



**NORTHEAST FLORIDA
REGIONAL COUNCIL**

Regional Survey on Resilience: Duval County Results

City of Jacksonville, Neighborhoods & Community Engagement Subcommittee

Sean Lahav, MPA | Resiliency Coordinator



NORTHEAST FLORIDA
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Bringing Communities Together Since 1977

Proudly Serving Baker, Clay, Duval, Flagler, Nassau, Putnam and St. Johns Counties

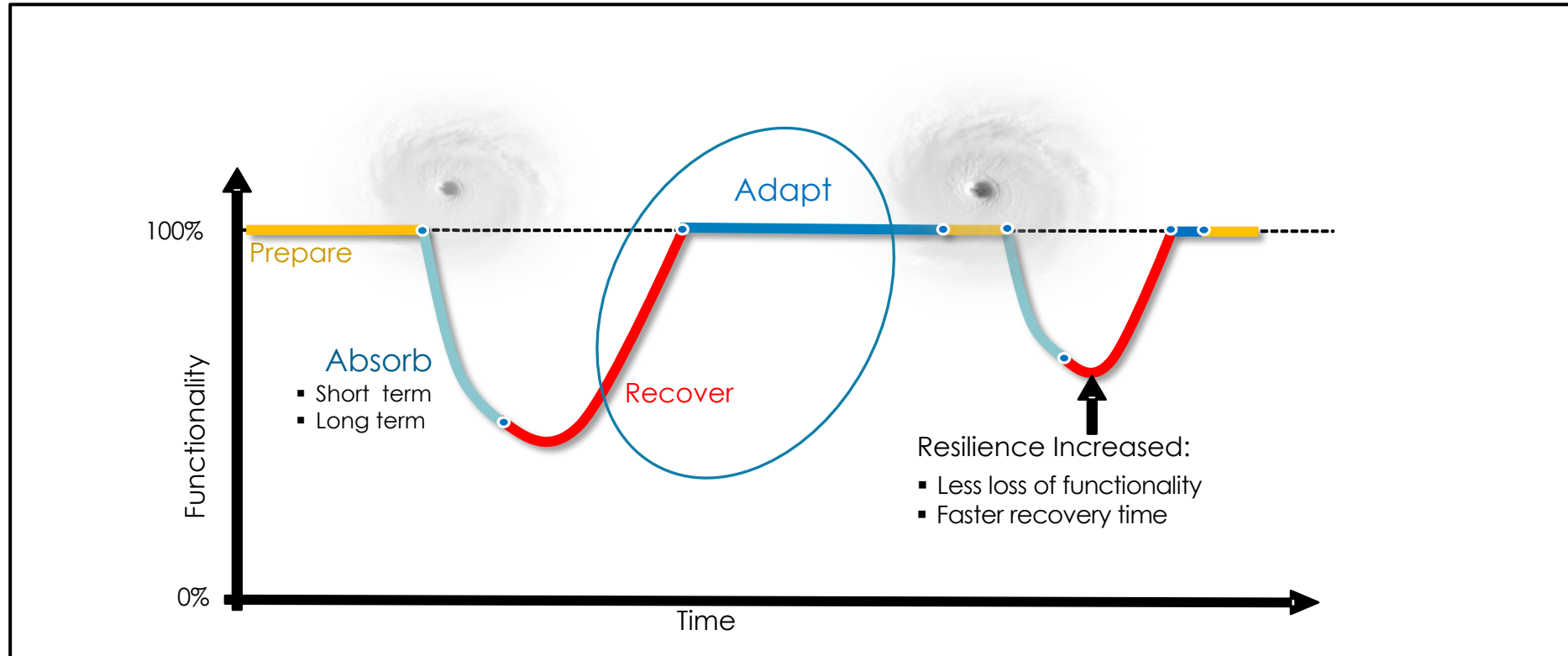
Who We Are

The Northeast Florida Regional Council (NEFRC) is one of ten regional planning councils in the State of Florida. Regional District 4 was formed in 1977 by an interlocal agreement, pursuant to Chapter 361 of Florida Statutes.

[Learn More](#)



Defining Resilience

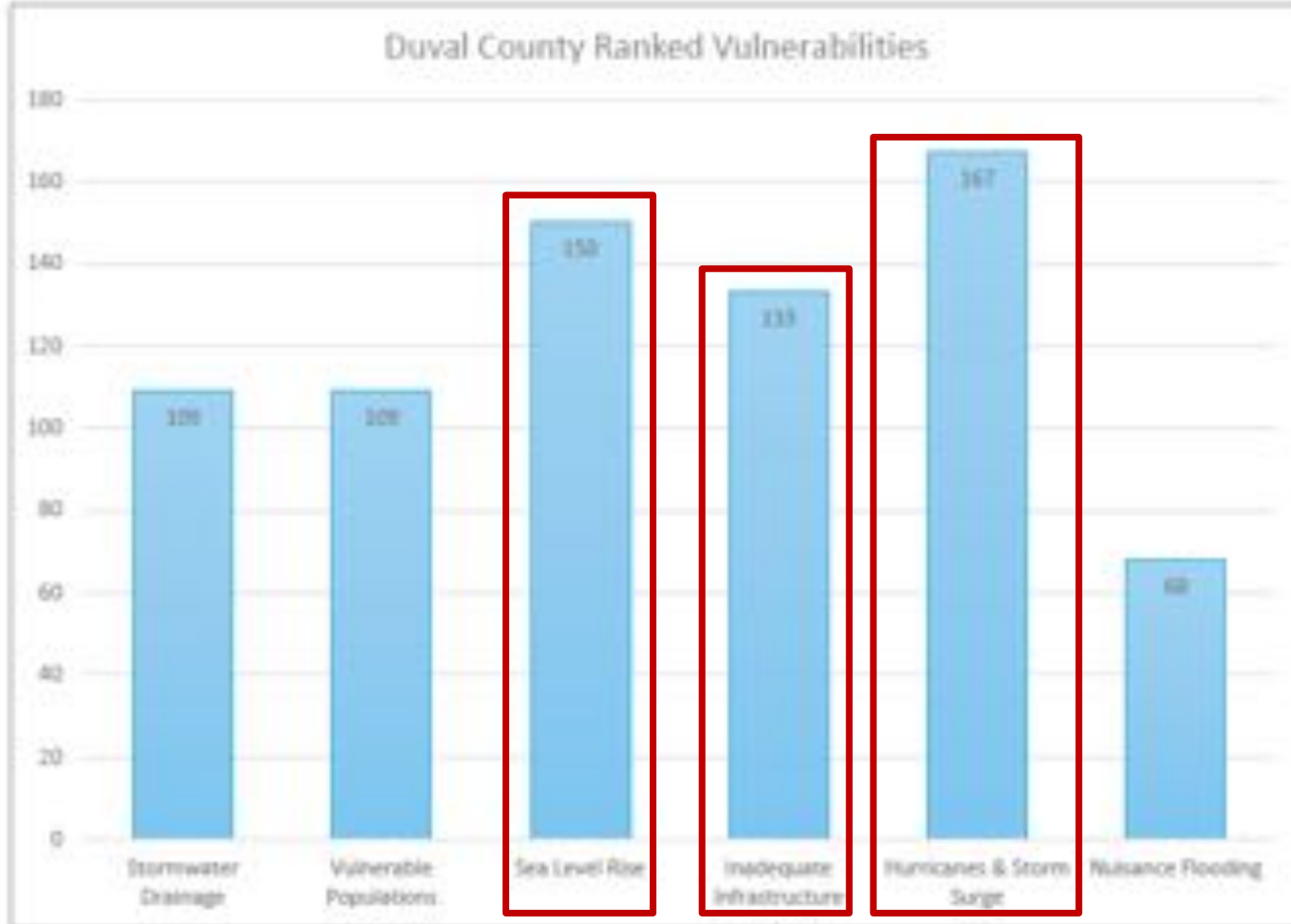


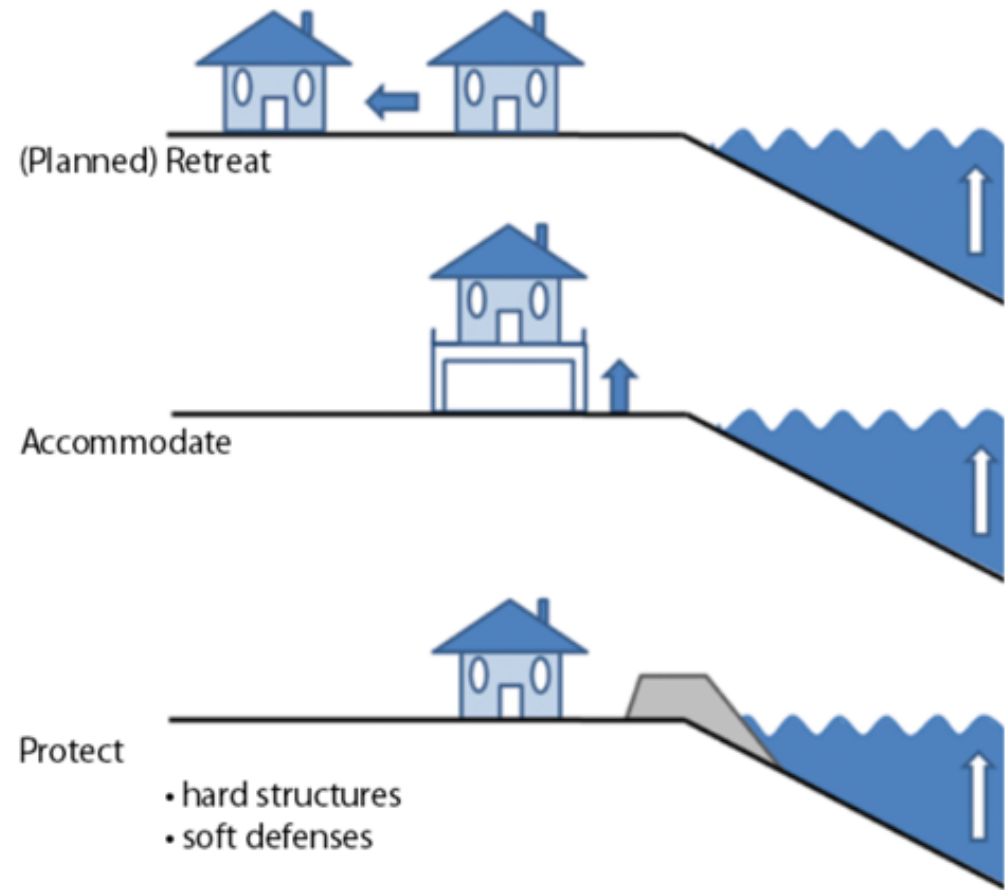
Source: U.S. Army Corps of Engineers, North Atlantic Division

Stresses & Shocks



Duval County Ranked Vulnerabilities





- hard structures
- soft defenses

Generic adaptation approaches for sea level rise. After IPCC CZMS (1990)

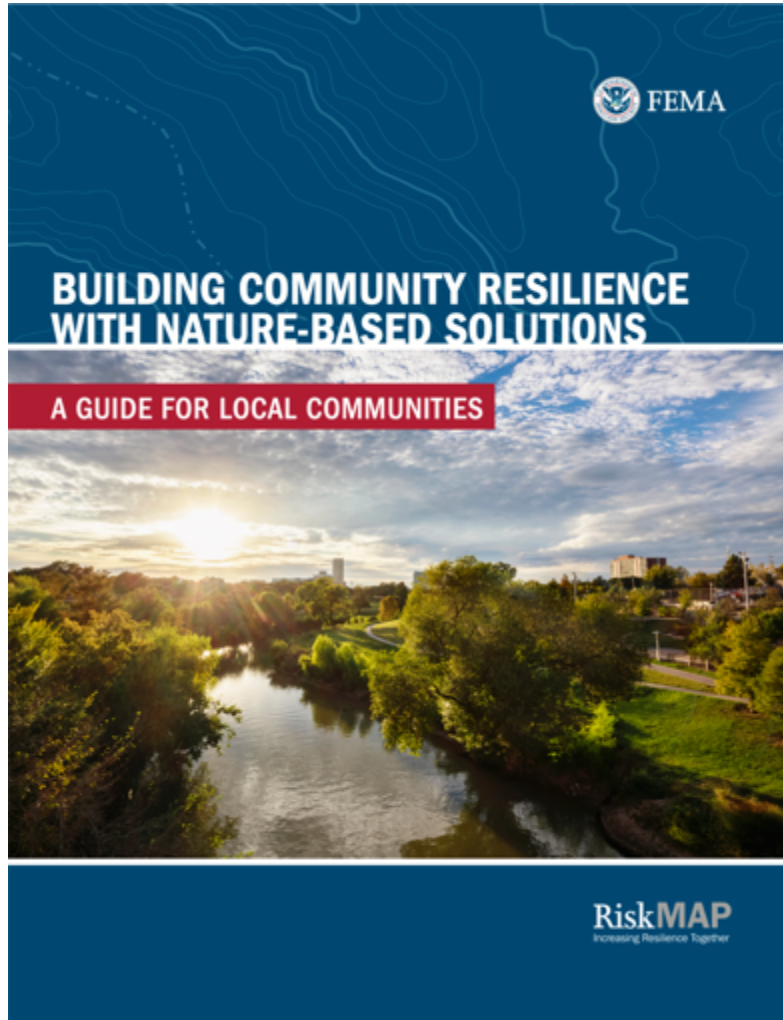
Protect: Adapting Sea Walls



Protect: Stormwater Valves



Accommodate: Living Shorelines



The River Issue



TAPPING THE POTENTIAL OF THE ST. JOHNS RIVER
A RIVER RUNS THROUGH US
P18



POST-PANDEMIC OUR DOWNTOWN HAS OVERCOME ADVERSITY BEFORE
P56

GATHERING PLACE HOW TULSA TURNED ITS RIVERFRONT INTO A WORLD-CLASS PARK
P74

EXPIRED PARKING WHEN WILL WE EVER PUT OUR PARKING QUANDARY TO REST?
P90

SUMMER 2020



Police officers drive through flood water on Hendricks Avenue in San Marco as Hurricane Irma passed Downtown in 2017 leaving flooded neighborhoods in her wake.

W

ITH ALL OF ITS WATERWAYS, Jacksonville is uniquely vulnerable to the impacts of floods. Much of Downtown was hit hard by Hurricane Irma, swamping waterfront businesses. So how should future development cope with these threats? What can existing businesses do? The impact on Florida's homes and businesses is huge. A report from the McKinsey consulting group showed that Florida homes at risk

of flooding could lose 11 percent of their value in the next 10 years. By 2050, the loss could be 33 percent. The CEO of the financial asset firm BlackRock said this impact on property values will be greater than the 2008 financial crisis, the 30-year flood insurance. There are really only a few options. Existing businesses can either accept occasional floods, remodel or leave. But new construction can move back from the waterfront or build in ways that can cope with occasional rising waters. For instance, the mixed-use proposed for the former city hall and courthouse site would not include living units on the first two floors, but those first two floors would be built with concrete in order to better bounce back from flood waters. But the ideal way to adjust to floods involves Mother Nature. New laws that prove that using natural mitigation strategies is more

economical than using the more instruments of bulldozers. This was brought to light several months ago during a session sponsored by the Northeast Florida Regional Council. It was titled "Nature-Based Solutions for Coastal Flooding." The regional council has been quietly working on businesslike risk management strategies for flooding issues for several years. It offers free readiness services to groups in Duval, St. Johns, Baker, Nassau, Putnam and Flagler counties. Present at the session were members of environmental nonprofit, members of the mayor's administration and City Council members Stan Carls and Michael Boyles. Stan Carls of the Northeast Florida Regional Council spoke about a mapping tool to determine resilience. The web address: bulldozercommunityresilience.com/northeastflorida. When using nature isn't available to cope with floods, there are

physical installations that mimic nature. You can't put wetlands Downtown but we can use permeable pavement and plant more trees. Permeable pavement can reduce stormwater runoff by up to 80 percent and remove almost all sediment, metals and pollutants. Green roofs can reduce water energy by up to 93 percent. In fact, two green roofs were established off San Marco. "By placing material like concrete rubble, recycled curbs and even man-made structures in the street, we can provide increased surface area for food to grow, juvenile fish to hide and marine life to increase," says Quincey White, the Jacksonville University vice rector. These concrete structures allow barnacles to live, then system and finally seaweed. We're now finding out that trees soak up water. Rainfall can be used as an asset rather than being piped back to the river.

Plants that are in the state of a massive project remain stormwater rather than runoff into waterways. The Green City Clean Waters program is a 25-year, \$1.1 billion project, reported The Washington Post. Stormwater is diverted into rain barrels in homes, in rain gardens in parks, in modular tree structures in sidewalks. Some owners are given breaks on their stormwater fees if they install permeable pavement in their driveways that allows rainwater to soak into the ground. Recent studies in New York City and Toronto have documented the energy savings of green roofs. New York City is planting thousands of trees, installing bioswales and stormwater planters, mapping programs along way. The average driveway in Florida has water up about 100 gallons a day. Palm trees produce almost as much biomass as their surviving high winds for every \$1 spent on these natural alternatives to north-\$1 in lawns. Steve Michael (Bloomberg) committed to planting 1 million trees. New York City also is building over 1,000 bioswales, which are long into pits designed to absorb excess runoff. Cities are adding parks along waterfronts that can bounce back from flooding. Using shorelines won't stop floods, but would require seawalls, but they can reduce water damage. There are co-benefits to waterfront parks that can be politically helpful by addressing recreation, increased property values for nearby properties, improved aesthetics, improved water storage and more habitat. That is why these strategies are an asset and a win-win, and must be adopted as conditions change. For instance, natural areas can be protected, rain gardens can be used, natural landscaping can cope with both drought and floods. All of this pays off. The Nature Conservancy estimated that wetlands reduced the property damage of Hurricane Sandy by over \$225 million.

This isn't new. For instance, the Police Memorial Building, designed by architect Robert Morgan, included a park on the roof. That was used for energy efficiency. Stan Hubson, director of strategic conservation for the North Florida Land Trust, identified the stream as investment at the "Nature-Based Solutions for Coastal Flooding" session.

The land trust acquires land as conservation easements, preservation benefits, agricultural easements. There are about a dozen land trusts in Florida, over 1,000 in the nation. This is the 20th anniversary of the North Florida Land Trust with 20,000 acres preserved. It's also a land manager. Hubson's job is to identify land that needs to be preserved, acquire it and try to find the money. In order to conserve wetlands and the government to provide the money, Hubson needs to show a good return on investment. He looked at seven counties in Northeast Florida. Where do you focus limited resources? With mapping software, he looked at habitat, water quality, farms and forest preservation and recreation. By layering maps on each of those indicators, the areas with the most potential conservation benefits were identified. In Duval County, two such areas are Black Hammock Island on the Northside and the Ortega River.

A good return on investment can be found for even the most expensive property. For instance, acquiring property in Ponte Vedra Beach to protect the Osprey River area paid for itself in less than five years. That's good but other investments are shockingly better. For instance, acquiring property near Black Hammock Island has less than an eight month ROI. The wetlands there provide water filtration and buffering for storm surge. Another project of the land trust is to purchase overstocked pine plantations and convert them to more environmentally friendly uses. Planting pine plantations might look good for business, but they soak up more water, interrupting it before it can reach the aquifer. Buying pine plantations and reducing the number of trees in the right places creates great wildlife habitat, more wildlife brain streams and better protection from grass and fires. There are more environmental options in cities than many realize. Permeable pavement can reduce runoff. Planting more trees improves shade and water retention. Even parking lots can be improved with stormwater planters and green roofs. Green roofs offer protection from water damage. Hybrid shorelines combine hard infrastructure like a breakwater with marsh grasses behind it. There is so much waterfront property available for Downtown, it is essential that it be constructed for maximum flood protection. At the same time, the waterfront ought to be protected for maximum

There is so much riverfront property available for Downtown, it is essential that it be constructed for maximum flood protection.

public enjoyment. This block garden awaits for smart development. We have the strategies if we only follow Mother Nature. Turning Downtown green will be good for the environment and good for the bottom line. **MIKE CLARK** has been a reporter and editor at the Jacksonville Daily newspaper since 1975. He and his wife Polly live in Fleming.

Cascades Park in Tallahassee, Florida



Strategic Relocation: Moving Property



Strategic Relocation: Buyout Programs

City plans to return South Shores area to natural floodplain

FEMA gives Jacksonville \$3.4M grant to buy 17 homes, tear them down

By Jim Piggott - Reporter

Posted: 2:52 PM, February 15, 2019

Updated: 6:12 PM, February 15, 2019



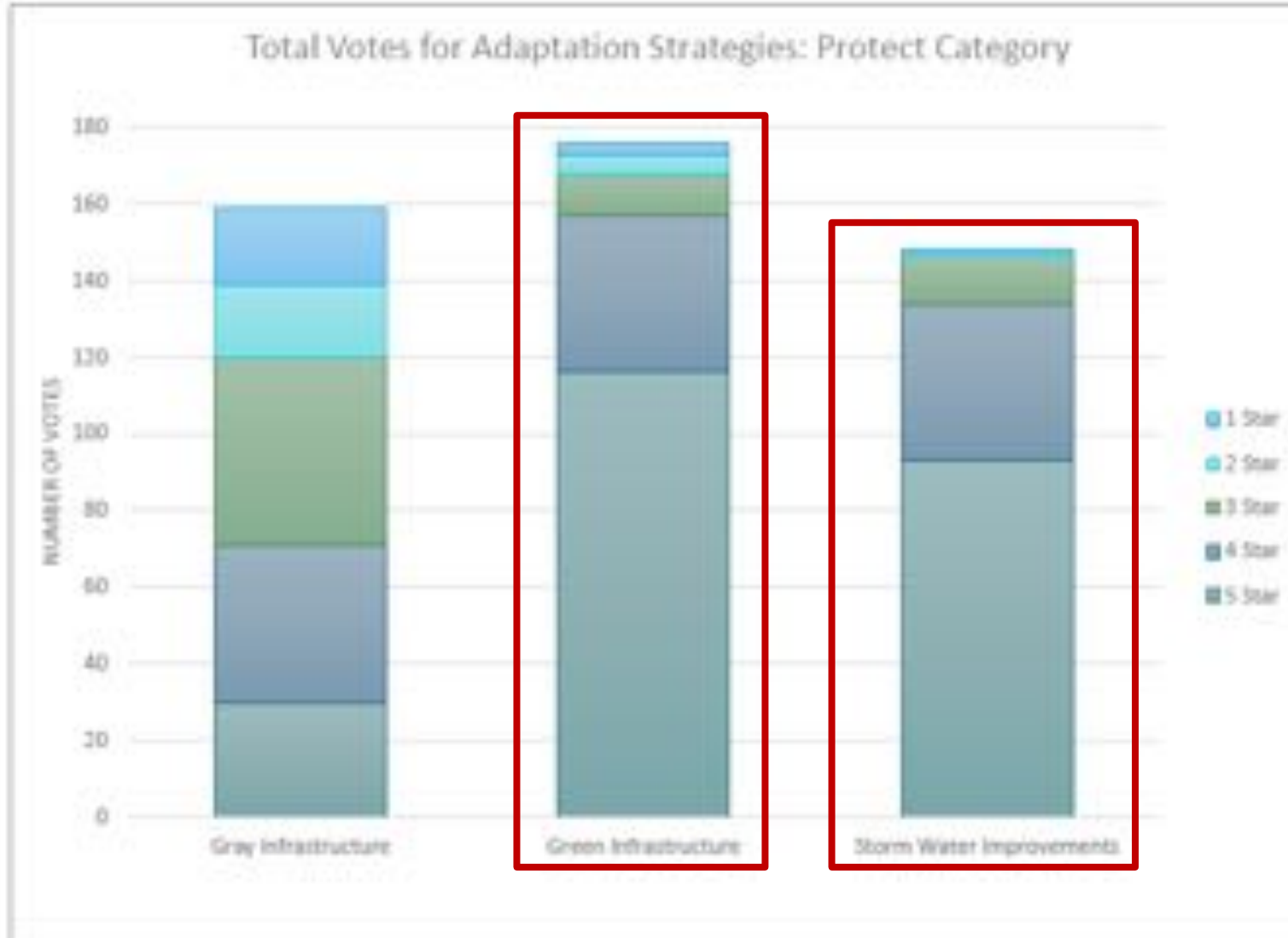
Avoidance: Restricting Development

The Virginian-Pilot
PilotOnline.com

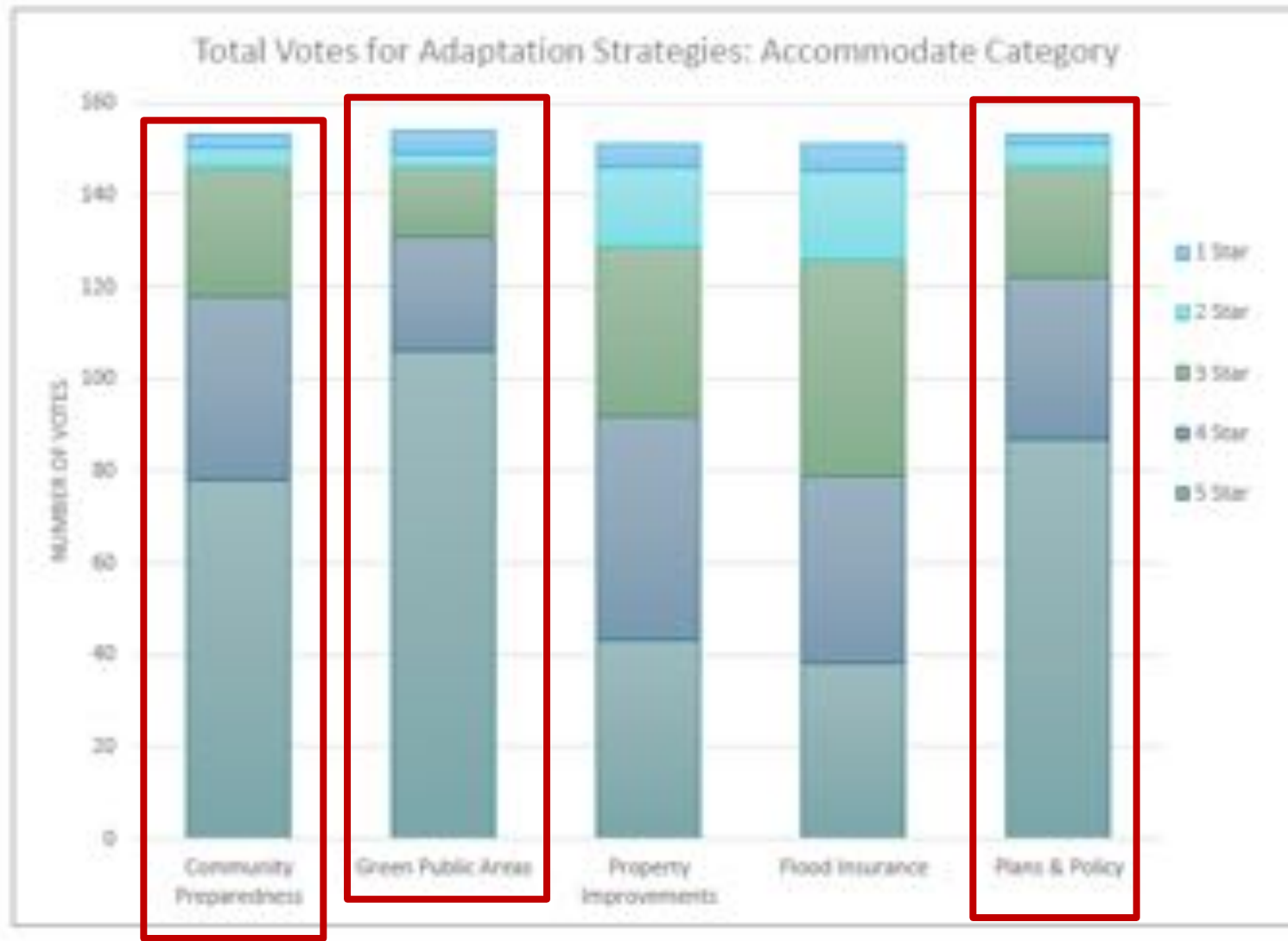
Judge rules Virginia Beach council can factor in sea level rise when deciding on new developments



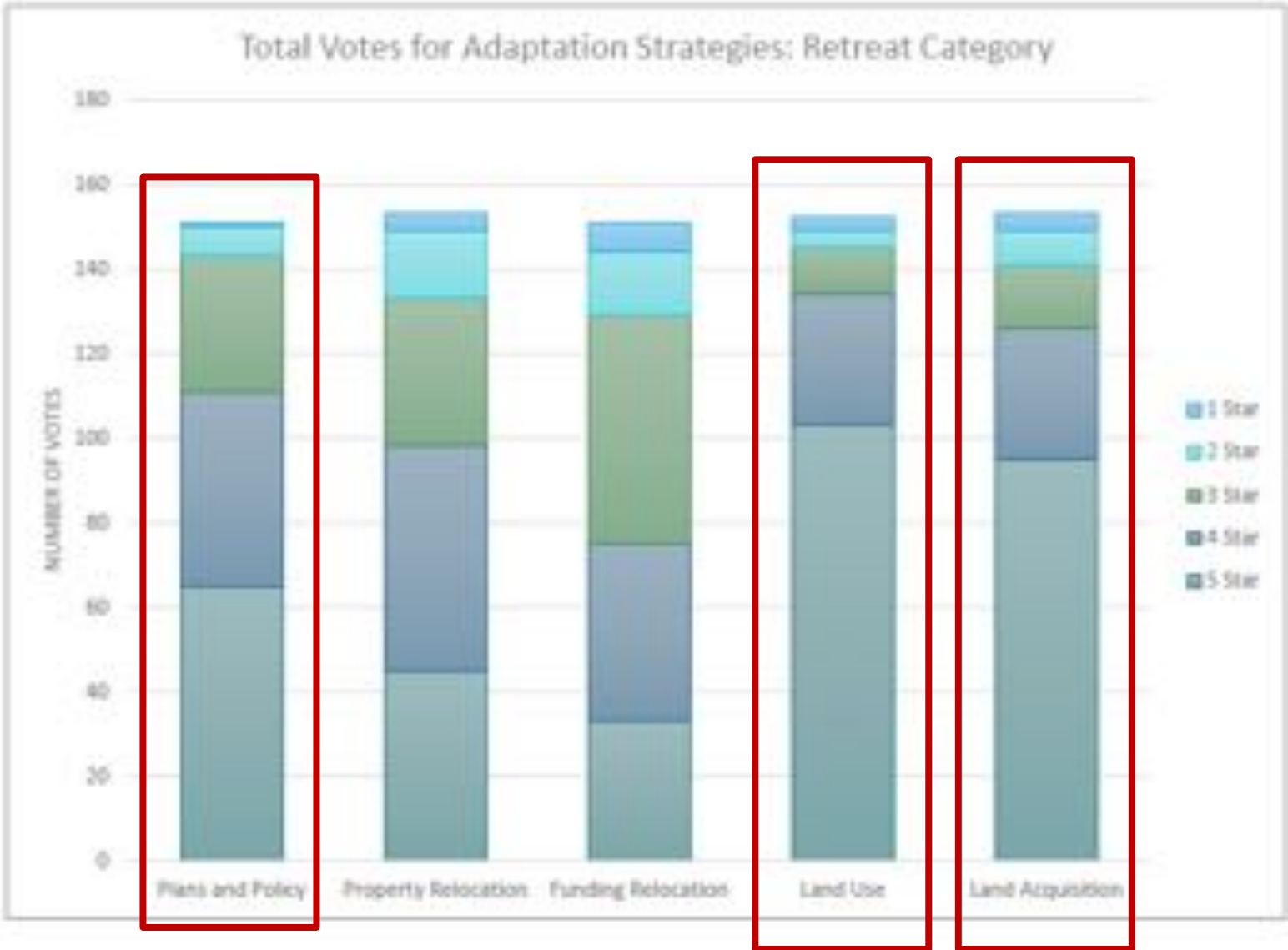
Protection – strategies focused on efforts that would protect an area from erosion, wave damage, and tidal & storm surge flooding.



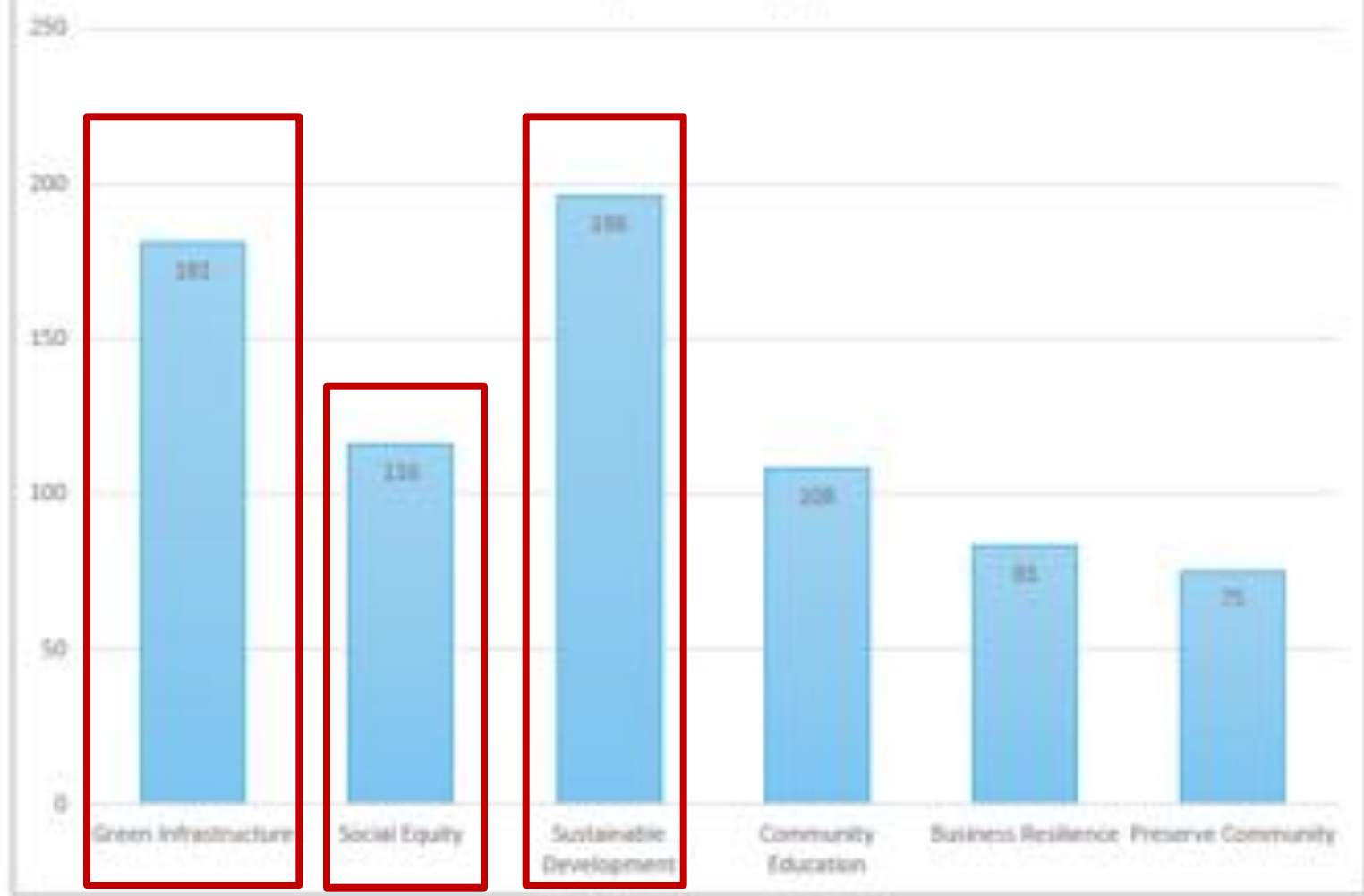
Accommodate – strategies focused on ways an area could allow flooding to occur while minimizing the impacts of flooding to residents.

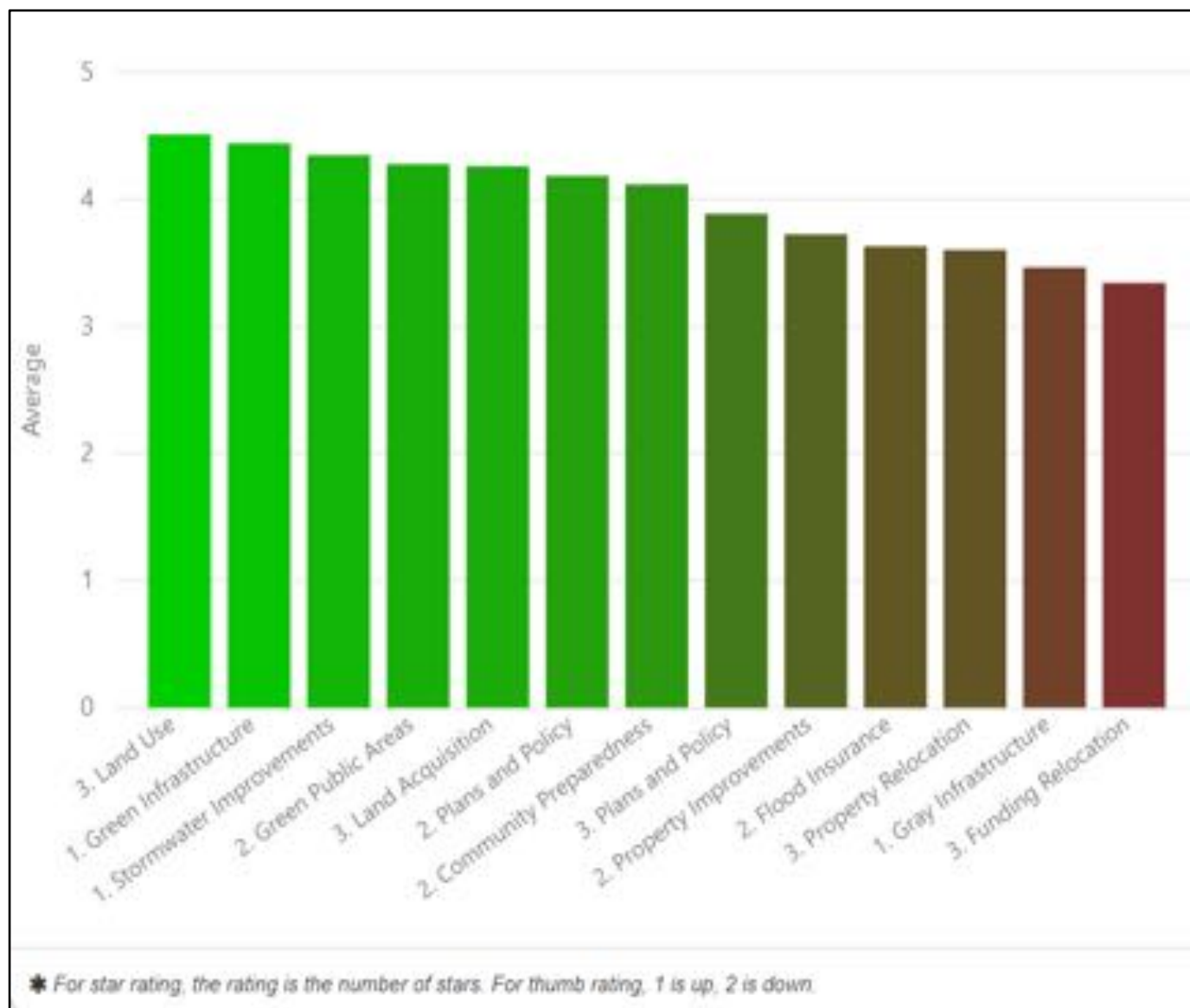


Retreat – allows for land area to be flooded while removing citizens from those areas.

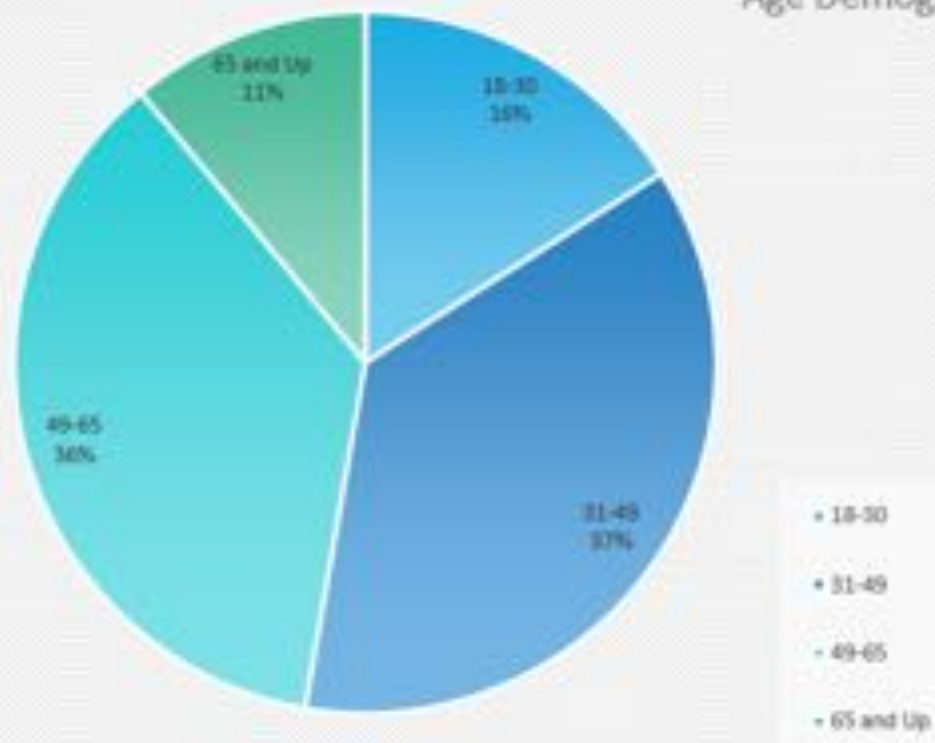


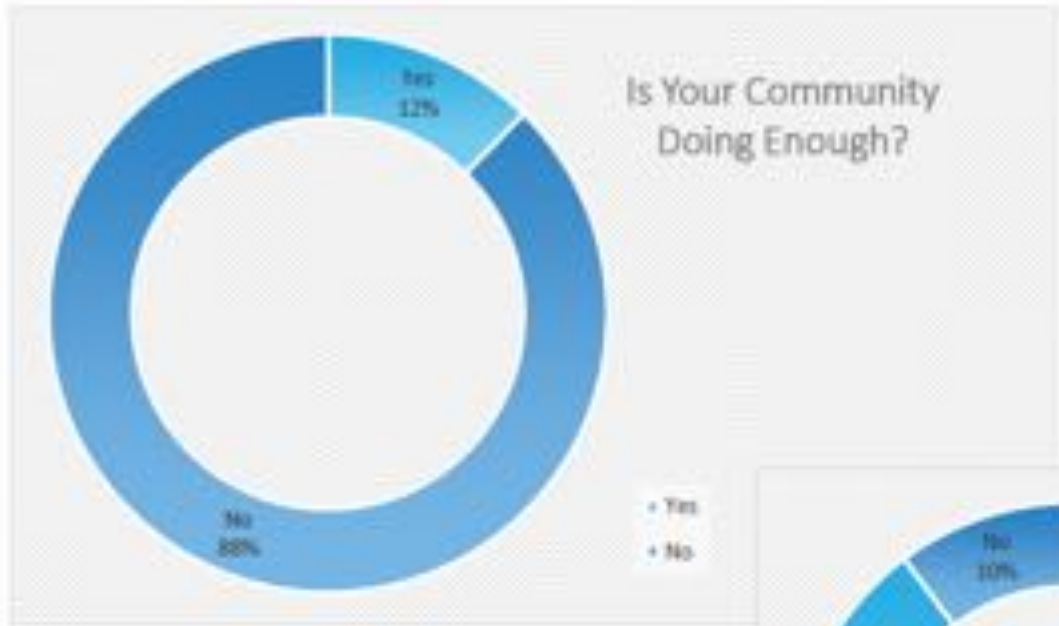
Duval County Ranked Opportunities



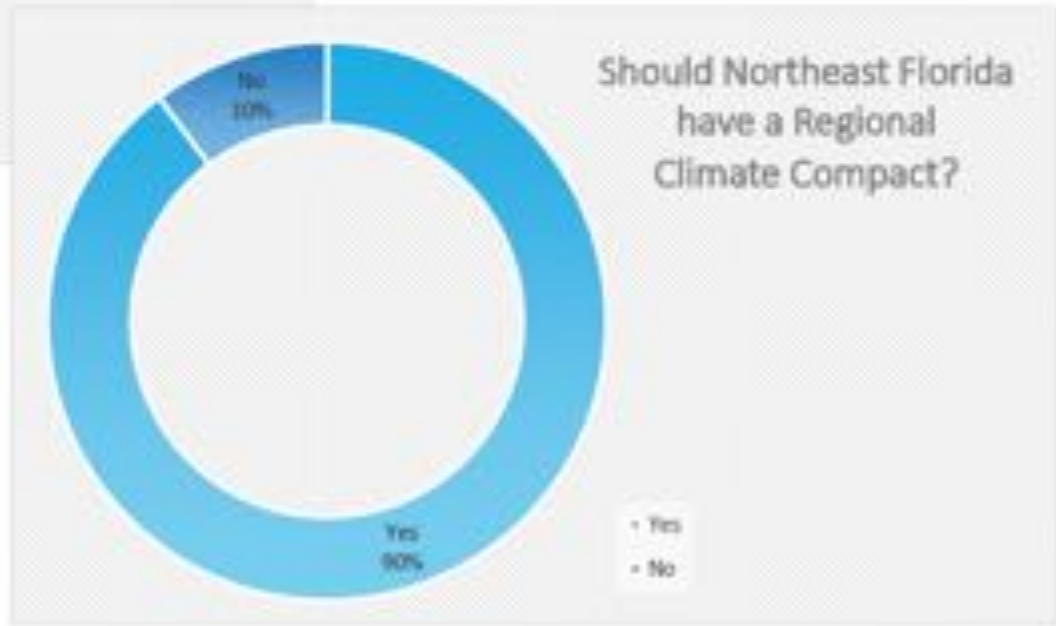


Age Demographics

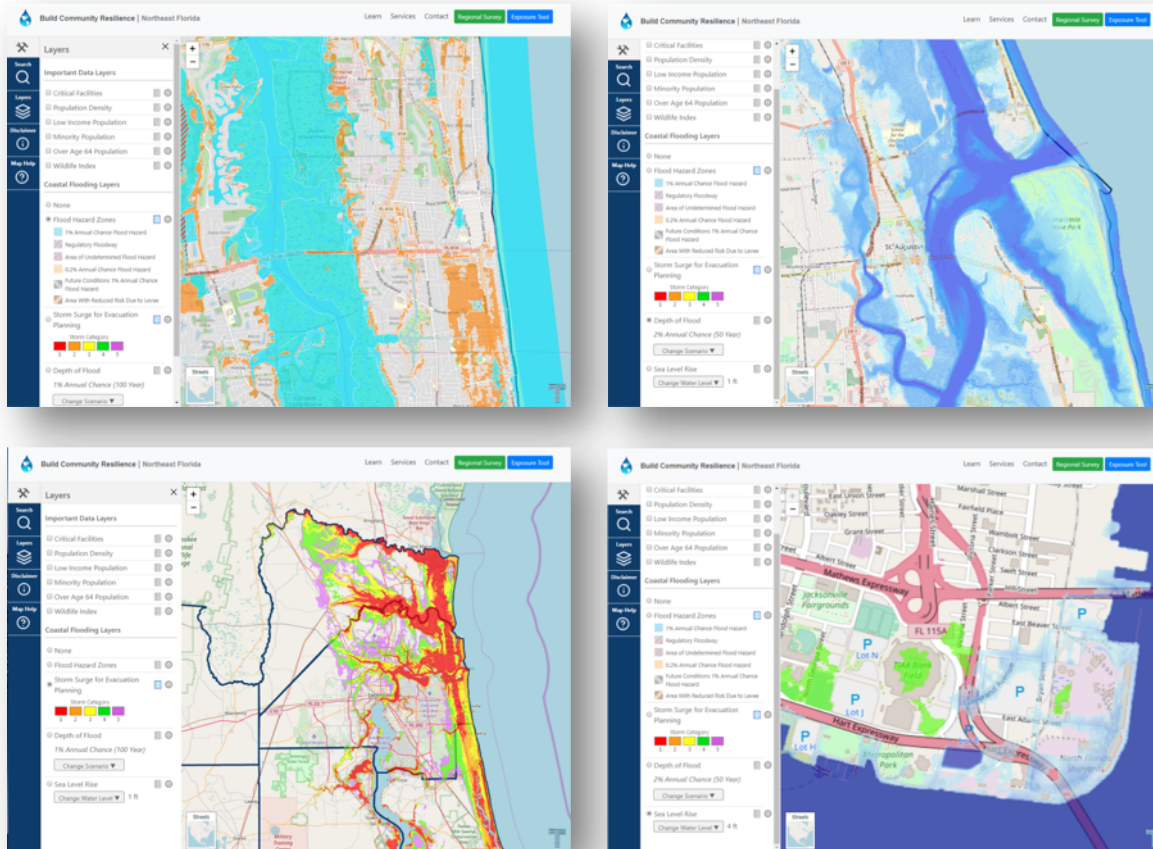




**NORTHEAST FLORIDA
REGIONAL COUNCIL**



Regional Resilience Exposure Tool



- Map tool that allows residents, business owners and governmental actors to determine if resources will be exposed to coastal flooding.
- Coastal flood layers can be overlaid with other data layers such as population density, critical infrastructure, and priority environmental habitats.



Introduction:

Welcome to the Official Website for the Northeast Florida Regional Council's **Regional Resilience Exposure Tool (R2ET)**.

In the top right corner of this page, you will find an **"Exposure Tool"** button that will take you to the interactive R2ET platform - an innovative map tool that allows users to determine if a specific resource (or multiple resources) will be exposed to coastal flooding. In the top right corner of the page, you will also find a **"Regional Survey"** link that will take you to a survey that will help us gauge community support, concerns, and interest in programs related to resilience.

The types of flooding presented are FEMA flood hazard zones, storm surge for evacuation planning, depth of flood at defined storm occurrence intervals, and sea level rise at defined water levels. The flood layers can be overlaid on a variety of data to graphically analyze where specific vulnerabilities occur - from critical facilities and population density to low income/minority populations and wildlife.

The Regional Resilience Exposure Tool (R2ET) is intended to function as a base-line resource for citizens, businesses, and governmental actors to kickstart conversations about sea level rise and emergency preparedness. Utilizing this tool, as well as other community engagement resources offered by the Northeast Florida Regional Council, local communities will be able to have better-informed conversations about building a resilient future.

This tool was made possible by a grant provided by the Department of Commerce's Economic Development Administration (EDA). Other partners who were instrumental in making this tool possible were the National Fish and Wildlife Foundation (NFWF) and NatureServe who recently partnered to conduct a Coastal Resilience Assessment of the Jacksonville and Lower St. Johns River Watersheds. R2ET was designed by Taylor Engineering.



www.buildcommunityresilience.com/northeastflorida/



Layers



Search



Layers



Disclaimer



Map Help

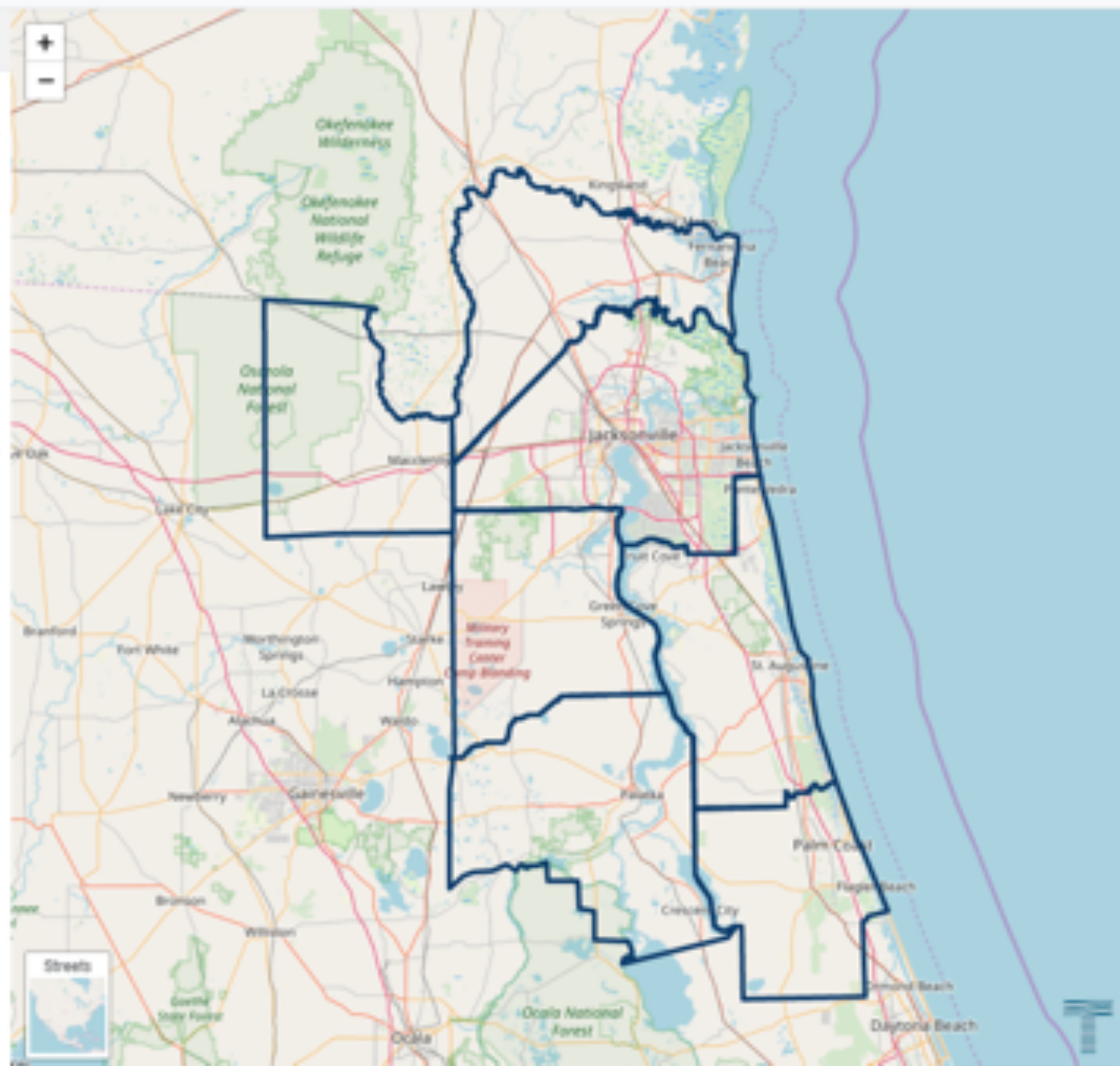


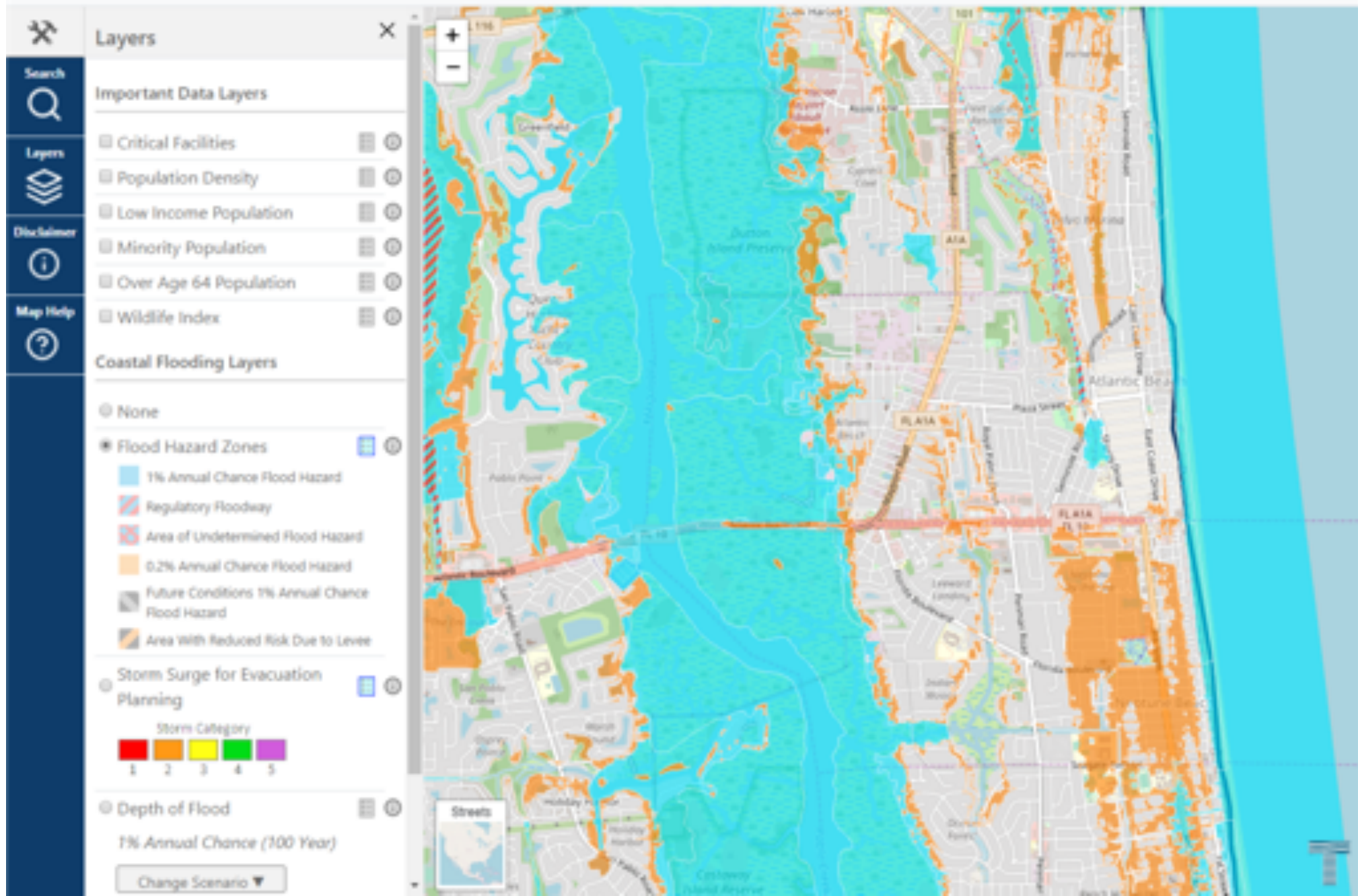
Important Data Layers

- Critical Facilities
- Population Density
- Low Income Population
- Minority Population
- Over Age 64 Population
- Wildlife Index

Coastal Flooding Layers

- None
 - Flood Hazard Zones
 - Storm Surge for Evacuation Planning
 - Depth of Flood
 - Sea Level Rise
- 1% Annual Chance (100 Year)
- Change Scenario ▼
- Change Water Level ▼ 1 ft







Layers

Search



Layers



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Map Help

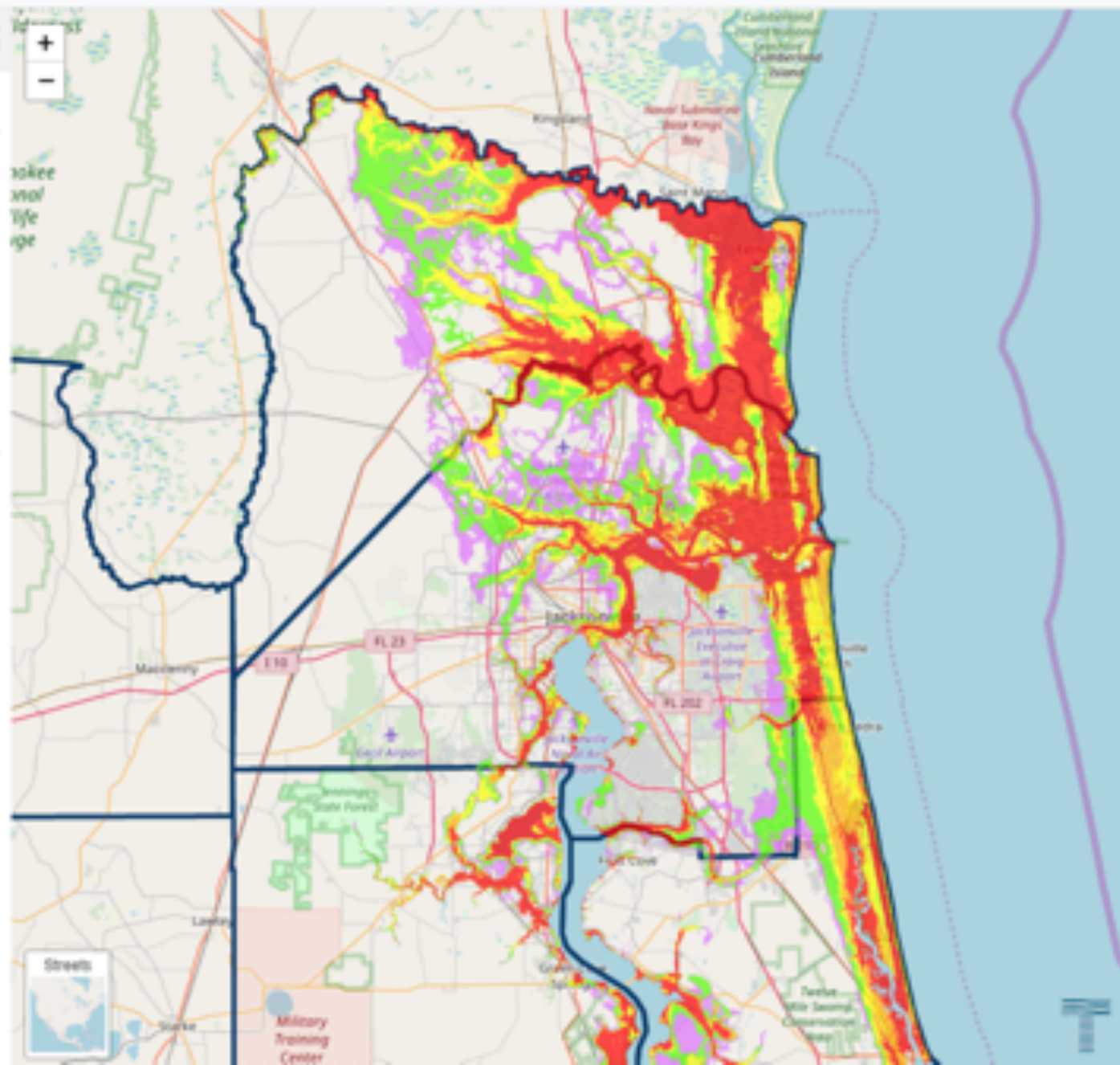


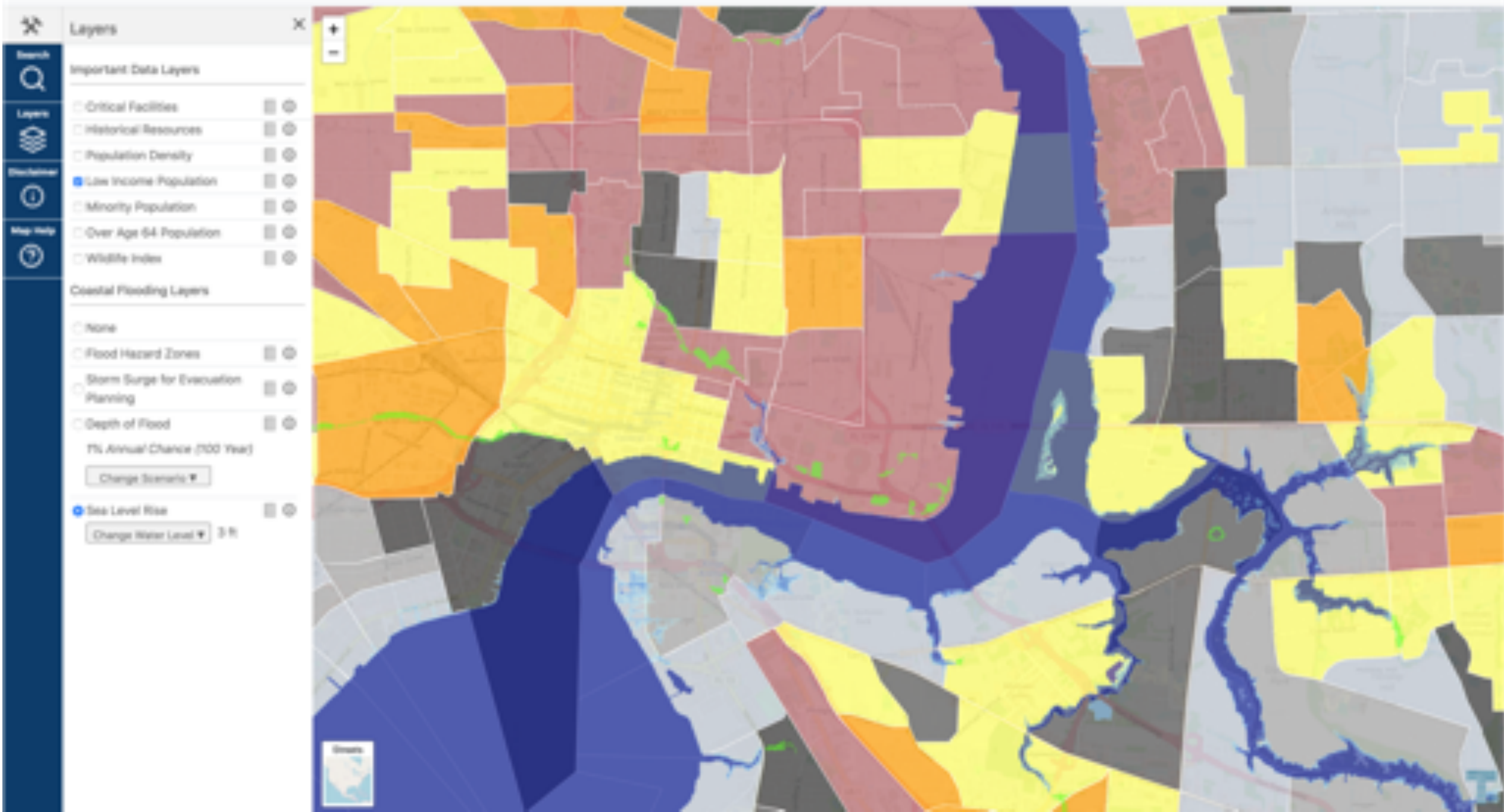
Important Data Layers

- Critical Facilities
- Population Density
- Low Income Population
- Minority Population
- Over Age 64 Population
- Wildlife Index

Coastal Flooding Layers

- None
- Flood Hazard Zones
- Storm Surge for Evacuation Planning
 - Storm Category
 - 1 2 3 4 5
- Depth of Flood
 - 7% Annual Chance (100 Year)
 - Change Scenario ▼
- Sea Level Rise
 - Change Water Level ▼ 1 ft





Layers X

Important Data Layers

- Critical Facilities
- Historical Resources
- Population Density
- Low Income Population
- Minority Population
- Over Age 65 Population
- Wildlife Index

Coastal Flooding Layers

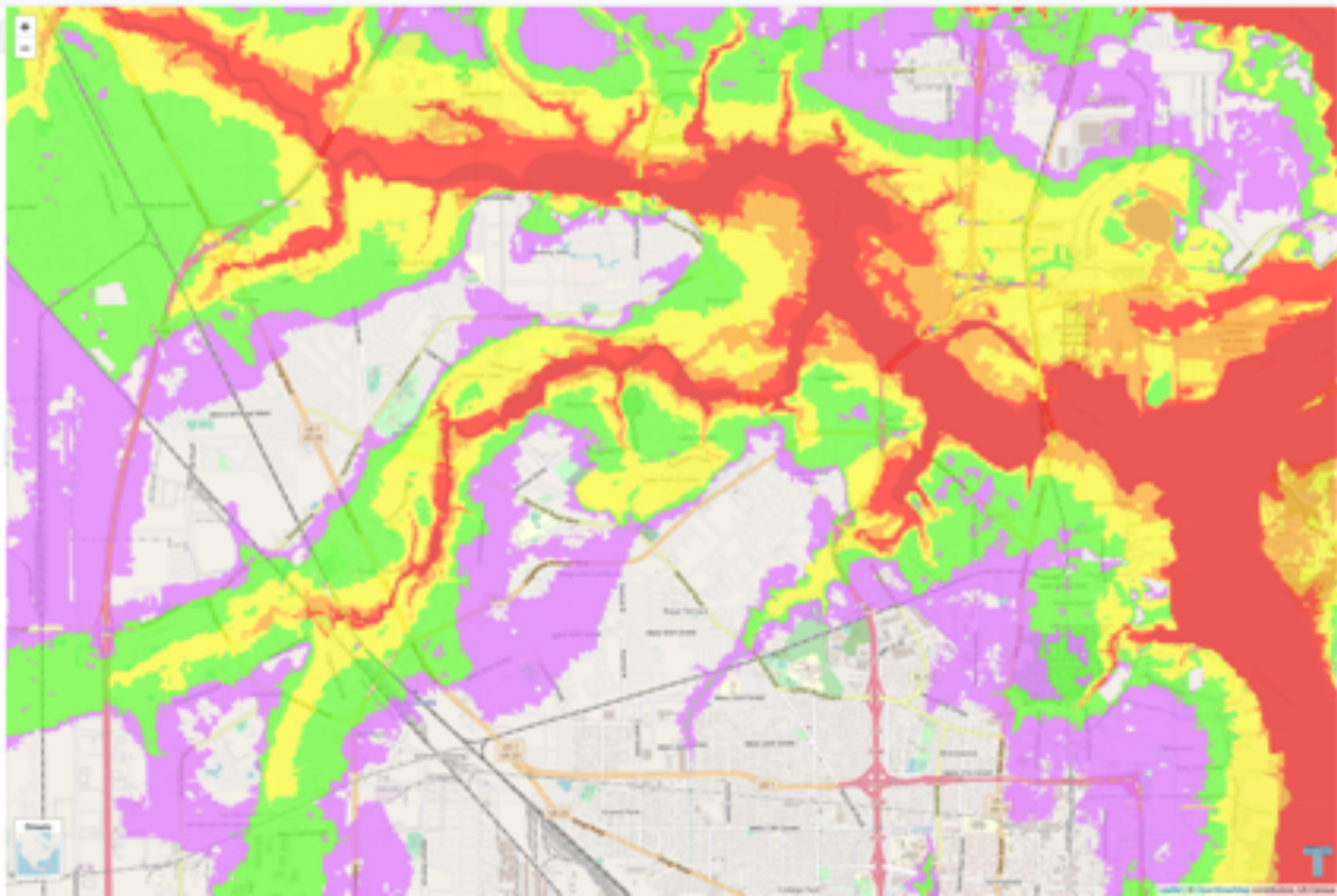
- None
- Flood Hazard Zones
- Storm Surge for Evacuation Planning
- Depth of Flood

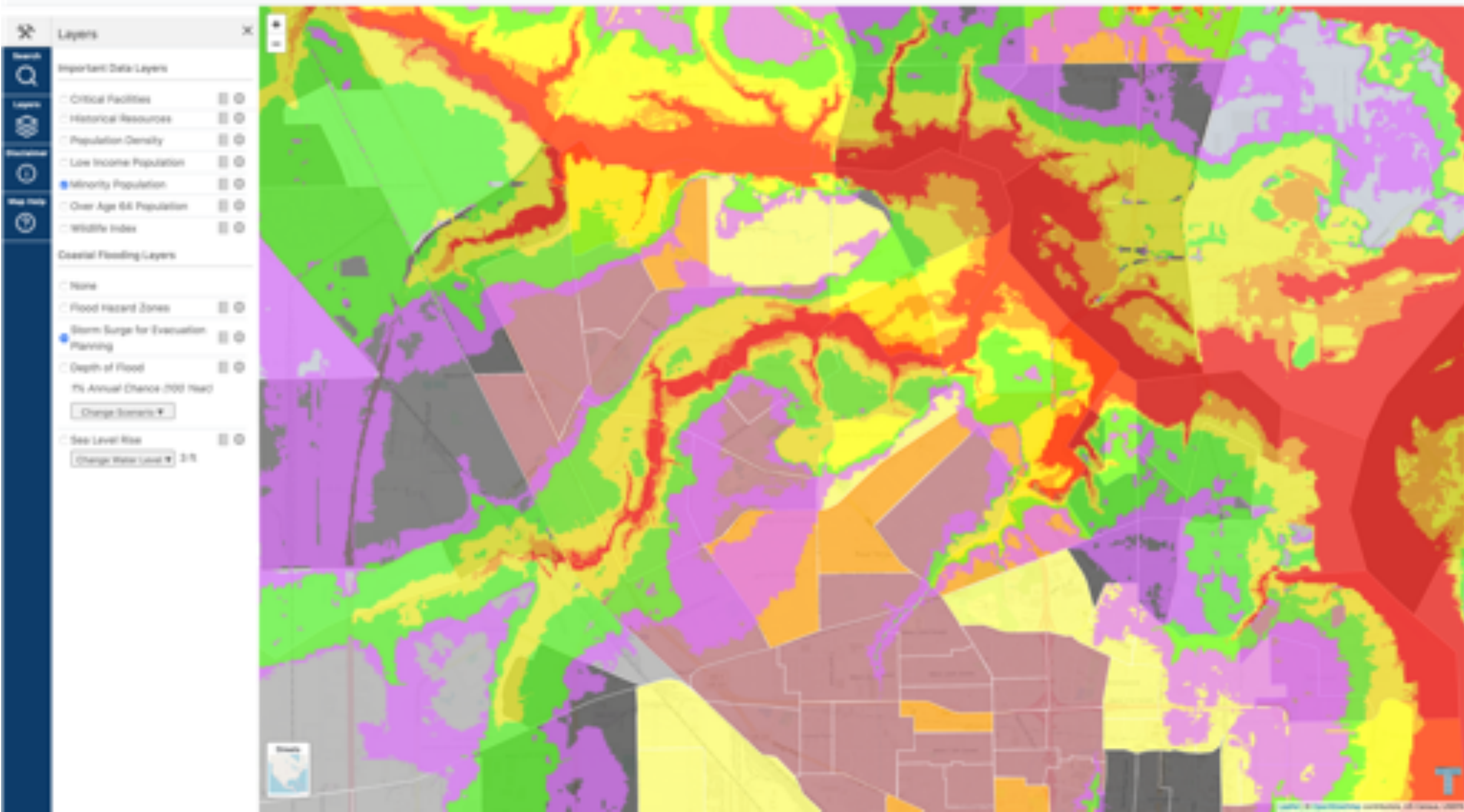
7% Annual Chance (100 Year)

Change Scenario ▼

- Sea Level Rise

Change Water Level ▼ 2.0







Search



Layers



Disclaimer



Map Help



Population Density

Low Income Population

Percentage of each census block comprised of low income population



Minority Population

Over Age 64 Population

Wildlife Index

Coastal Flooding Layers

None

Flood Hazard Zones

Storm Surge for Evacuation Planning



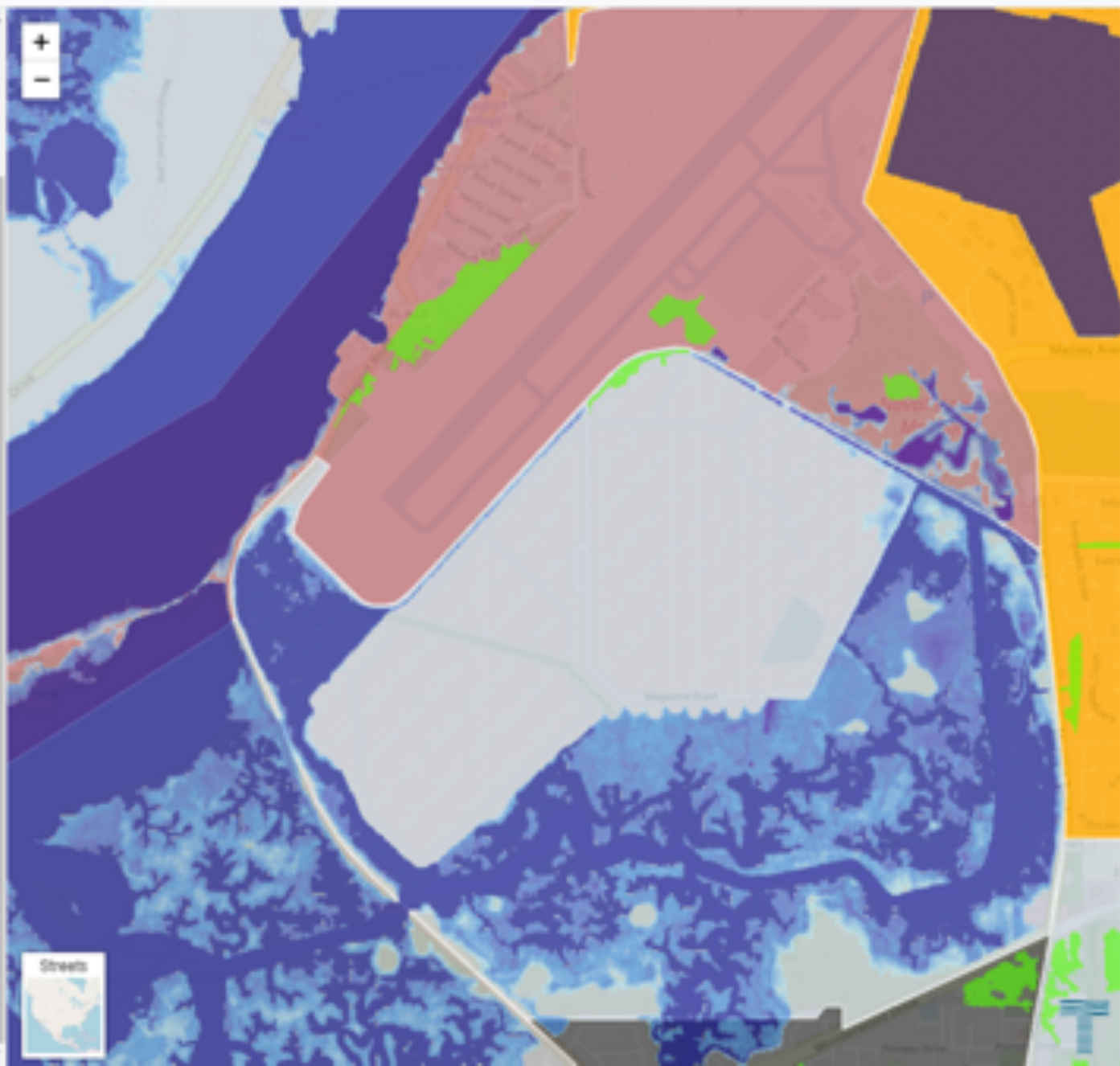
Depth of Flood

1% Annual Chance (100 Year)

Change Scenario ▼

Sea Level Rise

Change Water Level ▼ 2 ft





Search



Layers



Disclaimer



Map Help



Critical Facilities

Population Density

People per square mile

< 500

500 - 1,000

1,000 - 2,000

2,000 - 3,000

3,000 - 4,000

4,000 - 5,000

> 5,000

Low Income Population

Minority Population

Over Age 64 Population

Wildlife Index

Coastal Flooding Layers

None

Flood Hazard Zones

Storm Surge for Evacuation Planning

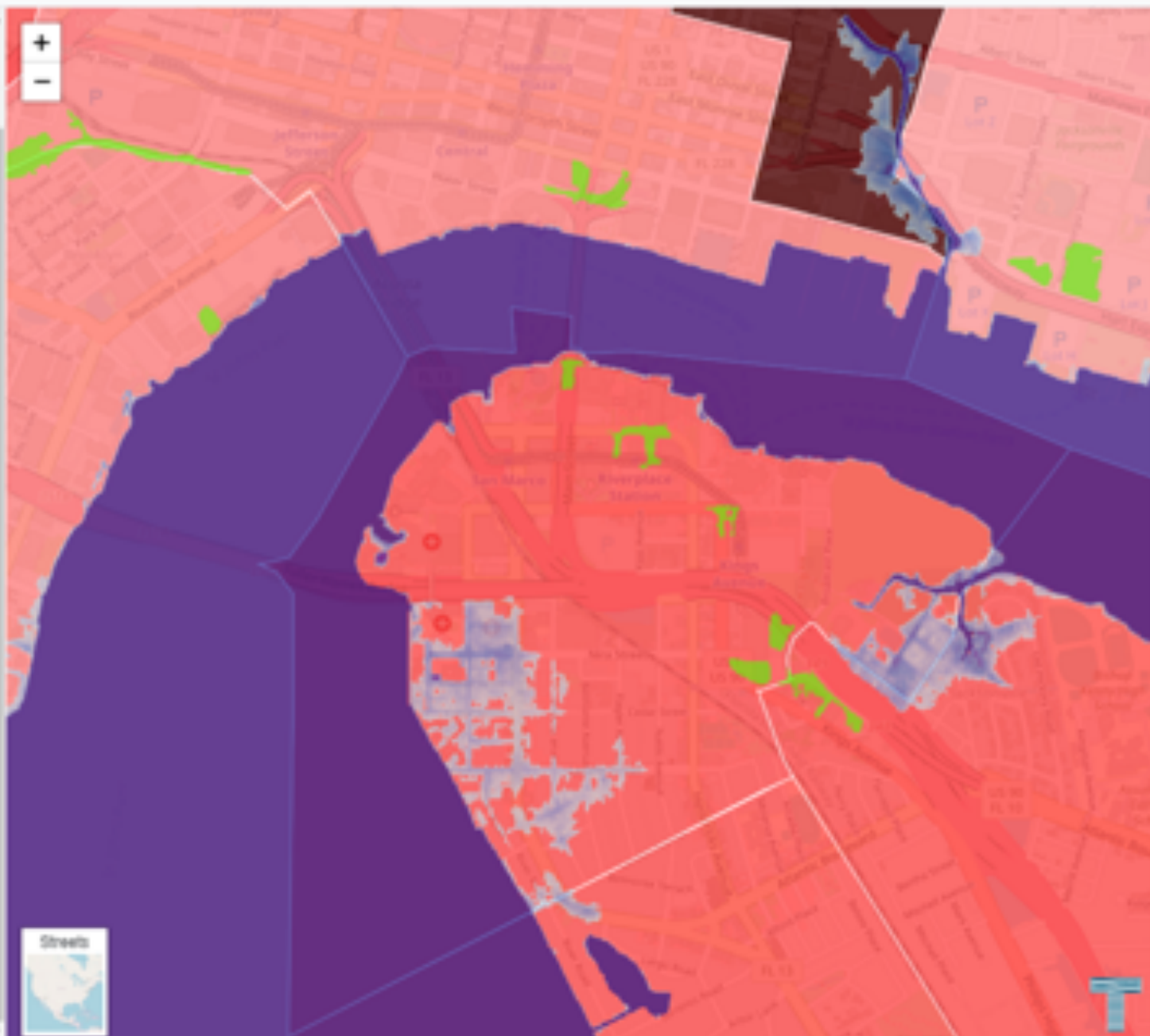
Depth of Flood

1% Annual Chance (100 Year)

Change Scenario ▼

Sea Level Rise

Change Water Level ▼ 3 ft



RESILIENCE IN A BOX

STRENGTHENING COMMUNITIES GLOBALLY

Research indicates that 43% of businesses never reopen after a disaster, and 25% of business that do, fail within a year. "Resilience in a Box", and all of its resources, is designed to provide the most effective ways to increase your ability to survive and thrive after any disaster such as a flood, earthquake, power outage, etc. Complete this self-assessment to rate your business' readiness here!

HAVE YOU:

- Assembled a "team" of individuals within the business who know key operations and can provide important perspectives when planning for and responding to disasters?
- Assigned someone to lead business disaster planning efforts for your business?
- Organized all your critical documents and information so they are easily accessible when needed most?
- Identified and prioritized which business operations are critical so you know what to recover first, second, etc.?
- Identified the possible hazards (natural and man-made) which could interrupt your business?
- Developed continuity or emergency procedures so you can continue to provide products or services after a disaster (e.g. we cannot access our building, need a generator, etc.)?
- Made accessible all important data or files for decision-making if you were unable to access your facility, e.g. after a fire?
- Maintained updated emergency contact information for employees, vendors, suppliers, customers, and other key contacts?



BUSINESS PREPAREDNESS CHECKLIST

HAVE YOU:

- Trained employees to assist (e.g. respond to injuries, evacuate building) when an emergency occurs?
- Maintained emergency supplies for your businesses to address immediate needs, such as if employees are unable to go home?
- Encouraged employees to be prepared at home?
- Regularly backed-up your data?
 - If YES, also store your data back-ups offsite?
- Taken steps to safeguard against potential damage to your equipment, buildings or facilities?
- Protected inventory/storage from theft, loss or damage during an earthquake, fire, water pipe break, etc.?
- Maintained procedures to communicate after a disaster with employees, suppliers, vendors, customers, and the public?
- Put a current continuity/emergency/disaster plan in place?
 - Tested it regularly?
 - Updated it at least annually?
- Established partnerships with other businesses, government and/or community organizations that can serve as resources when the next crisis arrives?

RATE YOUR READINESS!

- = 2
- = 1

How ready is your business? Tally your score and see the back page to see where your business stands!



Protect Your Business From Wildfire



Protect Your Business From Hail



Prepare Your Business For Hurricanes



Weekend Wildfire Preparedness



Tips on Hiring a Roofing Contractor



Is It Hail Damage?



NORTHEAST FLORIDA
REGIONAL COUNCIL (NEFRC)

COMMUNITY RESILIENCE SERVICES

The Council is offering **FREE** resilience services to groups in Baker, Nassau, Duval, St. Johns, Putnam and Flagler Counties.

For more information, contact:

Sean D. Lahav, MPA
Resiliency Coordinator
Email: slahav@nefrc.org
Phone: (904) 279-0880 ext. 111



Public Workshop on Flooding, Storm Surge & Sea Level Rise

This public workshop offers community members the opportunity to identify community assets, develop resilient strategies to protect those assets and voice concerns! Workshop includes local background presentation, group activities and open-discussion.



Adaptation Planning for Sea Level Rise: Guest Speaker Presentation

This presentation overviews key concepts related to adaptation planning. From protection and accommodation, to strategic relocation and avoidance, audience members will learn about available solutions for addressing sea level rise.



Building Community Resilience: Guest Speaker Presentation

This presentation overviews key concepts related to understanding community resilience. From shocks and stresses, to exposure and sensitivity, audience members will learn about the steps that can be taken to better protect communities.



Building Economic Resilience: Guest Speaker Presentation

Want to protect your business assets but have no idea where to start? This presentation provides small business owners with vital information related to the steps that can be taken to protect a business before, during and after any emergency.





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SPECIAL THANK YOU:

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John Messer



TAYLOR ENGINEERING, INC.