**COASTAL RESILIENCE PARTNERSHIP**
SOUTHEAST PALM BEACH COUNTY

October 17, 2020

# City of Delray Beach

## Green Implementation Advisory Board Update

# Coastal Resilience Partnership

The Coastal Resilience Partnership, or CRP, was built to to take a united and collaborative approach towards building long-term resilience and climate adaptation among these eight coastal municipalities located in Southeast Palm Beach County, Florida.

The Coastal Resilience Partnership consists of:

- Palm Beach County
- Boca Raton
- Boynton Beach
- Delray Beach
- Highland Beach
- Lake Worth Beach
- Lantana
- Ocean Ridge

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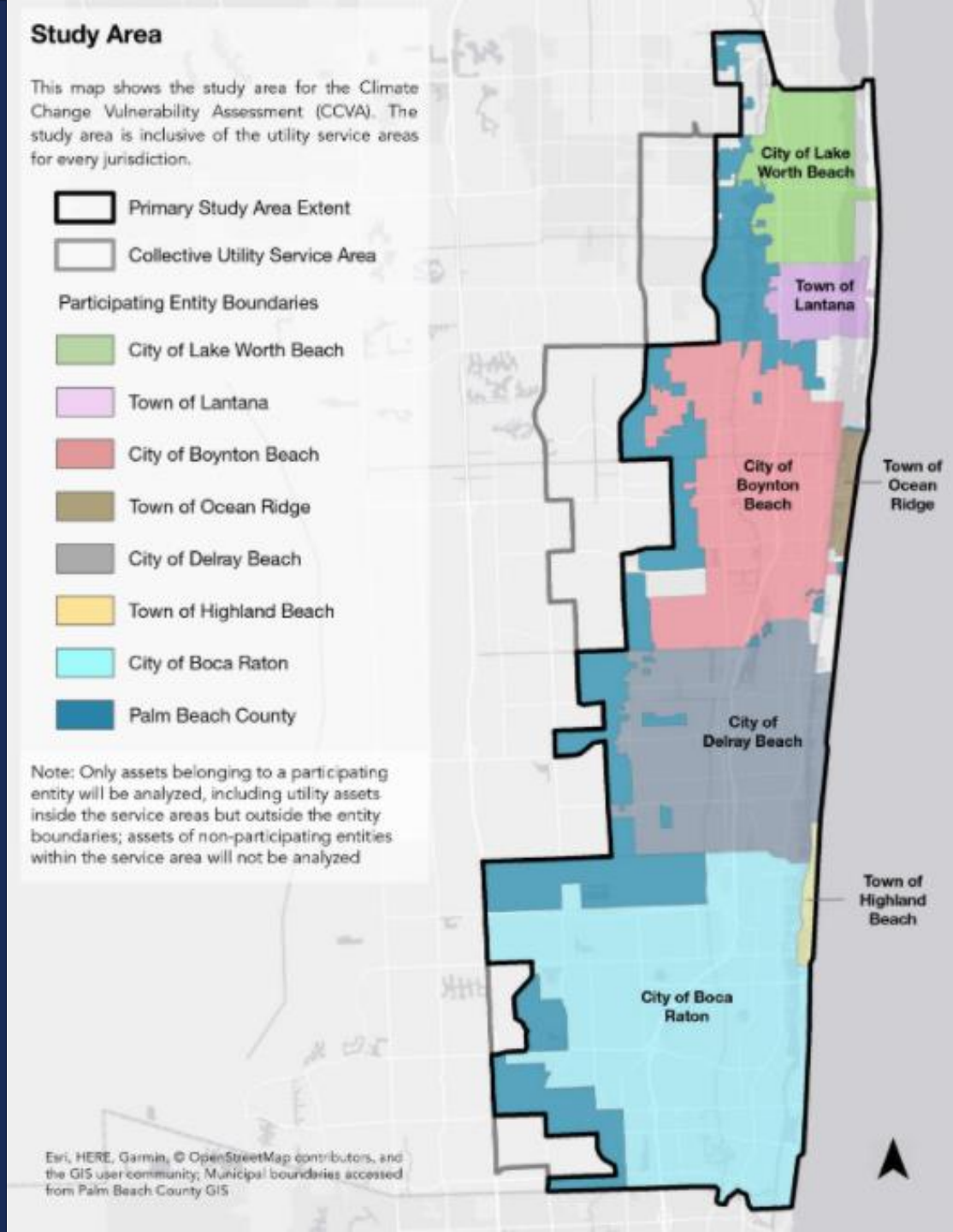

# CRP Timeline

| 2017 | 2018 | Early 2019 | Late 2019 | Early 2020 | Today | Spring 2021 |
|---|---|---|---|---|---|---|
| Began meeting to discuss common climate threats and needs | PBC opened Office of Resilience, CRP decided to pursue joint CCVA | Inventoried GIS data, developed CCVA scope, Drafted ILA | Revised and executed ILA, prepared RFP | Hired consultants, conducted 3 workshops, completed Steps 1-2 of CCVA | CCVA Step 3: Vulnerability Assessment |  |

Florida Department of Environmental Protection

Florida Department of Environmental Protection

carollo Engineers...Working Wonders With Water®

Emmett Environmental Law & Policy Clinic, Harvard Law School

Collective Water Resources

FERNLEAF INTERACTIVE

CHEN·MOORE & ASSOCIATES

ATM Design Engineering Consulting

BRIZAGA Assess. Communicate. Adapt.

Erin L. Deady, P.A.

# What is a Vulnerability Assessment?

A vulnerability ***assessment provides a baseline understanding of the risks a certain community, place, or asset faces pertinent to specific threats***, and in this assessment, threats associated with climate change.

## Process

1. Explore Climate Threats
2. Assemble Data on Community Systems
3. Assess Vulnerabilities and Risks
4. Investigate Potential Adaptation Strategies
5. Reporting and Tool Deployment

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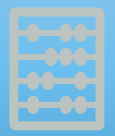
# Key Terms and Considerations

The collection and filtration of ***DATA*** is critical. Typically, this includes topography, property boundaries and values, land uses, census data, local sea level rise projections, and historic water levels.



***SENSITIVITY*** is the range of magnitude of how much an asset may be hurt by a threat.

People, Places, Systems and Economy are all important characteristics measured as parts of community ***ASSETS***.

**ADAPTIVE CAPACITY** is the extent to which an asset may change and its ability to adapt.

**RISK** is both a threat and asset characteristics used to indicate levels of probability of a particular climate event from happening and its associated consequence.

**Vulnerability** is used to indicate levels of sensitivity, potential impact, and adaptive capacity.

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# Step 1: Explore Climate Threats

Major hazard events or chronic disruptions that negatively impact community assets (e.g. people, infrastructure, services, resources)

Can have the potential to be influenced by changing conditions, resulting in increased frequency or severity in the future

**Influenced by stressors** – Climate threats are influenced by both climate and non-climate related stressors

Impact communities in spatially explicit areas, or impact communities as a whole

Can be assessed spatially where data is available

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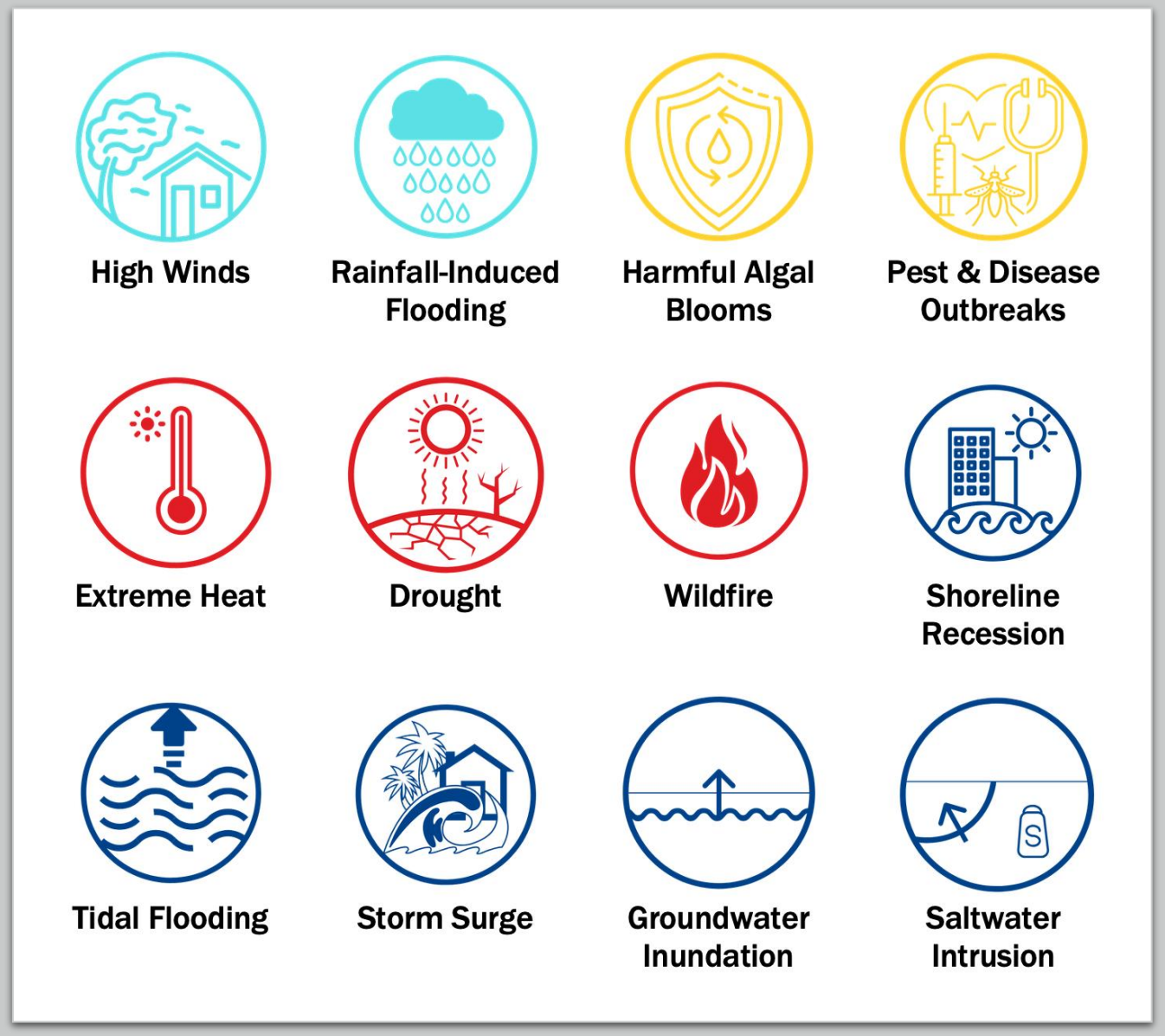
# Top Twelve Threats

*THREATS, broadly defined, are things likely to cause damage or danger.*




**What about Sea Level Rise?**

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# Sea Level Rise is a Threat Multiplier

It is not a threat on its own.

- **Storm Surge:** SLR is a component that increases risk
- **Tidal Flooding:** SLR will increase frequency and severity until a threshold of persistent inundation could be reached
- **Groundwater/Saltwater Intrusion:** SLR is the primary cause of these threats
- **Rainfall-Induced Flooding:** SLR interacts as a compounding event in coastal areas
- **Shoreline Recession:** SLR accelerates the movement of shoreline

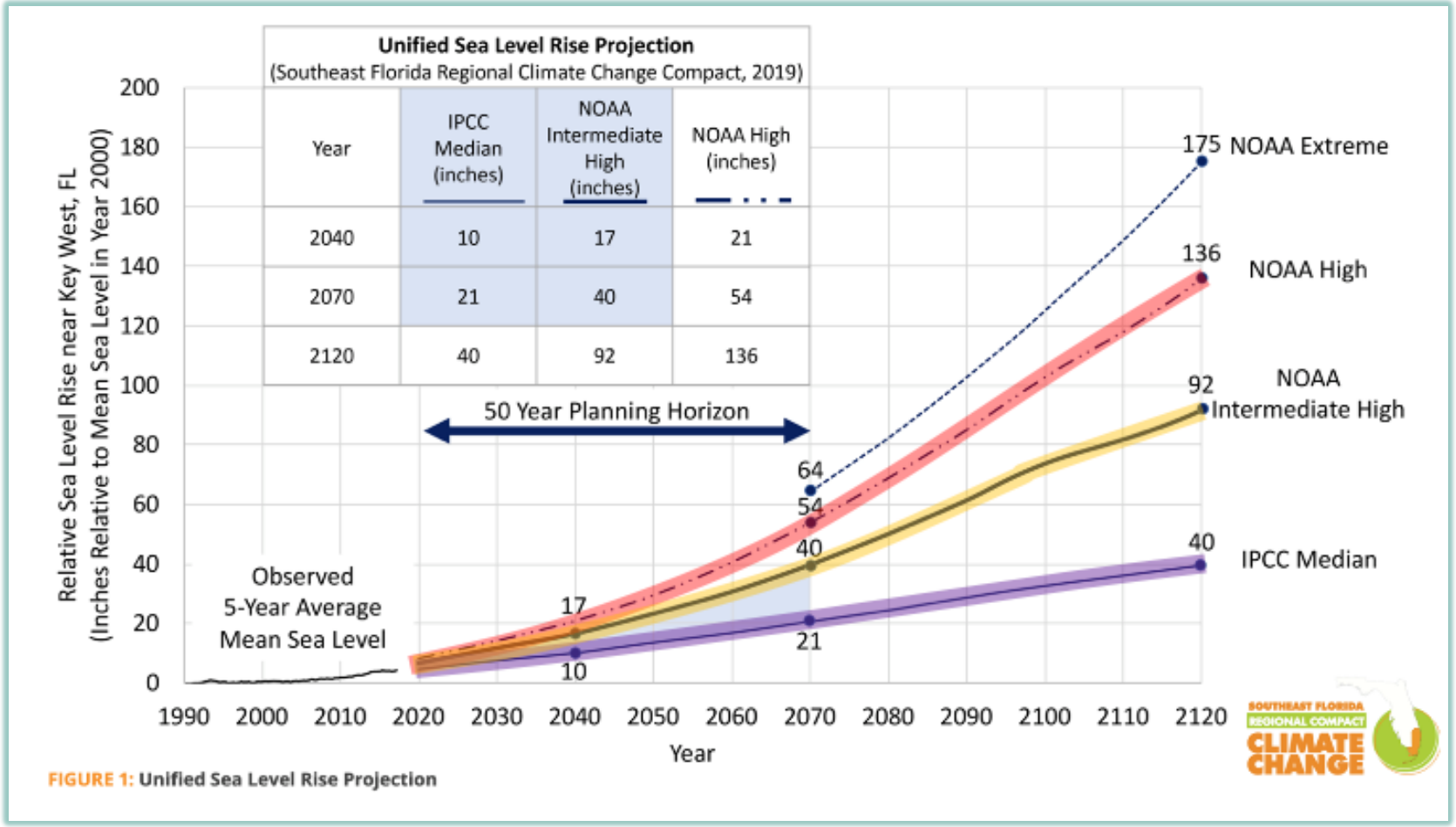


FIGURE 1: Unified Sea Level Rise Projection

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**NOAA High**
Recommended for Sensitive and Critical Infrastructure

**NOAA Intermediate High**
Recommended for Assets with Adaptive Capacity

**IPCC Median**
Recommended for Assets with Short Life Cycle

# Example: Groundwater Inundation

Localized flooding from a rise in groundwater table levels due to a rise in sea level.

<u>Analysis Type</u>:
- Spatial

<u>Climate Stressors</u>:
- Sea level rise
- Changes in precipitation patterns

<u>Non-Climate Stressors</u>:
- Land settling
- Geology
- Water use
- Large-scale stormwater management systems (C&SF)

<u>Data Sources:</u>
- SFWMD aquifer data/chlorides
- SFWMD well data
- LiDAR/elevation data
- Problem area reports

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# Step 2: Assemble Data on Community Systems

"The **Climate Change Vulnerability Assessment's** primary goal is to determine vulnerabilities in a data driven way."

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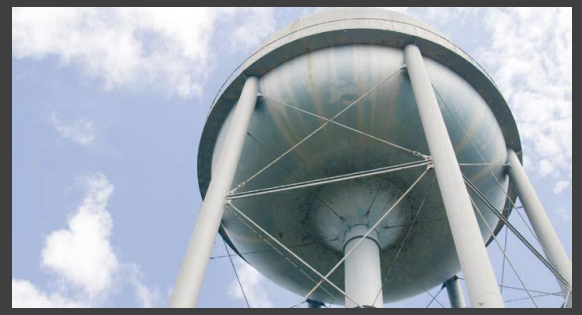

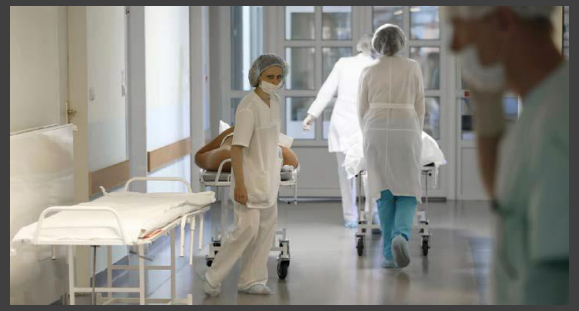

# Community Systems (assets)

- Critical Facilities
- Water Infrastructure
- Economic
- Natural Resources
- People
- Property
- Transportation & Mobility

# Data Example – Data was collected from across the CRP region

| Asset Type | Primary Asset Categories | Asset Category Description |
|---|---|---|
| Critical Facilities | Public Safety | Emergency services including police and fire |
| | Food, Water, Shelter | Food distribution centers, SNAP retailers, shelters |
| | Health and Medical | Hospitals, clinics, extended care facilities, pharmacies |
| | Energy and Communications | Electrical utilities, substations, radio/cell tower properties |
| | Government Facilities | Schools (public and private), City/County buildings, and any other government-owned property (federal, state, municipal) |
| Water Infrastructure | Stormwater | Stormwater lines, BMPs, structures |
| | Wastewater | Wastewater lines, treatment plants, structures, lift stations |
| | Potable Water Supply | Water supply, lines, structures, treatment plants |
| Economic | Annual Sales Volume | Annual sales for businesses |
| | Jobs/Employees | Number of employees for business locations |
| Natural Resources | Beaches & Coastal Areas | Beaches or natural coastal property |
| | Natural Areas and Parks | Parks, greenways, waterbodies |
| People | Population/Social Vulnerability | Socioeconomics with a focus on sensitive or socially vulnerable populations, seasonal populations |
| Property | Commercial & Industrial Property | Retail, offices, industrial or manufacturing, |
| | Cultural Property | Religious or cultural property, landmarks, historical properties |
| | Residential Property | Any multi or single residence, group homes, public housing, apartments and condos |
| Transportation & Mobility | Roads & Transportation Systems | All major and minor roads, transportation facilities |

# Step 3: Assess Vulnerabilities and Risk

"The central task of the vulnerability assessment is to evaluate the vulnerability to climate threats across each asset category and estimate the likelihood and magnitude of potential losses."

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# Once the Vulnerability Assessment (Step 3) is Done, We Will Explore Adaptation Strategies.

Some principles for identifying actions:

- Equitable
- Actions with multiple benefits
- Flexible and adaptive actions
- Built-in monitoring and evaluation
- Investments should not increase vulnerability
- Advocacy and partnerships with state and federal government and agencies and academic institutions

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Land Use

Infrastructure

Capacity Building

Public Outreach

Funding and Finance

Planning, Policy and Management

# COASTAL RESILIENCE PARTNERSHIP

SOUTHEAST PALM BEACH COUNTY

## QUESTIONS?

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Project Website:
https://tinyurl.com/SEPBCCRP