Planning for Future Extreme Rainfall

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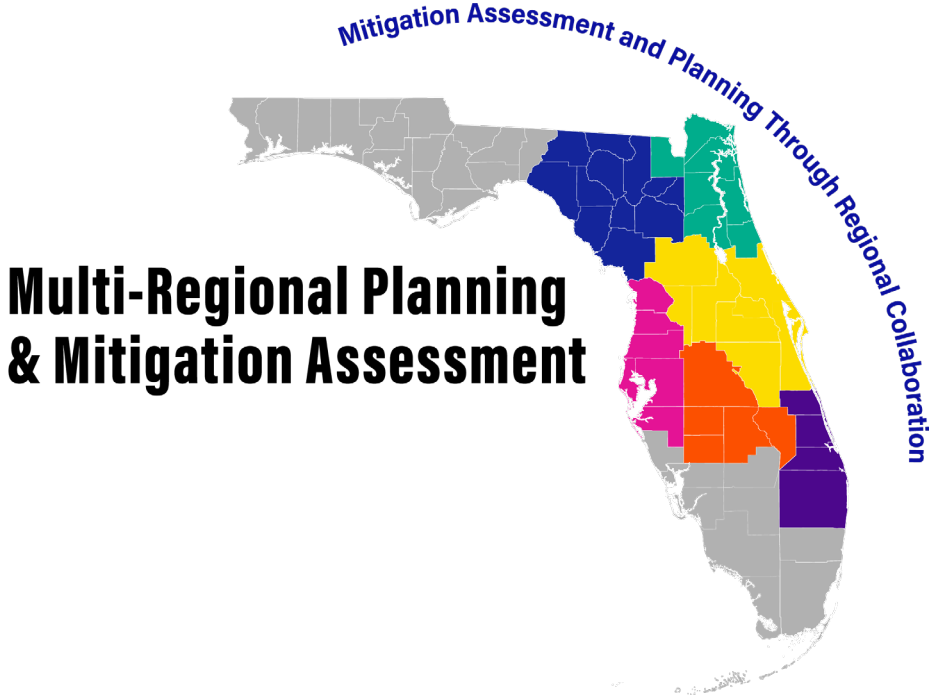
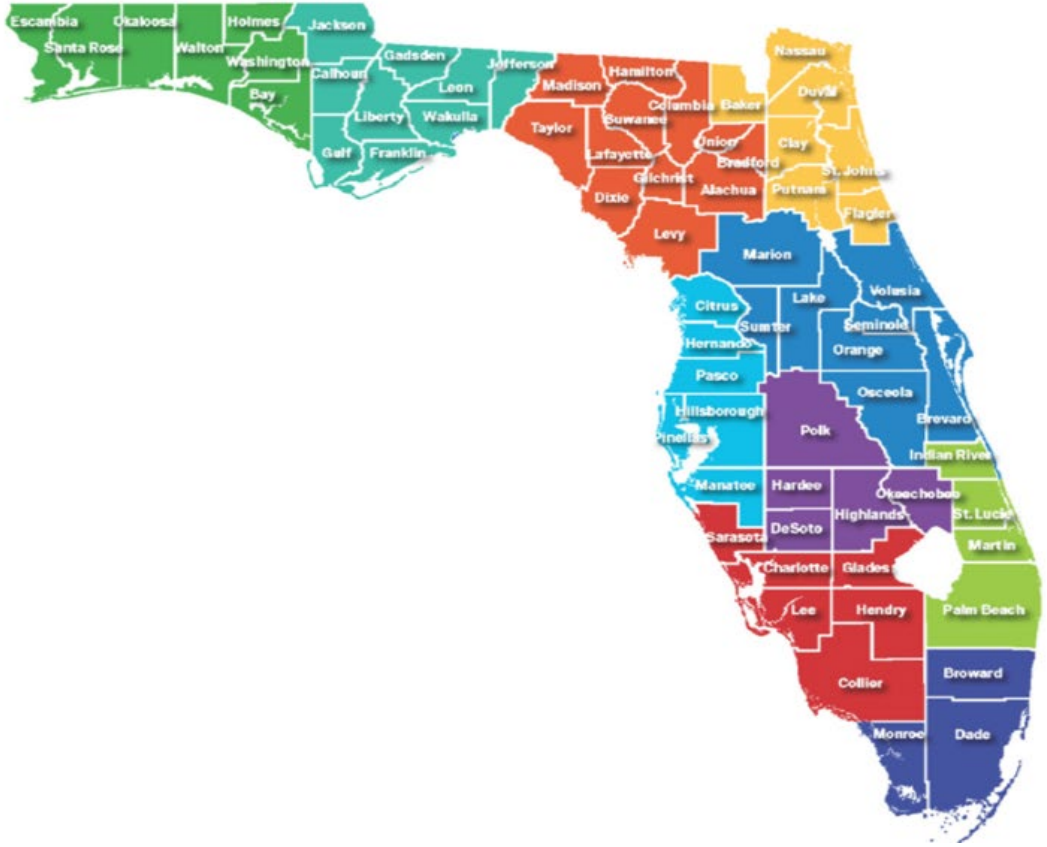
East Central Florida Regional Planning Council



Organization Overview

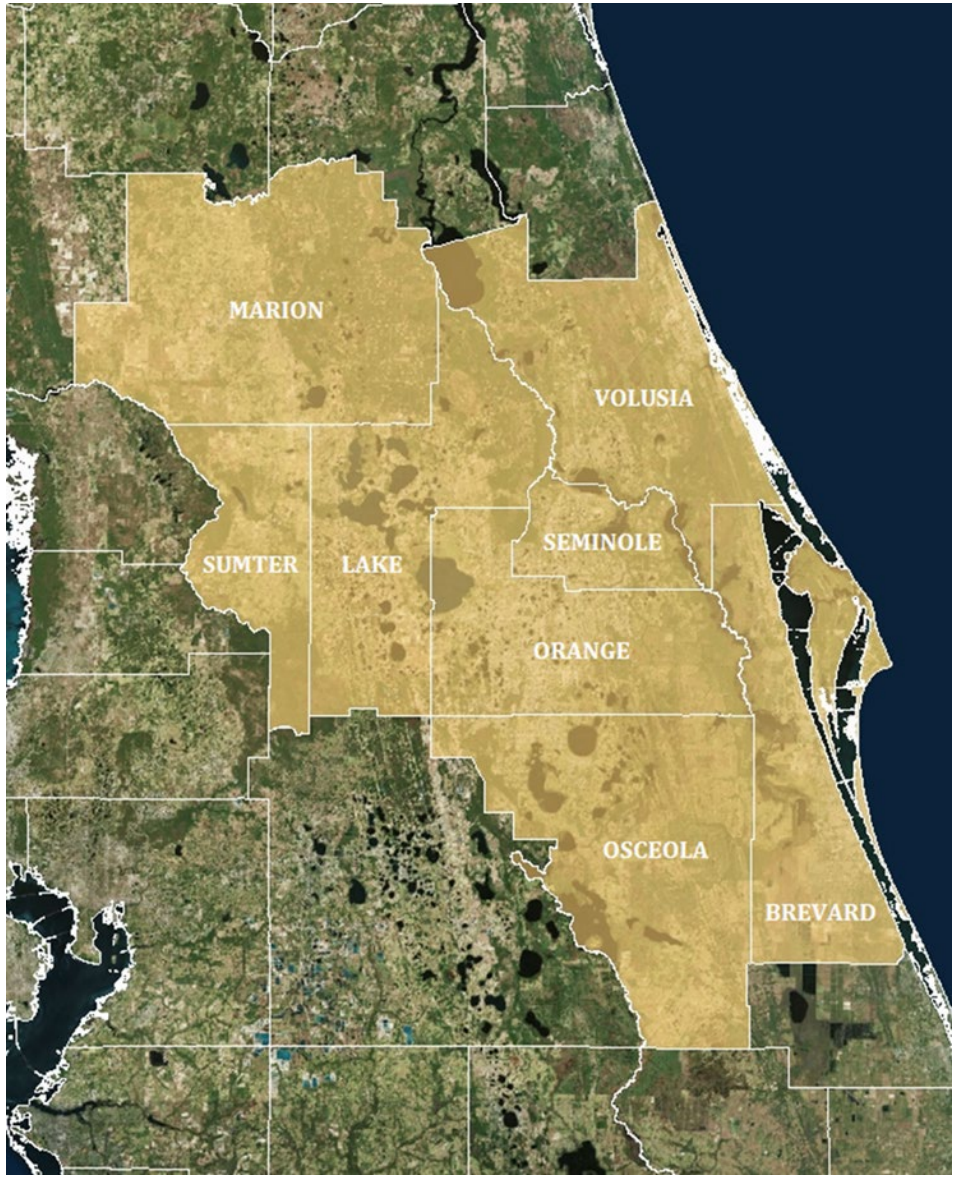
- 10 Regional Planning Councils Statewide
- Established in 1962 as an area-wide association of governments
- Convene, Assist, Inform, Plan, Collaborate



1. Emerald Cost
2. Apalachee
3. North Central Florida
4. Northeast Florida
5. East Central Florida
6. Central Florida
7. Tampa Bay
8. Southwest Florida
9. Treasure Coast
10. South Florida

ECFRPC

- Serve 8 Counties
  - Brevard, Lake, Marion, Orange, Osceola, Seminole, Sumter and Volusia
- 2nd in population; 1st in area



Major Program Areas

Community Development

Economic Development

Health and Food Systems

GIS

Emergency Preparedness

Resilience

Project Overview

Community Development Block Grant – Mitigation (CDBG-MIT)

- Rebuild Florida Program resulting from Hurricane Irma

In 2022, ECFRPC awarded $1.499 million

- Project started in April 2022 and will end in September 2025

Six Regional Planning Councils

- East Central
- Central Florida
- Treasure Coast
- North Central
- Tampa Bay
- Northeast

Background

In 2021…

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

Since 2015…

- The “Peril of Flood” State Statute moved toward future conditions (sea level rise, future flood risk, and more intense rain events) in coastal planning efforts

Project Purpose

- Why Future Extreme Rainfall?
  - Increased flood risk is not isolated to the coast
    - Evidenced by hurricanes Irma, Ian, and Milton
  - Understanding of future rainfall fosters appropriate planning, policy decisions, and emergency preparedness protocols.
  - Reduces impacts to people and property
  - Provides opportunities for collaboration

Goals and Value

- Build Regional stakeholder collaboration
- Develop technical applications to analyze vulnerabilities to extreme rainfall flooding
- Complements Vulnerability Assessments
- Develop a regional approach to mitigation planning that lead to innovative mitigation projects
- Create a consistent statewide regional framework to mitigation and resiliency planning

Project Activities

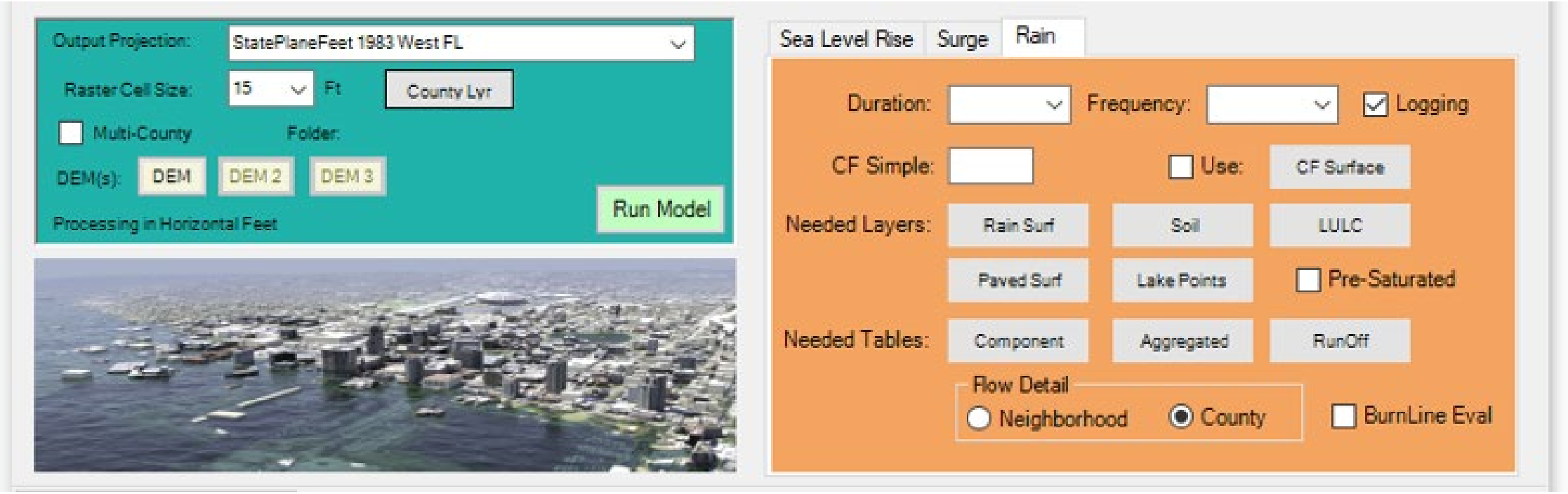
- Stakeholder engagement
- Extreme future rainfall impacts
- Regional mitigation needs assessment
  - Regional Mitigation project list
  - Mitigation priority areas
- Interactive mitigation based best practice application
- Conceptual Small Area mitigation plans
- Web-Based regional resilience exposure tool

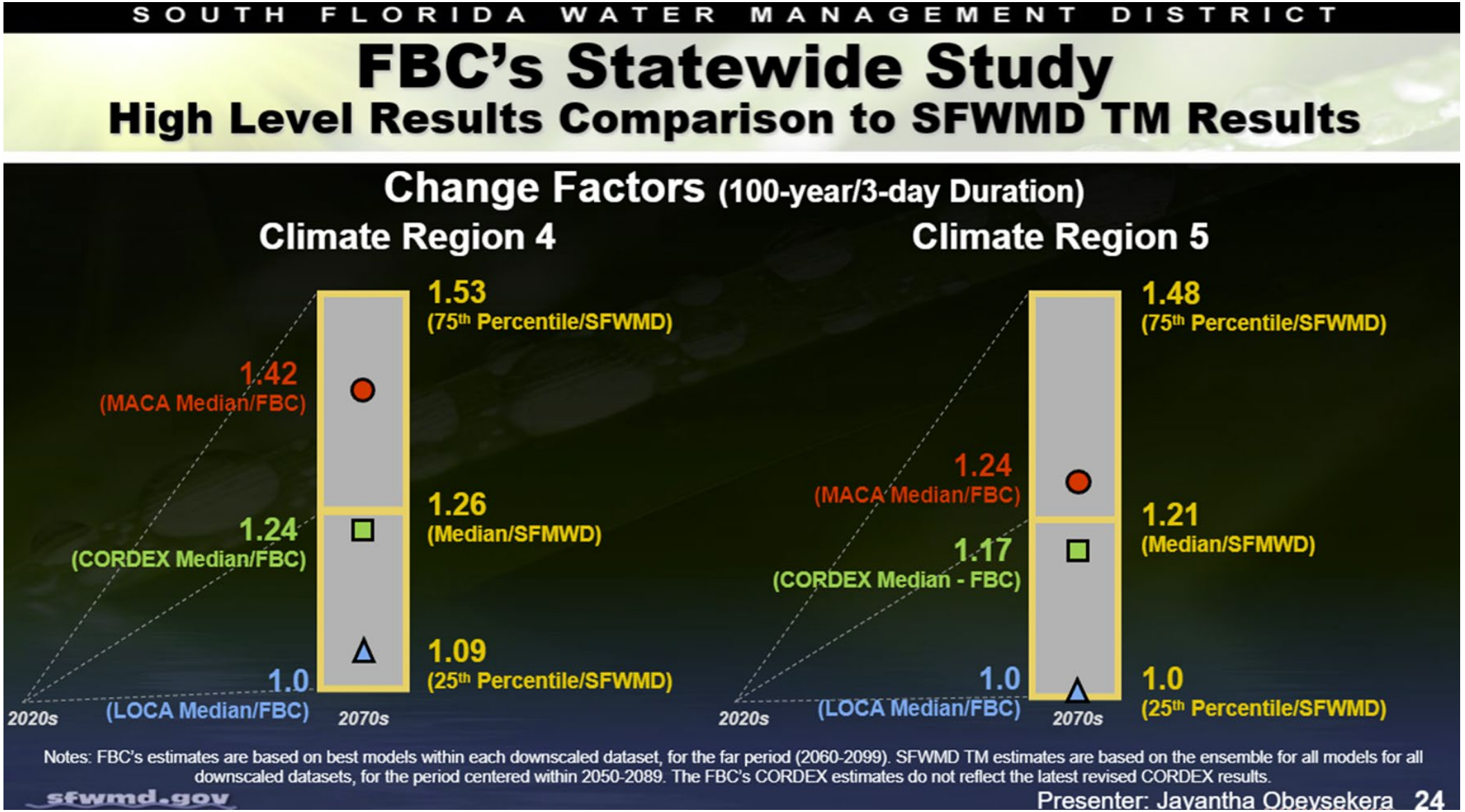
Stakeholders

- Technical Advisory Meetings
  - Consisted of floodplain managers, water management districts, climatologists, etc.
  - Discussed methodology and data that would be used in the rainfall model
    - E.g., climate model discussions, change factors, duration/frequency

Extreme future rainfall impacts

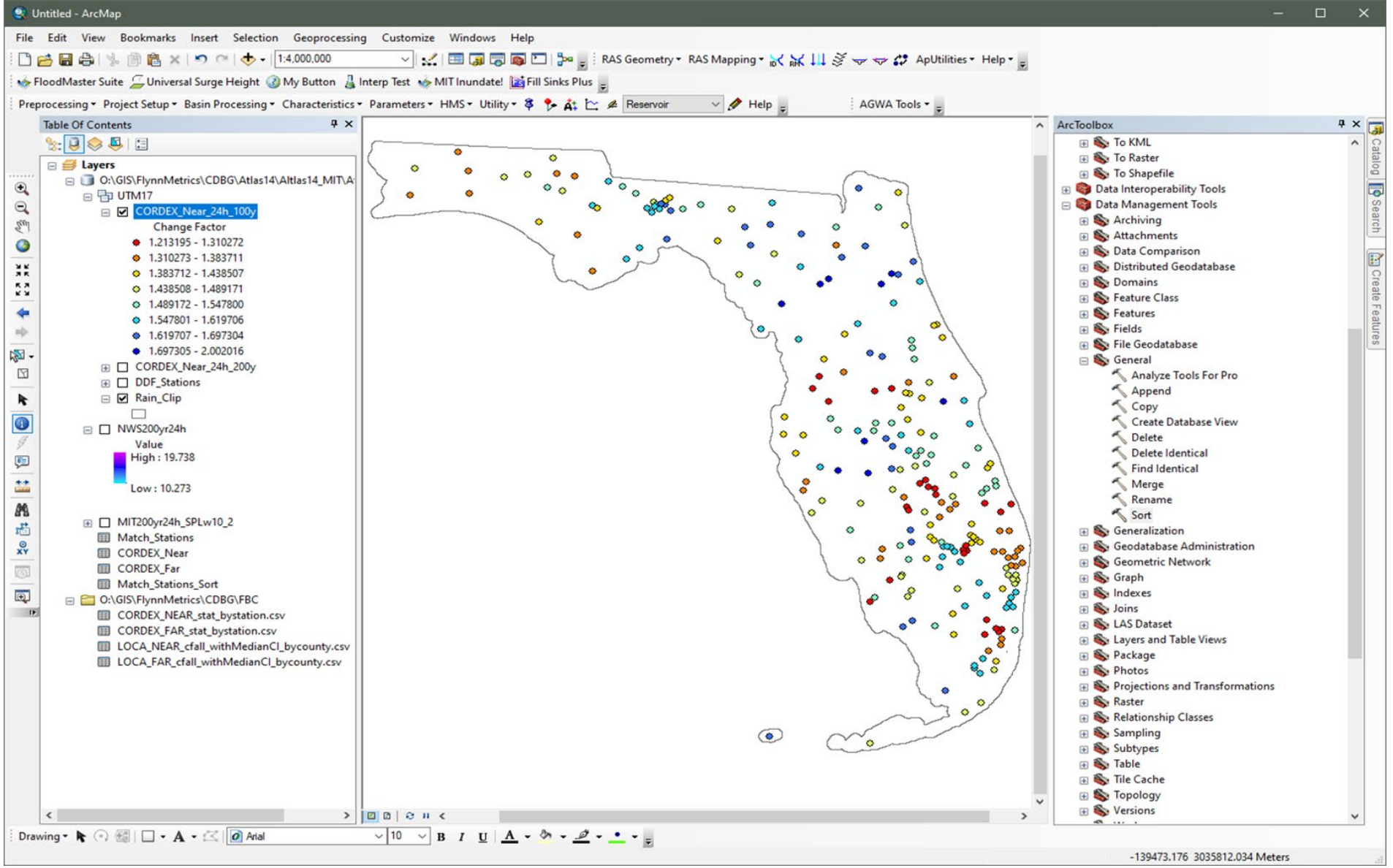
- Inundate! Tool, developed by FlynnMetrics
  - Planning and spatial analysis data framework to identify and delineate areas exposed to future extreme rainfall
  - Tool generates, visualizes and summarizes areas exposed to future extreme rainfall
  - NOT an H&H model; Soley for planning purposes





Extreme future rainfall impacts

- Coordinated Regional Climate Downscaling Experiment (CORDEX) change factors



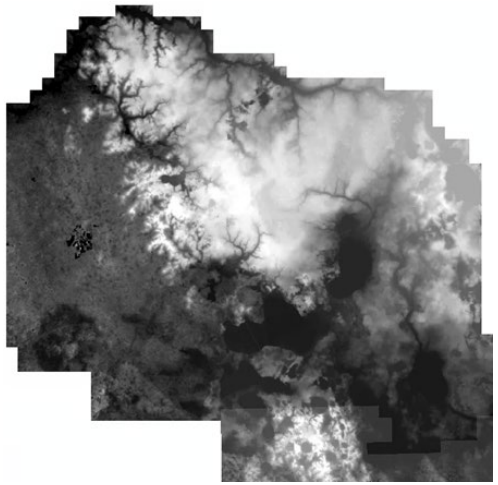
Extreme future rainfall impacts

- Coordinated Regional Climate Downscaling Experiment (CORDEX) change factors

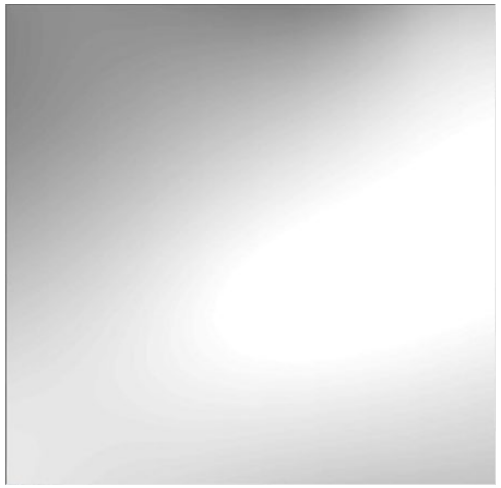
Extreme future rainfall impacts

- Layers for Modeling Input
  - Atlas 14 Rain Surface for each scenario (2040-24h-100y/2070-24h-100y)
  - Change Factor Layer
  - SSURGO Soils
  - LULC
  - Lake Points
  - Major Roads
  - Burn Lines
  - DEM

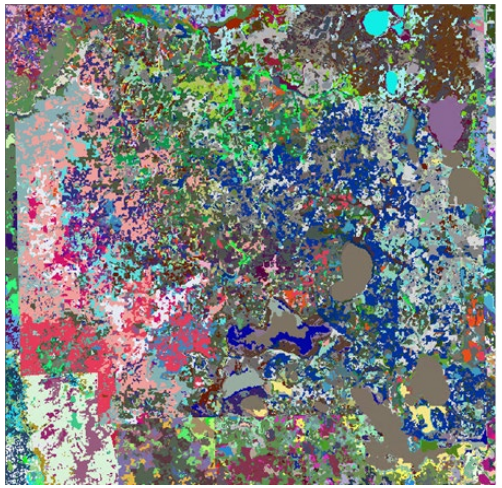
Extreme future rainfall impacts



DEM



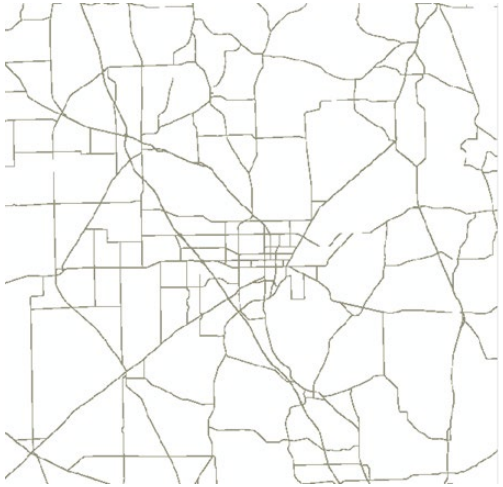
Change Factor



SSURGO Soils

LULC

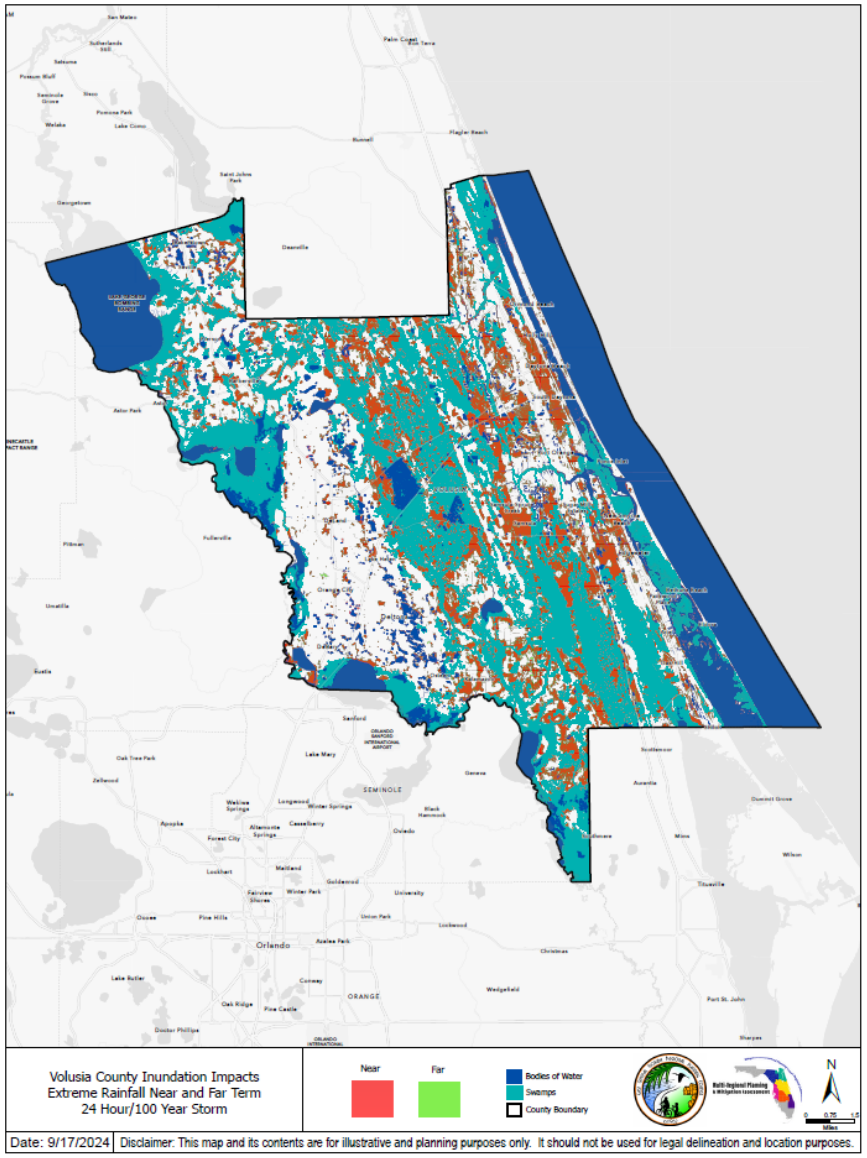
Lake Points

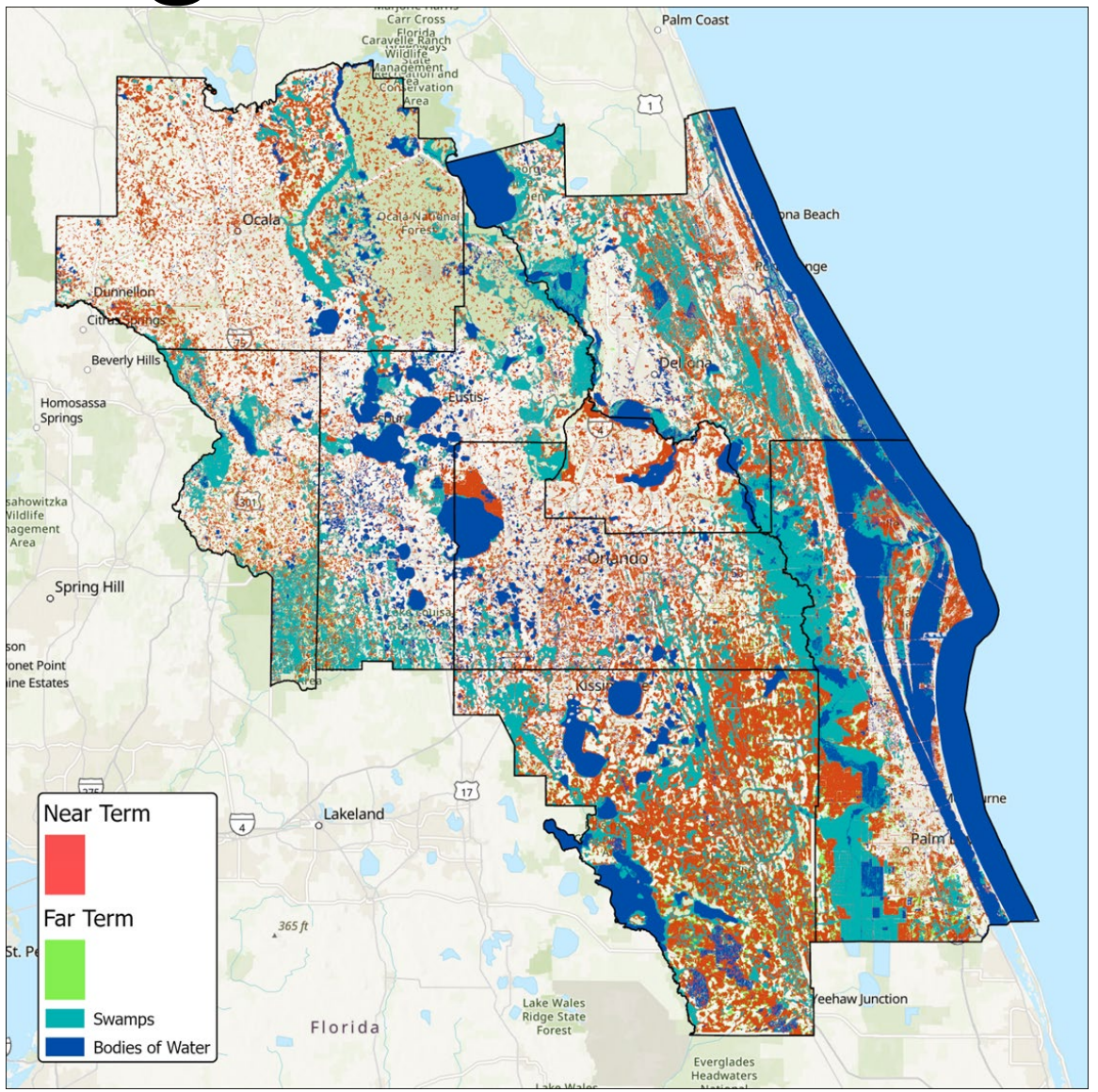


Impervious Surfaces

Burn Lines

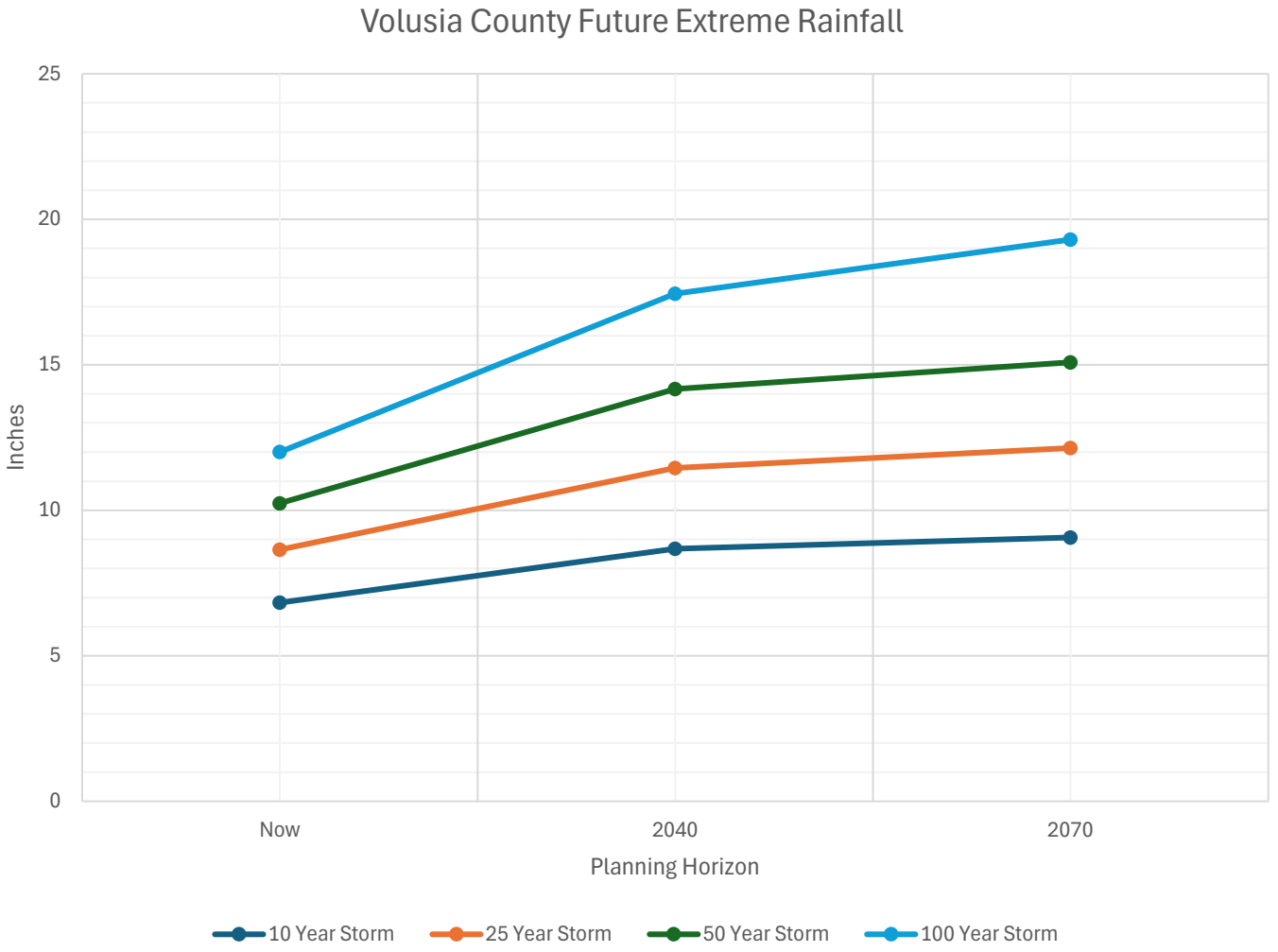
Flood Modeling Results

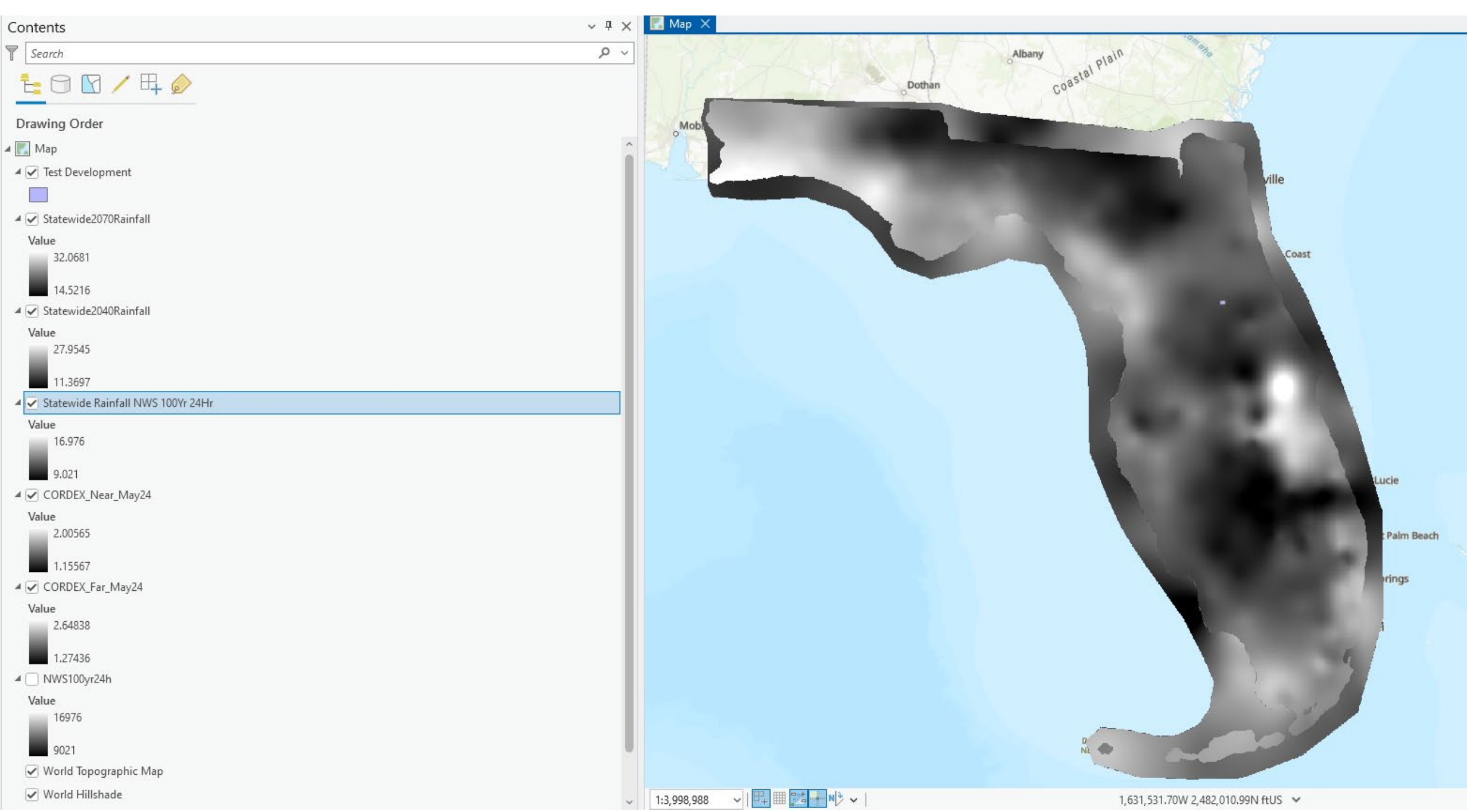




Future Extreme Rainfall

Volusia County	10 Year Storm	25 Year Storm	50 Year Storm	100 Year Storm
Now	6.8272734	8.6491423	10.2437019	12.004324
2040	8.6834764	11.455349	14.1707621	17.4449844
2070	9.0666971	12.1412573	15.0866604	19.3057728




Contents
Search
Drawing Order
Map
Test Development
Statewide2070Rainfall
Value
32.0681
14.5216
Statewide2040Rainfall
Value
27.9545
11.3697
Statewide Rainfall NWS 100Yr 24Hr
Value
16.976
9.021
CORDEX_Near_May24
Value
2.00565
1.15567
CORDEX_Far_May24
Value
2.64838
1.27436
NWS100yr24h
Value
16976
9021
World Topographic Map
World Hillshade
Map
Albany
Dothan
Coastal Plain
Coast
Palm Beach
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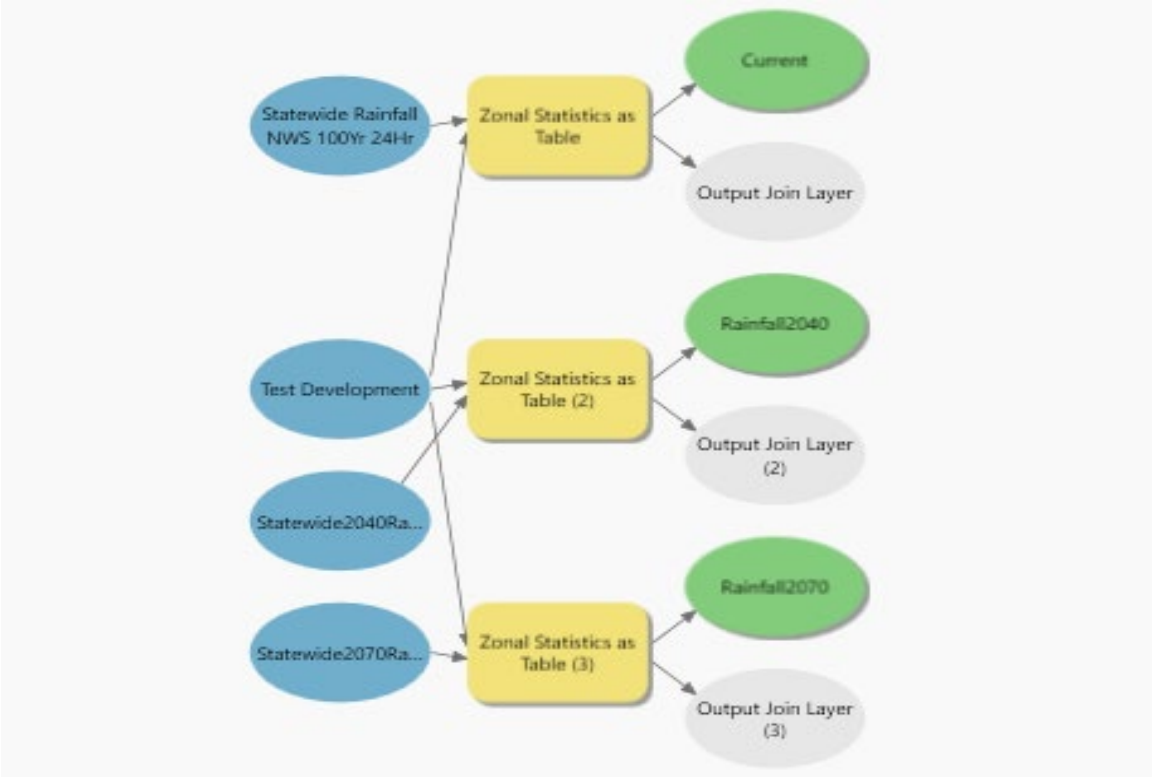

Volusia County Planning Horizon	Min	Max	Mean
Present Day	11.576	11.818	11.687533
2040	17.204357	17.320299	17.264274
2070	18.222189	18.677467	18.42829

Looking ahead…

- Select Projects for Regional Mitigation List
- Conceptual Small Area Mitigation Plans
- Web-Based Regional Resilience Exposure Tool
- ArcGIS Pro Inundate! Tool
- Local Implementation and Uses

Questions?

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