Broward County's Resilience Initiatives: A Focus on Future Conditions Planning

Joint Meeting of the Broward County WAB & Palm Beach County WRTF

June 2, 2021

Challenges for our Region

- Sea level rise
- Saltwater intrusion
- Extreme rainfall and drought
- Increased storm intensity
- Rising temperatures
- Natural system stressors
- Public health and services
- Coastal and inland flooding
- Beach erosion

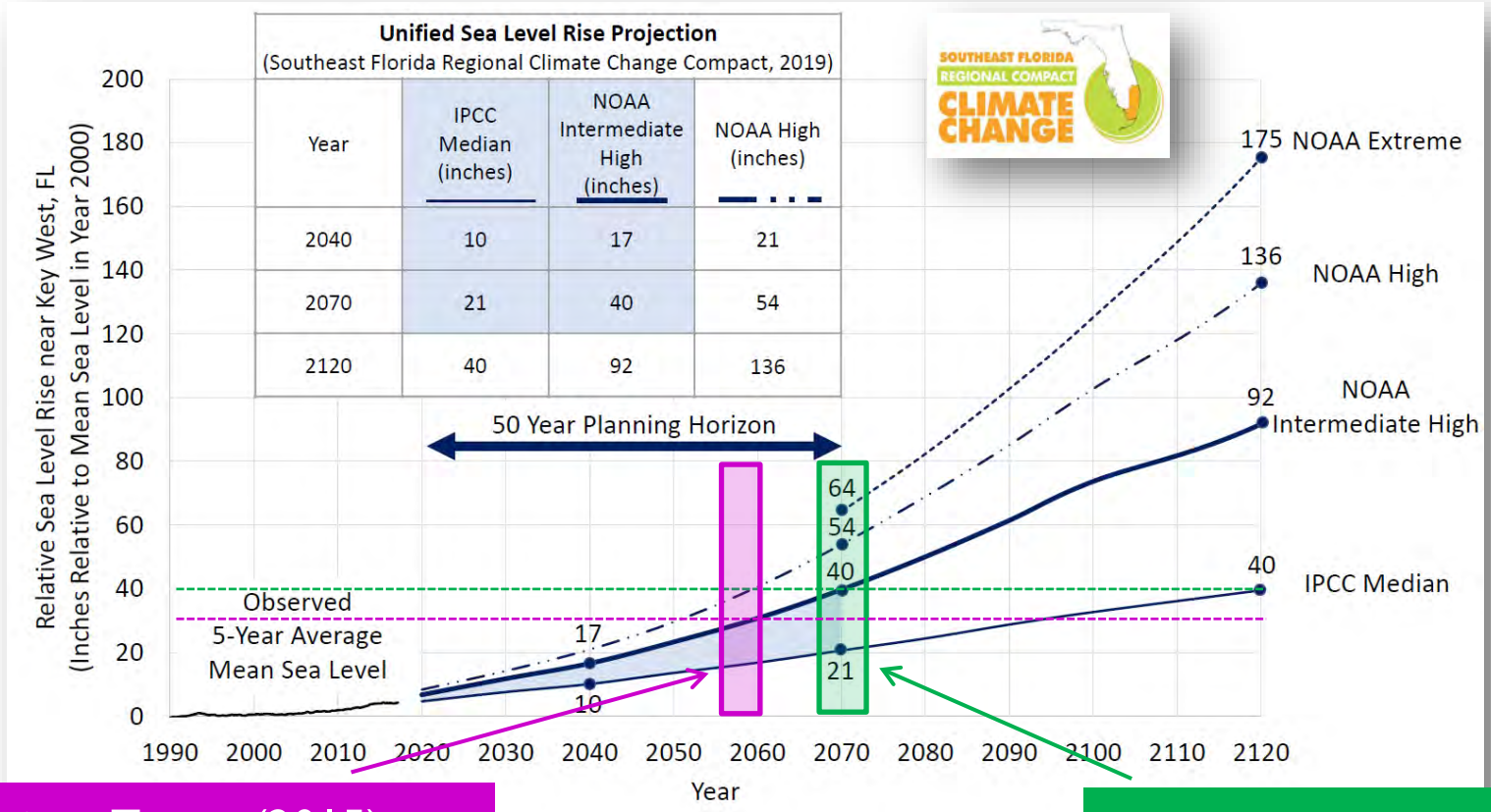
Algae Blooms

Flooding

Implications: Planning and Investments

- Land Use
- Infrastructure Siting
- Resilience Standards
- Expanded Drainage
- Water Supply
- Level of Service
- Finished Floor Elevations
- Development Strategies

Unified Regional Sea Level Rise Projection



27” Previous Target (2015)

40” Current Target (2019)

Resilience Planning: From Regional to County

- Sea Level Rise Projection - 2012, 2015, 2019
- Priority Planning Area Map - 2012, 2015, 2020
- Future Conditions Map Series - 2017
- Resilience Standards
  - — Drainage infrastructure - 2017
  - — Tidal flood barriers - 2020
  - — 100-Yr Flood elevations - 2020*
  - — Design storms - 2020*

* In Process

Priority Planning Area Map

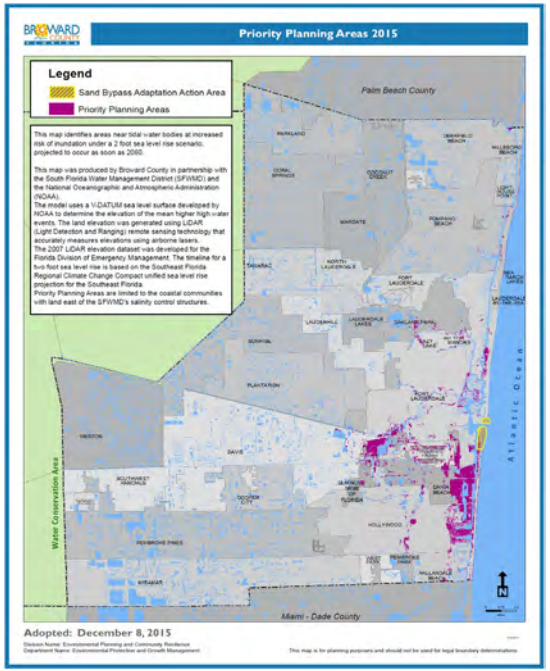
County Land Use Plan:

- Delineates areas at increased risk of flooding with Sea Level Rise (SLR)

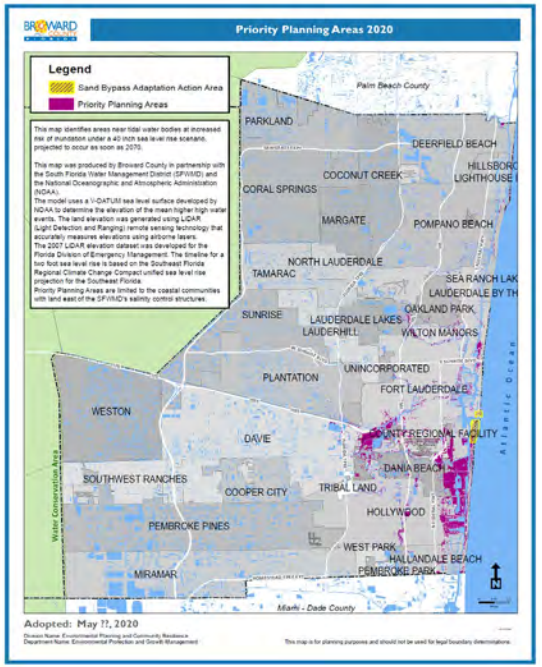
Application:

- Criteria Applied to Land Use Amendments
- County Capital Project Planning
- Elevation and Location

2015 Adopted Map
2 ft SLR = 6. 8 mi^2

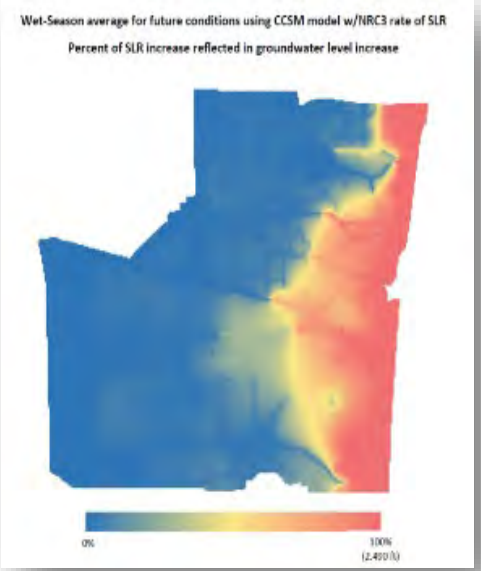


2020 Updated Map
3.3 ft SLR = 17.6 mi^2

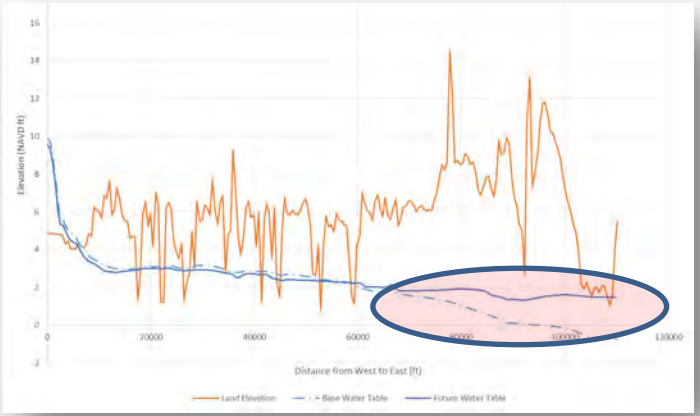


Future Conditions Groundwater Table Map

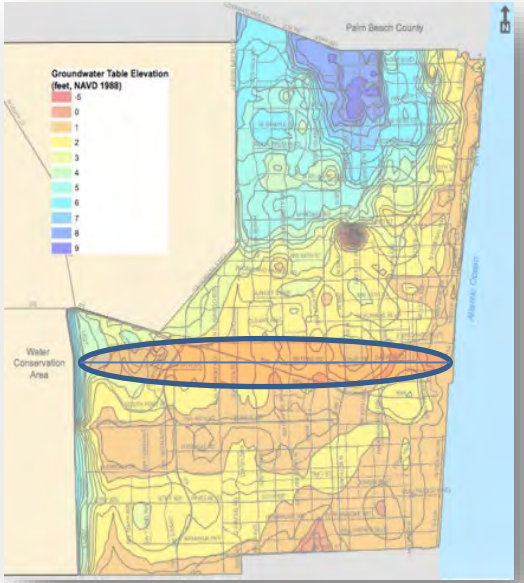
Effective July 1, 2017
Section 27-200, Plate WM 2.1
Code of County Ordinances



Modeled Change



Modeled W-E Cross Section



Future Conditions
Wet Season
Groundwater Table Map

USGS
science for a changing world

Resilience Standard: Tidal Flood Barriers

- Approved March 31, 2020
- Modeled water levels:
  - 2 feet sea level rise
  - High tides
  - 25-yr storm surge
- Requires **5 feet NAVD by 2050**, allows **4 feet NAVD until 2035**
- Requires municipal adoption in 2 years and real estate disclosure.

Municipalities with Tidally Influenced Waterways

Hollywood Marina

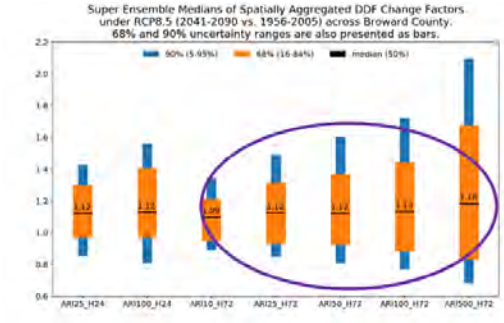
Finished Floor Requirements

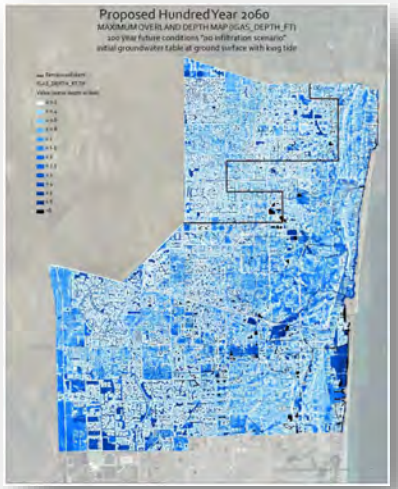
County code requires higher of the following:

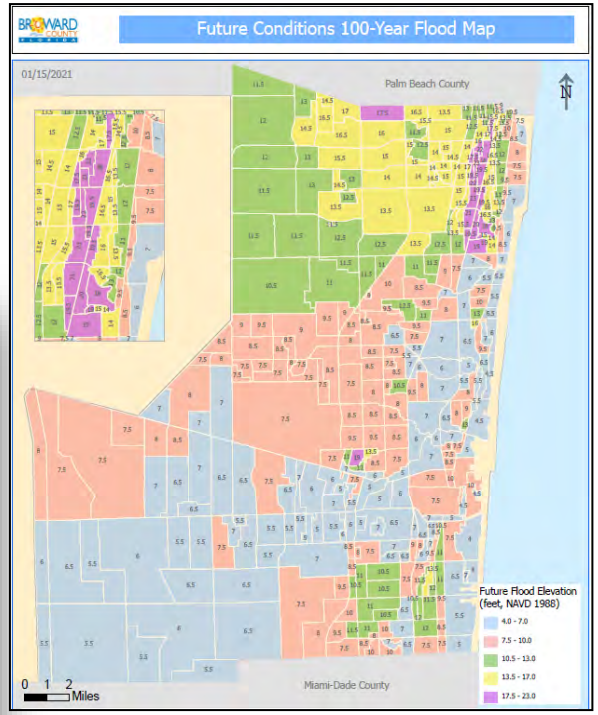
- Current 100-yr flood map developed in 1977
- FEMA maps - existing conditions
- Site specific 100-year calculation
- 18 inches above crown of road

100-year Future Conditions Flood Map

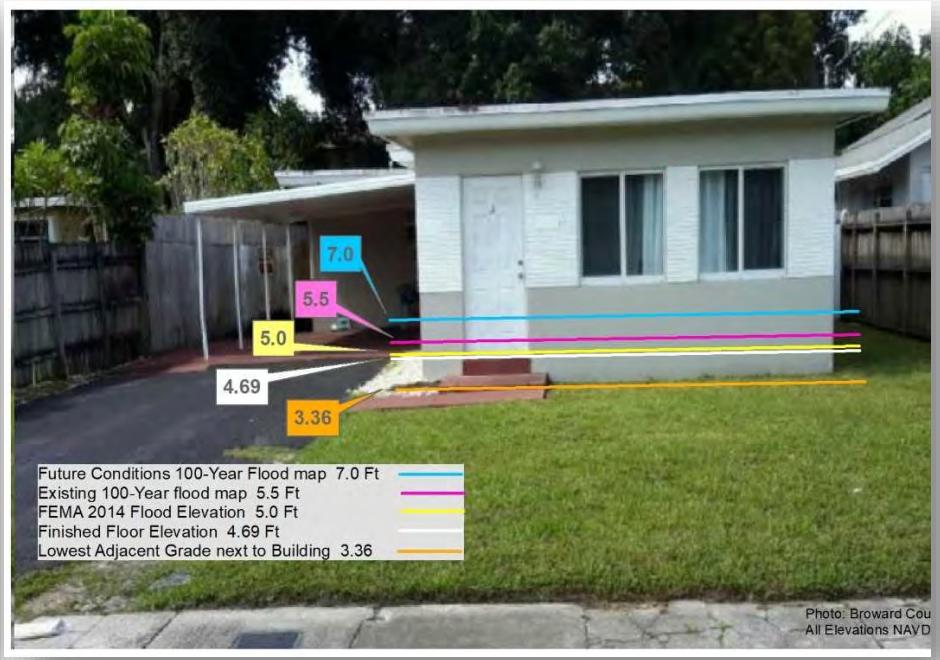
- Accounts for:
  - 2 Feet SLR
  - King tides
  - Ground saturation
  - Increase rainfall (13%)
- Advanced down-scaling techniques
- 368 discrete flood areas
- Informed by basins, topographic features, drainage





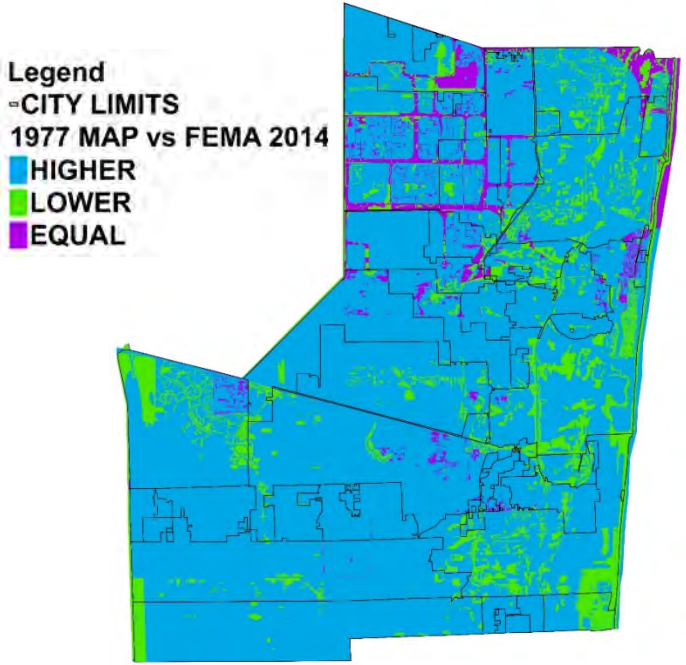


Commercial and Residential Relevance

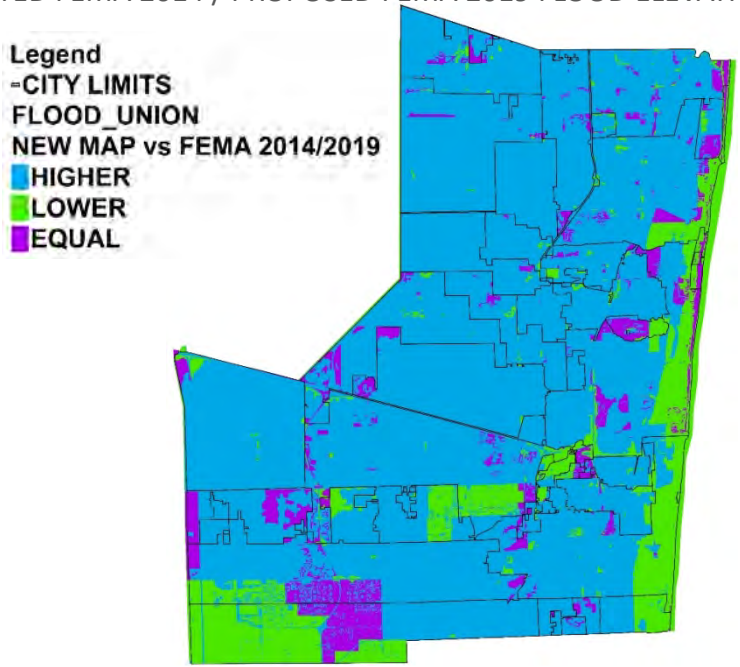


Flood Elevation Change Comparison

1977 COMMUNITY MAP COMPARED TO ADOPTED FEMA 2014 FLOOD ELEVATIONS



PROPOSED FUTURE FLOOD MAP COMPARED TO HIGHER OF ADOPTED FEMA 2014 / PROPOSED FEMA 2019 FLOOD ELEVATIONS

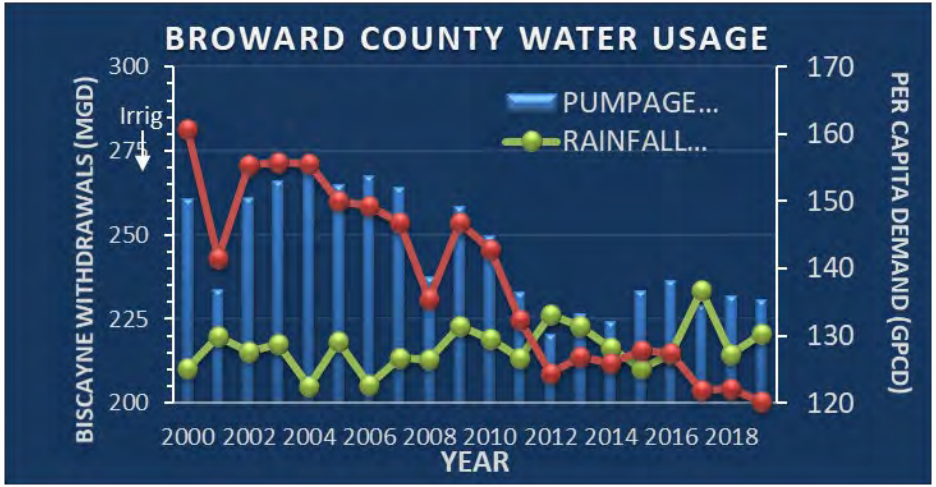


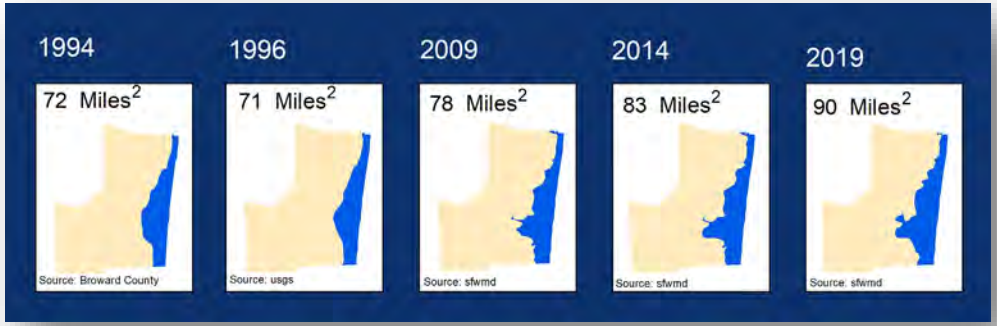
Next Steps: County-wide Resilience Plan

- Project elements
  - Basin-level analysis
  - Redevelopment strategies
  - Water storage and management
  - Infrastructure siting
- Deliverables
  - Planning level cost estimates
  - 3D Visuals / key corridors
  - Phased implementation plan
  - Shared database and planning platform
  - Quantified flood and risk reduction
- Outcome
  - Organized investment
  - Multi-decade plan

Water Resources Strategies

- Conservation
- Reclaimed Water
- C-51 Reservoir
- Aquifer Recharge
- Saltwater Modeling
- Wellfield Management

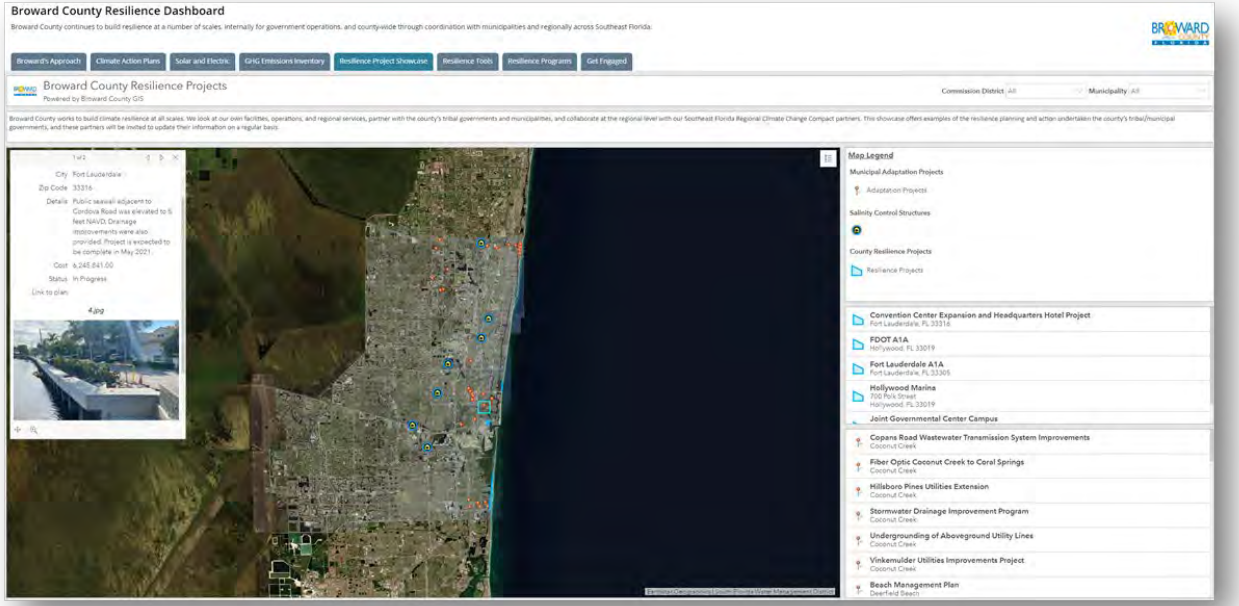




Broward Resilience Dashboard

Components

- Storyboard
- Resilience plans
- Emissions and goals
- Clean energy investments
- Resilience projects
- Tools and trends
- Engagement



https://arcg.is/09equu

Summary

- Evolving flood risk is one of Broward County's most pressing climate-related challenges.
- Broward County's resilience planning process has been iterative, aided by regional coordination.
- Climate science data, tools, agency support has been integral to the models informing the County's future conditions policy and regulations.
- Water resources challenges are significant, requiring conservation, diversification and improved management
- The County-wide Resilience Plan will serve as the mechanism to integrate the details of water management, infrastructure, and land use.
- The Resilience Dashboard is anticipated to provide a robust communication and planning tool, aiding transparency, accountability, and engagement.

Thank you

Questions?

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