

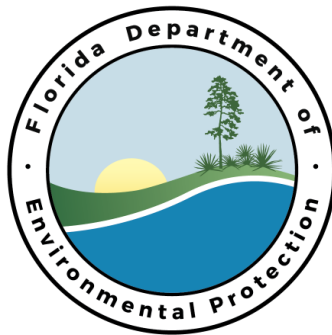
# Preliminary Vulnerability Assessment of Coastal Flooding Threats - Steinhatchee, Taylor County, Florida

North Central Florida Regional Planning Council  
Northeast Florida Regional Council

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In 2011, the Florida Department of Economic Opportunity (DEO) initiated a five-year project to integrate sea level rise (SLR) adaptation into planning, including the local comprehensive plan, hazard mitigation plan, and post-disaster redevelopment plan<sup>1</sup>. The initiative is supporting this project of special merit in piloting adaptation planning guidance in coastal communities as well as compiling lessons learned and conducting information dissemination and outreach. Through funding from the National Oceanographic and Atmospheric Administration (NOAA) and the Florida Department of Environmental Protection (DEP), DEO is working with the South Florida Regional Planning Council (SFRPC) and Florida's nine other Regional Planning Councils to create resources including regional Vulnerability Assessments and a series of trainings.



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<sup>1</sup> For more information on DEO's resources for Adaptation Planning, please visit <http://www.floridajobs.org/adaptationplanning>

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# Background

This project promotes the translation of science to policy and risk preparedness in Florida communities by increasing understanding of, access to, and utilization of a range of existing tools. Projected sea level rise impacts are another threat contributing to the vulnerability of Florida's at-risk coastal resources.

The tools available for estimating coastal flooding due to sea level rise can be used now to assist counties with their Community Rating Systems to reduce the costs of flood insurance to its residents. Taylor County was selected as the initial vulnerability study area.

Much of the information presented in this summary has been copied from online resources for the various tools. This provides a source of additional information and a path to additional capabilities for the tool set.

# Project Overview

Projected sea level rise impacts threaten to exacerbate the vulnerability of Florida's at-risk coastal resources. Adapting to and mitigating sea level rise impacts will require that it be incorporated into all levels of hazard mitigation and land use planning in Florida.

The Florida Department of Economic Opportunity (DEO), in partnership with the South Florida Regional Planning Council, University of Florida, and NOAA Office for Coastal Management will undertake a Training of Trainers intervention that will increase local capacity to project, assess, and respond to sea-level rise throughout the ten regional planning councils of the state. The following have been considered in the development of this preliminary assessment:

- A narrative of assets that have been selected for assessment;
- Maps showing asset locations;
- Maps detailing sea level rise and other coastal flooding (e.g. storm surge zones) and vulnerable assets within those areas;
- Tabular summaries of vulnerable assets;
- A narrative of impacts featuring counts and descriptive statistics, such as a count of affected assets, acreage of affected lands, and any other impact information Contractor deems appropriate or that is requested by DEO;
- An explanation for inclusion of other content and omissions of any of the above features.

# Project Study Area

The preliminary vulnerability Analysis covers the coastal community of Steinhatchee in southern Taylor County. The Steinhatchee River flows past the community and into the Gulf of Mexico. Due to its location on the Florida peninsula and the shallow Gulf water, Taylor County has one of the largest potential storm surge height in Florida at over thirty feet.

## Project Goals

1. Ensure that regional planners (i.e., regional planning councils) have the capacity to inform and lead their constituents in coastal adaptation.
2. Catalyze the understanding and context-appropriate use of coastal flooding assessment tools among Florida communities.
3. Provide local governments training to use the coastal flooding tools to gain additional points in the Community Rating System to reduce the rates that residents pay for flood insurance.

## Available Tools

- **FDOT/UF's Geoplan Sketch Planning Tool** – A free visualizer *and* modelling software package intended to promote stakeholder engagement, scoping/inventory, assessment/analysis, and planning, the Geoplan Sketch Planning Tool offers a variety of sea-level rise analyses related to transportation.
- **NOAA's Digital Coast: Sea Level Rise Viewer and Coastal Flood Exposure Mapper**– A free visualizer which can facilitate stakeholder engagement, scoping and inventory, and assessment and analysis, SLR Viewer offers an online interactive platform in map format to display a variety of sea-level rise scenarios.
- **NOAA's CanVis** – A free visualizer which is intended to elicit higher levels of stakeholder engagement, CanVis utilizes no data and modifies imagery to show potential inundation scenes.

## **Using FDOT/UF's Geoplan Sketch Planning Tool**

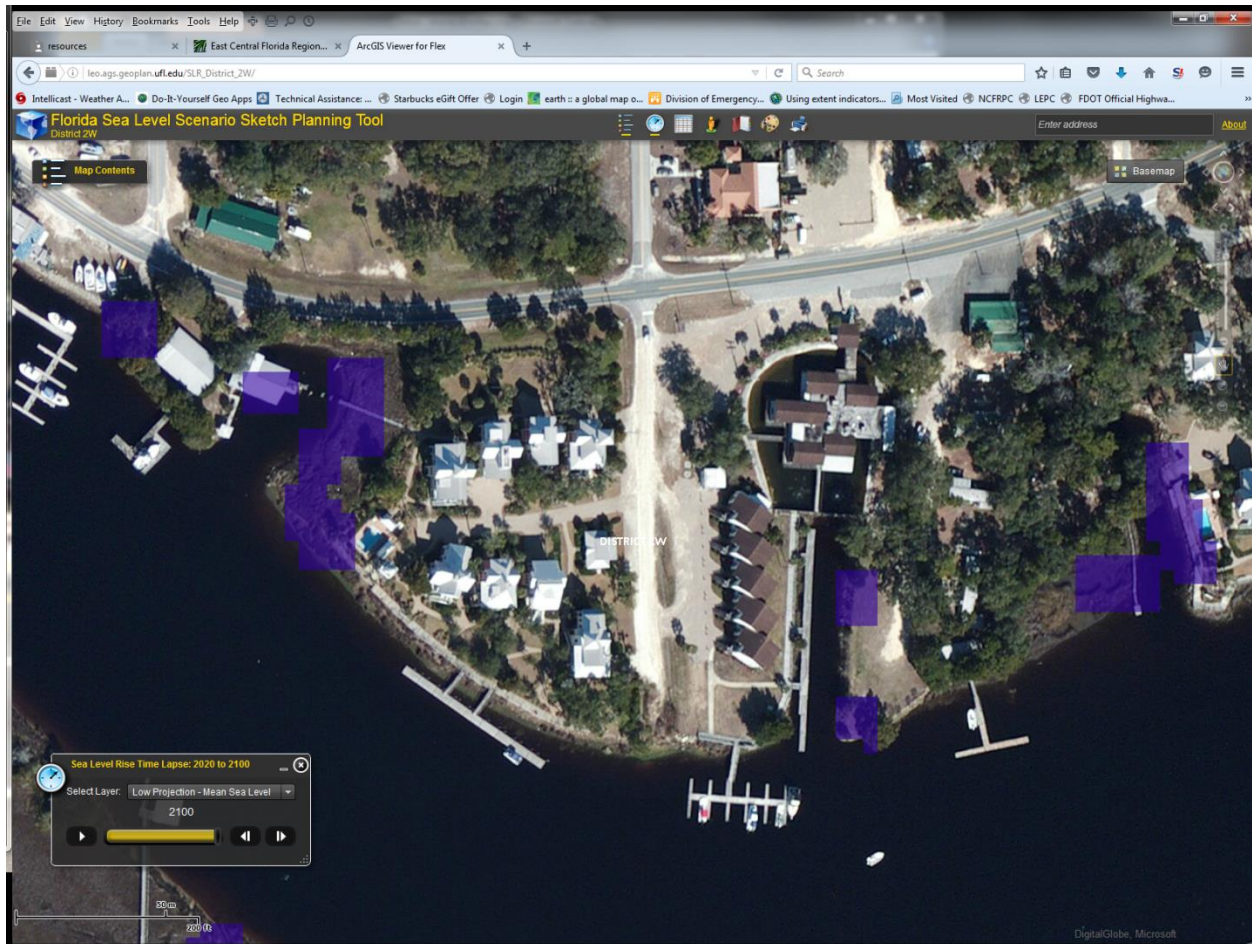
Sea Level Scenario Sketch Planning Tool Map Viewer visualizes various sea level scenarios at future time periods (2040, 2060, 2080, and 2100) in an effort to inform transportation planners and highlight infrastructure for potential avoidance, minimization, or mitigation. Users can view areas of projected inundation and potentially affected infrastructure.

The inundation layers (called "inundation surfaces") were generated using three rates of SLR from the U.S. Army Corp of Engineers (USACE) sea level change methods: Low (Historic rate), Medium (Intermediate Curve), and High (High curve) and Florida tide gauge data from the National Oceanic and Atmospheric Administration (NOAA). Projected inundation was mapped at five tidal datums, but only two are displayed in the map viewer: Mean Higher High Water (MHHW) and Mean Sea Level (MSL).

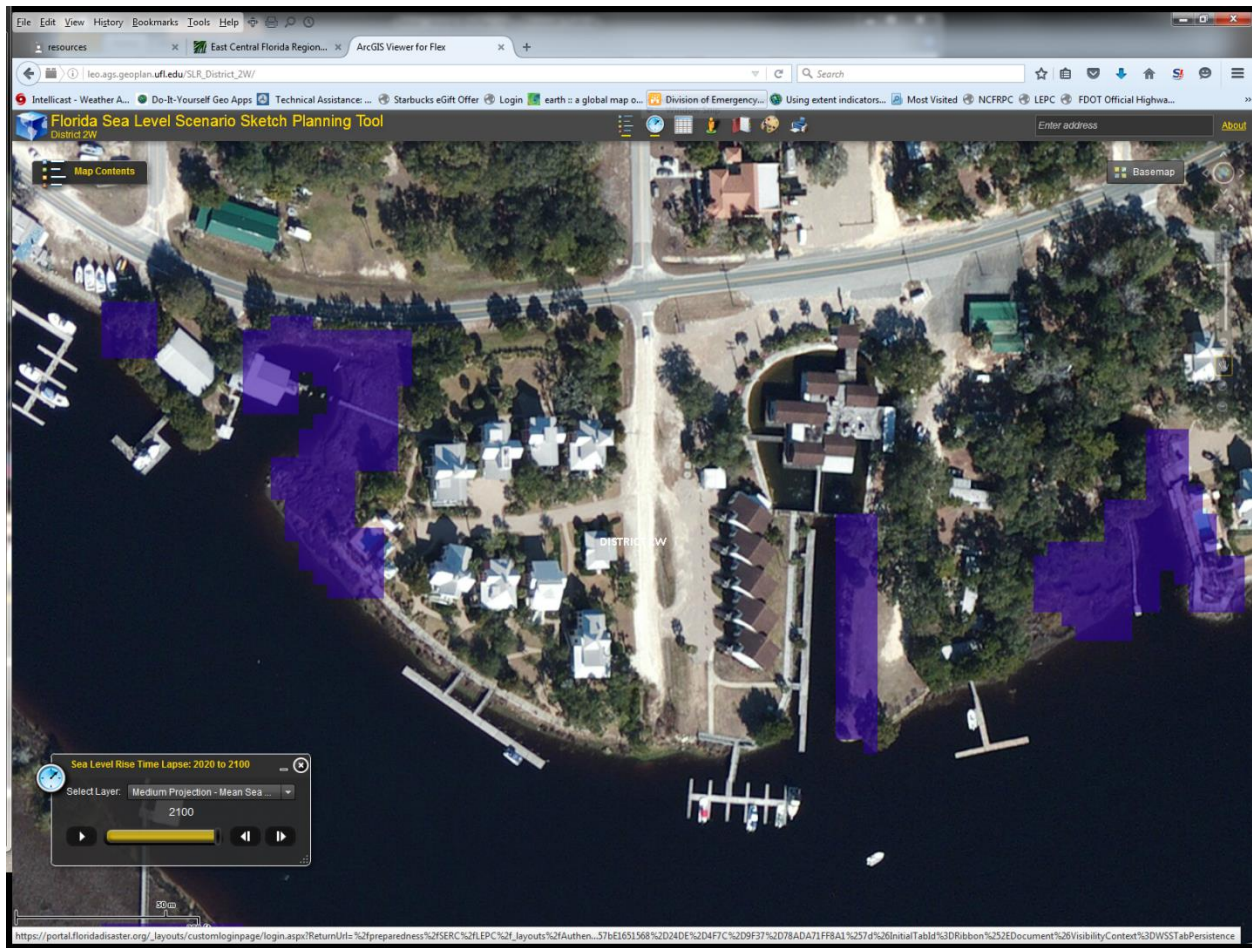
The following illustrations show the 2100 projected coastal flooding for the US Army Corp of Engineers projections for low, medium, and high estimates. The area is in Steinhatchee, Taylor County near Fiddlers Restaurant.

# Illustration 1

## Potential Coastal Flooding Impacts in 2100 for a Low Rate of Sea Level Rise

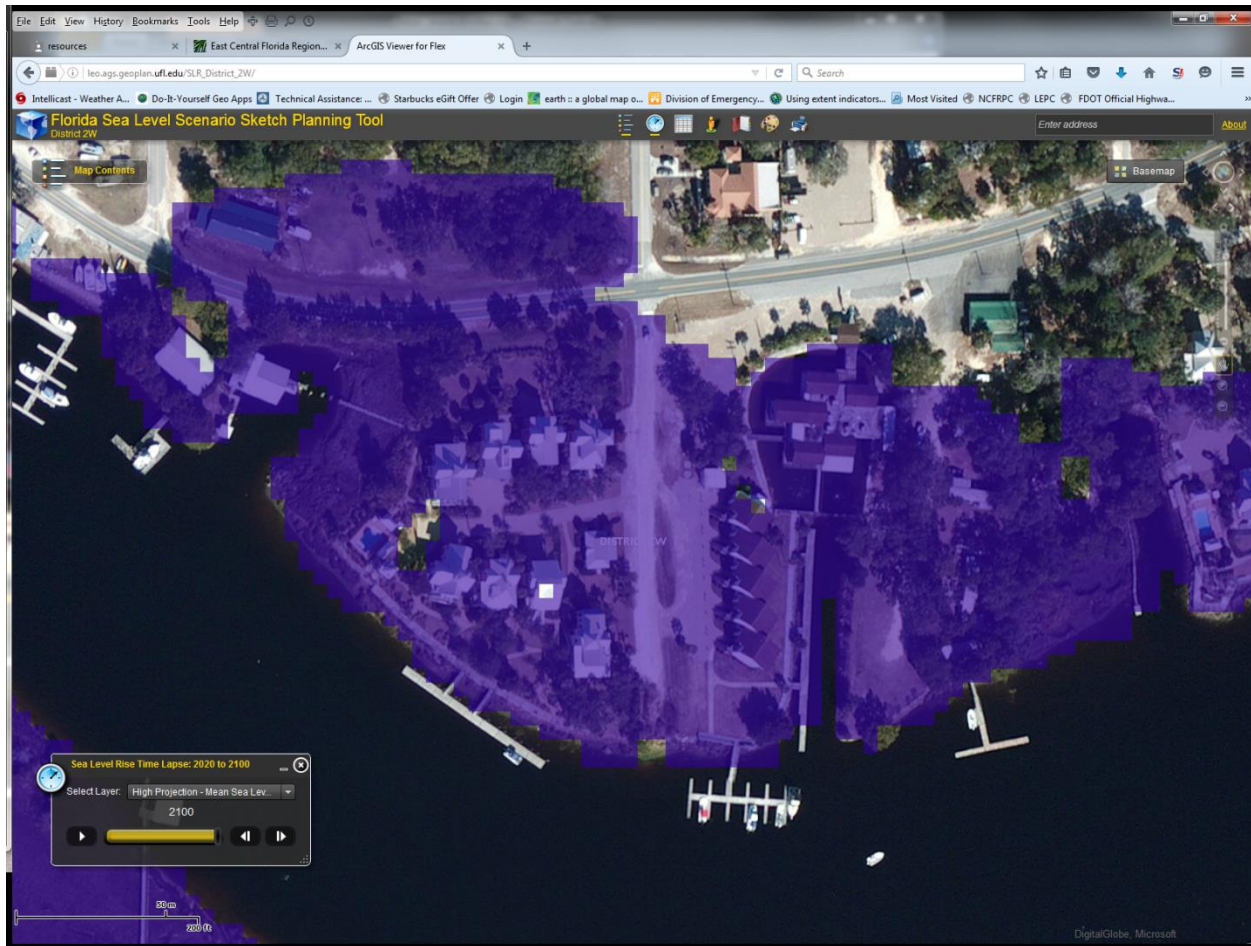


## Illustration 2 Potential Coastal Flooding Impacts in 2100 for a Medium Rate of Sea Level Rise

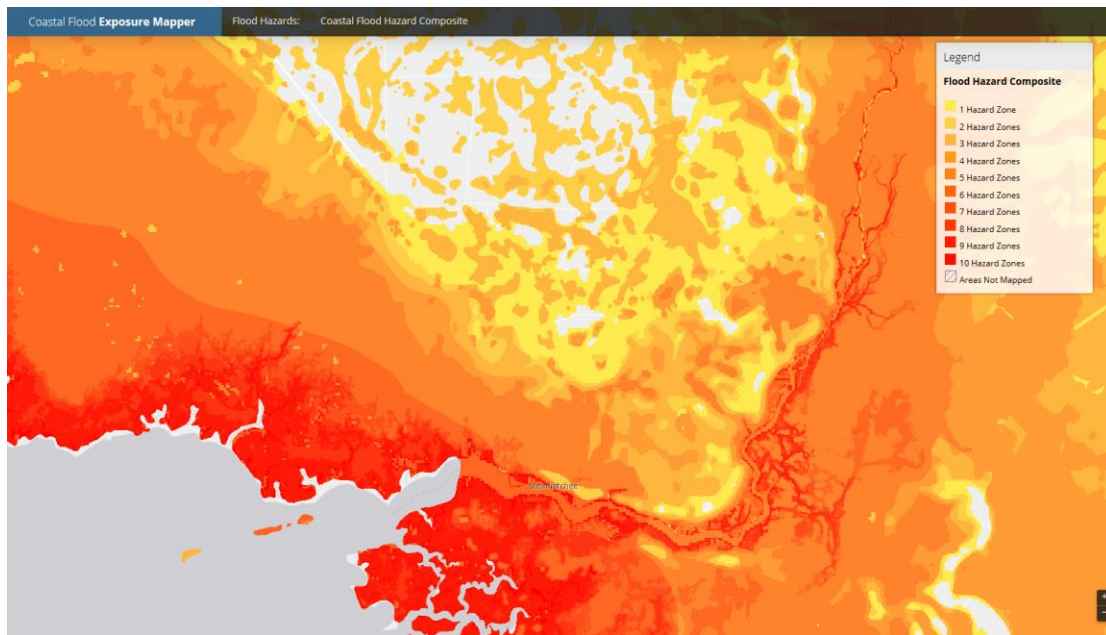




### Illustration 3 Potential Coastal Flooding Impacts in 2100 for a High Rate of Sea Level Rise

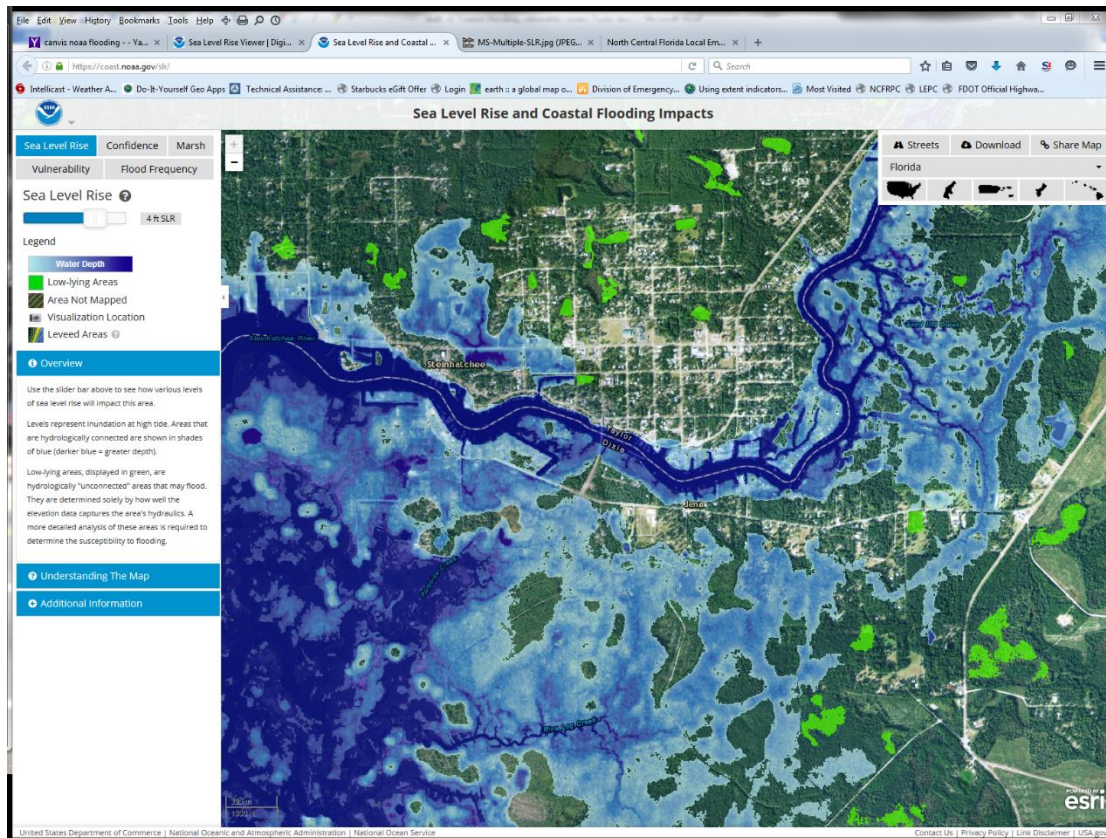


## Illustration 4 Using NOAA's Digital Coast: Sea Level Rise Viewer and Coastal Flood Exposure Mapper



Name	Description
Coastal Flood Hazard Composite	Spatial extents of multiple flood hazard data sets combined. Flood hazard data sets include shallow coastal flooding, Federal Emergency Management Agency (FEMA) flood data (V zones, A zones, and 500-year zones treated as individual layers), storm surge for Category 3 hurricane (from FEMA Hurricane Evacuation Studies), and sea level rise of three feet above mean high tide.

## Illustration 5 Sea Level Rise Inundation from Zero to Six Feet



Sea Level Rise

Sea level rise inundation scenarios ranging from zero to six feet above mean higher high water (MHHW). Derived from data created for the Sea Level Rise and Coastal Flooding Impacts Viewer.

### Expanding Digital Coast Support for FEMA's Community Rating System

The Community Rating System within the Federal Emergency Management Agency's National Flood

Insurance Program provides credits for communities that take steps to lessen flooding and flood impacts. Obtaining these credits can result in reduced flood insurance premiums for community residents. NOAA encourages communities to take advantage of this program and offers a wide array of helpful resources through its online platform, the Digital Coast. This website hosts over 1,200 data layers, 60 tools, and 20 trainings.

Communities can use some Digital Coast products in their quest to improve their Community Rating



**Table 2  
Tabular Data of Property in 100-Year Flood Plain**

<b>Use</b>	<b>Flood</b>	<b># of Parcels</b>	<b># of Bldgs</b>	<b># of Res Units</b>	<b>\$ Just Value</b>
Agricultural Property	100	2,390	695	664	\$536,823,096
Commercial Property	100	118	179	44	\$46,012,607
Government Property	100	697	144	24	\$165,446,474
Industrial Property	100	25	87	3	\$14,058,122
Institutional Property	100	67	84	14	\$21,458,838
Miscellaneous Property	100	72	24	0	\$9,130,516
Mobile Home	100	1,349	1,504	1,478	\$63,358,260
Multi-family Residential	100	104	71	193	\$14,367,909
Non-Agricultural Acreage Property	100	318	0	0	\$19,697,440
Single Family Residential	100	2,361	2,556	2,533	\$247,867,215
Vacant Commercial	100	10	0	0	\$942,000
Vacant Residential	100	3,002	2	48	\$61,336,060

**Project Staff:**

Dwayne Mundy  
Public Safety and Regulatory Compliance Program Director  
North Central Florida Regional Planning Council  
2009 NW 67th Place, Gainesville, FL 32653-1603  
Voice: 352.955.2200, ext. 108  
Fax: 352.955.2209  
www.ncflepc.org

Beth Payne, AICP  
Emergency Preparedness Director, NEFRC  
Staff to the Northeast Florida Healthcare Coalition  
Office 904.279.0880  
Cell 904.233.0423

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