







Team Introductions
Project Overview
Purpose
Project Timeline
Questions & Answers





TETRA TECH

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I SEARCH

STATISTICS.



CLEARVIEW -GEOGRAPHIC-

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#### **Project Overview**

#### SLC Regional Resilience Vulnerability Assessment (RVA)

- Funded by FDEP through a Resilient Florida Planning Grant
  - This RVA will maintain our eligibility for future Resilient Florida / State infrastructure grant funding
- Collaborative approach with St. Lucie County, Port St. Lucie, Fort Pierce and St. Lucie Village to develop a county-wide assessment
- Community stakeholder engagement to ensure technical expertise is balanced with onthe-ground insights and perspectives
  - Resilience Steering Committee, made up of county, city and agency staff, established in 2021
- Evaluates present day and future flood risks based on State criteria





### Value of Community-wide Approach

- The process can enhance:

   synergy between groups
   expertise and resources
   continuity and timing of projects
- Identify common threads where collaboration & coordination is beneficial to all
- Allow diverse groups to coordinate more fluidly at regional level





#### **Resilient Florida Program Overview** (Florida Statute 380.093 F.S.)

- Requires Florida Flood Hub (USF) to develop statewide Sea Level Rise and Flooding Vulnerability Assessment (update every 5 years)
- Requires FDEP to develop annual Sea Level Rise and Flooding Resilience Plan, including a priority projects list to be considered for funding





### **Resilient Florida Grant Program**

#### Planning Grants

- Goal to ensure all Florida Counties develop a compliant Vulnerability Assessment
- Funds local / regional resilience plans and data collection; project, strategy, policy and adaptation planning; feasibility studies and cost of permitting for nature-based solutions, etc.
- No match required

#### Infrastructure Grants

- Funds projects that mitigate current and future risks of flooding on critical assets
- Encourages nature-based projects where practicable
- 50% match requirement







#### **Resilient Florida Grant Program**

#### 2021 – 2024 Resilient Florida Grant Program

Total Projects	Total Awarded
733	\$1,516,464,129



ST. LUCIE COUINTY FLORIDA



### **Project Objectives**







### **Resilient Florida Requirements**

Section 380.93(3) F.S.

- Assessment to encompass entire County boundary
- Most recent elevation data
- 2017 NOAA Intermediate Low and Intermediate High sea level rise projections for 2040 and 2070 (This project also assesses 2100)
- High Tide-, Storm Surge-, Rainfall-induced Flooding
- Compound flooding (to the extent practicable) depth of potential future flooding from combination scenarios, for example:
  - SLR + High Tides + Storm Surge + Rainfall (100-year and 500-year storm event)





### **Vulnerability Assessment Components**

SLC Update to 2021 VA pursuant to F.S. 380.93(3)(c)

- 1. Collect coordinate comprehensive County and Municipal GIS-based data collection
- **2. Inventory** develop critical asset inventory from local datasets
- **3.** Evaluate conduct exposure analysis to evaluate potential impacts of flood hazards
- Identify conduct sensitivity analysis to identify critical assets vulnerable to impacts of flood hazards
- 5. Obtain and Incorporate elicit community stakeholder input and feedback for incorporation into assessment
- Rank rank critical assets based on criticality and vulnerability to impacts from flood hazards
- 7. Summarize present findings through a report, tables, and maps





### **Flooding Hazards Evaluated**

Sea Level Rise	<ul> <li>An increase in the level of the world's ocean waters due to increased surface water temperature (expansion) and melting ice maps (quantity)</li> </ul>
High Tide Flooding	<ul> <li>Characterized by abnormally high tidal occurrences, leading to the temporary inundation of low-lying areas</li> </ul>
Storm Surge Flooding	<ul> <li>An abnormal rise of ocean water generated by high tide and elevated water levels associated with a storm</li> </ul>
Rainfall-Induced Flooding	<ul> <li>Occurs when excessive rainfall overwhelms drainage/stormwater systems and natural waterways, leading to the inundation of normally non-flood- prone land</li> </ul>
Compound Flooding	<ul> <li>The combination of tidal, storm surge, and rainfall-induced flooding</li> </ul>







#### **Compound Flooding Scenarios**



Images taken from NOAA Understanding Stormwater Inundation: <u>https://coast.noaa.gov/stormwater-</u> floods/understand/







### Critical Assets - Section 380.093 F.S

Owned or maintained by the county, cities, and other entities



- **Transportation Assets**: Transportation assets, airports and evacuation routes
- **Critical Infrastructure:** Wastewater, stormwater, drinking water facilities, energy, solid & hazardous waste, communications facilities
- **Critical community and emergency facilities:** emergency operation, fire, law enforcement, correctional and government facilities; shelters & staging areas, health care and emergency medical facilities, schools, affordable public housing
- Natural, cultural, and historical resources: Conservation lands, parks, shorelines, surface waters, wetlands, historical and cultural assets





### **Regionally Significant Assets**

Critical assets that support the needs of communities spanning multiple geopolitical jurisdictions, including, but not limited to:

- Water resource facilities
- Regional medical centers
- Emergency operations centers
- Regional utilities
- Regional natural systems
- Major transportation hubs
   and corridors
- Airports
- Seaports





### Exposure & Sensitivity Analyses

- Determine exposure to specific flood scenarios
- Identify sensitivity of Critical Assets at risk
- Rank assets to identify current and future project needs
- Obtain and incorporate public/stakeholder feedback



Aquafence Floodwall







#### **Sea Level Rise**

ORIDA

FL





### **Days of Tidal Flooding**

COUNTY FLORIDA







### Storm Surge: Present Day









Category 5







#### **Prioritized Critical Assets and Exposure**







#### **Prioritized Critical Assets and Exposure**







### Critical Assets: Composite Vulnerability Scoring







#### Results: Tier 1 & 2 Assets White City Area

Asset Category	Asset Type
Transportation	Bridges
Critical Infrastructure	Sub Stations
Critical Community	Shelter







#### Results: Tier 1 & 2 Assets Port St Lucie

Asset Category	Asset Type
Transportation	Bridges
Critical Infrastructure	Sub Stations
Critical Community	Shelter



![](_page_26_Picture_3.jpeg)

![](_page_26_Picture_4.jpeg)

#### Results Tier 1&2 Assets Fort Pierce

Asset Category	Asset Type
Transportation	Bridges & Port
Critical Infrastructure	Water Utilities, Electric Utilities
Critical Community	Fire Stations, Police Stations, Shelters

![](_page_27_Picture_2.jpeg)

![](_page_27_Picture_3.jpeg)

![](_page_27_Picture_4.jpeg)

#### Results: Tier 1 & 2 Assets St Lucie Village

Asset Category	Asset Type
Transportation	Bridges
Critical Infrastructure	Water Utilities, Solid Waste
Critical Community	Police Stations, Shelters, Schools

![](_page_28_Picture_2.jpeg)

![](_page_28_Picture_3.jpeg)

![](_page_28_Picture_4.jpeg)

## Key Takeaways

- St. Lucie County will be affected by increased flooding risks and there are areas of increasing vulnerability in the community
- St. Lucie County, Port St. Lucie, Fort Pierce and St. Lucie Village are proactively addressing resilience by doing the following:
  - Identify critical community assets at risk
  - Look to align local, state and federal resources with needs of the entire community
  - Qualify for future Resilience Florida Grant funding
- Final Vulnerability Assessment will integrate all input and comments from the community workshops and feedback from public presentations
- Final Vulnerability Assessment slated to be brought before County and City Boards to consider adoption.

![](_page_29_Picture_8.jpeg)

![](_page_29_Picture_9.jpeg)

## **RVA Project Schedule**

![](_page_30_Figure_1.jpeg)

# **Thank You!**

#### ST. LUCIE COUNTY FLORIDA

PORT ST. LUCIE

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Discussion and Questions

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