CONTENTS

Introduction 1
  Purpose of the Guide 1
  Organization of the Guide 2
  Benefits 2

Part 1: Getting Started with the Planning Process 3
  Establish the Purpose and Scope of the Housing Resilience Strategy 3
  Identify Jurisdictions 4
  Prepare the Budget 4
  Identify the Planning Team 4
  Design Community Engagement Process 6

Addressing Racial Equity, Diversity, and Inclusion 8
  Community Vulnerability Assessment 8
  Coordination 9
  Investment Priorities 9
  Displacement Prevention or Mitigation 9
  Community Engagement 9

The Community Vulnerability Assessment Guide 11
  REACH CVA Guide 11
  Data Collection 11
  Social Vulnerability Assessment 12
    Data Sources 12
  Housing Structural Vulnerability Assessment 12
    Data Sources 12
  Equity Factors and Climate Resilience 12
  Hazard Risk Assessment 12
  Conducting the Hazard Risk Assessment 14
    Housing in the Hazard Risk Assessment 15
    Housing Planning and Emergency Management Coordination 16
    Community Engagement 17

Coastal Flood Hazard Mapping Tool 18

Housing Resilience Plan Self-Assessment Checklist 18
  Instructions for Using the Self-Assessment Checklist 19
  Checklist Components 19

Plan Development Process & Plan Integration 20
  Suggested Plan Outline 20
Part 2: Implementation Plan

Seven Best Practices for Housing Resilience
Home Hardening, Elevation, Replacement
Buyout and Replacement
Mobile Homes Replacement, Tie-Downs, and Enhancements
Climate Justice
Incentives and Regulations
Home Insurance: Wind and Flood
Community Engagement and Competence

Plan Amendments

Funding Programs Matrix

Ongoing Plan Evaluation and Maintenance

Mitigation Treatments

Climate Justice

APPENDIX 1: Guide to Acronyms

APPENDIX 2: Housing Resilience Terminology

APPENDIX 3: Housing Resiliency Indicators

APPENDIX 4: Online Resources

APPENDIX 5: The Planning Framework: Who does what?
Creating a Housing Resilience Strategic Plan

Introduction

The Tampa Bay Regional Planning Council REACH initiative is an integrated and collaborative process for local governments to “create a policy review process for local governments and housing agencies to self-assess risks and identify disconnects between housing plans, development policy, and investment, in the context of flooding, storm surge and future sea level rise.” (REACH proposal to JP Morgan Chase Foundation)

The resulting vulnerability and risk assessment tools are put to use in this guide to create a housing resilience strategic plan.

Purpose of the Guide

This guide to creating a Housing Resilience Strategic Plan is focused on improving the resilience of housing stock in the face of increasing risks from natural hazards to vulnerable people and properties. The guide is for the use of local government housing and community development, planning, emergency management, community stakeholders, and elected officials. The purpose of using this resource is to encourage communities to address the vulnerability and risks of climate change-based impacts and to ensure that the most vulnerable residents and homes are effectively and equitably strengthened to withstand natural hazards. Establishing the framework through planning and policy is intended to develop a foundation where a community takes a comprehensive approach to addressing housing vulnerabilities and targeting investment which will prevent long-term displacement of vulnerable residents, reduce the timeframe of post-disaster housing recovery, and decrease reliance on federal resources that require delayed distribution.

When creating a housing resilience strategic plan, communities are encouraged to focus on assessing areas of weakness within their housing stock that are most likely to experience repetitive damage or catastrophic loss when a hazard occurs, plan for future events based on projections, utilize evidence based techniques that will strengthen the existing housing stock, adhere to new construction or rehabilitation practices recognized by FEMA to significantly reduce the impacts of natural hazards, and apply policies through planning instruments to prioritize investment in the most vulnerable areas to minimize the impacts of shocks and stressors to community members who are most likely to be displaced when their homes are not safe during a hazard.

There are many forms of adaptation or resilience strategic plans to address the impacts of climate change based natural hazards: Florida’s State Hazard Mitigation Plan, Local Mitigation Strategies for all 67 of Florida’s counties, and a number of resilience and coastal adaptation plans. These plans are largely focused on mitigating the risks to public and community facilities. The purpose of a housing-specific resilience plan is to apply mitigation planning tool to assess risks to housing and to build a consistent and comprehensive response to identify risks to vulnerable populations, low income and workforce families and the residential housing stock to allow for sheltering in place and/or a home safe enough to return home to after evacuation.
Organization of the Guide

This guide provides steps and tools in assessing risks and designing strategies with one simple purpose: to protect lives and property from natural hazards. Part 1 establishes the purpose and process in preparing a housing resilience plan including team formation, responsibilities, and working principles. As in any plan the first phase involves data collection and analysis. Part 1 outlines the steps in conducting the Community Vulnerability Assessment, Plan and Policy evaluation, and steps to preparation, review, and adoption. Part 2 covers the implementation of the plan including planning and regulatory amendments, program design, and resource allocation. Part 2 covers the types of mitigation activities and the funding sources most apt to each scenario. Evaluation methods are included, and the Appendix provides background information on the tools, terms, and connections to more information.

Benefits

The formation of a strategic plan for housing resilience through mitigation activities represents the community’s commitment to protect lives and property, specifically, its housing stock. The housing resilience strategic plan promotes equitable resilience programs for vulnerable residents both before and after a disaster event. The housing resilience strategic plan highlights priorities for policies and programs with the primary goal to protect those most vulnerable to the impacts of natural hazards and invest where most needed.

The benefits to the community and residents from developing and implementing a housing resilience plan are:

- Mitigation hardens housing so that residents may shelter in place in the event of a disaster if emergency evacuation is not ordered.
- Evacuees may return home sooner and avoid prolonged displacement
- When homes are hardened using mitigation techniques, there is a reduced need for mass shelter care.
- Strengthened housing units that are less vulnerable to flooding and storms require less repairs and insurance claims post disaster
- Minor repairs can be performed in a shorter timeframe decreasing reliance of federal funds which can take years to distribute
- Stronger homes support a stronger housing market
- Homes that were not insurable can be insured post mitigation

BENEFITS OF A REGIONAL APPROACH. Natural disasters do not follow political boundaries but can impact an entire region or across multiple jurisdictions. The Tampa Bay Regional Resilience Action Plan supports the goals and activities used in developing a planning framework for housing resilience. A regional approach can integrate the strengths of multiple jurisdictions into a single plan. A regional approach is cost effective when jurisdictions can collect and share regional data reducing costs to individual governments. Regional plans can qualify for special planning grants that address hazards and risks more efficiently without the loss of local control. Participating jurisdictions form a bigger beachhead making it possible for neighboring counties to help those most impacted by a disaster.
Part 1: Getting Started with the Planning Process

Like any planning process, leadership must be established along with a workplan within a timeframe and a dedication of staff resources and facilities. The housing resilience plan can be developed within other planning frameworks. For example, the plan can be created as part of the Local Mitigation Strategy (LMS) update process or the Comprehensive Planning process.

There is no one size fits all formula for creating a housing resilience plan. However, establishing a stand-alone housing resilience strategy creates consistency in housing-specific policy that can be further incorporated across all planning frameworks. To ensure that each unique plan-specific objective is captured during the planning process, it is important for representatives responsible for each plan to participate in the housing resilience strategic planning process.

There are essential components that must be included in each plan, and these must be consistent among other plans and operating protocols to ensure intergovernmental coordination both before and after a disaster. Policies and strategies for mitigation must be followed up by appropriate land development regulations or building codes. Mitigation strategies must be followed up by investments that prioritize resilience building projects. If the community intends to use FEMA or FDEM funding for housing mitigation, then the Local Mitigation Strategy should include the identified projects in the LMS Action Plan. These projects in queue can then be prioritized for funding applications as they become available.

In coastal communities, the Post Disaster Redevelopment Plan should include housing resilience strategies to ensure that redevelopment policies promote the transfer of development away from coastal high hazard areas, including provisions for including affordable housing in areas identified as low risk. Other plans, such as the Local Housing Assistance Plan and HUD Consolidated Plan, are spending plans that should prioritize mitigation strategies when dedicated to any funded housing activities. If the local government intends to mandate residential construction requirements that exceed the Florida Building Code, the local government should request technical assistance from the State Floodplain Management Office to develop higher standards and obtain approval from the Florida Building Commission, when necessary, to apply administrative or technical amendments to their local code of ordinances.

Establish the Purpose and Scope of the Housing Resilience Strategy

The purpose of this housing resiliency strategic plan is for local governments to develop and implement a set of housing hazard mitigation specific policies and goals, specific to the preservation of the affordable housing stock, and incorporate the strategy consistently among all other planning frameworks. The plan provides a blueprint for investment, inclusion, and accountability. The plan provides a platform for multiple jurisdictions and stakeholders to combine inputs, resources, and coordination with other elements of the emergency management process.

By protecting the housing stock prior to a disaster, residents may be allowed to shelter in place and if they must evacuate, and they may return home safely to return to work and school. Pre-disaster planning to prevent damage to the housing stock through evidence-based techniques decreases reliance on post disaster federal and state funding, which often takes a long time to distribute, resulting in long-term displacement, disruptions to the economy, and increased housing instability.
Identify Jurisdictions

The planning process should identify municipalities, special districts and agencies that will be subject to the plan.

- Local Governments
- Agency Departments
- Special districts- redevelopment, historic, water management
- Staff
- Consultants
- Stakeholders

Prepare the Budget

The planning budget underlies the entire process but until a workplan is designed, a proper budget cannot be developed. There are state and federal sources of funding for mitigation planning, but the preparation of a housing mitigation plan is not a common request and there may be the need for a precedent to be set. This is another reason to consider a regional plan- the sum of the parts is much greater than the whole. The budget should include the following:

- Staff Resources
- Consultants
- Data Acquisitions
- Meeting facilities and technology
- Meeting facilitators
- General administration- notices, minutes, record keeping

Identify the Planning Team

The Planning Checklist provides a list of local government staff and members of the business community and nonprofit networks. These are professionals and experts in emergency management as well as planning, housing, development, code enforcement, and finance. These members contribute to the resilience planning framework to meet statutory requirements as well as gather data and conduct assessments.

The core planning team would be formed by the housing and planning staff. Members might include a senior planner, floodplain manager, emergency manager, and affordable housing staff.

Other team members should include:

- SHIP administrator
- Land use planner
- Parks and natural resources planner
• Transportation planner
• Redevelopment manager
• Sustainability manager
• GIS specialist
• Public works rep- stormwater
• Building services- permitting, code enforcement

External specialists might include:

• Private housing and other developers- for profit or nonprofit
• Elected officials
• Green building specialists
• Members of the financial sector
• Members of the real estate community
• Members of the insurance industry

Additional Instructions:

• Assign primary responsibilities of the team and individual members.
• Create a workplan to cover a 12-month period at a minimum.
• Establish principles for the planning process. These are similar to core values.
  o Communication protocols
  o Transparency and accountability
  o Planning process is data driven
  o Community engagement is thoughtful and inclusive
  o Inclusion and equity. Ensure that all residents have access to the planning process and that the planning process includes all areas and populations.
  o Green and sustainable goals to be incorporated throughout process
• Determine the leadership and logistics structure for the planning process. Identify governmental staff from the planning, housing, resilience, and emergency operations sections of the local government.
  o Include members of the Affordable Housing Advisory Committee.
  o Identify community members representing nonprofit housing, social services, and volunteer organizations.
  o The Stakeholder Engagement tab of the REACH Plan and Housing Self-Assessment Checklist includes a comprehensive list of potential members of the planning group.
• Identify members as core and collaborative planning teams.
• Identify members who will participate in the implementation phases of the plan.
• Meeting schedules should be organized to provide for both in person and virtual attendance. Meetings should be held monthly with sub-committee meetings held bi-weekly.

• All meetings should be open to the public at least through virtual participation.

• Minutes or notes should be kept for each meeting.

• Establish an agenda structure that includes a review of the past meeting and the content for the current meeting. The agenda should include a new business item as well as public input opportunity.

• A web-based dashboard should be formed that includes background information and research as well as meeting records.

• Conduct a kickoff meeting to establish timeline, milestones, and expectations of the planning process.

Design Community Engagement Process

The community engagement plan should be inclusive of vulnerable populations as identified in the Community Vulnerability Assessment (CVA). The engagement process should include an information phase, an education process, and an engagement process as the plan is developed. The methods of communication should be identified along with specific geographic areas at the greatest risk. If the process is combined with or overlapping the HUD Consolidated Planning process, specific engagement requirements should be followed. These are:

• As the stakeholder lists are developed, make sure to include agencies whose primary responsibilities include the management of flood prone areas.

• Contact emergency management agencies and prepare a list of resources including plans, programs, and protocols utilized by the agencies for emergency notification, evacuation, and year-round mitigation.

• Review the Local Mitigation Strategy project list to identify any housing related projects. Make sure outreach includes those areas.

• Enlist emergency management staff to not only provide input on the Consolidated Plan, but to include housing in their planning process.

• Consider public meetings, as well as focus groups, to seek specialized input such as emergency management staff and homeless services providers. These can be virtual or in person (adhere to CDC guidelines for public meetings).

COMMUNITY-WIDE MEETINGS. The planning process is not complete without community-wide participation from residents, whether homeowners or renters, whose homes may be impacted by flooding and other natural disasters. The planning process can be a tool to increase awareness of residents and seek their involvement and collaboration in responding to the mitigation needs of their homes and neighborhoods.
FEMA recommends an outreach and engagement model that has at its base the objective to inform. This involves one way communication through flyers, social media posts, and newspaper articles. A cross section of community groups should be targeted to leverage personal connections within these networks.

The inclusion of diverse groups in the CVA process and the incorporation of input into the plan creates trust and fosters enduring engagement. The inclusion of populations that are at disproportionately greater risk is the first step in moving forward with housing mitigation activities that can protect properties and save lives.

The public meetings are an opportunity to inform residents about risks from natural hazards and the ways they can protect their homes and loved ones. Prepare an outreach and communications plan that invites residents from areas identified with inundation risks.

- Encourage inclusion and diversity in communication about the meetings and within the meetings.
- Ask neighbors to share with neighbors about climate change risks and community involvement.
- Decide which types of mitigation activities would best relate to the type of housing and environment of targeted low- and moderate-income (LMI) neighborhoods.
- Explain that mitigation can make a home safer to shelter in place (if there is no evacuation order) and if evacuation is ordered, the home is more likely to be safe to return home to after the disaster event. Explain how mitigation can not only bring a house up to code but make it less vulnerable to natural hazards.
- Explain that certain mitigation treatments may qualify homeowners for insurance premium discounts. Be prepared to explain the details.
- Share information about how energy retrofits can reduce utility bills.
- At Consolidated Plan meetings, include mitigation as an eligible activity for HUD funding.
- Distinguish mitigation from "emergency repairs" and general housing rehabilitation.
- Educate the public about their flood zones which can be helpful in times of warning with voluntary or mandatory evacuation orders.
Addressing Racial Equity, Diversity, and Inclusion

Climate justice is defined as the recognition that climate change has a disproportionately adverse impact on the housing of vulnerable populations. It is important for mitigation and adaptation strategies to incorporate this reality so that current systems that perpetuate disparity can be restructured. Strategies should be designed to ensure that disaster preparation and response will be inclusive of underrepresented members of the community and address the specific needs of vulnerable populations.

Climate justice principles require policymakers to correct historic inequities by prioritizing mitigation strategies that meet the needs of underserved communities. Underserved communities are defined by the federal government as “populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life” such as “Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.” There are a variety of place-based strategies the community may choose to match its needs. The community can look at designated areas for existing housing programs such as qualified census tracts (QCTs), Opportunity Zones (OZ), racial and ethnic concentrations of poverty (R/ECAP), and low- and moderate-income neighborhoods (LMI) to guide its place-based policies.

These suggested policies focus on inclusion and equity in the preparation, response, recovery, and mitigation phases of emergency management.

Community Vulnerability Assessment

- Ensure that hazard assessments evaluate structural condition, and other impediments to housing security such as heirs’ title issues, in underserved communities when assessing social vulnerability.

- Include affordable housing goals and construction targets that support households earning less than 100% Area Median Income.

- Include members of LMI and R/ECAP neighborhoods on Mitigation Work Groups or Disaster Housing Task Forces.

- Identify instances or clusters of heirship title and propose forms of assistance and policy recommendations to support post-disaster assistance and mitigation activities to protect the asset from climate hazards.

- Assess vulnerability of housing available to other underserved populations including the elderly, the disabled, immigrants, refugees and migrant farmworkers.
Coordination

- The LMS should commit to equity-based disaster preparedness, response, and recovery strategies to ensure that all vulnerable populations are included.

Investment Priorities

- Prioritize mitigation and post-disaster housing infrastructure recovery strategies in vulnerable frontline communities.
- Implement strategies that minimize harm to low-income and other vulnerable populations through community design, installation of green infrastructure drainage projects, and job creation generated by mitigation activities.
- Improve water, sewer, lighting, transportation, and other infrastructure access for affordable housing developments.
- Incentivize developers to incorporate innovative technologies such as solar, power distribution monitoring systems, and smart home systems that equalize access to sustainable housing and eliminate energy poverty.

Displacement Prevention or Mitigation

- Policies for PDRP and/or LMS should include provisions to explicitly prevent storm-related redevelopment projects from creating new gentrification-based displacement.
- Address FEMA rejection rate of applicants for Individual Assistance.
- Pair social services and affordable housing with infrastructure investment to prevent gentrification.
- Require robust public involvement in the planning of post-disaster redevelopment
- Require new assisted residential development to match costs of rent prior to a disaster.
- Develop strong tenant protections to prevent landlord abuses during and after disasters that cause displacement.
- Address the impacts of FEMA’s 50% Rule in Black, Indigenous, and People of Color (BIPOC) communities.

Community Engagement

- Ensure that outreach is responsive to the needs of the specific underserved households.
- Expand outreach for mitigation programs to include at least four major social media channels, supportive social service organizations, Black churches, Black-owned barber/beauty salons, schools in low-income neighborhoods, recreation centers, laundromats, grocery stores, bodegas, and senior centers serving LMI and R/ECAP neighborhoods.
• Utilize canvassing and tabling to reach underrepresented voices in LMI and R/ECAP neighborhoods.

• Utilize technology like phone applications and text polling to reach a wider audience. Strive to host meetings in a hybrid format where people have the option of participating online or at a nearby in-person location.

• The LMS and other disaster related plans should ensure that vulnerable communities have access to extensive outreach and preparedness coaching for residents to prevent recovery failure due to steep learning curves for support programs.

• Involve residents in underserved communities to the PDRP’s development through workshops and charrettes held within walking distance of neighborhood residents.

• Ensure representation of underserved communities on advisory boards, task forces and other decision-making bodies.
The Community Vulnerability Assessment Guide

REACH CVA Guide

The University of South Florida Community Vulnerability Assessment is incorporated into “A Guide to Conducting and Integrated Community Vulnerability Assessment for Extreme Weather and Future Climate Risks in Florida.” The Community Vulnerability Assessment Guide (CVA Guide) describes an assessment process for identifying climate change-based stressors that could negatively impact adaptive capacity and recovery. The Consolidated Plan hazard mitigation analysis elements are incorporated into the steps, data sets and strategies of the CVA. While the Consolidated Planning process runs at its own pace, it would be optimal for coordinating and collaborating to build stronger and more consistent strategies.

Local governments can use the CVA Guide to identify vulnerable populations, analyze affordable housing, review equity factors, collect data based on indicators selected, map findings, assess findings, and create a framework for interdepartmental collaboration. Pairing the identified vulnerabilities with the risk analysis, local governments can target investment for mitigation and resilience efforts in specific areas within a jurisdiction, resulting in the strengthening of the housing stock and the subsequent ability to withstand the next weather-related event.

The role of the CVA is to determine if specific communities are disadvantaged based on a combination of variables that include Social Vulnerabilities, Structural Vulnerabilities, and Housing Market Trends, which are further described in detail in Appendix 3, Housing Resilience Indicators.

The outcomes and benefits cited in the CVA Guide are consistent in several ways with the HUD Consolidated Plan process.

The CVA Guide provides step by step instructions and data sets for the steps below. The Guide, as well as the Consolidated Plan Hazard Mitigation assessment identify:

1. Current and future hazard risks
2. Current and future vulnerable populations
3. Current and future housing needs- through mapping and repetitive loss properties
4. Existing affordable housing with mitigation potential
5. Areas where new housing could be developed for long-term safety and resilience

The CVA Guide provides detailed instructions for completing the social vulnerability assessment, assessment of the condition of the existing housing stock, housing market analysis and hazard risk assessment.

Data Collection

The CVA Guide suggests a housing resources baseline analysis, a suggested range of analysis, and a best practices analysis. The data layers should be organized into the categories of:
1. Hazards
2. Demographics
3. Structures (buildings and infrastructure)
4. Place (access and connections between people and community)
5. Governance

Any gaps in data or strong indicators should be addressed by the planning team.

**Social Vulnerability Assessment**

The CVA Guide includes the steps to identify community area and vulnerable populations that may need support before, during, and after to enhance emergency preparedness, resilience planning and allocation of resources.

**DATA SOURCES**
- Social Vulnerability Index (SOVi)
- CDC SVI
- FEMA RAPT
- American Community Survey (ACS) Data

**Housing Structural Vulnerability Assessment**

The CVA Guide includes the steps to identify the number of publicly funded and unassisted affordable housing units by building category, structure, type, age, value, tenure, and proximity to natural hazards.

**DATA SOURCES**
- Department of Revenue (DOR)
- County Property Appraiser Offices
- Shimberg Center for Affordable Housing Studies

**Equity Factors and Climate Resilience**

The CVA Guide addresses how to identify spatially-based approaches to define frontline communities as they pertain to health, historical discriminatory policies, aging infrastructure, and other place-based indicators and proximity to hazards.

**Hazard Risk Assessment**

When determining a community’s ability to withstand weather-related hazards, it is essential to identify and evaluate which structures, locations, and populations in the jurisdiction would be most at-risk if a catastrophic event were to occur. Identifying weaknesses in the residential housing stock in advance of a hazard can allow for the local government’s ability to plan for and respond to community needs in a prioritized manner, reducing the negative impact of the hazard. This strategic and targeted approach to
investment can target mitigation in areas most at-risk, protecting the safety and wellbeing of a community’s most vulnerable residents while preserving the community’s stock of affordable housing.

Evaluations of hazard risks are incorporated into state and local government planning frameworks. The State Hazard Mitigation Plan (SHMP), developed by the Florida Division of Emergency Management, details statewide hazard summaries and risk assessments for probable hazards. The State of Florida’s Comprehensive Emergency Management Plan (CEMP) utilizes the SHMP’s risk and hazard assessment to guide the emergency management strategies.

Note that the HUD Consolidated Planning process also requires a hazard risk assessment (MA-65 Hazard Mitigation) which can be combined with the CVA process. The MA-65 Hazard Mitigation assessment requires an analysis to inform disaster preparedness for hazards associated with climate change and the assessment must measure the impact on low-and moderate-income households and preservation of affordable housing.

HAZARDS DESCRIPTIONS. Hazards in relation to the REACH project as described in the SHMP Appendix D: Hazard Summary Matrices,¹ are defined below:

**Erosion.** “Coastal erosion is the wearing away of land or the removal of beach or dune sediments by wave action, tidal currents, wave currents, or drainage. Waves generated by storms cause coastal erosion, which may take the form of long-term losses of sediment and rocks, or merely in the temporary redistribution of coastal sediments.”

**Extreme Heat.** “Extreme heat is defined as an extended period where the temperature and relative humidity combine for a dangerous heat index.” The National Weather Service

**Floodings.** “A flood or flooding refers to the general or temporary conditions of partial or complete inundation of normally dry land areas from the overflow of inland or tidal water and of surface water runoff from any source. While many people underestimate the severity of floods, loss of life and property from flooding are real threats in Florida. Florida experiences several different kinds of floods due to the effects of severe thunderstorms, hurricanes, seasonal rains and other weather-related events.”

**Geological.** “Sinkholes are landforms created when overburden subsides or collapses into fissures or cavities in underlying carbonate rocks. Florida is underlain by several thousand feet of carbonate rock, limestone, and dolostone, with a variably thick mixture of sands, clays, shells, and other near surface carbonate rock units, called overburden.”

**Tropical Cyclones.** “A tropical cyclone is a rotating, organized system of clouds and thunderstorms that originates over tropical or subtropical waters and has a closed low-level circulation. These storms have been known to transform into tropical storms and even hurricanes. Florida is at risk of experiencing a tropical cyclone due to its tropical climate and vicinity to large bodies of water. There

---

are chances of the effects reaching all parts of the state but, due to high levels of development and concentrated numbers of civilians, the coastlines are vulnerable to greater impacts.”

**Severe Storms.** “The three key elements of a thunderstorm are wind, water, and lightning. The National Weather Service (NWS) considers a thunderstorm severe if it produces hail at least one inch in diameter, winds of 58 mph or stronger, or a tornado. Lightning, Flash Floods, Hail, Straight Line winds, Tornadoes.”

While the SHMP provides a high-level risk assessment of each County jurisdiction, local government planning documents magnify the risk and vulnerability analysis, taking assessment of specific municipalities and unique topography within the County boundaries.

**Conducting the Hazard Risk Assessment**

Conducting a hazard risk assessment advises areas of priority ripe for housing hazard mitigation and resilience activities based on potential hazard risk, which is an essential component of community planning. The Self-Assessment Checklist includes a table outlining a range of potential hazard and vulnerability assessments that result in an analysis that contributes to the development of planning frameworks, policies, and strategies. Furthermore, the hazard analysis can be used to develop a community-specific approach to inform local governments and the public about unique risks, hazards, and community vulnerability. Conducting a Community Vulnerability Assessment (CVA) is an excellent addition to current hazard risk assessments, enriching the existing data in order to plan for weather-related events. A robust assessment of housing and social vulnerabilities is needed to focus support and funding on housing hazard mitigation and resilience planning and programs. The suggested policies emphasize the inclusion of vulnerable populations and communities in the hazard assessment process.

When determining a community’s ability to withstand weather-related hazards, it is essential to identify and evaluate which structures, locations, and populations in the jurisdiction would be most at-risk if a catastrophic event were to occur. Identifying weaknesses in the residential housing stock in advance of a hazard can allow for the local government’s ability to plan for and respond to community needs in a prioritized manner, reducing the negative impact of the hazard. This strategic and targeted approach to investment can target mitigation in areas most at-risk, protecting the safety and wellbeing of a community’s most vulnerable residents while preserving the community’s stock of affordable housing.

Evaluations of hazard risks exist in state and local government planning frameworks. The State Hazard Mitigation Plan (SHMP), developed by the Florida Division of Emergency Management, details statewide hazard summaries and risk assessments for probable hazards. The State of Florida’s Comprehensive Emergency Management Plan (CEMP) utilizes the SHMP’s risk and hazard assessment to guide the emergency management strategies.

Note that the HUD Consolidated Planning process also requires a hazard risk assessment (MA-65 Hazard Mitigation) which can be combined with the CVA process. The MA-65 Hazard Mitigation assessment requires an analysis to inform disaster preparedness for hazards associated with climate change and the assessment must measure the impact on low-and moderate-income households and preservation of affordable housing.
GETTING STARTED

• Prepare to review local and state hazard mitigation strategies and plans.
  
  o Review the National Mitigation Framework, Florida’s State Hazard Mitigation Plan (Enhanced), and the Local Mitigation Strategy (LMS).
  
  o Review the HUD Community Resilience Toolkit, which may be seen as a general alternative to the TBRPC REACH Community Vulnerability Assessment Process.

• Consider forming a standing taskforce or ad hoc subcommittee dedicated to housing hazard mitigation and disaster recovery.

• Evaluate current plans’ hazard risk and vulnerability assessments to determine how to establish frequency and how to conduct and apply the assessments consistently among all community plans.
  
  o Consider the impact of each hazard on the housing stock and the social characteristics of low- and moderate-income households.
  
  o Review mitigation strategies, define as opportunities or initiatives.
  
  o Consider if the strategies target the community’s housing infrastructure.
  
  o Relate these strategies to the housing needs assessment.

• Prepare materials for use in the consultation/citizen participation stage that can be used to increase awareness of the risk of climate change-based hazards and the mitigation methods that can be incorporated into program strategies and eligible activities.

• Meet with local floodplain managers and understand “repetitive loss areas.”

• Engage with code enforcement as a conduit for outreach, education, and community engagement opportunities in vulnerable areas.

• Evaluate code violations, identify areas of concentration that can be corrected by applying mitigation techniques.

• Understand that mitigation is but one component of the emergency management cycle.

• Engage with emergency managers in the community in Preparation, Response, and Recovery.
  
  o Mitigation is a “blue sky” activity.

HOUSING IN THE HAZARD RISK ASSESSMENT

• Conduct a housing needs assessment at least every five years conducted by surveyors with structural expertise. Use the findings of the report to target mitigation programs.
- Collect data on the demographic characteristics of residents in flood hazard areas and develop programs to assist households over age 65, persons with disabilities, households with limited language proficiency, or residents in mobile homes with mitigation procedures.
- Identify all assisted housing located in low, medium, or high-risk areas with the Coastal Flooding Hazard Mapping tool.
- Observe the neighborhoods that would be most impacted by inundation and relate this to housing characteristics such as age, type of construction, mobile homes, and elevation.
- Identify uninsured properties for rehabilitation programs with the objective to increase rate of flood and hazard insurance.
- Assist housing providers with extreme heat analyses and document the need for augmentative cooling systems.
- In flood hazard areas, collect data on the presence of residential properties that would be required to be rebuilt if they suffered significant damages that would trigger the 50% rule.
  - Evaluate impact to the community how this would lead to displacement and a complex rebuilding process.
  - Analyze how the 50% rule can impact low income or vulnerable households who are uninsured, underinsured, have heirs' title, are over age 65, or have disabilities.
- Coordinate with community public health assessment programs and participate by addressing housing conditions and repair needs.

**HOUSING PLANNING AND EMERGENCY MANAGEMENT COORDINATION**

- Housing disaster resilience and hazard mitigation planning will be an ongoing continuum within the local government emergency management department and code enforcement staff will communicate mitigation opportunities to targeted vulnerable areas (based on the CVA results).
- Each jurisdiction in the Tampa Bay Region will actively participate in the Tampa Bay Resilience Coalition.
- Participation will be meaningful in communication and actions to generate awareness of risks and positive actions to mitigate risks to residents and the housing stock.
- The housing resilience planning process will include the preparation of a marketing and outreach plan for a variety of engagements from surveys to online meetings to neighborhood meetings.
- All meetings will be properly noticed and open to the public with access for persons with disabilities.
- Coordinate the Consolidated Plan with the Local Mitigation Strategy for project identification and inclusion.
The risk assessment of the LMS and the overview of hazards likely in the area build a common platform for planning and blending resources.

Jurisdictions may choose to allocate federal funds towards activities supporting mitigation and can also prioritize the most vulnerable households to receive assistance.

**EQUITY**

- Collect data on the incidence of heirs’ title properties within BIPOC communities.
  - Use the information to support programs to clear title as well as to deploy alternative ownership documentation requirements in the event of a disaster.
- Conduct infrastructure and flood risk assessment specifically targeting R/ECAP areas.

**COMMUNITY ENGAGEMENT**

- Participate in the CVA process with robust support and community engagement.
- Identify housing conditions that prevent eligibility for home insurance and target programs to bring housing into compliance with insurers’ structural criteria.
- Prepare an outreach and communications plan that invites residents from areas identified with inundation risks.
- Decide which types of mitigation activities would best relate to the type of housing and environment of targeted LMI neighborhoods.
- Explain that mitigation can make a home safer to shelter in place (if there is no evacuation order) and if evacuation is ordered, the home is more likely to be safe to return home to after the disaster event.
- If mitigation treatments are eligible, the homeowner may qualify for insurance premium discounts.
- Share information about how energy retrofits can reduce utility bills.
Coastal Flood Hazard Mapping Tool

The University of Florida Shimberg Center [Housing Coastal Flood Vulnerability Mapping Tool](#) can be used to evaluate potential risks in low, medium, and high hazard areas. While it is impossible to project the damage a disaster may cause, this tool is intended to provide insight into potential vulnerabilities which can assist in the community’s planning processes. The tool is of particular value as it includes all assisted multifamily housing properties in Florida including public housing, privately funded with Low Income Housing Tax Credits, USDA multifamily properties, and HUD funded properties. The level of risk from flooding or coastal hazards is indicated for these properties from no risk to high risk. Properties are medium to high risk of flooding from sea level rise or storm surge can be targeted for mitigation projects.

- Start by reviewing the application instructions.
- Select the queries that will display a visualization of the impact of sea level rise or storm surge on low- and moderate-income census tracts (map layer: Qualified Census Tracts)
- Observe the neighborhoods that would be most impacted by inundation and relate this to housing characteristics such as age, type of construction, mobile homes, and elevation.

Housing Resilience Plan Self-Assessment Checklist

The REACH Housing Resilience Plan Self-Assessment Checklist provides a platform to assess current adopted plans and policies to identify opportunities to adopt best practices for housing resilience and mitigation programs.

Linked to the Self-Assessment Checklist, users are provided with policy recommendations for each assessed plan. Using this tool, local government planners can create strategies and policies to build resilience in Florida’s affordable housing infrastructure for extreme weather and future climate risks using community resilience indicators of social vulnerability, structure type, and coastal hazard mapping.

The Checklist is designed to support a coordinated review of local government plans and strategies, and to identify strengths and opportunities to improve integration of resiliency and housing strategies across multiple plans. The end goal is to provide guidance for improving your housing resiliency through policy and plan implementations.

This process considers the existing development policy and investment in the context of inland flooding, storm surge, extreme heat, sinkholes, and future sea level rise. The tool is a self-assessment checklist that includes a scoring rubric that allows the user to gain insight into program needs and the opportunity to pursue best practices in housing mitigation and resiliency planning.

The tool empowers staff and stakeholders to consider the impacts of hazards within its planning framework and to identify areas that require greater attention. The questions are in a hierarchy of general to specific approaches.
Instructions for Using the Self-Assessment Checklist

1. Form team
2. Gather relevant plans
3. Complete checklists
4. Review performance and note opportunities for improvement
5. Identify areas of opportunities based on self-assessment, review plan-specific policy recommendations

Checklist Components

The Checklist is divided into eight sections, each representing a specific plan or body of policy. The user is asked to respond to individual statements that may or may not describe the status of their housing resilience policies, programs, or activities.

- Hazard Risk Assessments
- Comprehensive Plan
  - Future Land Use Element and Map
  - Housing Element
  - Coastal Zone Element
  - Capital Improvements Plan
  - Infrastructure Element
  - Intergovernmental Coordination Element
- Local Mitigation Strategy
- Local Housing Assistance Plan (SHIP)
- Post Disaster Redevelopment Plan (Peril of Flood Act)
- Community Rating System Plan (Floodplain Management)
- Construction Standards
- Stakeholder Engagement

The Checklist provides supporting information, including:

- Mitigation Best Practices
- Racial Equity
- Regulatory and Program Crosswalk
- Program Performance Tabulator
Plan Development Process & Plan Integration

As encouraged throughout this document, it is important for various stakeholders and local government staff who are responsible for developing and proposing amendments to the existing planning frameworks to participate in the creation of the standalone Housing Resilience Strategic Plan. Each local planning expert’s participation contributes a plan-specific and unique perspective, providing a pathway as to how the standalone Housing Resilience Strategic Plan’s policies can be incorporated into a community’s overall planning framework.

Upon the completion of the Community Vulnerability Assessment, hazard analysis, and existing planning and policy framework assessment, local governments can identify areas of opportunity in which the housing stock can be strengthened to withstand weather-related events. Upon the data collection and analysis, target areas and populations can be identified for prioritization of projects. The community is invited to participate and provide feedback on the plan and project prioritization process. The final, approved standalone plan and its policies can then be incorporated into existing frameworks.

Once the Housing Resilience Strategic Plan is approved, local governments can prepare a schedule for proposing amendments to existing planning framework. During this process, staff can outreach and educate Elected Officials and other governmental departments to ensure that the proposed housing-specific updates are recognized and required for approval and implementation.

Public participation outreach efforts can target the identified most vulnerable concentrations of persons at-risk when a disaster occurs and outreach to residents in community areas where weather related events and other hazards are most likely to cause the most devastation. The public has the opportunity to review and comment prior to formal plan adoption by the Commission.

Suggested Plan Outline

Mission and Vision. The mission statement describes whose plan it is, what it will do, and who it will help. The vision statement describes what the future will look like if the plan is implemented and the actions are achieved.

Core Values. The core values of the plan describe the principles that were followed in the preparation of the plan and how those reflect the ongoing implementation of the plan.

Analysis. The results of the planning process including the Community Vulnerability Assessment components. The results of the social vulnerability analysis, coastal hazard mapping, and the housing plan checklist should be described. The results of the analysis should lead into the Goals, Objectives and Actions that are described in the plan.

Goals. The plan may have several goals and may include regional as well as municipal goals all leading to a resilient housing infrastructure that is inclusive of all members of the community.

Objectives. Plan objectives are the strategies that will lead to achieving the goals and include the timing, funding and staff resources that will be dedicated to the mission. In comprehensive planning, objectives are intended to be measurable. This holds true as well for housing resilience strategic planning. The CVA data that illustrates the physical and social vulnerabilities inform the objectives.

Actions. The actions are specific activities and projects with a timeline, responsible entity, and expected result.
Part 2: Implementation Plan

Seven Best Practices for Housing Resilience

The following emergency preparation and affordable housing planning activities and principles, when combined, form a sound housing mitigation program framework. Each of the seven topics is an essential component to ensure that the housing stock of a community is resilient to natural hazards and there is an ongoing community engagement process to address equity and inclusion among vulnerable populations.

Home Hardening, Elevation, Replacement

Site improvements, retrofits and renovations that use green building techniques:

- Reduce exposure to hazards
- Provide opportunity to shelter in place
- Decrease displacement
- Reduce insurance premiums and claims, and
- Protect residents and save lives.

Buyout and Replacement

Homes in flood-prone areas that are experiencing repetitive flooding or exposure to other hazards should be bought by a government, nonprofit or other entity, and residents should be relocated to a non-hazard area.

Mobile Homes Replacement, Tie-Downs, and Enhancements

- Replace mobile homes (built prior to 1994) with modern manufactured housing that meet current building codes.
- Increase resilience by applying techniques such as tie-downs, window films, and carport anchoring.

Climate Justice

- Ensure adequate access to resources for low- and moderate-income households, persons of color, persons with a disability, and persons experiencing homelessness.
- Prioritize low- and moderate-income neighborhoods for public resources for mitigation activities, including green and efficient techniques, that protects people and homes from natural hazards.
Incentives and Regulations

- Regulations can discourage development in hazardous locations and incentivize best mitigation practices.
- Code enforcement protocols that prioritize correcting structural deficiencies is a critical mitigation factor.
- Consumer incentives include insurance premium discounts and energy savings.
- Green and energy certification programs and mitigation activities add to the value and resilience of the home.

Home Insurance: Wind and Flood

- Adequate home insurance is a form of financial resilience.
- 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.
- Indemnification is required when receiving housing assistance from a local government.
- Homes not mortgaged in flood zones are particularly vulnerable to catastrophic loss.
- FEMA cannot be expected to cover repetitive losses indefinitely.

Community Engagement and Competence

- Florida’s housing providers are highly competent in producing new affordable housing and mitigating the existing stock and should be included in mitigation planning and working groups.
- Engagement and competency can also include community awareness and support for housing programs to counter opposition such as the Not In My Backyard (NIMBY) syndrome.
- Year-round coordination between the housing providers and the emergency management departments is essential to developing a robust housing mitigation program.
Plan Amendments

The CVA process typically yields a number of potential plan or ordinance amendments that support housing resilience efforts. These will warrant further review and must follow the appropriate process for review and adoption. Therefore, it is important to include members of the various planning boards in the CVA effort. Their familiarity with the issues and proposals will help in moving the revisions forward. As noted, a regional approach could reduce some of the costs and procedures for analysis and notifications.

The REACH Housing Mitigation Planning and Policy Framework for Florida Guide provides ample suggestions for language in the policy revisions.

Items to consider:

- Develop a planning horizon.
- Sequence sets of plan amendments.
- Evaluate costs, benefits, and the team’s capacity to accomplish each action.
- Scheduling and review process:
  - Rank the expected value of each action.
  - Integrate the highest value of each action into a protocol of steps.
- Preparation of a summary of all amendments and indicate how they increase adaptive capacity and/or reduce risk to climate impacts in frontline communities.
- Reason that some actions that are not specifically related to home mitigation in effect reduce vulnerabilities by increasing the supply of affordable housing or reducing discriminatory practices of exclusion. Some examples include support for accessory dwelling units, density bonuses, inclusionary zoning, or community land trusts.
- Housing incentives are a part of the responsibility of the Affordable Housing Advisory Committees. Revisions can be included in the Incentive Plan and garner community input and support.
- If additional planning is required for special circumstances, consider applying for a planning grant through BRIC, HMGP, Rebuild Florida, or DEP. These may be for a specific project or a group of projects and can include the environmental analyses, engineering, and benefit cost analysis.
The CVA process will likely highlight certain programs (funding) that should be enhanced or prioritized for housing resilience and mitigation projects. The REACH Funding Guide provides an exhaustive review of funding sources that would be appropriate for housing resilience activities.

**ITEMS TO CONSIDER:**

- Review the Mitigation Program/Activity crosswalk below and add or delete programs that would be suitable for mitigation activities.
- Advocate for additional funding or additions to include priorities for housing mitigation.
- Consider how programs and plan strategies can reduce historical or current disparities in racial context.

The selected programs described are most relevant for disaster recovery and mitigation work. The REACH Funding Guide provides in-depth information about the funding sources listed in the table below. See the Appendix I: Guide to Acronyms table for assistance.

<table>
<thead>
<tr>
<th>Mitigation or Resilience Activity</th>
<th>State or Federal Program</th>
<th>Locally Administered Programs</th>
<th>Private Sector Funding/Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home Hardening, Elevation, and Rebuilding</strong></td>
<td>CDBG STATE- DEO HOME- FHFC CDBG-DR- DEO FEMA-HMGP FEMA BRIC FEMA IA and PA</td>
<td>SHIP CDBG by entitlement HHRP HOME PJs FEMA BRIC FEMA IA and PA</td>
<td>FHLB Atlanta Rebuild Restore Habitat for Humanity Fannie/ Freddie products FHFC Preservation RFA Solar Energy Loan Fund Legal Services for Heir Title</td>
</tr>
<tr>
<td><strong>Buyout and Relocation</strong></td>
<td>FEMA- FDEM FEMA BRIC CDBG-DR- DEO</td>
<td>CDBG CDBG-DR SHIP FEMA BRIC EOC Surplus Land</td>
<td>Legal Services Realtors Title Agents</td>
</tr>
<tr>
<td><strong>Mobile Homes Replacement, Tie-Down, Enhanced Treatments</strong></td>
<td>FEMA IA or PA HLMP FDEM CDBG</td>
<td>SHIP CDBG EOC</td>
<td>Solar Energy Loan Fund USDA direct grants</td>
</tr>
<tr>
<td><strong>LMI, Persons with Disabilities, Homeless Priority</strong></td>
<td>CDBG- DEO HOME- FHFC ESG- DCF, COC’s</td>
<td>SHIP HHRP CDBG</td>
<td>CHDO’s CLT Permanent Supportive Housing Providers</td>
</tr>
<tr>
<td>Incentives and Regulations</td>
<td>HOME CoC’s</td>
<td>Legal Services Solar Energy Loan Fund</td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------</td>
<td>----------------------------------------</td>
<td></td>
</tr>
<tr>
<td>NFIP</td>
<td>AHAC</td>
<td>Insurance premium discounts</td>
<td></td>
</tr>
<tr>
<td>CRS</td>
<td>Comp Plan</td>
<td>Energy grants</td>
<td></td>
</tr>
<tr>
<td>NEPA</td>
<td>LMS</td>
<td>Green loans</td>
<td></td>
</tr>
<tr>
<td>Other Fed Regs</td>
<td>Neighborhood Planning</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insurance</th>
<th>Florida Office of Insurance Regulation (F.S. 627.711)</th>
<th>SHIP</th>
<th>HHRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance Premium Discounts</td>
<td>Insurance premium discounts</td>
<td>Energy grants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Energy grants</td>
<td>Green loans</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community Engagement and Competence</th>
<th>Consolidated Plan Citizen Participation</th>
<th>AHAC Comp plan</th>
<th>Civic Organizations Professional associations Faith Based Financial Sector</th>
</tr>
</thead>
</table>
Ongoing Plan Evaluation and Maintenance

The Housing Resilience Strategic Plan should be monitored regularly for potential updates as new data becomes available and other plans are updated. It is recommended that the plan updates occur every five years to capture the most current information by conducting an updated CVA and hazard analysis. The data can prompt a change in priorities, requiring a need to reevaluate the existing prioritized list for housing hazard mitigation. Additionally, each new opportunity for mitigation and resilience funding should trigger a review of housing-specific projects in queue that are prioritized in the Housing Resilience Strategic Plan.

Tracking progress in the implementation of projects can provide a snapshot of the length of time – when the process is streamlined and projects are pre-selected – it will take a community to address the wide scope of mitigation needs. Additionally, completed projects can be used as case studies, providing a blueprint to maximize resilience by strategically leveraging resources and planning to accomplish goals.

Continued engagement through a robust public participation process can contribute qualitative feedback to the local government, improving future plan updates. As the plan will be formally reviewed annually with a comprehensive update every five years, engagement and contribution from the community members most affected by these policies and strategies can support increasing participation as time and implementation efforts progress.

As the prioritization of mitigation projects changes, the change in the queue should be reflected across all plans that incorporate an active list of projects in queue. Furthermore, as housing-specific policies concerning mitigation and resilience are updated in the Housing Resilience Strategic Plan, they should be integrated with the Comprehensive Plan, Local Mitigation Strategy, Post Disaster Redevelopment Plan, Local Housing Assistance Plan, construction and rehabilitation standards, and other standalone plans that impact the affordable housing.

Teams

Housing providers are the “boots on the ground” in the housing resilience process. Housing providers include SHIP administrators, the housing rehabilitation staff, and nonprofit housing organizations. Housing rehabilitation procedures are the same for mitigation work. The process is generally described below:

1. Outreach
2. Intake
3. Inspection
4. Work writeup
5. Contractor selection
6. Agreements
7. Completion of work
8. Inspections
9. Payment  
10. Closeout

ITEMS TO CONSIDER:

- Incorporate mitigation activities, regardless of funding source, into the regular home rehabilitation procedures.
- Offer training to housing staff in the rehab process.
- Incorporate the skills needed to conduct a Cost/Benefit analysis to improve funding possibilities for FEMA programs.
- Establish priorities based on the CVA results – for example, within special flood hazard areas, prioritize low-income, persons over age 65, and persons with a disability.
- Prioritize properties that have incurred repetitive damages.

Project Selection

Local plans that incorporate vulnerability and risk analysis often include specific sites, buildings, residential units, and other structures in queue for mitigation or buy-out due to the condition of the structure paired with the potential hazards. Overlaying community areas that have experienced disinvestment, repetitive weather-related events, or meet the indicators based on the CVA can help a community target investment in mitigation and resilience activities.

The Local Mitigation Strategy’s Action Plans include an evaluation and prioritization of mitigation actions. The LMS Action Plan may provide an estimated budget, cost benefit analysis which is required for funding applications, financing ability, documentation of repetitive damages, and economic effect. These actions can include the buy-out of repetitive flood residential homes, strategy to mitigation a vulnerable structure, or other actions that increase community resilience. This action plan can be used to select projects for FEMA funding opportunities, such as BRIC, or prioritize the most at-risk affordable residential units that, once no longer available, will be a detrimental loss to the affordable housing stock for a community’s most vulnerable residents. Using the LMS Action Plan to prevent the loss of affordable housing will also reduce the risk of gentrification in areas that low-income households, persons with disabilities, and seniors rely on in which to live.

The Local Housing Assistance Plan outlines the community’s strategy for spending SHIP funding through new construction, rehabilitation, and repair activities for both rental and homeownership. Local government Housing and Community Development Departments, along with the SHIP Administrators, can target the areas most likely, based on the CVA and hazard projects, to lack the ability to withstand a hazard. Targeting repair and rehabilitation funding to the most vulnerable residential structures, which are generally occupied by residents who lack the financial capacity to finance these mitigation techniques, will result in home hardening allowing residents with the highest needs to shelter in place and reduce reliance on post-disaster emergency housing that oftentimes does not support their accessibility needs.
Mitigation Treatments

The following are examples of the type of projects that will make housing more resilient to climate change-based hazards.

Structural Retrofit for Wind and Water Hazards

Florida Division of Emergency Management (DEM) recommends the following activities for strengthening homes:

**Window Openings:** Window openings may be addressed in several ways. Shatterproof glass (impact) windows are more costly than shutters but eliminate the need to shutter before a storm. Panel shutters are the most common type of covering for windows. Panels come in steel, lightweight aluminum, plexiglass, and cloth. They are mounted on tracks or by small metal posts, which are a permanent feature to the home. Securing windows and doors may allow a homeowner to qualify for insurance savings. Insurance savings vary by company, location, and the specific home.

**Gable Ends:** Of all the possible structural retrofits, gable end walls may be the easiest to strengthen and deserve high priority on a retrofit list. A house has a gable end if it has a triangular wall that sits on a rectangular wall. Gable ends respond to pressure within the house by bowing in and out. If a gable is taller than 4 feet, reinforce the framing and brace the top and bottom of the gable. Place four horizontal beams two to three feet from the point of the gable end. These horizontal beams should be at least six feet in length and long enough to connect to at least three attic floor framing boards and extend 2 1/2 feet past a third board.

**Water Barrier:** Water can devastate a home by direct damage and by fostering the growth of mold and mildew. The best mitigation is to prevent water from entering the home. This water barrier may also provide additional insulation to make a home more energy efficient.

Establishing a water barrier is cost-effective when replacing or repairing a roof. A sealed roof deck prevents significant water intrusion if shingles blow away. Secure all boards with an 8d ring shank nail, which includes grooves in the nail that provide a more secure grip. Use shingles with a high standard. The highest standard is currently for over 130 mile per hour winds and should be installed using the number of fasteners recommended by the manufacturer for high-wind areas.

A roof of a home that does not require roof replacement or any major roofing repairs may also be strengthened by re-nailing the sheathing using 8d ringed shank nails and providing a water barrier on the underside of the roof deck.

**Flashing:** The purpose of flashing on pitched roofs is to direct the flow of water that leaks into the intersection down and away from the structure’s interior. Contractors must always lap flashing and other moisture barriers properly. Do not rely on sealant as a substitute for proper lapping.

**Hurricane Clips & Straps:** Where possible, the roof framing needs to be connected to the wall below it. This is typically accomplished with galvanized metal plates commonly referred to as “hurricane clips or straps.” Clips and straps are often installed when the roof sheathing is removed or may be installed from
the exterior by removing the soffit and connecting the roof framing to the wall below or accessing the space from inside the attic.

**Anchoring, Roof-to-Wall:** Reinforce the connections from foundation-to-wall and wall-to-roof to establish a continuous load path. A continuous load path allows a home to resist high-wind forces as an entire unit. Weak links in a load path are generally where damage occurs. On existing homes, roof anchoring generally involves the removal of the soffit to expose where the rafters meet the wall framing. Most homes have a standard connection on one side of the beams, but for high-wind resistance, metal connectors should be bolted to both sides where the rafter and the wall frame meet. A double wrap connector is a continuous connector in the shape of a U to fit the framing. Wall to foundation reinforcements generally require the removal of siding on existing homes. Block or brick walls require steel rod supports to be added. Also reinforce the attachments between a porch and house.

**Doors:** When completing the rehabilitation of a home, exterior doors and garage doors are most often best replaced with hurricane-rated doors. As an alternative, additional bracing can be applied to existing garage door. Wind resistant doors are heavy, solid, and have at least three and often four mounting brackets with screws that are 2 ½ to 3 inches long. The other side of the door should be secured with a bolt lock that should be 1” long to extend far into the frame and hold the door closed. French doors or double doors should be shuttered.

The guidebook for DEM’s Hurricane Loss Mitigation Program offers additional recommendations:

- Use fasteners that are compatible with the flashing material.
- Use flashing cement at joints to help secure flashing.
- At roof-to-wall intersections, use step flashing that has a 4-inch vertical leg.
- Tape the top of step flashing with 4-in. wide self-adhering modified bitumen tape.

**Flood Control**

The Enterprise Green Communities publication “Ready to Respond,” available at [www.smartvent.com/pdfs/ready-to-respond.pdf](http://www.smartvent.com/pdfs/ready-to-respond.pdf) provides instruction on disaster mitigation for multifamily properties. It offers detailed guidance on a variety of mitigation features, including:

**Dry Floodproofing:** This is a method of sealing buildings to keep water out, which can prevent damage to critical systems and mechanical equipment, reduce recovery time and deter mold growth. Effective dry floodproofing requires a design by a qualified engineer and should include:

- Sealing cracks or openings on exterior walls or the foundation.
- Covering entry points below the Design Flood Elevation (DFE).
- Protecting against and remove seepage inside the building.
- Protecting mechanical and electrical systems.
**Wet Floodproofing:** This approach allows unoccupied portions of a building to be flooded during a storm. It is available for older buildings that may not be designed to withstand the hydrostatic pressure that occurs with dry floodproofing (blocking water from entering the building). This method allows water to flow through a building in a controlled way. The space can then be dried after flood water has receded. Electrical panels, mechanical equipment, gas and electric meters and shut-offs should be relocated from flood-prone areas to locations above the DFE. If that is not possible, they should be protected in place.

**Site Perimeter Floodproofing:** With this approach, temporary physical barriers may prevent floodwaters from reaching the building and does not require modifications to the building structure. These include:

- Sandbags- Although inexpensive and effective, they are heavy and hard to transport.
- Water-inflated tube systems- These large vinyl, rubber or polyethylene tubes are typically filled from a fire hydrant, then anchored to the ground. Due to freshwater buoyancy in saltwater, they are not recommended for coastal flooding zones.
- Panelized systems installed into foundation slots- Temporary flood panels can be fitted into permanent slots.

**Backwater Valves:** Sewage backflow occurs when storm water backs up into a building basement or unoccupied area because of sewer line blockage or storm drain overflow due to flooding. A backwater valve is a relatively inexpensive retrofit that can prevent significant problems from sewer line failure by blocking reverse flow from entering the building through wastewater pipes.

**Sump Pumps:** These remove water which accumulates in the low points in a building. They are an effective and affordable way to reduce costly flood damages. Design sump pumps to handle moderate flooding but not catastrophic flooding such as a coastal storm surge.

**HOME HARDENING PROGRAMS**

FEMA recommends the following types of modifications or retrofits to existing residential buildings that can reduce future wind damage:

1. Improving the building envelope
2. Installing hurricane shutters or other protective measures
3. Retrofitting gable end walls to eliminate wall failures in high winds
4. Replacing existing non-ductile infrastructure with ductile infrastructure to reduce their exposure to hazardous events
5. Retrofitting buildings with load-path connectors to strengthen the structural frames
6. Installing safe rooms
7. Reinforcing garage doors
8. Inspecting and retrofitting roofs to adequate standards to provide wind resistance
Green Building & Energy Efficiency

The Florida Green Building Coalition (FGBC) is the leading organization in Florida that promotes the application of green building and energy efficiency techniques through various aspects of residential development. With sustainability in the forefront, the FGBC Florida Green Development Certification Standard Program, the Florida Green High-Rise Residential Building Standard, and the Green Home Certification Program provide the information necessary to achieve the green building certification. Each certification program provides a reference guide outlining techniques that protect these structures through disaster mitigation and durability activities. Links to the reference guides are provided in Appendix 4: Online Resources (page 37). Furthermore, FGBC certification is a requirement for rebuilding homes with disaster recovery funds.

The expansive list of green building techniques specific to affordable housing, categorized by cost, is available on the FGBC website:

https://floridagreenbuilding.org/files/1/File/Learn/FGBC_Affordable_Housing_Low-Cost_Green_Items.pdf

Green Building Certifying Agents are trained and provided with their designation issued by the FGBC. A list of Certifying Agents is available at: https://floridagreenbuilding.org/certifying-agents-list.
Climate Justice

Climate justice is defined as the recognition that climate change has a disproportionately adverse impact on the housing of vulnerable populations. It is important for mitigation and adaptation strategies to incorporate this reality so that current systems that perpetuate disparity can be restructured. Strategies should be designed to ensure that disaster preparation and response will be equitable and inclusive of all members of the community.

Climate justice principles require policymakers to correct historic inequities by prioritizing mitigation strategies that meet the needs of underserved populations, especially communities that are particularly vulnerable to disaster-related threats. There are a variety of place-based strategies the community may choose to match its needs. The community can look at designated areas for existing housing programs such as qualified census tracts (QCTs), Opportunity Zones (OZ), racial and ethnic concentrations of poverty (R/ECAP), and low- and moderate-income neighborhoods (LMI) to guide its place-based policies.

Climate Justice Items to Consider

**Plan Integration** is essential to achieving resilience because the planning frameworks which guide the growth and development of a community must operate with consistency from planning to policy, and through implementation and ongoing operations. When plans are siloed and lack interconnectedness, the overall framework fails to address the foundational needs of a community’s residents, including housing. A comprehensive strategy to address existing elements that are vulnerable improves the post-disaster recovery timeframe, reducing the amount of time residents are unhoused and reliant on federal and state temporary housing, and increasing the number of persons who can shelter in place during a disaster.

**The Community Rating System (CRS)** has a direct financial impact on a community’s flood insurance rates. The National Flood Insurance Program (NFIP) provides flood insurance to property owners in communities that are required to adopt and enforce floodplain management regulations in an effort to reduce the impact of flooding on homes and businesses. The CRS outlines specific solutions a community can commit to which will increase the resilience of the building envelope and other critical facilities, and by participating, the scoring criteria results in reduced insurance rates for that community’s residents.

**The Florida Building Code (FBC)** is established by the Florida Building Commission. Local governments are responsible for adhering to the FBC’s minimum construction standards for vertical development, (as opposed to “horizontal” land development regulations). Local governments can seek to enforce higher building standards beyond the FBC in their local code of ordinances through the Building Commission’s administrative and technical amendment process. Local governments can request technical assistance from the State Floodplain Management Office to develop ordinance language and the subsequent amendments to improve flood hazard resilience.

**Rehabilitation Standards** are specifically required for Entitlement Communities receiving HOME funds and can be adopted for Non-Entitlement Communities as well. Rehabilitation Standards according to the HOME Rule detail the capacity to which HOME funds can be used for homeowner rehabilitation activities. Special purpose programs can be supported through this source if the activities then adapt the property to HOME property standards.
**Code Enforcement** can assume an integral role to improving hazard resilience through outreaching and educating residents in vulnerable areas of a community. Often resulting from years of disinvestment, residents in distressed areas often lack the resources to mitigate vulnerabilities, increasing the risk in the face of the next weather-related event. Adapting code enforcement’s capacity to inform residents of mitigation techniques and provide resources for funding can address home hardening and weatherization needs that will allow residents to shelter in place or quickly return to a habitable home when a hazard occurs.

**The Affordable Housing Shortage** is evident across Florida as there is a deficit of -384,743 affordable and available rental units for persons at or below extremely low income and -564,511 for households at or below 50% AMI. Additionally, as documented in the [Florida Home Matters Report 2021](https://issuu.com/floridahousingcoalition/docs/home_matters_report_2021_rev_10_14_21?fr=sMzBlYzM4MTg4NDc), housing cost burden impacts roughly 25% of all Floridians, affecting 1.13 million households experiencing severe cost burden (paying 50% or more of their income toward housing expenses) and 853,089 households who are moderately cost burdened (paying between 30%-50% of their income toward housing expenses). When homeowners and renters have no economic mobility or savings to address emergency housing repair needs, the home’s ability to withstand shocks and stressors is decreased, which impacts the safety of the home and it’s residents. The reliance on an aging housing stock for naturally occurring affordable housing (NOAH) is significant and, due to the age of the structure which is often built prior to today’s FBC standards—the home may require mitigation efforts to ensure the preservation of the affordable housing unit. Moreover, as hazards affect the habitability of older homes and multifamily properties post-disaster and are often replaced by unaffordable units which drive displacement and gentrification, low-income residents are left without housing options within their income bracket as they recover from a catastrophic event. This then increases the reliance on federal, state, and local resources that are often delayed in reaching the residents who need the most assistance further extending the timeframe of a community’s ability to recover.

**Energy Efficiency and Green Building** techniques can be required in new construction and rehabilitation of residential units. While local governments may outline opportunities to promote the use of these evidence-based techniques, there is the ability to require units developed or rehabbed with specific funding sources to include green and energy efficient elements. Additionally, promoting opportunities through community outreach and education to increase energy efficiency and green building to homeowners can contribute to an overall resilient building envelope, more prepared to withstand hazards and quickly recover after an event.

**Reducing the Rate of Uninsured Homes**, especially those located in an identified floodplain, helps preserve affordable housing and supports a quick recovery when a hazard occurs. Often, it is seniors or dwellings owned throughout many generations who do not have a mortgage and lack homeowners and/or hazard insurance. When a flood or hurricane occurs, damaging uninsured homes, they may become uninhabitable which results in the loss of property and an affordable home for many with limited income and resources to obtain other affordable and permanent housing post-disaster.

---


### APPENDIX 1: Guide to Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH</td>
<td>Affordable Housing</td>
</tr>
<tr>
<td>AHAC</td>
<td>Affordable Housing Advisory Committee</td>
</tr>
<tr>
<td>BIPOC</td>
<td>Black, Indigenous, and People of Color</td>
</tr>
<tr>
<td>BRIC</td>
<td>Building Resilient Infrastructure and Communities (FEMA)</td>
</tr>
<tr>
<td>CDBG</td>
<td>Community Development Block Grant (HUD)</td>
</tr>
<tr>
<td>CDBG- DR</td>
<td>Community Development Block Grant-Disaster Recovery</td>
</tr>
<tr>
<td>CDBG-MIT</td>
<td>Community Development Block Grant-Mitigation</td>
</tr>
<tr>
<td>CEMP</td>
<td>Comprehensive Emergency Management Plan</td>
</tr>
<tr>
<td>CHHA</td>
<td>Coastal High Hazard Area</td>
</tr>
<tr>
<td>CRS</td>
<td>Community Rating System</td>
</tr>
<tr>
<td>CVA</td>
<td>Community Vulnerability Assessment</td>
</tr>
<tr>
<td>DCF</td>
<td>Florida Department of Children and Families</td>
</tr>
<tr>
<td>DEO</td>
<td>Florida Department of Economic Opportunity</td>
</tr>
<tr>
<td>EOC</td>
<td>Emergency Operations Center</td>
</tr>
<tr>
<td>FBC</td>
<td>Florida Building Code</td>
</tr>
<tr>
<td>FDEM</td>
<td>Florida Division of Emergency Management</td>
</tr>
<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>FEMA IA</td>
<td>Individual Assistance</td>
</tr>
<tr>
<td>FEMA PA</td>
<td>Public Assistance</td>
</tr>
<tr>
<td>FGBC</td>
<td>Florida Green Building Coalition</td>
</tr>
<tr>
<td>FHC</td>
<td>Florida Housing Coalition</td>
</tr>
<tr>
<td>FHFC</td>
<td>Florida Housing Finance Corporation</td>
</tr>
<tr>
<td>FHLBAatl</td>
<td>Federal Home Loan Bank of Atlanta</td>
</tr>
<tr>
<td>FPM</td>
<td>Floodplain Management</td>
</tr>
<tr>
<td>HCD</td>
<td>Housing and Community Development</td>
</tr>
<tr>
<td>HHRP</td>
<td>Hurricane Housing Recovery Program</td>
</tr>
<tr>
<td>HLMP</td>
<td>Hurricane Loss Mitigation Program</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>HMGP</td>
<td>Hazard Mitigation Grant Program</td>
</tr>
<tr>
<td>HOME</td>
<td>HOME Investment Partnerships Program (HUD)</td>
</tr>
<tr>
<td>HOME PJ</td>
<td>HOME Participating Jurisdiction</td>
</tr>
<tr>
<td>HFA</td>
<td>Housing Finance Agency</td>
</tr>
<tr>
<td>HUD</td>
<td>United States Department of Housing and Urban Development</td>
</tr>
<tr>
<td>LHAP</td>
<td>Local Housing Assistance Plan</td>
</tr>
<tr>
<td>LIHTC</td>
<td>Low Income Housing Tax Credit</td>
</tr>
<tr>
<td>LMI</td>
<td>Low- or moderate-income households or neighborhoods</td>
</tr>
<tr>
<td>LMS</td>
<td>Local Mitigation Strategy</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>NFIP</td>
<td>National Flood Insurance Program</td>
</tr>
<tr>
<td>PDRP</td>
<td>Post Disaster Redevelopment Plan</td>
</tr>
<tr>
<td>PHA</td>
<td>Public Housing Authority</td>
</tr>
<tr>
<td>SELF</td>
<td>Solar Energy Loan Fund</td>
</tr>
<tr>
<td>SFHA</td>
<td>Special Flood Hazard Area</td>
</tr>
<tr>
<td>SHIP</td>
<td>State Housing Initiatives Partnership</td>
</tr>
<tr>
<td>TBRPC</td>
<td>Tampa Bay Regional Planning Council</td>
</tr>
<tr>
<td>TCC</td>
<td>Tallahassee Community College</td>
</tr>
<tr>
<td>UGLG</td>
<td>Unit of Local Government</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
</tbody>
</table>
APPENDIX 2: Housing Resilience Terminology

Shared Terminology for REACH

The USF FCCD+R team has prepared a shared terms guide that is incorporated here. Their Elements of Risk Diagram that is adapted from others, (Engel, 2011 and Tostevin 2014), provides a clear graphic that can apply to housing resilience (references cited will be included in this document).

Terms to help understand this graphic are:

**Hazard.** The term hazard refers to the potential occurrence of natural or human-induced physical events that may have adverse effects on vulnerable and exposed elements. (Cardona et al., 2012)

In the USF Community Vulnerability project, this is related to storm surge, sea level rise or other forms of flooding. **Whereas this term is often thought of in the same way as risk, it is currently and widely acknowledged that it is a component of risk and not risk itself.** (Cardona et al., 2012)

Florida’s Division of Emergency Management (FDEM) defines a **hazard** as any event or condition with the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, business interruption or other structural or financial loss. “The state’s Hazard Mitigation Plan assesses a broad spectrum of natural and human caused hazards that must be evaluated by a risk assessment.

**Exposure.** All the elements in an area where a hazard may occur are exposed or have exposure to risk. If there are not assets to be affected by a hazard, then there is no exposure. For example, a house can be in a flood zone but if the house is raised and out of harm’s way, there is no exposure, therefore no risk. This is often associated with built environment features, but this also includes categories of populations and ecological zones.

**Vulnerability.** Vulnerability is defined in the context of the hazard and is a condition of the sensitivity and ability to adapt to the risk posed by the hazard. For example, consider that sea level rise, a hazard, puts a group of houses at risk from flooding. The vulnerability of the houses is
conditioned by their sensitivity to the hazard. If the base level of the homes is below the flood elevation level, they are vulnerable to flooding. If the homes are elevated 1 foot above flood elevation, then their vulnerability is reduced. Since the hazard can reach 2 or 3 feet with given probabilities, then vulnerability can be reduced by elevating the homes to 4 feet above base flood elevation. The act of elevating the structures is an adaptation that mitigates the risk. If the houses cannot be elevated, then other adaptive measures could be taken such as installing flood proofing equipment. Resilience planning for affordable housing must take into account not only the risk of the hazard to the structure, but also to its residents who may have additional vulnerabilities that are a condition of, for example, income or wealth. A low-income household cannot afford the adaptation measures and without intervention will have increased vulnerability to the sea level rise-based hazards.

**Sensitivity.** Sensitivity explains how affected a system or individual is after being exposed to stress, or a hazard. (Engle, 2011) For example, a building could be completely exposed to a hazard, such as a flood. It could be directly in its path. But if the building is completely sealed, there is no sensitivity, therefore no risk. In our communities, it is important to realize that just as there are different demographic characteristics and housing types, there are many different levels of sensitivity.

**Adaptation.** Adaptation is the action of helping communities cope with changing conditions. Adaptation occurs as ecosystems and animal species respond to changing environmental conditions such as temperature, water salinity, disaster frequency, etc. In the same sense, humans can employ adaptation techniques to help society adjust to changing conditions such as climate change and sea level rise. Adaptation is a process of deliberate change in anticipation or in reaction to external stimuli and stress (Folke, 2016). Adaptation differs from natural selection because it does not occur on a cellular level, but rather through behaviors and decision-making (Engle, 2011).

**Adaptive Capacity.** Adaptive Capacity essentially describes the ability to adapt (Engle, 2011), the ability of a system to prepare for stresses and changes in advance or adjust and respond to the effects caused by the stresses (Smit & Wandel, 2006). Adaptive capacity in ecological systems is related to genetic diversity, biological diversity, and the heterogeneity of landscape mosaics. In social systems, the existence of institutions and networks (social capital) that learn and store knowledge and experience, create flexibility in problem solving and balance power among interest groups play an important role in adaptive capacity (Resilience Alliance, 2020). Adaptive capacity influences the ultimate potential for the implementation of sustainable adaptations to changing environmental conditions.

There are other types of adaptive capacity that can influence housing mitigation planning:

**Capacity to Anticipate Risk.** Resilience can be achieved by the ability to reduce risk, prior to its occurrence. This can occur through abilities associated with governance, finance, community, and communication. Planning and urban design, land management, the
creation of codes and landscape design are all ways that communities can anticipate and effectively mitigate foreseen risks.

**Capacity to Respond.** This includes disaster response, or coping mechanisms, but also pre-disaster planning that prepares a community for what to do after the hazard has occurred.

Adaptive capacity in housing measures the feasibility of a home or neighborhood to be improved by structural hardening methods, floodproofing, elevation, or other treatments that can reduce the sensitivity or risk of the structure flooding once or more. By anticipating risks to both structures and vulnerable populations, programs can be deployed to fortify the housing stock to mitigate foreseen risks. The challenge is to not only mitigate but to ensure the results are equitable, as described in the next term.

**Equitable climate resilience** is the intersection of the capacity to impacts from natural hazards, while the distribution of information and resources flows fairly to all members of society including those with lower incomes, disabilities, or members of racial or ethnic minorities. Equitable climate resilience flows also to areas of need such as low-income neighborhoods that are flood prone.

**Risk** in the context of housing, can be explained by the sensitivity of the housing stock to natural hazards and the adaptive capacity of the community to, through mitigation activities, reduce the sensitivity of a home, its residents, and the community to hazards. The less a community can mitigate hazards, the higher its risk of damaging impacts.
APPENDIX 3: Housing Resiliency Indicators

The preparation of a housing mitigation strategy involves a closer look at local housing issues impacting the supply of affordable housing and the ability for lower income residents to attain and maintain safe housing. Housing vulnerability assessments should consider the following and include appropriate strategies to address hazard risks within the policy framework.

- Overall shortage of affordable housing for very low-income households (See FHC Home Matters Reports)

- Housing affordability with severe cost burdens impacting the household’s ability to make necessary home improvements, afford adequate home insurance, prepare the home for hurricane warnings, or to safely evacuate as mandated. Housing affordability measures the gap between what a household can afford for housing, in which the target is typically 30% of gross household income toward housing expenses. Housing assistance programs bridge that gap with subsidies in the form of below market rate rents or down payment and purchase assistance.

- Older mobile homes in need of either replacement or tie-downs and other methods

- Equity: It is critical that all resilience activities incorporate a racial lens in the observation of the overall condition of low-income neighborhoods which have experienced disinvestment and are more prone to flooding and other hazards.

- Persons with disabilities have the most severe housing cost burdens and lack accessibility features in their homes.

- Heirs’ title issues. Generational title issues in minority neighborhoods render properties ineligible for rehabilitation and repair subsidies, hazard insurance, and financing.

- Real estate data for evictions and the rate of mortgage denials datasets shed light on socioeconomic risk as housing instability

- Other social vulnerability indicators that are correlated with housing needs include:
  - 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
APPENDIX 4: Online Resources

REACH Tools

UNIVERSITY OF SOUTH FLORIDA, FLORIDA CENTER FOR COMMUNITY DESIGN + RESEARCH

Guide to Conducting Community Vulnerability Assessments. The new methodology and guide will help standardize approaches and processes for defining community vulnerability and developing strategies.

UNIVERSITY OF FLORIDA, SHIMBERG CENTER FOR HOUSING STUDIES

Housing Coastal Flood Hazard Vulnerability Mapping Tool Application. A web-based ESRI ArcGIS Online mapping application for the 6-county area, which links more than 40 data sets to assess and visualize the exposure of affordable housing (both subsidized and non-subsidized) to current flood hazards and future sea level rise.

TBRPC Housing Needs Assessment Template for Local Government. A web-based housing needs assessment template for local governments that draws from a suite of housing-related datasets; the template will juxtapose housing needs data and impacts due to potential future coastal flood hazard exposure.

REACH Web-Based Geospatial Data Library (UF Shimberg Center for Housing Studies). An associated geospatial library that enables downloading of the Affordable Housing and Coastal Flood Hazard web application’s regional flood hazard data and housing information.

FLORIDA HOUSING COALITION, RESILIENCE AND DISASTER RECOVERY

The Coalition has prepared a suite of tools to be used in the assessment of climate change-based hazards to housing stock and guidance for enhancing the community mitigation programs with housing specific needs.

Housing Resiliency Plan Self-Assessment Checklist. The Checklist is an online tool that local governments and other stakeholders can use to evaluate their current planning framework, policies, and programs, and funding strategies resulting in an increase of identifying areas of opportunities to further housing resilience and hazard mitigation efforts that target affordable housing and vulnerable residents. Hazards include climate change-based hazards such as storm surge, inland flooding, sea level rise, extreme heat, and sinkholes.

REACH Funding Guide. The REACH Funding Guide is a tool to support local governments in identifying funding sources for affordable housing mitigation and resilience activities.

REACH Housing Mitigation Planning Policy Framework for Florida: Plan-Specific Policy Recommendations. Recommendations for policies relevant to the local planning framework. The guide will include an overview of funding sources for mitigation treatments for single and
multifamily housing that align with the FEMA Disaster Housing Strategy Framework, State and Local Mitigation Plans, the Comprehensive Plan, and housing plans such as the HUD Consolidated Plan and the SHIP Local Housing Assistance Plan.

**HUD Consolidated Plan MA-65 Guide to Hazard Mitigation.** An overview of the 2018 HUD directive for the description of the vulnerability of housing occupied by low- and moderate-income households to increased natural hazard risks associated with climate change. The guide provides steps for getting started and completing the hazard risk assessment.

**Building Codes**

Flood Building Code - FEMA - ASCE 24-14 Flood Resistant Design and Construction
https://www.fema.gov/media-library-data/1436288616344-93e90f72a5e4ba75bac2c5bb0c92d251/ASCE24-14_Highlights_Jan2015_revise2.pdf


**Home Insurance**

Flood Insurance Myths and Facts:

Flood Insurance Overview:
https://myfloridacfo.com/Division/Consumers/understandingCoverage/FloodInsOverview.htm

Homeowners Insurance Overview:
https://myfloridacfo.com/Division/Consumers/understandingCoverage/HomeownersInsuranceOverview.htm

Homeowners Insurance Toolkit:
https://myfloridacfo.com/Division/Consumers/understandingCoverage/Guides/documents/Hom
eownersToolkit.pdf

Premium Discounts for Hurricane Loss Mitigation:
https://myfloridacfo.com/Division/Consumers/understandingCoverage/Guides/documents/Premi
umDiscountsForHurricaneLossMitigationGuide.pdf

Renters Insurance Overview:
https://myfloridacfo.com/Division/Consumers/understandingCoverage/RentersInsurance.htm

Renters Insurance Toolkit:
https://myfloridacfo.com/Division/Consumers/understandingCoverage/Guides/documents/Rent
ersInsuranceToolkit-FINAL.pdf
Enterprise Community Partners Resources

https://www.enterprisecommunity.org/impact-areas/resilience

National Flood Insurance Program

https://www.fema.gov/flood-insurance

https://www.fema.gov/flood-insurance/find-form

https://nfipservices.floodsmart.gov/wyo-program-list

Community Rating System

https://www.fema.gov/floodplain-management/community-rating-system


APPENDIX 5: The Planning Framework: Who does what?

**FEMA.** The Robert T. Stafford Act requires communities to have an approved Local Mitigation Strategy to be eligible for federal mitigation grants administered by the Federal Emergency Management Administration. FEMA requires states to prepare State Hazard Mitigation Plans. FEMA manages the voluntary National Flood Insurance Program (NFIP) that requires participating communities to adopt and enforce minimum floodplain management regulations, especially in high-risk areas identified by Flood Rate Insurance Maps (FIRM), resulting in the provision of flood insurance to all residents.

**HUD.** The Community Development Act authorizes the U.S. Department of Housing and Urban Development to provide funding both pre- and post- disaster to protect the housing and neighborhoods prioritizing low- and moderate-income neighborhoods. HUD requires Entitlement Communities and states to prepare five-year Consolidated Plans and implement annual Action Plans to include a hazard assessment.

**FDEM.** Florida’s Division of Emergency Management provides ample guidance and leadership to municipal and county jurisdictions in Florida and is better able to guide resources to address housing vulnerabilities when the community has conducted a strategic planning process to ensure that resources are used most effectively and where most needed. Florida Division of Emergency Management requires local governments to prepare and implement Comprehensive Emergency Management Plans and Local Mitigation Strategies. Local governments are required to facilitate Mitigation Work Groups.

**FDEP.** Florida’s Department of Environmental Protection’s Resilient Florida Program provides grants for planning and mitigation which can be directed to residential projects evidencing a thorough analysis of the community’s vulnerability and preparation of a strategic mitigation plan.

**FDEO.** The Florida Department of Economic Opportunity promotes strategic planning through its administration of the Rebuild Florida Program and CDBG-MIT programs to reduce risks and ensure long term recovery from disasters. Florida Statutes require local governments to adopt and implement Local Government Comprehensive Plans. Florida Statutes- the Peril of Flood Act requires local governments to prepare and implement Post Disaster Redevelopment Plans either as part of the Comprehensive Plan or stand alone.

**FHFC.** The Florida Housing Finance Corporation promotes disaster recovery and rehabilitation programs for the State’s assisted housing. Florida Statutes provides the State Housing Initiatives Partnership, in which 121 local governments participate. Local governments are required to adopt Local Housing Assistance Plans, which include disaster recovery strategies and home repair strategies.