Regional Planning Councils: Vulnerability Assessments and Adaptation Planning

UF Symposium on Flooding Adaptation—October 28-31, 2024

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Central Florida Regional Planning Council, East Central Florida Regional Planning Council, and Northeast Florida Regional Council

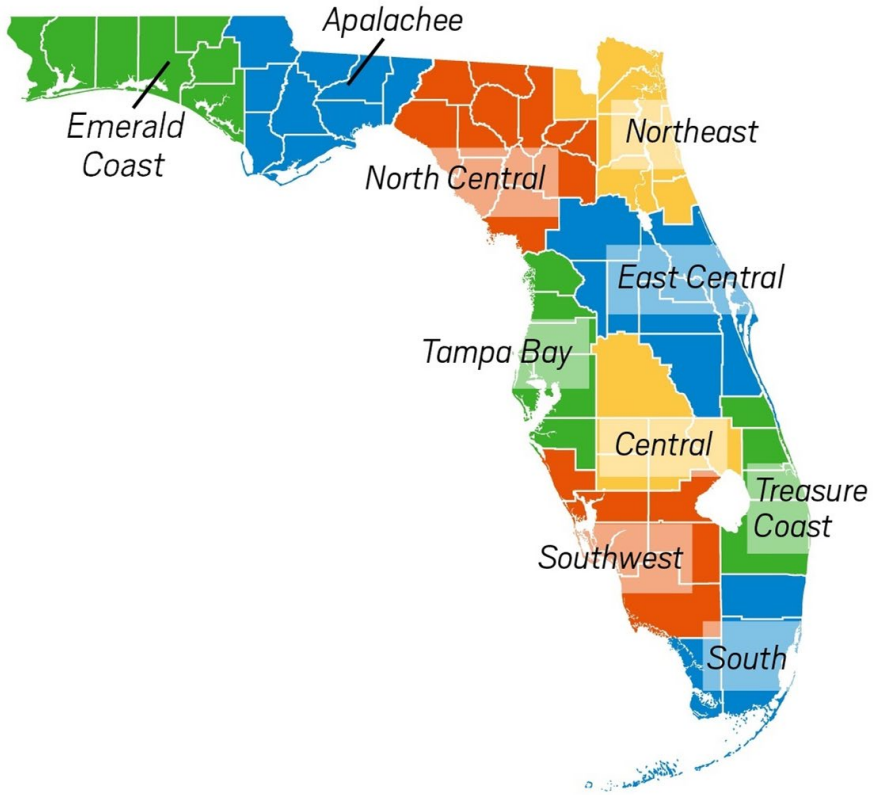
Photo Credit: Daniel Kozin/AP

Overview of RPCs

Brenda

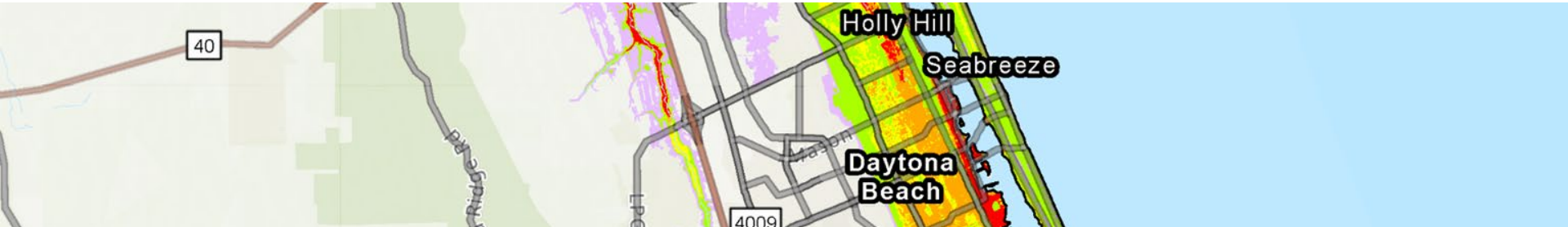
Established by Chapter 186, F.S.

Regional collaboration and coordination (multijurisdictional)

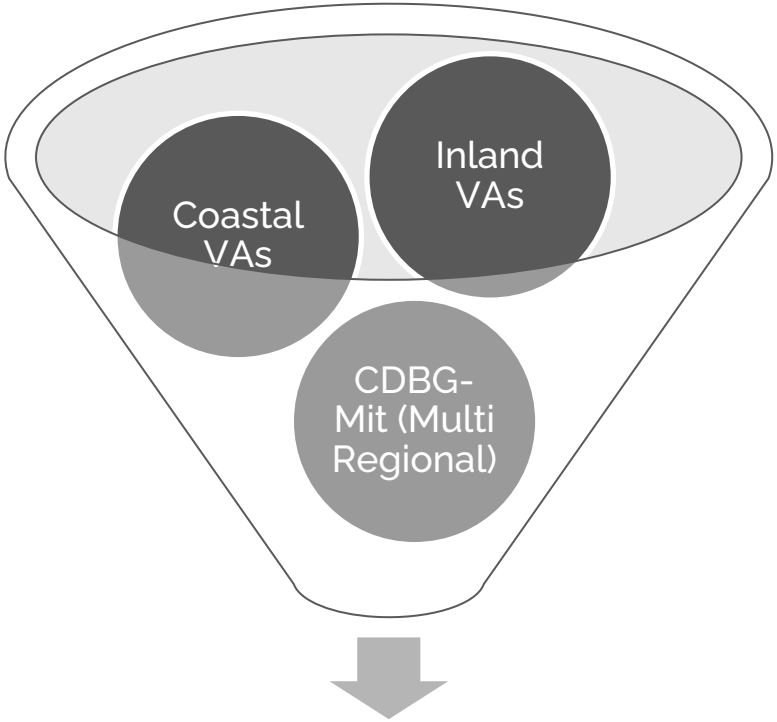


Statewide Regional Evacuation Studies

Partnership with Florida Division of Emergency Management for storm surge analysis and hurricane evacuation zones.



Vulnerability Assessment Methodology



CDBG-Mit Project

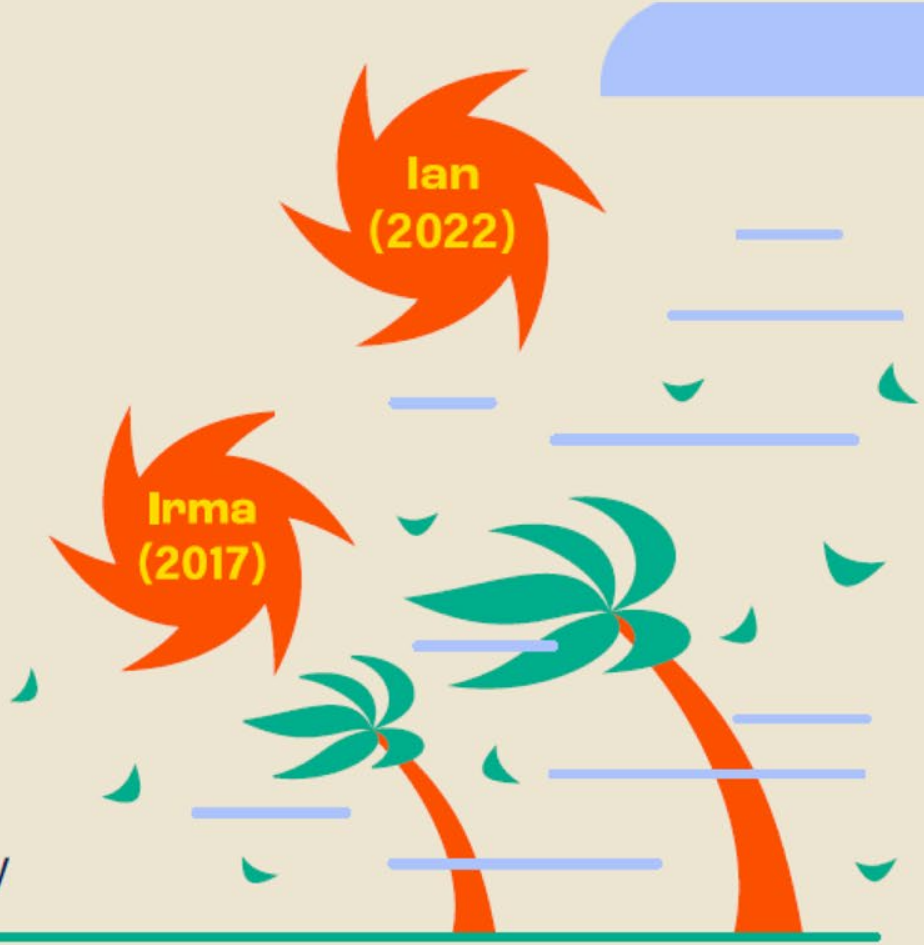
Collaboration on consistent methodology for future extreme rainfall.

Central, East Central, North Central, Northeast, Tampa Bay, and Treasure Coast Regional Planning Councils

Why Future Extreme Rainfall?

INCREASED FLOOD RISK

- Increased flood risks are **NOT** isolated to the coast, as evidenced by Hurricanes Irma and Ian.
- Understanding the potential for future extreme rainfall can reduce impacts to people and property through appropriate planning, policy decisions, and emergency preparedness protocols.



Planning and Process

Curtis

Beginning 2020

Mitigation Assessment & Planning Through Regional Collaboration Stakeholder Meeting

CFRPC

TAMPA BAY REGIONAL PLANNING COUNCIL

East Central Florida Regional Planning Council Est. 1962

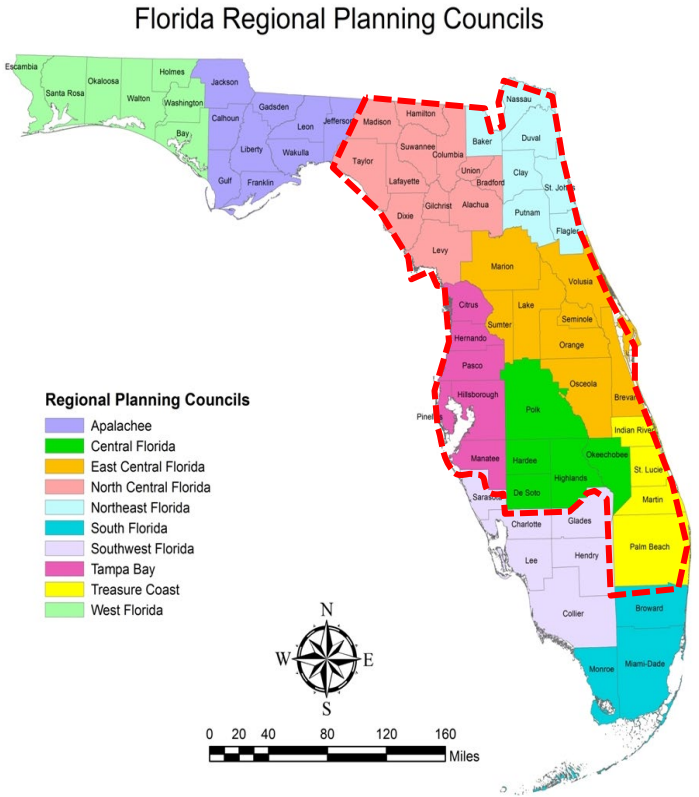
NEFRC NORTHEAST FLORIDA REGIONAL COUNCIL

TREASURE COAST TCRPC REGIONAL PLANNING COUNCIL

North Central Florida Regional Planning Council

Regional Planning & Collaborative Approach

- **Power and strength of regional collaboration**
- **Success in Statewide Projects**
- **Teams of subject matter experts**



Community Development Block Grant Mitigation (CDBG-MIT)

- U.S. Dept. of Housing and Urban Development awarded the CDBG-MIT project from presidentially declared disasters in 2016 and 2017
- East Central Florida RPC was awarded $1,499,000
- Funded the “Mitigation Assessment & Planning Through Regional Collaboration” project
- Subrecipients included six of the ten RPCs:
    - Central Florida, Tampa Bay, Northeast Florida, Treasure Coast, North Central Regional Planning Councils
- Central Florida portion $217,705.50
- Timeline: April 2022 – May 2025

Purpose

- Provide a cohesive, statewide approach to resilience planning, including inland and coastal counties in resilience efforts and provide a regional framework for funding mitigation projects and create implementable strategies and plans across Florida.
    - Peril of Flood Legislation
    - Resilient Florida Legislation
    - Coastal Focus & Inland Need
    - Regional Resilience Entities
    - Funding

Peace River area in Arcadia, Florida September 30, 2022: https://abcnews.go.com/US/photos/hurricane-ian-strikes-florida-coast-90637762/image-arcadia-florida-90828495

Project Value

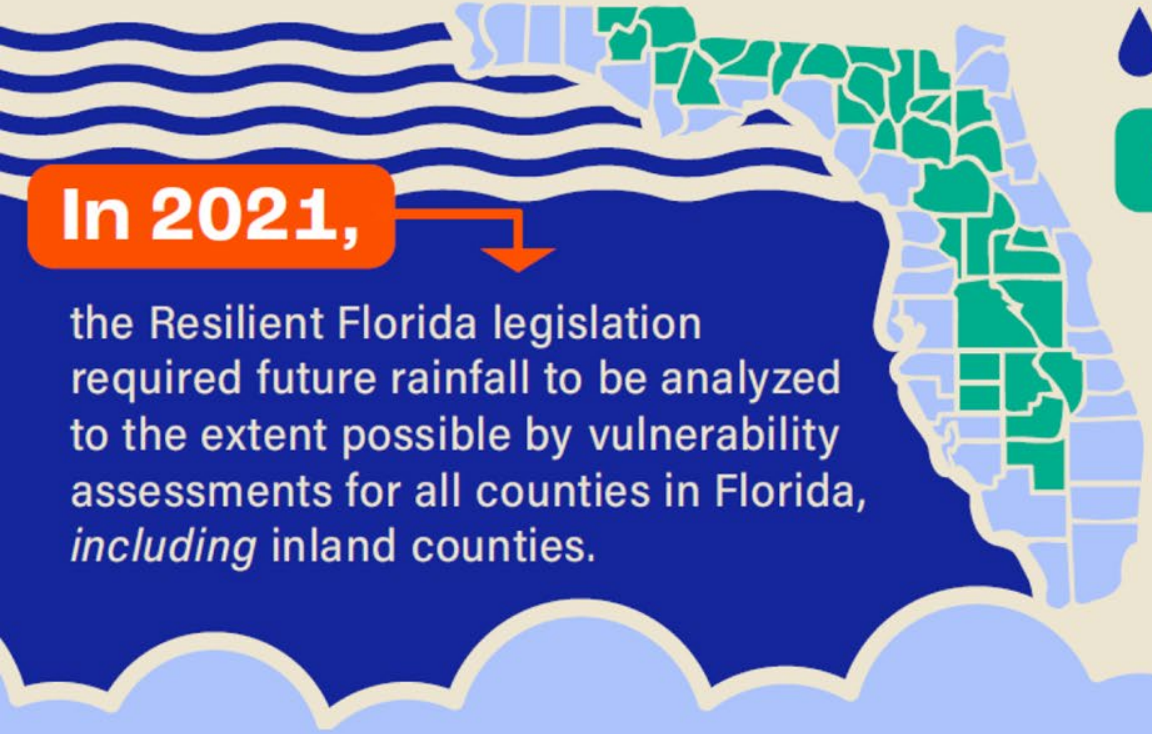
Addresses an unmet need by examining impacts of flooding due to future extreme rainfall that are more difficult to assess, while also considering other types of flooding (coastal and inland).

Complements and augments ongoing Vulnerability Assessments throughout the State.

Builds capacity in the regional resilience planning process throughout the State, across disciplines and sectors in local government, business, and community populations.

Positions projects for funding opportunities.

Resilient Florida Legislation Begins



In 2021,

the Resilient Florida legislation required future rainfall to be analyzed to the extent possible by vulnerability assessments for all counties in Florida, *including* inland counties.

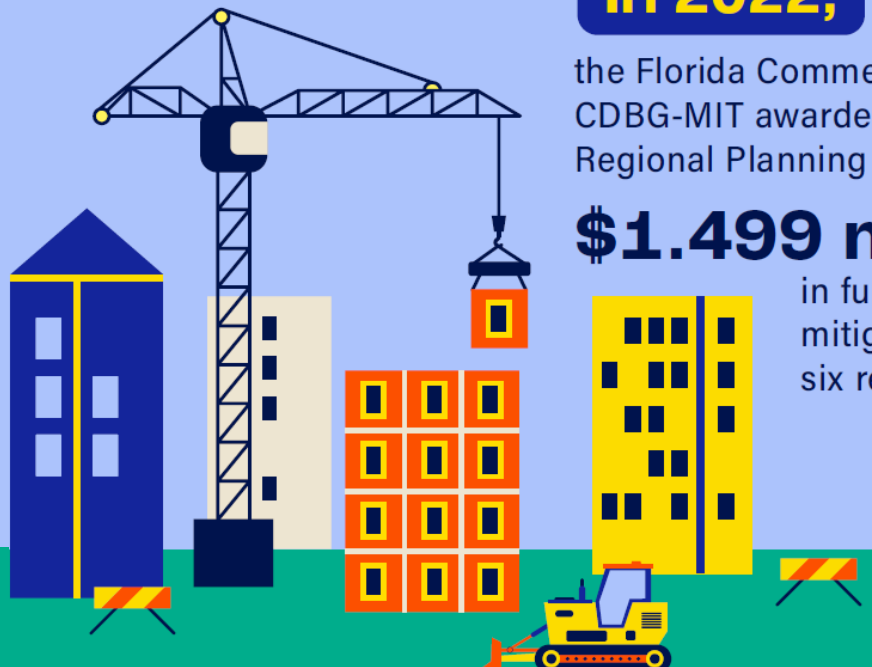
STATE STATUTE

Since 2015,

the “Peril of Flood” legislation moved toward future conditions (sea level rise, future flood risk, and more intense rain events) in coastal county planning efforts.

REBUILD FLORIDA PROGRAM

The Rebuild Florida Community Development Block Grant-Mitigation (HUD CDBG-MIT) Grant program resulting from Hurricane Irma provided an opportunity for select Regional Planning Councils to evaluate the development of a statewide approach to assessing impacts from future rainfall events and establishing a statewide framework to examine and address these impacts regionally.



In 2022,

the Florida Commerce's (Formerly DEO) HUD CDBG-MIT awarded the East Central Florida Regional Planning Council

$1.499 million

in funding to conduct a collaborative mitigation resilience project among six regional planning councils.

Methodology for Current Process

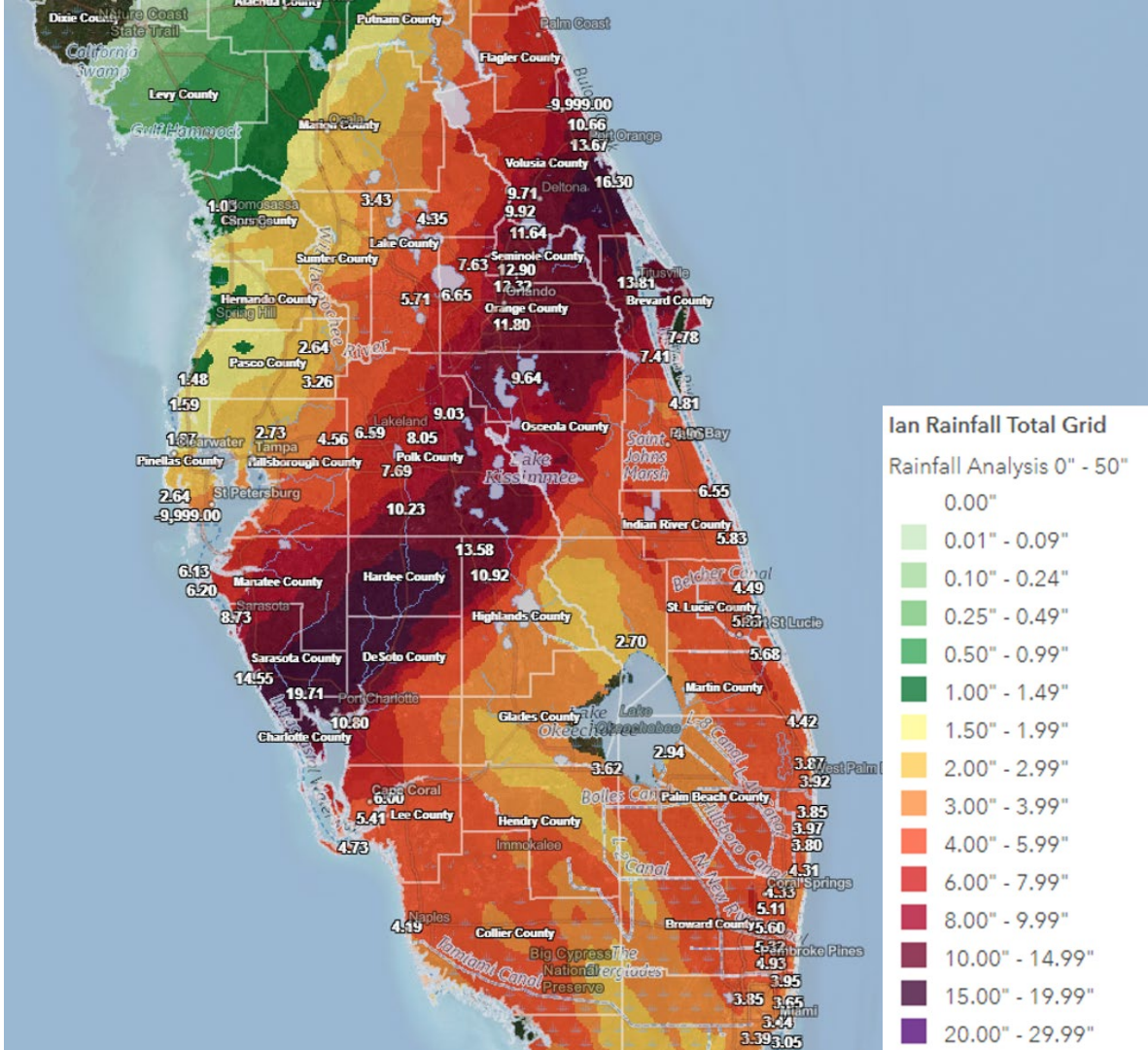
Extreme Future Rainfall Impacts

Technical Advisory Meetings

- Floodplain managers, water management districts, climatologists, etc.
- Duration and frequency
- Climate model discussions

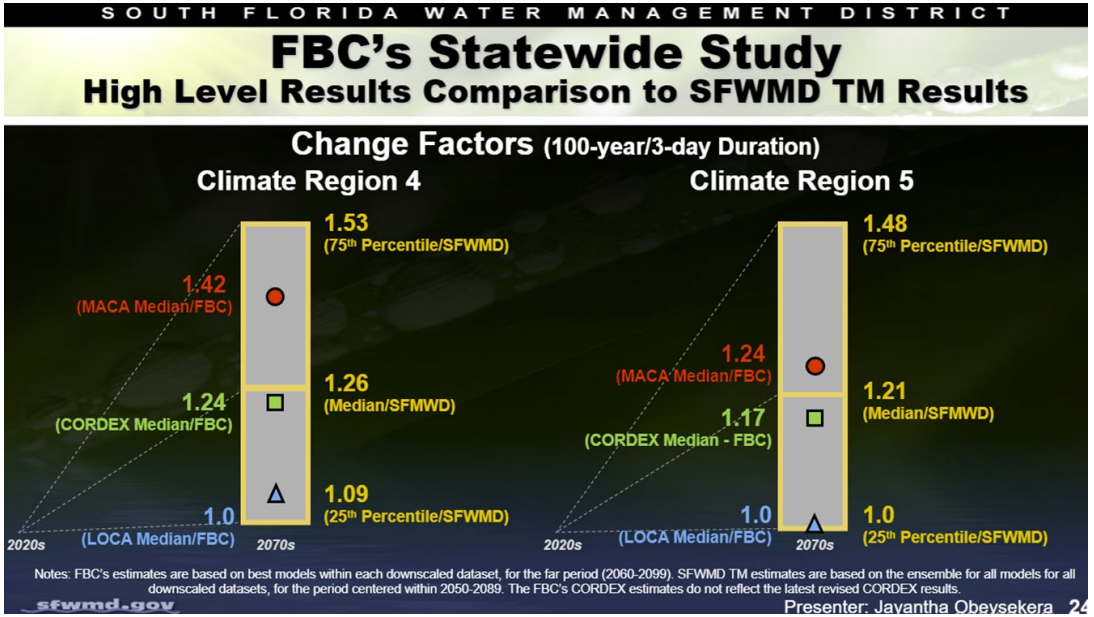
On-going

- FDEP, SFWMD, Flood Hub, UF, FIU, USF, RPCs
- Finalizing approach for climate model and change factors
- Duration / Frequency – Anticipate 100 year/24 hour



Rainfall Methodology

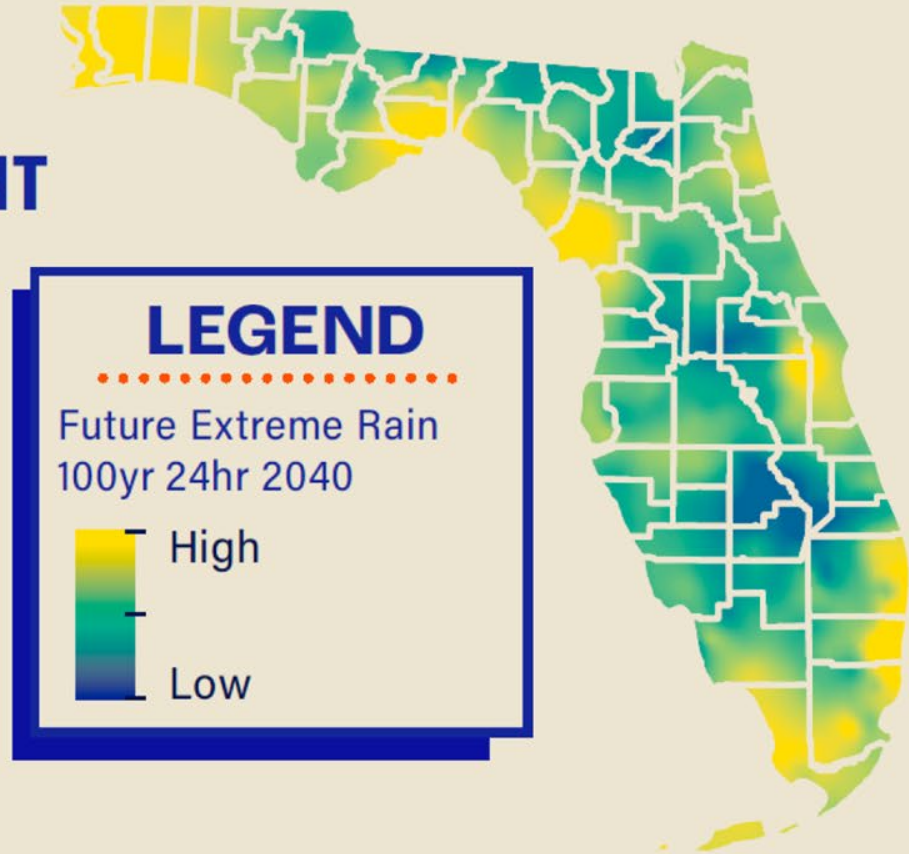
- Uses change factors from the FIU Florida Building Commission Study
- CORDEX data is available statewide
- CORDEX is the Median Range of the data



How are we Predicting?

EXTREME RAINFALL AMOUNT

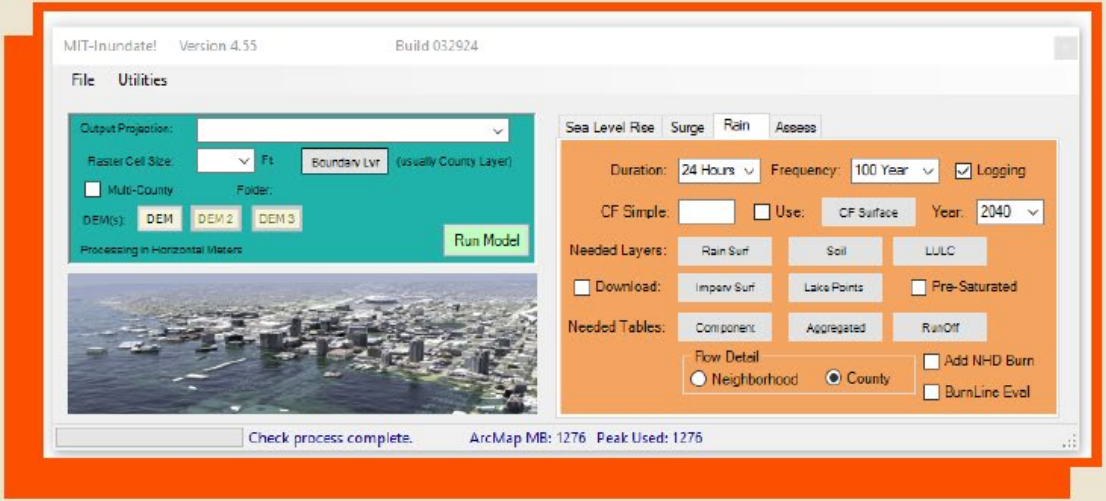
Future extreme rainfall amounts were determined using existing NOAA Atlas 14 data, with Change Factors applied from the Florida International University Florida Building Commission study and CORDEX models, to arrive at rainfall values for the hypothetical 24-hour, 100-year storm.



Modeling

FLOODING DEPTH DUE TO EXTREME RAINFALL

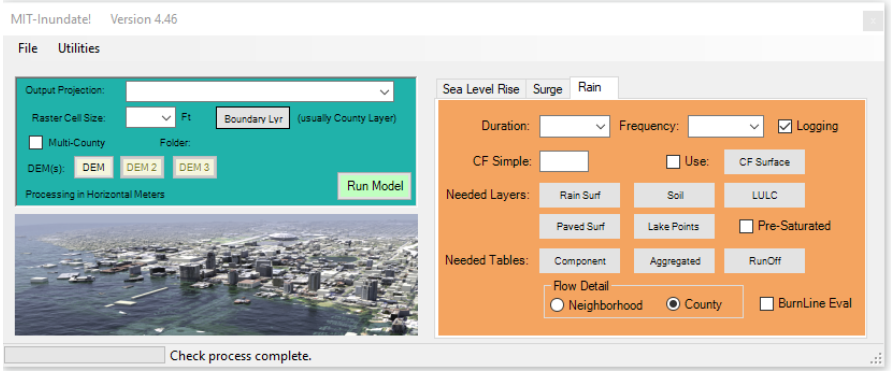
The Inundate! Tool predicts flooding depth using inputs from extreme rainfall amounts. The tool is a model that produces dual output (overland precipitation flow and ponding) based on the hydrology modeling used.



The ***Inundate! Tool*** is useful at scales relevant for statewide, regional, and local agencies. It is NOT an infrastructure-based, hydrology & hydrologic model and not suitable for site-level design, engineering or construction decisions.

Flood Modeling Process: Inundate! Tool

- Planning and Spatial Analysis framework for identification and delineation of areas potentially exposed to the impacts of extreme rainfall, at scales relevant for statewide, regional, and local agencies.
- **Not a framework for site-level design, engineering, and construction**



This tool combines 2 types of hydrologic modeling:

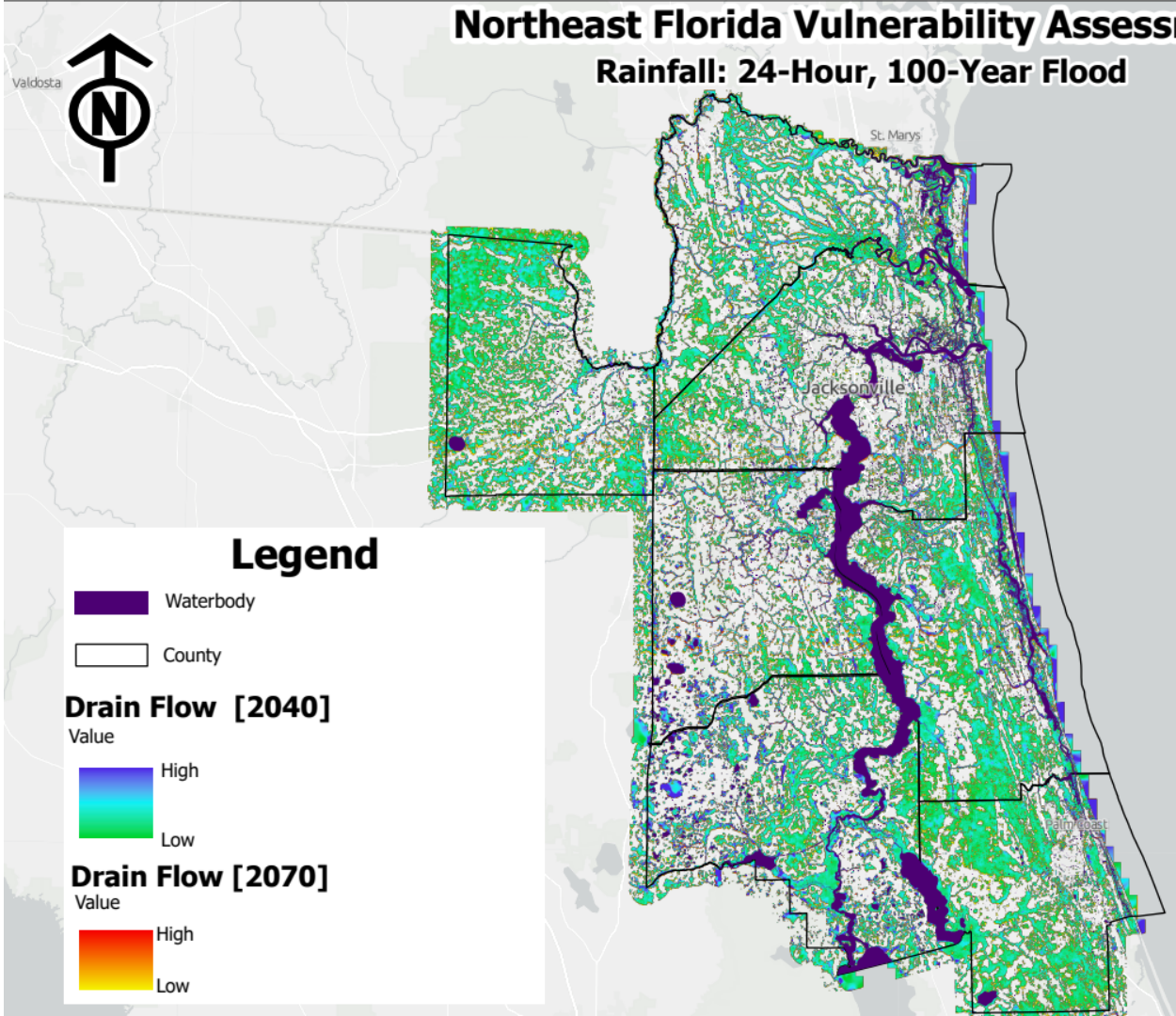
- Flow model used to produce the inundation in the associated watershed catchments.
- Ponding, which is based solely on water gathering and filling depressions with no flow involved.

Results

Fara

Northeast Florida Vulnerability Assessment

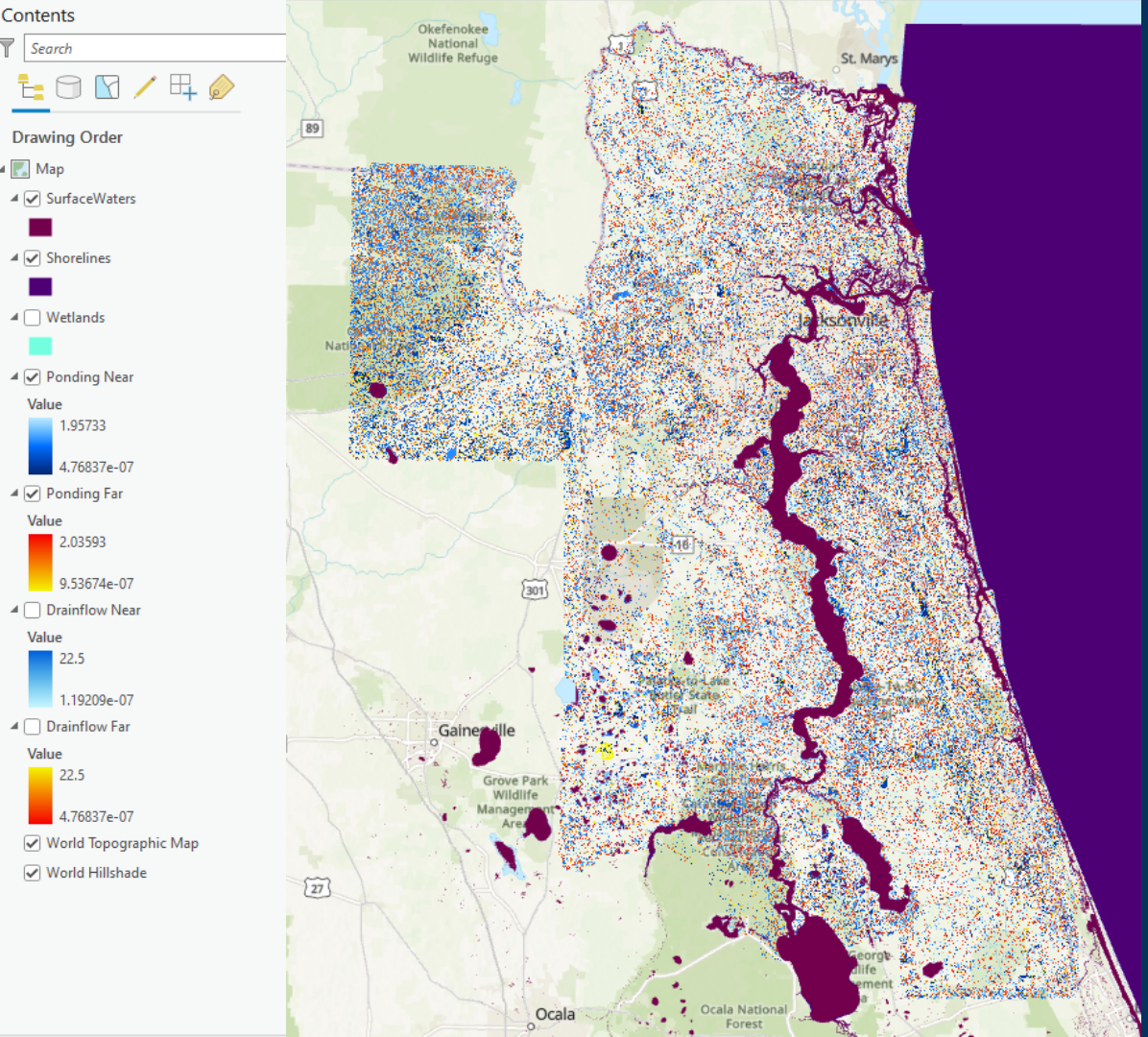
Rainfall: 24-Hour, 100-Year Flood



Flood Modeling Results:

NE FL Region: 2040 (Near) 2070 (Far)

Drainflow = projected fluvial flooding due to rainfall



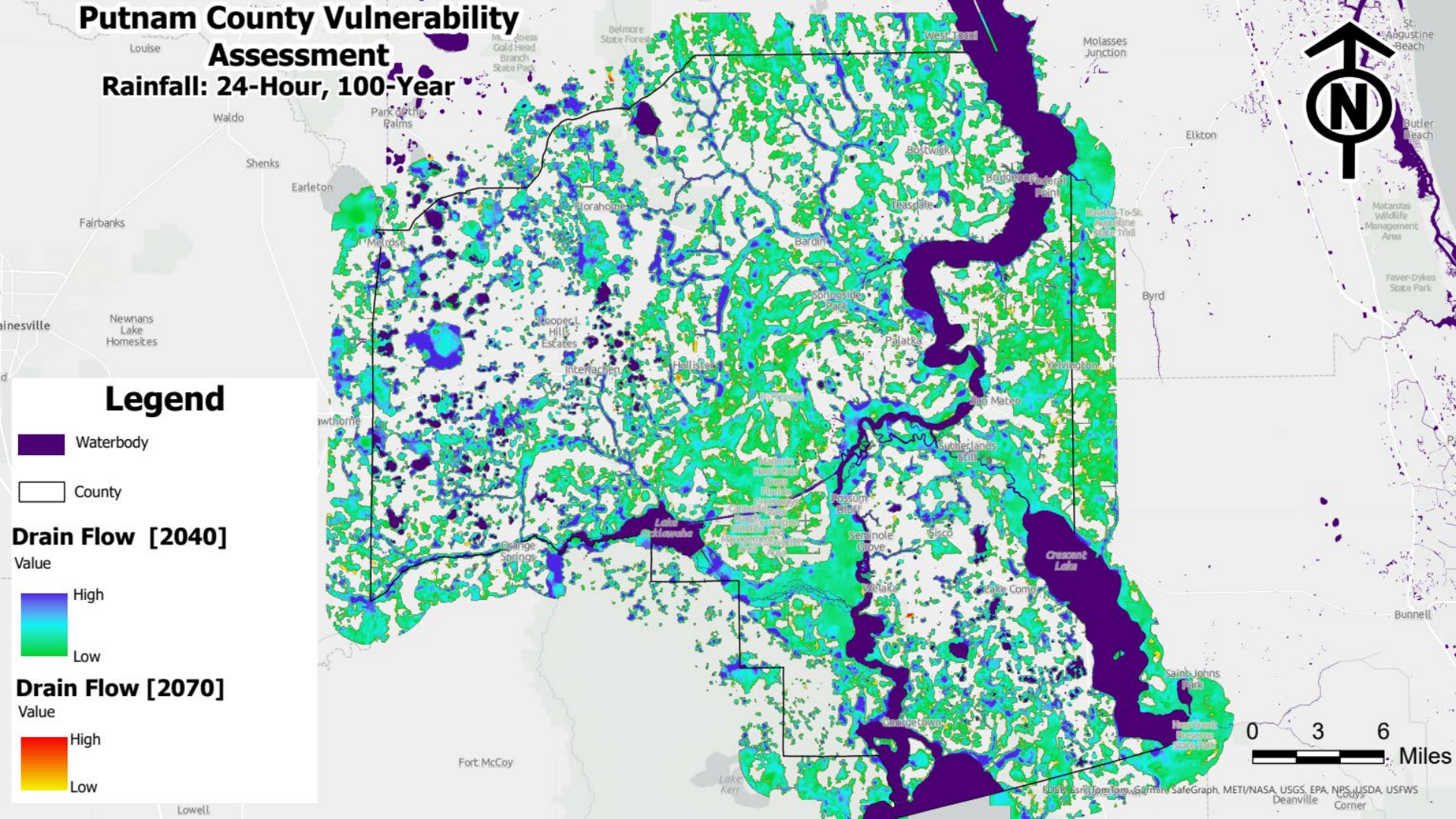
Flood Modeling Results:

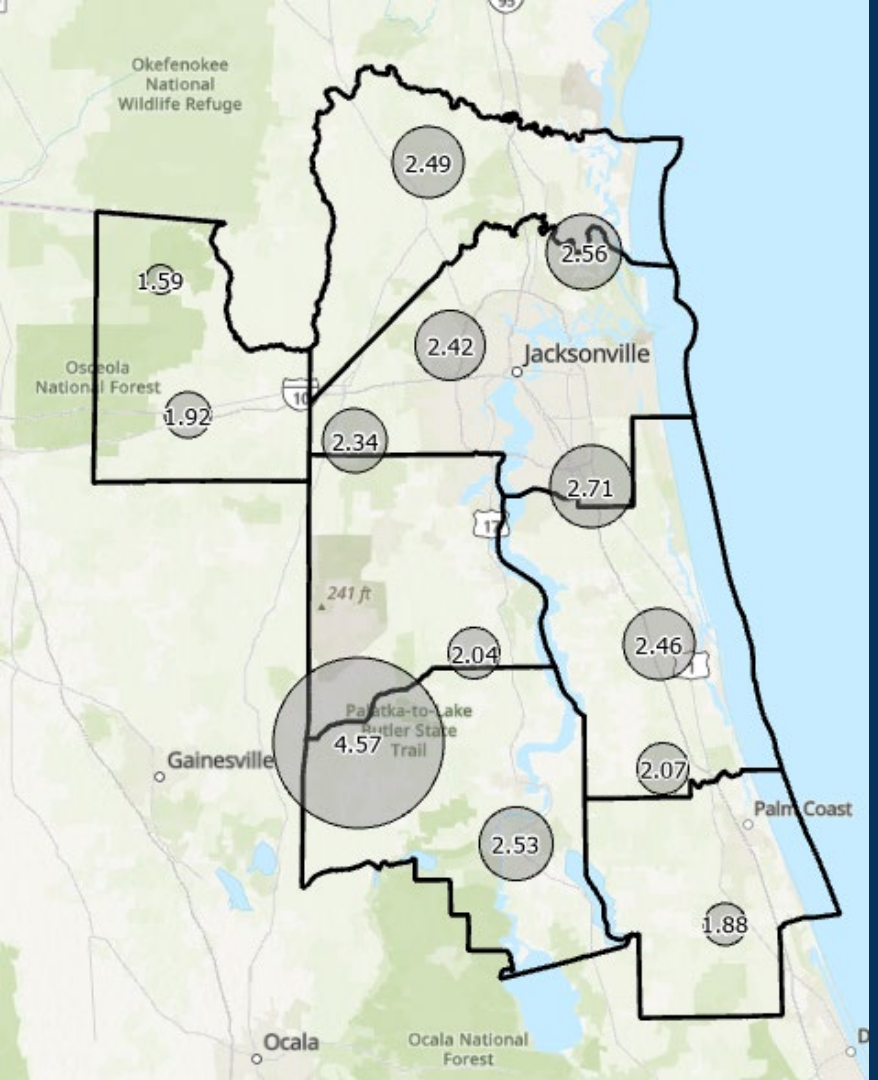
NE FL Region: 2040 (Near) 2070 (Far)

Ponding = projected pluvial flooding due to rainfall

Putnam County Vulnerability Assessment

Rainfall: 24-Hour, 100-Year

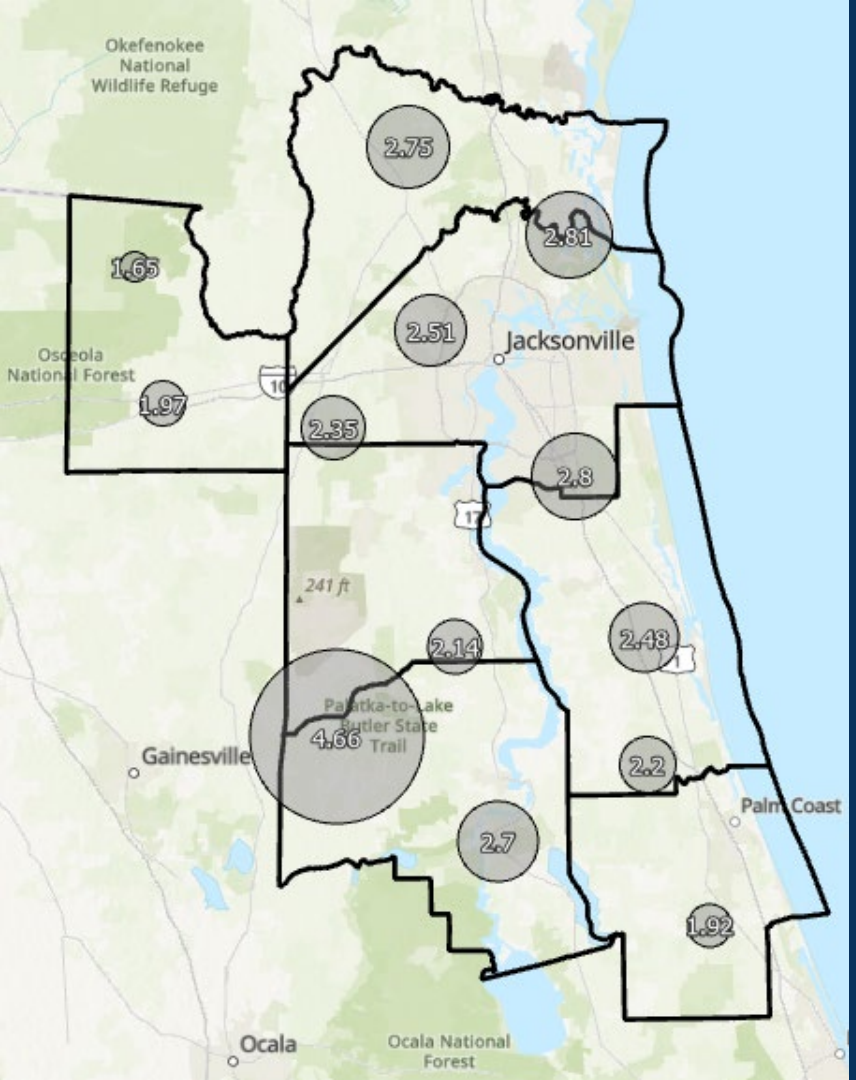




Exposure Analysis Results:

NE FL Region, 2040

Exposed Critical Assets clustered by mean affected flood depth.



Exposure Analysis Results:

NE FL Region, 2070

Exposed Critical Assets clustered by mean affected flood depth.

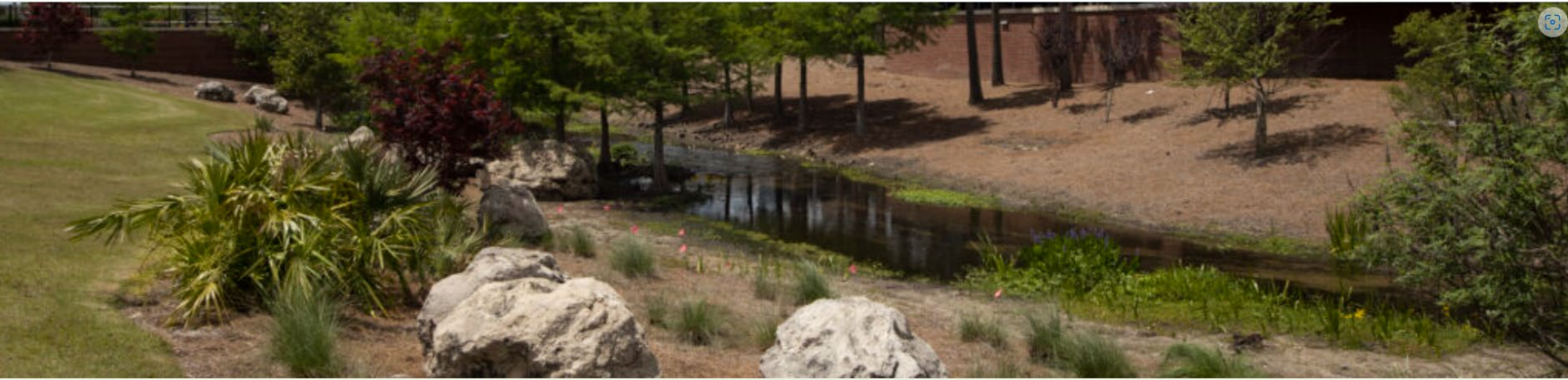
Looking Ahead

What Does Adaptation Look Like?

- Mitigation and Adaptation Portal: pulls from the best adaptation practices throughout Florida, the nation, and the world, and is broken into multiple categories, including green infrastructure, traditional stormwater infrastructure, and hybrid infrastructure.

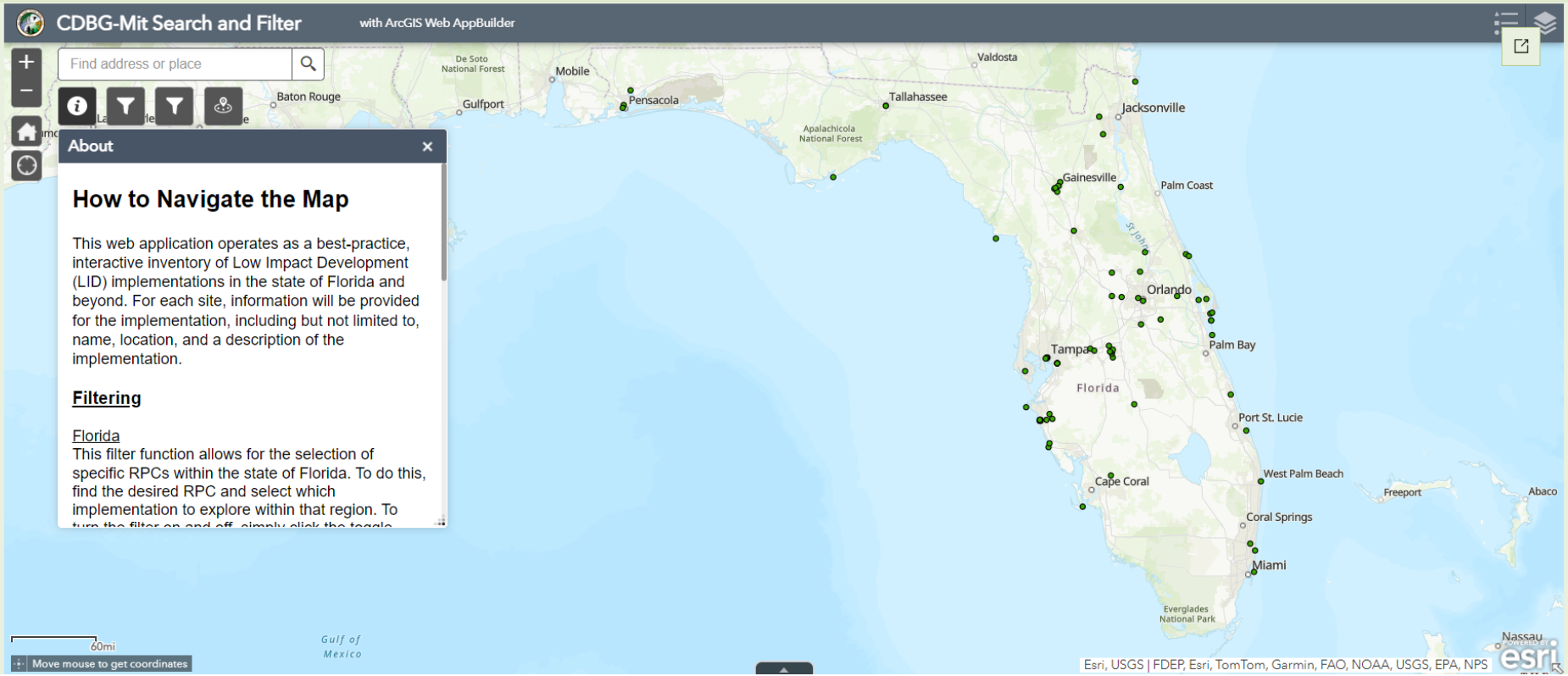
- RPCs working with individual counties to develop adaptation plans that are specific to the most vulnerable assets within certain focus areas. May compare adaptation options using cost-benefit analysis and other types of analyses to determine which option is most suitable for any given asset.

- Can inland communities take additional population?



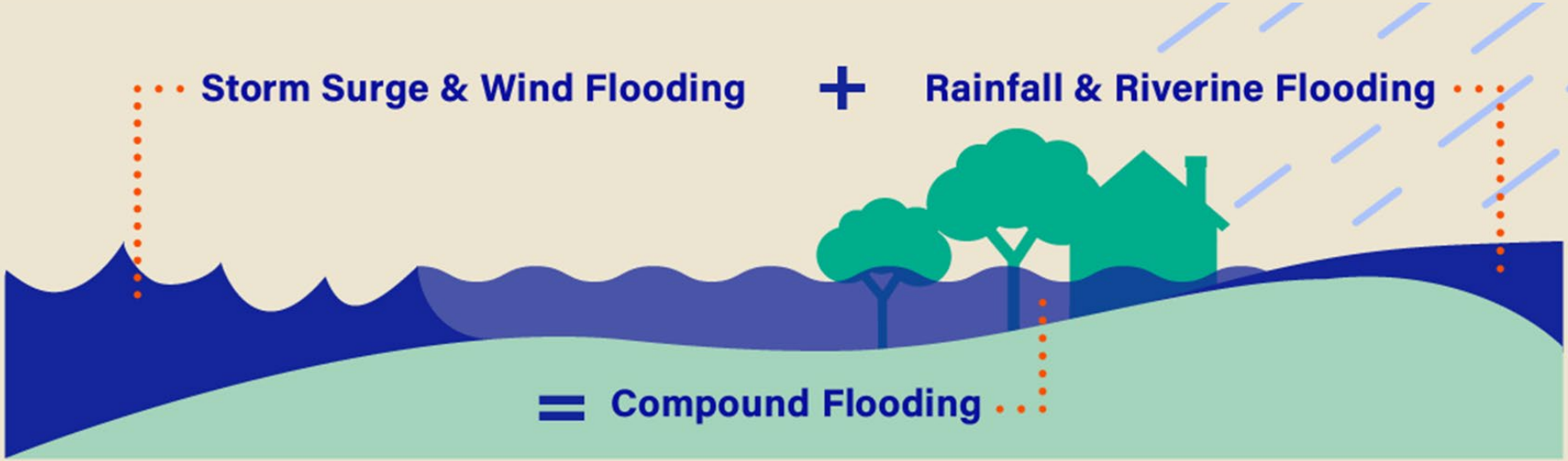
Regional Collaboration for Stormwater Mitigation

An interactive online portal of stormwater mitigation and adaptation efforts compiled through funding from a $1.5 million CDBG-Mit grant.


CDBG-Mit Search and Filter
with ArcGIS Web AppBuilder
Find address or place
About
How to Navigate the Map
This web application operates as a best-practice, interactive inventory of Low Impact Development (LID) implementations in the state of Florida and beyond. For each site, information will be provided for the implementation, including but not limited to, name, location, and a description of the implementation.
Filtering
Florida
This filter function allows for the selection of specific RPCs within the state of Florida. To do this, find the desired RPC and select which implementation to explore within that region. To
De Soto National Forest
Mobile
Baton Rouge
Gulfport
Pensacola
Tallahassee
Valdosta
Jacksonville
Apalachicola National Forest
Gainesville
Palm Coast
Orlando
Palm Bay
Tampa
Florida
Port St. Lucie
West Palm Beach
Cape Coral
Freeport
Abaco
Coral Springs
Miami
Everglades National Park
Nassau
Gulf of Mexico
60mi
Move mouse to get coordinates
Esri, USGS | FDEP, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS

Cascades Park *is a 25-acre public park and GSI success story that has boosted economic development in Tallahassee. Originally a brownfield, Cascades Park faced issues with stormwater runoff, erosion, and flash flooding. To alleviate these issues, the park was designed to manage stormwater through a conveyance system that collects and moves stormwater through connected waterbodies. Cascades Park is now a thriving urban greenspace that consists of wildlife, ponds, an interconnected multi-use trail system, an amphitheater, playgrounds, and open space. The park also includes significant historical*

What's Next: Compound Flooding



Thank you.

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