

Creating a Resilient Housing Stock Through Risk Assessment and Mitigation

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- All participants are on mute
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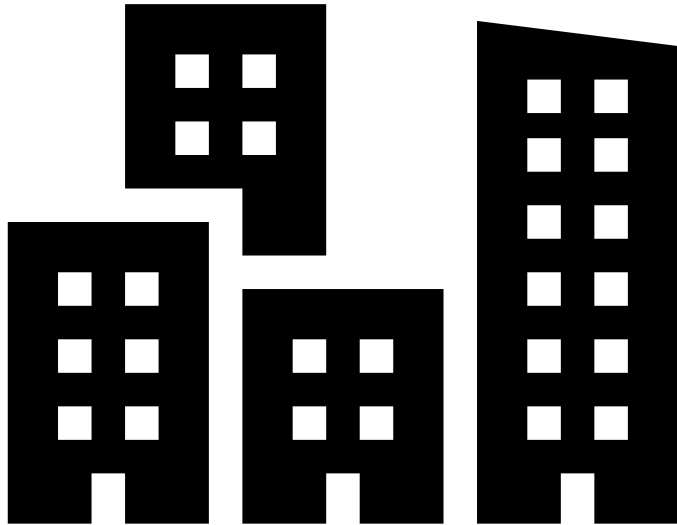


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Workshop Objectives and Agenda

- Terms and Concepts
- Online Mapping Tool for Coastal Hazards
- Seven Principles for Mitigation
- Funding Sources
- FHC Housing Hazard Mitigation and Resilience Planning/Policy Projects
- Keep Safe Florida

Quick Poll: Who is here today?



- Local Government Housing/Planning Staff
- Private Organization
- Emergency Management Staff
- State or Federal Government Staff
- Other

What is Resilience?

“A resilient community is able to resist and rapidly recovery from disasters or other shocks with minimal outside assistance. Reducing current and future risk is essential to the long-term vitality, economic well-being, and security of all communities. By identifying future risk and vulnerabilities, resilient recovery planning can maximize preparedness, save lives and bring benefits to a community long after recovery projects are complete.”

2015 National Disaster Resilience Competition Application.
<https://www.hudexchange.info/programs/cdbg-dr/resilient-recovery/>

Equitable Climate Resilience

Equitable climate resilience is the intersection of successfully withstanding impacts from coastal and climate hazards, while the distribution of information and resources flows fairly to all members of society, in particular those with lower incomes, disabilities or members of racial or ethnic minorities. Equitable climate resilience flows also to areas of need including low and moderate neighborhoods.

Mitigation

Mitigation as a concept is the action of reducing the severity of natural hazards to reduce the loss of life and property. To be effective, mitigation must occur prior to the stress (sea level rise) or shock (storm surge) of a hazard and, as a program must be based on **risk assessment** and a measure of a **community's resilience**.

Mitigation is the programmatic response to natural hazards as a means to increase the resiliency of homes, infrastructure, and communities.

Risk Assessment: Florida's Enhanced Mitigation Plan

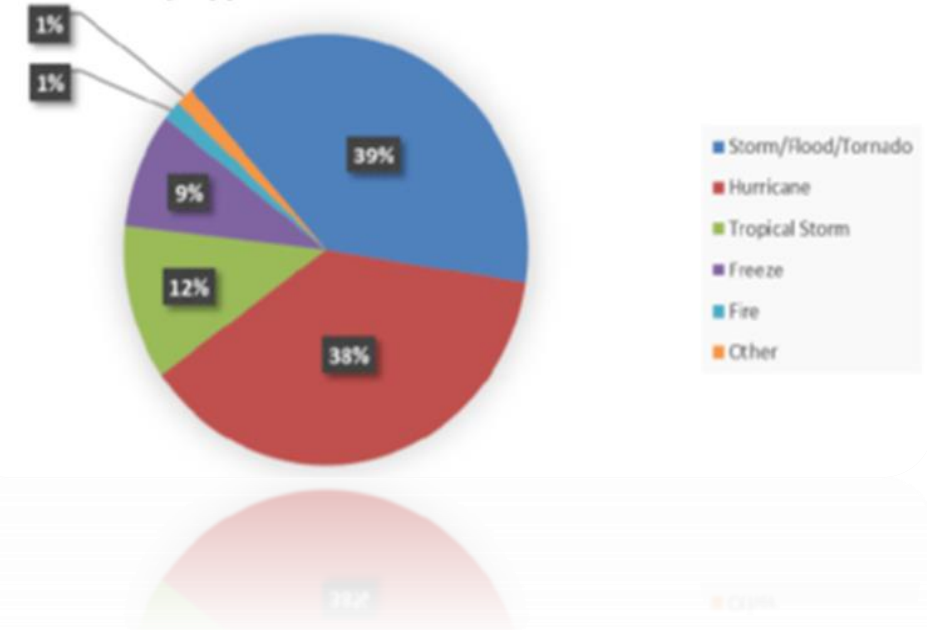
Natural Hazard Risk Assessment

1. Flood
2. Tropical Cyclone
3. Severe Storm
4. Extreme Heat
5. Drought
6. Wildfire
7. Erosion
8. Geological
9. Seismic
10. Tsunami
11. Winter Storm

Technological & Human- Caused Hazard Assessment

1. Agricultural Disruption
2. **Biological Incident (pandemic)**
3. Civil Disturbance
4. Cyber Incident
5. Mass Migration
6. **Hazardous Materials Incident (oil spill)**
7. Radiological Incident
8. Space Weather Incident
9. Terrorism
10. Transportation Disruption

Major Disaster Declarations,
by type, in Florida from 1953 - 2016



Local Mitigation Strategy (LMS): Escambia County

Hazard Probability Assessment

- **N = None:** No previous occurrence and considered no threat
- **L = Low:** Some potential every 16 years or more
- **M = Moderate:** Potential occurrence every 3 to 15 years
- **H = High:** Potential to exist every 1 to 2 years

Table 2: Potential Hazard Risk to Locality

	Drought	Flooding	Hail	Excessive Heat	Hurricane/Tropical Cyclone Events	Storm Surge	Thunderstorm Lightning/Wind	Sinkholes	Earthquakes	Tsunamis	Tornadoes/Waterspouts	Wildfire	Erosion	Winter Storm Freeze	Dam/Levee Failure	Structural Fire	Hazardous Materials	Coastal Oil Spill	Epidemic/Pandemic	Civil Disorder/Disturbance	Terrorism	Cyberattack/Cyberterrorism	Mass Casualty	Prolonged Utility/Comms. Failure
Escambia County	M	M	H	M	H	H	H	N	L	L	L	M	L	M	L	L	L	L	M	L	L	H	L	M
City of Pensacola	L	M	M	M	H	H	H	N	L	L	L	N	L	M	L	L	L	L	M	L	L	H	L	M
Santa Rosa Island Authority	L	M	M	M	H	H	H	N	L	L	L	N	H	M	L	L	L	L	M	L	L	H	L	M
Town of Century	L	M	M	M	H	L	H	N	L	N	L	L	L	M	L	L	L	N	M	L	L	H	L	M

Hazard Impact Assessment

- **N = None:** No impact expected
- **L = Low:** Special portions of the population affected; day to day operations not affected; minor cosmetic damage to structures possible
- **M = Moderate:** Approximately 50% of population affected; mobile homes and poorly built or maintained structures impacted
- **H = High:** Significant portions of the population impacted; major damage to old, poorly maintained mobile home structures; some damage to structures built to recently approved building code

Table 3: Potential Hazard Impact to Locality

	Drought	Flooding	Hail	Excessive Heat	Hurricane/Tropical Cyclone Events	Storm Surge	Thunderstorm Lightning/Wind	Sinkholes	Earthquakes	Tsunamis	Tornadoes/Waterspouts	Wildfire	Erosion	Winter Storm Freeze	Dam/Levee Failure	Structural Fire	Hazardous Materials	Coastal Oil Spill	Epidemic/Pandemic	Civil Disorder/Disturbance	Terrorism	Cyberattack/Cyberterrorism	Mass Casualty	Prolonged Utility/Comms. Failure
Escambia County	M	H	M	M	H	H	H	L	L	L	L	M	L	M	L	L	L	L	M	L	L	L	L	H
City of Pensacola	L	H	L	M	H	H	H	L	L	L	L	L	L	M	L	L	L	L	M	L	L	L	L	H
Santa Rosa Island Authority	L	H	L	M	H	H	H	L	L	L	L	L	M	M	L	L	L	L	M	L	L	L	L	H
Town of Century	L	H	L	M	H	L	H	L	L	L	L	L	L	M	L	L	L	L	M	L	L	L	L	H

Escambia County LMS Mitigation for Construction

- Hurricane shutters for a home, business or government building
- Hurricane roof clips or reinforcement
- Installation of tornado safe rooms
- Elevation of a flood-vulnerable building or home
- Flood proofing a home or business
- Small drainage improvement projects that reduce or eliminate local flooding
- Educational programs to educate our community on things they can do to protect and mitigate their families, their employees and their property against potential disaster

Community Resilience Indicators

Community Resilience Indicators as defined by FEMA, are features that identify and quantify the resilience of a community and are a critical component in developing mitigation strategies that are designed to reduce the sensitivity to the hazards.

- **Socioeconomic Variables:** demographic focused
- **Geographical Variables:** base sea level, the built environment, and characteristics of the environment
- **Physical Variables** include the condition, age, and type of housing units and the housing inventory

Housing Hazard Mitigation Strategy

The formation of a **Housing Hazard Mitigation Strategy** begins with a hazard risk assessment, assessment of vulnerability indicators, and an understanding of the community's ability to prepare homes-of all types and locations-to withstand and recover from a natural disaster.

Tools for Natural Hazard Assessment

University of Florida Shimberg Center

- [Assisted Housing Inventory](#)
- [UF Housing Coastal Flood Hazard Exposure](#)

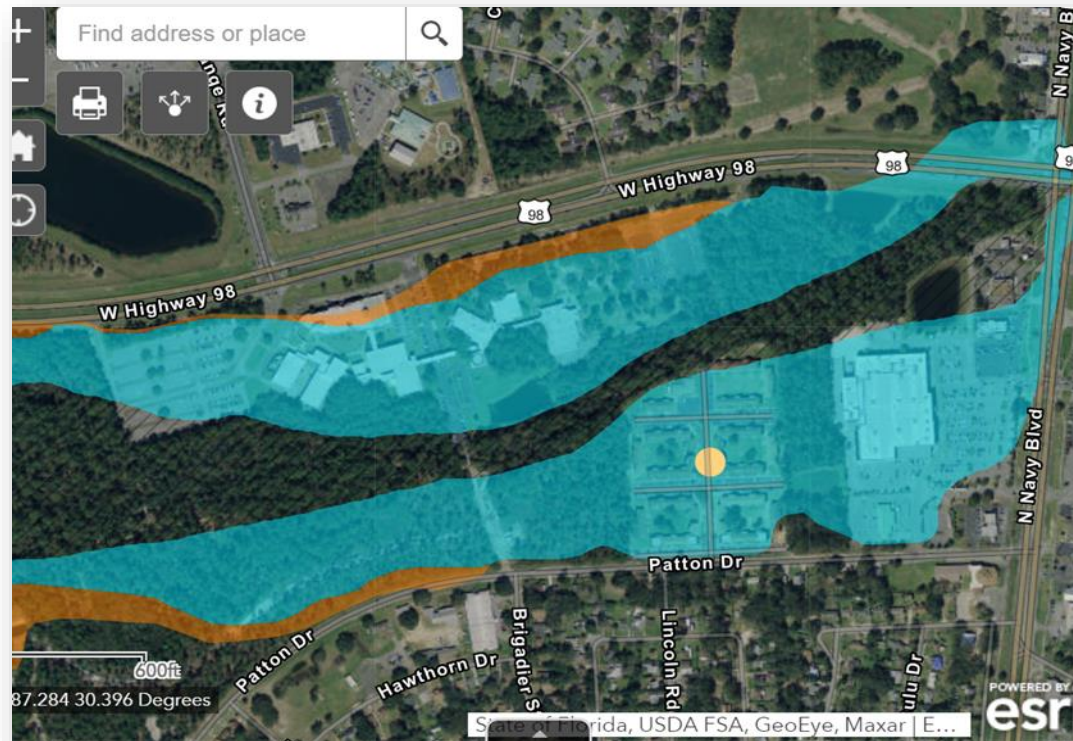
University of Central Florida

- [Vulnerability Mapping Analysis Platform \(VMAP\)](#)

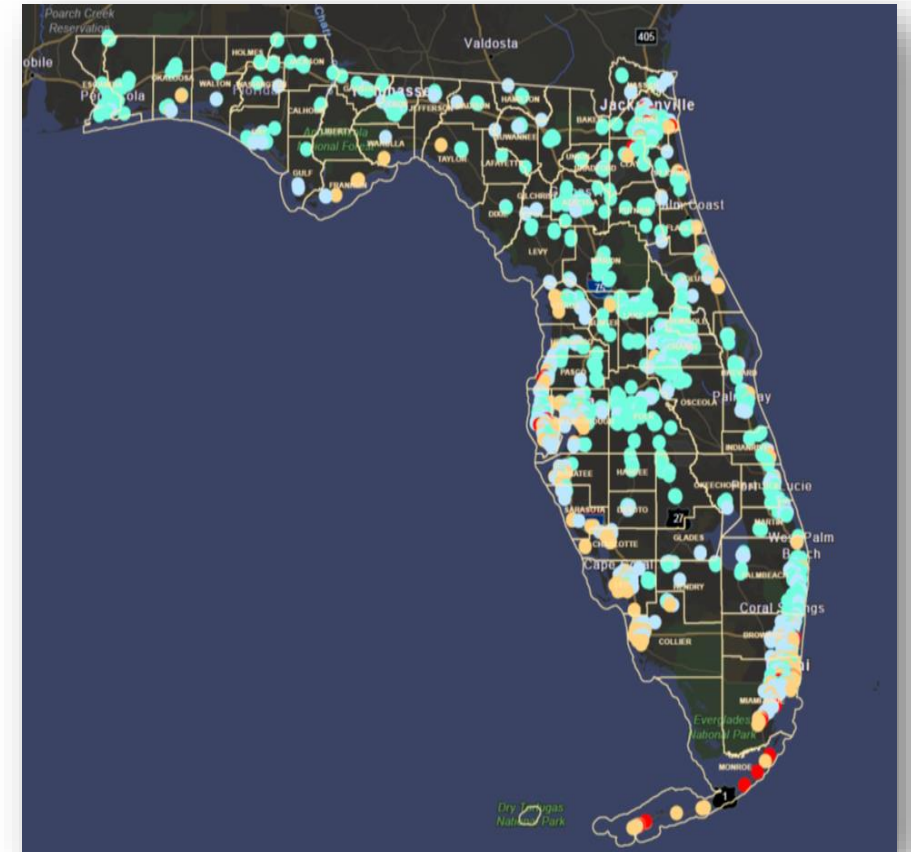
Enterprise Community Partners, Keep Safe Project (for Multifamily Properties and Portfolios)

- [Keep Safe Miami Multifamily Housing Resilience Self Assessment Tool](#)

Coastal Flood Hazard Vulnerability Map: Assisted Housing Properties



Source: University of Florida, Shimberg Center for Housing Studies

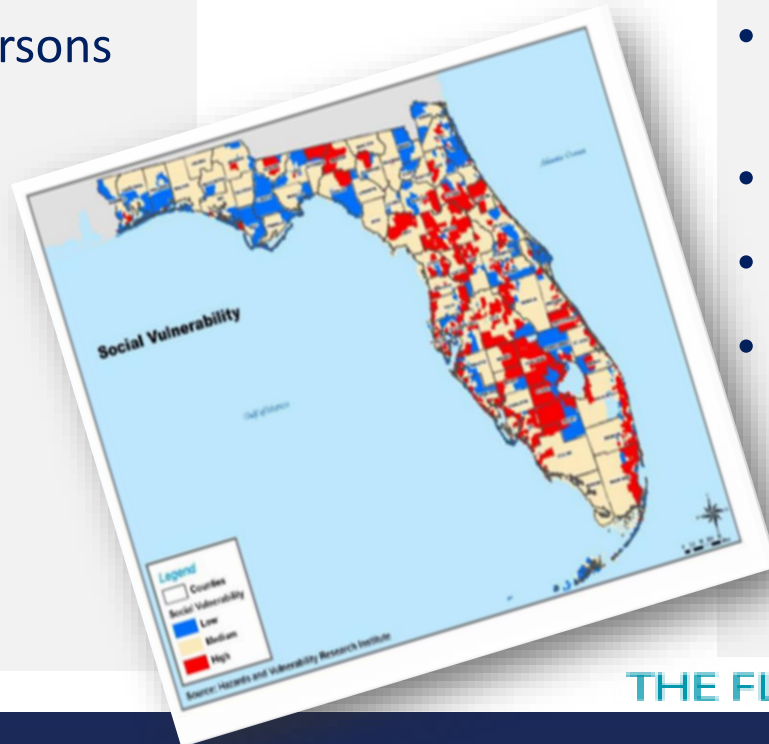


Source: University of Florida, Shimberg Center for Housing Studies

Social Vulnerability (SoVi) Resilience Indicators Most Relevant to Housing

SoVi Indicators

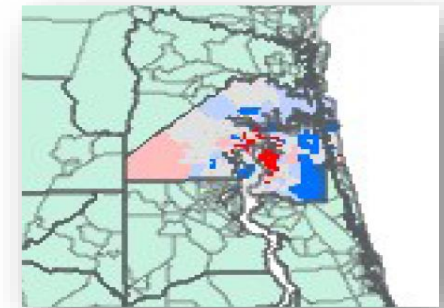
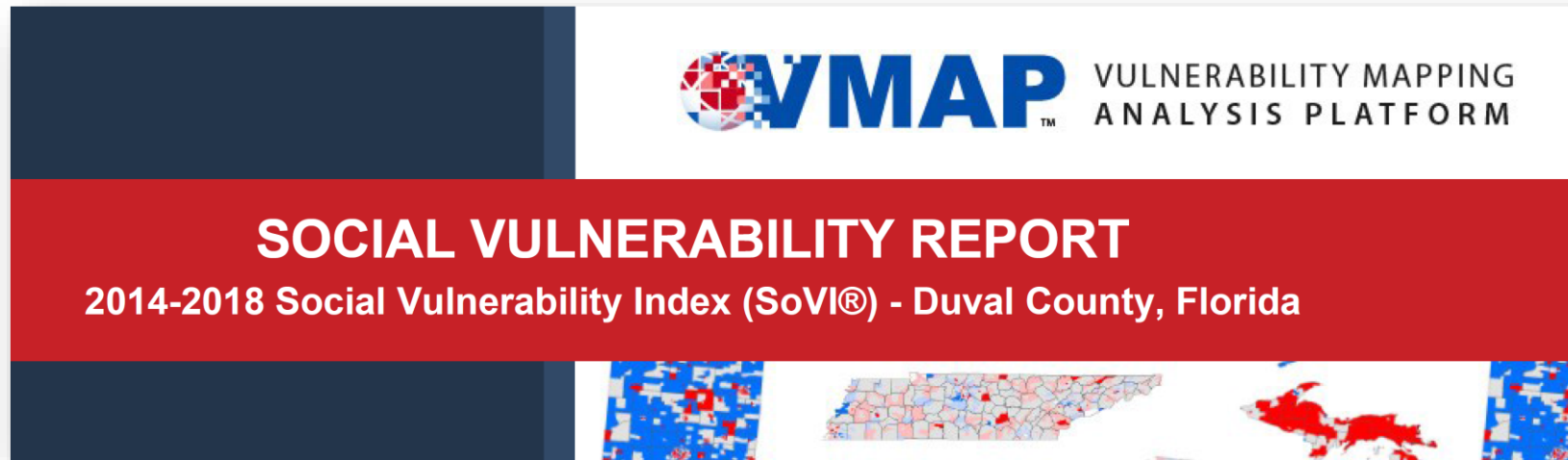
- Over age 65
- Access and affordability for persons with a disability
- Limited English proficiency
- Lack of health insurance
- Lack of high school diploma
- Lack of transportation
- Single head of household
- Overcrowding



Additional SoVi Indicators

- Overall shortage of housing
- Housing affordability with severe cost burdens
- Racial inequity
- Disability inequity
- Property Title Issues (heir title)

Social Vulnerability Index Mapping (UCF)



Social Vulnerability Map: Duval County, FL

	High	Medium High	Medium	Medium Low	Low
Number of Tracts	23	13	89	27	21
Population	99,106	60,806	453,412	178,789	132,116
Housing Units	48,372	28,623	200,448	76,577	49,528



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Social Vulnerability Factors Example: Duval County



Source: Wikipedia. Map of Florida, Duval County identified in red.

Indicator	% Variance
Poverty and Social Status	32.6%
Access Barrier and Ethnicity	10.7%
Dependence and Age	10.4%
Household Size and Housing Type	8.2%
Gender and Employment Type	5.8%
Race and Housing Type	4.7%
Total Variance Explained	72.6%

FHC

Recommendations for Housing Hazard Mitigation Best Practices

1. Home Hardening, Elevation, & Rebuilding

2. Buyout & Relocation

3. Mobile Homes Tie-Downs & Enhancements

4. Priority for LMI, Vulnerable Populations, & Addressing Racial Equity

5. Incentives & Regulations

6. Home Insurance: Wind & Flood

7. Community Engagement & Competence

1. Home Hardening, Elevation, Rebuilding

- Single and multi family homes that have been properly retrofitted or elevated reduce the resident's and the structures exposure to hazards. Residents can choose to shelter in place in a resilient home in the face of storm or flood risks.
- Resilient homes may qualify for reduced insurance as the peril of flood or wind damage is mitigated through the physical rehabilitation of the home.

1. Home Hardening, Elevation, Rebuilding

- Resilient homes are renovated or rebuilt with green standards. Innovative housing models can feature cost saving resilience measures. A best practice is the requirement of green building criteria and certification, for example, by the Florida Green Building Coalition or Enterprise Green Communities.

Hazard	Construction Mitigation Activity
Flood	See FEMA guide , elevate utilities, flood vents, elevate base floor, improve site conditions
Tropical Cyclone Severe Storm	See FDEM Guide , seal roof deck, floor to roof reinforcement, reinforce gable ends, replace add shutters, replace doors and windows with hurricane rated, reinforce garage doors. Remove articles that could become airborne. Re-roof with water barriers, inspect soffits and vents- repair and anchor,
Extreme Heat	Install air conditioning, drapes, window film or tinting, weather stripping, insulated double pane windows, prepare appliances for hot weather, generators, make sure windows can open, install screens to allow for open windows and air flow. Green or cool roofs , cool pavements, increased vegetation and trees,
Wildfires	Understand situation, use fire resistant materials to build, find outdoor water source, create fire-resistant zone around house, designate a room that can be closed off from outside air. Consider Community Mitigation tools. See Climatecheck Wildfire Guide for Homeowners

Home Hardening Methods

2. Buyout and Relocation

- Homes that are located in flood prone areas or otherwise exposed to coastal hazards may need to be voluntarily bought out and the residents relocated to a non-hazard area.
- This is an alternative to hardening, elevation, or rebuilding on site when the hazards cannot be mitigated.
- It is important to address the ability of the beneficiary to obtain suitable replacement housing and that accessibility needs are met.

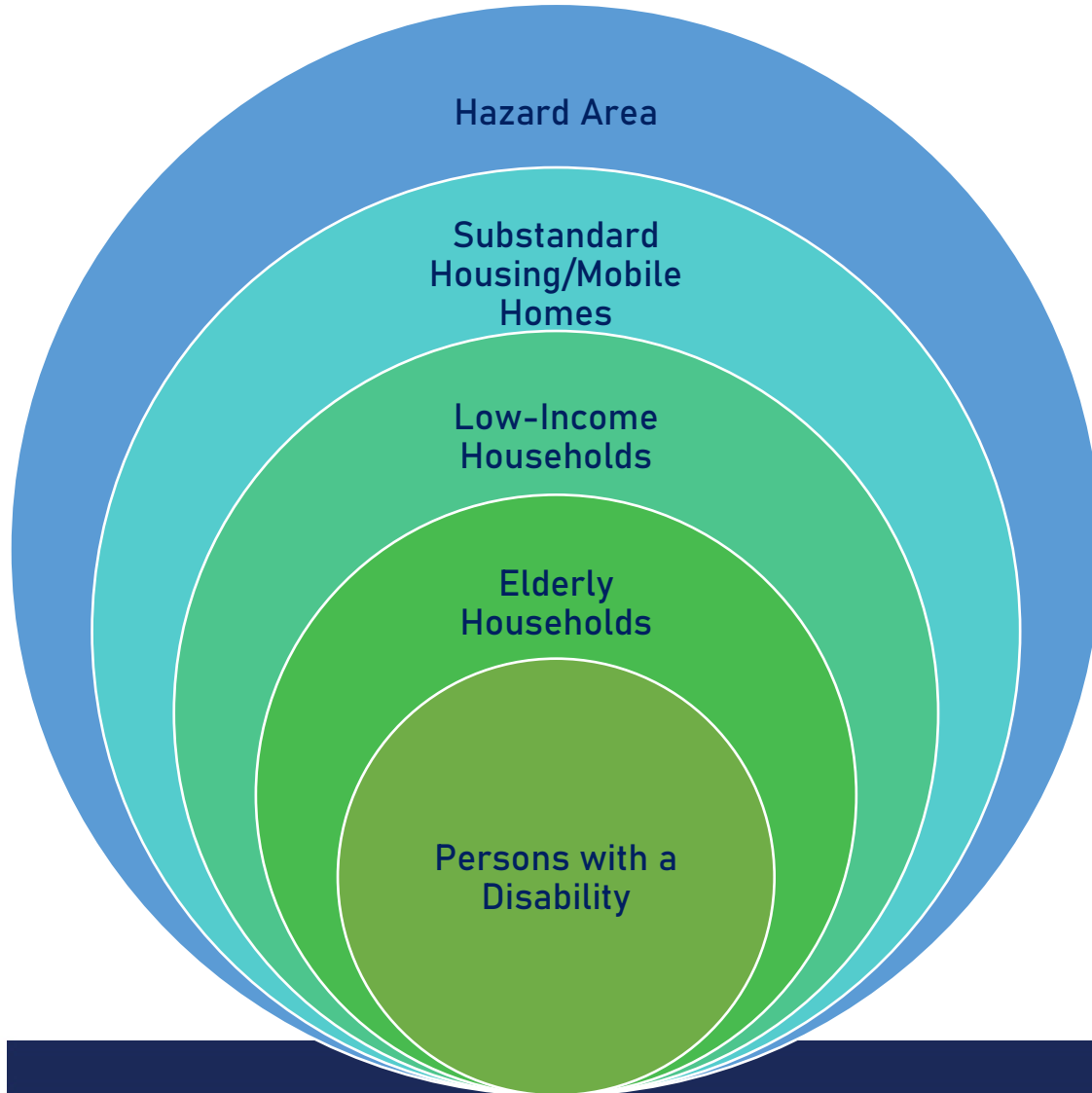
3. Mobile Homes Tie-Downs and Enhancements

- Older mobile homes (pre-1994) can be replaced with modern manufactured housing that meets current building codes.
- Newer mobile homes can be made more resilient through tie-downs, window films, and carport anchoring.

4. Priority for LMI, Vulnerable Populations, and Addressing Racial Equity

- In recognition that lower income households are impacted disproportionately by natural disasters, low- and moderate-income residents and neighborhoods are a priority for the use of public resources for mitigation activities.
- This includes other vulnerable populations including people experiencing homelessness or who have disabilities.

Prioritize LMI: Targeted Areas & Populations



- Coastal High Hazard Areas (CHHA)
- Floodplains
- Special Flood Hazard Areas (SFHA)
- Areas with older homes
- Areas with mobile homes

5. Incentives and Regulations

- Housing programs are an essential investment that can be supported and encouraged through financial and regulatory incentives. This is the most effective tool a community has to prioritize mitigation treatments as well as to assist the LMI population.
- Incentives, such as SHIP Incentive Plan, can increase supply of affordable housing, reducing vulnerability of lower income households.
- Regulations can discourage development in hazardous locations. Code enforcement protocols that prioritize correcting structural deficiencies is a critical mitigation factor.

5. Incentives and Regulations

- Consumer incentives include insurance premium discounts and energy savings. Green and energy certification programs can provide validity to mitigation activities and document the features that add to the value and resilience of the home.

6. Home Insurance: Wind and Flood

- Adequate home insurance is a form of financial resilience and allows a homeowner or rental property owner to repair and rebuild should disaster strike. All homes financed with a mortgage must carry liability insurance as well as wind and flood as dictated by the location and structural type of the home.
- Local governments providing housing assistance require indemnification as well. Homes that are not mortgaged but are in flood zones are particularly vulnerable to catastrophic loss. Data is available to planners and the general public on flood zone requirements and repetitively flooded areas.

6. Home Insurance: Wind and Flood

- FEMA cannot be expected to cover repetitive losses indefinitely. Other insurance, such as sinkhole hazard may also be required but overlooked by the insured. Consumers should be aware of how to qualify for insurance premium discounts for wind mitigation features.
- NFIP 2 should lower premiums for many lower income households due to broadened underwriting criteria. Still, FEMA should consider means based pricing for lower income households.

Hurricane Michael Housing Recovery Costs

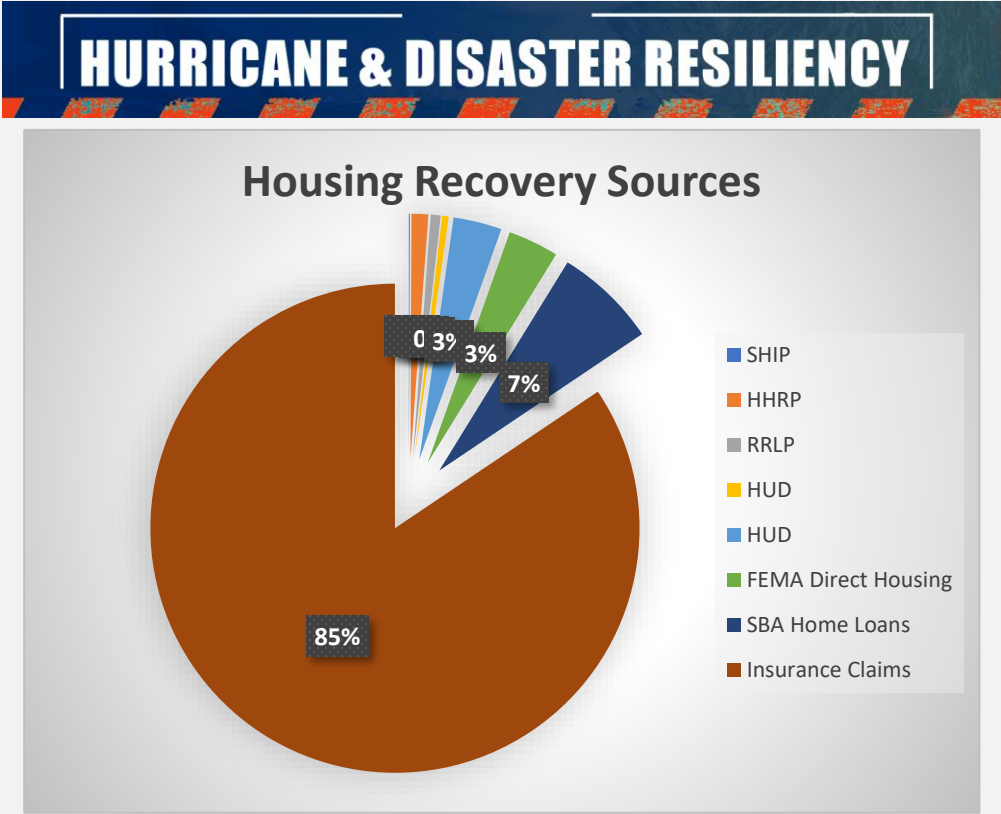


Chart: Proportion of housing recovery funding by source.

SHIP	5,000,000
HHRP	85,000,000
RRLP	50,000,000
HUD HOME	33,000,000
HUD CDBG-DR	246,243,144
FEMA Direct Housing	258,000,000
SBA Home Loans	522,000,000
Insurance Claims	6,502,391,307
Total	7,701,634,451

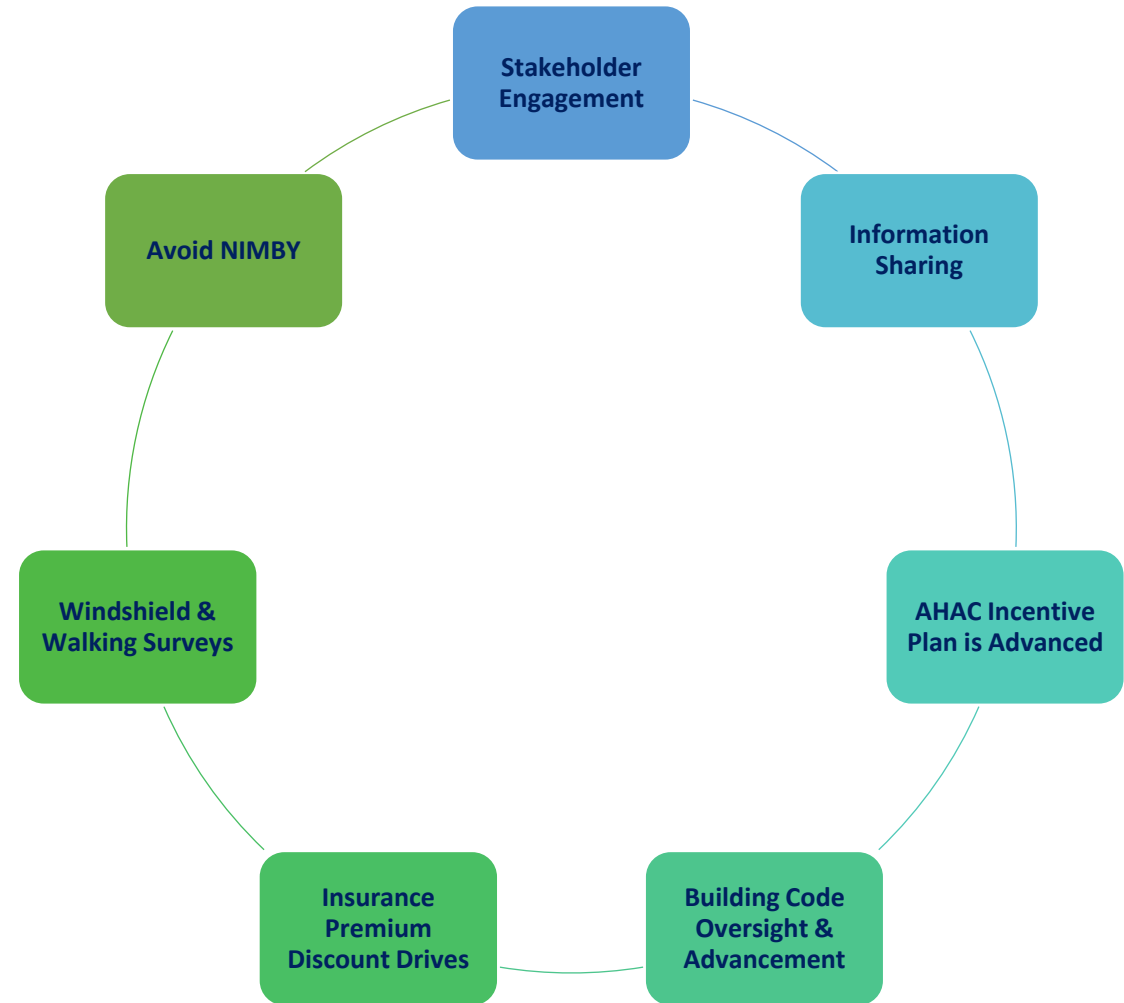
Table: Estimate of Housing Recovery Costs for Hurricane Michael including emergency repairs and rental assistance.

7. Community Engagement and Competence

- Local leadership and a strong on-going coordination between the housing providers and the emergency management departments is essential to develop a robust housing mitigation program that operates year-round. This may also include community-sponsored educational and networking seminars for developers and property owners.
- Green infrastructure planning and development is an indicator of community competence and engagement, especially when made a priority for low- and moderate-income neighborhoods.

7. Community Engagement and Competence

By reinforcing the importance of housing as part of a community's infrastructure more effective policies will emerge that can better protect homes and lives as climate change hazards inevitably occur.



Federal/State Specific Funding Sources

- [Hazard Mitigation Grant Program \(HMGP\)](#)
- [Hurricane Loss Mitigation Program \(HLMP\)](#)
- [BRIC](#)
- [Resilient Florida – DEP](#)
- [CDBG-DR](#)

Hazard Mitigation Grant Program (HMGP)

- FEMA Funding
 - **Goal:** Assisting in implementing long-term hazard mitigation measures following a major disaster declaration
- Reimbursement grant
- Cost Share: 75% federal/25% non-federal
- Eligible applicants local governments and private non-profits
- Best to go through local govt



Hurricane Loss Mitigation Program (HLMP)

- Funded activities include retrofits, inspections, and construction or modification of building components designed to increase a structure's ability to withstand hurricane-force winds and flooding.
- Includes Mobile Home Repair Program (anchoring, window film, carport anchoring)
- This is state general revenue-not FEMA
- Each grant is \$194,000 and all applicable projects must be completed within the fiscal year in which it was contracted.
- The program is in a bill to extend it to 2034 this 2022 session.
 - \$3.5 million annual allocation
 - \$2.8 million for mobile home program
 - \$700,000 for FIU Hurricane Research Center

Building Resilient Infrastructure & Communities (BRIC)

- FEMA BRIC Funding: \$1 Billion in 2021
- Local Govts Apply thru FDEM
 - Annual appropriation
 - Nonprofits apply through local govt.
- Reimbursement Grant: 75% federal, 25% non-federal
- States receive set aside amount plus national competition
- All activities of HMGP plus scoping projects
- Disadvantaged Communities boost

BRIC: Housing Related Activities

- Property Acquisition and Demolition
- Property Acquisition and Relocation
- Structure Elevation
- Mitigation Reconstruction
- Dry Floodproofing of Historic Residential Structure
- Generator/Emergency Power Pack Up
- Localized Flood Risk Reduction
- Structural Retrofitting
- Wind Retrofit
- Hazard Mitigation Planning
- Technical Assistance
- Capacity and Capability Building
- **Project Scoping and Building Code projects**



BRIC Disadvantaged Community as defined in NOFO

- Low income
- High and/or persistent poverty
- High unemployment and underemployment
- Racial and ethnic segregation
- Particularly where the segregation stems from discrimination by government entities
- Linguistic isolation
- High housing cost burden and substandard housing
- Distressed neighborhoods
- High transportation cost burden and/or low transportation access

BRIC Disadvantaged Community as defined in NOFO

- Disproportionate environmental stressor burden and high cumulative impacts
- Limited water and sanitation access and affordability
- Disproportionate impacts from climate
- High energy cost burden and low energy access
- Jobs lost through the energy transition
- Access to health care
- All geographic areas within tribal jurisdictions

FDEM Resources



- HMGP
 - <https://www.fema.gov/hazard-mitigation-grant-program>
 - <https://floridadisaster.org/dem/mitigation/hazard-mitigation-grant-program/>
- BRIC
 - Program Support Materials: <https://www.fema.gov/media-collection/resources-building-resilient-infrastructure-communities-program-bric>
 - FEMA Mitigation Action Portfolio: https://www.fema.gov/sites/default/files/2020-08/fema_mitigation-action-portfolio-support-document_08-01-2020_0.pdf
 - FY21 NOFO (BRIC/FMA): <https://www.fema.gov/grants/mitigation/fy2021-nofo#>
- FMA
 - <https://www.fema.gov/flood-mitigation-assistance-grant-program>
 - <https://floridadisaster.org/dem/mitigation/flood-mitigation-assistance-program/>
- HLMP
 - <https://floridadisaster.org/dem/mitigation/hurricane-loss-mitigation-program/>

New! Resilient Florida Program: Project Types and Funding

1. Peril of Flood Compliance
2. *Vulnerability Assessments*
3. *Adaptation/resilience Plans*
4. Projects to adapt **critical assets**



Resilient Florida Program: Project Types and Funding

- Implementation/adaptation grants
- \$500M from ARA
- Planning Grants
- \$20 million from Gov and Legislature
- No cost share required
- Reviewed and ranked by staff
- Contact Whitney Gray at 850-245-2098
 - Whitney.Gray@FloridaDEP.gov



General Housing Funding for Mitigation

- **SHIP**

- Acquisition, repair, rehabilitation, elevation, accessibility, replacement (new construction)
- Manufactured housing limitations

- **CDBG**

- Acquisition, repair, rehab, no new construction, site work, infrastructure

- **HOME**

- Acquisition, rehab, new construction

Links to Funding Guides

[Florida Housing Coalition Affordable Housing Resources](#)

[Keep Safe Miami Resource Guidebook](#)

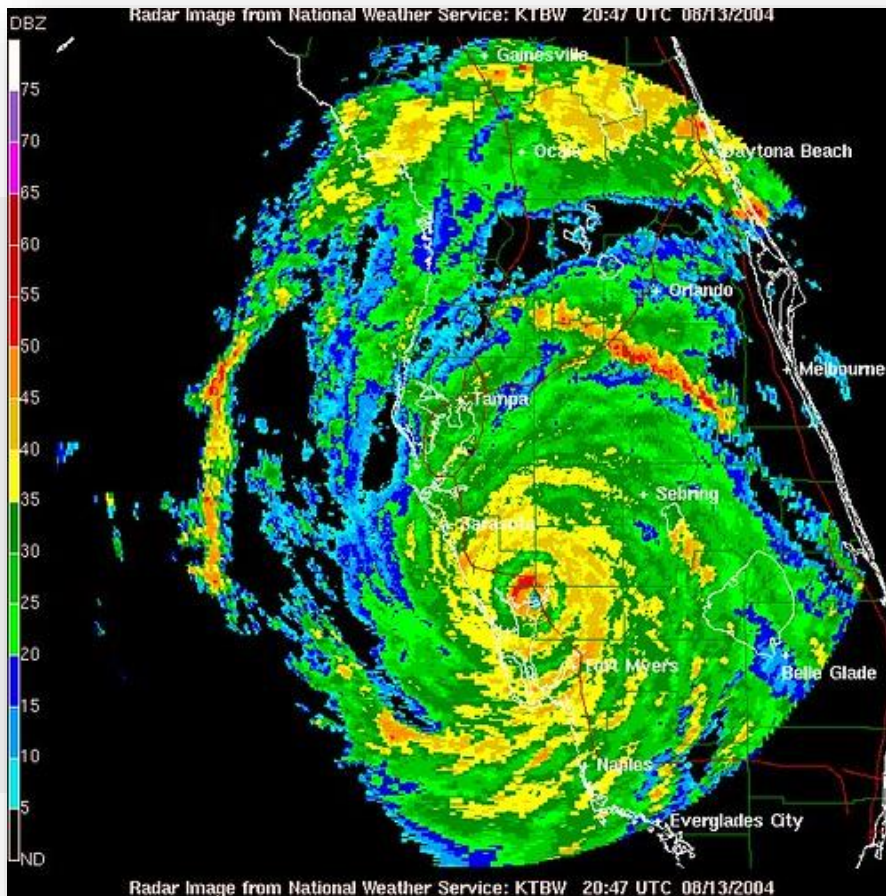
[Disaster Management Guide for Housing](#)

[Creating a Local Housing Disaster Recovery Guide](#)

[Residential Rehabilitation Guide](#)

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FHC Housing Hazard Mitigation and Resilience Planning/Policy Projects

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How Does a Community Implement Housing Hazard Mitigation and Resilience Strategies?

- Planning Frameworks
 - ✓ Spending Plans
 - ✓ Action Plans
 - ✓ Policies



FHC Planning Framework: Plan & Policy Matrix

JURISDICTION	Guiding Policy/Documents/Plans	Citation
FEDERAL		
	Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288 as amended. 42 U.S. Code § 5121. Federal Emergency Management Agency, 2003.
	FEMA Core Capabilities	National Preparedness Goal, Second Edition. Department of Homeland Security, September 2015.
	National Disaster Recovery Framework	National Disaster Recovery Framework, Second Edition. Department of Homeland Security, June 2016.
	HUD Consolidated Plan	Code of Federal Regulations, 24 CFR part 91.
	HUD CDBG-DR	Code of Federal Regulations, 24 CFR part 570.
	National Flood Insurance Program	Code of Federal Regulations, 44 CFR, Chapter 1, Subpart B
STATE		
	FDEM-CEMP	Florida Statutes, § 252.35. (2020)
	FDEM-State Hazard Mitigation Plan	42 U.S. Code § 5165. Mitigation planning. 2018. Florida Statutes, § 252.3655. (2020)
	Comprehensive Plan	Florida Statutes, § 163.3177. (2020)
	Sadowski Affordable Housing Act	Florida Statutes, Chapter 420 Housing.
	Florida Building Code	Florida Statutes, § 553.73. (2020)
LOCAL		
	Comprehensive Plan	See Florida Statutes.
	Local Mitigation Strategy	Florida Administrative Code, 27P-22.005 Local Mitigation Strategy. 2002.
	Local Housing Assistance Plan	Florida Administrative Code, 67-37.005 Local Housing Assistance Plans. 2017.
	Incentive Plan	Florida Statutes, § 125.01055 Affordable Housing.
	HUD Consolidated Plan	See Code of Federal Regulations.
	Green Building	Energy Policy Act of 2005, P.L. 109-58. 42 USC §13201 et seq. (2005) Florida Statutes, § 420.9075 Local housing assistance plans; partnerships.

Tampa Bay RPC REACH Project Overview

- Resilience Energy Assessment for Community Housing (REACH)
- REACH is a two-year research and community engagement effort among the members of the Tampa Bay Regional Planning Council
- Comprised of six counties and 23 municipalities, along with a wide-ranging group of stakeholders forming the Resilience Cooperative Alliance, Inc. (RCA)
- Designed to create tools communities can use to understand and mitigate the risks of natural hazards, in particular sea level rise and flooding, on their housing infrastructure, particularly that of low- and moderate-income residents and neighborhoods

Tampa Bay RPC REACH TA Coordination

Lead



Technical
Advisors



Sponsor



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REACH Objectives

1. Develop consistent frameworks, methods and metrics for evaluating community vulnerability and affordable housing risks;
2. Create standardized approach for mapping housing inundation and risk zones;
3. Define approaches for assessing housing energy consumption and opportunities;
4. Create regional road map for integrating affordable housing and resilience planning;

REACH Objectives

5. Integrate ALICE (United Way) into resilience;
6. Support updates to Comprehensive Plans, HUD Consolidated Plans, Post-Disaster Recovery Plans, re/development plans;
7. Provide training and technical assistance to use new tools, updates; and
8. Prioritize construction in less vulnerable areas, connected to transportation.

FHC REACH Methodology

- Research & Framework of Regulations
 - Plan Origination and Hierarchy, Local Plan and Policy Evaluation, Literature Search (Social Vulnerability & Adaptation Planning)
- Coordinate Among REACH Consultant Teams
 - FHC, UF, USF, United Way Suncoast
- Identify End Users
- Develop Tampa Bay RPC REACH Planning & Housing Self-Assessment Checklist for Local Governments

FHC REACH Methodology

- Conducted Beta Tests with Local Government staff and community stakeholders
- 3-Part Workshop Series
- Direct Technical Assistance to Participating Local Governments
- Regional Summary: Areas of Opportunity, Priorities, Next Steps
- Reporting

Housing Resilience Policy Audit: Plans Evaluated in the Checklist

Local Mitigation
Strategy

Local Housing
Assistance Plan

Post Disaster
Redevelopment
Plan

Community
Rating System
Plans

Stakeholder
Engagement

Construction/Rehab
Standards

Hazard Risk Assessment

Comprehensive Plan

Result: Intersection

Data-driven approach to improve affordable housing hazard resilience and mitigation that is implemented through planning frameworks, spending plans, and programs.



Regional Summary

Top Three Areas of Improvement

- 1) Post Disaster Redevelopment Plan (PDRP)
- 2) Construction Standards
- 3) Hazard Risk Assessments

Areas of Priority

- Ensure consistency within planning framework to eliminate duplication and emphasize implementation and investment in housing mitigation
- Encourage AHACs to promote incentives, green building practices, and housing mitigation activities
- Education and training for staff

FHC Observations

- Comp Plan Elements lack the mitigation policy foundation to support and enforce housing mitigation activities.
- There is a regional need for policies, funding strategies, and initiatives for disaster housing mitigation programs.
- Although Green Building is identified as a regional strength in the Comp Plan, is not being implemented through plans like Construction Strategies, PDRP, or the LHAP.
- LMI neighborhoods and areas impacted by disinvestment are not being prioritized for housing mitigation activities in the planning and response framework.

Recommended Actions

- **Comp Plan:** Create a policy foundation that directly incorporates disaster housing mitigation which will influence land development regulation and spending plans.
- **LMS:** Use community resilience indicators and evidence-based policy/standards to enhance disaster housing mitigation strategies.
- **LHAP:** Define and require disaster housing mitigation in SHIP funded housing activities and evaluate incentive opportunities that can further support mitigation strategies.
- **PDRP:** Standardize housing mitigation techniques in all post-disaster redevelopment activities.

Recommended Actions

- **Community Rating System (CRS) Plan:** Identify areas that, when addressed, will increase class rating and prepare for future flood plain mapping that will impact existing housing settlement patterns.
- **Construction Standards:** Strive for policies that exceed minimum codes or standards to ensure vulnerabilities are mitigated throughout the housing stock.
- Emphasis on **equity considerations** in overall planning framework
- Advance **Green Building practices** uniformly, region-wide

A regional approach will result in a collective impact that standardizes and expands resilience efforts, as it relates to affordable residential development.

East Central Florida RPC Project Overview

- Housing Assets and Resilience Policy (HARP)
- Resilient Florida grant from the Florida Department of Environmental Protection aimed at increasing resilience in east central Florida.
- Partners
 - East Central Florida RPC
 - Florida Housing Coalition
 - University of Florida, Shimberg Center for Housing Studies
- Florida Housing Coalition's role is to conduct a housing resilience policy audit and provide recommendations for policy revisions.

Local Government Role in R2C HARP



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- Assemble team comprised of staff responsible for developing each individual plan (plan experts), EOs, Floodplain Manager, and housing staff
- Participate in technical assistance meetings with FHC throughout process
- Meet to discuss and establish plan to complete checklist

Local Government Role in R2C HARP

- Individual staff completes audit associated with their planning expertise
- Reconvene to discuss checklist findings, areas of opportunity and strengths, how to increase collaboration, duplication/overlap among plans
- Define attainable next steps to increase coordination and improve housing hazard mitigation/resilience implementation throughout local plan and policy frameworks



Keep Safe Florida

Affordable Housing + Resilience



Preserving Affordable Housing From Climate Risk

Enterprise Community Partners

We focus on the greatest need – the massive shortage of affordable rental homes – to achieve three goals:



Increase Housing Supply

Preserve and produce good homes
that people can afford



Advance Racial Equity

After decades of systematic
racism in housing



Build Resilience & Upward Mobility

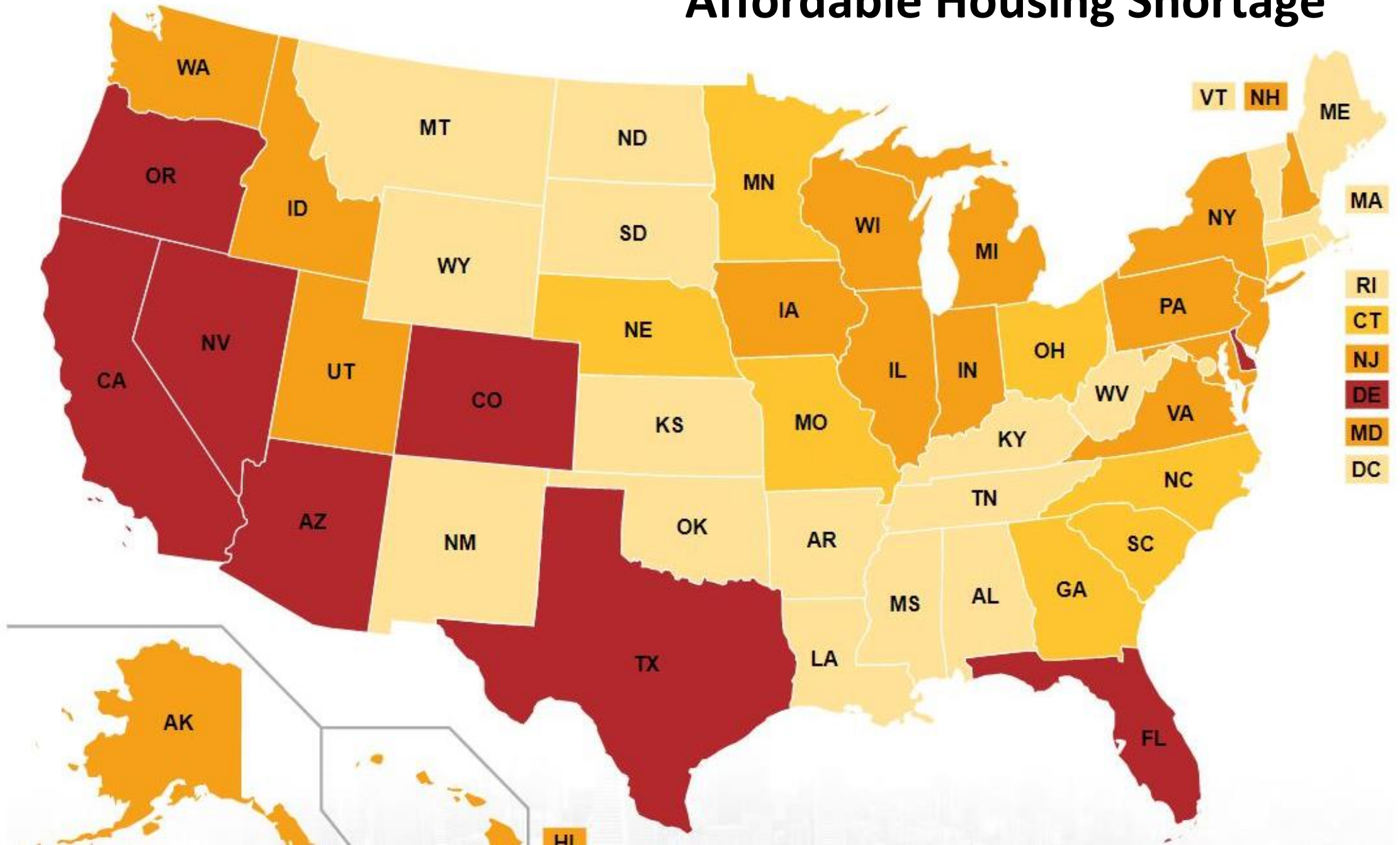
Support residents and strengthen communities to be
resilient to the unpredictable

U.S. 2020 Billion-Dollar Weather and Climate Disasters



This map denotes the approximate location for each of the 22 separate billion-dollar weather and climate disasters that impacted the United States during 2020.

Affordable Housing Shortage



Repeated Losses



CLIMATE RISK REDUCTION AND RESILIENCE ACTIVITIES

Strategies for Multifamily Housing Resilience

Community

Strategies that encourage behavior which enhances resilience.

Adaptation

Strategies that improve a facility's ability to adapt to changing climate conditions.

Protection

Strategies to reduce a building's vulnerability to extreme weather.

Backup

Strategies that provide critical needs when a facility loses power or other services.

READY TO RESPOND

Strategies for Multifamily Building Resilience Vol. 1



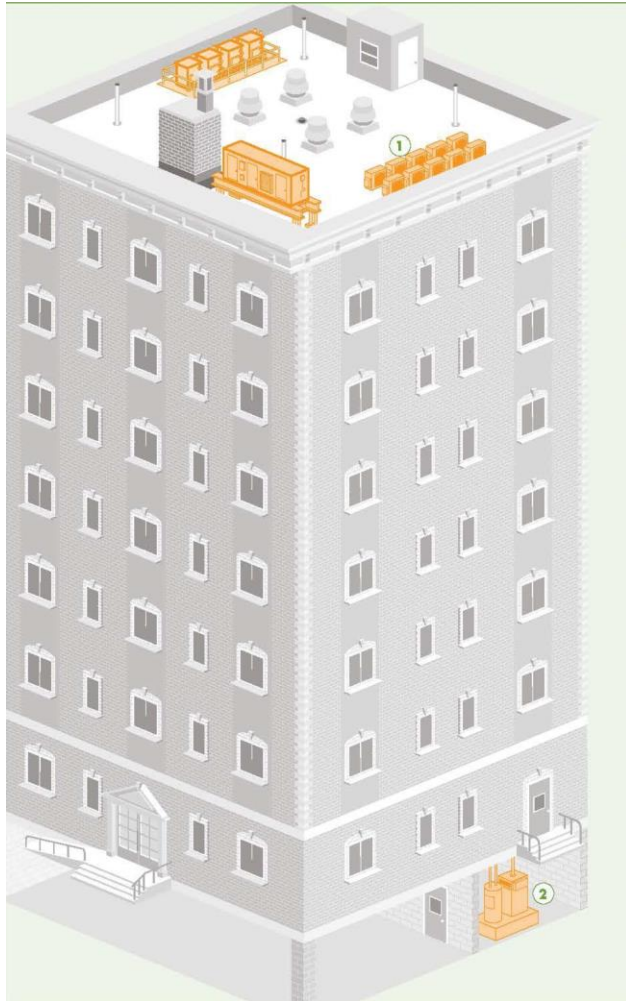
Disaster Preparedness
for Affordable
Housing Organizations



Enterprise

Flood Prevention – Mid-High Cost

Elevated Equipment



Integrated Physical Needs Assessment (IPNA)

5
Generations
of IPNA's-800
Multifamily
Bldgs



Building: 136 West 113th Street, New York, NY



EXECUTIVE SUMMARY

Project/Building Name (if any) or Address(es)	136 West 113th Street, New York, NY 10026
# of Buildings	1
# of Units	20
Report Prepared For	Janus Property Company
Report prepared by	Carl Hourihan, The Levy Partnership (TLP)
Needs Assessor	Eri Semerzakis/Tamera Talbert, CTA Architects
Efficiency Assessor	Carl Hourihan, TLP
Reviewed By	Jordan Dents, TLP
Additional attendees during site visit (super, etc.)	Shengming Zhu, TLP
Date of Site Visit	3/30/2018
Date of Report	5/9/2018
Date of Revised Report	

Improvement	Estimated Replacement cost (\$)	Estimated Annual Utility Cost Savings (\$/yr)	Potential Health Benefit (yes/no)	Urgency A: Critical B: Short Term (<12 months) C: Long term (1 to 15 years)
Finishes - misc. vinyl tile & baseboard repair and replacement	\$ 800		No	B
Finishes - patch repair gypsum	\$ 1,000		No	B
Interior common space - prepare, prime, and paint walls and ceilings	\$ 80,600		No	C
Apartments - prepare, prime, and paint walls and ceilings	\$ 384,400		No	C
Lighting Upgrade (outdoor pack)	\$ 240	\$557	No	B
Lighting upgrade (U-Lamp) - Common	#VALUE!	\$580	No	B
Lighting upgrade (4ft T12) - Basement	#VALUE!	\$133	No	B
Install low flow showerhead	\$ 210	\$540	No	B
Install faucet aerators bathroom lav	\$ 120	\$260	No	B
Install faucet aerators kitchen	\$ 120	\$260	No	B
Relamp Apartment bulb to LED	\$ 520	\$1,179	No	B
Condensing Boiler	\$ 16,000	\$3,030	No	B
Solar PV	\$ 34,846	\$2,563	No	B





Hurricane Maria



KEEP SAFE

A GUIDE FOR RESILIENT
HOUSING DESIGN IN
ISLAND COMMUNITIES



Enterprise®



ASOCIACIÓN DE
CONSTRUCTORES
DE PUERTO RICO



MANTÉNGASE SEGURO

UNA GUÍA PARA EL DISEÑO DE VIVIENDAS
RESILIENTES EN COMUNIDADES ISLEÑAS

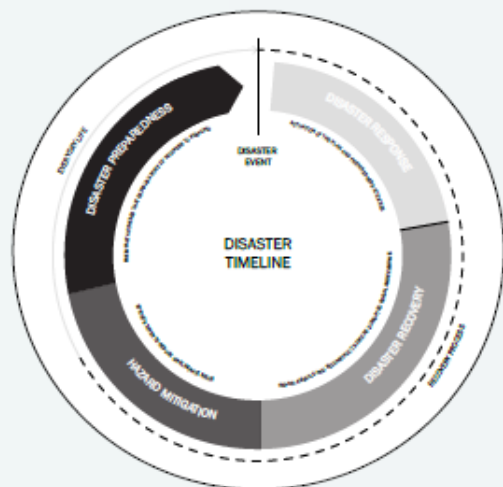


Enterprise®

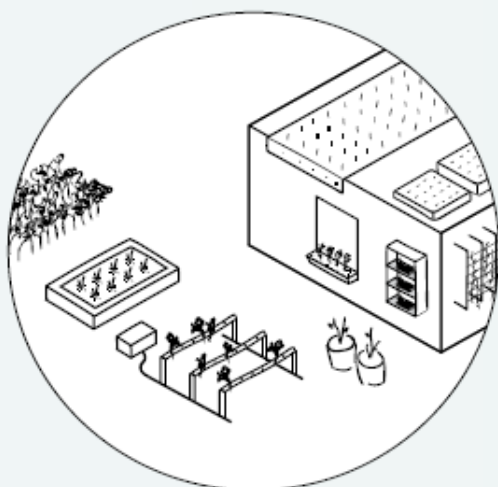


ASOCIACIÓN DE
CONSTRUCTORES
DE PUERTO RICO

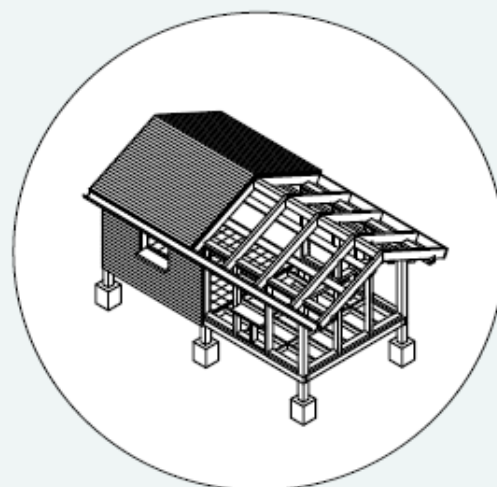




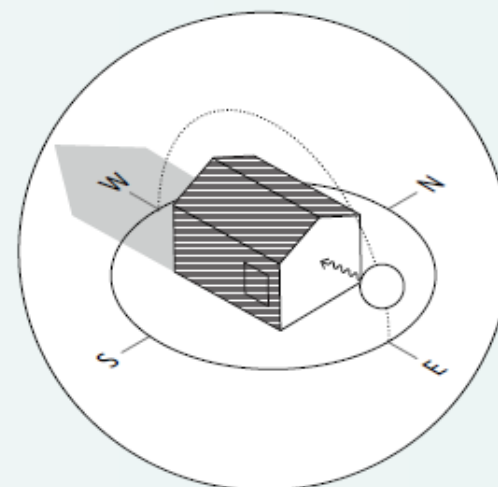
Introduction



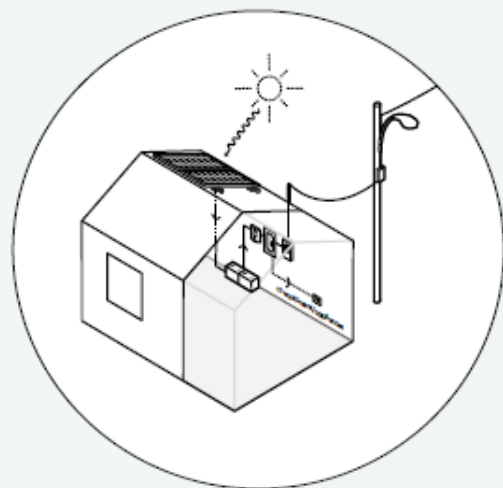
Chapter 1: A Safer Site



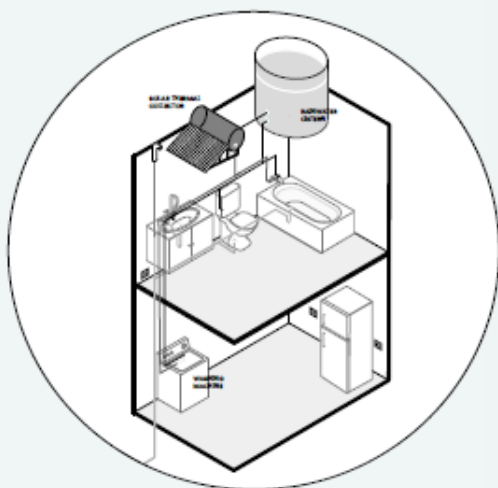
Chapter 2: Building Protection



Chapter 3: Passive Habitability



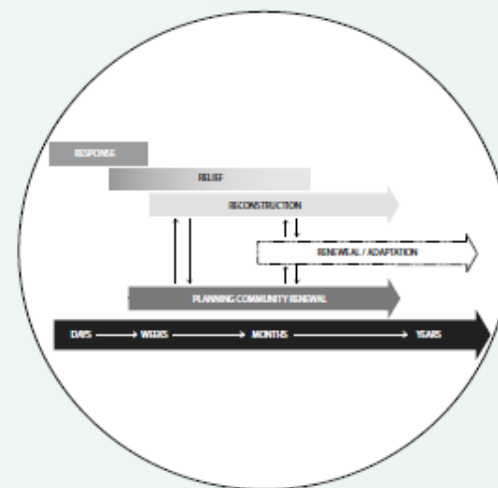
Chapter 4: Energy Generation



Chapter 5: Water Management



Chapter 6: Household Preparedness



Chapter 7: Community Engagement

KEEP SAFE MIAMI



KEEP SAFE MIAMI

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graph TD; A[KEEP SAFE MIAMI] --> B[BUILDING RESILIENCE]; A --> C[OPERATIONS]; A --> D[RESIDENT ENGAGEMENT];
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**BUILDING
RESILIENCE**



OPERATIONS



**RESIDENT
ENGAGEMENT**



JPMORGAN CHASE & Co.



SSDN



MIAMI BEACH
RISING
ABOVE



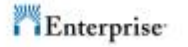




Hazard Strategies Guide



Funding and Finance Guide



Keep Safe Miami strategies related to the potential vulnerabilities identified during the self-assessment. These are informative in nature and are to be used solely to inspire building resilience, potential solutions, and a path to a safer and healthier building, safer residents and a resilient community.

Costs Key

Estimated cost ranges are not intended to be investment guidance. Given the wide variation of building stock, materials, measurements, and existing condition, the cost range is informative guidance.

Low	\$ 0-10,000
Medium	\$\$ 10,001-25,000
High	\$\$\$ 25,001-75,000
Very High	\$\$\$\$ 75,001+

Criticality Key






Priority Scale - Criticality

Critical	Strategies that relate to structural and safety concerns that can lead to life and safety issues for building occupants.
Moderate	Strategies that will mitigate impact by reducing/minimizing exposure of crucial building elements to natural disasters.
Low	Strategies that will improve how occupants handle disaster aftermath and improve life cycle of building.

Complexity Key

Complexity Range	
Difficult	Strategies that require detailed engineering or architectural analysis and requires specialize contractors to implement.
Moderate	Strategies that will require use of a general contractor and may include light engineering analysis.
Low	Strategies that could be implemented with building staff.

Hazards Key

Hazard Definitions	
 Sea Level Rise	Sea level rise is caused primarily by two factors related to global warming: the added water from melting ice sheets and glaciers and the expansion of seawater as it warms. Sea level rise is a leading factor in flooding.
 Flooding (river, rain, surge)	Flooding is an overflow of water that submerges areas that are usually dry.
 Extreme Wind	Exposure to high wind risks can vary depending on location, terrain, and other geophysical conditions. Open terrain has more potential for wind damage, but densely populated areas have the potential for more windborne debris.
 Extreme Heat	Extreme heat is a combination of increased temperature, high humidity, and evaporation that reaches 10 degrees or more above the average high for the region.
 Unhealthy Housing	The CDC has defined unhealthy housing as the presence of any additional characteristics that might negatively affect the health of its occupants, including evidence of rodents, water leaks, peeling paint in homes built before 1978, and absence of a working smoke detector.

RESULTS

Keep Safe Miami

- 95 Properties Enrolled
 - 29 Assessments Complete
 - Nonprofit affordable housing owners
 - Mom-Pop owners
 - Miami-Dade County
 - 2 small owners applying for mitigation funding through the City of Miami
- 274 Residents trained



Lessons Learned

1. Limited mitigation funding – especially grants/subsidy
 - a) Alignment with local government resources, policy and programs is critical
 - b) Advocacy for additional subsidy and grant dollars towards mitigation is critical
2. Difficulty in engaging small, private owners
 - a) Relationships with place-based organizations, local government and neighborhood leaders needed
3. Increased hands-on technical assistance and training is needed for some owners
 - a) Develop a cohort model with access to TA and a training series
 - b) Offer a lighter touch track with access to tools and recorded training

Keep Safe Florida

1	Florida Expansion	Miami, Tampa and Orlando MSAs
2	Tool Updates	Content + Technology
3	Program Evolution	Cohort Model with increased training and TA



2022 ACTIONS

Keep Safe Florida

1. Anticipated to launch in early Q2 2022
2. Cohort participation includes
 - a. Training
 - i. Ready to Respond: Strategies for Multifamily Building Resilience
 - ii. Keep Safe Tools – Portfolio Protect and Building Protect
 - iii. Business Continuity Toolkit for Affordable Housing
 - iv. After the Assessment – Putting the Building Protect Report into Action
 - v. Funding and Financing Mitigation
 - b. Access to technical assistance in completing building assessments
 - c. Access to post-assessment counseling to develop action plans
 - d. Peer relationship building



Next Steps

1. Are you a local government that wants to partner on bringing Keep Safe to your FL community? Contact us!
 - a. Sara Haas, shaas@enterprisecommunity.org
2. Do you own or operate affordable multifamily properties in FL? Do you want to assess your property's resilience? Contact us to participate as an early adopter!
 - a. Sara Haas, shaas@enterprisecommunity.org
3. Stay tuned for a launch announcement and application release in March 2022



Thank You



Questions



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THE FLORIDA HOUSING COALITION



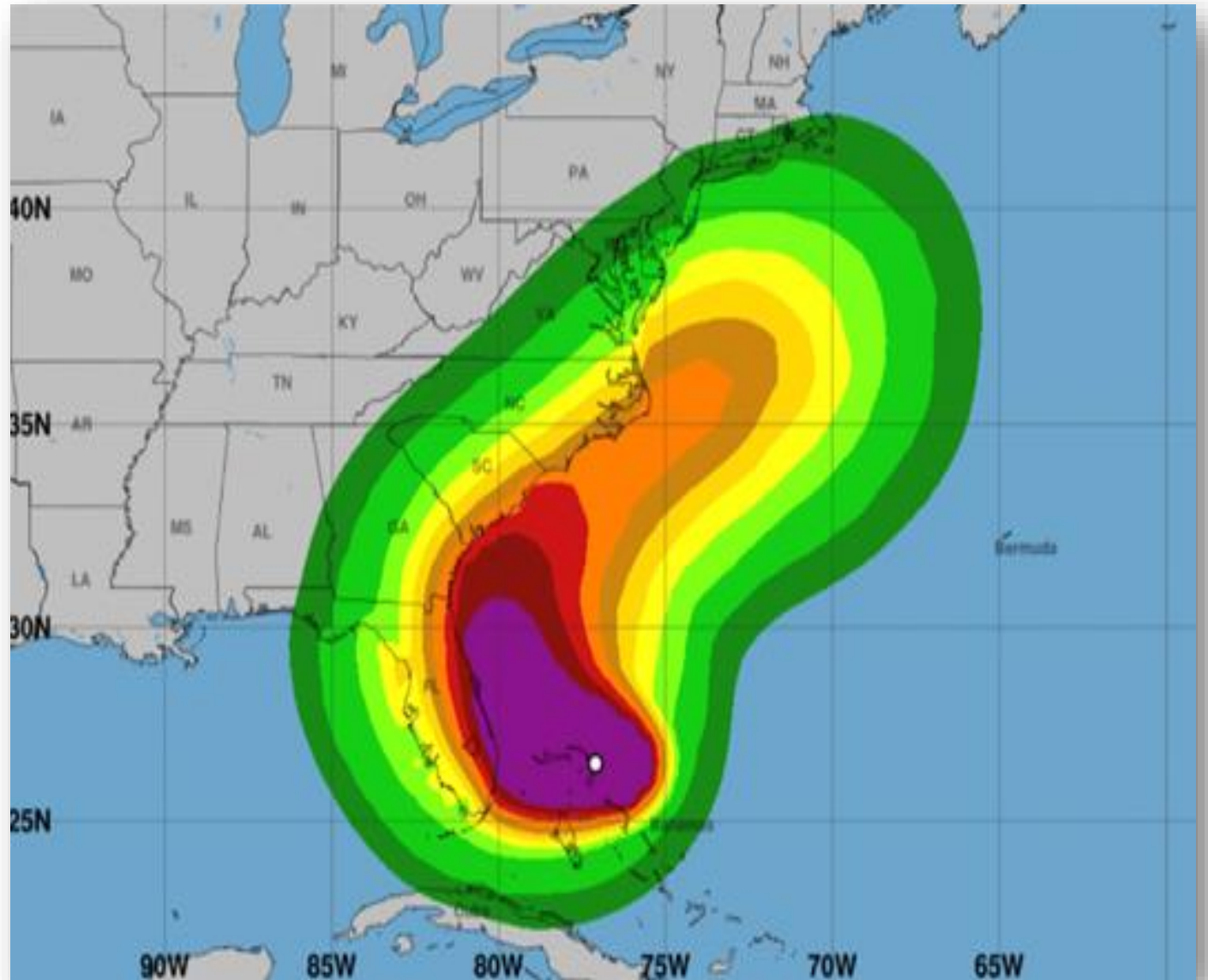
Join Us! Weekly Hurricane Update

Webinars on Fridays

1:30-2:30pm

Register at:

<https://www.flhousing.org/events/>



THE FLORIDA HOUSING COALITION



Thank you for joining us!

Please take the **SURVEY** at the end of this webinar.



THE FLORIDA HOUSING COALITION

