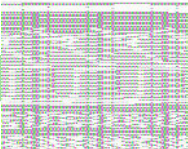




Addressing Planning Gaps: Identifying Climate Related Risks to Affordable Housing

Presentation to The Southeast Florida Climate Compact
RCAP Implementation Workshop June 28, 2023

CJ Reynolds, Director of Resilience and Disaster Recovery, Florida Housing Coalition



After Ian, river flooding menaces Florida inland towns

By ADRIANA GOMEZ LICON and CURT ANDERSON October 1, 2022



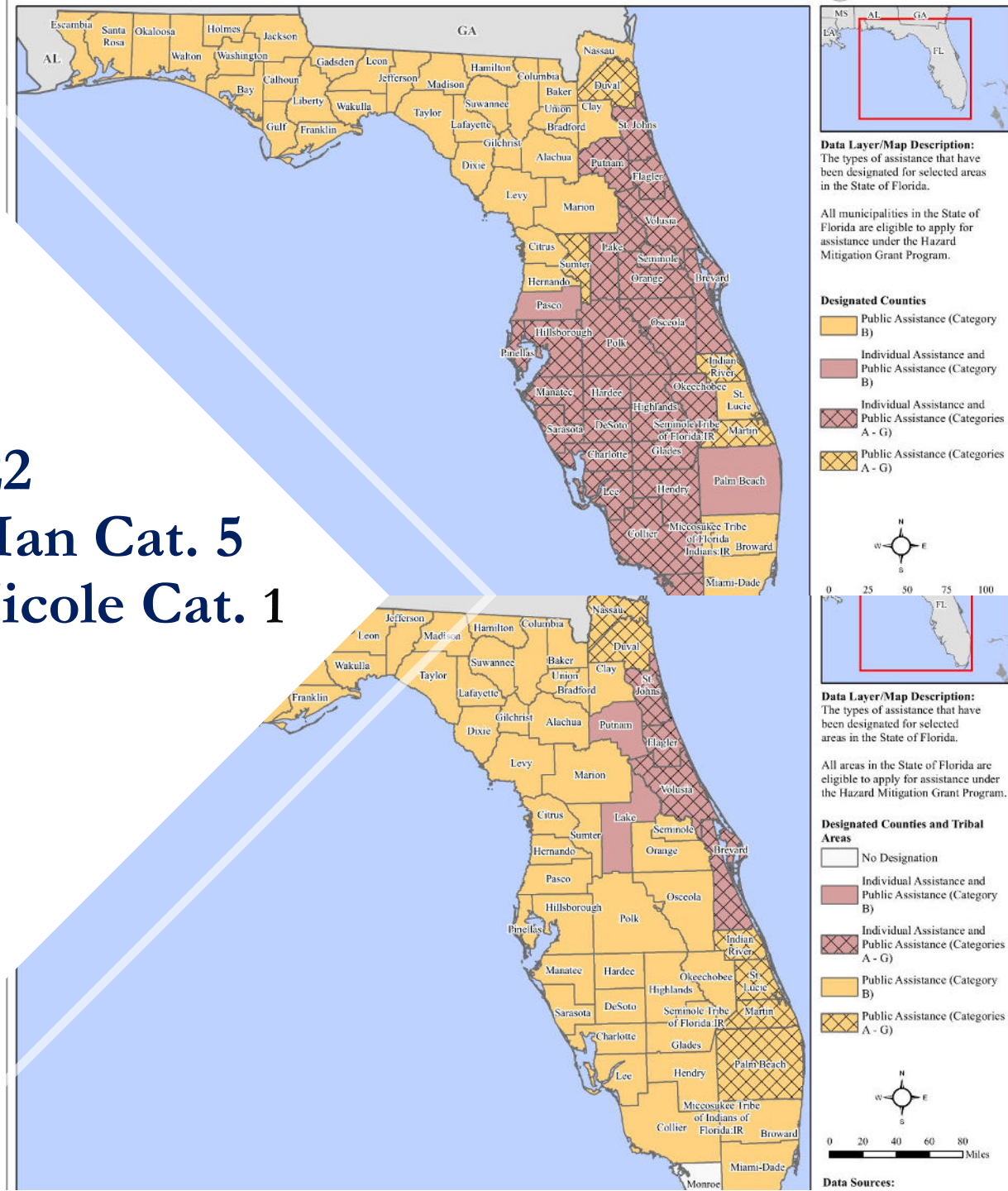
Initial Damage Assessments

2022 Hurricane Ian Cat. 5 Hurricane Nicole Cat. 1

Residential Destroyed
📍 5,076
Major
📍 13,533
Minor
📍 14,418
Affected
📍 17,287
Total
🏠 50,314



University of South Florida, County of Lee, FL, FDEP, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS



Losing Housing to Disasters and Disconnects

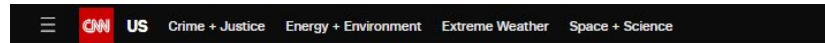
- Not replacing affordable and workforce units post-disaster.
- Multi-family properties lack flood insurance or are underinsured.
- **Single-family residential insurance issues!**
Smaller/older homes in low-income areas receive smaller payouts. Substantial numbers of households with paid-off mortgages do not have insurance.
- **Long Reconstruction and Development Timelines.**
- **Housing, resilience planning, development and capital budget alignment.**



Impacts to Low Income Households More Devastating

Low-income households, particularly renters, have more difficulty obtaining adequate post-disaster housing assistance.

Often, lower-cost housing options are more vulnerable due to age and structure type.

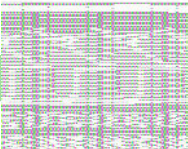


Black residents in 2 Florida neighborhoods raise questions about hurricane relief efforts and say they've been left out

By [Nicquel Terry Ellis](#) and [Justin Gamble](#), CNN
Updated 12:43 PM EDT, Fri October 7, 2022



Herb Reynolds stands Tuesday on North Peters Terrace across the lions in northern Citrus County as standing water stretches as far as the eye can see. She has been forced from her home due to the



What Can We Do?

Prepare for the Impacts of a Changing Climate

Define risks and develop programs to reduce impacts in all housing programs

- Supportive housing (units and services)
- Affordable rental housing
- Affordable home ownership



Supportive Housing (Affordable Units + Services)

- Homeless
- Older adults
- People with disabilities
- Other special needs



Affordable Rental Housing

- Public Assisted/Subsidized (FHFC, HUD, USDA)
- Vouchers
- NOAH (Naturally Occurring Affordable Housing)



Affordable Home Ownership

- New affordable construction
- Rehab + weatherization programs
- Shared equity (e.g. community land trust)
- Low-interest loans



Community and Housing Vulnerability Assessment

1. Where is affordable housing located relative to flood hazards (an heat)?
2. Where are the flood hazard areas in relation to future residential development and special districts?
3. What housing is more vulnerable because of other factors? (structure type, age, subsidy expiration)?
4. Where are people that may be more vulnerable due to low-income, age, special needs?
5. How can housing and flood exposure characteristics inform mitigation and adaptation strategies?



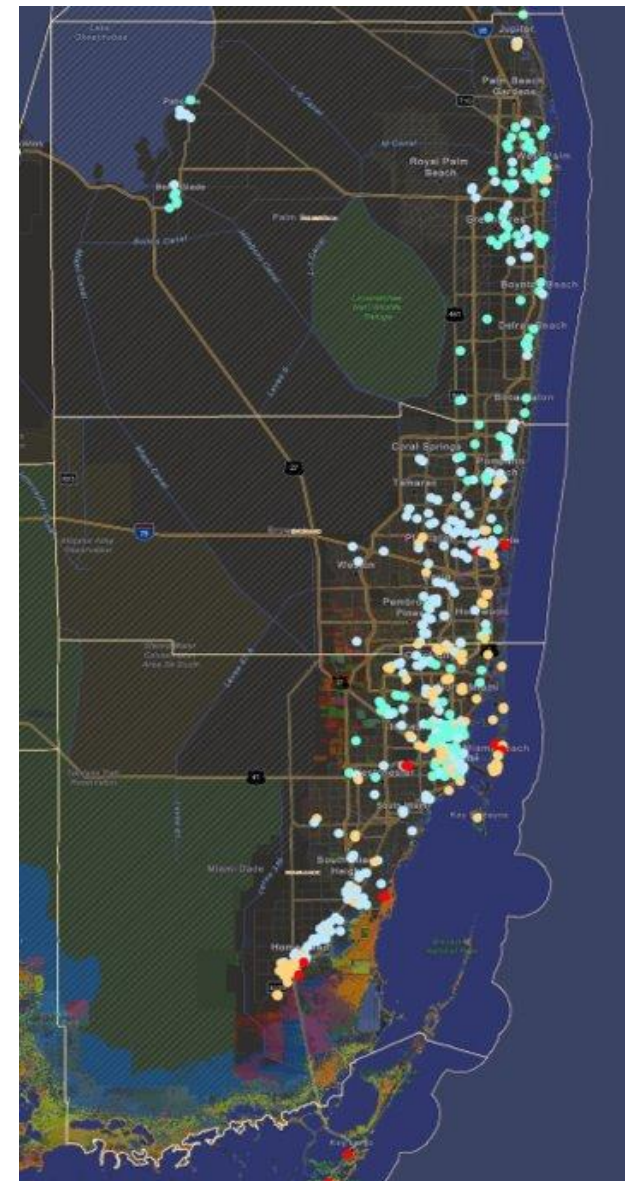
Resilient Florida and State Policy

In 2021, FS. § 380.093 established statewide programs for adapting to flooding and sea level rise.

- FDEP Resilient Florida Program provides grants to counties, municipalities and others to conduct vulnerability assessments (VA), develop resilience plans, and fund adaptation of *critical assets*.

"Affordable public housing" is defined as a critical asset.

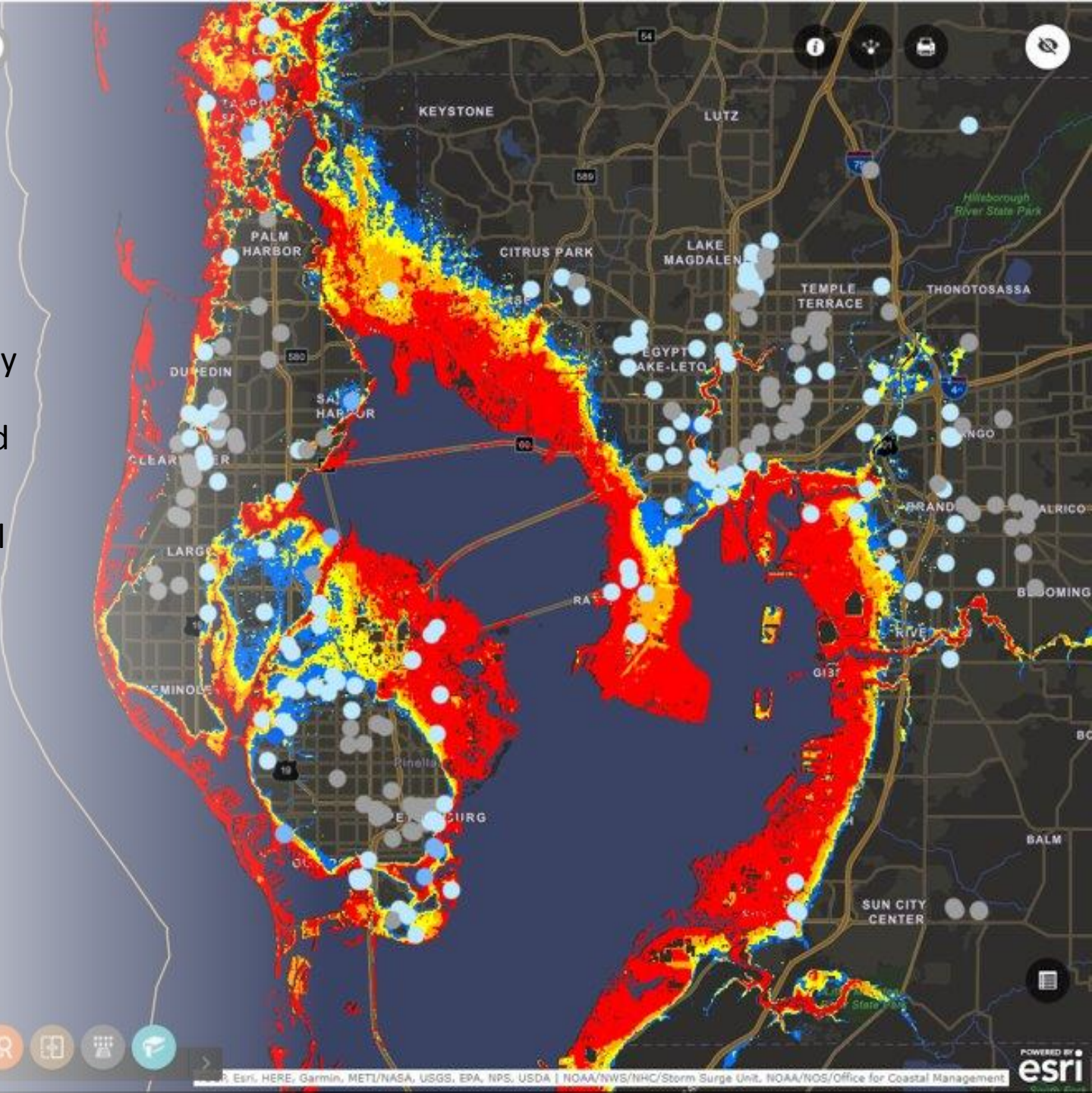
- **Local VA data and maps submitted to FDEP by 2023 or 2024.**
 - You can easily integrate Assisted Multi-Family properties.



Defining Your Flood Risks

Floodplain managers, Planning, Housing staff, EM, and consultants collaborate to develop vulnerability assessment -- risks, exposure and vulnerability assessment of Assisted Multi-Family properties and LMI Neighborhoods

- **Flood risks:** Major rain events, surge, sea level rise, compound risks
- **Timeframes:** today, 2040 and 2070 (required by statute) and 2100
- **Zones:** NFIP (insurance) vs. evacuation
- **Parcel factors:** land elevation, soil, drainage, infrastructure
- **Building factors:** elevated, construction, year built



CLIMATE HAZARDS

Planning Horizon:

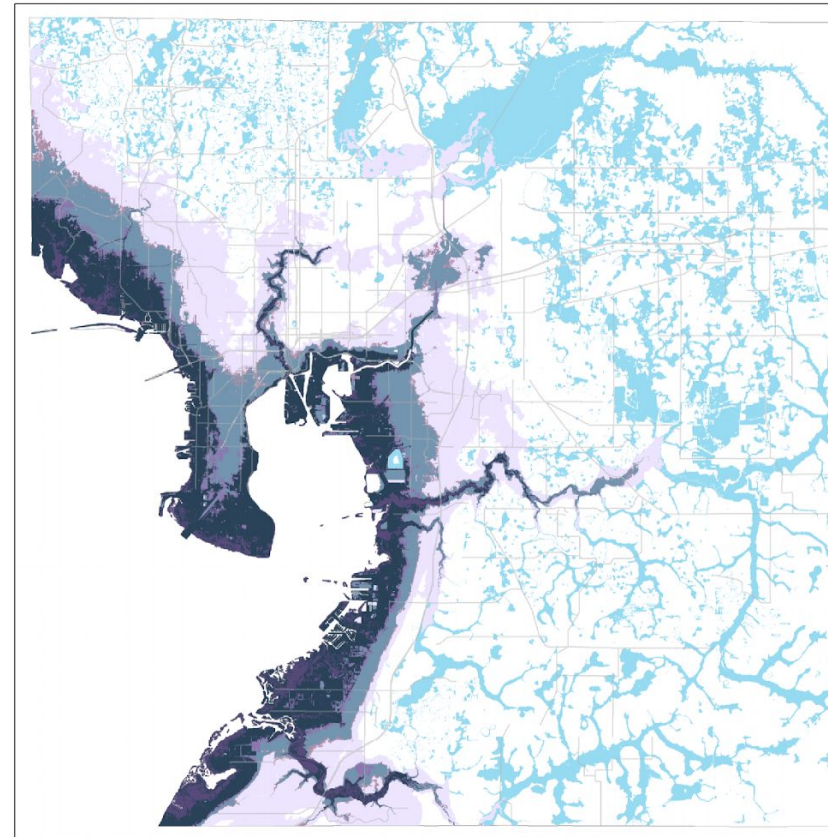
- Current, 2040, 2070 (FDEP required)
- 2100,
- Others as defined by planning requirements.

Flood Risks

- Sea Level Rise
 - NOAA 2017 Intermediate Low and Intermediate High
 - NOAA 2022 Intermediate Low/Intermediate High
 - Others per risk tolerance
- Surge
- High Tide
- Extreme flood events – 1% and 2%

Heat Hazards

- Follow State and Local Mitigation Strategy...*Heat, Drought,*

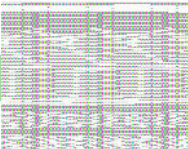


HILLSBOROUGH COUNTY FLOOD LEVELS SEA LEVEL RISE AND HURRICANE INUNDATION

SCALE 0 20,000 Feet

LEGEND

- Major Roads and Highways
- Sea level rise (SLR)
- Cat. 1 Hurricane, Intermediate Low SLR
- Cat. 1 Hurricane, High SLR
- Cat. 3 Hurricane, Intermediate Low SLR
- Cat. 3 Hurricane, High SLR
- Cat. 5 Hurricane
- 100yr Flood



POPULATION VULNERABILITY



Data sets and tools – Census, CDC SVI etc.
 FEMA Resilience and Analysis Planning Tool (RAPT)
 Includes 27 demographic layers: 22 community resilience challenges indicators identified from peer-reviewed research. 26 available at county level, 19 at census tracts; 17 with Tribal boundaries.

RAPT Community Demographics Data Layers

* County data only; ** County and Tribal only; ^ County and Census Tract only; + Census Tract only

Population Characteristics

- Population without a High School Education
- Population 65 and Older
- Population with a Disability
- Population by Race and Hispanic Origin[^]

Household Characteristics

- Households without a Vehicle
- Households with Limited English
- Single-Parent Households
- Households without a Smartphone
- Households without Broadband Subscription⁺

Housing

- Mobile Homes as Percentage of Housing
- Owner-Occupied Housing
- Rental Housing Costs[^]
- Residential Structures in SHFA with Flood Insurance^{*}



Healthcare

- Number of Hospitals^{*}
- Medical Professional Capacity^{**}
- Population without Health Insurance
- Medicare Recipients with Power-Dependent Devices^{*}



Economic

- Population Below Poverty Level
- Median Household Income
- Unemployed Labor Force
- Unemployed Women Labor Force
- Income Inequality
- Workforce in Predominant Sector



Connection to Community

- Presence of Civic and Social Organizations^{*}
- Population without Religious Affiliation^{*}
- Percentage of Inactive Voters^{*}
- Population Change^{*}



<https://rapt-fema.hub.arcgis.com/>



County and Census Tract Community Resilience Challenges Index (CRCI) combining 22 indicators.

PLACE VULNERABILITY



- Physical Location – special considerations
 - Barrier islands, coastal high hazard area, Flood Hazard Area
- Infrastructure proximity/functionality
- Access to Evacuation/Evacuation Level of Service
- Access to Parks, Open Spaces
- Access to healthy food, medical/dental care



HOUSING VULNERABILITY



Structural Vulnerability

- Repetitive Loss Properties
- Building Elevation
- Types of Structure
- Age of Structure

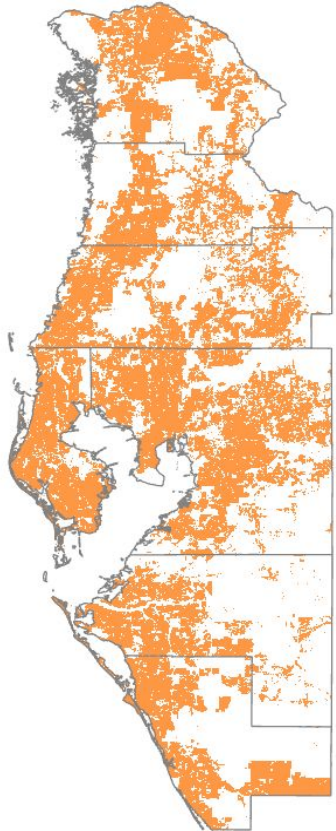


Creating a Regional Snap-Shot of Affordable Housing

Example: Seven Counties – Citrus to Sarasota in 2021

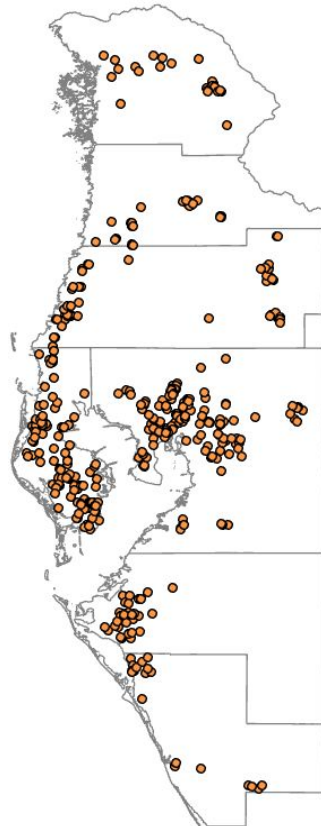
All Residential Parcels

~1.89 million residential units



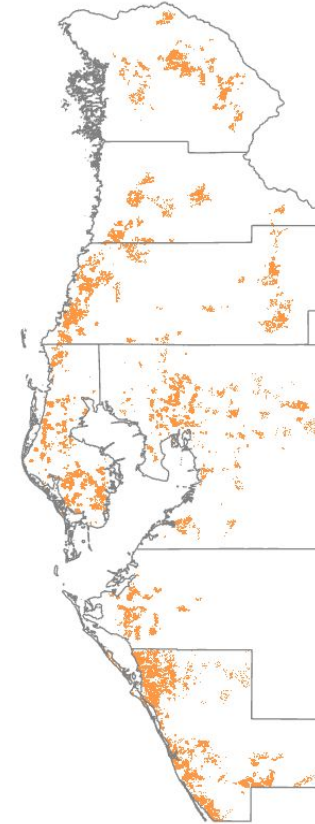
Publicly Subsidized (AHI)

~48,000 AHI units



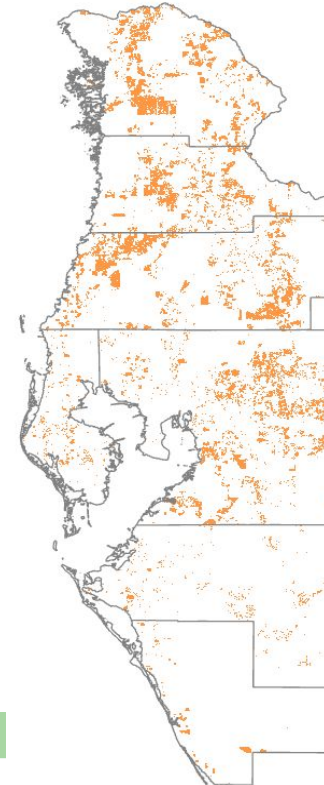
Affordable Market-Rate (NOAH)

~140,000 NOAH units



Mobile Home Parcels*

~151,800 mobile



* 2021 data. , Does not include households with housing vouchers

Example: REACH Regional Housing Initiative

Collaboration between TBRPC, UF Shimberg Center Housing Studies, FHC, USF, United Way

Objective and Products:

Define publicly assisted housing and unassisted housing stock vulnerable to coastal flood hazards across the 7-county Resilience Coalition footprint

- Mapping tool to display affordable housing exposed to coastal flood hazards (<https://arcg.is/1rXSLO>)
- Enable housing characteristics to be queried, summarized, visualized, and downloaded for further analysis on the desktop
- Enable downloading of flood hazard and housing data layers for advanced analysis and incorporation with local data

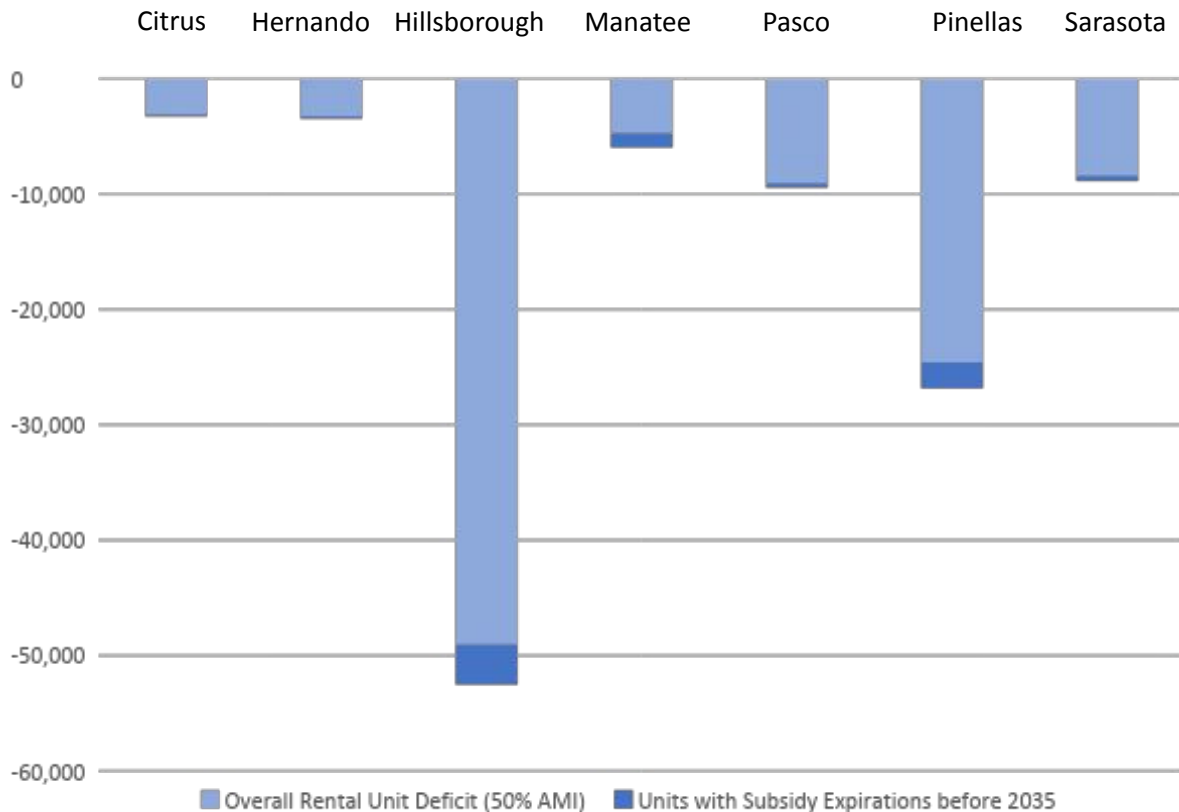
Benefits:

- Includes regionally standardized flood hazard datasets, publicly assisted and unassisted/affordable housing (*unique and useful*) dataset for local governments

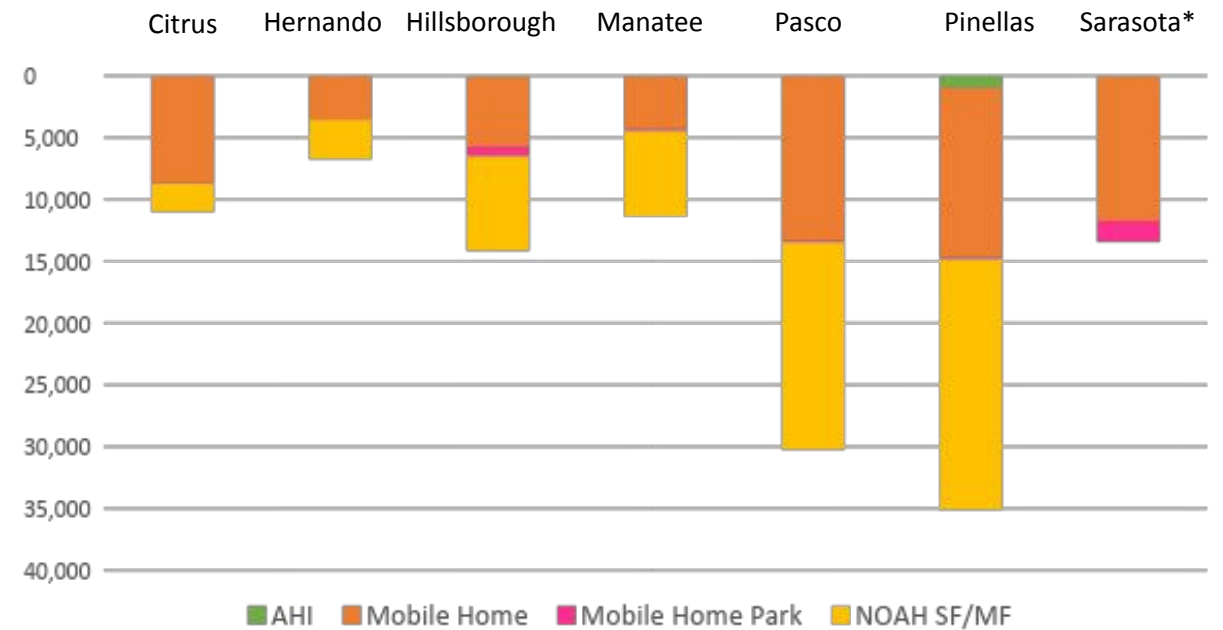


Flood Hazards Exacerbate Deficit of Affordable Housing

Potential Deficit of Affordable Units



Affordable Properties Exposed to 1+ Flood Hazards



66% of subsidized and 62% of market-rate affordable housing is in a flood hazard area (Tampa Bay Regional REACH analysis 2021)



Enhancing Regional and Local Understanding

REACH Flood Hazard Exposure Index (Cumulative, Both Scenarios, 2020-2070)

Quantify current and future coastal flood exposure using several hazard layers, including:

- FEMA floodplain (100, and 500-year)
- Storm surge (Cat 1-3 and Cat 4-5)
- Sea level rise*
- King tide flooding + SLR*
- 10-year storm surge + SLR*
- Post Hurricane Irma flooded lands

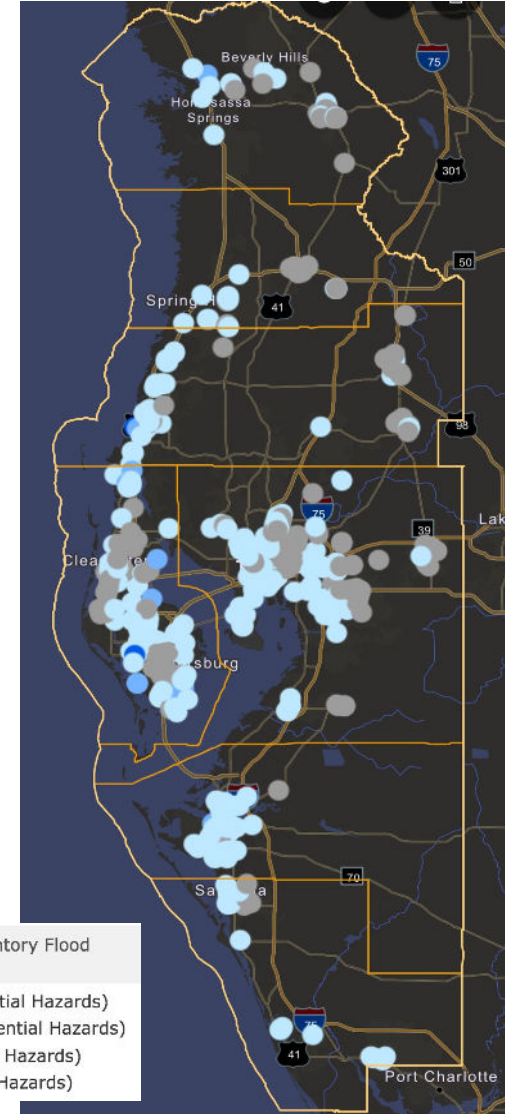
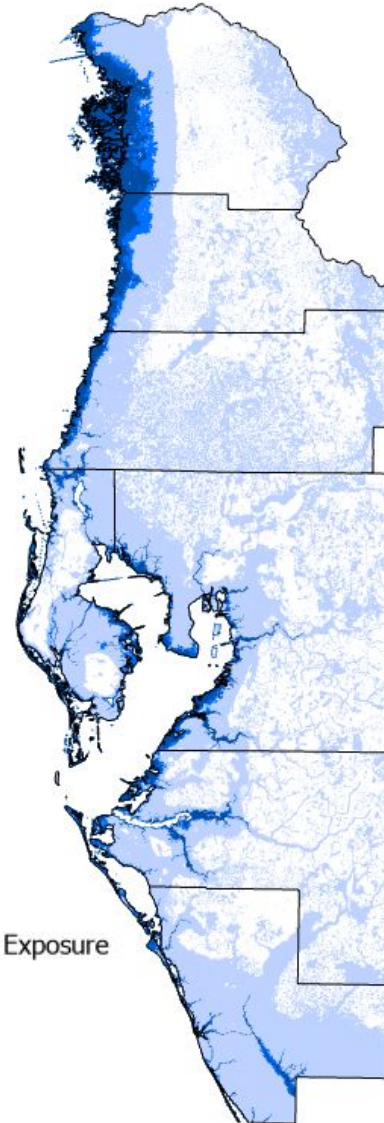
Includes 2 climate scenarios:

- NOAA 2017 intermediate-high (IH) and intermediate-low scenarios (IL)
- Years 2020, 2040, 2070

Overall exposure is a sum of values: *None, Low, Medium, and High*

- None = 0 flood hazards
- Low score = 1-7 flood hazards
- Medium score = 8-15 flood hazards
- High score = 16-23 flood hazards

Composite Flood Hazard Exposure



Example: REACH Flood Hazard Data Inputs

Data Layer	Key Attributes	Source
Digital Flood Insurance Rate Map (DFIRM)	100-year (1%) and 500-year (0.2%) floodplains	FEMA & FGDL, 2020
National Storm Surge	High frequency (categories 1-3) and low frequency (cats 4&5) surge	NOAA National Hurricane Center, 2018
Sea Level Rise (SLR)	Intermediate Low and Intermediate High projections for 2020, 2040, and 2070	NOAA, 2017 AECOM & TBRPC, 2021
King Tide + SLR	King tide inundation projections + all 6 SLR inundation projections	AECOM & TBRPC, 2021
Regional Storm Surge + SLR	Regional storm surge projections + all 6 SLR inundation projections	AECOM & TBRPC, 2021
Post-Hurricane Irma Flooded lands	Coastal and inland flooded lands	Verisk's Atmospheric and Environmental Research, 2017



Example REACH: Data Inputs and Sources

Housing + Households	Data Layers + Notes	Source
Assisted Housing + Households	Assisted Housing Inventory, Florida Housing Data Clearinghouse, accessed April 19, 2021	UF Shimberg Center for Housing Studies, 2021
All Residential Parcels	UF GeoPlan 2020 Statewide Parcel Data based on FDOR County and municipal property tax data	FGDL, Florida Department of Revenue (FDOR), 2020
Naturally Occurring Affordable Housing (NOAH)	Shimberg Center analysis of DOR residential parcel data to identify affordable market-rate properties (based on TBRPC regional average rent threshold and other spatial characteristics)	UF Shimberg Center for Housing Studies, 2021
NOAH Household Attributes	U.S. Census Bureau, 2015-2019 American Community Survey Details on population variables are available here	U.S. Census Bureau, 2019
Social Vulnerability	CDC Social Vulnerability Index and U.S. Census Bureau's ACS Demographics	CDC, U.S. Census Bureau, 2018



UF Shimberg Housing Data Portal



Tables

- Owner-Occupied Units by Structure Type, 2019
- Renter-Occupied Units by Structure Type, 2019
- Median Single Family Home Sale Price, 2000-2020 (2020 \$)
- Tenure, Median Income, and Median Housing Costs, 2019-2019
- All Households, Cost Burden by Income (2019 \$), 2019-2019
- Renter Households, Cost Burden by Income (2019 \$), 2019-2019
- Owner Households, Cost Burden by Income (2019 \$), 2019-2019
- Renters by Income (% AMI) and Cost Burden Levels, 2020 Projections
- Owners by Income (% AMI) and Cost Burden Levels, 2020 Projections
- Rental Units by Affordability/Income Status and Income Level, 2019
- Supply/Deficit of Affordable/Unaffordable Units by Income, 2019
- Assisted Properties and Units by Funding, Summary
- Assisted Housing Inventory Property List
- Average Income and Rent, Assisted Housing Compared to All Renters, 2019
- Housing by Tenure, Renter/Owner, and Income (% AMI)

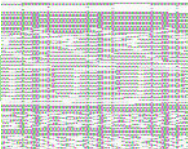
State List – Assisted Housing Inventory

Sort by County and funding

<http://flhousingdata.shimberg.ufl.edu/assisted-housing-inventory>

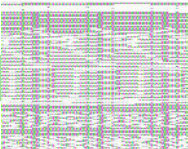
Housing Needs Data Portal for Local Governments

- Tenure (renters and homeowners), income, AMI, cost burden, and demographics
- Occupations, average income, rent
- Assisted housing property details, funding program, tenant information
- Rental units above/below \$1,000
- Affordable rental surplus/deficit
- Link: <http://flhousingdata.shimberg.ufl.edu/reach>



Combining Indicator Sets for Decision Making

Assessment Data Set by Development Type			
Mitigation (existing)	<i>Goal: Improve resiliency by improving existing housing</i>		
	People	Structure	Place
	Concentrations of Vulnerable Populations	Transportation Disadvantaged	Flood Zone
	Vehicle Access	Year Built Structure	Transit Access (Commute Time) + Flood Zone
	Household Income	Year Built Structure or Housing Condition	Non-Evacuation Zone
Redevelopment (existing)	<i>Goal: Improve resiliency by replacing existing housing</i>		
	People	Structure	Place
	Rent to Income Ratio (ALICE) or Housing Burden	Housing Type (ex: mobile home, wood frame multifamily, etc.)	Non-Evacuation Zone (all development outside of the evacuation zone)
	Ownership + Household Income	Housing Condition (inspected, insurance reduction, insured status, maintenance calls)	Non-Evacuation Zone
	Assisted Housing	Year Built	Non-Evacuation Zone
New Construction	<i>Goal: Locate new housing in more resilient context</i>		
	People	Structure	Place
	Diversity Index	Existing Infrastructure (sewer, water, etc.)	Property Value + Transportation Cost (VMT or length of transit time) + Non-Evacuation Zone
	Household Income	Density of Services (schools, fresh food, health)	Level of Service
	Neighborhood Poverty	Brownfield (redevelopment) + Proximity to Hazardous Site	Flood Zone



10 Principles for Resilient Housing Leadership

1. Know where your affordable housing stock is vulnerable to flooding.
2. Know who lives in assisted housing that is at risk.
3. Address environmental hazards and infrastructure factors to improve community health.
4. Ensure that county/city assisted multi-family properties are sufficiently insured.
5. Adequately fund and align SHIP, HHRP, and other public funding programs to implement resilient repairs and mitigation.



10 Principles for Resilient Housing Leadership

6. Resilient design and construction criteria are defined in RFPs and procurement documents for new development.
7. The local Affordable Housing Advisory Committee (AHAC) involves staff and stakeholders with expertise in resilience and sustainability.
8. Affordable housing stock is integrated in infrastructure planning.
9. Local Housing Action Plan acknowledges/integrates resilience and sustainability goals.
10. Local Disaster Recovery planning includes Housing Recovery chapter for all phases of disaster.



THANK YOU!!

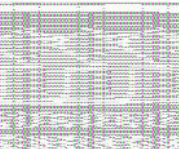
FHC Guide: "Creating a Local Housing Disaster Recovery Strategy"

[https://flhousing1.org/Local Disaster Housing Strategy](https://flhousing1.org/Local%20Disaster%20Housing%20Strategy)



**Check out the Keep Safe Florida resources
(upcoming session)**

Important new tools to support portfolio and
property risk-assessment tools for
multi-family properties



FHC Technical Assistance



- Land-Use Planning, density
- Plan cross-walks/updates
- HUD Consolidated planning, SHIP & HHRP
- Vulnerability Assessments and Scenario Planning
- Community Land Trusts
- Disaster Preparedness and Recovery Planning
- Local Resilient Housing Workshops/Conferences
- Reducing Homelessness
- New Development

For more information, contact: Reynolds@flhousing.org