Resilient Florida

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Florida Department of Environmental Protection
Office of Resilience and Coastal Protection

Topics of Discussion

- Florida Resilient Coastlines Program
- SLIP Study (s. 161.551, F.S.)
- Resilient Florida
- Florida Coastal Mapping Initiative

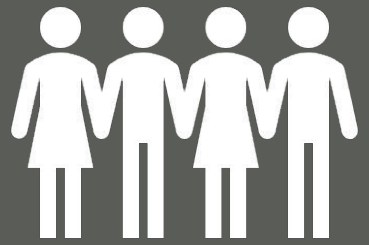
Florida Resilient Coastlines Program

RESOURCES

Florida Adaptation Planning Guidebook & Technical Assistance

FUNDING

Resilience Planning & Implementation Grants

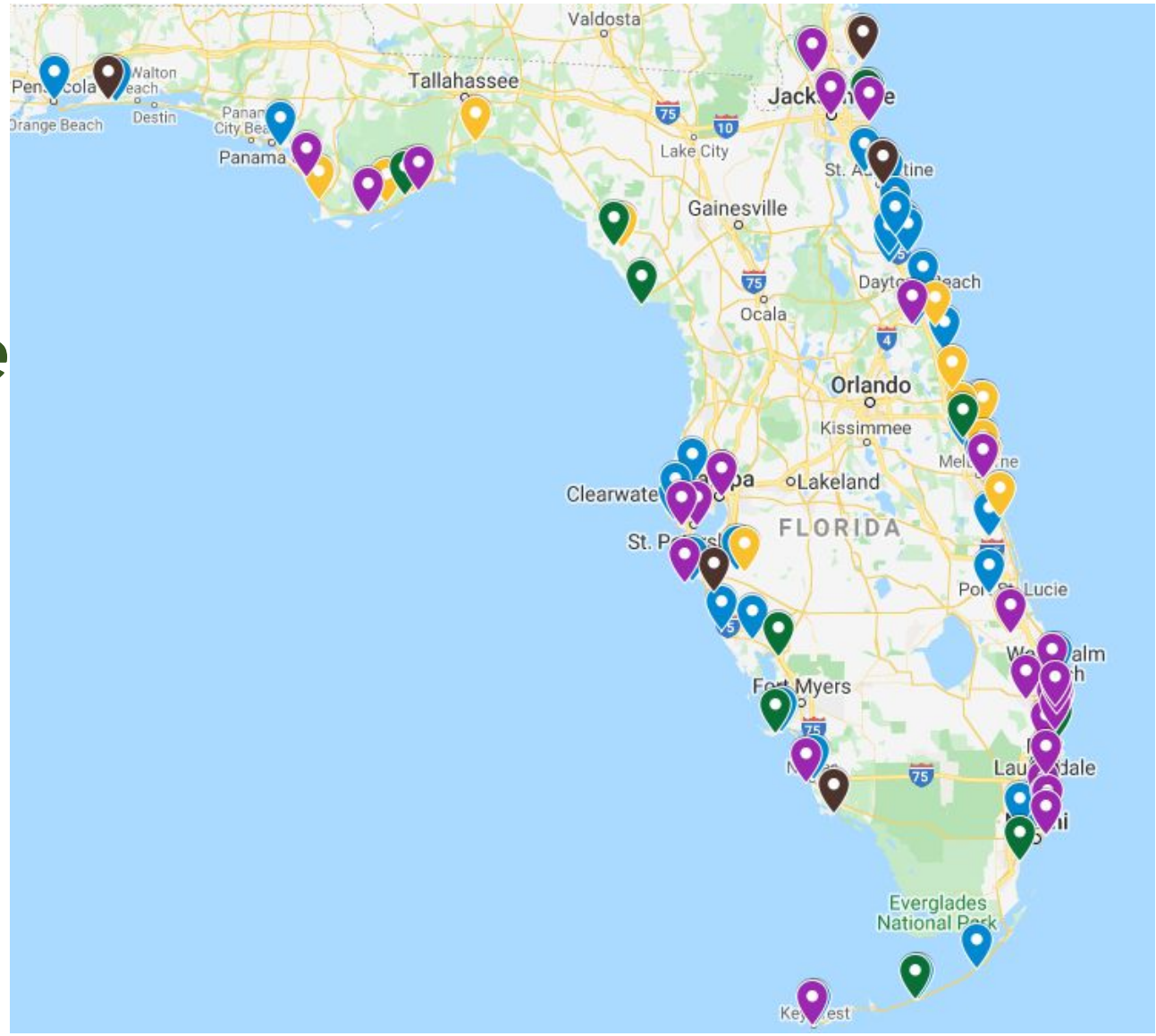


COORDINATION

Quarterly Coastal Resilience Forum

Florida Resilient Coastlines Program

- **$6.5 Million Allocated**
- **97 Total Awards**
  - *11 Implementation Proje*
  - *86 Planning Projects**
- **129 Cities and Counties**



*Planning Projects include Peril of Flood,
Vulnerability Assessments,
Adaptation Plans
and Regional Coordination

161.551, F.S.

Sea Level Impact Projection Studies

- New legislation in 2020 requires state-financed constructor to conduct sea level rise impact projection (SLIP) study for certain construction activities in the Coastal Building Zone.
- DEP required to develop and adopt rules for implementing the section.
- S. 62S-7, FAC, include definitions, requirements of state-financed constructors, standards for SLIP (sea level impact projection) studies, implementation of SLIP study findings, and enforcement.
- A SLIP tool was developed by Taylor Engineering to conduct SLR assessments in a web-based platform that included public accessibility.

Sea Level Impact Projection s. 161.551, F.S. (SB 178)

June 29 2020	• SB 178 signed by Governor DeSantis
October 2020	• SLIP Study Requirements Development
November 2020	• Notice of Rule Development • Stakeholder Roundtables
December 2020	• SLIP Tool Web Application Mock-up
January 2021	• Rule Development Workshop 1 • Incorporation of Comments into Draft Rule Language
February 2021	• Refinement of Draft Rule Language • Rule Development Workshop 2
March 2021	• Comments due March 1 • Finalize Rule Language
April 2021	• Publish Notice of Proposed Rule • File JAPC Package • JAPC Comment Period
May 2021	• Public Hearing if Requested • JAPC Comments due by May 20
June 2021	• File with Department of State
July 2021	• Rule Becomes Effective • Launch of SLIP Tool Web Application

Sea Level Impact Projection Study Tool

Determining risk for Florida coastline construction projects

The purpose of the Sea Level Impact Projection (SLIP) Study Tool is to facilitate the conduction of SLIP studies for state-funded construction within the coastal building zone in accordance with Section 161.551, F.S.

SLIP Studies

Learn more about SLIP Studies and how to create a report using this website

Continue

Section 161.551, F.S.

Learn more about the Florida statute that mandates SLIP studies.

Continue

Adaptation

Learn about adaptation strategies for your construction projects.

Continue

Use the tools below to view base map and coastal flooding spatial data.

SLIP Study Tool

Create Report

Coastal Layers

- Sea Level Rise
- NOAA Regional Scenarios
- Flood Zones
- Storm Surge Flood Depths
- High Tide Flooding
- Wind Zones
- Terrain
- Wildlife Index
- None

Sea Level Rise

Use the vertical slider to simulate water level rise, the resulting inundation footprint, and relative depth.

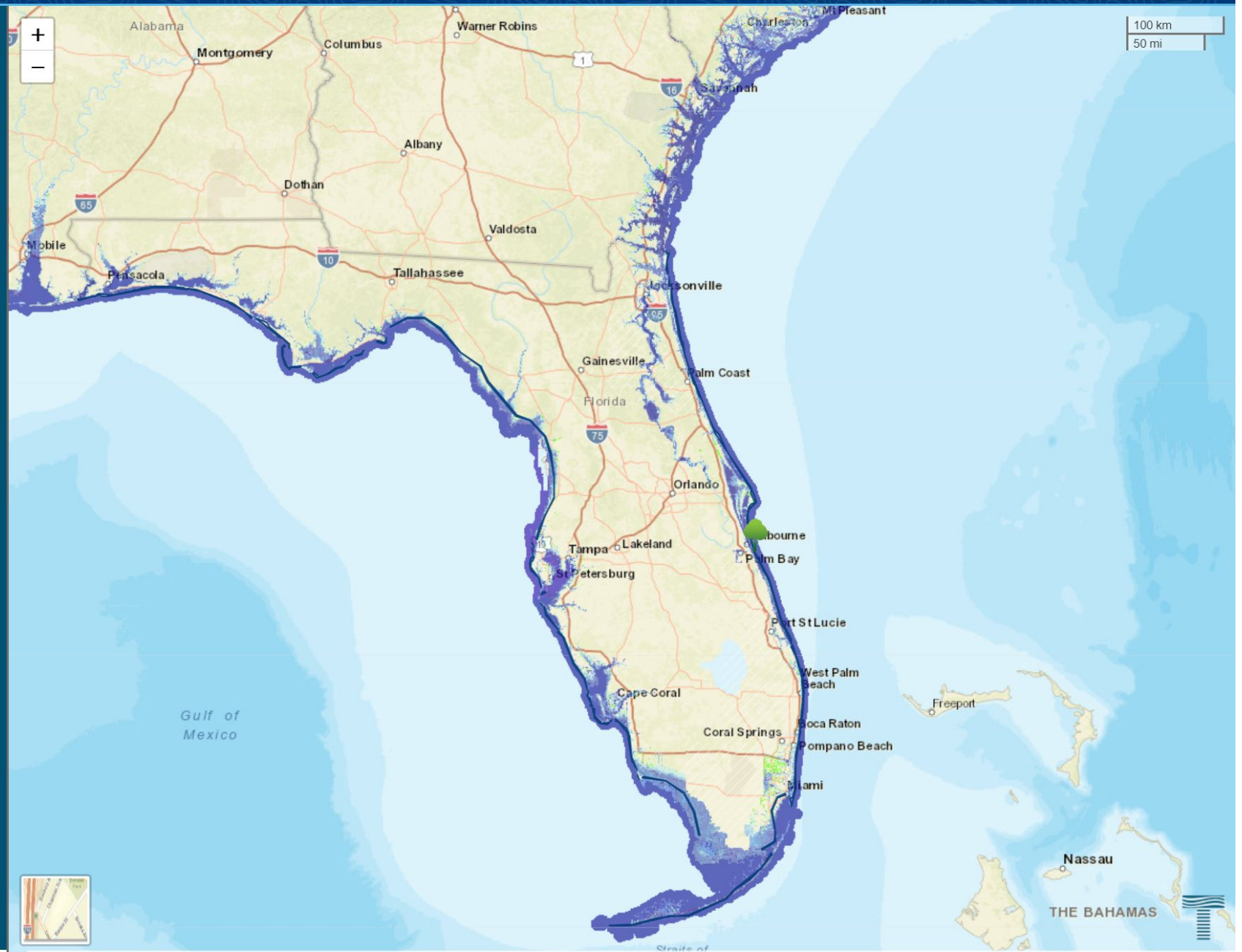
Water Depth

Low-lying inland areas prone to flood at selected sea level rise scenario

Water levels are relative to local Mean Higher High Water Datum. Areas that are hydrologically connected to the ocean are shown in shades of blue (darker blue = greater depth).

-10- -9- -8- -7- -6- 5 -4- -3- -2- -1- MHHW

Water Level (feet)



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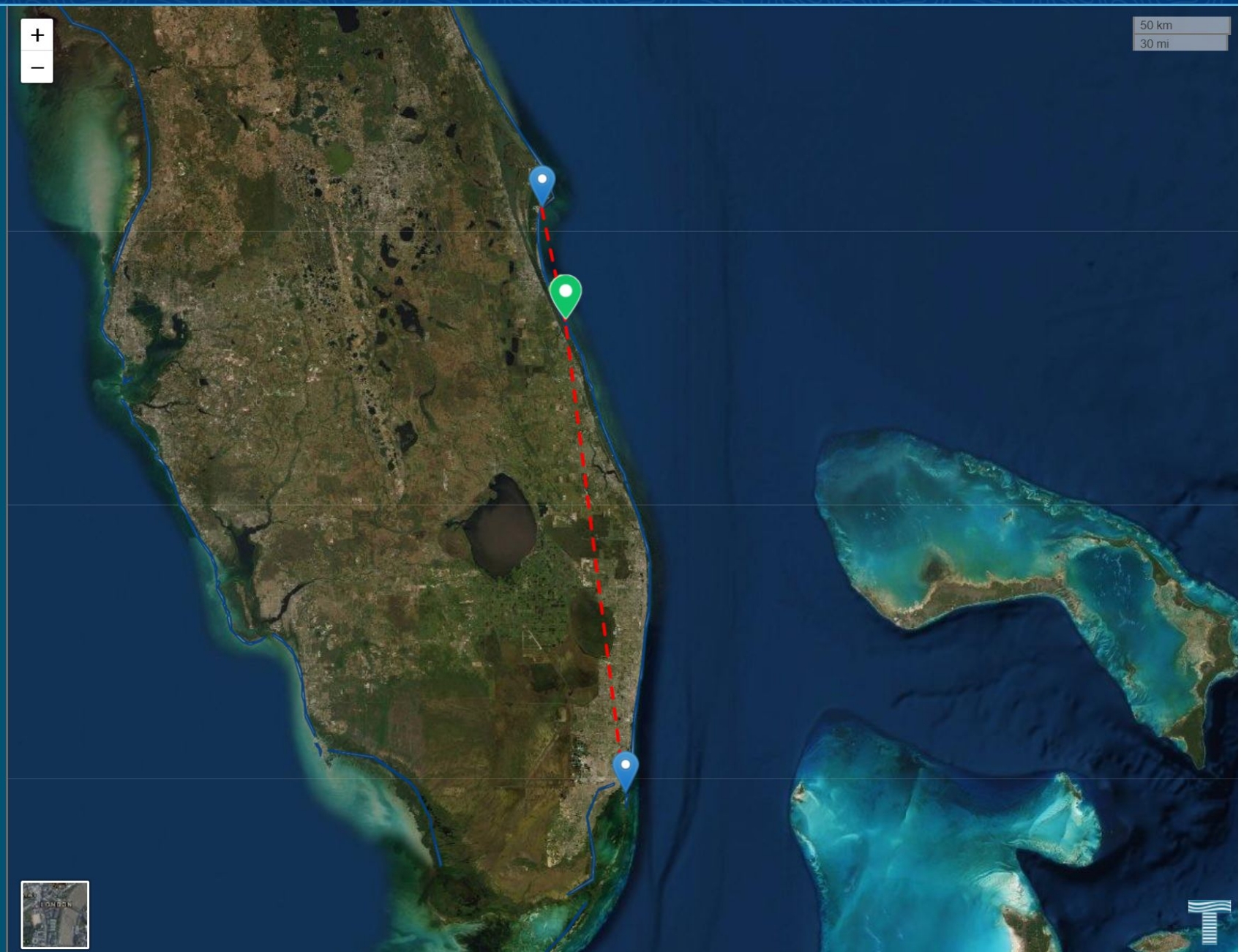
NOAA Regional Scenarios

Click a location on the map to see the interpolated regional sea level rise for the selected scenario. Elevations are in NAVD88 (ft).

Intermediate High

Virginia Key, FL Trident Pier, FL
2100 : 2.86 ft
2080 : 1.81 ft
2060 : 0.99 ft
2040 : 0.37 ft
2020 : -0.06 ft



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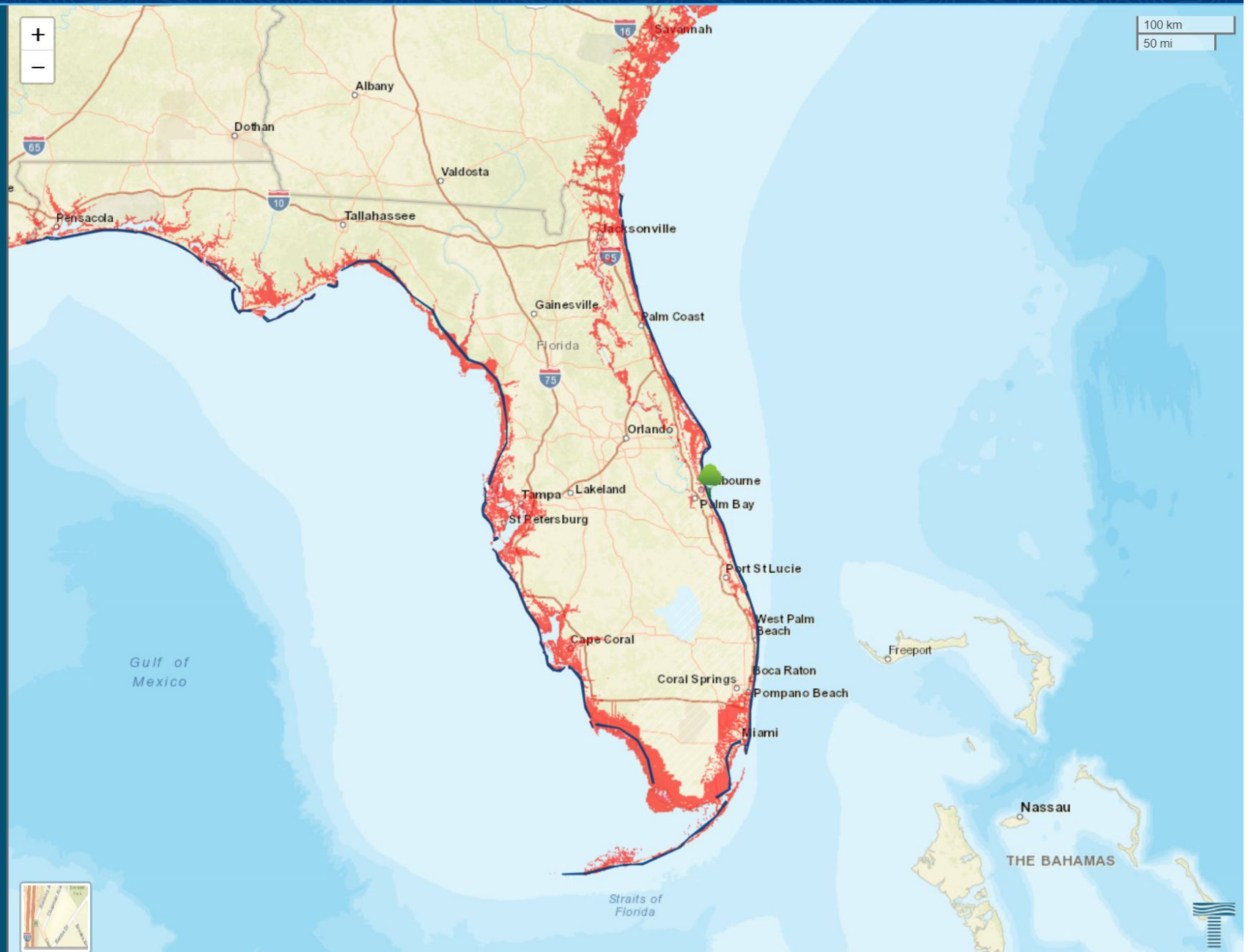
High Tide Flooding

Shallow Coastal Flooding

Annual occurrences of tidal flooding —exceeding local thresholds for minor impacts to infrastructure— have increased 5- to 10-fold since the 1960s in several U.S. coastal cities. The changes in high tide flooding over time are greatest where elevation is lower, local RSL rise is higher, or extreme variability is less.

In a sense, today's flood will become tomorrow's high tide, as sea level rise will cause flooding to occur more frequently and last for longer durations of time.

The red layer in the map represents areas currently subject to tidal flooding, often called "recurrent or nuisance flooding."



(Demo version)

Create SLIP Study Report

*Denotes required values

*Project Name:

Bonsteel Park Driveway

*Category:

Horizontal (road/bridge/parking lot, etc)

*Construction type:

Risk Category I

Critical Elevation (ft NAVD88):

1.3

*Construction Start Year:

2021

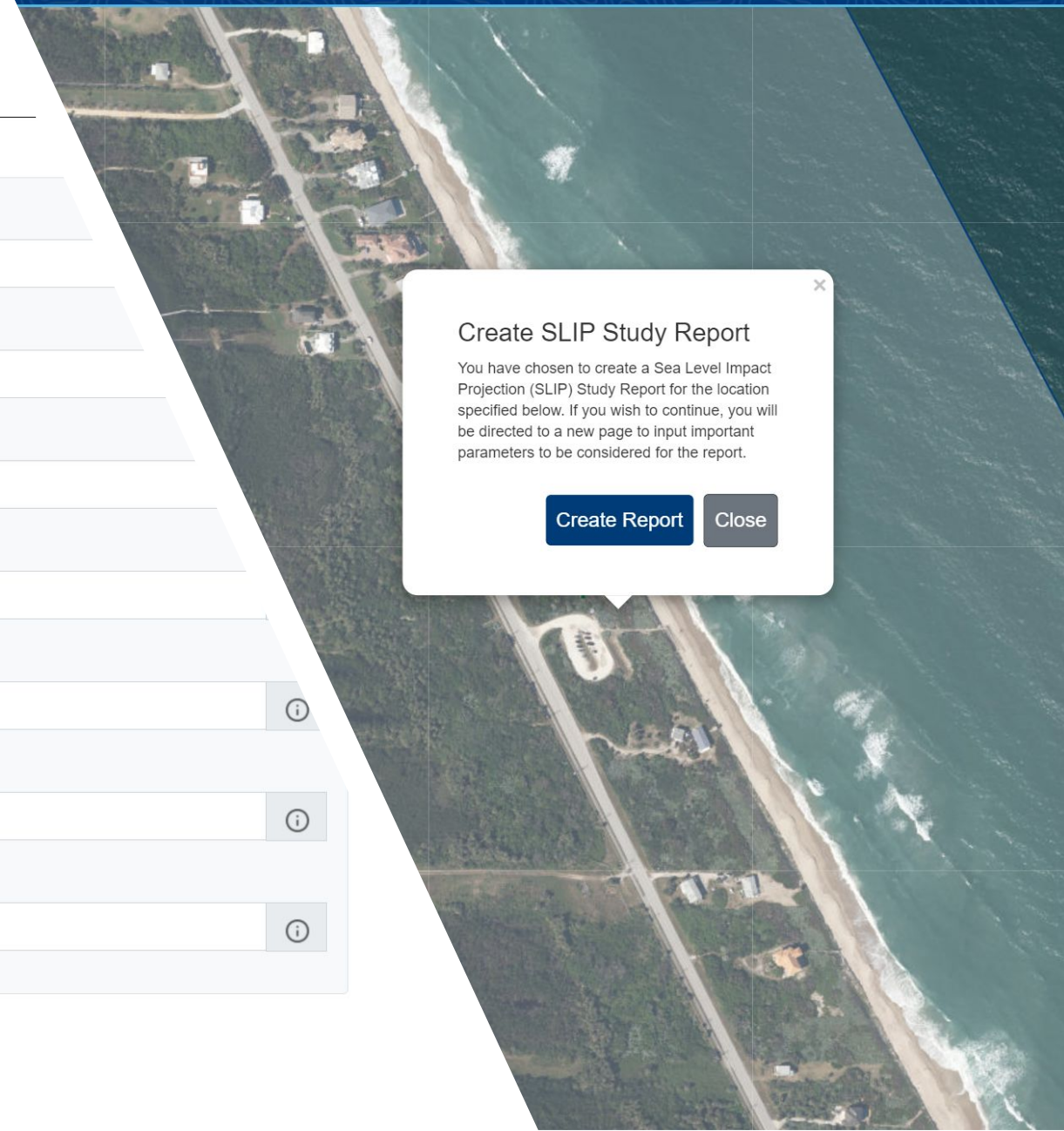
*Expected Life (years):

50

*Estimated Construction Cost ($):

20000

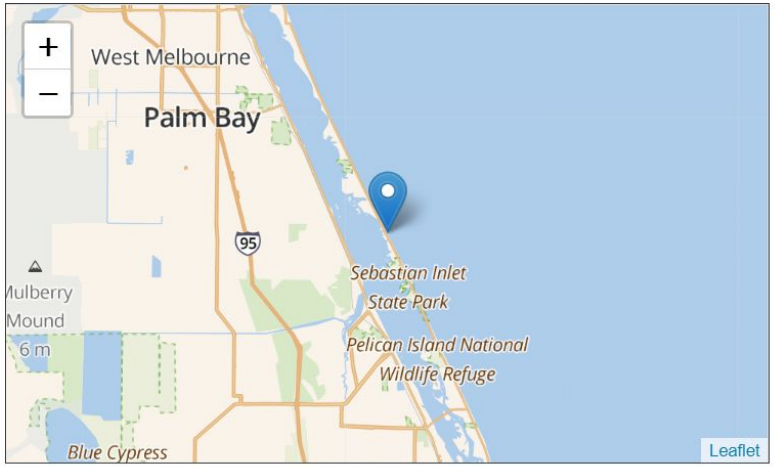
Create Report Cancel



Save Report

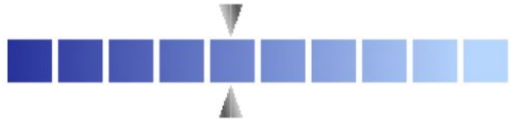
Sea Level Impact Projection (SLIP) Study Report (Demo version)

Project name	Bonsteel Park Platform
Coordinates	-80.47 W, 27.90 N
Project category	Horizontal
Construction type	Bridge
Construction start year	2021
Expected life (years)	40
Estimated Construction Cost ($)	$20,000
Critical elevation (ft NAVD88)	20.1
Organization	Taylor Engineering, Inc.
Report Date	5/4/2021, 10:07:14 AM



Results

Average Annual Chance of Flood Damage: **5%**



Metric	Value
FEMA Flood Hazard Zone	VE
Base Flood Elevation (ft NAVD88)	13
Int-High Sea Level Rise (year 2060) (ft NAVD88)	0.85
Wind Zone (mph)	180

The cumulative results of the SLIP Study were found to be moderate, meaning the selected location is moderately favorable when considering coastal hazards related to potential sea level impacts. More explanation will be forthcoming in future versions.

Potential Beneficial Adaptation Strategies

Based on the results of the SLIP Study, the following adaptation strategies may be beneficial to consider in the constructio recommendations, merely standard strategies used to mitigate risk.

Build on Partially Elevated Areas
Building on partially elevated areas reduces the flood risk locally.

Metric	Value
Solution Timeline	Long Term
Scale	Micro
Adaptation Infrastructure	Hybrid
Degree of Protection	Medium
Relative Cost ($, $$, $$$)	$$

Flood Barriers (Passive or Active)
Barriers around a building system utility components to protect from flooding.

Metric	Value
Solution Timeline	Intermediate
Scale	Micro
Adaptation Infrastructure	Gray
Degree of Protection	Medium
Relative Cost ($, $$, $$$)	$$

Potential Public Safety and Environmental Impacts

Based on the results of the SLIP Study, consider the following potential public safety and environmental impacts.

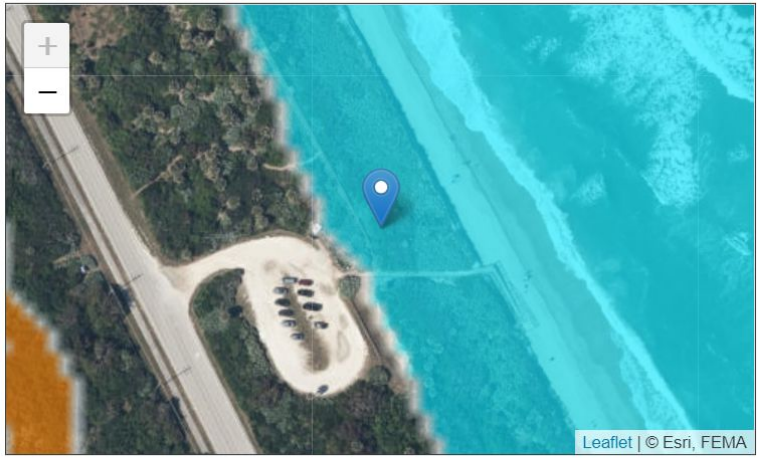
Flood Risk
When factoring in the flood zone, base flood elevation, terrain, and sea level rise trends for the project location, a moderate flood risk is present.

Wind Risk
The project location was found to be located in an area of high wind risk with a C (waterfront) classification and potential wind speeds of 150 mph. There is potential risk from flying debris.

Explosion Risk
The high wind risk in this project location may contribute to a higher risk of explosion due to potential downed powerlines.

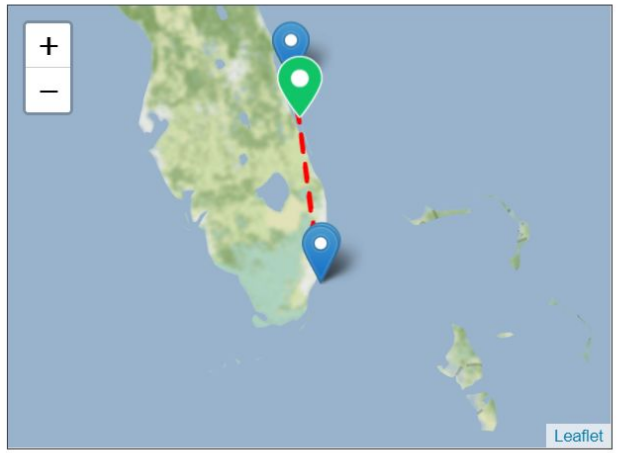
FEMA Flood Hazard Information

Flood Zone	VE
Zone subtype	COASTAL FLOODPLAIN
Static BFE (ft NAVD88)	13
Depth (ft NAVD88)	Not Applicable
Velocity	Not Applicable
Vertical Datum	NAVD88



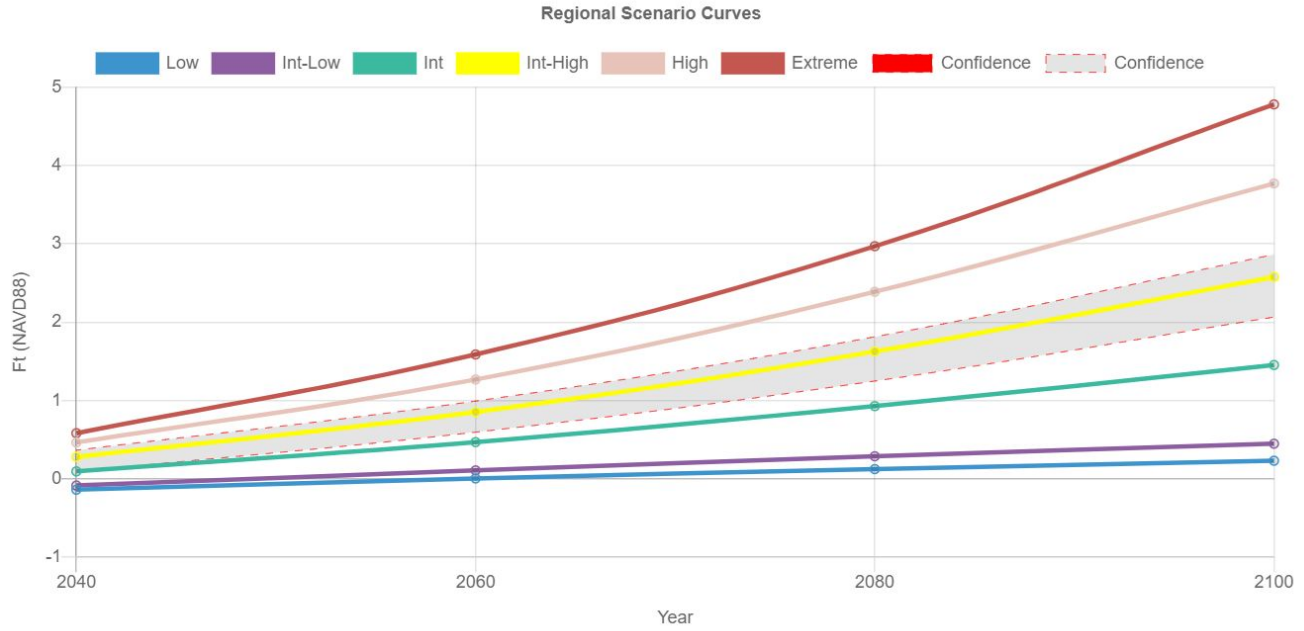
The base flood elevation (BFE) is provided in NAVD88 for VE, AE, and AH special flood hazard zones. For AO special flood hazard zones though, FEMA does not calculate BFE. Instead, flood depth relative to the ground elevation is provided.

Regional Sea Level Rise Scenarios



NOAA Regional Scenarios (ft)

Scenario	2040	2060	2080	2100
Low	-0.14	0.01	0.12	0.23
Intermediate Low	-0.08	0.11	0.29	0.45
Intermediate	0.10	0.47	0.93	1.45
Intermediate High	**0.28**	**0.85**	**1.63**	**2.58**
High	0.46	1.27	2.39	3.77
Extreme	0.58	1.59	2.97	4.78



Resilient Florida

Section 380.093, F.S.

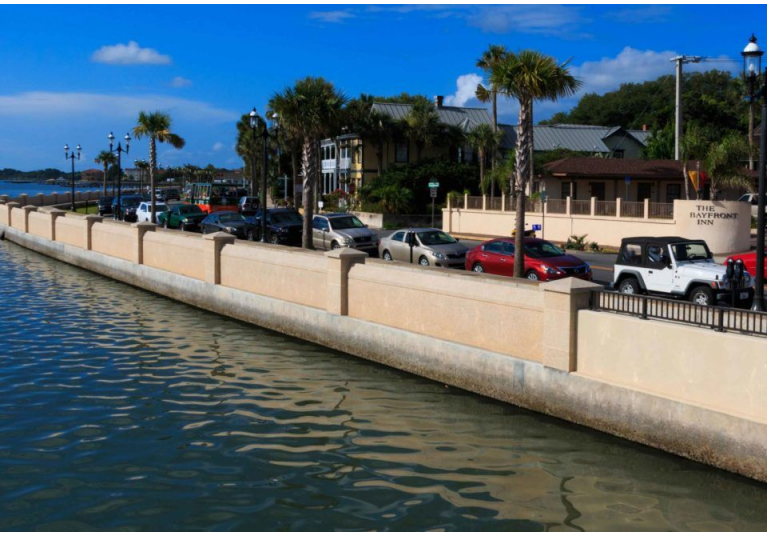
Resilient Florida Grant Program

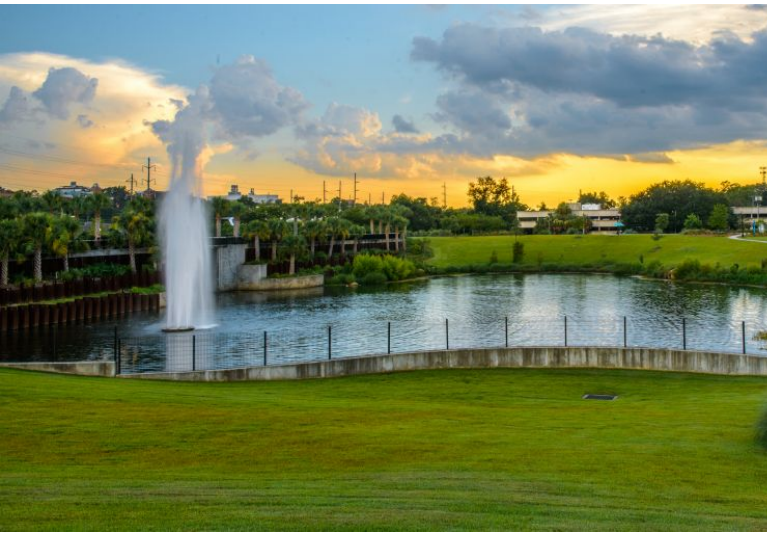
Focused on planning

- Comp plan amendments, especially compliance wit the Peril of Flood statute.
- Vulnerability assessment
- Adaptation/resilience plans.
- Projects to adapt critical assets.

Figure 1. Communities can follow this roadmap of steps to create an adaptation plan.

Data Set & Vulnerability Assessments





- Will comprise the Statewide Vulnerability Assessment and be the basis for the Statewide Resilience Plan.
- Encompass entire city or county and all critical assets.*
- Use most recent publicly available DEM and generally accepted analysis and modeling.
- Address Peril of Flood compliance, if applicable.
- Assess flooding using, at least, Intermediate Low and Intermediate High scenarios from NOAA 2017 for at least 2040 and 2070:
  - Tidal flooding, including future high tide flooding.

Resilience Plan

- 3-year rolling plan of projects.
- Prioritized based on criteria in statute.
- Year 1 & 2 Preliminary Plans use completed local vulnerability assessments.
- Year 3+ Plans use projects identified in the Statewide Vulnerability Assessment.
- Counties and municipalities, regional resilience entities (on behalf of a member), WMDs and

Regional Resilience Entities

- Funding for regional resilience entities to assist communities and coordinate intergovernmental solutions:
  - Technical assistance.
  - Coordinate multijurisdictional vulnerability assessments.
  - Develop project proposals to go into the Resilience Plan.

SOUTHEAST FLORIDA REGIONAL COMPACT CLIMATE CHANGE

EAST CENTRAL FLORIDA REGIONAL RESILIENCE COLLABORATIVE

TAMPA BAY REGIONAL RESILIENCY COALITION

Florida Flood Hub

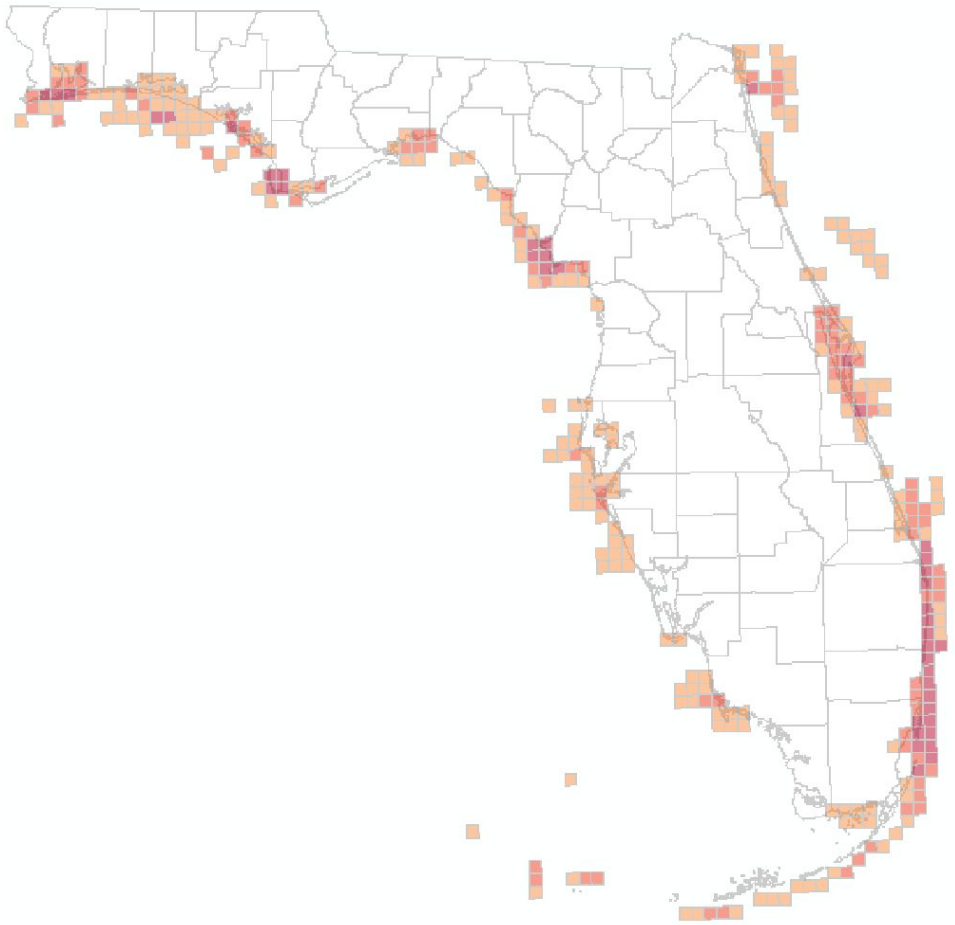
- Designates the College of Marine Science at USF to serve as the lead institution to engage other academic and research institutions, private partners, and financial sponsors to coordinate efforts to support applied research and innovation to address the flooding and sea level rise challenges of the state

USF
UNIVERSITY OF SOUTH FLORIDA
COLLEGE OF MARINE SCIENCE

	Resilient Florida Grant Program		Comprehensive Statewide Flood Vulnerability Data Set and Assessment		Statewide Flooding and Sea Level Rise Resilience Plan	Regional Resilience Entities	Florida Flood Hub
	Planning Grants	*Resilience Projects*	*Data Set*	*Assessment*			
Activities	Provides funding for comprehensive plan amendments, Peril of Flood, vulnerability assessments, adaptation plans, and projects to adapt critical assets to the effects of flooding and sea level rise. Provides a methodology for completing vulnerability assessments.	"The nonrecurring sum of $500,000,000 from the Resilient Florida Trust Fund is appropriated in Fixed Capital Outlay for the Resilient Florida Grant Program authorized in Senate Bill 1954."	Provides for the collection and aggregation of data from vulnerability assessments that are existing , those completed from grant program, and to fill any gaps.	This section provides for the incorporation of the data collected for the data set and other analyses into a statewide sea level rise vulnerability assessment.	Statewide Flooding and Sea Level Rise Resilience Plan will be developed and submitted to the Governor and Legislature. The Plan will work on a 3-year rolling planning horizon and will consist of ranked projects that address the risks of flooding and sea level rise identified in the Statewide Flood and Sea Level Rise Vulnerability Assessment.	Provides funding to regional entities that are established by local governments to provide technical assistance on multijurisdictional projects.	Provides for the establishment of the Florida Flood Hub at USF's College of Marine Science. The Flood Hub will serve as the lead institution and will engage other institutions and partners to coordinate research and innovation around the flooding and sea level rise challenges facing the state.
Deadlines	Application portal opens: July 1, 2021. Applications due September 1, 2021		Data Set due July 1, 2022.	Assessment due July 1, 2023.	Application portal opens: July 1, 2021. Applications Due September 1, 2021. Plan due to EOG/Legislature December 1, 2021. Starting December 1, 2023, the Resilience Plan will be based on the Statewide Assessment.	Application portal Opens: July 1, 2021. Applications due September 1, 2021	Annual Report due July 1, 2022.
Annual Funding							
FY 21-22	$20,000,000	$500,000,000	$4,000,000			$2,000,000	
FY 22-23							

Florida Coastal Mapping Initiative

- $100,000,000 appropriation provided for bathymetric LiDAR/Sonar on continental shelf.
- Federal coordination.
- Nearshore (0-20 m); Deep water (20-200 m).
- Build on priority initiated by the FCMaP.
- Compliment topographic LiDAR flown 2020, anticipated to be available Spring, 2022.



Thank you!

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