

FTP-SIS RESILIENCE SUBCOMMITTEE WEB CONFERENCE

presented to

FTP-SIS Resilience Subcommittee and Friends

September 17, 2019



MEETING OBJECTIVES



Review updated FTP goals

Provide background on relevant topics through targeted presentations

Receive feedback regarding presentation topics

Discuss current transportation system resilience trends, issues, initiatives, and best practices

Welcome and Introductions

Jennifer Carver, FDOT



FTP Update

Jennifer Carver, FDOT



FTP UPDATE SCHEDULE OVERVIEW

▮ **FTP Kickoff in May 2019**

▮ **33 Member Steering Committee**

- » Technology (ACES) Subcommittee
- » Resilience Subcommittee
- » Possible Safety Advisory Group

▮ **Public Engagement**

- » Districts
- » MPOs
- » Webinars
- » Regional Workshops in Summer 2020

▮ **Vision Element completed by December 2019**

▮ **Policy Element completed by December 2020**

PROPOSED FTP GOALS

- Safety & Security for Residents, Visitors, and Businesses (no change)
- Agile, Resilient, and Quality Transportation Infrastructure (no change)
- Connected, Efficient, and Reliable Mobility for People and Freight
- Transportation Choices that Improve Accessibility and Equity
- Transportation Solutions that Strengthen Florida's Economy
- Transportation Systems that Complement Quality Places
- Transportation Solutions that Protect Florida's Environment and Conserve Energy

Implications of Florida Growth for Transportation and Resilience

Dennis Smith, FSU



Assessment of Planning Risks and Alternative Futures for the Florida Transportation Plan Update

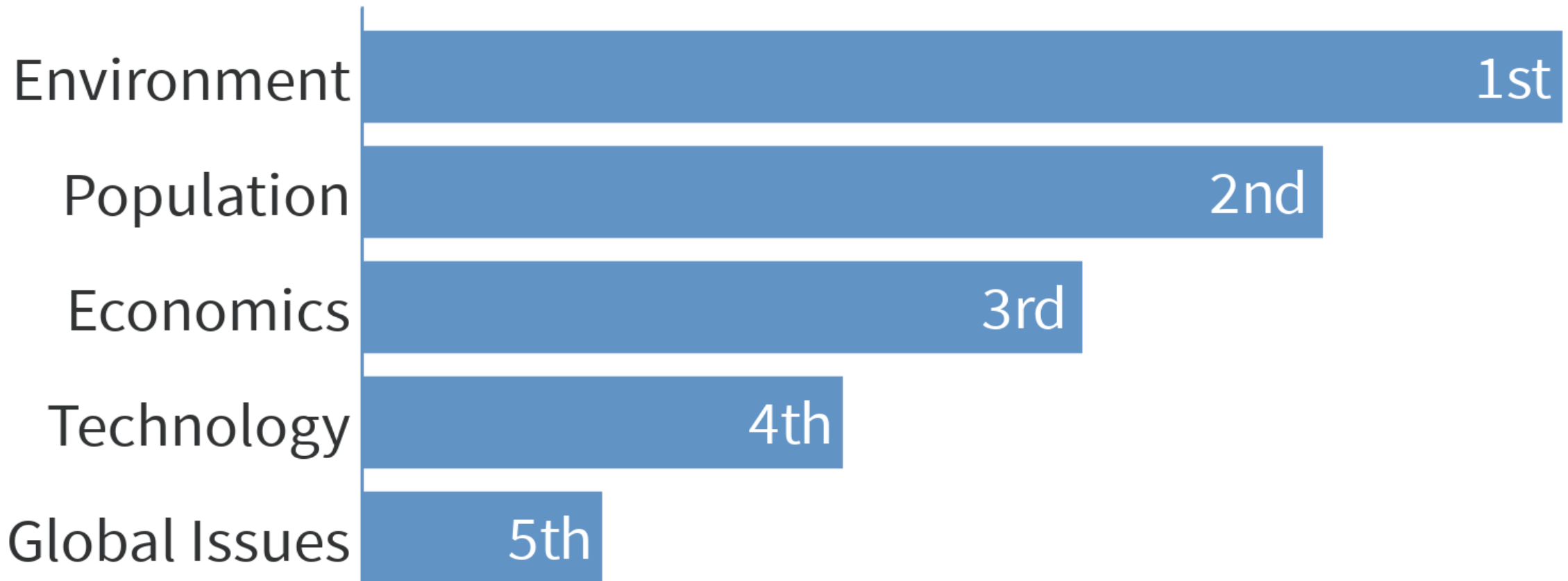
POLLEVERYWHERE SURVEY

2 ways to access the polling questions:

1. Use www.pollev.com/FTP2045 or
2. Scan the QR code:



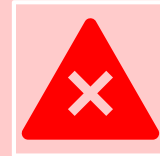
**Given the following five risk areas affecting transportation,
how would you rank them in order of importance?**



Assessment of Planning Risks and Alternative Futures for the Florida Transportation Plan Update



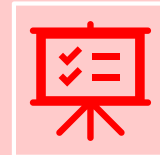
How should Florida's transportation system evolve to support mobility in the future?



How might the planning, policy setting process and implementation of the FTP change to accommodate risk and uncertainty?



How might the FTP goal areas and visions of alternate futures change in response to changes in risk and uncertainty?



How will the enhanced understanding of risk be incorporated into FDOT's day-to-day planning processes, from preliminary planning and design through project implementation?

Participants and Tasks

- ▶ Three Universities
- ▶ A common scope and set of tasks
- ▶ Non-collaboration during the research phase was a requirement



Five Areas of Inquiry

Population

- Florida's population will continue to grow
- Florida will continue to have an aging population

Economics

- Other sources for transportation funding will need to be explored
- Public Private Partnerships

Environment

- Climate change risks in Florida include sea level rise, extreme temperatures, and storm surge
- Florida's population will become more sprawled

Technology

- Autonomous vehicles will impact the built environment and how people travel
- Cyber security and user privacy will need to be considered when implementing new technologies

Global Issues

- Threats of terrorism and global conflict are possible factors that can impact the transportation network
- Florida should plan for an increase in volume for global trade routes

Consistency of Approach and Unique Features

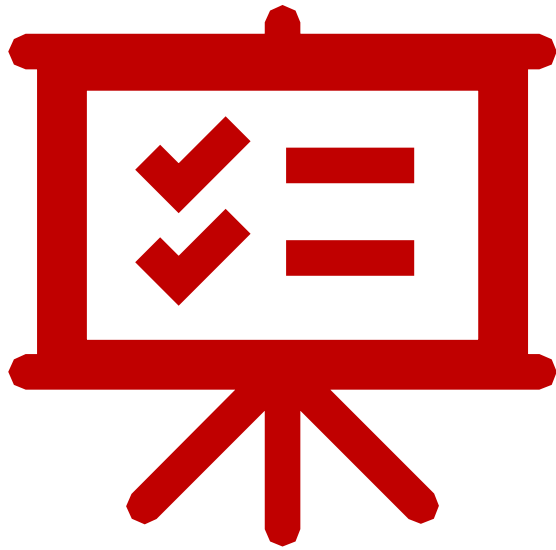


Expert Input



Use of risk register

Post Study and Collaboration



- ▶ FTP Long Range Visioning
- ▶ Community of practice
- ▶ Support to FTP subcommittees (ACES, Resilience)

Florida Resilient Coastlines Program

Whitney Gray, FDEP





Florida Resilient Coastlines Program: Achieving Coastal Resilience Together

Whitney Gray, Administrator FRCP
Office of Resilience and Coastal Protection, Tallahassee
(850) 245-2098 Whitney.Gray@FloridaDEP.gov



Building on a Strong Foundation

Community Resiliency Initiative

Starting in 2011 – in partnership with NOAA Coastal Zone Management Act – the Florida Department of Environmental Protection funded the Department of Economic Opportunity to provide technical assistance to coastal communities for innovative planning and development strategies:

- Funding opportunities
- Statewide focus group
- Developing and piloting Adaptation Action Areas
- Vulnerability Assessments and Adaptation Plans for three pilot areas
- Developing technical assistance documents





Florida Resilient Coastlines Program

Vision and Mission

Synergizing community resilience planning, natural resource protection tools and funding to prepare Florida's coastal communities for the effects of climate change, especially coastal flooding, erosion and ecosystem changes from sea level rise.

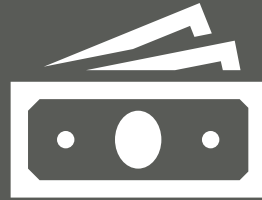


Florida Resilient Coastlines Program



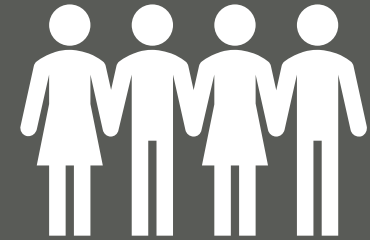
RESOURCES

Florida Adaptation Planning
Guidebook & Technical
Assistance



FUNDING

Resilience Planning &
Implementation Grants

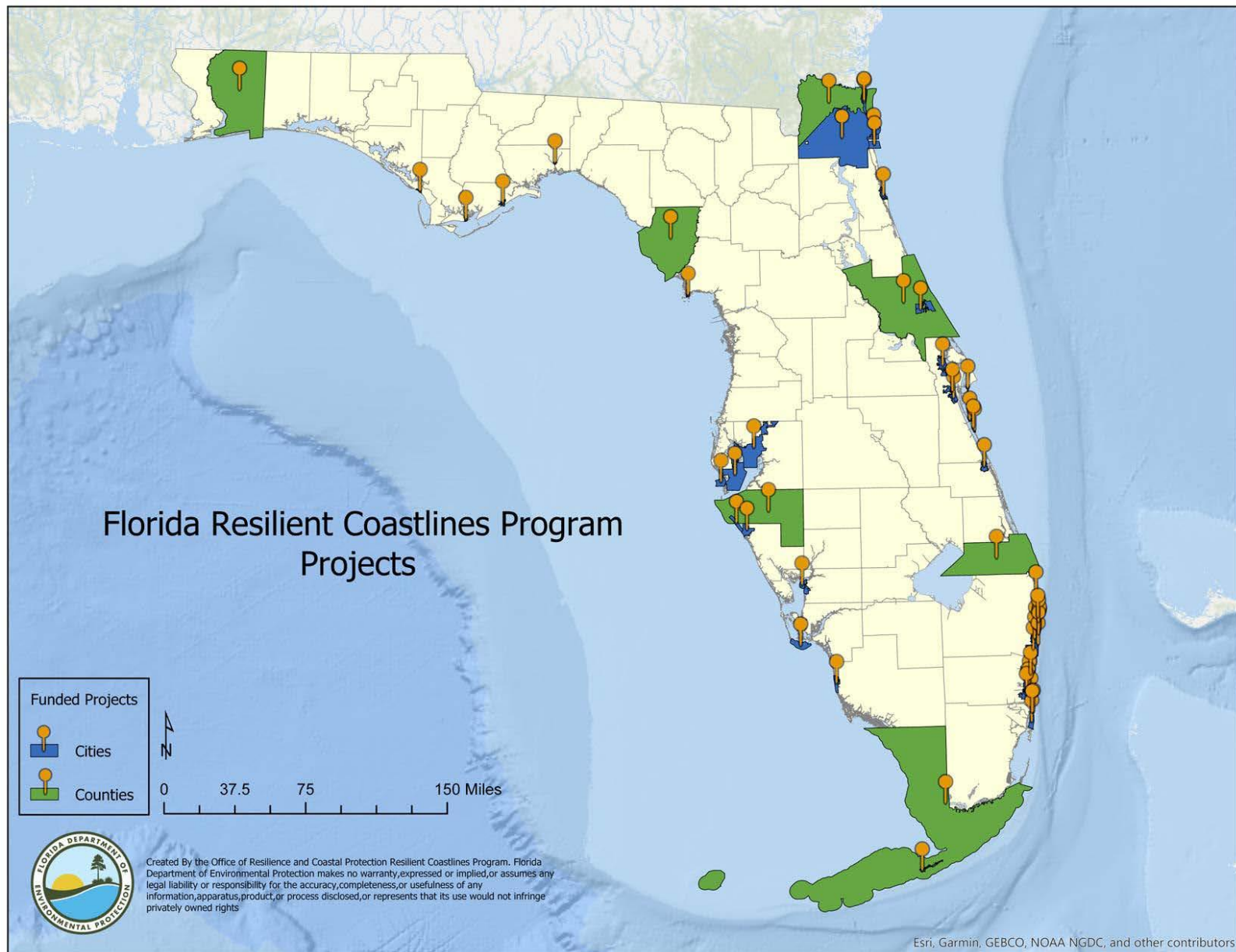


COORDINATION

Quarterly Coastal
Resilience Forum



- **60 Community Projects**
 - **14 Counties**
 - **46 Cities**





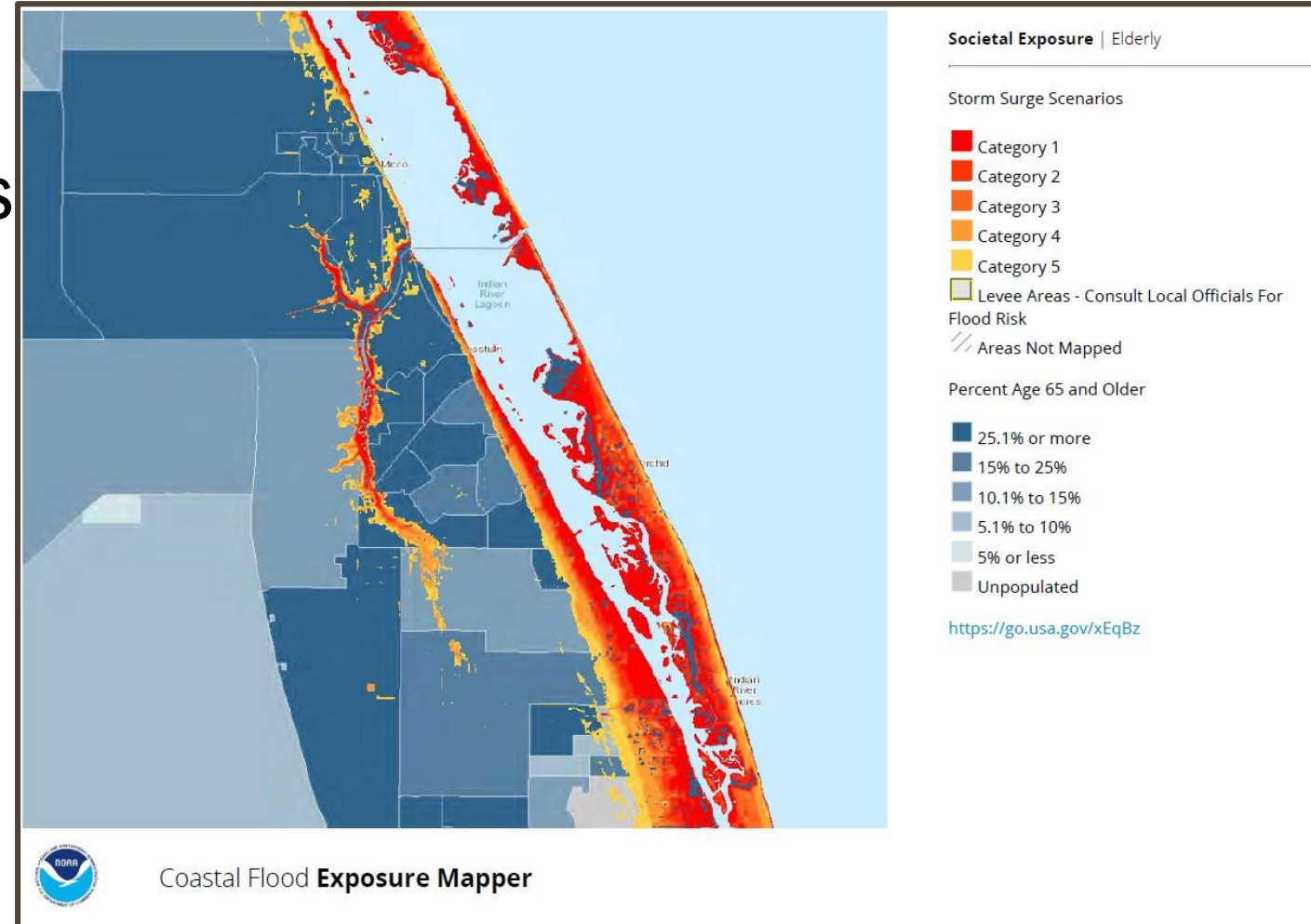
Funding Sources & Amounts

- **Funding through Florida Coastal Management Program from NOAA**
 - 306 program: **\$325,001**
 - 309 Adaptation Action Initiative Strategy: **\$829,784**
- **Funding from Florida's Governor and Legislature: \$3,296,230**
- **Total through FY 2019-2020: \$4,451,016**



All Project Types

- **Vulnerability Assessments**
 - Peril of Flood Statute (163.3178(2)(f) F.S
 - Stormwater Management Systems
 - Historic Resources
- **Adaptation/Resilience Plans**
- **Implementation of Plans**
 - Living Shorelines
 - Stormwater Outfalls



City of Sebastian Coastal Resilience Plan, 2019



Using the Peril of Flood Statute to Improve Coastal Resilience

- 2015 law requires consideration of current and future flooding from storm surge and *sea level rise* in the coastal management element of comprehensive plans.

- Must include development, strategies, and engineering in coastal areas which result in flash floods, stormwater runoff, and sea level rise.

ADAPTATION



Using the Peril of Flood Statute to Improve Coastal Resilience

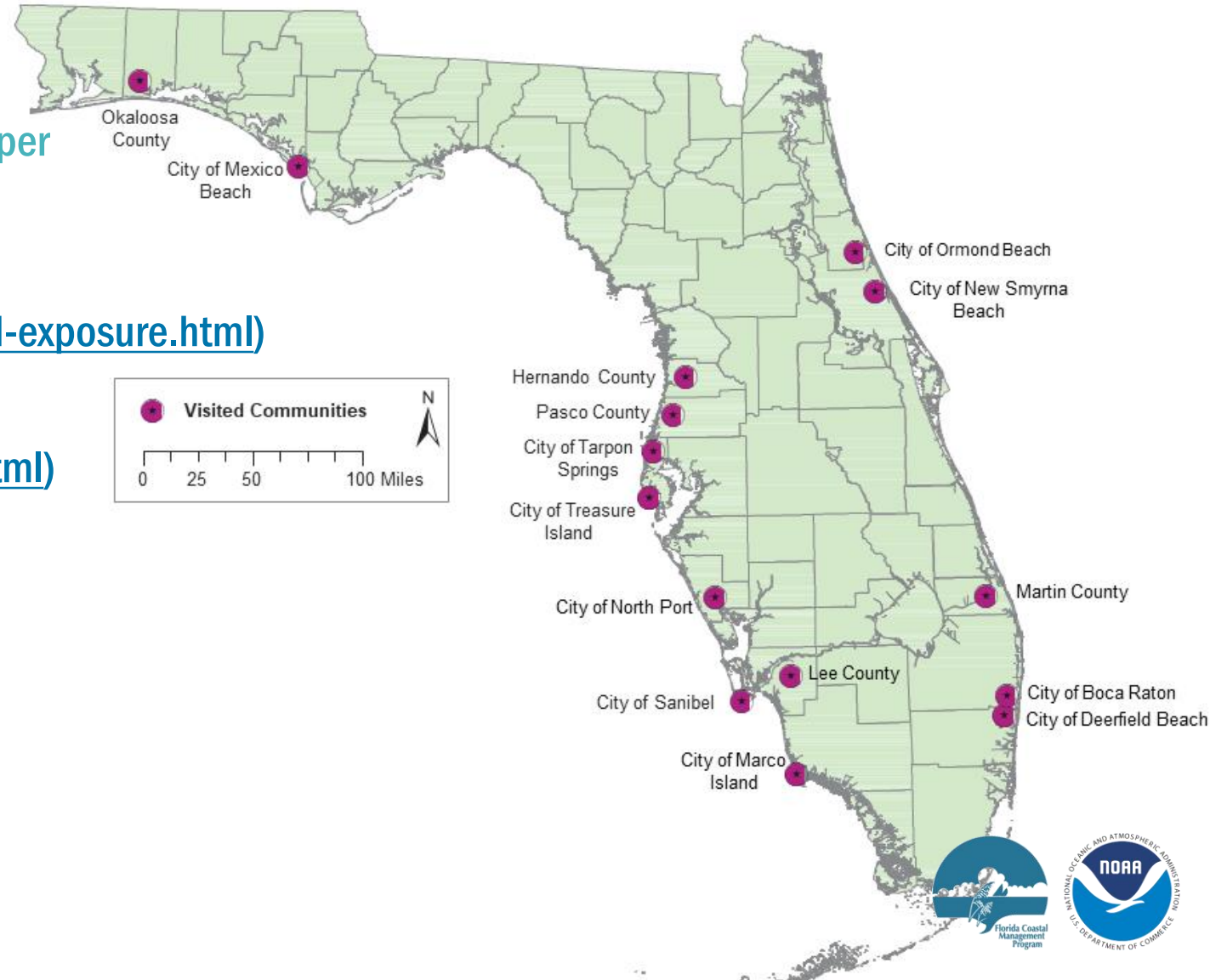
- **211 Florida communities have a coastal management element/are required to complete the Peril of Flood analyses.**
 - **35 Counties**
 - **174 Cities**
- **DEP has funded 29 of these communities, about 35% of those that have submitted their analyses to DEO.**



Technical Assistance

Outreach to Local Governments

- The Nature Conservancy's Coastal Resilience Mapper (<http://maps.coastalresilience.org/network/>)
- NOAA's Coastal Flood Exposure Mapper (<https://coast.noaa.gov/digitalcoast/tools/flood-exposure.html>)
- NOAA's Sea Level Rise Viewer (<https://coast.noaa.gov/digitalcoast/tools/slr.html>)
- UF GeoPlan/FDOT Sea Level Sketch Planning Tool (<http://sls.geoplan.ufl.edu/#intro>)
- GulfTREE (<http://www.gulftree.org/>)
- Joseph.Bauer@FloridaDEP.gov

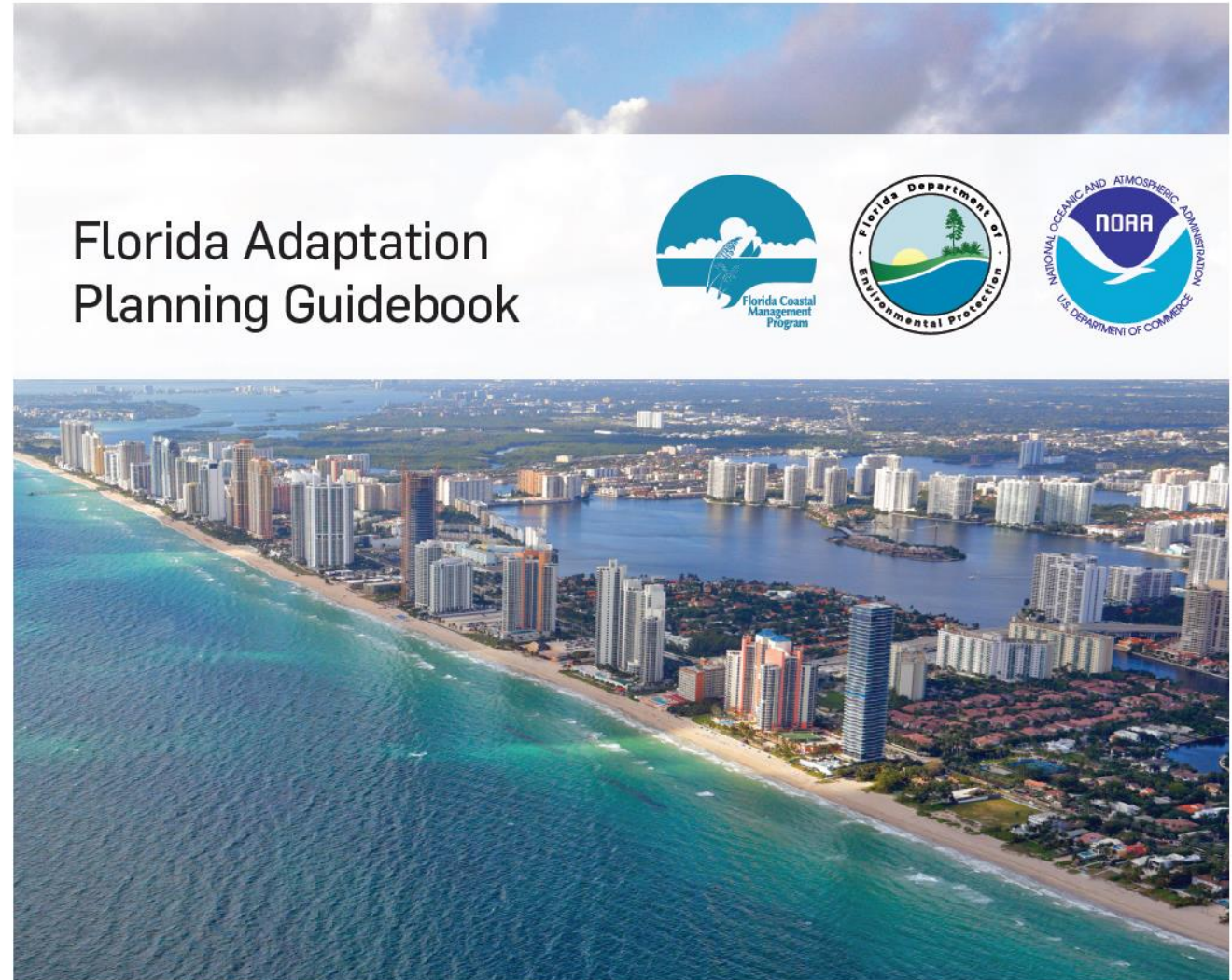




Technical Assistance

Focused on Adaptation

- Establishing Context
- Vulnerability Assessment (VA)
- Adaptation Strategies
- Implementation of Adaptation Strategies
- Specialty Topics
 - Economic Value of Adaptation Planning
 - Community Rating System and Adaptation
 - Historic and Cultural Resources
 - Adaptation Action Areas to Protect Natural Resources
- Funding Opportunities
- Example VA and Adaptation Plan





Coordination



Coastal Resilience Forum

<https://floridadep.gov/fco/florida-resilient-coastlines-program/content/quarterly-resilience-forum>

ACOE
AECOM
American Planning Association
Apalachee RPC
Apalachicola Riverkeeper
ARPC
Audubon Florida
BRACE
Brevard County
Brizaga/Sea Level Rise Ready
Broward County
Broward MPO
Calusa Waterkeeper
CFRPC
City of Cape Coral
City of Clearwater
City of Crystal River
City of Fernandina Beach
City of Ft. Lauderdale
City of Hallendale Beach
City of Jacksonville
City of Jacksonville Beach
City of Miami
City of Miami Beach
City of Naples
City of Punta Gorda
City of Satellite Beach
City of St. Augustine
City of West Palm Beach
Coastal Waterways
Collier County
Collier County Waterkeeper
Conservancy of SW Florida
Deady Law
DEM
DEO
DEP
Dewberry
DOS
East Central Florida Regional

Planning Council
Emerald Coastkeeper
FAU
FDOT
FEMA
FGCU
FIND
FIU
FDACS
Fla Sea Grant
Flagler County
Florida League of Cities
Florida Chamber of Commerce
Florida Climate Institute
Florida Earth Institute
FRCA
FSU
FSU Center for Ocean-Atmospheric
Prediction Studies
FSU Law
FWC
GCFI
Gulf Archaeology Research Institute
Hillsborough County
Institute for Sustainable
Communities
IRLNEP
Kennedy Space Center
Lake Worth Waterkeeper
Martin County
Matanzas Riverkeeper
Miami Waterkeeper
Miami-Dade County
Monroe County
Nassau County
NC Division of Coastal Management
NCFRPC
NEFRPC
NOAA
NOAA/ANERR

NOAA/GTM
NOAA/RBNERR
North Florida Land Trust
NFWFMD
Palm Beach County
Pasco County
Pinellas County
RBNERR
RWParkinson Inc
Sanibel-Captiva Conservation
Foundation
Sarasota Estuary Program
Sea Turtle Conservancy
SEFRCC
SFRPC
Southwest Florida Community
Foundation
St. John's Riverkeeper
Stearns Weaver
Stetson University
Suncoast Waterkeeper
SWFRPC
Tampa Bay Waterkeeper
Taylor Engineering, Inc.
TBEP
TBRPC
TCRPC
The Nature Conservancy
TNC
Tortoise Island
UF
UF (Geology)
UF (planner)
UF Geoplan
UF/IFAS Extension-Florida Sea Grant
USACE
USF
WFRPC
Youth Environmental Alliance



Where do we go from here?

- **State of Resilience Report – Coming Soon**
 - Comprehensive look at Peril of Flood and other resilience initiatives across the state
- **Florida Climate Assessment – 2020?**
 - Cross-sectoral/cross-regional evaluation of effects of climate change on Florida
- **Multi-year Climate Action Plan – 2023?**



Miami Herald

FloridaDEP.gov/resilience



Thank you!

**Contact Whitney Gray (850) 245-2098
or Whitney.Gray@FloridaDEP.gov**

What are some of the economic benefits of adaptation to sea level rise?

“Access to jobs”

“Not spending money over and over to rebuild at current levels when infrastructure is impacted”

“Tourism”

“Safety”

“More resilient communities that are not closed or impacted by SLR and not losing private money.”

“Reduced maintenance costs”

“Helps protect property values”

“Planning out for the new standards to adjust infrastructure for SLR as the useful life of the infrastructure is met.”

Alternative Transportation Energy Sources and Resilience Planning

John Leeds, FDACS



John Leeds

FDOT Resilience Subcommittee Meeting
September 17, 2019



Functions & Responsibilities

- Legislatively designated state energy policy development office within Florida
- Evaluate energy related studies, analyses, and stakeholder input
- Promote and advocate for the development and use of renewable energy resources and energy efficiency technologies
- Use available state and federal funds to develop and manage energy efficiency, renewable energy, and energy education programs
- Produce an Annual Energy Report
- Serve on the Florida Building Commission
- Serve as the State clearinghouse for all energy information



Areas of Focus



Energy Efficiency



Renewable Energy



Transportation



Education



Drive Electric Orlando



- Used a \$400,000 award from the U.S. DOE Clean Cities to work with the Electrification Coalition and the Central Florida Clean Cities Coalition to promote Drive Electric Orlando.
- Drive Electric Orlando offers:
 - An option to rent an electric vehicle in Orlando, Florida
 - Incentives for renting an electric vehicle include:
 - free valet parking,
 - preferred parking spots,
 - ample charging stations,
 - free three-month membership to CLEARLane Access which allows travelers to skip the identification check point at the airport and head straight to the physical screening



Drive Electric Orlando



- Program partners include:



- For more information visit <http://pluginperks.com/plugin-perks/>.



EV Roadmap Goals

- Identify EV charging infrastructure impacts on the electric grid.
- Identify solutions for any negative impacts.
- Locate areas that lack EV charging infrastructure.
- Identify best practices for siting EV charging stations.
- Identify technical or regulatory barriers to expansion of EV charging infrastructure.



EV Roadmap Next Steps

- Continue discussions with sister agencies.
- Develop a scope of work and timeline.
- Work with National Energy Labs to perform modeling.
- Draft report.
- Hold stakeholder meetings for feedback and recommendations.



Alternative Fuel Resiliency Plan

- Catalog alternative fuel infrastructure including details on each site;
- Develop best practices regarding resiliency for locating alternative fuel infrastructure;
- Analyze and report on AFVs for emergency response efforts;
- Analyze and report on alternative fuel generators for emergency power sources;



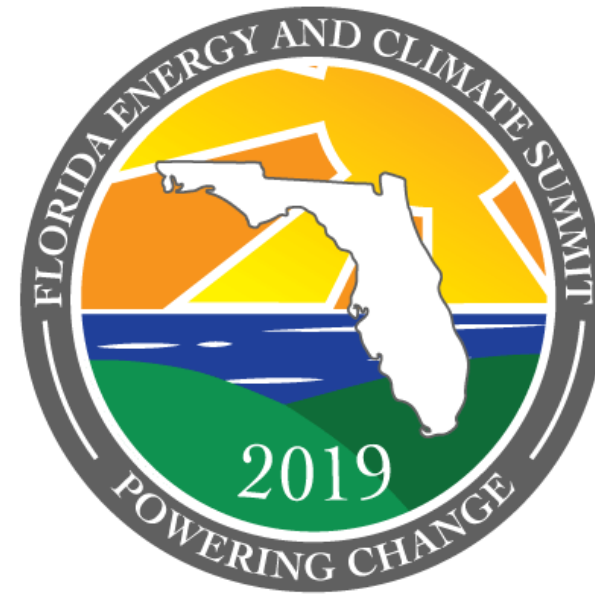
Alternative Fuel Resiliency Plan

- Develop communication protocols for alternative fuel infrastructure status updates;
- Study the supply chain for each fuel source to identify strengths and weaknesses;
- Develop a statewide alternative fuel resiliency plan; and
- Incorporate alternative fuel related missions into the annual statewide hurricane exercise.



2019 Florida Energy and Climate Summit Powering Change

October 1-3, 2019
Grand Hyatt Tampa Bay
Tampa, Florida



Contact Information:

John Leeds

John.Leeds@FreshFromFlorida.com

(850) 617-7470



What top strategy could be implemented as part of the FTP to support the development of a statewide alternative fuel resiliency plan?

“Have policies to allow charging stations in FDOT roads ”

“Work with local planners to identify sites for facilities. ”

“Tax vehicle miles traveled ”

“Facilitate effective coordination across multiple parties/interests. ”

“Identification of state multi-modal funding opportunities to implement alternative fuels infrastructure. ”

“Engage stakeholders to gather necessary information ”

East Central Florida Regional Resilience Collaborative

Tara McCue & Jenifer Rupert, ECFRPC





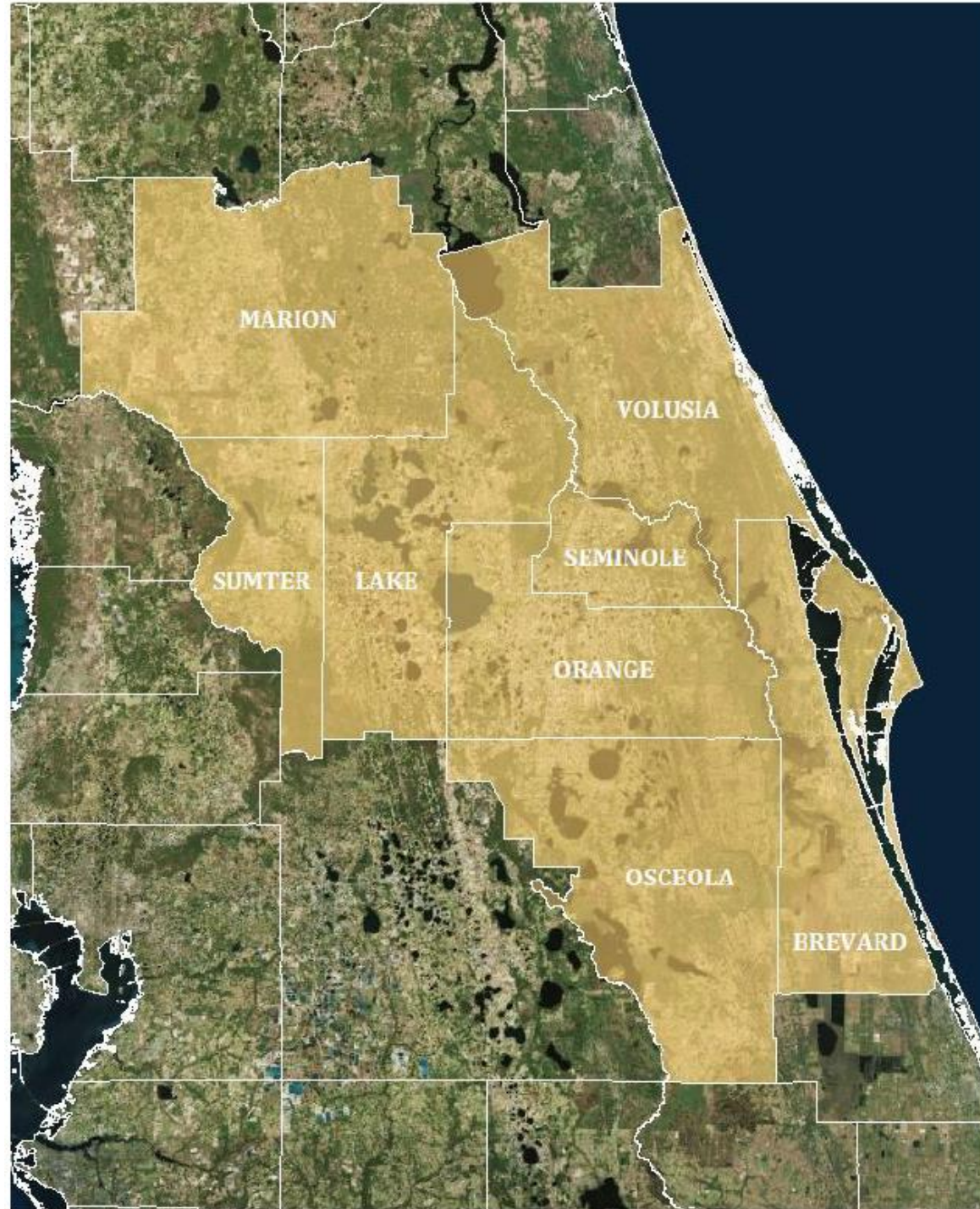
Resilience in Transportation

A Regional Approach

FDOT FTP SIS Resilience Subcommittee Meeting #2

Tara McCue
Jenifer Rupert
East Central Florida Regional Planning Council







Importance of Resiliency to Transportation Agencies



- Florida Community Planning Act (HB 7207) - AAA - 2011
- Florida Senate Bill 1094 - Peril of Flood - 2015
- Fixing America's Surface Transportation (FAST) Act-2015:
 - expands the focus on the resiliency of the transportation system as well as activities to reduce stormwater runoff from transportation infrastructure; and
 - requires strategies to reduce the vulnerability of existing transportation infrastructure to natural disasters. [23 U.S.C. 134(d)(3) & (i)(2)(G)]



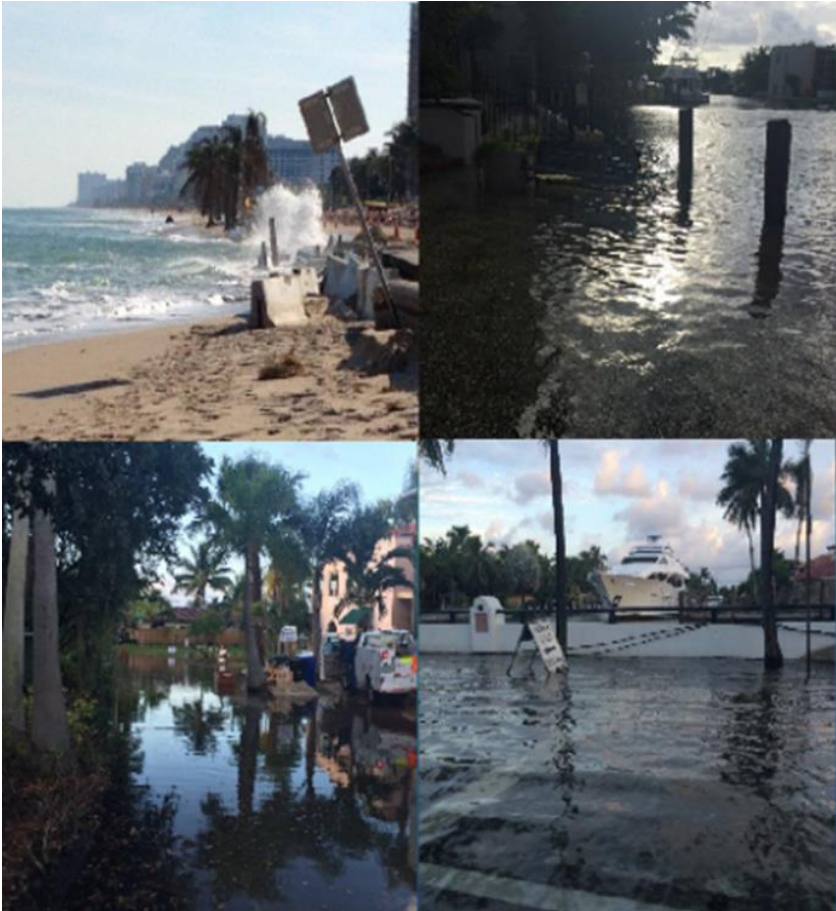
(Florida Sea Grant photo by Thomas Ruppert)

Incorporation into Long
Range Transportation Plan
and Transportation
Improvement Plan

Importance of Resiliency to Transportation Agencies



Current and Future Impacts to Transportation Systems



Increased flooding of transportation infrastructure (tidal and heavy rainfall)

- *Loss of roadway capacity*
- *Loss of evacuation routes*
- *Degradation of infrastructure*
- *Loss of access to/utilization of facilities (fleet fueling/storage; evac centers)*
- *Impacts on Port and Freight capacity*

Compromised stormwater systems

- *Limited stormwater storage (ponds and groundwater)*
- *Malfunctioning canals and drainage*

Solutions and planning take time and coordination and can be implemented in short term and long-term projects.

East Central Florida Regional Resiliency Action Plan



December 2018 | Prepared for Brevard and Volusia Counties by the East Central Florida Regional Planning Council

East Central Florida Regional Planning Council
Brevard County
Volusia County
River to Sea TPO
Space Coast TPO

City of Cocoa
City of Titusville (local version)
City of Port Orange
City of New Smyrna Beach
City of Deland
City of Orange City



Stakeholder Engagement

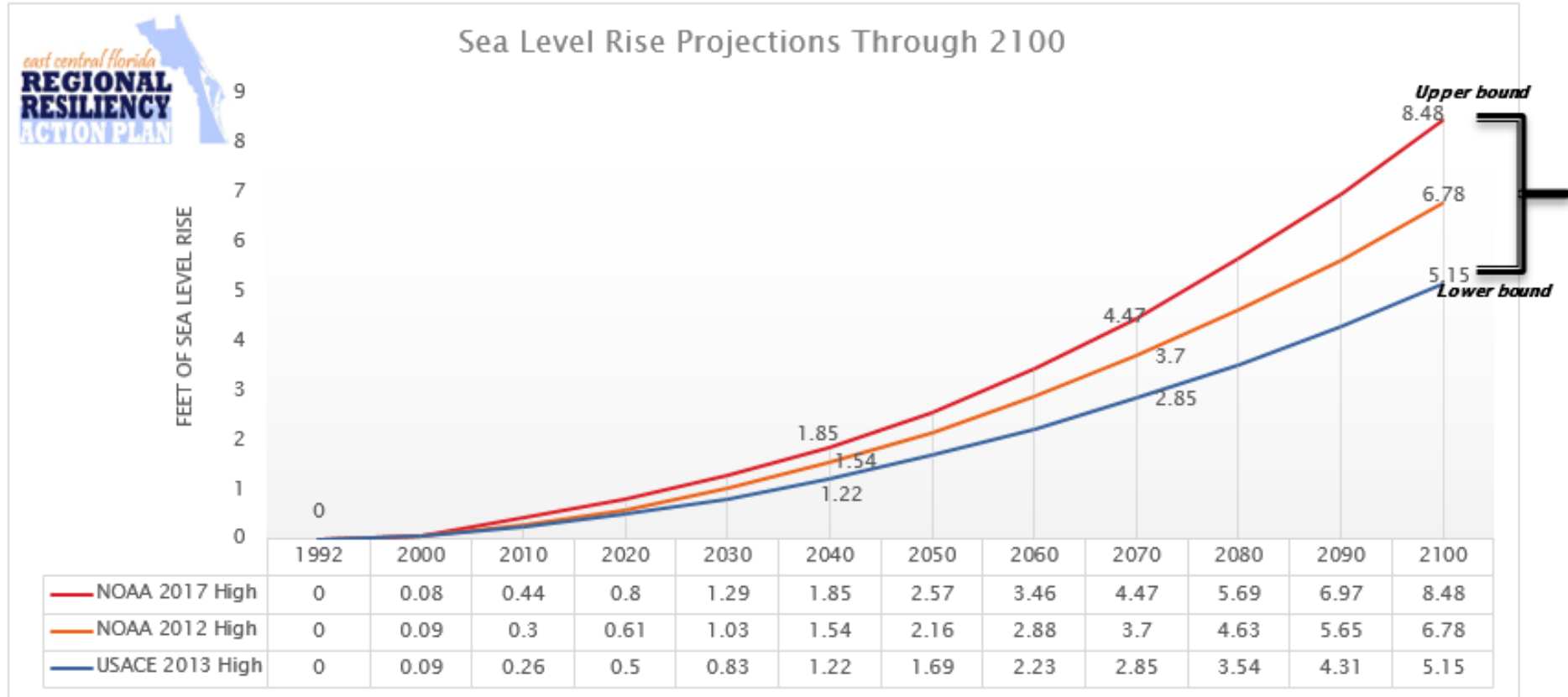
Transportation Agency Participation in ECF Regional Resiliency Action Plan



- Served on steering committee and sub-committees
- Staff, Board Members, Committee Members attended various workshops






Figure 2: ECF Regional Resiliency Action Plan Recommended Bounds for Planning for Sea Level Rise; Daytona Beach Shores Tidal Gauge



Framework



Goal	Objective	Action	Agency	Task	Year	Related Plans
Economic & Society	ES1: Protect high-value assets from natural hazards.	ES1.1	NASA Port Canaveral Patrick Air Force Base All Jurisdictions FDOT	Conduct assessment of land use and facilities to determine vulnerabilities to sea level rise, storm surge, coastal erosion and flooding. Reassess existing assessments to new RRAP sea level rise recommendations if NOAA 2017 was not included.	1	
		ES1.2	Emergency Management Economic Dev't Commission Chambers of Commerce	Identify local businesses such as gas stations, food suppliers or others that provide specific services or resources vital for recovery, thus classify them as critical facilities.	1	Business Resiliency Action Plan County COOP Plan
		ES1.3	Port Canaveral	Assess vulnerabilities and capabilities of service and access points for critical post-storm services such as fuel tanker fill stations and discernment. Find highest risk/ short term vulnerabilities for 2040.	1	
		ES1.4	Port Canaveral	Model changes in future water main pressure from the potential impacts of sea level rise to ensure that fuel stations will function properly after storm events in the long term.	2	
		ES1.5	NASA Port Canaveral Patrick Air Force Base All Jurisdictions FDOT	Update plans, policies, and procedures to implement the RRAP sea level rise to be included in asset development and mitigation efforts to include timeframes relevant to long-lasting, critical infrastructure.	2	
		ES1.6	Economic Development Agencies	Using vulnerability analysis findings, identify vulnerable areas of economic significance.	2	
		ES1.7	Planning Department	Develop and adopt policy language that prohibits the development of high value assets in vulnerable areas or if necessary, are mitigated to the greatest extent possible.	2	
		ES1.8	NASA Port Canaveral Patrick Air Force Base Planning Department Emergency Management FDOT	identify strategies and policies related to resilient rebuilding in identified vulnerable areas such as how to build back better, risk informed construction standards, streamlined processes for post disaster reconstruction, debris removal / pre-identified debris management resources, and a guide regeneration.	3	



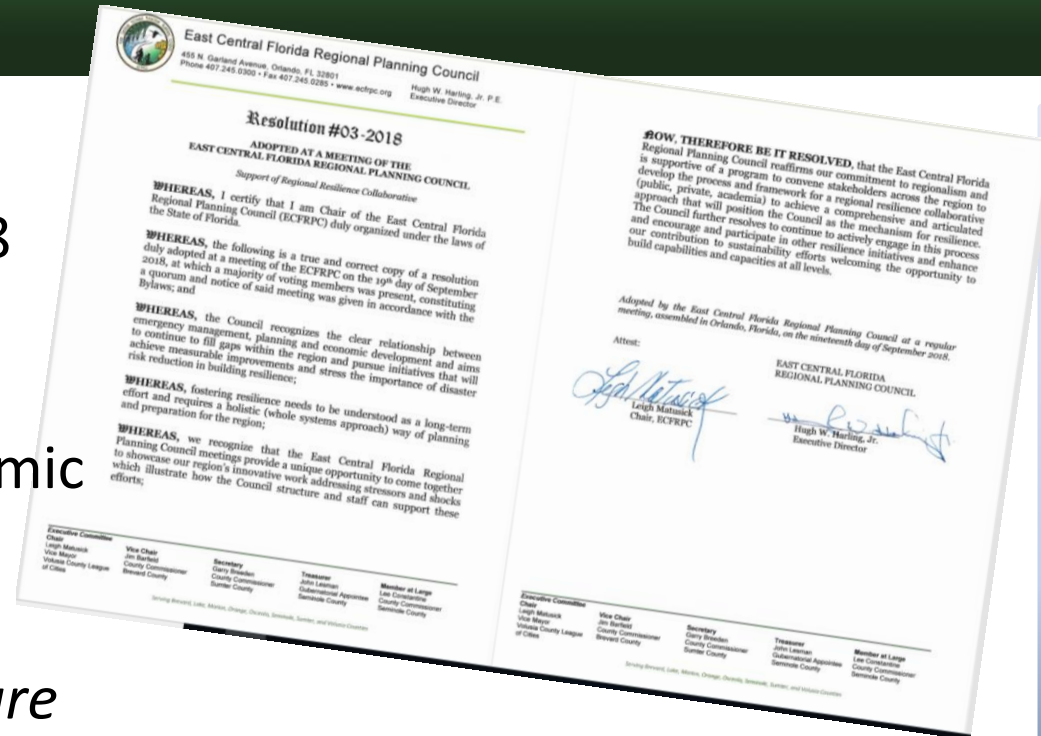
Next Steps

- Inclusion into the Long Range Transportation Plan
- Future incorporation into various plans and projects such as the State of the System Report and Transportation Improvement Plan (TIP)
- Consideration in future projects → is the project area vulnerable?



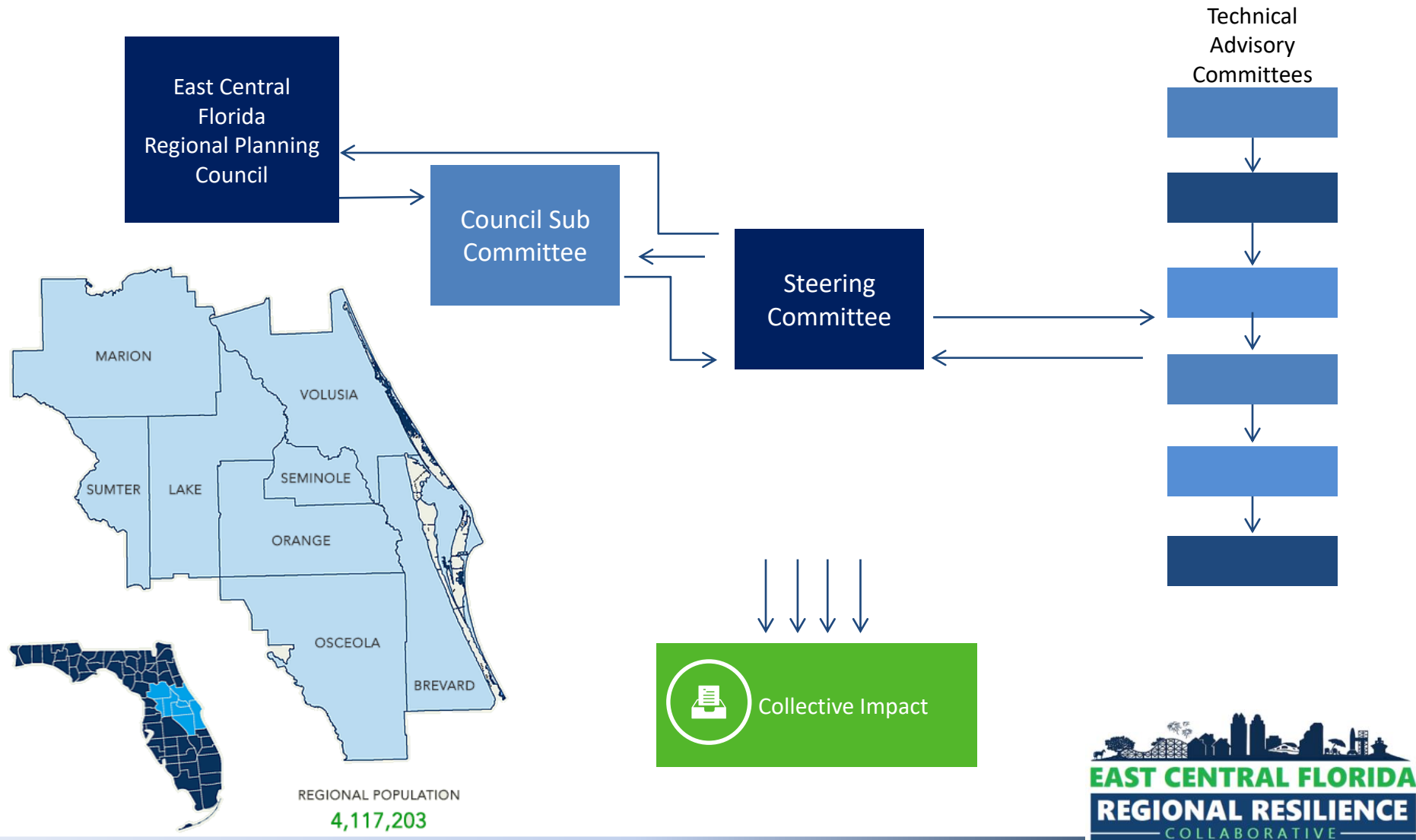
September, 2018

- ECFRPC Resolution #03-2018 reaffirmed commitment to regionalism; recognized the relationship between economic development, planning and emergency management; *directed to develop a structure and framework for a regional resilience collaborative.*
- Increase and amplify resilience efforts to better respond to shocks and stressors.



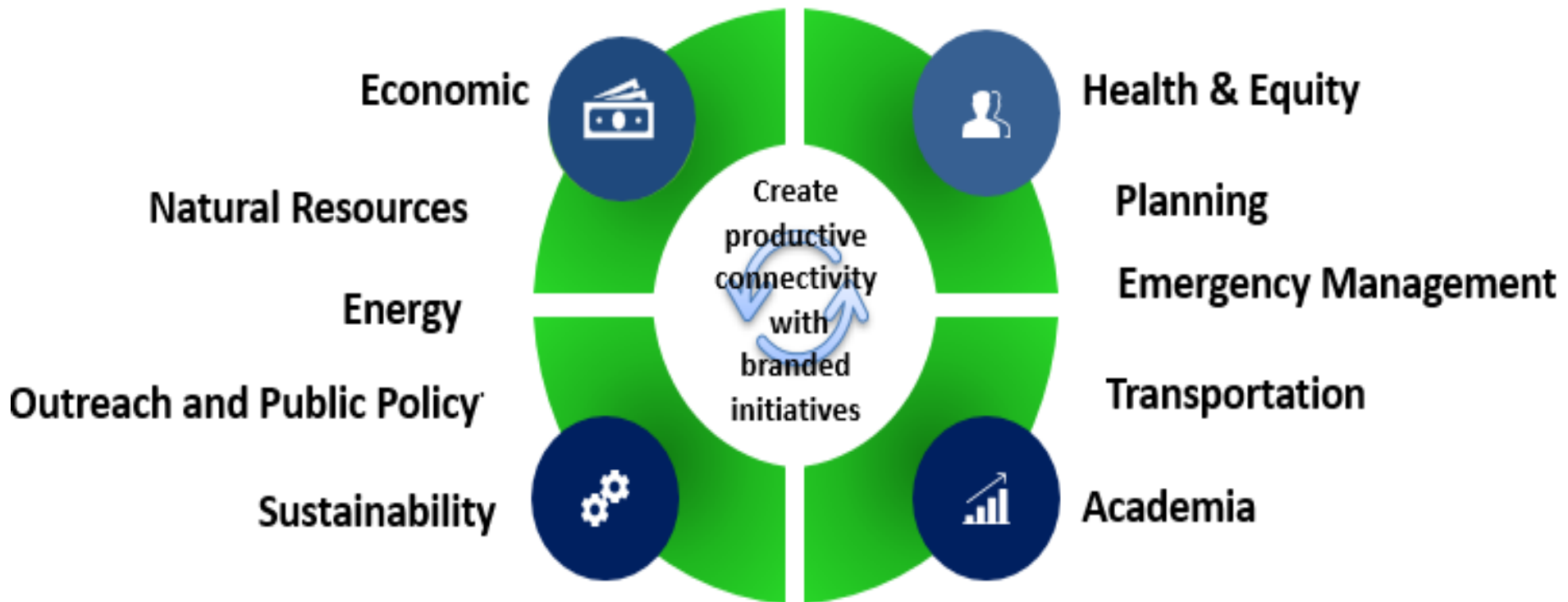
Regional Resilience Collaborative Structure

Unified effort

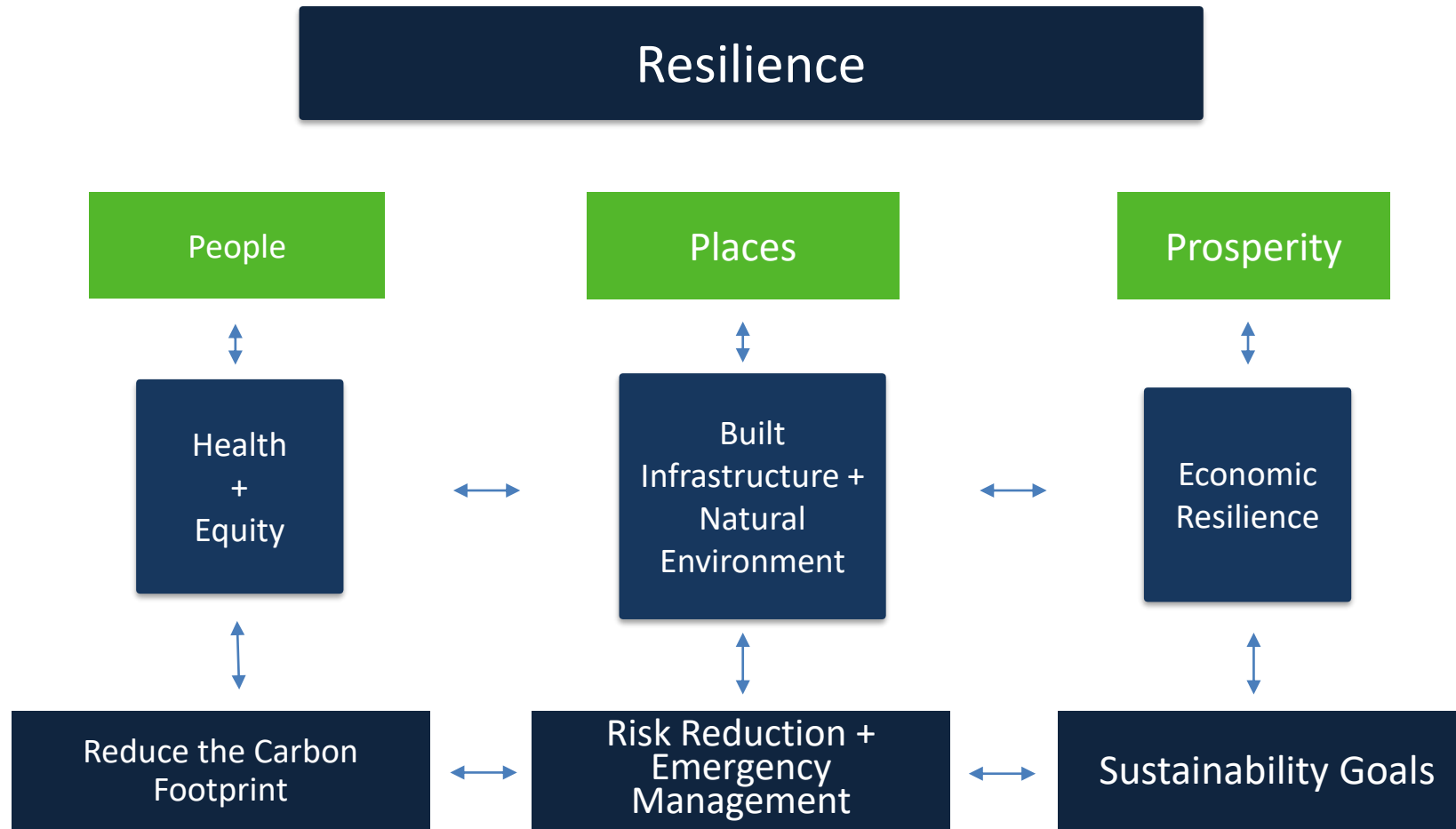


Steering Committee

Disciplines with Unified effort



Council Sub Committee Direction



Memorandum of Understanding

- History
- Provide Perspective
- Who constitutes the region
- Why the region is important
 - Prosperity- Economic Interdependencies
 - Places – Built Infrastructure + Natural Environment
 - People- Health + Equity
- Increase collective impact by working together



Memorandum of Understanding

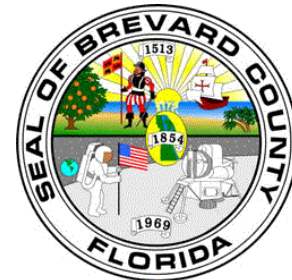
- ~~WHEREAS~~ **WHEREAS**, the resilience of East Central Florida Region's people, places and prosperity rely on interconnected and multi-modal transportation infrastructure, including the spaceport, space center, seaport, trails, rail and other transit systems, roadways and airports; and
- ~~WHEREAS~~ **WHEREAS**, promoting sustainable development that includes compact urban centers, conservation of agricultural landscapes, interconnected, multimodal corridors, conservation areas, decreases the carbon footprint, increases our Members' fiscal sustainability and minimalizes conflicts in 'wildland and urban interface' areas, further supporting emergency management efforts; and

What are we going to do?

Think Globally
Plan Regionally
Act Locally

- **MOU requests:** Regional Coordination
 - *Create Productive Connectivity*- commitment and appropriate staff
 - *Regional Resilience Action Plan*- identify regional initiatives with supportive and actionable data
 - *Regional Legislative Strategy*- align individual decisions and policies in service of shared strategy
 - *Community Involvement*
 - *Annual Summit*





Call to action

- Formalize Partnerships; Fall Signing Ceremony

- Consideration of MOU to formalize partnership
- Engage in technical advisory committee as appropriate (TBD)
- Engage in defining appropriate regional initiatives through participation





Thank You

Tara McCue | tara@ecfrpc.org

Jenifer Rupert | jrupert@ecfrpc.org

East Central Florida Regional Planning Council

www.ecfrpc.org

www.perilofflood.net



What top strategy could be implemented as part of the FTP to support regional transportation resilience initiatives?

“User groups”

“Support green infrastructure”

“Adopt or develop a strategy to plan for SLR or default to the regional approach”

“Consider existing regional resilience plans and engage”

“Consider future generations & their approach to Transportation- not wanting cars - wanting mass transportation”

“Participate in the collaboratives”

“Highlight such initiatives along with current highlighting of regional and community visions in current FTP.”

“Statewide coordination to engage regions and consolidate information at the state level. Purpose of this is to coordinate efforts and avoid duplicative efforts.”

Transportation Resilience Planning

Bob Chamberlin, RSG



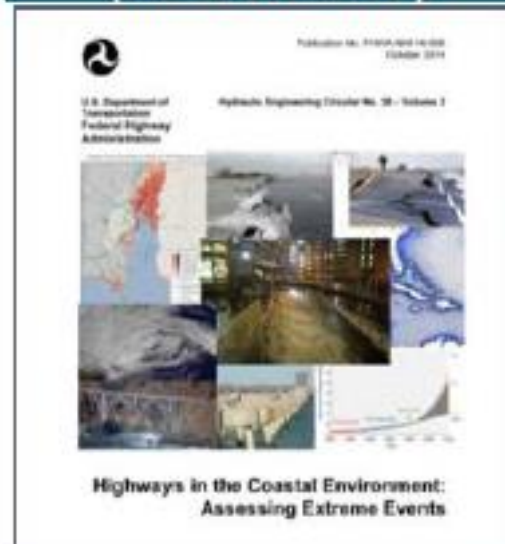
TRANSPORTATION RESILIENCE PLANNING A SCAN OF ACTIVITIES OUTSIDE FLORIDA

- The Resilience Planning Factor
- The Four Most Common Ways Resilience is Addressed in DOT Long-Range Transportation Plans
- Commonalities in DOT Resilience Efforts

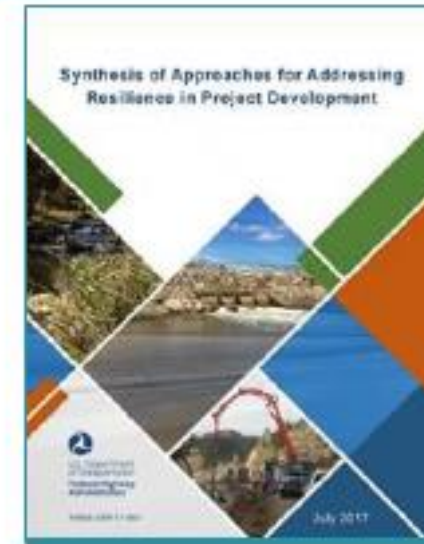
Vulnerability & Adaptation Framework



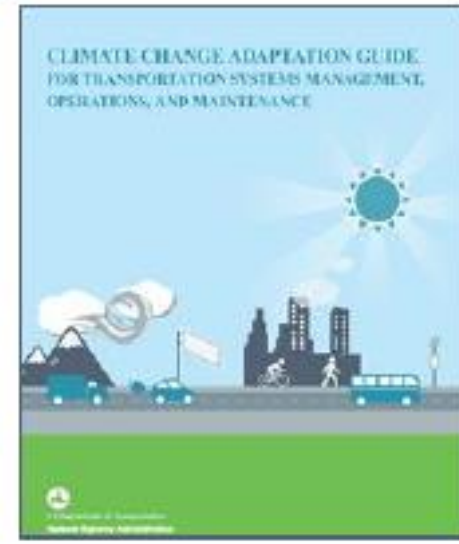
Engineering Guidance (HEC-25 & 17)



Project Development



Operations & Maintenance



THE RESILIENCE PLANNING FACTOR

- There are 10 Planning Factors defined in the FAST Act (2015 Transportation Bill)
- “Planning Factors” identify areas for measuring performance against targets
- Planning Factor #9

“Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.”

- Delaware DOT’s “Innovation in Motion”
(one of nine goals)



Resiliency and Reliability

Provide a resilient and reliable transportation system that offers predictable travel times under normal conditions as well as efficient and safe use during emergency situations.

THE FOUR MOST COMMON WAYS RESILIENCE IS ADDRESSED IN DOT LONG RANGE TRANSPORTATION PLANS

- Define Goals & Objectives
- Identify asset vulnerabilities (Defining Needs)
- Screen projects to avoid or modify investments in vulnerable areas (Developing Strategies)
- Include resilience criteria for evaluating projects (Evaluating Alternatives, Selecting Investments)



ADDRESSING RESILIENCE IN LRTPS – GOALS & OBJECTIVES



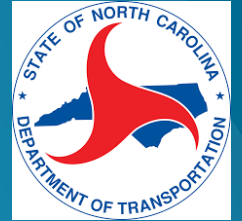
Delaware DOT's "Innovation in Motion" (one of nine goals)



Resiliency and Reliability

Provide a resilient and reliable transportation system that offers predictable travel times under normal conditions as well as efficient and safe use during emergency situations.

ADDRESSING RESILIENCE IN LRTPS – GOALS & OBJECTIVES



- Adaptation efforts are coordinated through the Department of Coastal Management
- NCDOT focused more on climate mitigation.
- Resilience is being tackled in their 2050 long-range plan “NC Moves 2050” as a “Driver”.

**NC MOVES**
CONNECTING YOUR COMMUNITY.
YOUR VOICE AND YOUR FUTURE.

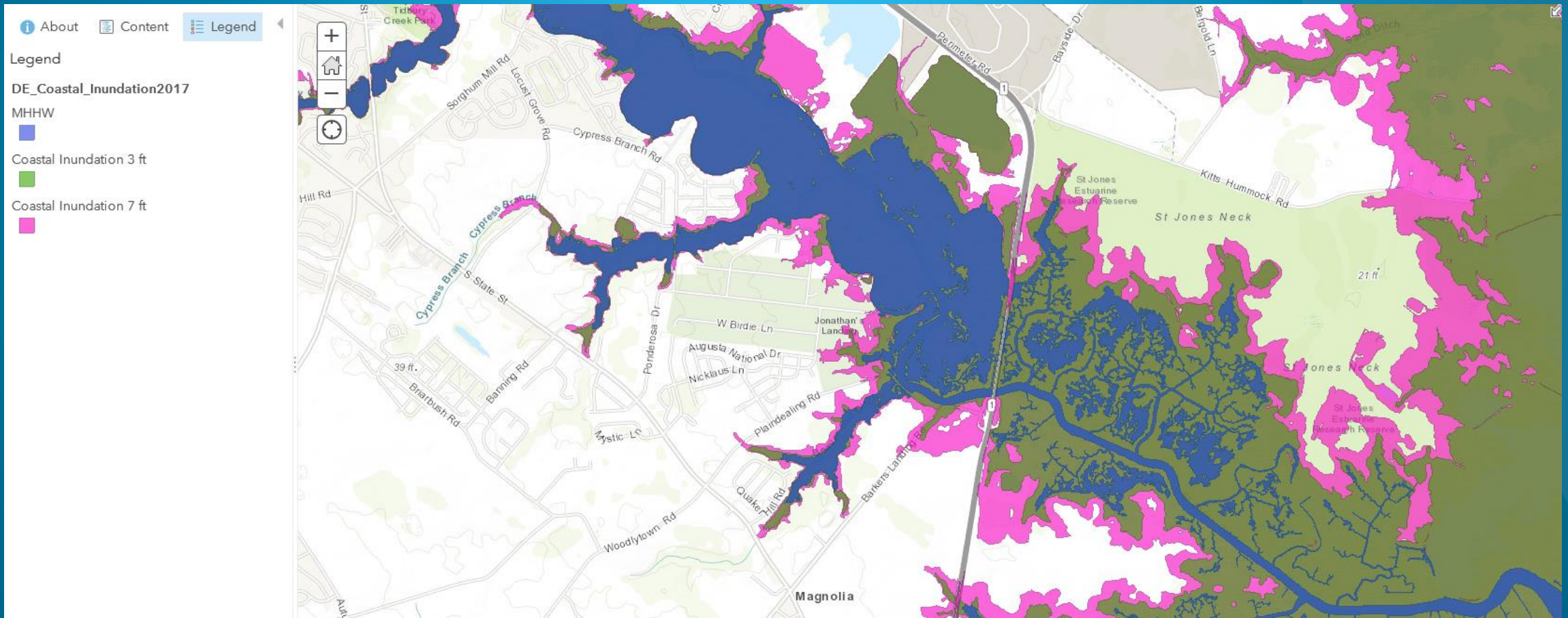
DRIVERS AND OPPORTUNITIES
**Environmental Hazards
and Resiliency**



ADDRESSING RESILIENCE IN LRTPS – IDENTIFY ASSET VULNERABILITIES



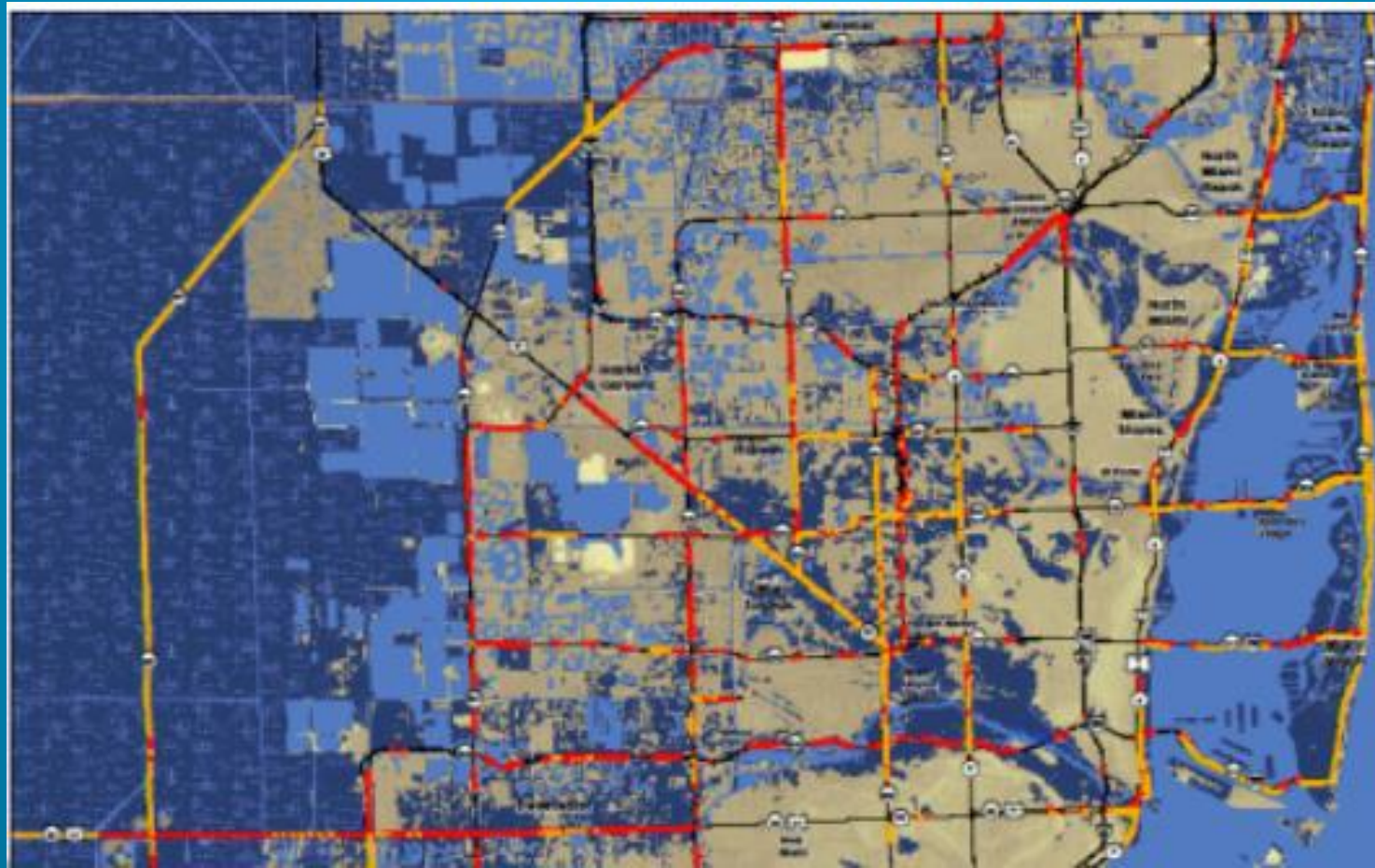
Delaware DOT in collaboration with the Delaware Coastal Program (NREC) has developed a Coastal Inundation Map which is used to identify vulnerable assets



ADDRESSING RESILIENCE IN LRTPS – IDENTIFY ASSET VULNERABILITIES

Florida MPOs Using “Unified Sea-Level Rise” Projections in Identifying Assets that Will Be Prone to Flooding

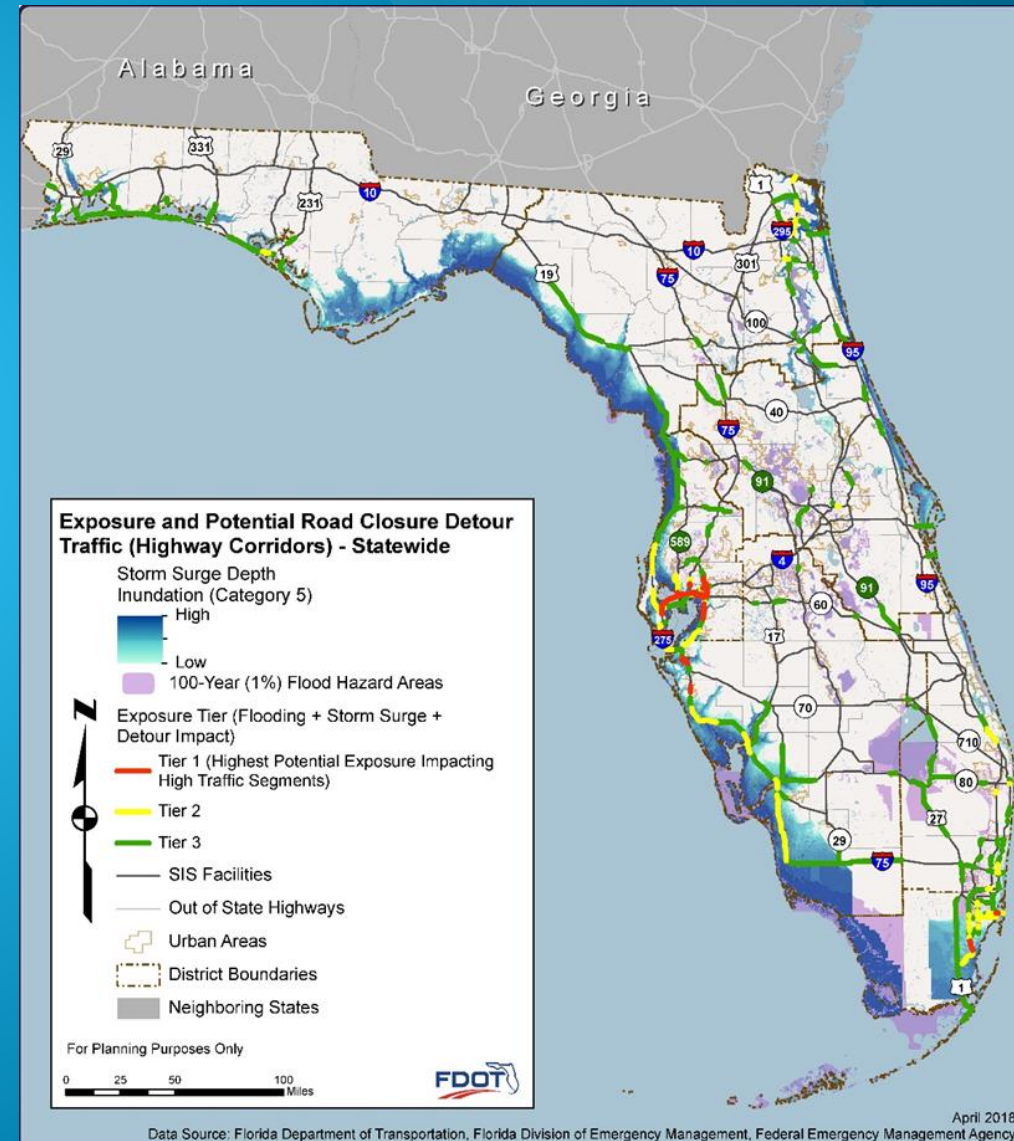
- Hillsborough, Pasco, Pinellas Counties
- Broward MPO, Miami-Dade MPO, Palm Beach MPO, Monroe County



ADDRESSING RESILIENCE IN THE FTP – IDENTIFY ASSET VULNERABILITIES

Florida DOT Vulnerability
Assessment on SIS Facilities

Composite Effects of
Flooding and Storm Survey,
Highway Impacts



ADDRESSING RESILIENCE IN LRTPS – SCREEN PROJECTS TO AVOID, MODIFY INVESTMENTS IN VULNERABLE AREAS

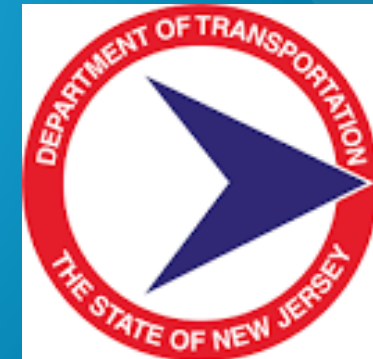
Ohio DOT – Raising roadway profiles to correct drainage and flooding issues...includes earthwork and culvert replacement...(2017 Statewide Transportation Improvement Program)



Vermont DOT – Avoid placing people and infrastructure in vulnerable locations. (Vermont Long Range Transportation Business Plan, 2009)



New Jersey DOT – Raising light rail substations and improving drainage. Install additional stormwater inlets and larger drainage pipes. (New Jersey Statewide Transportation Improvement Program, 2016-2025)



ADDRESSING RESILIENCE IN LRTPS – INCLUDE RESILIENCE CRITERIA FOR EVALUATING PROJECTS



#	Recommendation	Implementation Category				Total	Tier
		Enabler	Impact	Cost	Ease		
1	Develop geospatial data sets to identify vulnerable areas	3	3	1	2	9	1
2	Comprehensive analysis of critical infrastructure	3	3	1	1	8	2
3	Integrate climate resilience into bridge and highway design manuals	3	3	2	1	9	1
4	Build transportation enhancements to accommodate extreme weather impacts	1	1	1	2	5	3
5	Incorporate climate change into infrastructure investments	2	3	3	1	9	1

- “Enabler” – helps other projects happen
- “Impact” – has a larger impact on climate mitigation and adaptation
- “Cost” – estimated financial cost of implementing the action
- “Ease” – amount of interagency coordination required to implement

COMMONALITIES IN STATE DOT RESILIENCE PLANNING

- DOT involvement often begins with a cabinet-level, multi-agency initiative.
- **Most common “Resilience” activities involve:**
 - Vulnerability assessments
 - Development of data resources (geospatial data)
 - Development of design guidelines
 - Outreach and grants to localities to address transportation resilience
- **Resilience and Reliability** are often combined to address the planning requirement.
- Many MPOs have advanced Resilience Planning in their 2045 LRTPs

USDOT – FHWA TRANSPORTATION RESILIENCE



- FHWA Order 5520 – a policy on ... resilience to climate change and extreme weather events.
- *“...FHWA will work to integrate consideration of these risks into its planning, operations, policies and programs...to promote resilience...and safeguard Federal investments...”*
- “Resilience Pilots”
- Develops/Promotes “Tools”
 - Vulnerability assessments
 - Asset sensitivity
 - Climate data processors
- Conducts Research
 - Engineering approaches to climate resilience
 - Nature-based resilience for coastal highways
- Workshops and Peer Exchanges



What single best practice from other States do you think is the important to consider in development of the FTP?

“Adopt an approach to planning for sea level rise.”

“Prioritize rail and transit and not on building roads.”

“Considering vulnerability of an area”

“Make a bold statement about resilience so the department won't be swayed”

“Prioritize the implementation of initiatives”

“Massachusetts created a mode shift for cycling that has a resiliency component”

“Vulnerability analysis of key infrastructure and use that for planning future projects.”

“Invest in making transportation infrastructure more resilient while supporting multimodal transportation and supportive land use delivering multiple viable ways for people to travel.”

Group Discussion



WHAT ARE EFFECTIVE STRATEGIES TO MAKE FLORIDA'S TRANSPORTATION SYSTEM MORE RESILIENT?

- ▮ Effective integration of transportation and water resources/stormwater management planning and implementation, more creative approaches to stormwater management
- ▮ Alternative fuel corridor(s), especially interstates
- ▮ Limit to evacuating by cars, role of transit
- ▮ Make resilience part of the prioritization process along with alternate modes of transportation
- ▮ Coordinate all the various components by engaging stakeholders
- ▮ Provide guidance/direction on investments including coordination across multiple players and plans and supported by effective performance metrics
- ▮ Make sure all projects include a health and resilience/vulnerability assessment
- ▮ Don't build in vulnerable areas
- ▮ Use sea level rise projections when planning bridge approaches.

Wrap up and Next Steps



UPCOMING ACTIVITIES

- ▶ **October 3, 2019, 12-1 pm: FTP Resilience Campaign Kickoff Webinar**
- ▶ **October 29-30, 2019: FTP-SIS Resilience Subcommittee Meeting in Fort Lauderdale**
 - » Optional site visits on morning of October 29th
 - » Meeting: 1-5 pm on October 29th and 8:30 am -12 pm on October 30

Florida Transportation Plan (FTP)



- Summary
- Elements of the FTP
- Long Range Visioning
- Steering Committee
 - ACES Subcommittee*
 - Resilience Subcommittee*
- Campaigns
 - Technology*
 - Resilience*
 - Statewide/Interregional*
 - Regional/Local*
- Collaboration
- Resources
 - Transportation Planning Studies
 - Performance Snapshot

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