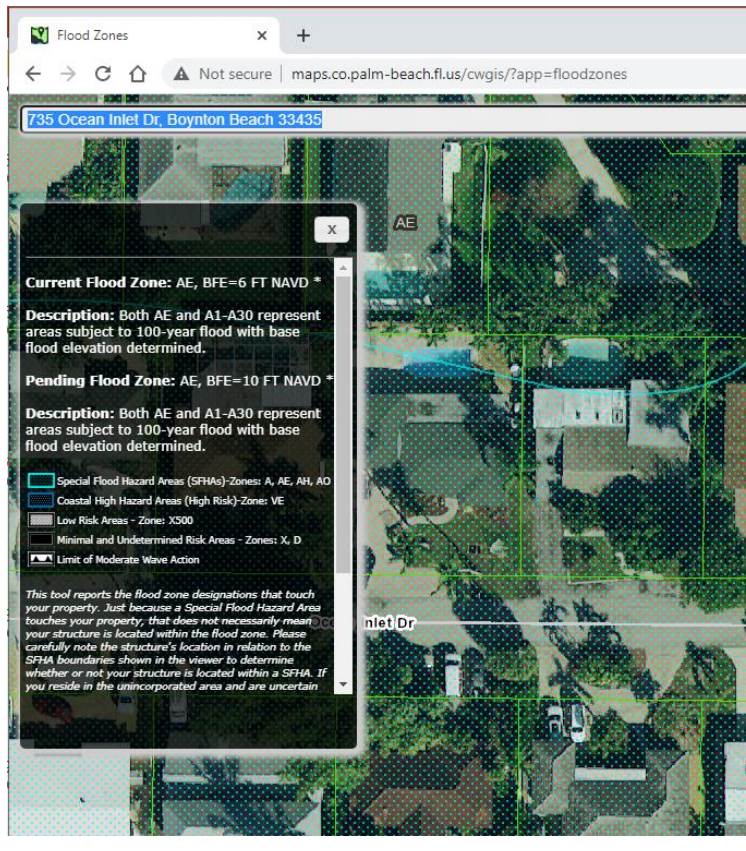
- To find out if your property is affected, visit [www.pbcgov.com](http://www.pbcgov.com)





# ADDITIONAL INFORMATION (CONT'D)

- Type your address in the “Location Search” box



# ADDITIONAL INFORMATION (CONT'D)

<https://discover.pbcgov.org/pzb/building/Pages/Flood-Information.aspx>

## Website Provides:

- **Consultant Scopes of Work**
- **Consultant Deliverables**
- **Memorandum to BCC – Sep. 15, 2020**
- **Video of Presentation to BCC – Sep. 22, 2020**
- **Palm Beach County Letter to FEMA – Oct. 5, 2020**
- **Other Presentations**
- **FEMA Flood Map Appeal Information**

## Contact Information:

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County Water Resources Manager

[jmcbryan@pbcgov.org](mailto:jmcbryan@pbcgov.org)

561-355-4600





# ACTIVITIES OF OTHER AFFECTED COUNTIES

- **Broward County** – updated topography data and additional modeling information provided to FEMA and additional modeling requested **preliminary FIRMs published in December 2019; revised preliminary FIRMs published in February 2021**
- **Miami-Dade County** – many concerns with draft work maps identified; **preliminary FIRMs published in February 2021**
- **Monroe County** – sent questions and requested additional information and analyses to FEMA in May 2020; FEMA responded in June 2020 that they would not be revising the study; County Commission voted in June 2020 to prepare an appeal; **90-day appeal period ends June 17, 2021**

# ANTICIPATED NEXT STEPS

- Consultant team will continue to work to 1) demonstrate that FEMA's modeling is **scientifically or technically incorrect**, 2) illustrate that **better methodologies, assumptions or data exist**, and 3) **develop alternative analyses**
- County staff and consultant team will continue to **coordinate with FEMA, local governments and other affected Counties**
- Consultant team will assist the County in **preparing technical information and documentation that can be submitted as part of an appeal**, if directed by the BCC



# DIRECTION REQUESTED

## Regular Agenda Item 4B-1:

**Staff recommends motion to authorize:**  
the County Administrator to submit an appeal of the Federal Emergency Management Agency's 2019 Preliminary Flood Insurance Rate Maps (FIRMs) and associated Flood Insurance Study (FIS) reports for Palm Beach County.

# UPDATE ON FEMA'S PROPOSED FLOOD MAPS FOR EASTERN PALM BEACH COUNTY DISCUSSION



**BCC Workshop  
May 25, 2021**