FORERUNNER

Planning for Future Conditions: Innovative Floodplain Management in Pinellas County

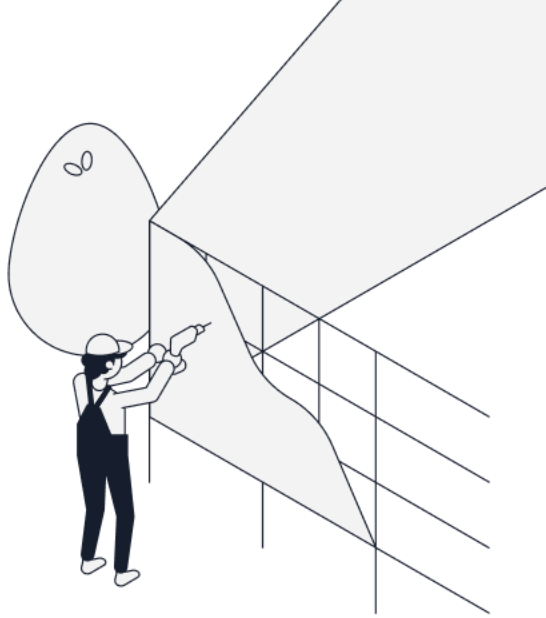
February 13, 2024

withforerunner.com

WELCOME

Housekeeping

- The presentation will be shared via email and posted on our blog
- Use the Q+A or the Chat to ask questions
- CFMs: Complete the post-attendance survey to receive your CEC. The CEC Certificate will be sent via email to you (and the list will be sent to ASFPM) next week



Agenda

1 **Introduction**

2 **Planning for Future Conditions: Innovative Floodplain Management in Pinellas County**

3 **Walkthrough**

4 **Q+A**

GOV. PARTNERS

We work with over 80 of the most at-risk communities throughout the U.S.

FDEM
Florida

Coral Gables
Florida

Pasco County
Florida

Clearwater
Florida

Jefferson Parish
Louisiana

Aventura
Florida

Miramar
Florida

Pompano Beach
Florida

Middletown
New Jersey

Manasquan
New Jersey

Belmar
New Jersey

Long Branch
New Jersey

Bay Head
New Jersey

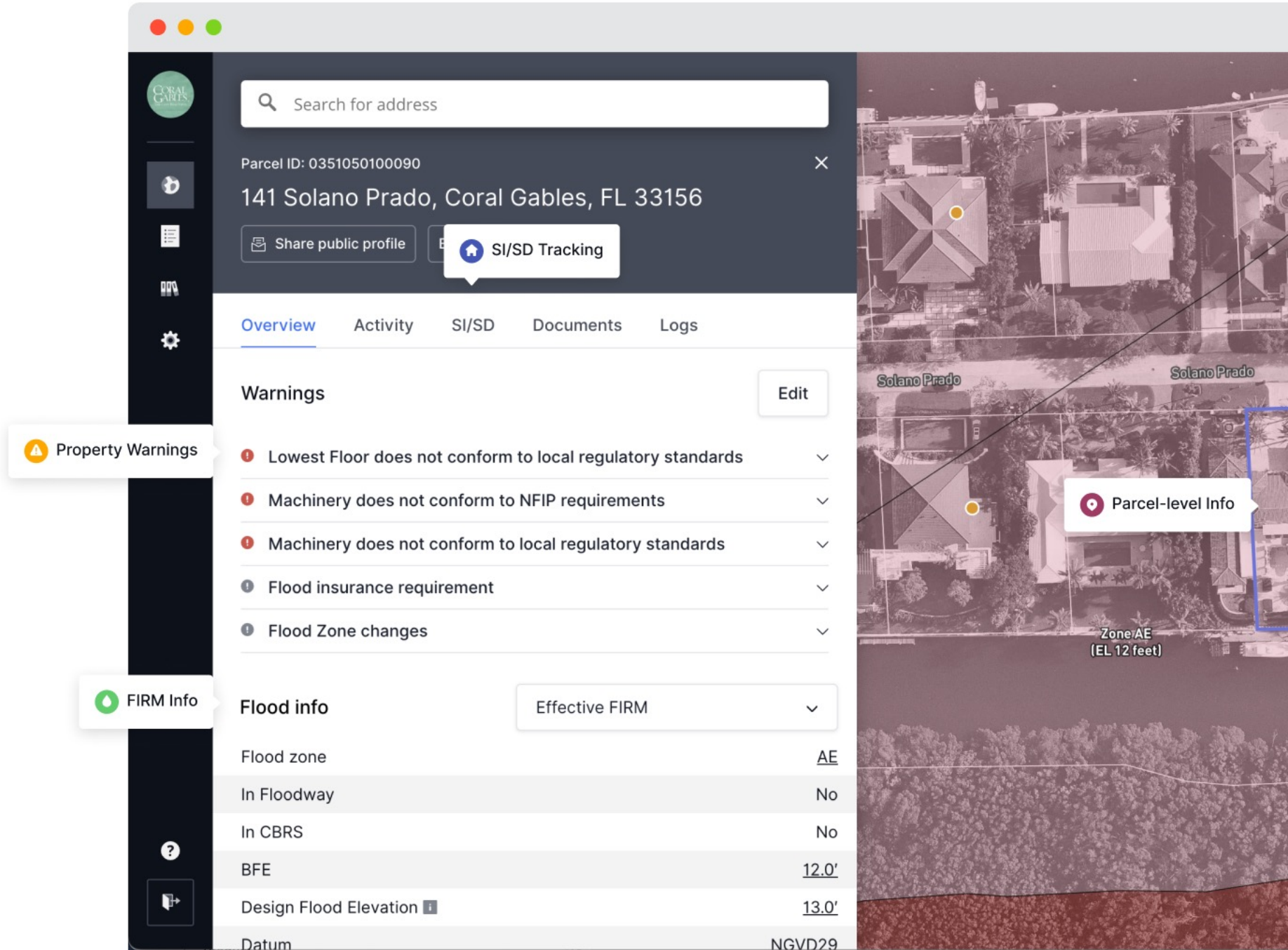
Longport
New Jersey

Parkland
Florida

Harris County
Texas

PRODUCT

Our geospatial dashboard drives per-property insight.



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3 Walkthrough

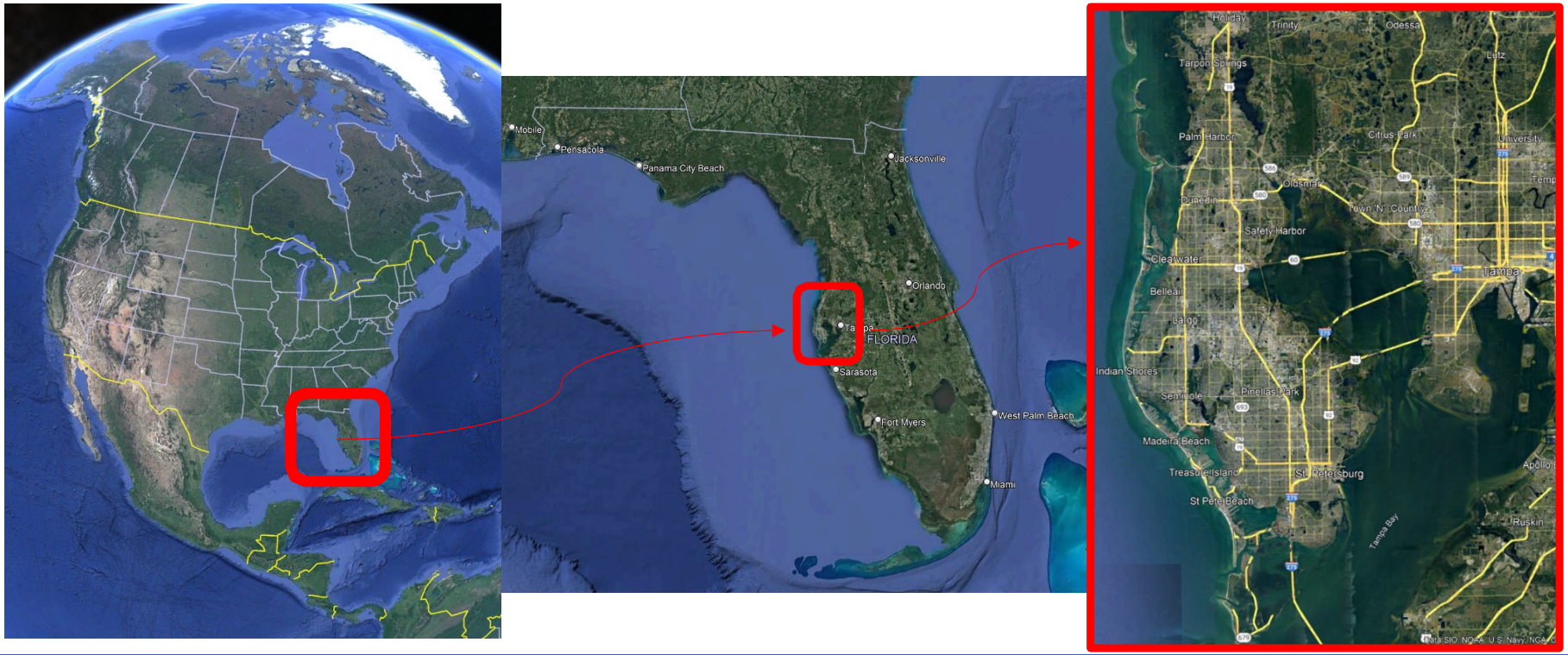
4 Q+A

Lisa Foster
CFM
Floodplain Administrator
Pinellas County, Florida

Planning for Future Conditions

Lisa Foster, CFM
Floodplain Administrator
LDFoster@pinellas.gov
February 13, 2024

County Context



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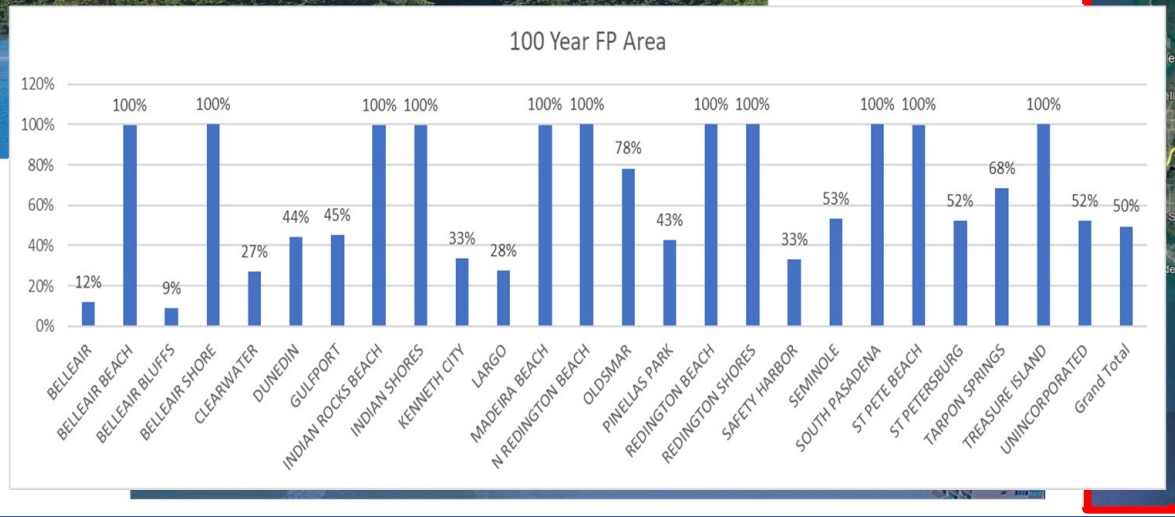
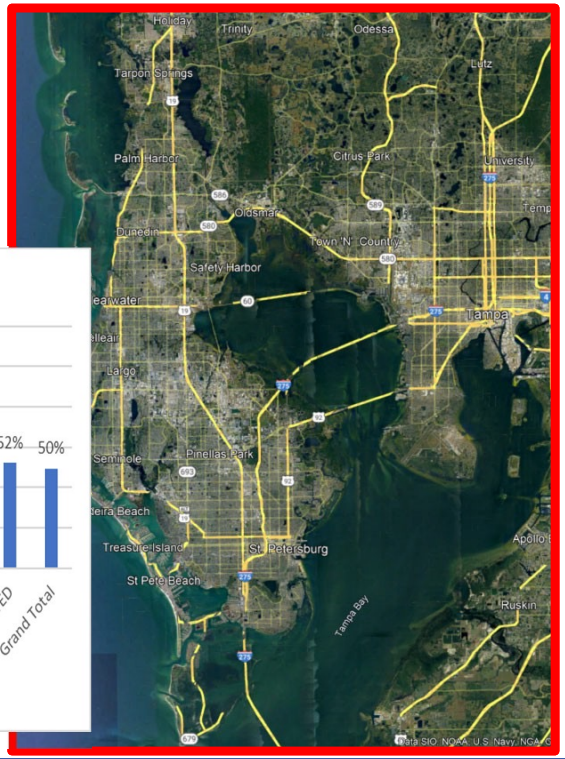
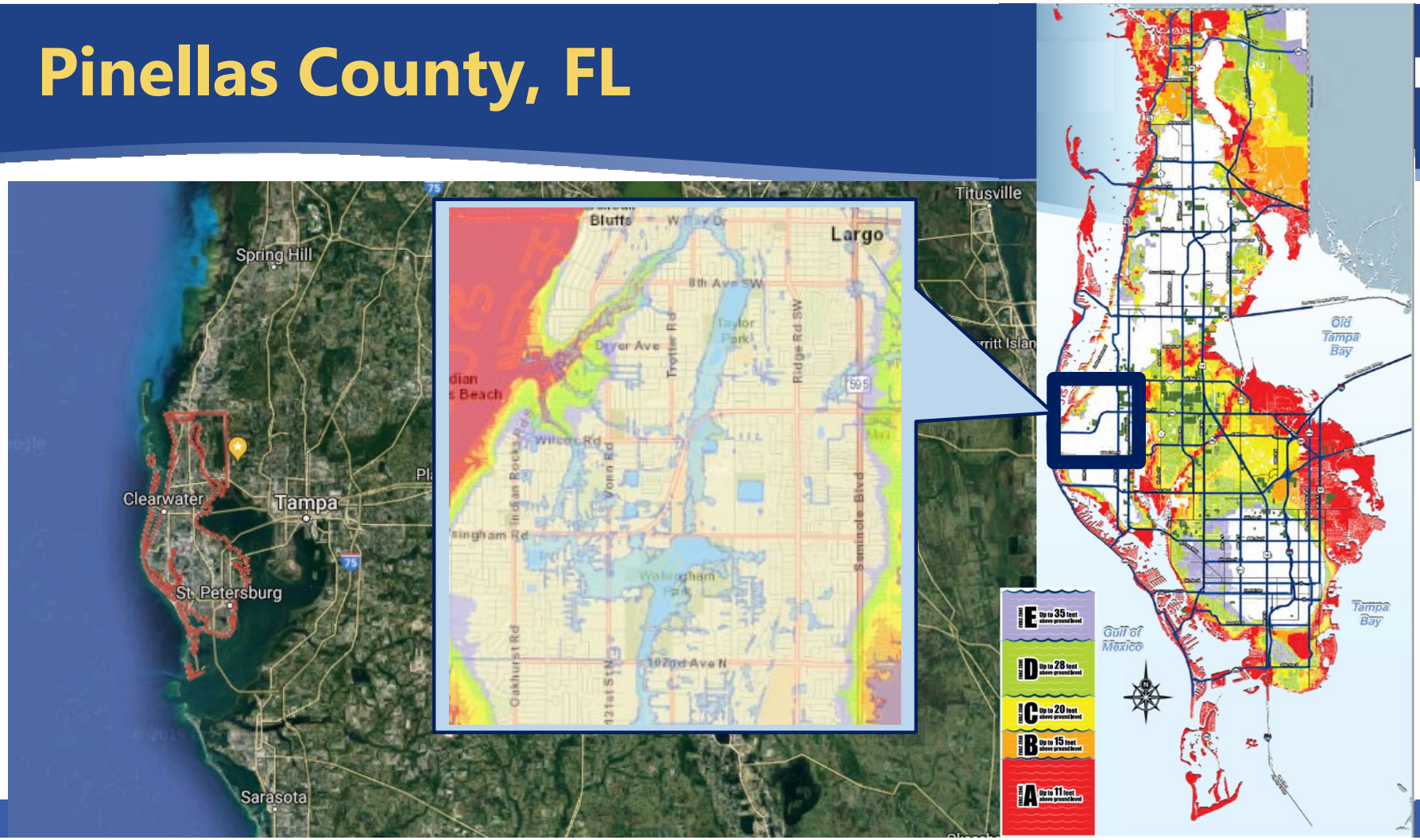




Pinellas County, FL



Types of Flood Risk

Coastal

- Storm Surge
- Blue Sky

Riverine

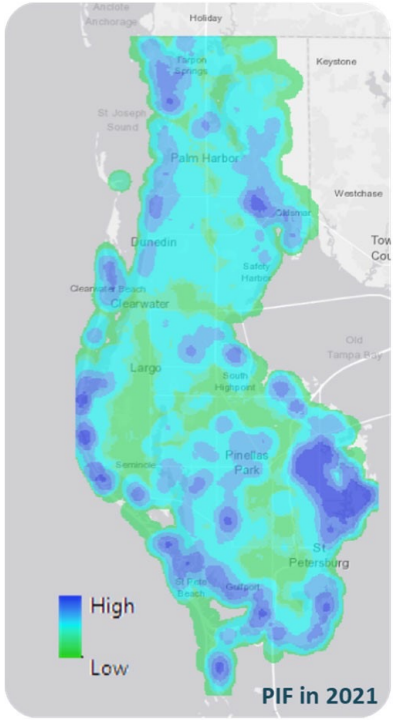
Surface / Localized

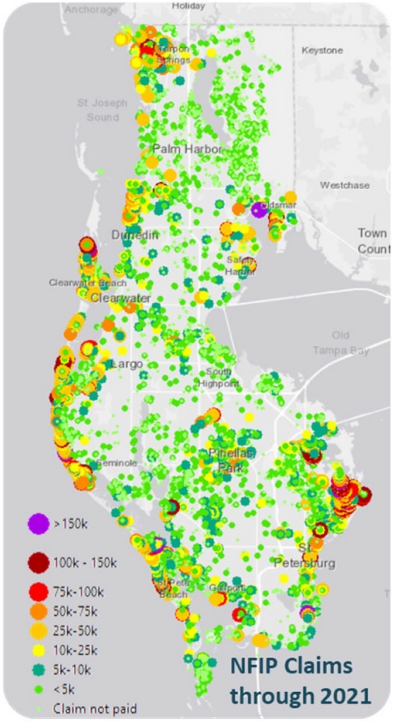
Tropical Storm Eta, 2020

Tropical Storm Hermine, 2016

Current Blue Sky Impact

County NFIP Policies & Claims





Best Available Data – Flood Hazard Maps

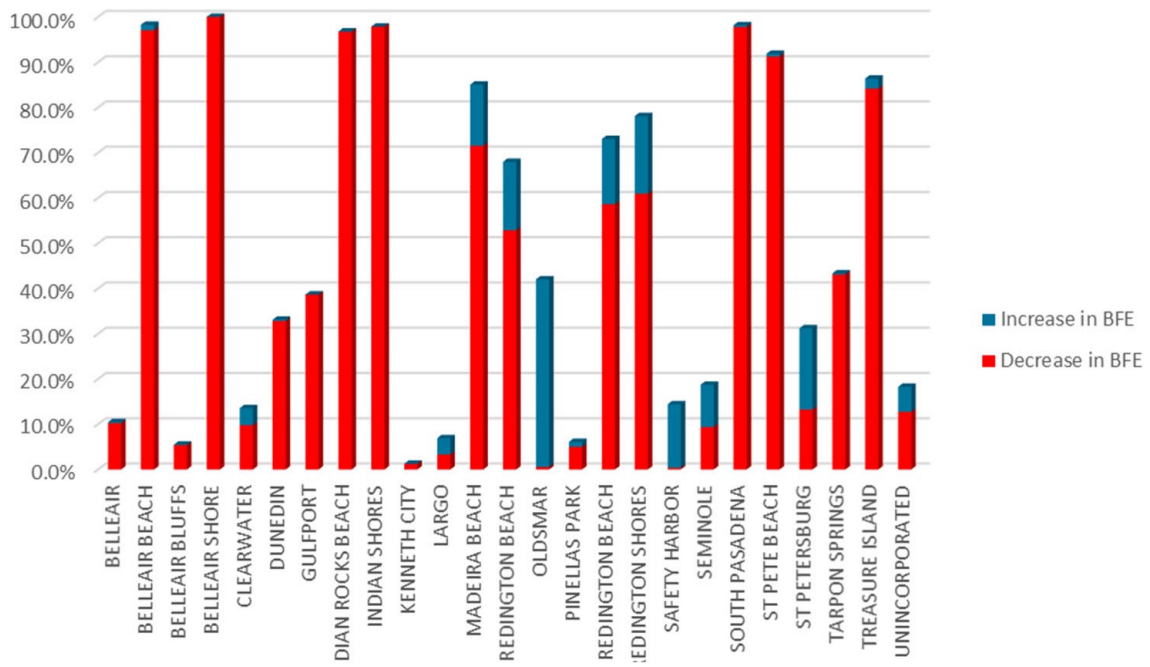
Coastal

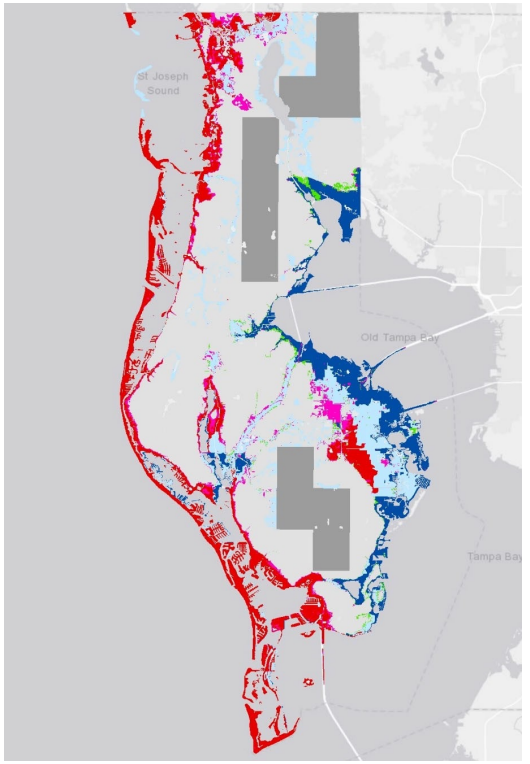
- **FEMA Flood Insurance Study (FIS) & Flood Insurance Rate Map (FIRM)**
- **Pinellas County Vulnerability Assessment**
- **SLOSH**

Non-tidal

- **FEMA Flood Insurance Study (FIS) & Flood Insurance Rate Map (FIRM)**
- **Pinellas County Stormwater Master Plan (SWMP) and Watershed Management Plans (WMPs)**

Old FIRM vs ‘New’ FIRM





Flood Insurance Rate Map (FIRM) Update for Pinellas County

Overview of Changes from 2003 FIRM to New FIRM (2021)

Area - Countywide

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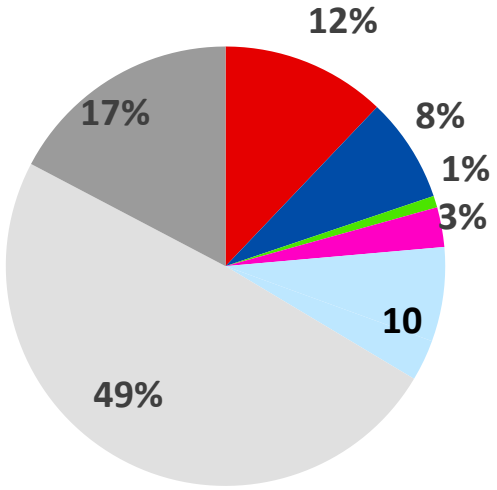
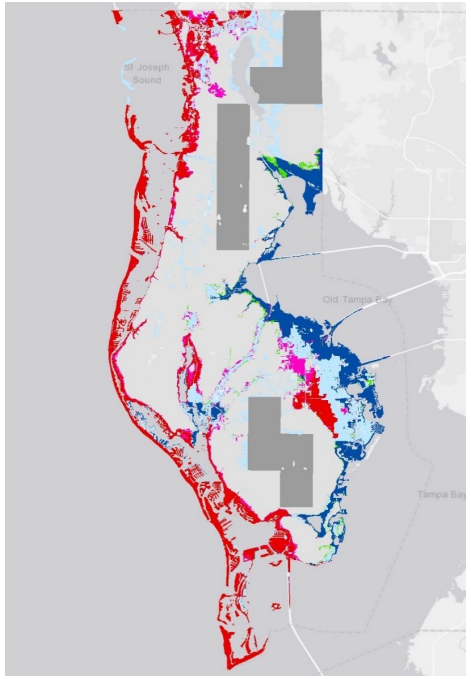
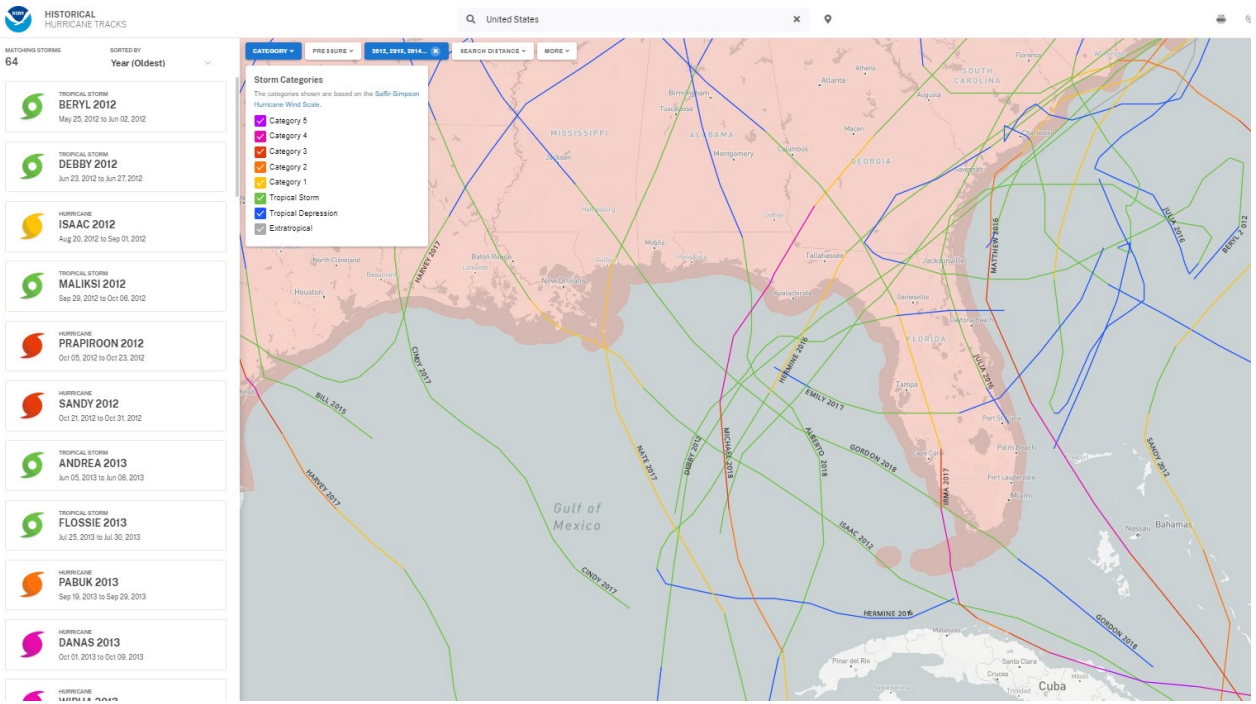
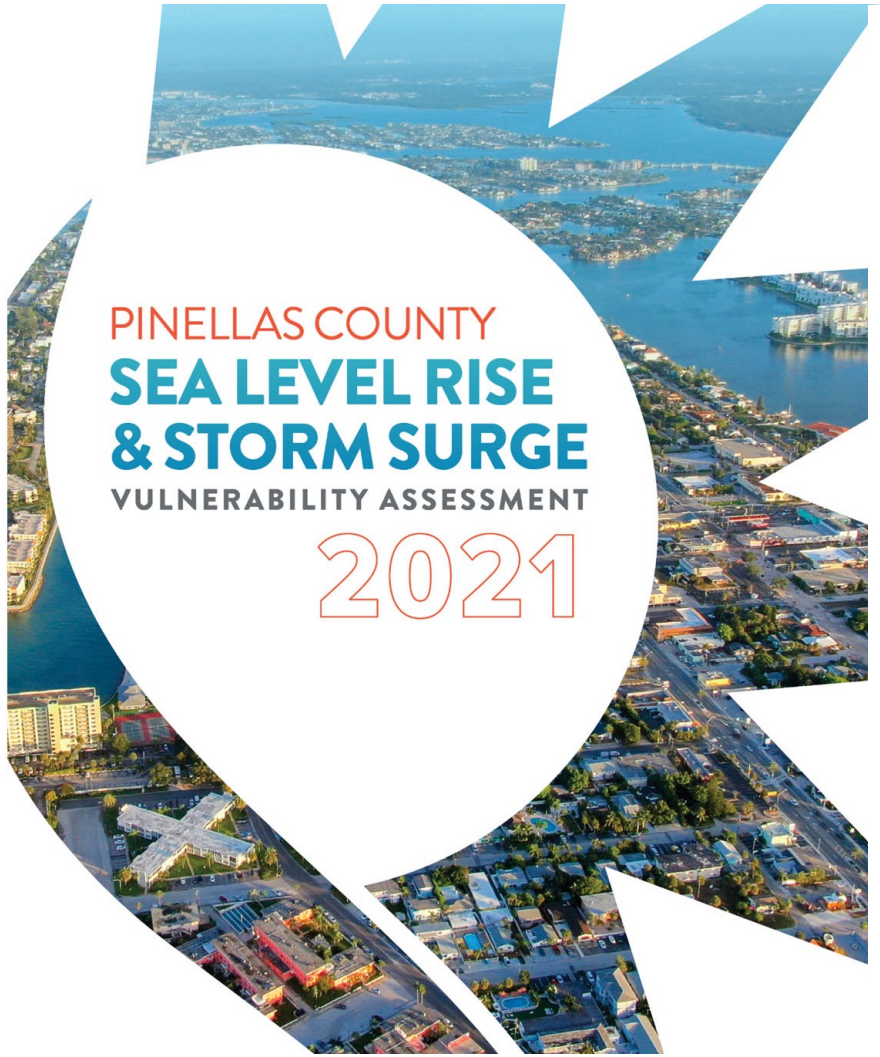
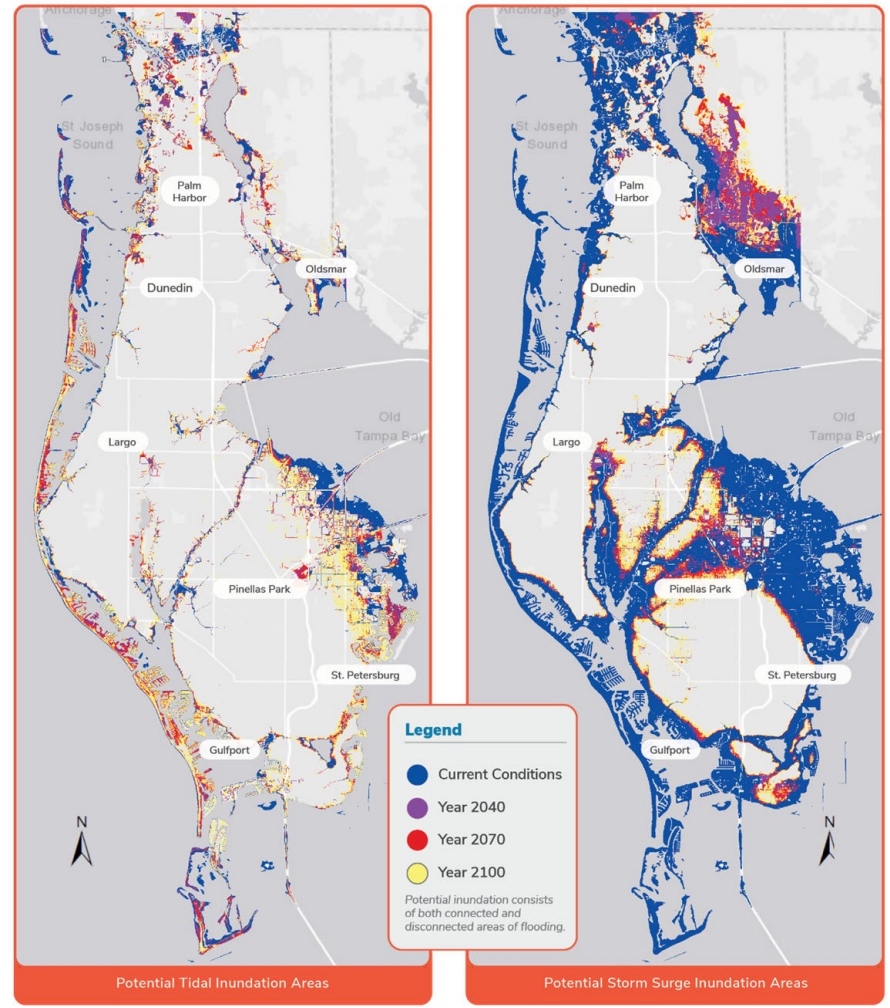




Tropical Storms/Hurricanes 2012 – 2018




PINELLAS COUNTY
SEA LEVEL RISE
& STORM SURGE
VULNERABILITY ASSESSMENT
2021


St Joseph Sound
Palm Harbor
Oldsmar
Dunedin
Largo
Old Tampa Bay
Pinellas Park
St. Petersburg
Gulfport
N
Legend
Current Conditions
Year 2040
Year 2070
Year 2100
Potential inundation consists of both connected and disconnected areas of flooding.
Potential Tidal Inundation Areas
Potential Storm Surge Inundation Areas

Determination of SLR/Flood Conditions

Time Horizons

- Current year (2018)
- 2040
- 2070
- 2100

SLR Projections

- Intermediate low, Intermediate, High
- Hours per year (From MHW to 1 hpy ("king tide"))

Storm Surge

- 25, 50, 100, 250, 500-year

St. Petersburg

Risk-Based Approach for Investments

Develop Full Inventory of Stressors: SLR, Surge, Groundwater Rise, Precipitation

Determine Impacts on County Facilities, Assets, Community Features

Monetize Risks in Today's Dollars for Every Asset

Develop Present Value Costs for Areas at Risk County-wide

Focus Investment Where Most Effective

Flood Resiliency Tool

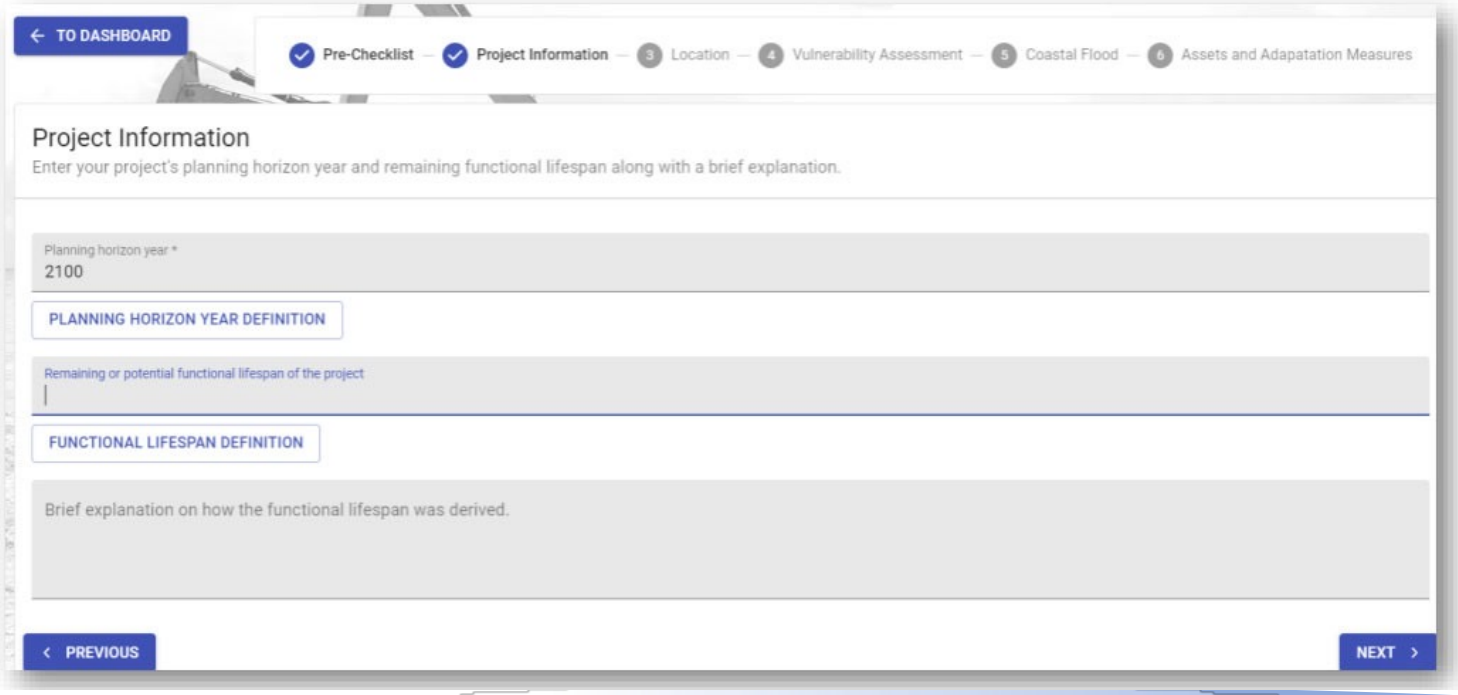
Creation and approval of Pinellas County Administrative Directive (dated 09/24/2019):

1) *"A sea level rise impact analysis shall be performed for projects with a total cost greater than $1.0M in accordance with the County "Sea Level Rise Capital Planning Tool". Critical infrastructure projects with a total cost less than $1.0M shall use this tool to evaluate the impacts of future conditions."*
2) *"All master plans and long-range plans shall evaluate the impacts of a changing climate, including sea level rise impacts in developing projects and programs or evaluating existing functions. These plans should include adaptive and/or mitigation measures to plan for these future conditions."*

Four key steps outlined in Pinellas County's Guidance for Incorporating Sea Level Rise into Capital Projects:

1) Current climate science and the local projections for sea level rise
2) Assets vulnerable to sea level rise
3) Assets at risk to sea level rise
4) Adaptation measures to improve assets' resiliency to impacts from sea level rise

Flood Resiliency Tool



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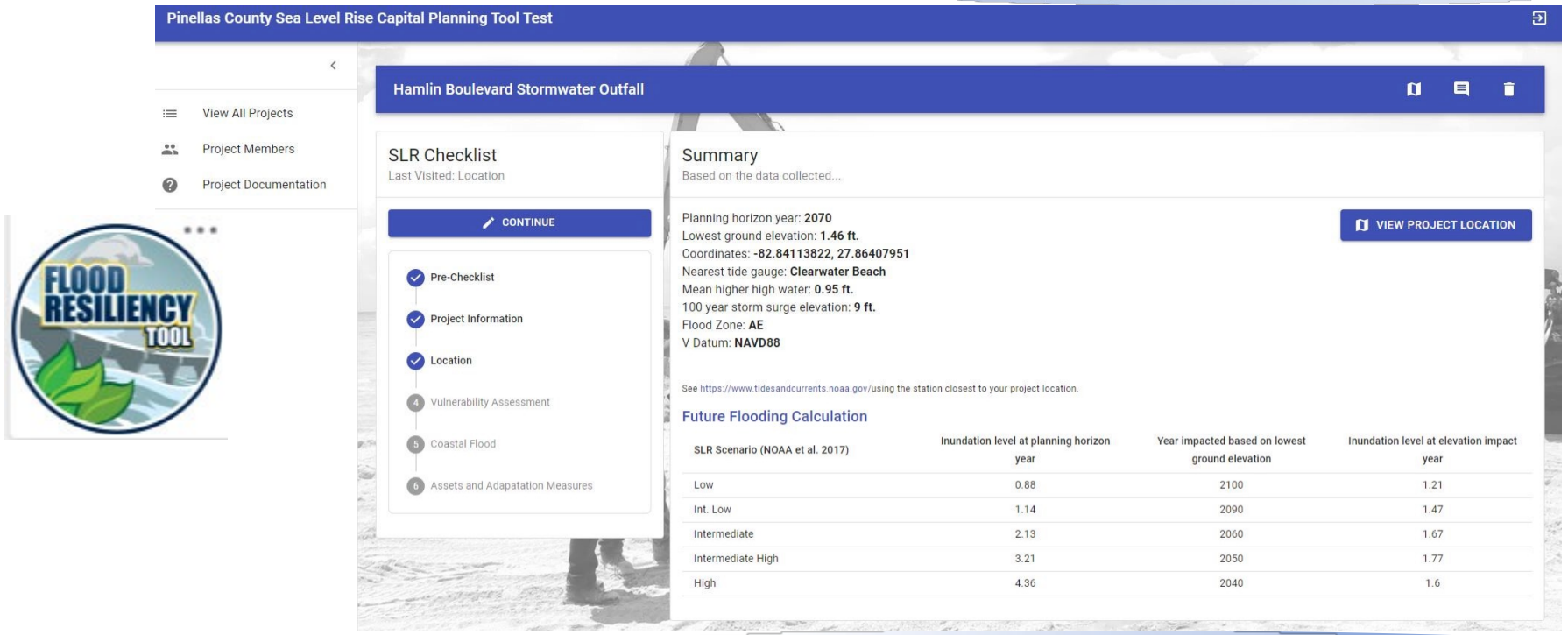
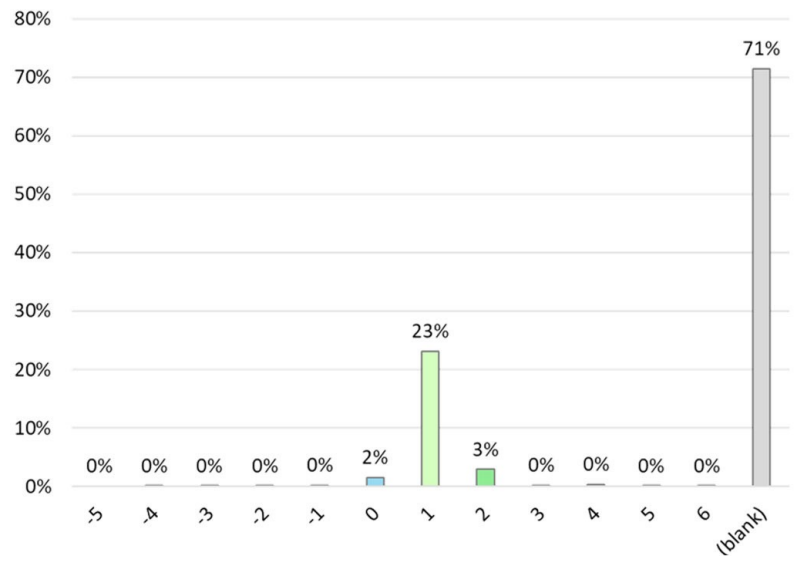
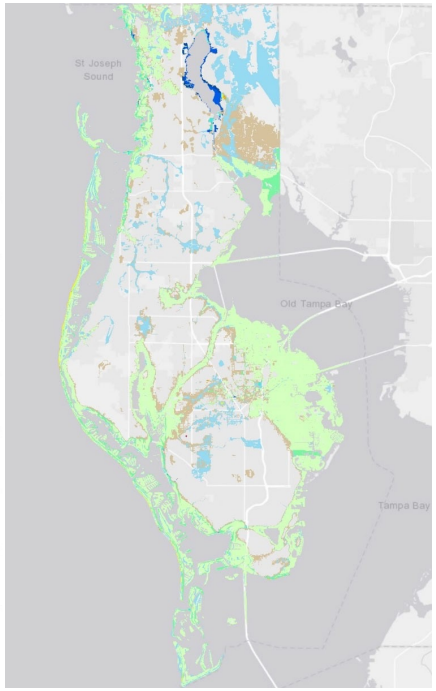
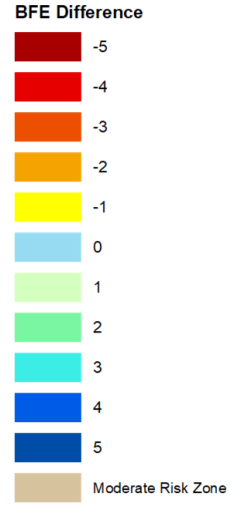


Prior FIRM (2003) vs VA (Current Day)

Generally +1 ft Countywide







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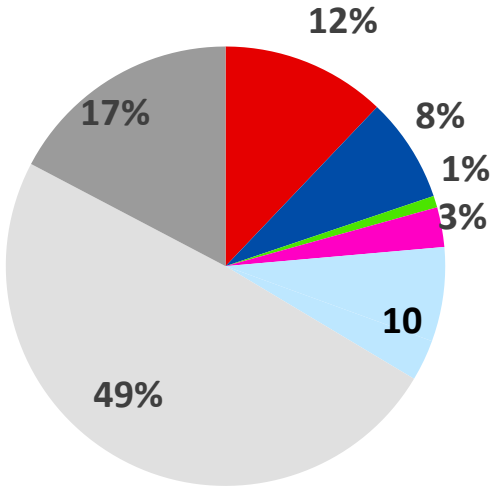
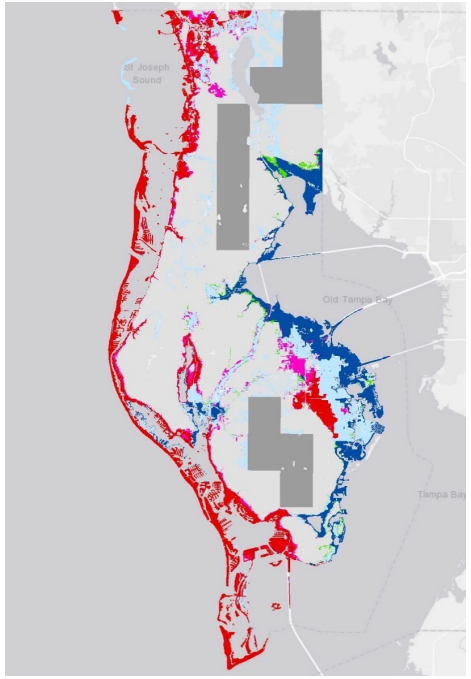




Flood Insurance Rate Map (FIRM) Update for Pinellas County

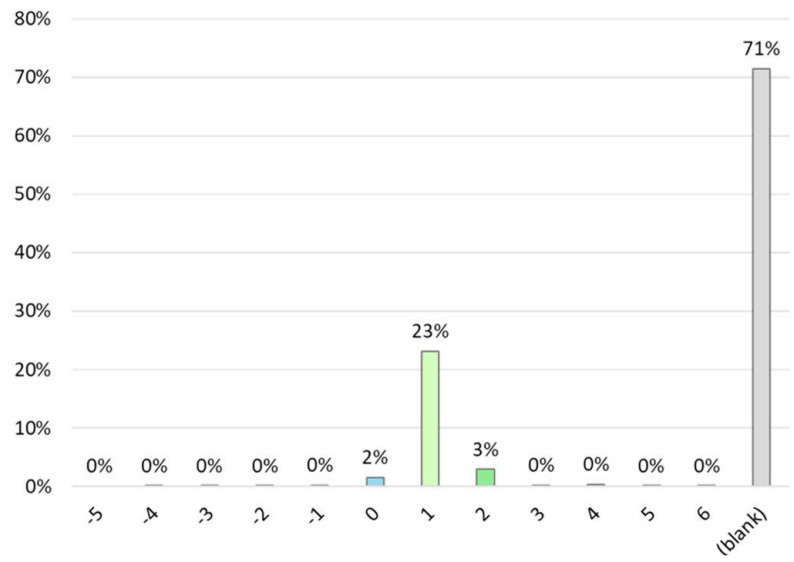
New FIRM vs Vulnerability Assessment

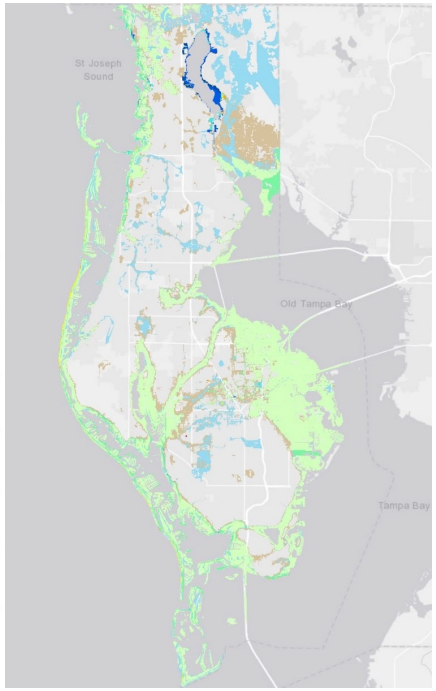
- **Data**
- **Methodology**
- **Models**

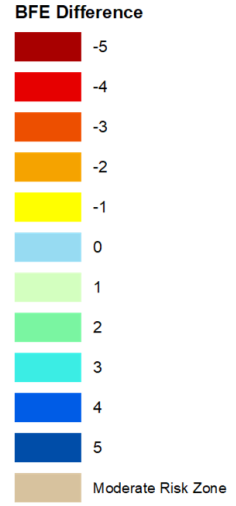
Study	Storm Ensemble	Current Storms	Future Storms	Model	LiDAR
New FIRM	357	<2012	No	ADCIRC+SWAN (2D)	2007
Vulnerability Assessment	300+	<2018	Yes	CH3D+SWAN (3D)	2017

Prior FIRM (2003) vs VA (Current Day)

Generally +1 ft Countywide







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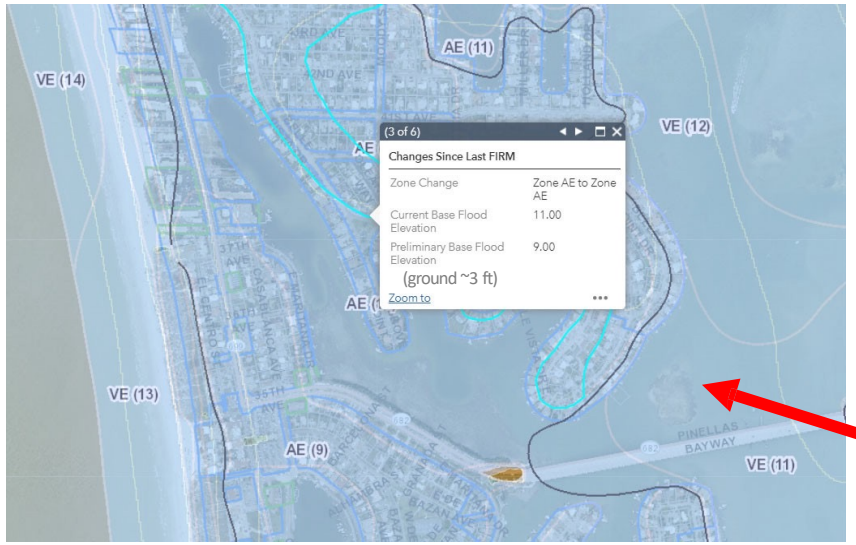
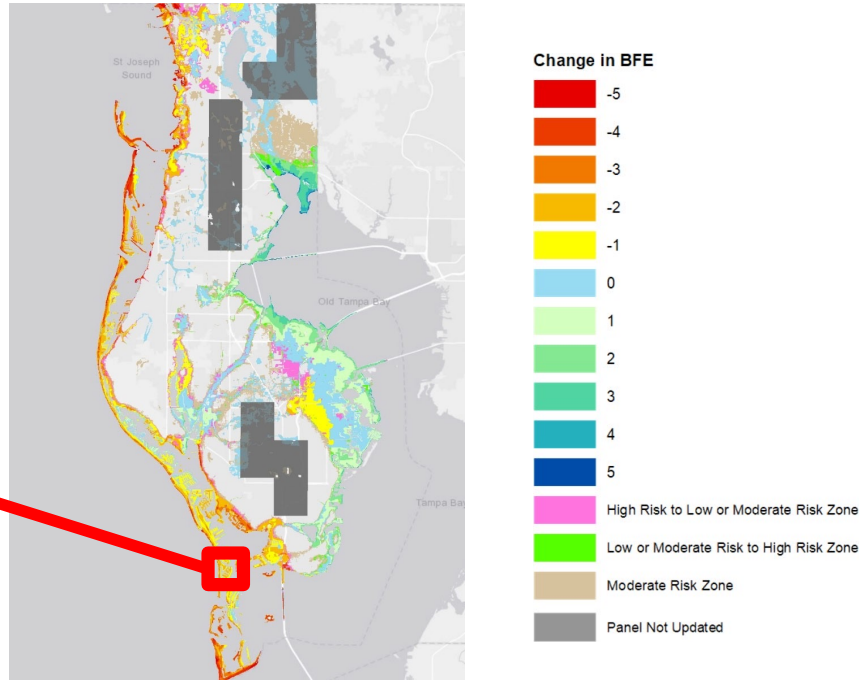
St Pete Beach: BFE Dropping 2 ft



BFE 11 to BFE 9 ft; VA 12 ft
(Depth ~8 ft going down to ~6 ft)



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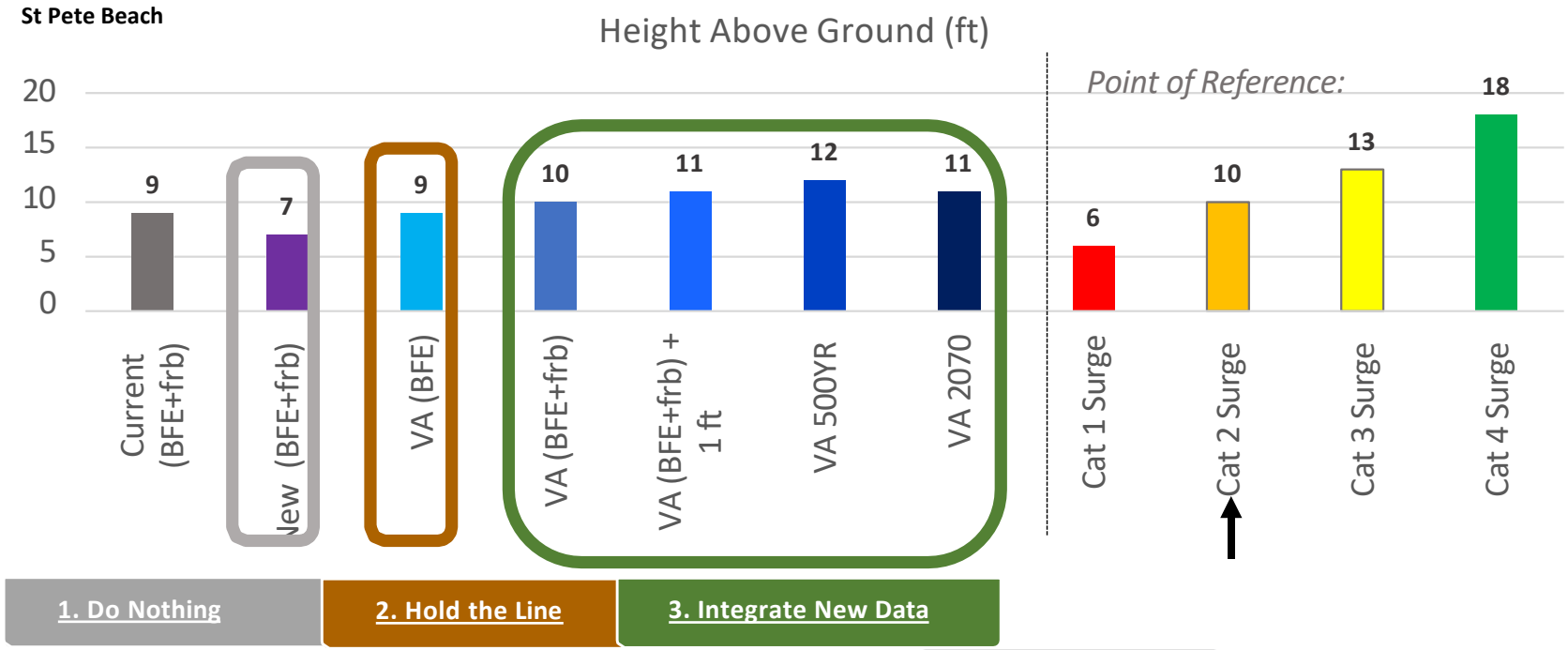
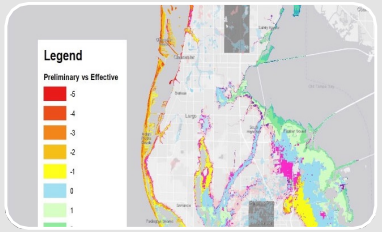
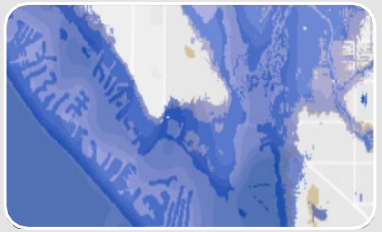


Flood Insurance Rate Map (FIRM) Update for Pinellas County

Elevation Options





1. Do Nothing

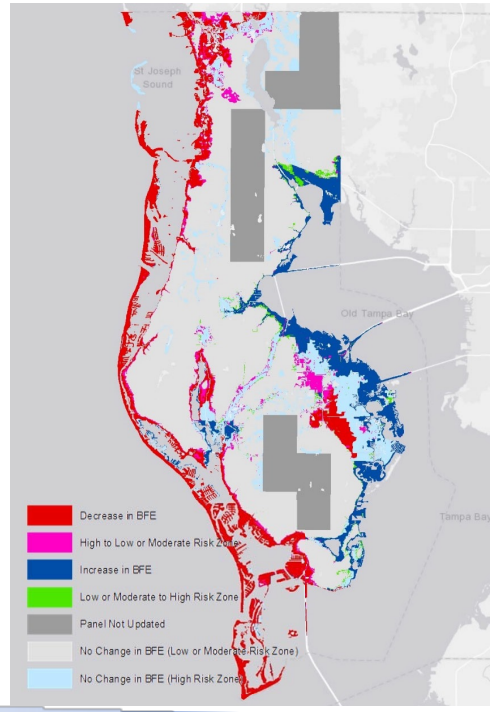
New FIRM + Current Freeboard

2. Hold the Line

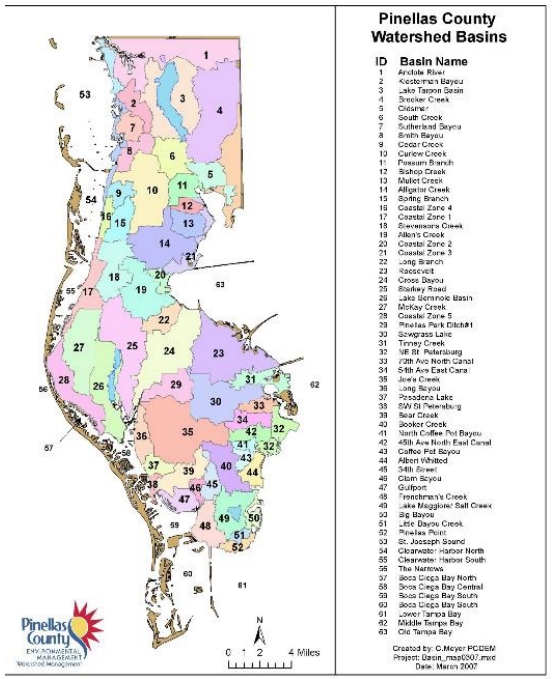
- Adopt Vulnerability Assessment &
- Higher of:
  1. New FIRM BFE + Current Freeboard
  2. Vulnerability Assessment BFE (Current Conditions)

3. Integrate New Data

- BFE Higher of New FIRM or Vulnerability Assessment BFE + Current Freeboard **or**
- VA 2070 100YR **or**
- VA 2018 500YR



Non-Coastal Floodplains – Watershed Plans

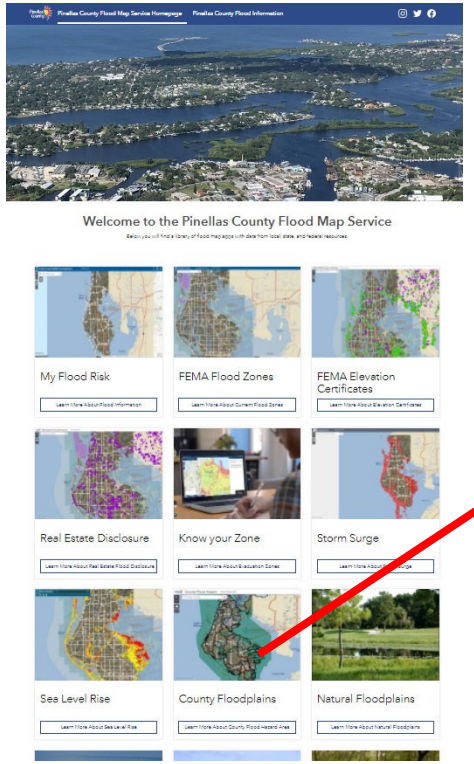


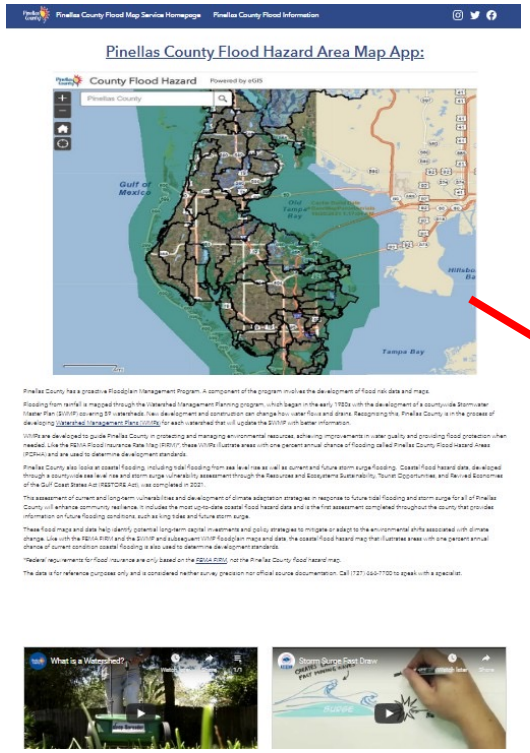
Pinellas County
Southwest Florida Water Management District
DUNEDIN
Home of Honeymoon Island
JonesEdmunds
CLEARWATER
BRIGHT AND BEAUTIFUL · BAY TO BEACH

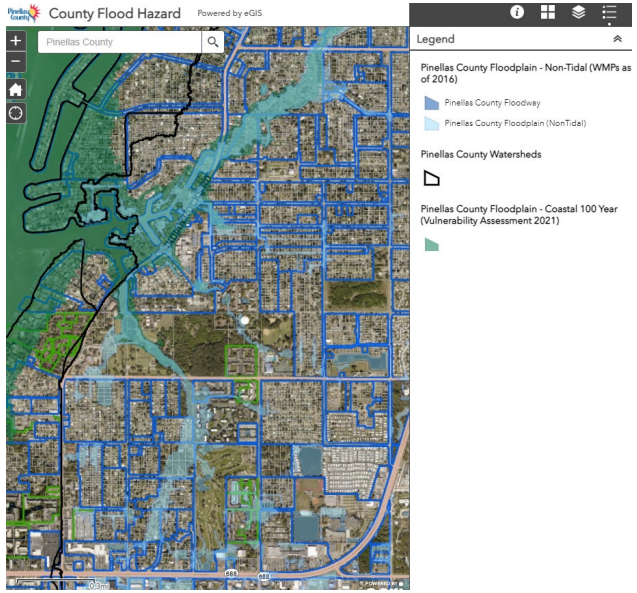
CURLEW CREEK AND SMITH BAYOU WATERSHED MANAGEMENT PLAN

Pinellas County Board of County Commissioners | December 2019

Pinellas County Flood Maps







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