#### Roads and Sea Level Rise

presented to



presented by

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# Adaptation Planning



#### Florida Transportation Plan



### **Sketch Planning Tool**



**Local Planning Support** 

#### Florida Transportation Plan





#### Vision Element (August 2015)

Trends, uncertainties, and themes that will shape the future of transportation in Florida (50 years)



#### **Policy Element (December 2015)**

Goals and objectives to guide the Florida Department of Transportation and partners toward the vision (25 years)



#### Implementation Element (2016)

Emphasis areas with key actions (5-25 years)

# Florida Transportation Plan - Goals



Transportation solutions that support Florida's global **Economic Competitiveness** 

Agile, Resilient, and Quality transportation infrastructure

Transportation solutions that support

#### **Quality Places**

to live, learn, work, and play

Efficient and Reliable Mobility for people and freight

Transportation solutions that enhance Florida's Environment and Conserve Energy

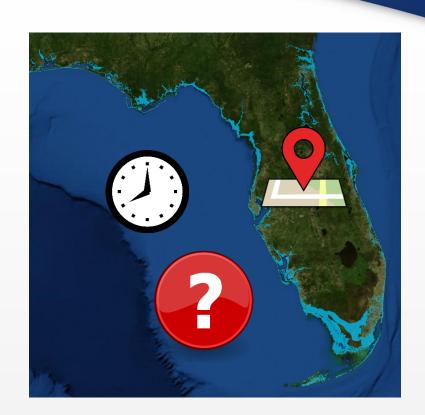
**More Transportation Choices** 

for people and freight



#### **Purpose and Intent**

- » Map where and when sea level rise is projected to occur in Florida
- » Use local tide gauge data to develop regional projections of sea level rise
- Develop a planning-level tool for quick assessment of potential transportation impacts under various SLR scenarios





#### Research

- » Florida Atlantic University
  - Prepared a research report (completed Jan 2012)
  - Included a comprehensive analysis of SLR available approaches
  - Recommendations:
    - Apply U.S. Army Corps of Engineers (USACE) methodology
    - Develop a sketch planning tool





# **Developing the tool**

- University of Florida / GeoPlan Center
  - Multi-phased project to implement the recommendations of the FAU report
    - Phase 1: 2012 2013 (research / feasibility)
    - Phase 2: 2013 –2015 (initial tool development)
    - Phase 3: Ongoing (field testing, enhancement and training)





#### Sketch Planning Tool - Inputs

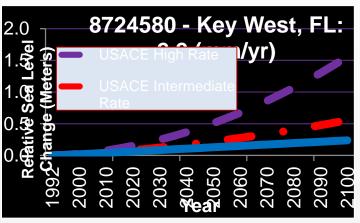
#### Mapping Sea Level Rise

Tide Gauge Data & Sea Level Trends



Local trend data and water levels ——

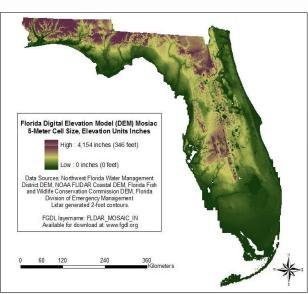
USACE Sea Level Change Projections



Future scenarios of SLR.

How fast will SLR and
when? Use local data
for projections

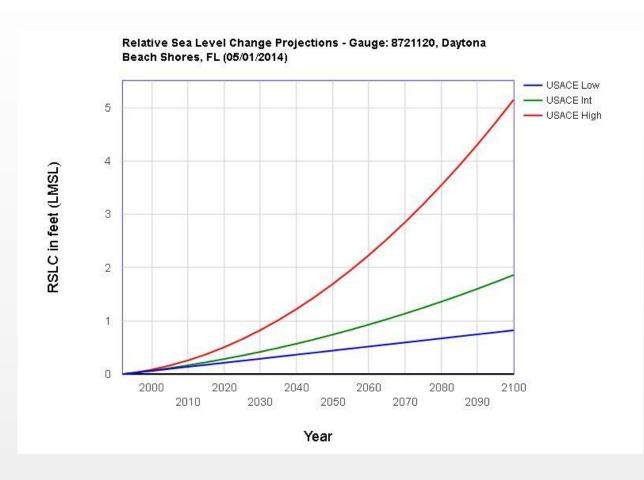
#### **Elevation Data**



High resolution, Lidarbased Digital Elevation Model (DEM)



# **USACE Sea Level Change Projections**





### Sketch Planning Tool - Outputs

# SLR Inundation Data Layers

Inundation with Hydroconnectivity filter

Bathtub Inundation





# Potentially Affected Transportation Infrastructure

- Intersected inundation layers with transportation layers: roadways, rails, rail freight connectors, SIS airports, SIS sea ports
- Focus on State owned facilities
- Outputs: GIS layers identifying potentially at-risk transportation facilities with approximate miles or area affected/inundated





# SEA LEVEL SCENARIO SKETCH PLANNING TOOL

http://sls.geoplan.ufl.edu/



### **Local Planning Support**

- Offering MPO-based training in 2017
- Provides a method for MPOs to meet FAST Act planning requirements, including:
  - <u>Consultation</u> with other planning officials <u>on natural disasters</u>
  - Expanding the scope of <u>planning</u> considerations to include <u>system resiliency</u>
  - » Resiliency includes <u>reducing vulnerability to natural disasters</u>



# **Local Planning Support**

- FDOT is implementing adaptation strategies
  - » Monroe County
  - » A1A
  - » Alton Road in Miami Beach
  - » Miami Beach
  - » Tampa Bay and the Florida Keys



#### Questions?



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