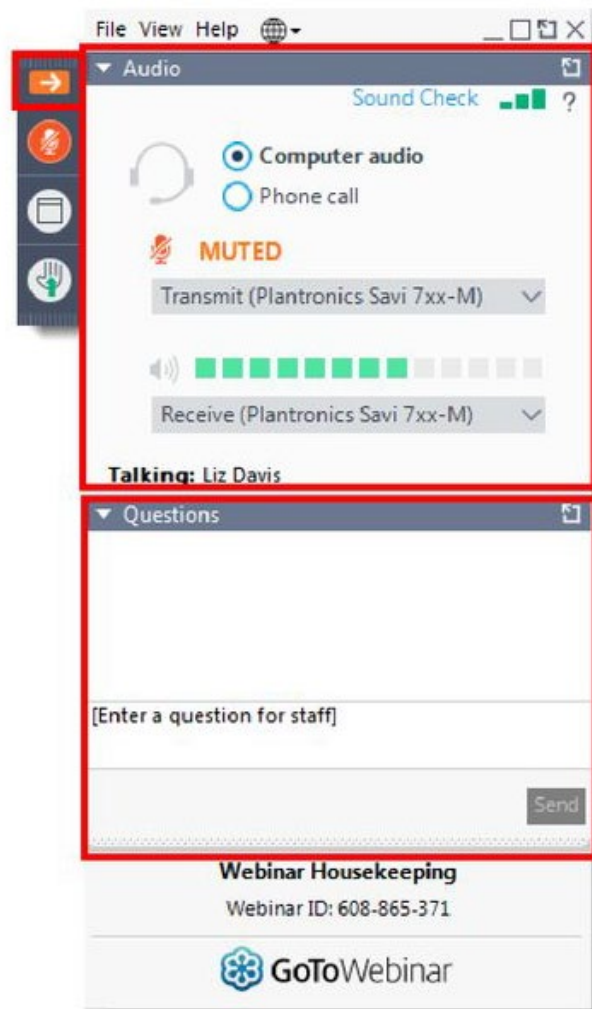


# Central Florida Resiliency Summit

Monday, January 31, 2022



# Housekeeping



## Your Participation

Open and close your control panel

Join audio:

- Choose **Mic & Speakers** to use VoIP
- Choose **Telephone** and dial using the information provided

Submit questions and comments via the Questions panel

**Note:** Today's presentation is being recorded and will be provided within 48 hours.

Please participate in the Poll Questions

Use the Q&A Box to Send Questions



Welcome



## Heartland 2060

**Pat Steed**

Executive Director, CFRPC



**Liz Cassin**

American Flood  
Coalition



**Sean Sullivan**

Tampa Bay  
Regional  
Resiliency  
Coalition



**Jenifer Rupert**

East Central  
Florida Resiliency  
Collaborative



**Jennifer Hecker**

Coastal &  
Heartland  
National Estuary  
Program



**Mike Britt**

City of Winter  
Haven One Water



## Heartland Regional Resiliency Coalition

**Jennifer Codo-Salisbury**

Deputy Director, CFRPC

# Regional Resiliency Coalition Summit

Polk  
Hardee  
Highlands  
Okeechobee  
Desoto  
Glades  
Hendry



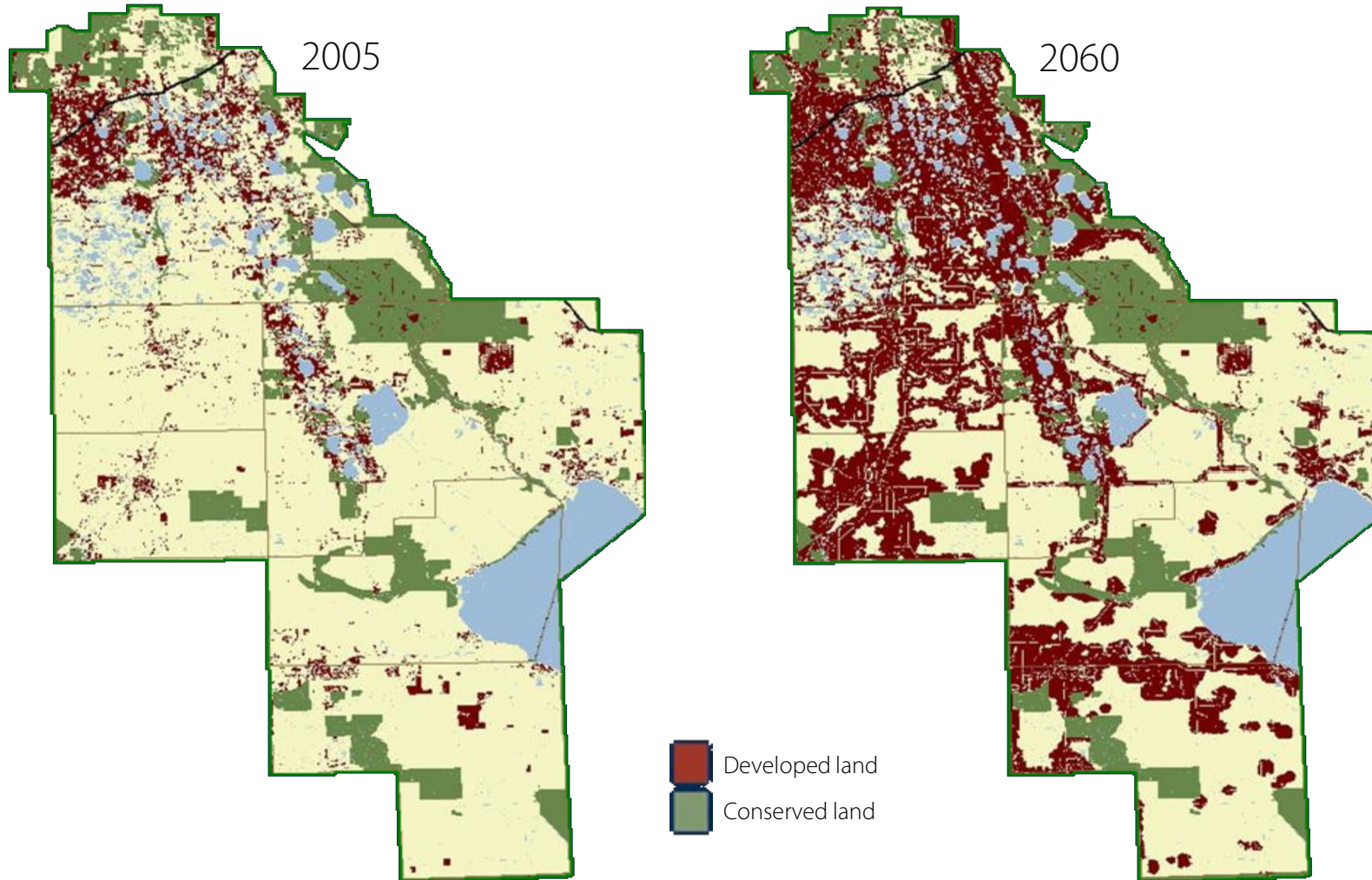




# heartland2060

**Building a Resilient Region - Revisited**

# Where Will Our Future Take Us?





## Education, Workforce, and Economic Development



Economic Diversification

Infrastructure to Support  
Diversified Economy

Early Learning, K-16,  
Lifelong Education

## Environment and Natural Resources



Water

Sustainable and Viable  
Natural Systems

Agriculture

Energy/Climate

## Transportation & Land Use



Integrating with  
Natural Resources Planning

Supporting Economic  
Development

Ensuring Multimodal  
Connectivity

Enhancing and Creating  
Sustainable Communities

## Community Resources



Health Care

Community Identity

# Our Heartland Core Values



---

*Ensuring our environment,  
wildlife, and natural spaces  
for future generations*

---



---

*Providing water supply for  
people, industry and agriculture,  
and water quality for our lakes  
and streams*

---



# Our Heartland Core Values



---

*Important to our history, vital for  
our future*

---

---



---

*Celebrating our people, our  
places, and our traditions*

---

# Our Heartland Core Values



**Future for our Children**

*Education and job opportunities for all*

---



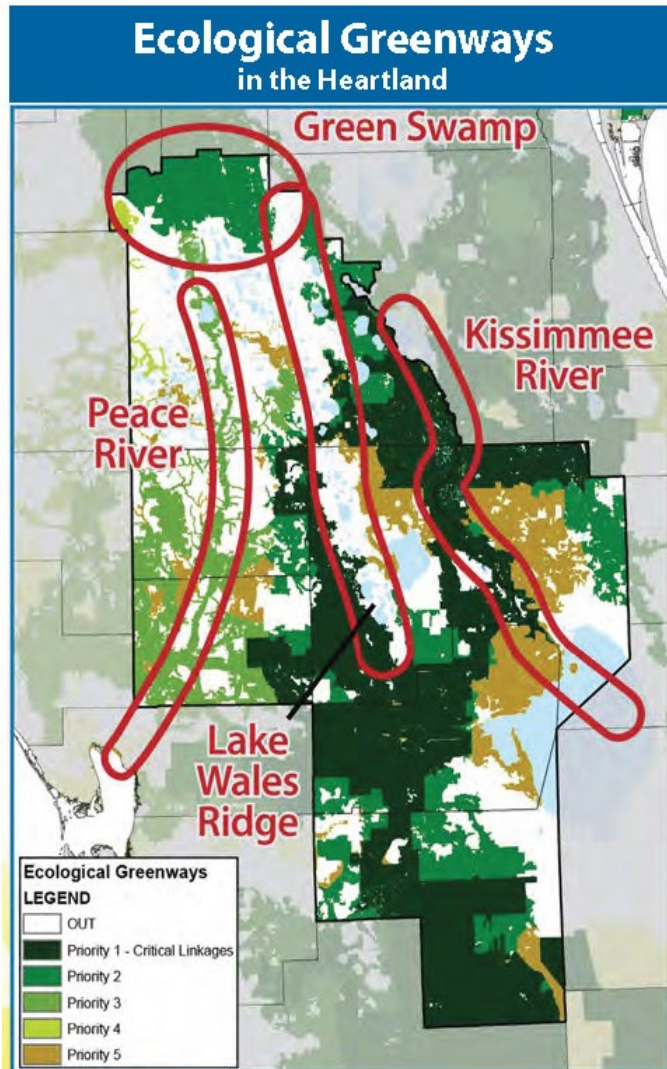


# Our Values

***Our Heartland Core Values have guided all our work supporting consensus building, development of plans and programs, support of existing and new initiatives, and continuing conversations.***



# Environmental Avoidance and Mitigation



Source: Florida Natural Areas Inventory

Resource/Impacts	Potential Mitigation Strategy
<b>Wetlands and Water Resources</b>	<ul style="list-style-type: none"> <li>» Restore degraded wetlands</li> <li>» Create new wetland habitats</li> <li>» Enhance or preserve existing wetlands</li> <li>» Improve storm water management</li> <li>» Purchase credits from a mitigation bank</li> </ul>
<b>Forested and other natural areas</b>	<ul style="list-style-type: none"> <li>» Use selective cutting and clearing</li> <li>» Replace or restore forested areas</li> <li>» Preserve existing vegetation</li> </ul>
<b>Habitats</b>	<ul style="list-style-type: none"> <li>» Construct underpasses, such as culverts</li> <li>» Use other design measures to minimize potential fragmenting of animal habitats</li> </ul>
<b>Streams</b>	<ul style="list-style-type: none"> <li>» Stream restoration</li> <li>» Vegetative buffer zones</li> <li>» Strict erosion and sedimentation control measures</li> </ul>
<b>Threatened or Endangered Species</b>	<ul style="list-style-type: none"> <li>» Preservation</li> <li>» Enhancement or restoration of degraded habitats</li> <li>» Creation of new habitats</li> <li>» Establish buffer areas around existing habitats</li> </ul>





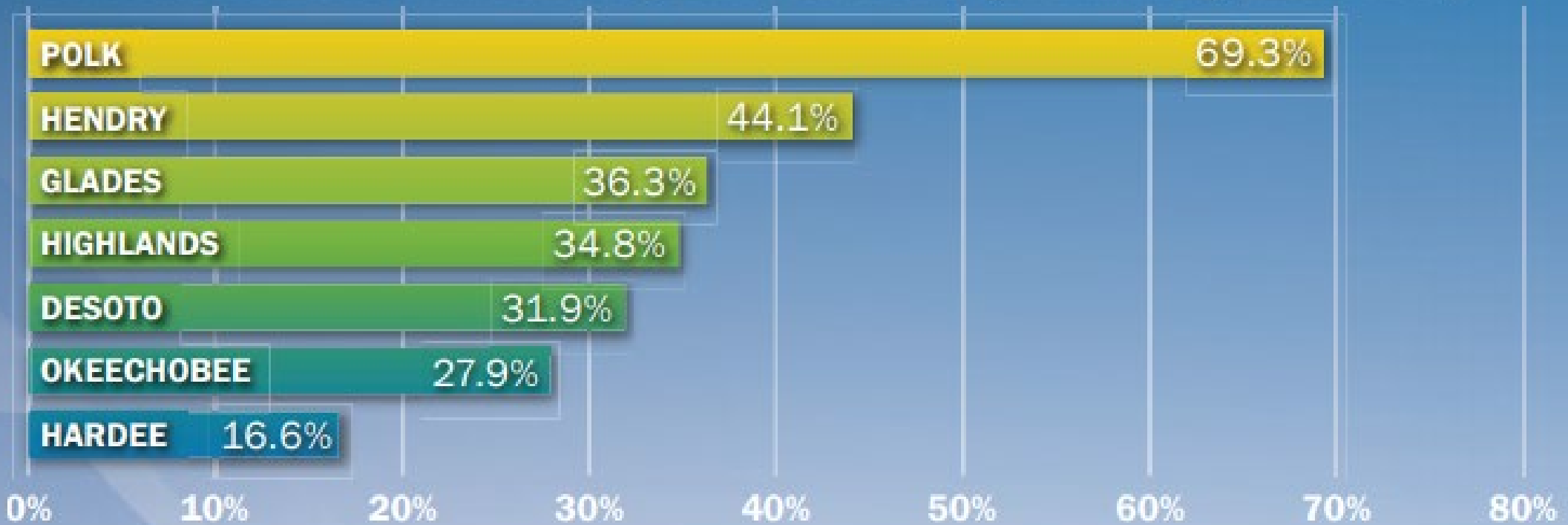
# The Future of our PEOPLE AND COMMUNITIES

The Heartland's **population** will **increase** by more than

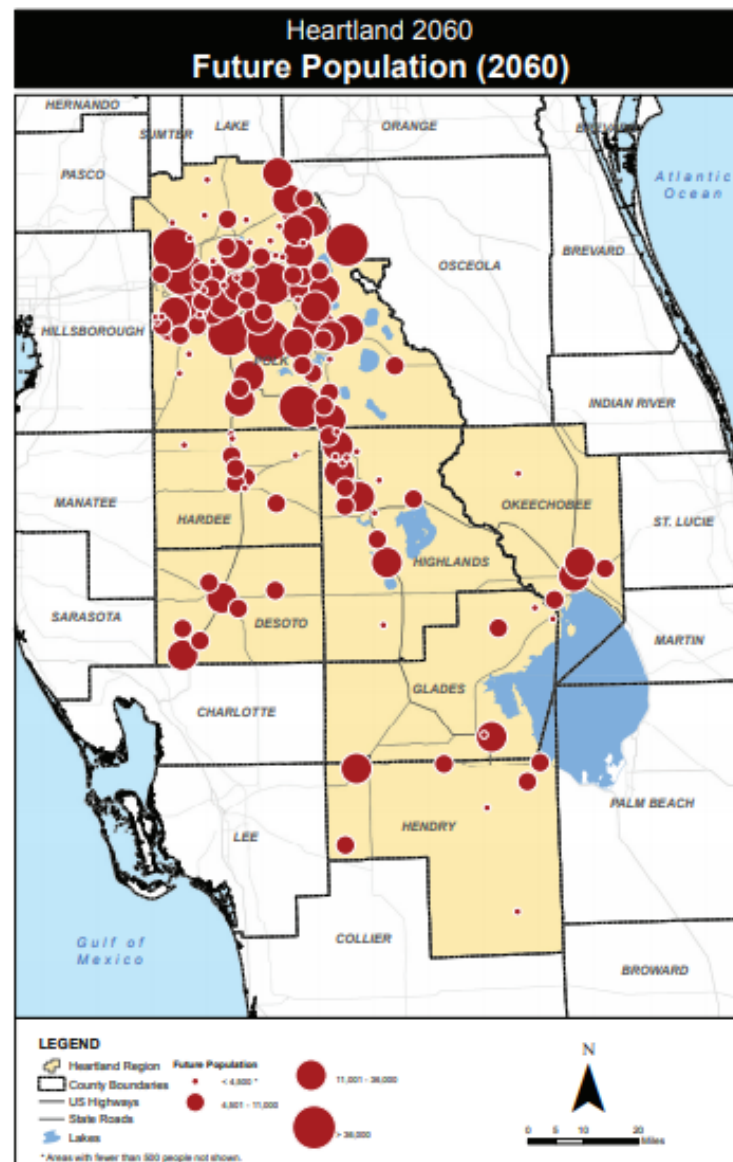
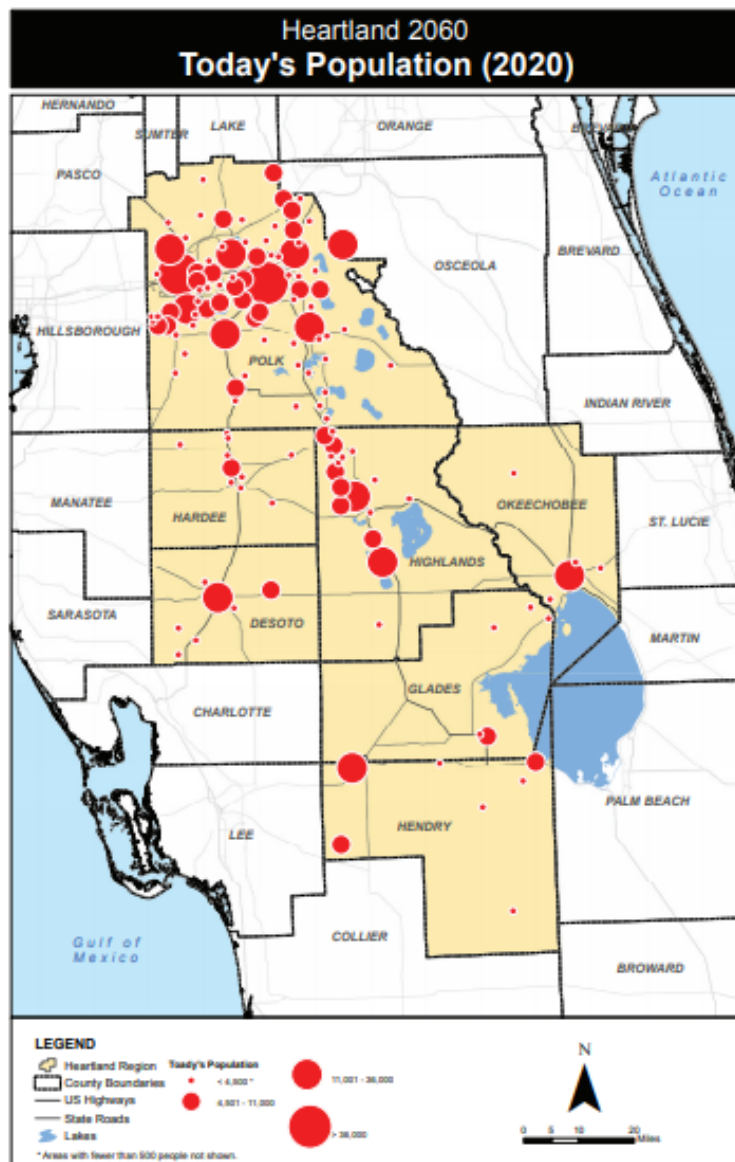
**551,000** residents  
by 2060



**POPULATION GROWTH** will be strongest in Polk County *(percent change, 2018-2060)*



*(Source: U.S. Census Bureau, American Community Survey)*



An additional

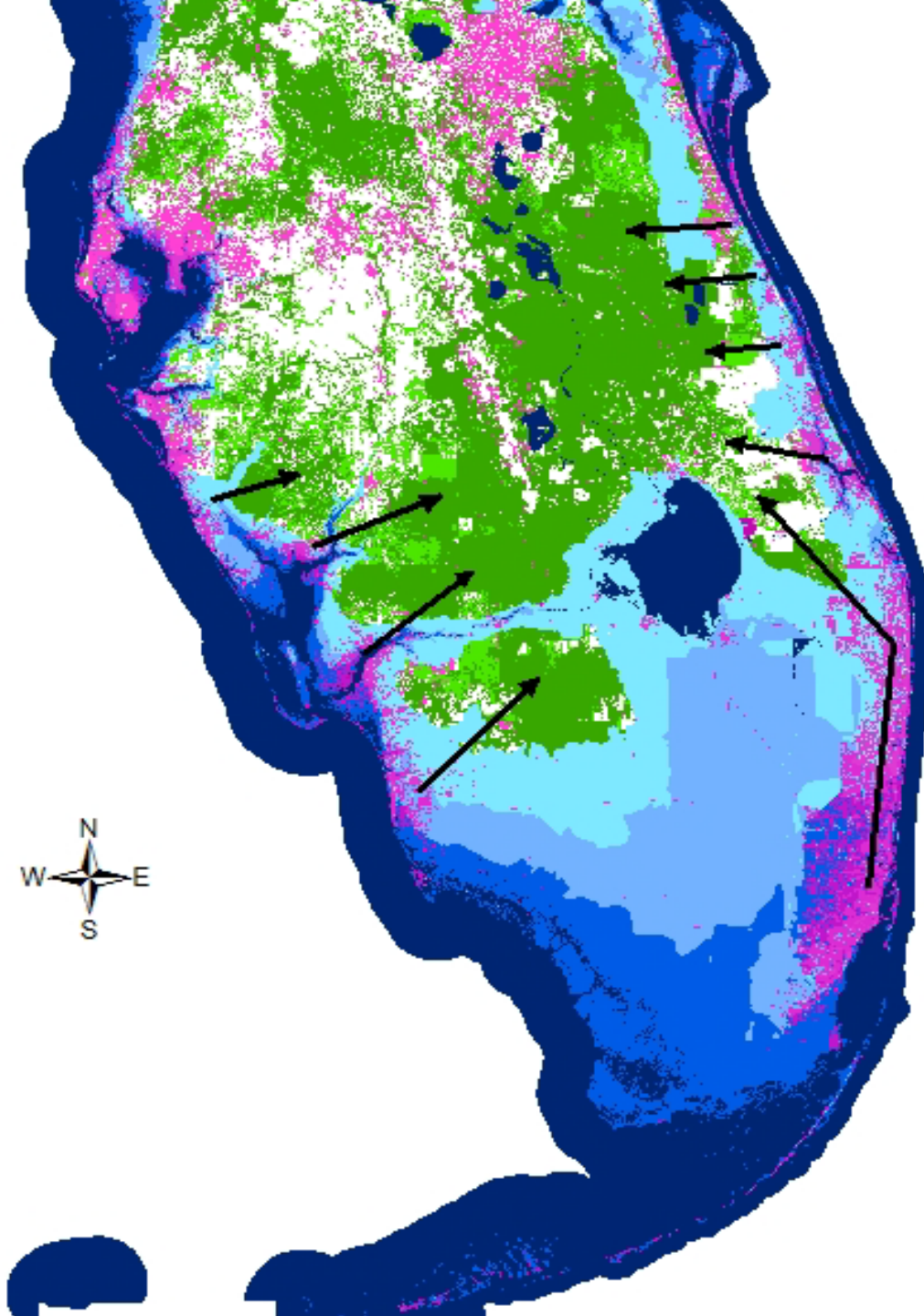
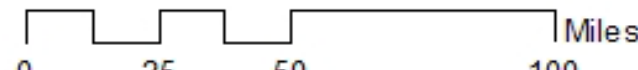
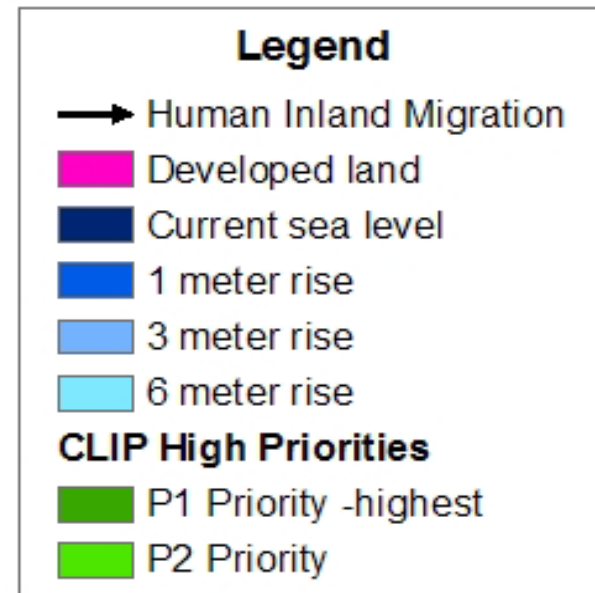
# 213,000 DWELLING UNITS

will be needed by **2060** to accommodate  
projected population growth

(Source: Central Florida Regional Planning Council)



# Potential Human Population Shifts due to Sea Level Rise



# The Future of our ECONOMY

**Job growth** nationwide is shifting toward **non-routine activities**, particularly those requiring **specialized skills or knowledge**.

(Source: Federal Reserve Bank of St. Louis)

## TARGET INDUSTRY CLUSTERS



The Heartland **workforce will increase from 391,000 workers in 2019 to 636,400 in 2060**. More than 30% will be over the age of 55, compared to the current 24%.

(Source: Central Florida Regional Planning Council)

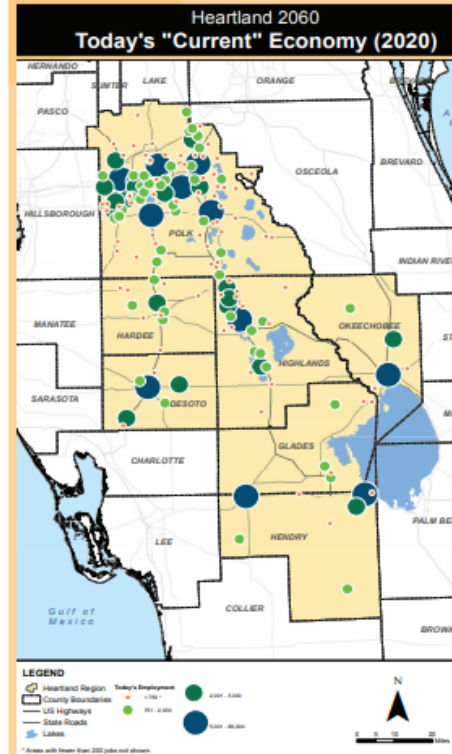
More than **½ of all jobs nationwide could be automated today** using current technologies. (Source: McKinsey Global Institute)

More than **9.2 million jobs nationwide could be in the “gig” economy** – flexible, on-demand positions- by 2025.

(Source: Emergent Research and Intuit)



# Current and Future Economies



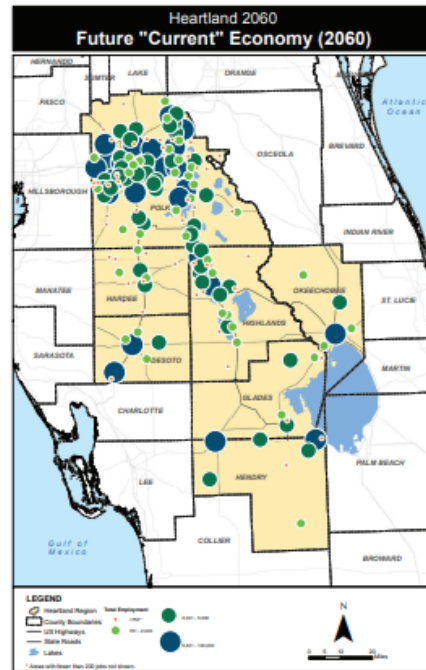
With Today's Current Economy as the basis, employment projections were created for three different potential economic Futures.

The three different potential economic Futures correspond to what might happen if there were directed regional development of industry clusters, as identified in the Comprehensive Economic Development Strategy (CEDS) for the region.



## A future that... Resembles the Present.

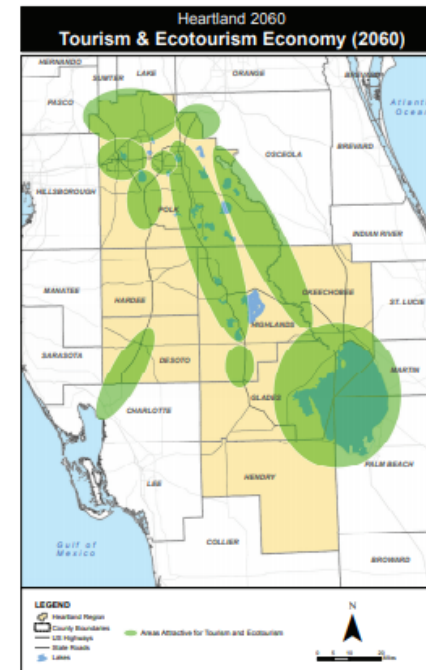
If we continue to follow current and historical trends in population, employment, and land use, then our Future "Current" Economy's most prominent industries will include healthcare, agriculture, freight, mining, ecotourism, and services.



## A future that is... Tourism and Ecotourism.

If we focus on a future that develops Tourism and Ecotourism opportunities in the Heartland....

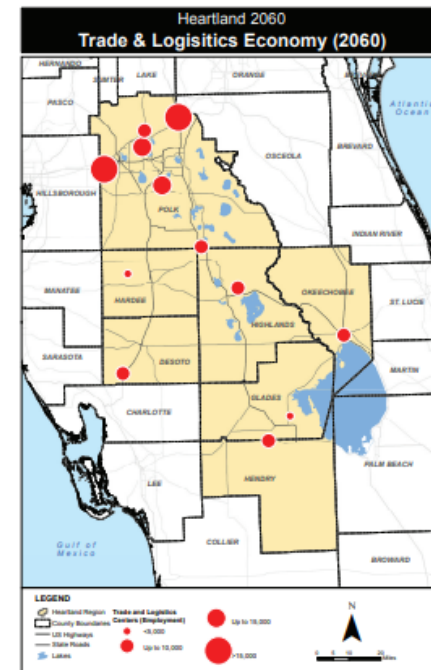
- Support expansion and enhancement of existing tourism venues
- Provide business development to capture ecotourism and recreational opportunities



## A future that is... Making and Moving Goods.

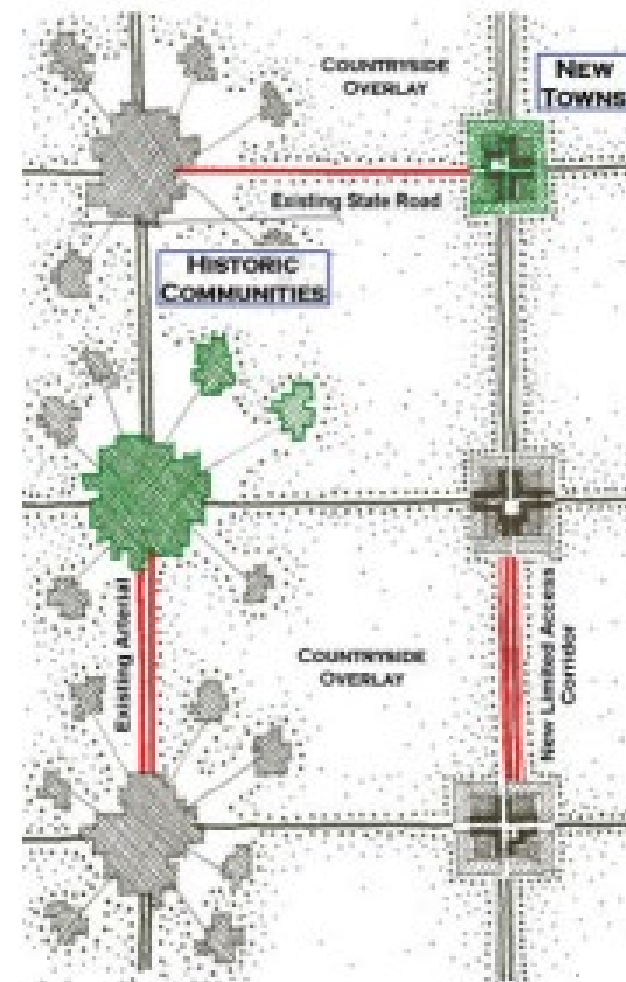
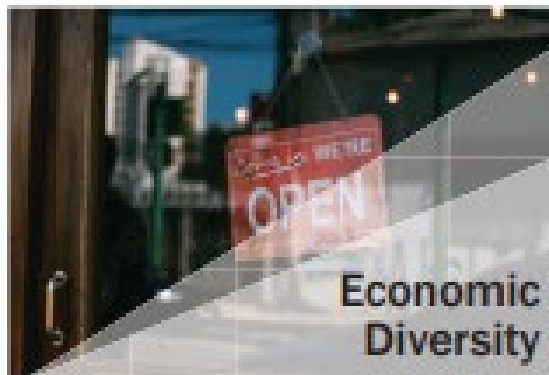
If we focus on employment hubs for manufacturing, transportation, and warehousing, then we can expect our future to look like...

- Using current and future industrial areas and logistics and trade networks
- Maintaining high capacity transportation networks for moving goods
- Enhancing distribution of air cargo
- Establishing advanced manufacturing and warehousing facilities





# Heartland's Historic Connectivity







# heartland2060

Building a Resilient Region  
Revisited



Archbold Biological Station

CareerSource Heartland

Early Learning Coalition of the Heartland

Florida Fish and Wildlife Conservation Commission

Florida Heartland Economic Region of Opportunity (FHRO)

Heartland Educational Consortium

Polk Vision

Sebring Regional Airport

South Florida Water Management District

Southwest Florida Water Management District

The Nature Conservancy

Winter Haven Economic Development Council



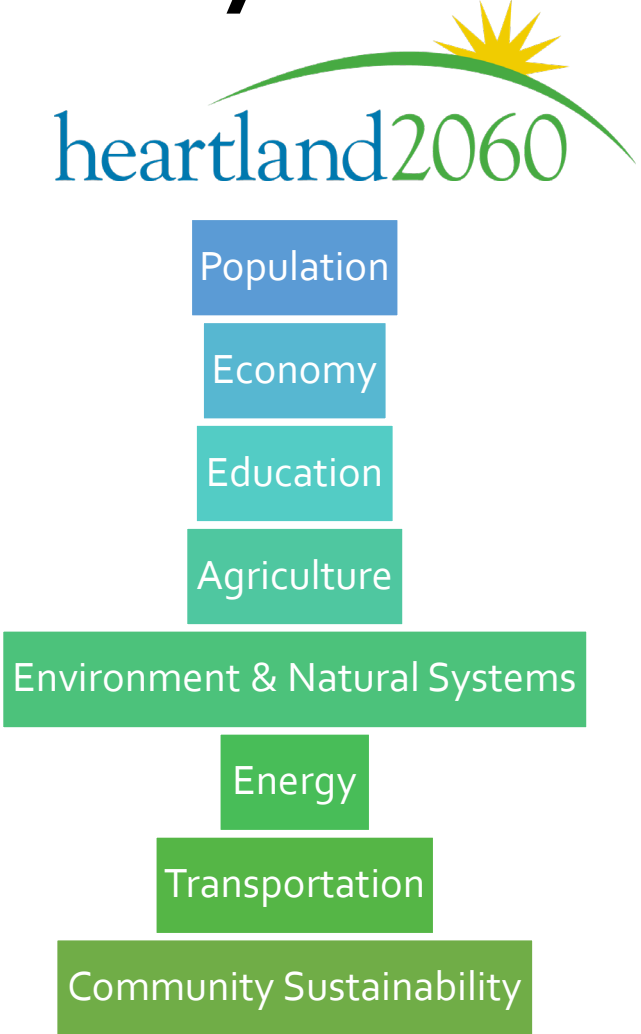




heartland2060

[Heartland2060.org](http://Heartland2060.org)

# Resiliency Focused Collaboration



## Heartland Resiliency Coalition

- Natural Disaster Threats
  - Flooding
  - Wind damage
  - Extreme weather

### ...the Impacts to:

- Infrastructure
- Agriculture
- Essential Buildings
- Housing
- Community assets
- Military Installations



**Liz Cassin**  
*American Flood Coalition*





**AMERICAN FLOOD COALITION**

# American Flood Coalition

**Central Florida Resiliency Summit**  
Monday January 31, 2022



# We are the American Flood Coalition

A 501(c)3 nonprofit organization and nonpartisan coalition advocating for national solutions to flooding and sea level rise



**Federal  
Champions**



**Cities, Towns  
and Counties**



**Elected  
Officials**



**Businesses**



**Military  
Groups**



**Civic and  
Academic Groups**



[illegible]

**< 5 members / federal champions**







# Our mission

Protecting communities that are vulnerable to flooding and sea level rise is a national issue that must be met with **national solutions**—it is vitally important to our well-being, economic strength, and security.

With effective flooding and sea level rise planning our communities can adapt and thrive.  
**But we must act now.**







## Our 4 pillars for coastal and inland solutions

### Economy

Invest in infrastructure that boosts the economy and protects property values

### Communities

Use proactive planning to keep communities safe and save taxpayer dollars

### Rebuilding

Build back stronger to protect communities from future flooding

### Military

Ensure our military installations are ready to deploy 365 days a year







## 3 drivers of flooding affecting Florida

### Sea level rise

Sea level is rising and is projected to continue rising in Florida, with the potential to increase coastal flooding and reduce the effectiveness of drainage systems.

### Heavy rainfall

Heavy rainfall events are increasing across the state, and can combine with sea level rise and storm surge to create unprecedented flooding.

### Stronger storms

The proportion of tropical cyclones that reach Category 4 and 5 will likely increase over the coming century, and the impacts will worsen with sea level rise.





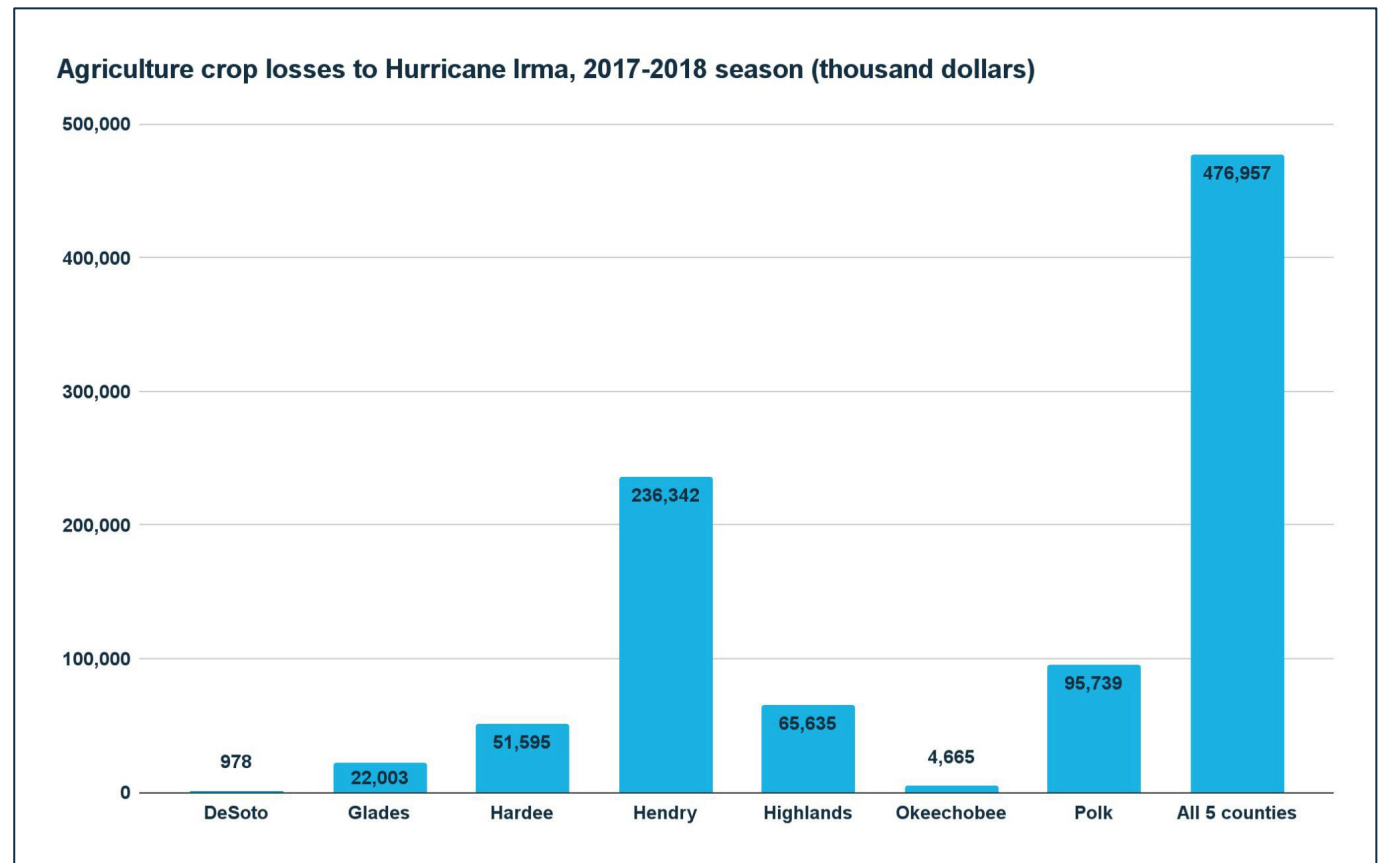


# Flooding in Central Florida

As the only regional planning council with no coastline, the flood challenges in Central Florida are unique and different from coastal communities

County	Properties in 100-year floodplain	% of all properties in 100-year floodplain	Overall flood risk
DeSoto	2,817	14%	Moderate
Glades	2,291	20%	Moderate
Hardee	1,188	8%	Minor
Hendry	13,763	39%	Major
Highlands	10,271	9%	Moderate
Okeechobee	6,107	19%	Moderate
Polk	38,695	11%	Minor

\*Data from [FloodFactor](#)



\*Data from [University of Florida Economic Impact Analysis Program: Economic Losses of Hurricane Irma on Agriculture in Florida Counties](#)





# Investing in solutions to reduce flooding



Multi-cropping pilot project with NE Iowa Resource Conservation and Development reduces flooding by 40-60%

## Benefits/highlights/takeaways



Allows farmers to have roots in the soil 365 days a year—improving soil health, increasing biodiversity, and reducing surface flooding.



Improves soil quality and doubles the rate at which water infiltrates soil.



More cost-effective than downstream urban approaches such as building levees or floodwalls.





# Partnership with Johns Hopkins University: Flood-resilient infrastructure and job creation

- Investigates **how federal investment in resilience creates jobs**, stimulates local markets, and brings additional benefits
- The report found that each **\$1 billion invested** in flood resilient infrastructure could be associated with up to **40,000 new jobs across the country**
- For every \$1 million invested in flood infrastructure, there would be an estimated **49 jobs created in FL-15** and **49 jobs created in FL-17**





# Building a regional resilience collaborative





# What is a regional resilience collaborative and what are the benefits of regional collaboration?

- **Formal partnership** to work together to improve the resilience of the communities within the footprint of a regional planning council
  - **Bring together a diverse set of stakeholders**, including local officials, nonprofit organizations, academic institutions, agencies, and businesses to create unified goals and a vision for the region
- 
- **Increased capacity.** Many local governments don't have the resources to address the challenges of resilience. Participants in regional collaborations benefit from shared resources.
  - **Regional planning standards.** Regional approach allows for cost-savings, a clear standard for the private sector, and reduction of duplicative efforts.
  - **Louder voice together.** Regions that work together have a louder voice on issues of importance.
  - **Collaboration on projects & studies.** Local governments can reduce cost of projects and studies by working together.
  - **More competitive funding applications.** When applying for funding, regional collaboratives have been quite successful, and many agencies note their encouragement for regional approaches.







# “Always Ready” legislation and funding opportunities for resilience entities

- In May 2021, the Legislature passed the “Always Ready” legislation to **prioritize resilience planning and projects**
- The Legislature also passed a budget with **over \$650m dedicated to resilience planning and infrastructure**
  - Governor has proposed another \$500m next year
- Regional resilience entities **made up of local governments** and **formalized through an MOU or similar mechanism** are eligible
- There was up to **\$2m available funding in FY 2021-2022**
- Projects that are eligible for this type of funding include:
  - Providing technical assistance to counties and municipalities
  - Coordinating multi-jurisdictional vulnerability assessments
  - Developing project proposals to be included in the Statewide Flooding and Sea Level Rise Resilience Plan







# AFC resources for members and partners to further resilience in their communities

## Adaptation for All guide



- Purpose is to **to help local leaders determine approaches to flooding or sea level rise** that can work best for them
- **Highlights 26 approaches** broken down by cost, benefits, and implementation considerations
- Most of the case studies found in the guide are from **communities with populations less than 50,000**
- Developed in collaboration with the Embassy of the Kingdom of the Netherlands and Arcadis

## Flood Funding Finder



- Breaks down federal grants and technical assistance programs
- Interactive tool targeted toward communities with **populations of 50,000 or fewer**
- Users can identify programs by various characteristics including **requires Presidential Disaster Declaration, supports project planning**, and more





**AMERICAN FLOOD COALITION**

## Contact us



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[alec@floodcoalition.org](mailto:alec@floodcoalition.org)



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**Brian Paro**  
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**Kate Wesner**  
Florida Director  
[kate@floodcoalition.org](mailto:kate@floodcoalition.org)



A vertical rectangular image showing water splashing, with many droplets frozen in time, creating a dynamic and textured appearance. It is positioned behind the blue banner.

**Sean Sullivan**  
*Tampa Bay Regional  
Resiliency Coalition*





# COLLABORATING TO INCREASE RESILIENCY IN OUR COMMUNITIES

## OVERVIEW OF THE TAMPA BAY REGIONAL RESILIENCY COALITION

Sean T. Sullivan, Executive Director

January 31, 2022



# Extreme Weather Events and Climate Change are Increasing Risks to our Communities and Economies



*Florida Trend 2018* 500 most influential Floridian's name Climate Change/Sea Level Rise as a top concern.

**Business Resiliency Report, *Resilient Business, Resilient World*** identified climate change as the highest impact risk to business out of 29 risks that were reviewed.



# IMPACTS OF CHANGING CONDITIONS

**\$953,566,850 in damages  
reported in TBRPC  
counties from January  
2014-June 2019**





# Florida Chamber Foundation 2030 Plan Includes Resilience Goals

*Preparing Florida's infrastructure  
for smart growth and development*

**Diverse, attainable housing**  
to meet future demand

Every resident has access to **public  
and private mobility services**

**All major population and economic  
centers connected** to regional,  
national, and global markets by  
**high-capacity corridors**

World's **most capable spaceport; top-  
tier airports, seaports, and surface  
transportation hubs** in U.S.

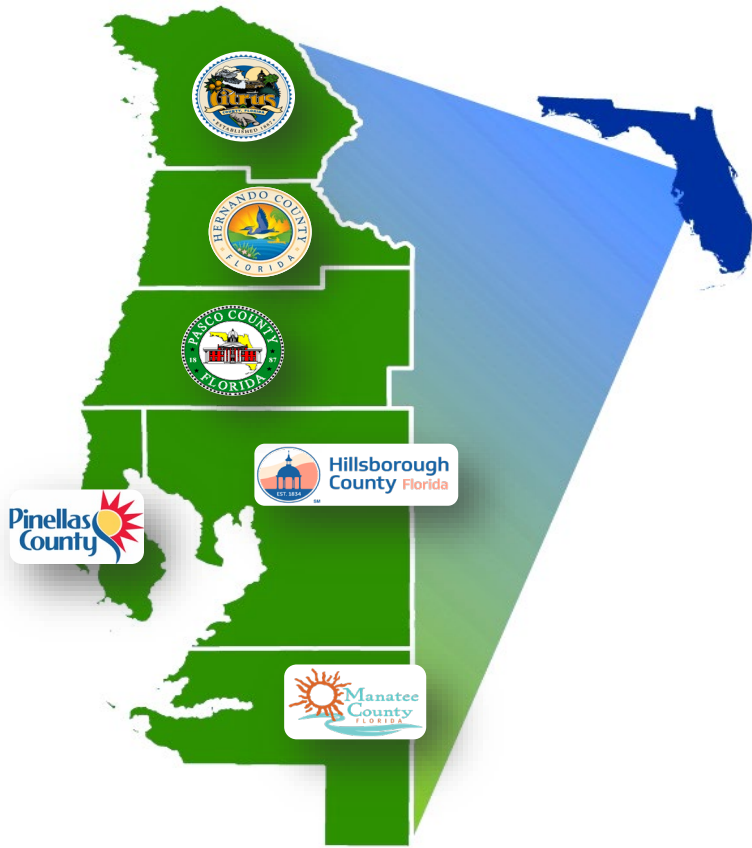
**100%** of Florida residents have  
access to **high-speed  
communications connectivity**

**Diverse and reliable energy, water,  
and waste management resources** to  
meet future demand

**All Florida residents** protected  
by **resiliency plans**



# BENEFITS OF A REGIONAL APPROACH



- Unified Voice to Address Challenging Issues and Policies
- Advanced Planning
- Leverage Resources
- Build Capacity
- Expand Expertise
- Broadened Partnerships
- Increase Innovation

# TBRPC SERVES

- 6 Counties
- 21 Municipalities
- 13 Gubernatorial Appointees
- 3 Ex-Officios





# CREATING THE RESILIENCY COALITION IN 2018



Coalition Chair Cm. Janet Long  
and TBRPC Executive Director  
Sean Sullivan

- Jan-March - Presentations at Council meetings
- March - Cm. Long proposes formation
- June - Technical Advisory Committee creates Memorandum of Understanding (MOU) which defines road map for collaboration
- July-Sept – Local Governments review and approve
- Oct signing event with 25 Local Governments





**Formed in October 2018:  
31 Local Government Members and  
more than 90 Partner Organizations**

## COUNTIES

1. Citrus
2. Hernando
3. Hillsborough
4. Manatee
5. Pasco
6. Pinellas
7. Sarasota

## MUNICIPALITIES

1. Bradenton
2. Bradenton Beach
3. Clearwater
4. Dunedin
5. Gulfport
6. Holmes Beach – May 2019
7. Indian Rocks Beach
8. Indian Shores
9. Largo
10. Long Boat Key
11. Madeira Beach
12. New Port Richey
13. Oldsmar
14. Palmetto
15. Redington Beach
16. Safety Harbor
17. Sarasota
18. Seminole
19. South Pasadena
20. St. Petersburg
21. St. Pete Beach
22. Tampa
23. Tarpon Springs
24. Treasure Island



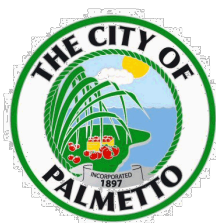
# Resiliency Coalition Members



Hillsborough  
County Florida



bradenton  
*The Friendly City*



DUNEDIN  
Home of Honeymoon Island



BRADENTON BEACH  
FLORIDA





# **COALITION STRUCTURE**

## **TBRPC COORDINATING ENTITY**



**1**

**STEERING COMMITTEE**  
TBRPC Elected Officials

**3**

**PARTNERS**  
Private Sector, Non- Profits, Universities, etc.

**2**

**MANAGEMENT & PLANNING COMMITTEE**  
Local Govt. Senior Staff/Multi-jurisdictional  
Agencies

**4**

**WORKGROUPS**  
Elected Officials, Staff, Partners, and Local Community

# COALITION WORKGROUPS

Risk & Vulnerability Assessments

Energy Resiliency

Capital Improvement & Finance

Geospatial Data

Planning & Policy

Municipal Excellence

Communications & Engagement

Resilient Shorelines & Spaces

Include Local Government Staff and Stakeholder  
Partners

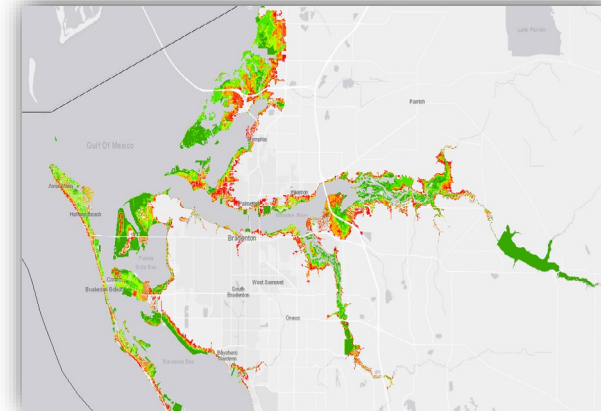
# Creating the first Regional Resiliency Action Plan (RRAP)

- In 2021, TBRPC held online workshops to collect input from Local Governments and stakeholders and Partners and met with the Steering Committee multiple times.
- RRAP features five chapters, 10 regional goals and **30 regional collaboration actions which** align with local priorities and leverage multijurisdictional collaborations.
- The third draft, released in December 2021, integrates best practices for innovative flood mitigation and stormwater management, strengthens sustainability actions, and opportunities for regional collaboration.

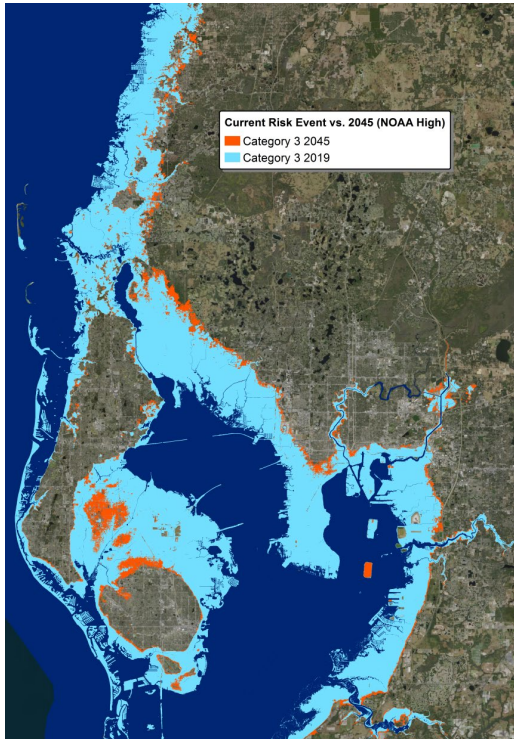


# LOCAL GOVERNMENT ACTIONS

- HR: Creating New Resilience Positions, Teams
- Science And Policy: Mapping, GIS Data, Conducting Vulnerability Assessments, Updating Comp Plans, Peril Of Flood,
- Financial: Consider SLR In Capital Improvement Project Review Process, Add \$ For Assessments, Create Utility Fees
- Community Engagement Meetings, Surveys



# TRANSPORTATION ASSESSMENT



## FHWA Resilience and Durability Assessment Pilot Project

TBRPC, Pinellas, Hillsborough, Pasco MPOs

- 9 inches in 24 hours
- 33 inches in 3 days
- Plus Cat. 1,2,3
- Sea Level Rise up to 2045
- Inform the Long Range Transportation Plan Update
  - Lessons from Hurricane Harvey -- stalled storm could *double or triple* rainfall totals.
  - Climate models predict an uptick in frequency -- increase in rate (inches/hour)

# MEMORANDUM OF UNDERSTANDING



## TAMPA BAY CLIMATE ADVISORY PANEL (CSAP) 2019 REPORT

Recommended Sea Level Rise Projections



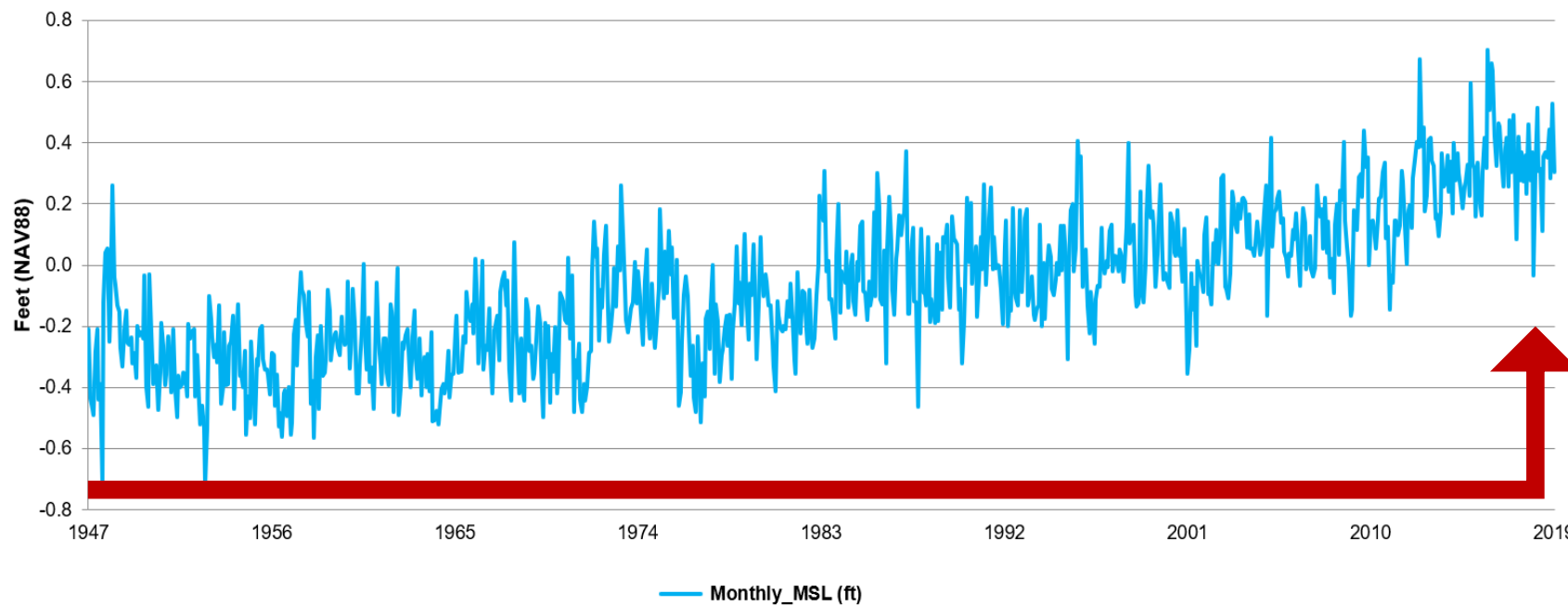
RECOMMENDED PROJECTIONS OF  
**Sea Level Rise**  
in the Tampa Bay Region





# RECENT LOCAL HISTORICAL SEA LEVEL RISE

Monthly Mean Sea Level MSL (ft)  
St. Petersburg, Florida



# 2017 PROJECTIONS WERE HIGHER THAN PREVIOUSLY PROJECTED



## Updated Recommendation

Year	Int-Low (feet)	Intermediate (feet)	High (feet)
2000 <sup>3</sup>	0	0	0
2030	0.56	0.79	1.25
2040	0.72	1.08	1.77
2050	0.95	1.44	2.56
2060	1.15	1.87	3.48
2070	1.35	2.33	4.56
2080	1.54	2.82	5.71
2090	1.71	3.38	7.05
2100	1.90	3.90	8.50

Provided by the  
Tampa Bay Climate  
Science Advisory  
Panel

**Table 1.** Sea Level Change Relative to the Year 2000 for St. Petersburg, Florida in Feet Above Local Mean Sea Level (LMSL)

# SMALL INCREASES IN SEA LEVEL IMPACTS STORWATER DRAINAGE

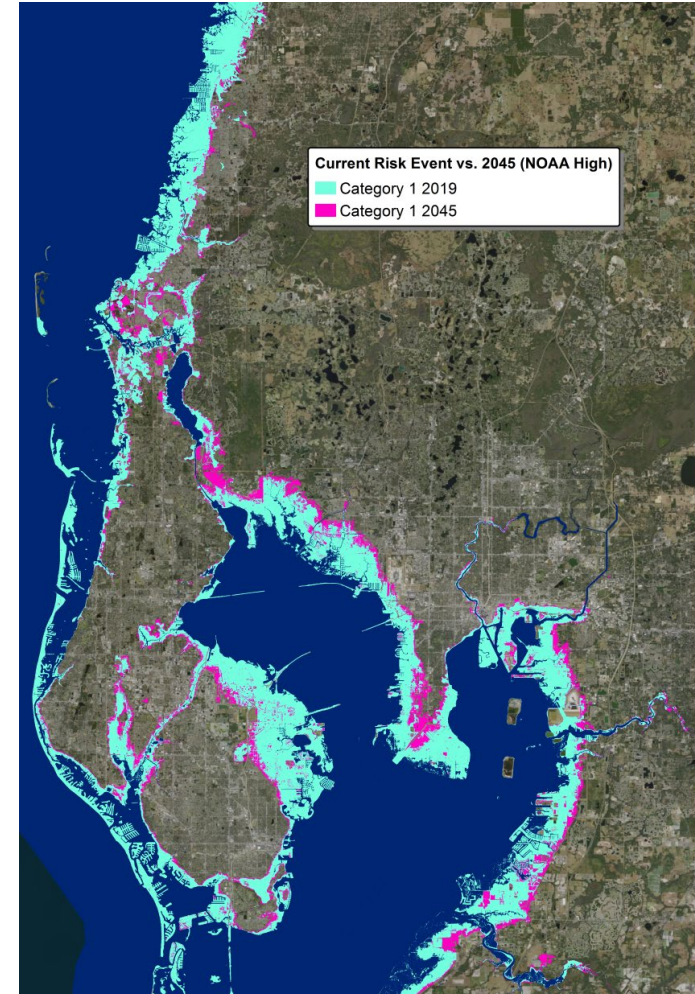


Current water levels are already higher than the bottom of the outfalls.



# SEA LEVEL RISE EXACERBATES STORM SURGE

- Notes: 2045 was used for the FHWA project for LRTP update
- NOAA High for 2045 = 2.16 feet



# LOCAL GOVERNMENT RESILIENCE BUILDING

## Rockefeller Resilient 100 Cities 2018 Evaluation -- “Institutionalizing” Resilience

1. Dedicated Resilience Staff (Chief Resilience Officer Or Lead/Coordinator)
2. Implement Cross-sectoral And Multi-jurisdictional Planning
3. Reduce Operational Silos
4. Increase Consistency Among Internal Plans
5. Active, Ongoing Commitment From Elected Leaders
6. Involve Partners From Civil, Private, And Multilateral-sector Organizations
7. Change Capital Improvement Budget Review Procedures
8. Leverage Funds For Resilience-building Efforts



## Planning the 2nd Regional Resilience Leadership Summit April 5-6th 2022

- Featured Panels With Mayors, County Administrators, Leading Experts
- Future Of The Region Awards Luncheon
- Breakouts To Define Regional Resilience Action Plan Priorities
- Celebrate 60th Anniversary Of The TBRPC







# THANK YOU!

[WWW.TBRPC.ORG](http://WWW.TBRPC.ORG)

Sean T. Sullivan, [sean@tbrpc.org](mailto:sean@tbrpc.org)





**Jenifer Rupert**  
*East Central Florida  
Resilience Collaborative*





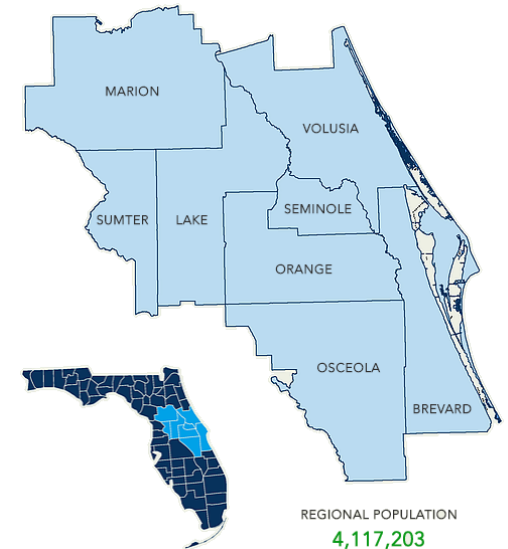




# Regional Planning Council Meetings



- Orange County- Hurricane Maria
  - Affordable housing
  - Migration
- Osceola County
  - Infrastructure Failure
  - Aging Infrastructure
- Regional Food Systems
  - Food Access
  - Health Outcomes
  - Shifting Economic Trends
- City of Orlando
  - Climate Change
- Brevard and Volusia Counties Regional Resilience Action Plan
  - Coastal/ tidal flooding
  - Sea Level Rise



# Creating Resilience

- Each project was a demonstration of how ***organized local leadership*** can elevate the distinctive assets of a place in ways that transcend the confines of the past, building linkages throughout the region, state and global economy.

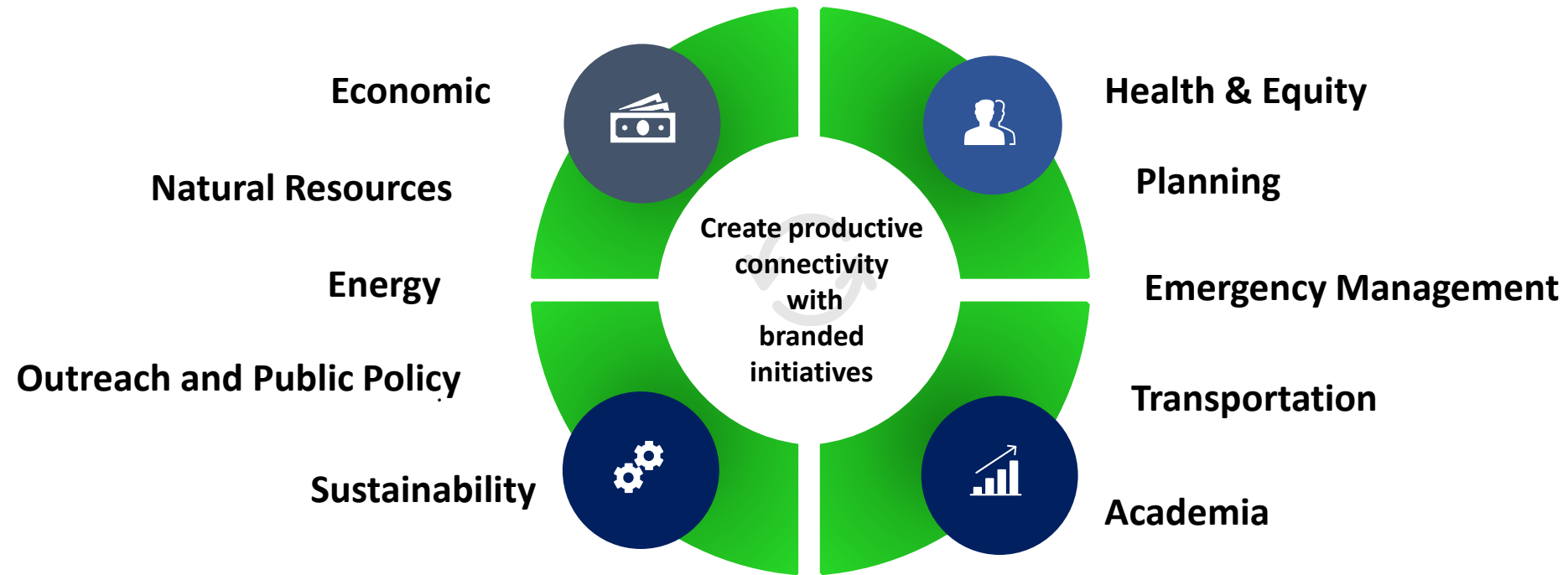


Hurricane Irma Flooding  
Good Samaritan Village  
Marsh Road  
September 13, 2017



# Steering Committee

Unified effort





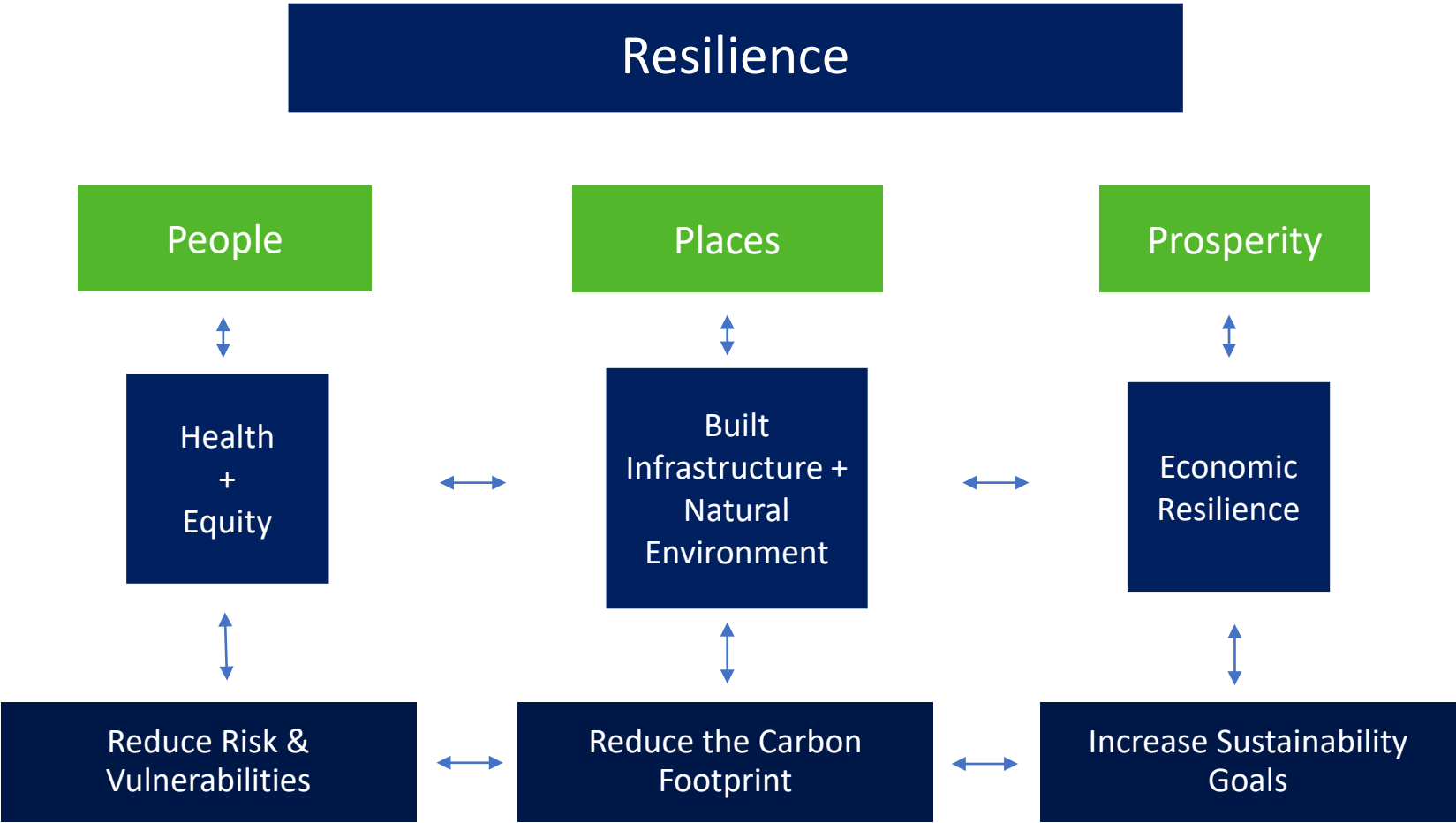


# Resilience

- Resilience – the ability to ***bounce forward***; absorb, recover and get better in the face of *short term shocks* like hurricanes or infrastructure failures and *long – term stressors* like affordable housing, aging infrastructure, shifting economic trends and climate change.



# R2C Framework



# Survey & Workshops

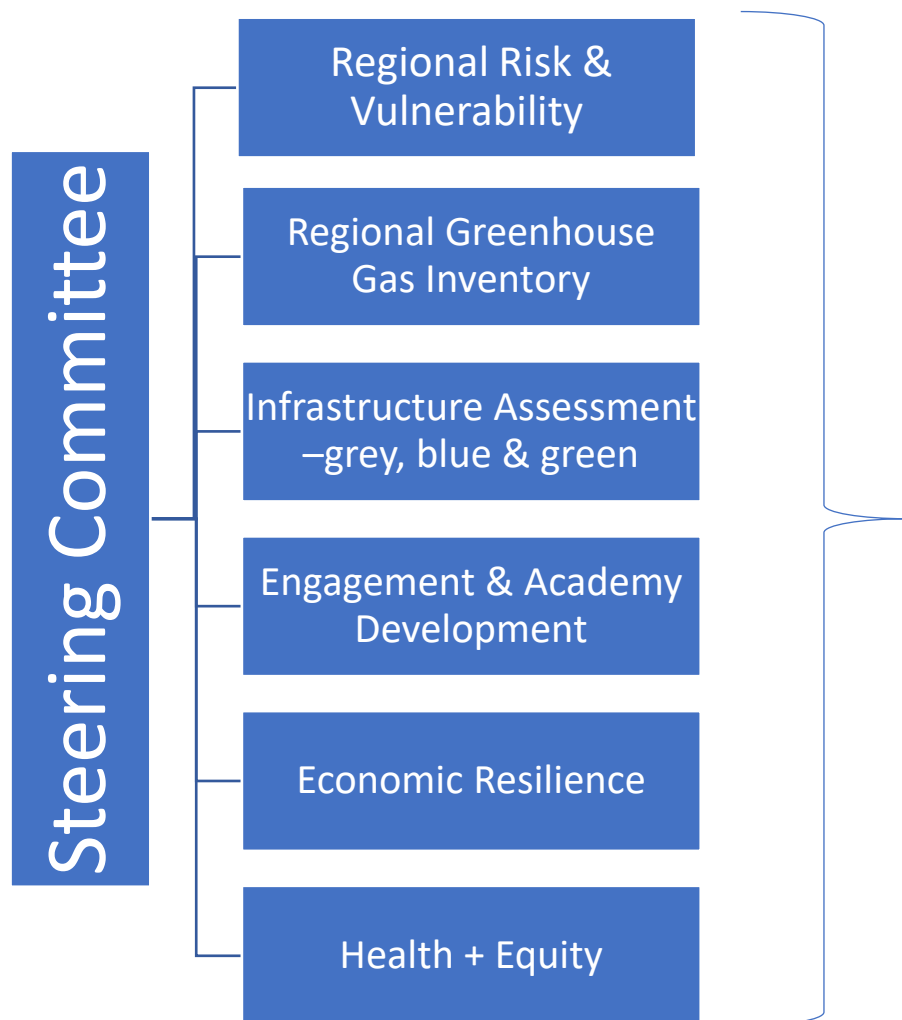
- Developed for County/City Managers
- Gauge how jurisdictions were thinking and incorporating resilience into day to day activities
- Understand data – indicators and benchmarking \*
- Collaborative function
- Presentations
- Group Action on Priority Topic Areas
- What are tools, assets or gaps that can be utilized, or need to be filled, to address the priority areas?
- What are services or outcomes the Resilience Collaborative can advance?







# Partner Engagement & Technical Advisory Committees



- Building a collaborative ecosystem through engagement in technical advisory committees.
- Committees are establishing and prioritizing goals and developing strategies for implementation.
- Alignment of goals and leveraging resources with community partners.



# Skilled Cohesive Teams

## STEERING COMMITTEE

The lead multidisciplinary group of stakeholders across east central Florida responsible for developing the process, framework and direction for the regional resilience collaborative to achieve a comprehensive, interdependent approach to increase resilience in the region.

**GOAL:** Seek & leverage external opportunities to build and sustain the collaboratives identity and impact

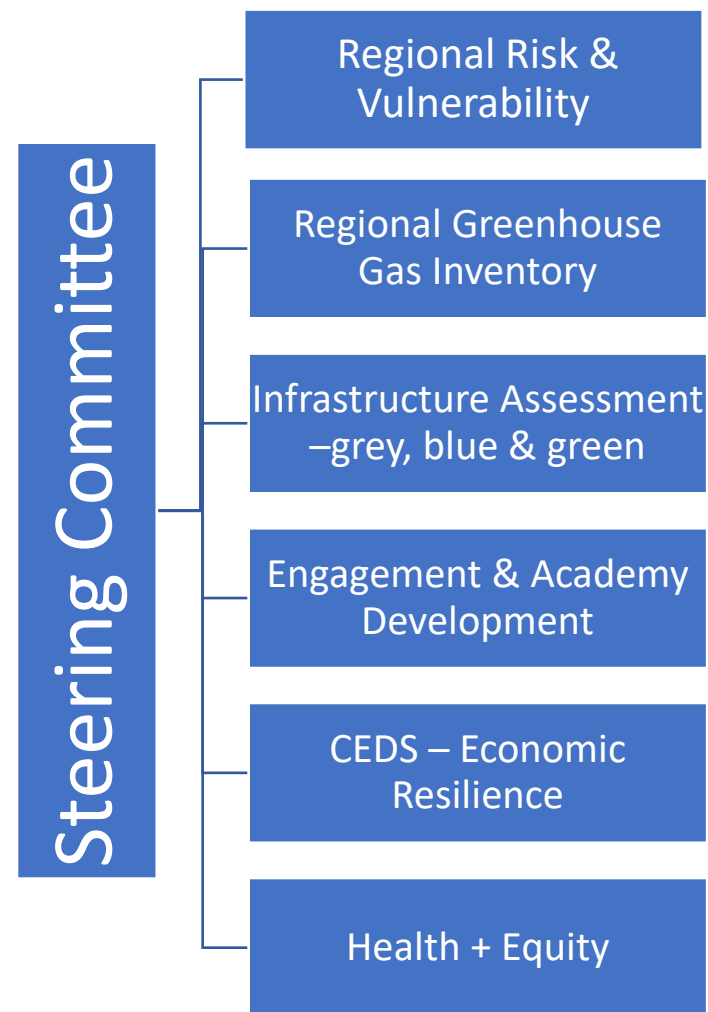
**GOAL:** Catalyst for advancing preparedness /resilience policy and action across jurisdictions

**GOAL:** Establish and cochair technical advisory committees based on needs

**GOAL:** Build relationships & engage key influencers and organizations in pillar alignment

**GOAL:** Utilize networks to explore funding opportunities

**GOAL:** Maintain relevance and find opportunities for expansion within jurisdictions and networks





# East Central Florida Regional Resilience Collaborative Strategic Resilience Action Plan (SRAP)



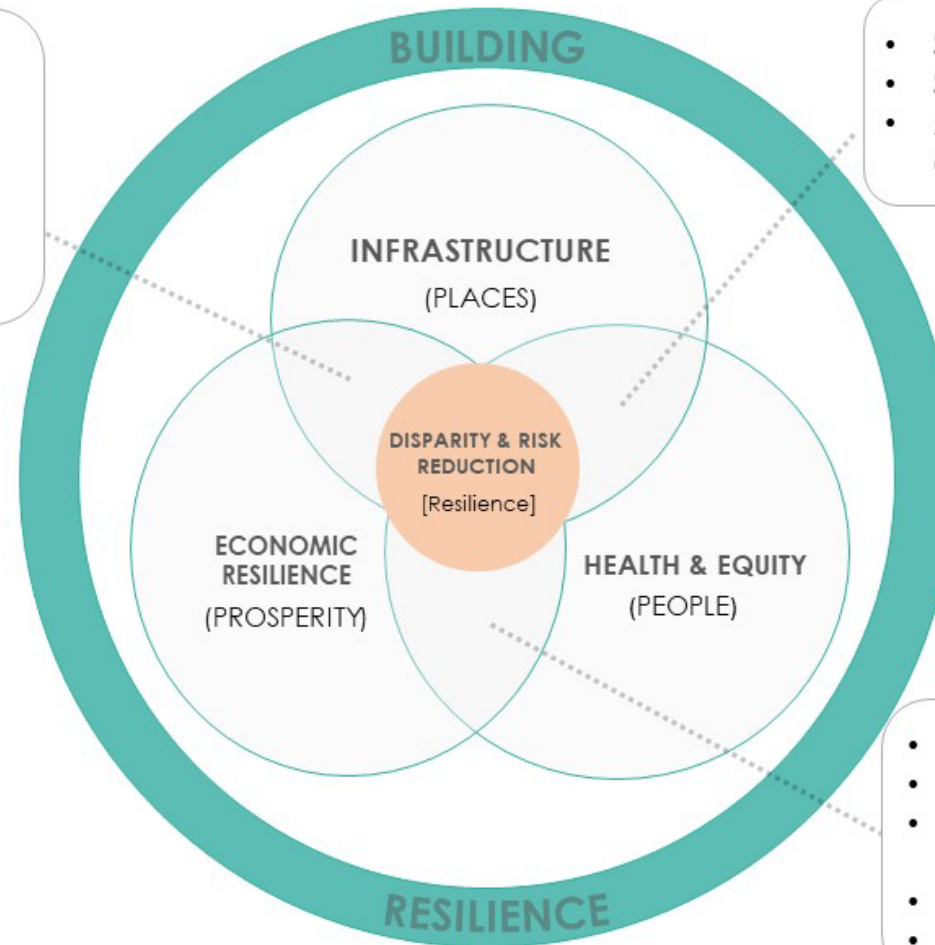


## ➔ Building Understanding discovered common ground

### Drivers of Vulnerability

- Housing (safe & affordable)
- Economic mobility
- Education/Training
- Technology (i.e., broadband access)
- Transportation (safe, clean, reliable, and affordable)




- Safe open spaces
- Safe physical activity
- Access to energy and clean water.



- Health care access
- Food (access & security)
- Access to energy and clean water
- Economic mobility
- Housing (safe & affordable)

- **Pillar vulnerabilities outlined**
- **Correlating vulnerabilities**

### SDGs ALINGMENT

#### RGHGI TAC'S GOALS:

- 1) Develop a regional greenhouse gas (GHG) emissions inventory for cities and counties throughout East Central Florida and support local governments within the region with data collection, and developing their internal capacity to report their own GHG emissions inventories.

#### STRATEGIES

• Develop inventory of current GHG inventory efforts across east central Florida
• Identify and standardize the tool(s) used, baseline years and sectors to perform individual and regional GHG inventory
• Secure funding to complete region-wide inventory
• Standardize the assumptions, emissions factors, and methodologies for GHG inventories
• Develop list of providers in the region in appropriate category
• Develop templates and standards for GHG emissions data requests
• Collect GHG data per category at the regional level
• Develop regional priorities and recommendations following the GHG inventories
• Create a GHG 101 tutorial workshop for local governments, annually with identified jurisdictional lead as part of (Engagement & Training TAC)



#### TARGETS

Short-term	Long-term	Ongoing
X		
X		
X		
X		
X	X	X
	X	X
	X	X
X		

## SDG ALIGNMENT

**R & V TAC GOALS:**

- 1) Develop an integrated regional scale risk and hazard assessment accounting for social vulnerabilities, climate sensitivities, and future conditions based on scientific data. (social vulnerabilities + risk analysis + historical hazard occurrence/future conditions) \*must satisfy multiple federal level risk assessment requirements and could include natural and human made

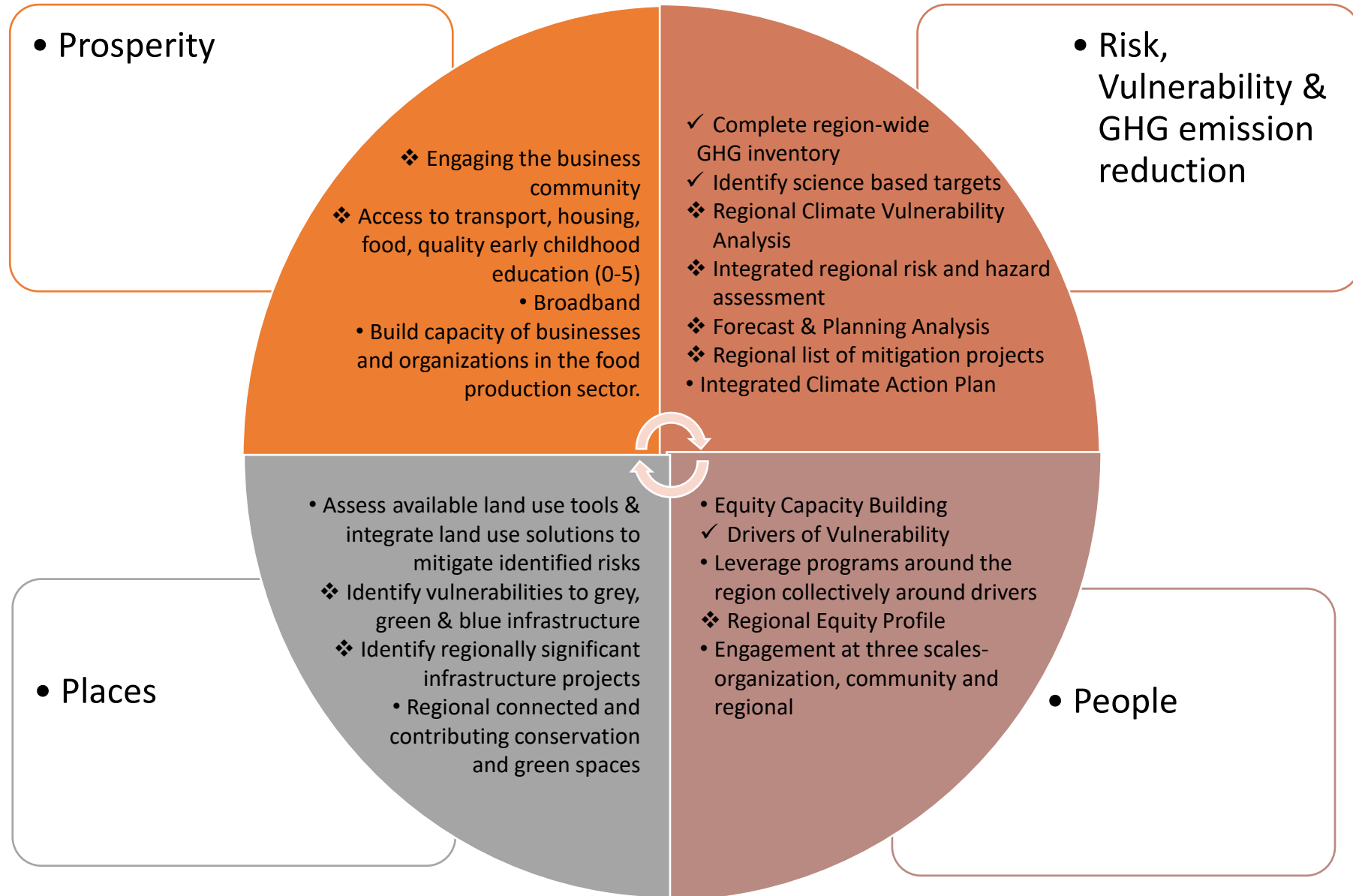



STRATEGIES		TARGETS		
		Short-term	Long-term	Ongoing
• Develop crosswalk of federal scale risk assessment requirements		X		
• Define risk analysis at region scale		X		
• Develop regional set of hazards based on scientific data (not public perception)			X	
• Develop regional threat assessment combining unilateral documents designed to each county/municipality meets requirements			X	
• Develop consensus on a regional set of future conditions and timeframes that would impact identified hazards		X		
• Define social vulnerabilities		X		
• Consider hazard impacts on vulnerable communities using a consistent set of indicators across the region		X		
• Conduct region-wide risk assessment using the following inputs: (social vulnerabilities +risk analysis + historical hazard occurrence/future conditions)		X		

SDGs ALIGNMENT				
E&A DEVELOPMENT TAC'S GOALS:	STRATEGIES	TARGETS		
		Short-term	Long-term	Ongoing
1) Establish regional scale capacity building webinars/ training that focus on the pillars of (people) health + equity, (places) built infrastructure + natural environment, and (prosperity) economic resilience. In addition, reducing risks, vulnerabilities, and carbon emissions and increasing sustainability efforts are an essential piece.	• Create a universal message	X		
	• Develop an education plan and timeline	X		
	• Identify exiting training	X		
	• Highlight projects and activities of local jurisdictions	X		

# R2C Strategic Resilience Action Plan

identify areas of substantive strategic concern, develop shared vision





# Recognized Model

- 2019 report from the state's CRO to Governor DeSantis indicated that formalizing the collaborative model into the establishment of "Resilience Districts" could be a possible approach to deal with resilience challenges
- This year, the Florida Legislature allocated \$2m this fiscal year to support collaborative work across the state





# 41 total formalized partners





The background of the slide features a close-up, high-speed photograph of water splashing, creating numerous droplets and ripples. A large, dark blue diagonal banner cuts across the right side of the image, serving as a backdrop for the text.

**Jennifer Hecker**  
*Coastal & Heartland National  
Estuary Partnership*





# CLIMATE RESILIENCY IN FLORIDA'S HEARTLAND

---

Jennifer Hecker

CHNEP Executive Director





# WHERE WE WORK

- CHNEP area encompasses 5,416 sq. miles (3,146,280 acres)
- 4 coastal communities & 6 inland “heartland” counties
- Estuaries include Lemon Bay, Dona & Roberts Bay, Charlotte Harbor, Pine Island Sound, Caloosahatchee, San Carlos Bay and Estero Bay
- All are important to watershed-scale approach for improving habitat, water quality, and hydrology



*Uniting Central and Southwest Florida to Protect Water and Wildlife*

# HABITAT RESTORATION NEEDS

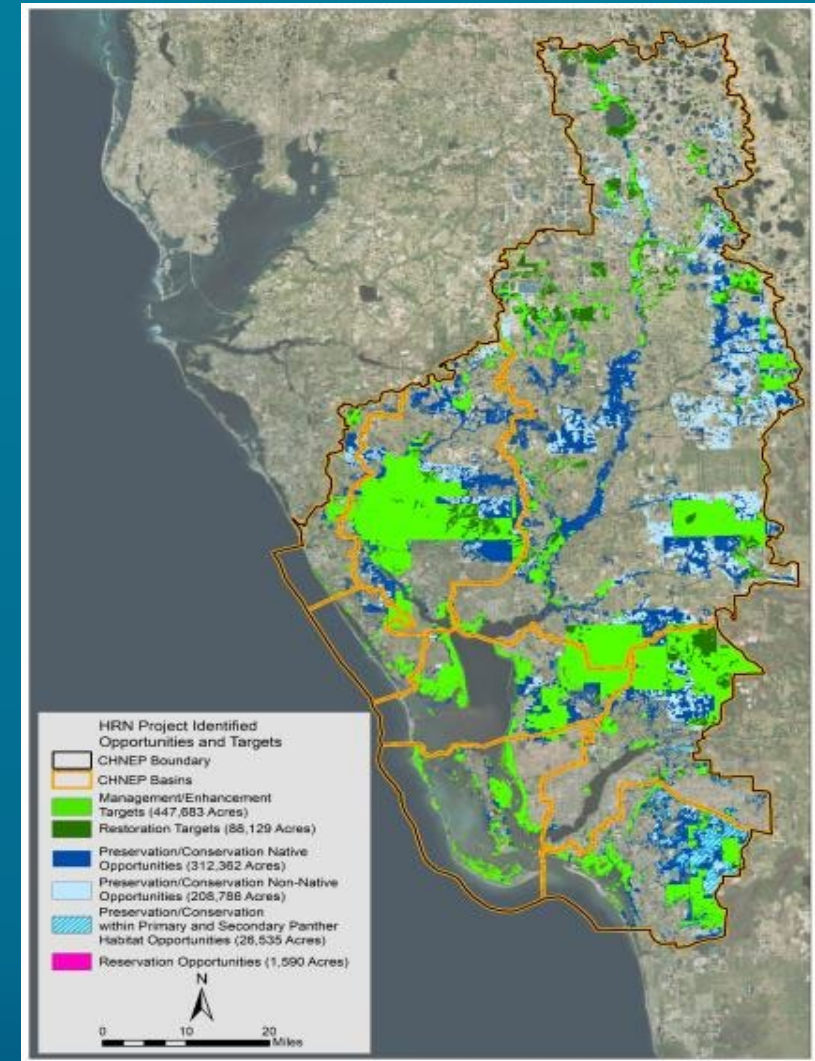


CHNEP funded data gathering, mapping and analysis of all identified important habitat areas to create a master plan for landscape-level habitat protection.

Helps agencies and organizations identify:

1. Preservation/Conservation Opportunities
2. Reservation Opportunities
3. Management/Enhancement Targets
4. Restoration Targets

When combined, the private habitat area opportunities (blues), fit together with public habitat area targets (greens), to create landscape-level habitat corridors and contiguous habitat areas



*Uniting Central and Southwest Florida to Protect Water and Wildlife*

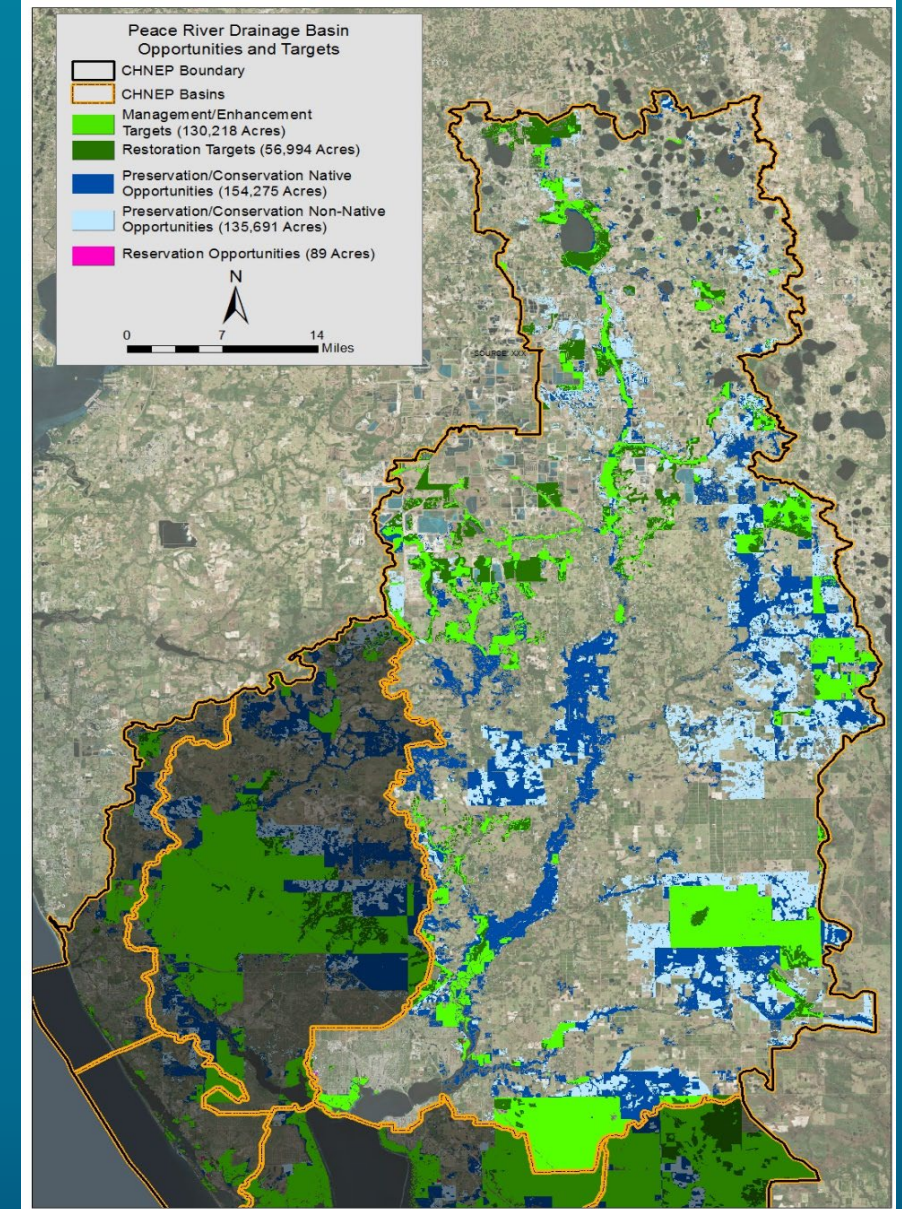


# PEACE RIVER BASIN

- **Preservation/Conservation = 289,966 acres**
- **Management Enhancement Target = 130,218 acres**
- **Restoration Target = 56,994 acres**
- **Reservation Opportunities = 89 acres**

View HRN report at  
<https://www.chnep.org/publications>

View interactive mapper at  
<https://chnep.wateratlas.usf.edu/habitat-restoration-needs/>



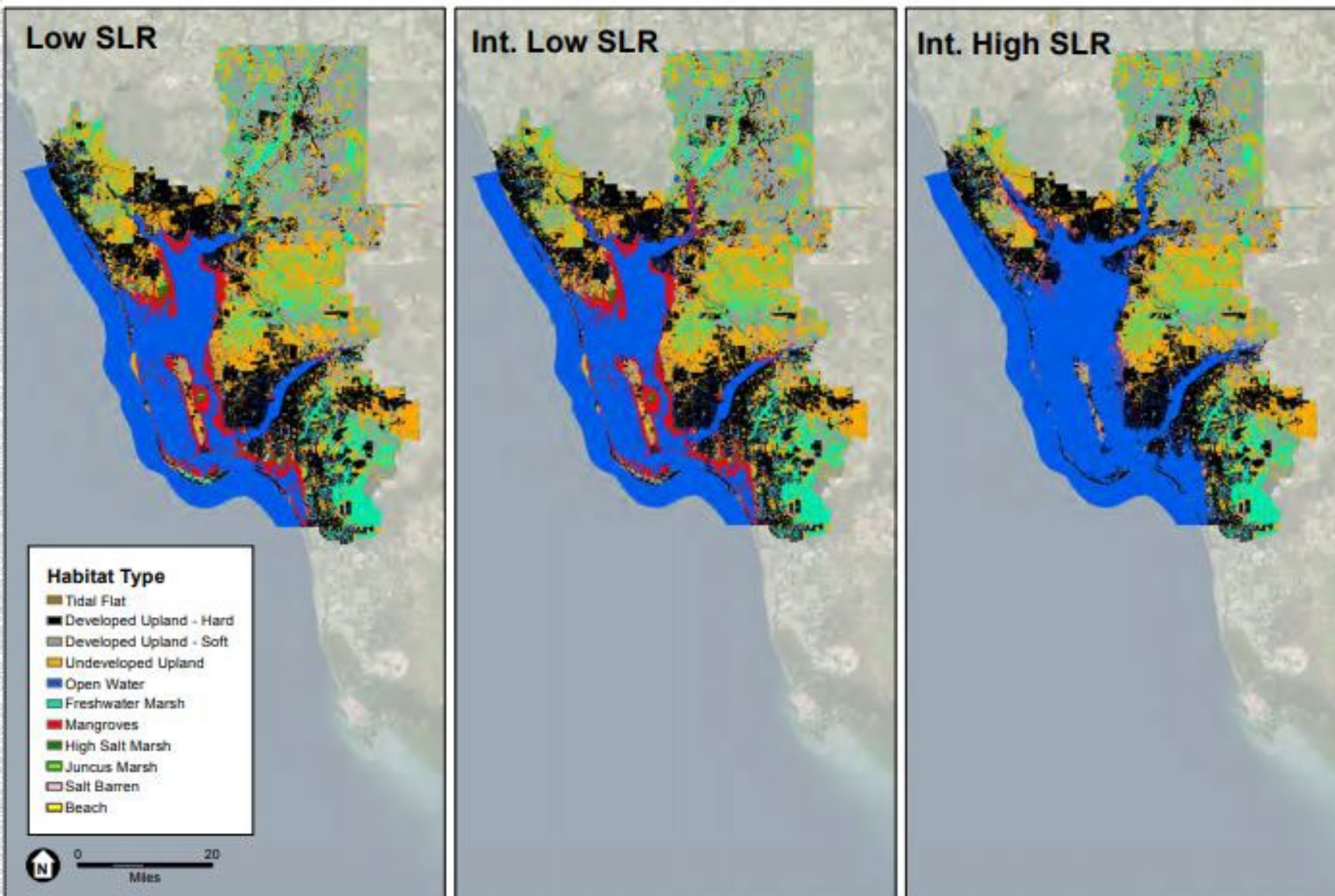
*Uniting Central and Southwest Florida to Protect Water and Wildlife*



# HABITAT EVOLUTION MODEL (HEM)

- GIS-based model developed to look at impacts of sea level rise to vegetation in coastal portions of CHNEP area which impact inland areas.
- Estimate size and distribution of salt marsh, *Juncus* marsh, freshwater marsh, mangrove, and salt barren habitats based on anticipated climate change
- Objectives
  - Habitats may be in decline or increasing
  - Habitats experiencing disproportionate losses
  - Stressors driving these changes
- Runs: Ran 3 scenarios with different levels of sea level rise and accretion (level of sediment accumulation). Most likely was Int. High SLR, Low Accretion





- Tidal wetlands will expand landward
- Mangroves will encroach into and eventually replace salt marshes
- Salt marshes will be relegated to the tidal rivers and will need suitable salinity gradients and riparian slopes to sustain their presence
- Coastal uplands will transition to emergent tidal wetlands

SOURCE: ESA

View HRCC report at <https://www.chnep.org/publications>

CHNEP Habitat Resiliency to Climate Change . D170072.01

Figure 8

Habitat Maps for SLR Scenarios in 2120



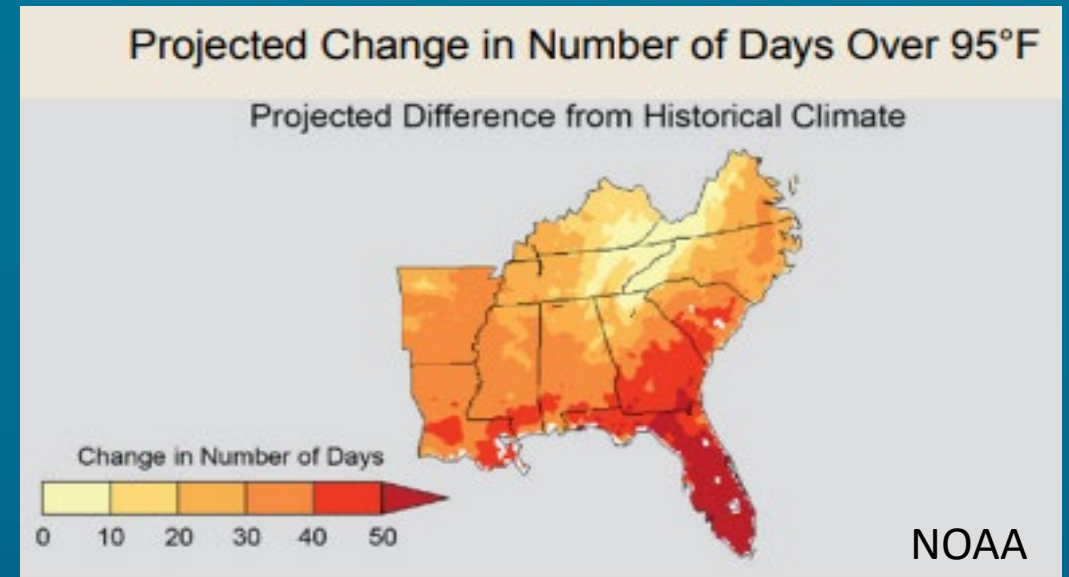
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# CLIMATE CHANGE IN INLAND COMMUNITIES

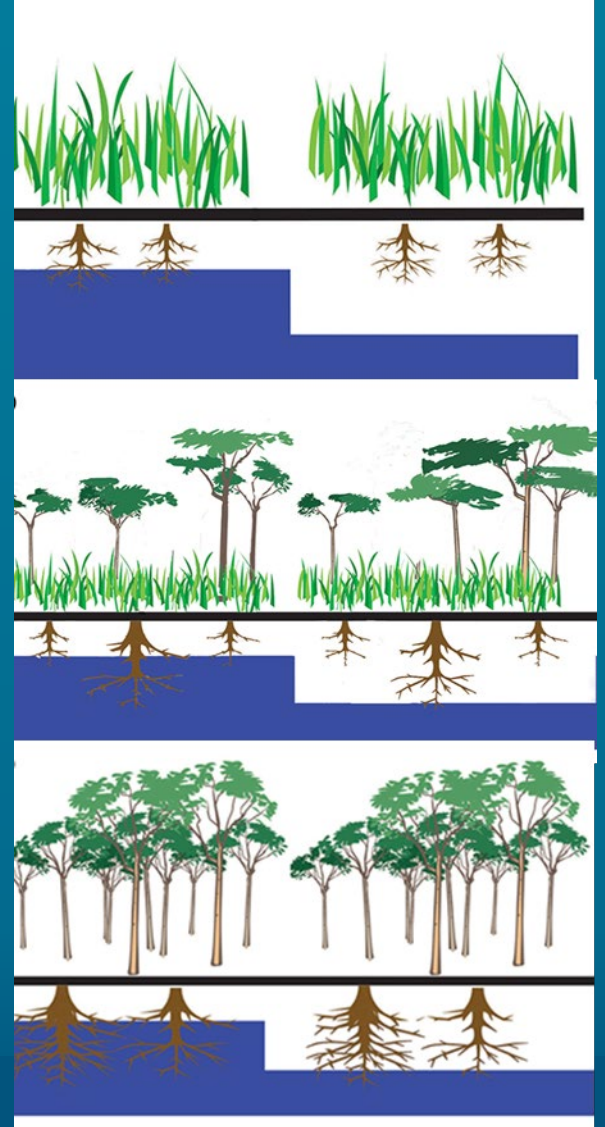


- Extreme temperatures
  - Wildfires
  - Plant changes
- Increased frequency and severity of storms
  - Increased flooding and wind damage
- Increased evapotranspiration rates
  - Lower groundwater levels
  - Habitat migration

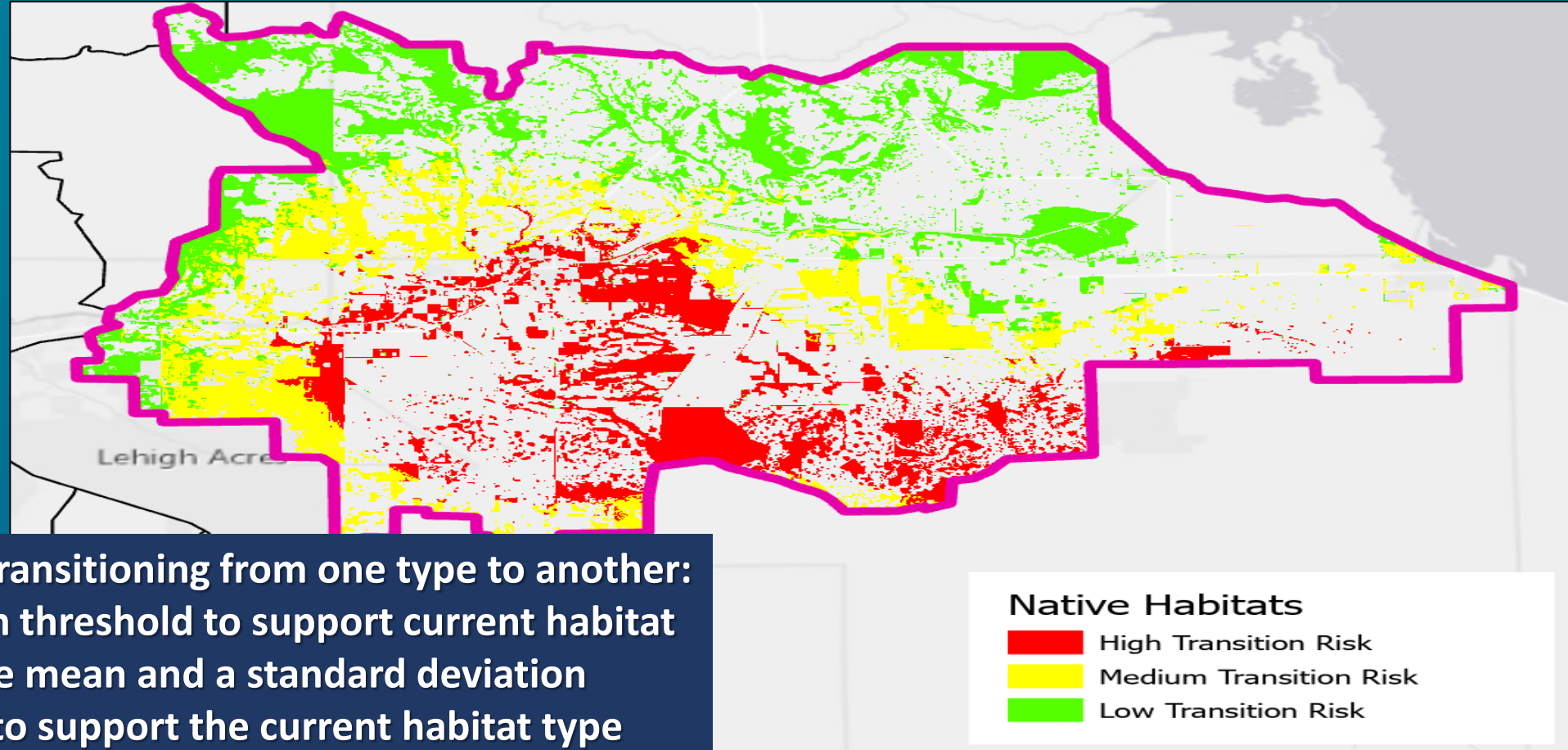


# INLAND IMPACTS OF CLIMATE CHANGE

- Sea level rise is not the climate stressor inland but increased temperatures and evapotranspiration is anticipated to have significant hydrological impacts inland
  - Evapotranspiration expected to increase 7%, decreasing wetland levels and hydroperiods
- Rainfall changes uncertain with precipitation amounts fluctuate 10% above and below normal averages
  - If there is a decrease in effective precipitation, it could result in a decrease of ground water levels – affecting both natural systems, public groundwater supplies and wildfires



# PLANT & CROP IMPACTS FROM CLIMATE CHANGE



Different levels of risk of transitioning from one type to another:  
**High Risk:** below minimum threshold to support current habitat  
**Medium Risk:** between the mean and a standard deviation below the mean wetness to support the current habitat type  
**Low Risk:** approximate same wetness for current habitat type

View HRN II report at <https://www.chnep.org/publications>



Uniting Central and Southwest Florida to Protect Water and Wildlife



## NATIVE HABITATS AREA PERCENTAGES AT-RISK OF TRANSITION DUE TO CLIMATE CHANGE

Land Cover Habitat Class	Current (acres)	Transition Risk		
		Low	Medium	High
3100 – Dry Prairie	20,295	34%	27%	39%
3200 – Upland Shrub and <u>Brushland</u>	26,693	38%	43%	19%
3300 – Mixed Rangeland	3,993	42%	22%	35%
4100 – Upland Coniferous Forests	30,262	29%	56%	16%
4200 – Upland Hardwood Forests	26,973	46%	17%	37%
4300 – Upland Mixed Forests	10,597	34%	27%	38%
6100 – Wetland Hardwood Forests	24,265	40%	35%	25%
6200 – Wetland Coniferous Forests	13,127	35%	32%	33%
6300 – Wetland Mixed Forests	1,706	24%	50%	26%
6400 – Wetland Vegetated Non-Forests	51,821	47%	16%	36%

- Upland forests, coniferous wetlands, non-forested wetlands, dry prairies and rangelands habitat area are at high risk to transition (>30%)



*Uniting Central and Southwest Florida to Protect Water and Wildlife*

# 2022 SOUTHWEST FLORIDA CLIMATE SUMMIT

CHNEP is hosting a public event to share knowledge, showcase climate action, engage leadership across sectors, and mobilize collaboration throughout the region.

**When:** April 7-8, 2022

**Where:** Hybrid virtual (*free*) and in-person (\$)   
In-person @ Collaboratory in Ft. Myers

**Register:** *Advanced registration is required*  
Opens Feb. 1 at  
[chnep.org/2022-climate-summit](https://chnep.org/2022-climate-summit)



Please Save the Date for the



**2022 SOUTHWEST FLORIDA  
CLIMATE SUMMIT**

***April 7-8, 2022***



*Uniting Central and Southwest Florida to Protect Water and Wildlife*

# TO LEARN MORE

- *Habitat Resiliency to Climate Change Report and the Habitat Restoration Needs Plan for the Coastal and Heartland National Estuary Partnership Area Report* are both available at <https://www.chnep.org/publications>
- Get Involved at [www.chnep.org/get-involved](http://www.chnep.org/get-involved)



Improve Water  
Quality



Restore  
Hydrological Flow



Protect Fish, Wildlife  
and their Habitat



Educate and  
Engage the Public



Uniting Central and Southwest Florida to Protect Water and Wildlife





**Mike Britt**  
*City of Winter Haven -  
One Water*

**WINTER HAVEN**  
*The Chain of Lakes City*



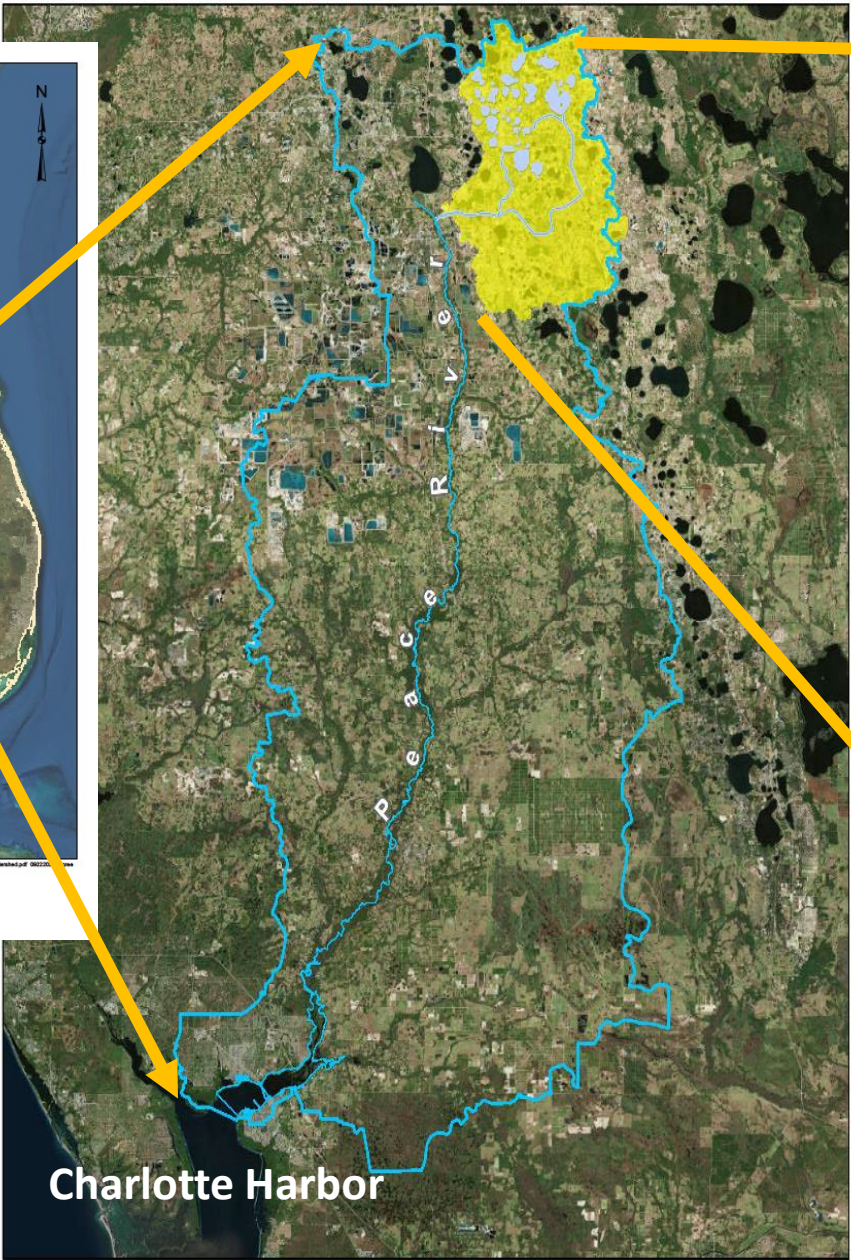
***Water is the most critical resource issue of our lifetime and our children's lifetime. The health of our waters is the principal measure of how we live on the land.***

***—Luna Leopold (1963)***





PEACE RIVER WATERSHED AREA

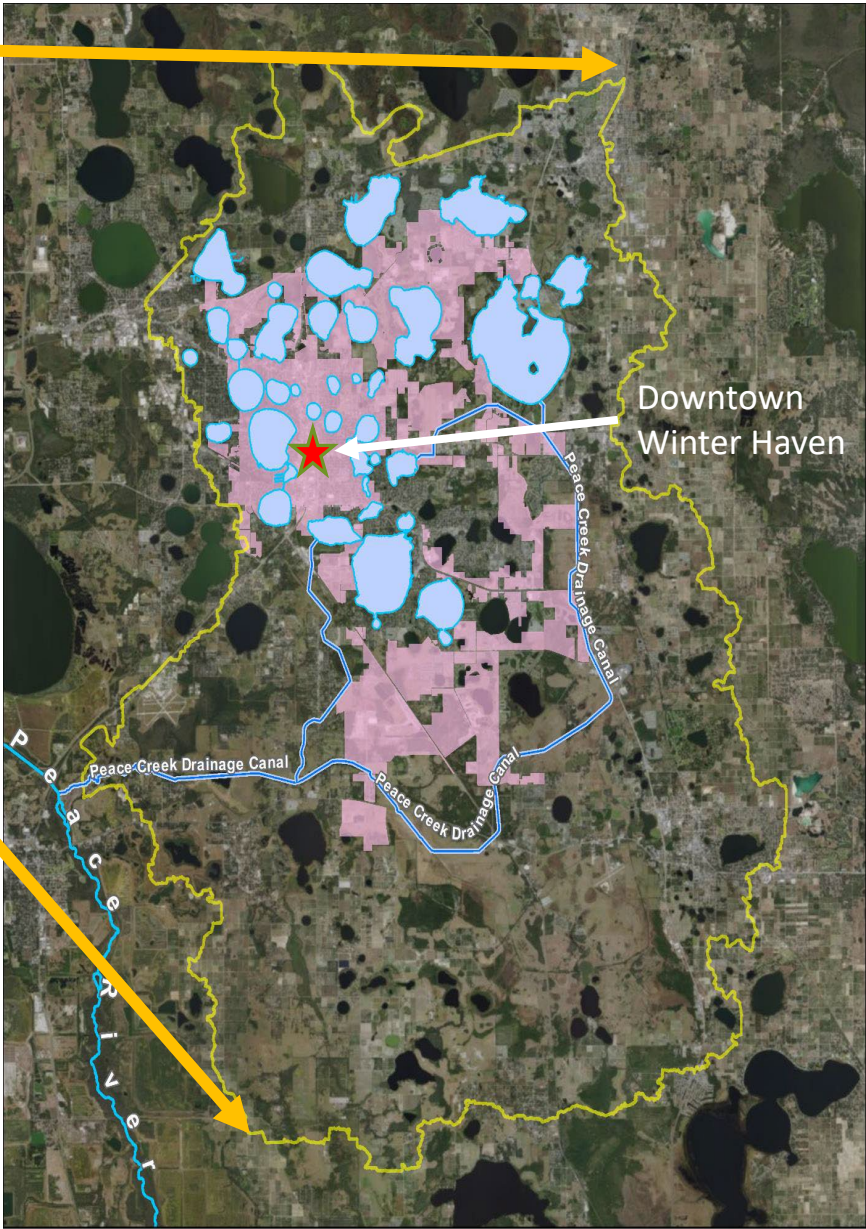


Charlotte Harbor



0 3 6 12 18 24 Miles

- Peace River Watershed
- WH Lakes
- Peace Creek Basin



Downtown Winter Haven

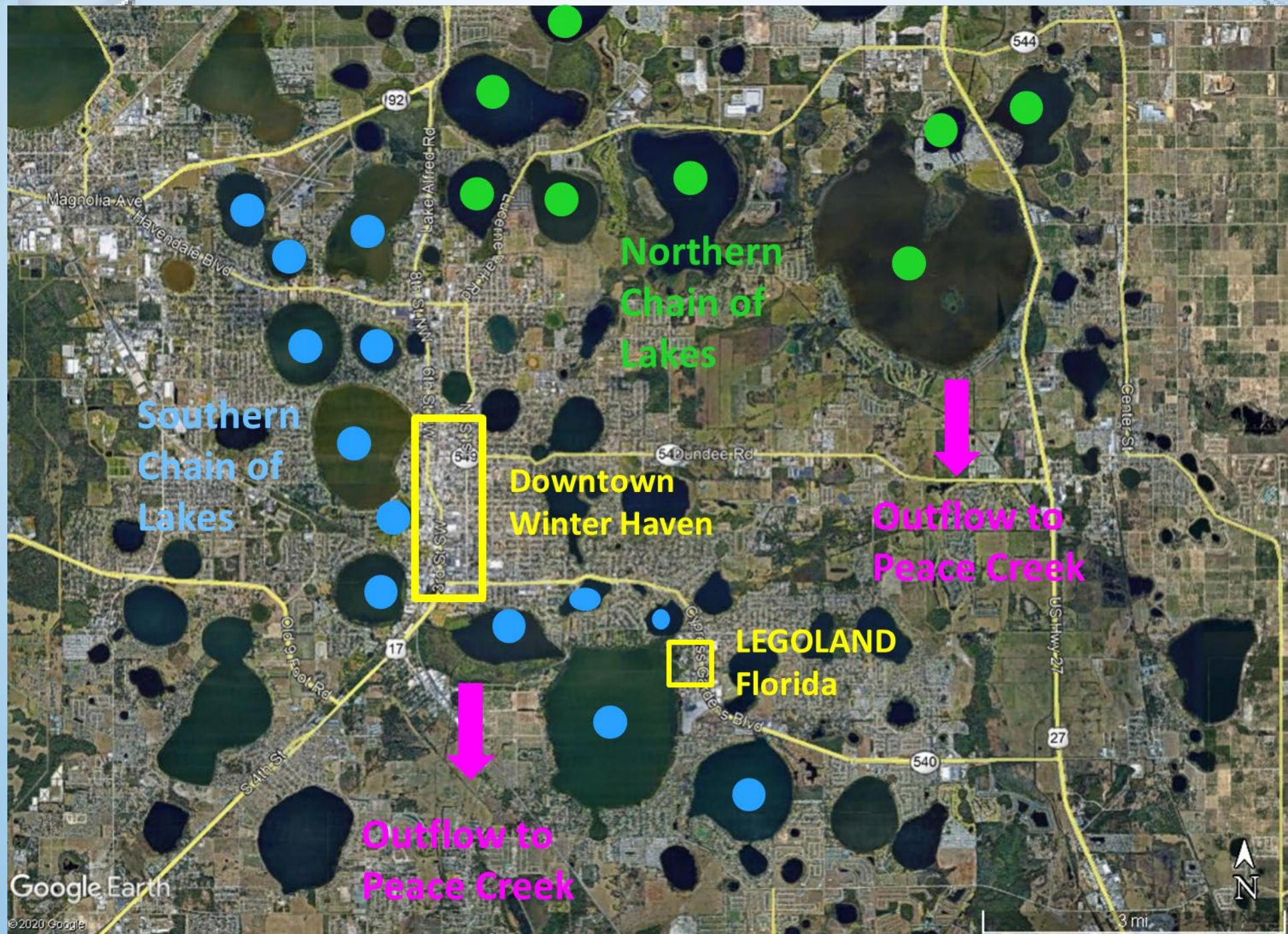


0 0.75 1.5 3 4.5 6 Miles

- Drainage Canals
- WH City Limits
- Peace Creek Basin





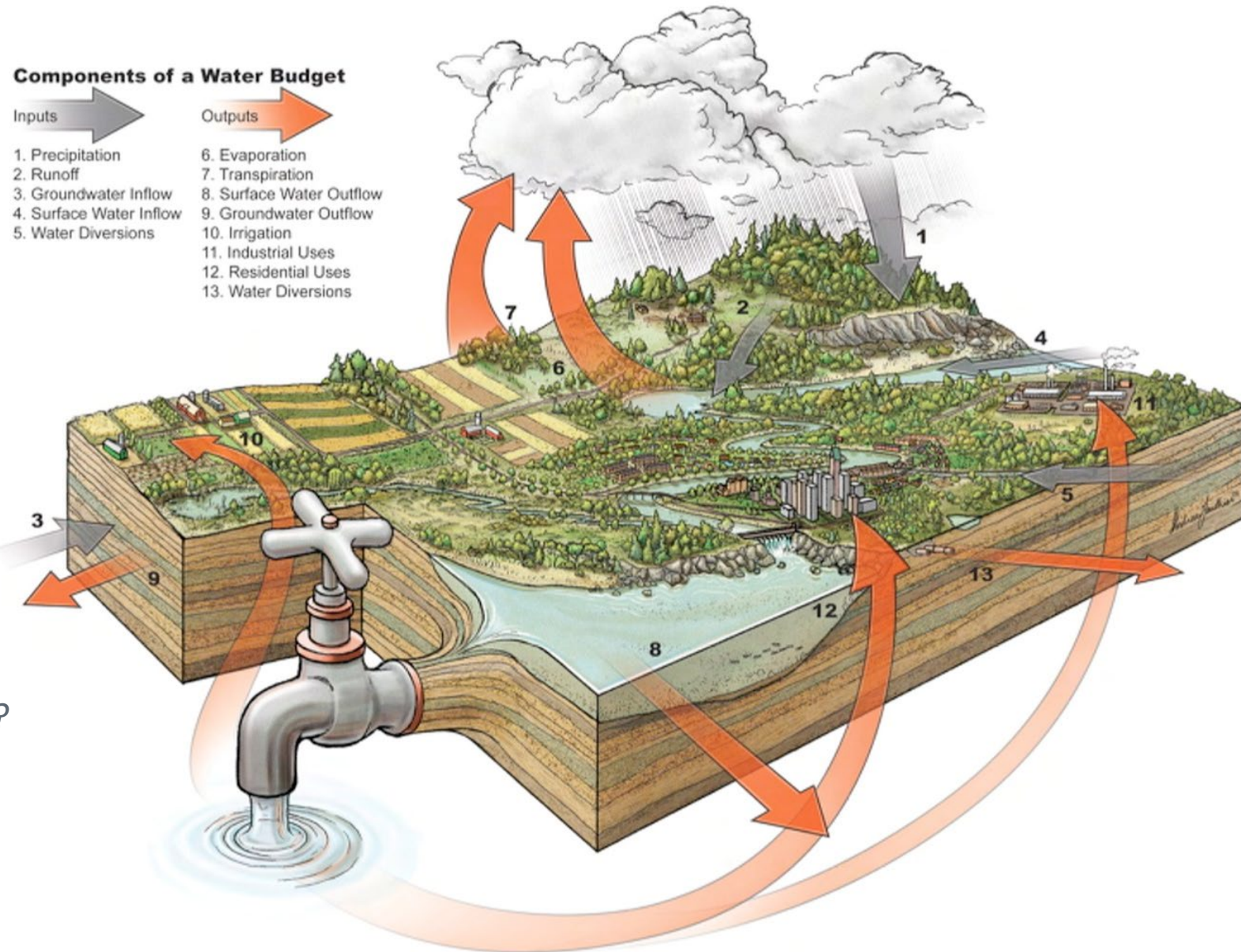




# It all Starts with WATER

**Water Budget** = The relationship between the inflow and outflow of water through a specified region.

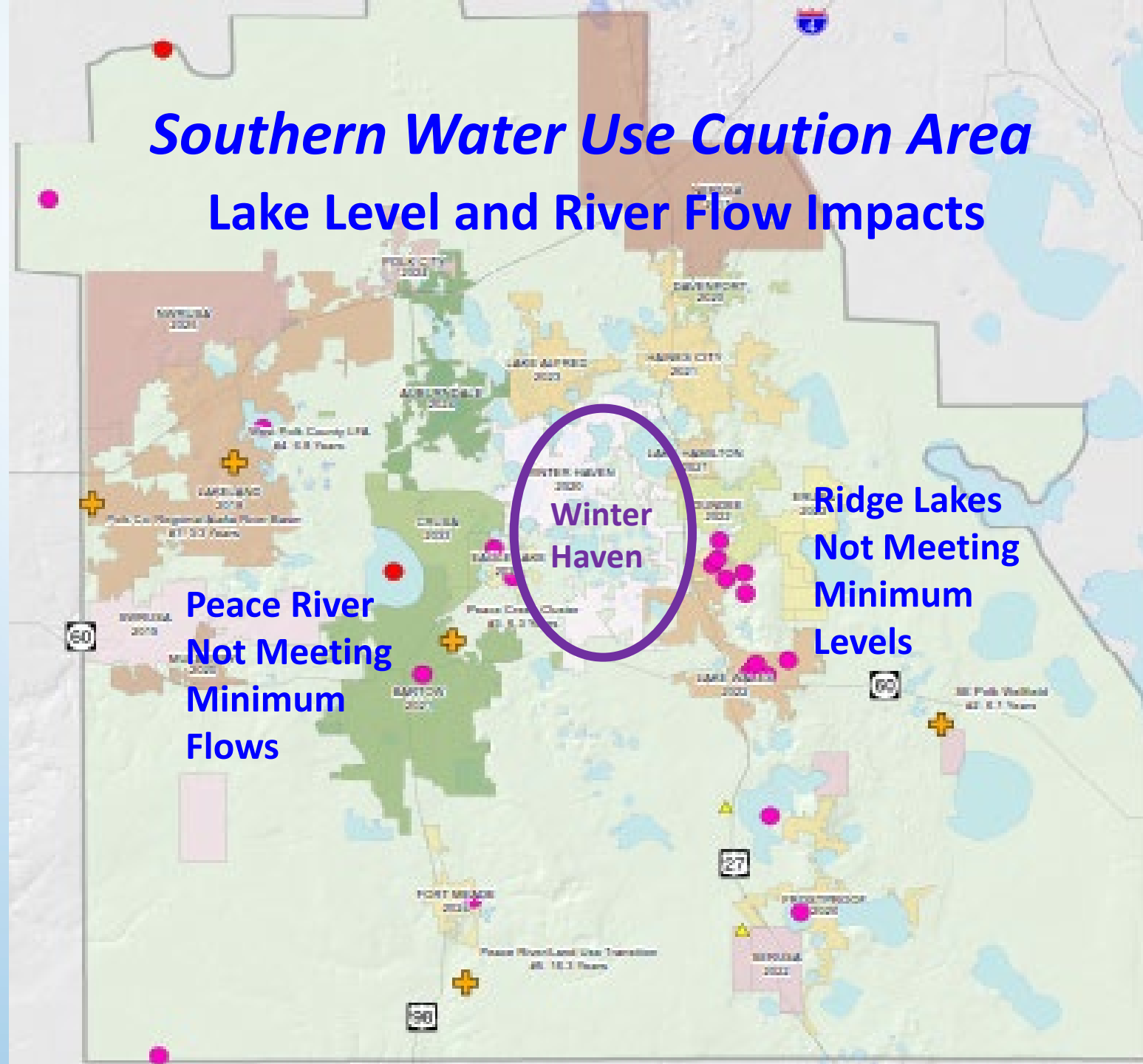
- How much do you have?
- How much does it cost?
- What is the quality of the Resource?
- What choices does Winter Haven have to meet current and future needs?
- How shall Winter Haven invest its economic resources for the next 50 years?
- What will be the Value Proposition?



ONE • WATER  
WINTER HAVEN

# Hydrologic Impairments

## *Southern Water Use Caution Area* Lake Level and River Flow Impacts





Too  
Little  
Water...







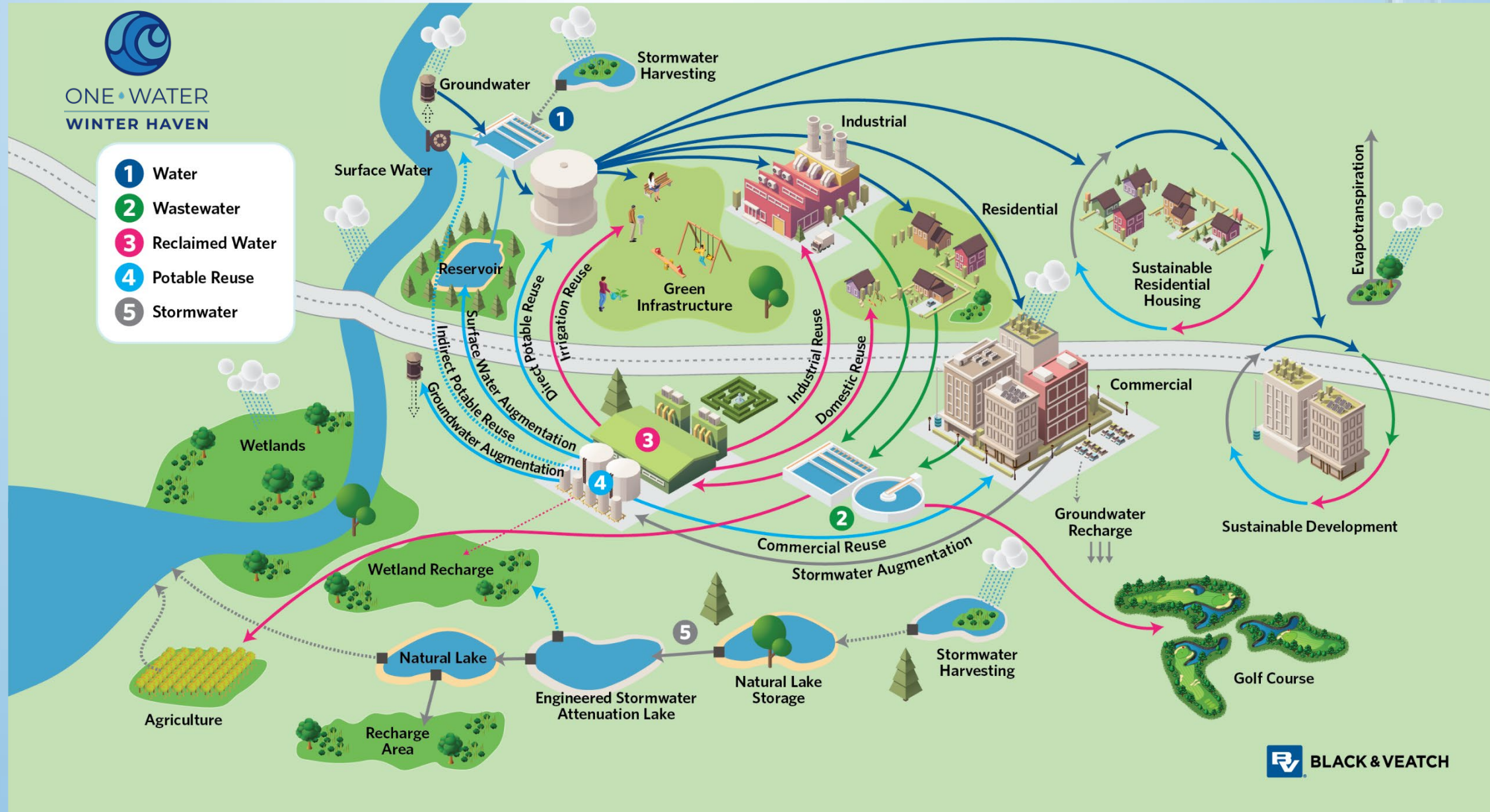
**SR 542 - 2004 Hurricanes Looking East**



**SR 542 - 2004 Hurricanes Looking South**

**...Too Much Water**

# Integrated/One Water Approach







Chamber of Commerce - Future by Design  
Community Vision (2000):  
"Water benefits all aspects of our *Economy,*  
*Culture and Environment*"





# Winter Haven is prepared: *To deploy New Ideas to distinguish itself as the ridge community of value, experience & opportunity*



ONE • WATER  
WINTER HAVEN



# One Water – A 50 Year Adaptive Plan

An integrated approach to **green infrastructure** & sustainable water management



## Restore

*Restoring lakes and wetlands that provide natural water storage*

## Recharge

*Replenishing the natural aquifers using green infrastructure*

## Reclaim

*Modernizing reclaim and wastewater treatment technology*

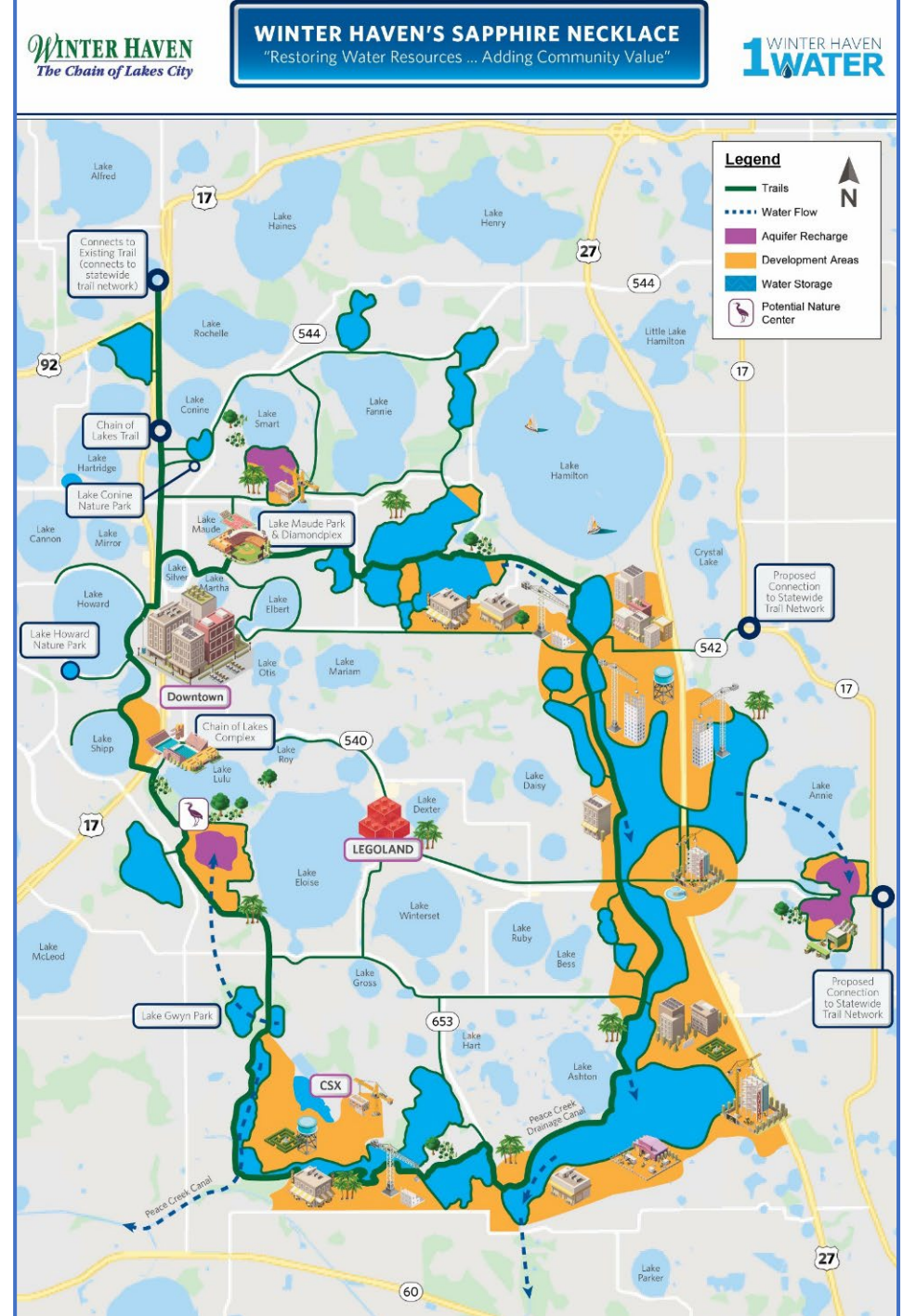
## Reuse

*Increasing the life cycle of water as a renewable resource in Winter Haven*



# Multiple Benefit/ Nature Based Solutions

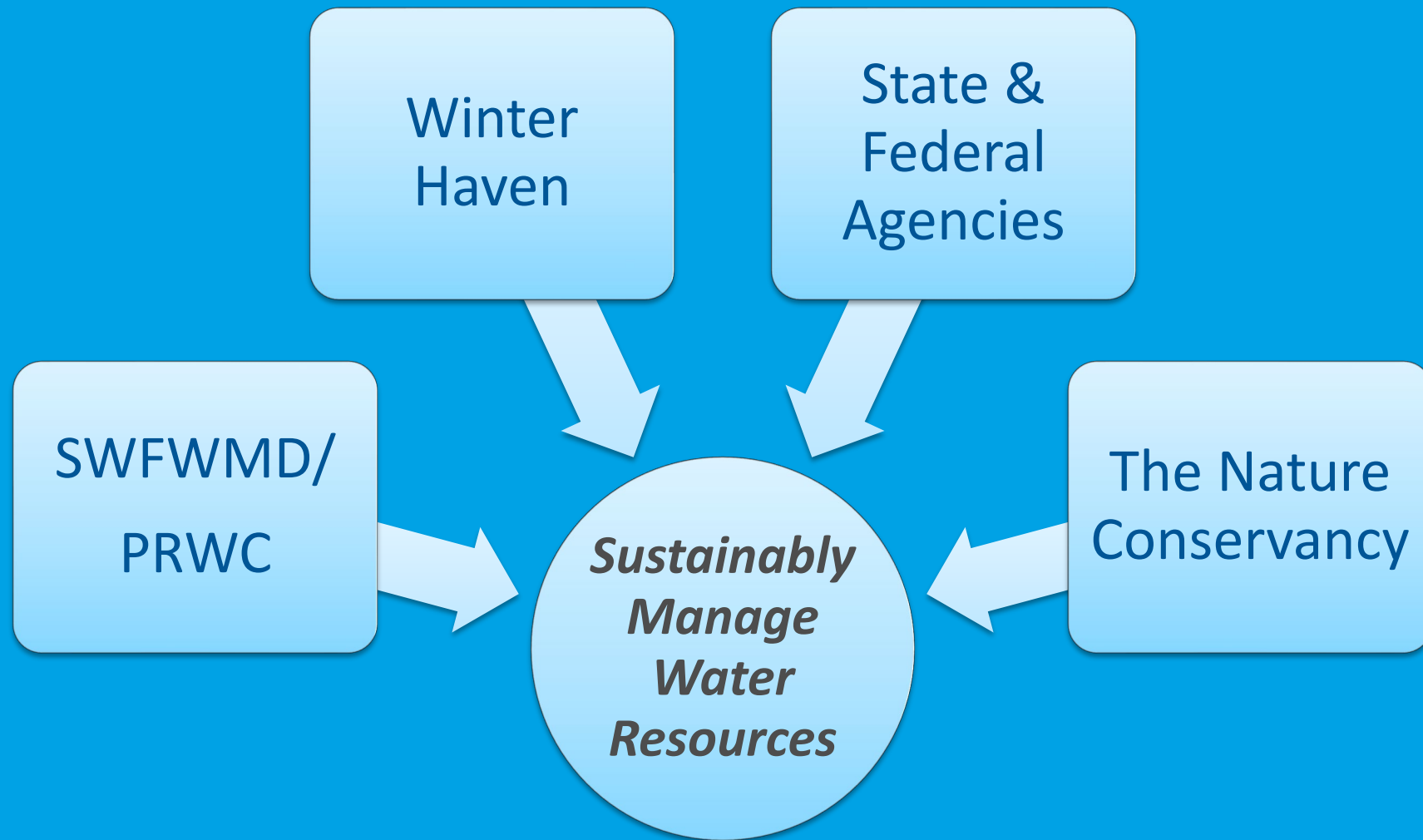
- Upper Peace Creek Watershed
- Components:
  - Communication/Stakeholders – “Quality of Life”
  - Flood Management
  - Land Use/Economic Development
  - Watershed Optimization
  - Economic Cost/Benefit Evaluation
  - Utility Master Planning
  - Social/Cultural/Recreation
  - Funding Strategy



# Winter Haven One Water Master Plan



# Partnerships





# Benefits/Expected Outcomes



Healthy Lakes &  
Wetlands



Resilient Water  
Utilities



Thriving  
Community



Strong & Growing  
Economy



Sustainable  
Agriculture



Partnerships

← WINTER HAVEN ONE WATER FRAMEWORK →



**Jennifer Codo-Salisbury**  
*Deputy Director, CFRPC*



# Example of Resiliency Project Funding

## City of Lakeland

\$43 million for increased flood storage capacity,  
improved stormwater infrastructure at Bonnet Springs Park

## **Gov. DeSantis announces \$42.9M state grant to clean up Lakeland's Lake Bonnet**

**Sara-Megan Walsh** The Ledger

Published 10:11 a.m. ET April 16, 2021 | Updated 3:49 p.m. ET April 16, 2021





# Example of Resiliency Project Funding

## Regional Planning Councils

### **Six Regional Planning Councils receive \$1.49 million in grant funding to develop statewide approach to flood planning**

*East Central Florida Regional Planning Council will be project manager on three-year effort*

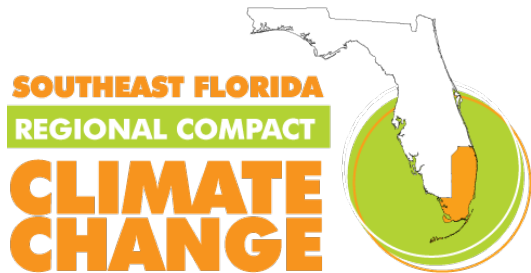
**Orlando, Fla. (Jan. 21, 2021)** – The East Central Florida Regional Planning Council and five other regional planning councils around Florida will receive a total of \$1,499,000 from the state to develop a cohesive statewide approach to flood planning. The three-year project will provide a framework for jurisdictions across Florida to create disaster models, prepare actionable strategies and determine how to prioritize and fund mitigation projects.





# Regional Resilience Entities

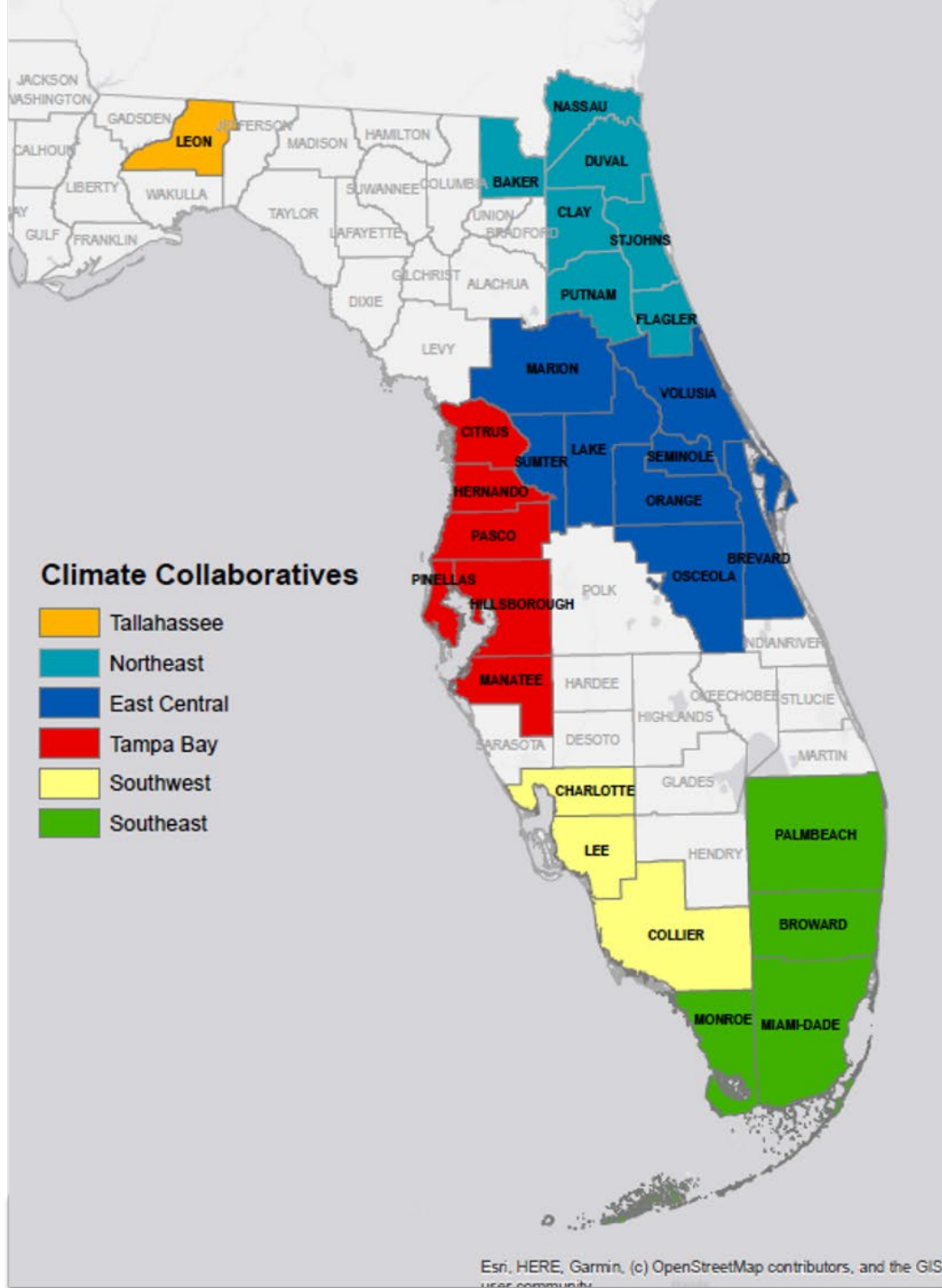
- Funding for regional resilience entities to assist communities and coordinate intergovernmental solutions
  - Technical assistance
  - Coordinate multijurisdictional vulnerability assessments
  - Develop project proposals to go into the Resilience Plan



# CLIMATE & RESILIENCE COLLABORATIVES

## Six regional collaboratives

- SE FL Regional Climate Compact
- Tampa Bay Regional Resiliency Coalition
- East Central FL Regional Resilience Collaborative
- Public/Private Regional Resiliency (P2R2) Committee
- Capital Area Sustainability Compact
- SW FL Regional Resiliency Compact





# Interconnected & Interdependent

Polk  
Hardee  
Highlands  
Okeechobee  
Desoto  
Glades  
Hendry



- 7 counties
- 28 cities
- 2 water management districts
- Peace River Basin
- Kissimmee River Basin
- Lake Okeechobee
- Headwaters of the Everglades

heartland2060



# Interconnected & Interdependent



- Transportation systems
- Water management
- Critical habitat & aquatic systems
- Communities & economies
- Shared vulnerabilities



The background of the slide features a close-up, artistic photograph of water droplets. The droplets are in various stages of formation and movement, creating a sense of dynamic energy. The lighting is soft, highlighting the spherical shapes and the way light reflects off the water's surface. A large, white, semi-transparent circle is centered over the image, serving as a container for the main title text.

# **Creating a Heartland Regional Resiliency Coalition**



# Heartland Regional Resiliency Coalition

**The Board of CFRPC Approved Formation through a Memorandum of Understanding (MOU) among Local Governments in the Heartland and CFRPC**



## **RESOLUTION 2021-9B**

**A RESOLUTION OF THE CENTRAL FLORIDA REGIONAL PLANNING COUNCIL AUTHORIZING THE EXECUTIVE DIRECTOR TO PROCEED WITH THE FORMATION OF THE HEARTLAND REGIONAL RESILIENCY COALITION**

**WHEREAS**, the Heartland Region including the counties of DeSoto, Glades, Hardee, Hendry, Highlands, Okeechobee and Polk is home to more than 1,015,841 residents as of 2020, approximately 4.7% of the 2020 population of the State of Florida, and includes recreational spaces, state parks, wildlife preserves, protected natural areas, significant agricultural lands, a military installation; and

**WHEREAS**, the Heartland Region of Florida consists of seven inland counties, six of which are largely rural, and the economy is driven by natural resource-based industries including forestry, fishing, and agriculture; key industries such as aviation, manufacturing, logistics; state colleges and other academic institutions; and



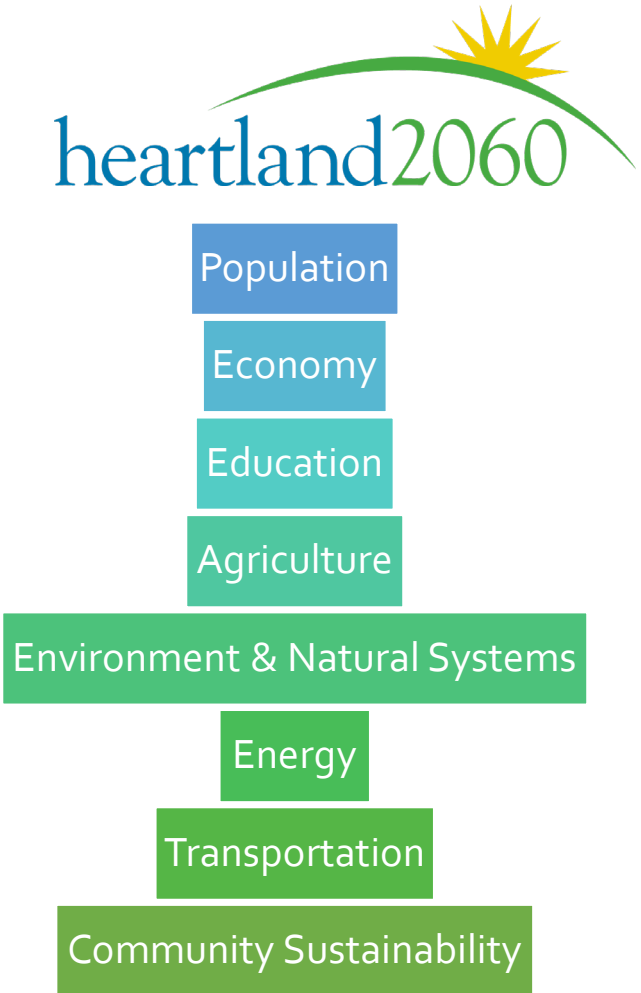
# Memorandum of Understanding (MOU)

**Heartland Regional Resiliency Coalition will provide a formal platform for local governments to:**

- Work together to create guidelines for the development of resilient communities
- Learn “**Best Practices**” from each other and from other regions
- Leverage regional resilience efforts, to enhance funding and increase competitiveness for grant funds.



# Resiliency Focused Collaboration



## Heartland Resiliency Coalition

- Natural Disaster Threats
  - Flooding
  - Wind damage
  - Extreme weather

### ...the Impacts to:

- Infrastructure
- Agriculture
- Essential Buildings
- Housing
- Community assets
- Military Installations



# MOU Key Points

## ✓ **Regional Cooperation**

- Identify vulnerabilities to the effects of climate change in our communities
- Identify common vulnerability assessment methodologies
- Plan for mitigation and adaptation actions
- Pursue public private partnerships

## ✓ **Regional Resiliency Action Plan**

- Develop an Action Plan with strategies for coordinated regional preparation for and adaption to a rapidly changing environment

## ✓ **Basis of Planning**

- Base strategies and actions on commonly accepted and valid technical data
- Identify experts for guidance, use recognized and consistent projections to assess vulnerability and inform planning efforts.



# MOU Key Points

## ✓ **Strategy**

- Develop a strategy recognizing region-specific vulnerabilities to the impacts of climate change
- Include recommendations for the pursuit of state and federal resources

## ✓ **Community Involvement**

- Recognize, engage the regional community, involving a diverse stakeholder representation in developing policies, recommendations for implementation of Regional Resilience Action Plan.

# MOU Key Points

## Intent

*Coalition Members each join the Heartland Regional Resiliency Coalition as expression of intent and commitment to **work together** on a regional level to identify **opportunities and solutions for ensuring regional resiliency to threats.***





# Central Florida Resiliency Summit



[cfrpc.org](http://cfrpc.org)



[Heartland2060.org](http://Heartland2060.org)