Hurricane Milton Storm Surge Damage on Pine Island

Photo Credit: Mark Stone as provided by the Hernando Sun

Technical Memorandum 3

PDRP Appendix A:
Risk Analysis and Best Practices
Hernando County

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Executive Summary

This report is the first in a body of work which will culminate in an updated Hernando County Post Disaster Redevelopment Plan (PDRP). It provides a synthesis of the county's disaster-related risks, existing risk-mitigation approaches, and provides preliminary strategies for Hernando County to enhance its capacity to rebuild after a disaster. It also discusses ongoing redevelopment from the devastating 2024 hurricane season.

1.1 Risk Overview

Hernando County faces significant risks from natural hazards, primarily due to its coastal geography, inland water bodies, and forested upland areas. The key risks identified include:

- **Coastal Storm Surge and Tropical Cyclones**: High-risk areas along the western coast (west of US 19), including Hernando Beach and Pine Island, are vulnerable even to moderate hurricanes, threatening infrastructure, homes, and economic activity.
- **Inland Flooding**: Inland flooding, especially along the Withlacoochee River, impacts communities such as Ridge Manor and Nobleton, posing threats to homes, jobs, civic institutions, roads, and other infrastructure.
- **Wildfires**: Northern and northeastern forested areas of Hernando County face a high risk of wildfire, with potential impacts on suburban and rural communities.

1.2 Strategies to Enhance Redevelopment Capacity

The strategies presented in Chapter Five of this report provide policy considerations for Hernando County to improve the redevelopment process for its community members impacted by disaster events. These strategies are informed by practices from other Florida communities, observed redevelopment challenges from across the region, and aligned with State of Florida guidance and statewide initiatives. At a high level, the strategies aim to empower the local planning, maintain the role of local government, embolden regional efforts, empower residents and businesses, and reflect the goals and values of Hernando County.[1]

The table on the following provides a high-level summary of the strategies and what Hernando County policies, plans, or processes the strategy would be implemented through. These are not recommendations but preliminary options to be discussed, screened, and further developed through the PDRP update process.

[1] Hernando County Strategic Plan | Engage Hernando

Table 1-1: Preliminary Strategies

Category	Strategy Title	Related Policies/Programs
Infrastructure	Adaptation Action Areas	Comprehensive Plan
	Coastal Engineering for Shoreline Stabilization	Adaptation Action Area Plans
	Watershed Management Plan (WMP) Updates	WMPs
	Regional Stormwater Program	Floodplain Ordinance
	Comprehensive Resilient Transportation Strategy	Comprehensive Plan
	Context Sensitive Roadway Elevations	Comprehensive Plan
	Critical Facility Hardening	Internal Procedures
	Comprehensive Asset Management	Internal Procedures
	Energy Grid System Resilience	Stakeholder Coordination
Land Use and Housing	Permissive Policies for Temporary Uses	Zoning Code
	Increased Community Rating System Ranking	Floodplain Ordinance
	Increased Design Flood Elevations	Floodplain Ordinance
	Flood-Resistant Construction Planning	Comprehensive Plan
	Low Impact Development Techniques	Zoning Code
	Incorporate "Firewise" Design Principles Into Landscape Code	Landscape Code
	Incorporate "Stormscaping" into Tree Ordinances	Tree Ordinances
	Blue-Sky Zoning Reforms to Expand Redevelopment Options	Comprehensive Plan, Zoning Code
	Pre-Reviewed Housing Plans	Zoning Code
	Transfer of Development Rights Program	Comprehensive Plan
	High-Risk Property Acquisition	Internal Procedures
Economic Recovery	Community-Wide Adaptation Program Strategy	Internal Procedures
	Pre-Disaster Business Continuity Planning	Coordination with the Chamber of Commerce
	Communication of Areas with Open Businesses	Public Information Procedures
	Distribution Networks for Fill and Other Resilient Building Materials	Stakeholder Coordination
	Workforce Development	Stakeholder Coordination
	Parametric Insurance	Legislative Platform

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Introduction

2.1 Risk Analysis and Best Practices Report Purpose

This report provides a detailed overview of Hernando County's risk and vulnerability landscape to inform the County's Post-Disaster Redevelopment Plan (PDRP) update. The report, which includes a synthesis of existing work and findings from new disaster modeling, presents a consolidated view of known hazards and vulnerabilities, and introduces a range of redevelopment best practices. This report lays the groundwork for a data-driven PDRP update which builds on the planning legacy of Hernando County.

This report concludes with a preliminary set of strategies to be considered for inclusion in the PDRP update. These practices are to be reviewed, evaluated, refined, added to through the PDRP's stakeholder engagement process documented in the Community Awareness Plan. Through the PDRP planning process, these strategies will evolve into specific and actionable strategies to support informed pre- and post-disaster decisions to improve Hernando County's resiliency and post-disaster redevelopment capacity.

The terms used throughout this report have nuanced meaning in disaster planning that may be distinct from their use in other contexts. Three of these key terms are:

- **Hazard** generally refers to the probability that a particular event (e.g., hurricanes, floods, wildfires) will occur and the range of likely magnitude of the hazard's attributes. Hazards are typically outside of a community's immediate control, meaning that they must adequately prepare for them.
- **Vulnerability**, on the other hand, is how susceptible the community's infrastructure, population, economy, and critical systems are to these hazards. Even if a hazard is likely, the community may be less vulnerable if structures and infrastructure are well-built, transportation networks are highly connective, and pre-developed response plans are in place and flexible to allow for an adaptive response. Conversely, an area may experience a relatively rare event, but if the infrastructure is poorly constructed or located in a high-hazard zone, its vulnerability is high.
- **Risk** is the combination of both hazards and vulnerability, essentially the likelihood of a hazard causing significant damage due to existing vulnerabilities in a particular area; meaning, risk is the potential for loss or harm resulting from a hazard interacting with a vulnerable population or environment.

2.2 Relationship with Other PDRP Documents

This Risk Analysis and Best Practices Report is one of four primary PDRP Update documents listed below. Its findings are to be refined and serve as building blocks for subsequent deliverables.

2.2.1 Crosswalk and Implementation Tech Memo (Task 4)

The Crosswalk and Implementation Technical Memorandum, the second deliverable, relates the strategies to the existing policies, ordinances, plans, statutes and refines for interoperability and to respond to stakeholder input. As part of that process, the vulnerabilities and risk factors identified in this memorandum will help highlight where local regulatory frameworks already support redevelopment goals and where adjustments may be needed. This Crosswalk and Implementation Technical Memorandum will propose a set of refined strategies for continued refinement and adoption into the updated PDRP.

2.2.2 Hernando Post Disaster Redevelopment Plan

The Hernando County PDRP will integrate this document's risk assessments and refined strategies to frame its long-term redevelopment approach. Infrastructure resilience, housing stability, economic continuity, and critical facilities protection are just a few areas where the insights from this memorandum will inform substantive goals, objectives, and actionable steps. This update's disaster modeling outcomes and other relevant spatial data will be presented in an interactive dashboard as part of the Hernando Post Disaster Redevelopment Plan.

Part of the Tampa Bay Post Disaster Redevelopment Plan project, the Hernando County PDRP is being updated concurrently with PDRPs of three other communities (City of Tampa, Hillsborough County, and Pinellas County). Each of these four updates are developed based on each community's hazards, vulnerabilities, population and environmental characteristics, existing policy frameworks, and many other factors that make each of these communities unique.

These Tampa Bay region communities face many of the same hazards and the joint development of the plans allows them to be informed by the practices and insights from each other. This benefit has been particularly heightened by the update being developed amid ongoing recovery and redevelopment efforts, in which real-world post disaster realities and short-term policy outcomes can be considered across all jurisdictions.

2.2.3 Tampa Bay Regional Post Disaster Redevelopment Framework

Following the adoption of each local PDRP, a consolidated **Tampa Bay Regional Disaster Redevelopment Framework Plan** will be developed. Because disasters and their long-term repercussions rarely stop at jurisdictional boundaries, the issues documented in this report relate to regional challenges, goals, and initiatives. In addition to being a stakeholder in the regional plan development, Hernando County's PDRP update will inform the plan through its strategic development and stakeholder input. these local findings will help build a cohesive and collaborative regional approach to post-disaster planning, resource sharing, and coordinated recovery strategies.

3

Current Plans and Policies

As Hernando County prepares its new Post-Disaster Redevelopment Plan, it builds upon a legacy of planning work that has guided the community through decades of growth. An understanding of existing research and established policy enables the update to conduct more targeted analysis and provide more relevant and actionable recommendations.

This chapter presents a synthesis of findings from the following Hernando County documents related to disaster recovery and redevelopment:

- Hernando/Citrus Metropolitan Planning Organization (MPO) Vulnerability Assessment (*Completed in 2023*)
- Hernando County Local Mitigation Strategy (*Completed in 2020*)
- Hernando County 2040 Comprehensive Plan - Coastal Management Element (*Adopted in 2018*)
- Hernando County Post Disaster Redevelopment Plan (*Completed in 2012*)
- Hernando County Flood Damage Prevention and Protection Ordinance
- Hernando County Building Regulations, Code of Ordinances, Chapter 8

3.1 Local Hazards

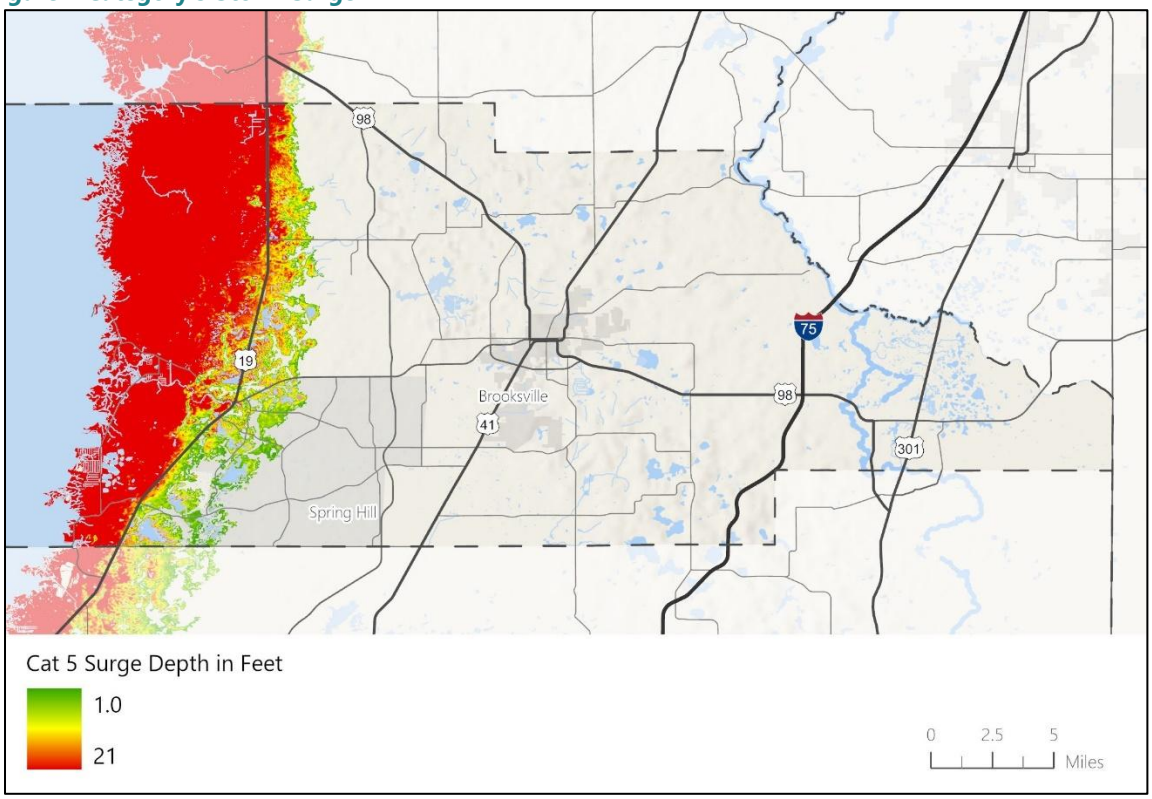
Hernando County's risk environment, as identified in both the Local Mitigation Strategy (LMS) and the MPO Vulnerability Assessment (VA), includes a range of natural hazards that threaten the community. Local hazards relate primarily to tropical storms; coastal storm surge; inland flooding; and wildfires; with additional concerns from severe weather events and long-term processes like erosion. Each hazard type has been studied through various data sources and modeling efforts, providing a detailed picture of where and how these risks manifest in specific areas of the County. Damage assessment data from the 2024 storms was also incorporated into parts of this analysis.

The remainder of this chapter provides an in depth discussion of these hazards and the analysis conducted to identify areas vulnerable to them. This analysis, combined with the current recovery options documented in **Chapter 4,** contribute to the preliminary post disaster redevelopment strategies presented **in Chapter 5.**

3.1.1 Coastal Storm Surge and Tropical Cyclones

West of US 19 is a high-risk zone due to its low elevation and proximity to the coast. This risk is illustrated by storm surge projections derived from the National Hurricane Center's SLOSH (Sea, Lake, and Overland Surges from Hurricanes) model. For instance, areas along Pine Island Drive and near Bayport Park Pier and Pine Island Park can experience significant inundation even during a Category 1 or 2 hurricane. Hernando County's Local Mitigation Strategy (LMS) indicates that storm surge may be caused by even tropical storms. As these zones are both residential, commercial, and recreational destinations, storm surge hazards carry economic and public safety implications. Major category storms would exacerbate these conditions, potentially cutting off access to coastal communities, damaging elevated roadways, and undermining bridge abutments.

Figure 1 Category 5 Storm Surge



Hernando County, through its Comprehensive Plan's Coastal Management Element and other proactive planning policies, has managed to preserve most of its high hazard coastal areas, directing most development east of US 19. The coastal communities that do exist in this high hazard area are an important consideration in the County's post-disaster redevelopment planning and discussed throughout this report. The strategies related to these communities (presented in Chapter 5) aim to empower local decision-making, encourage long-term planning for these areas, respect the rights of homeowners, improve future post-storm rebuilding experiences, and improve their resilience to future events.

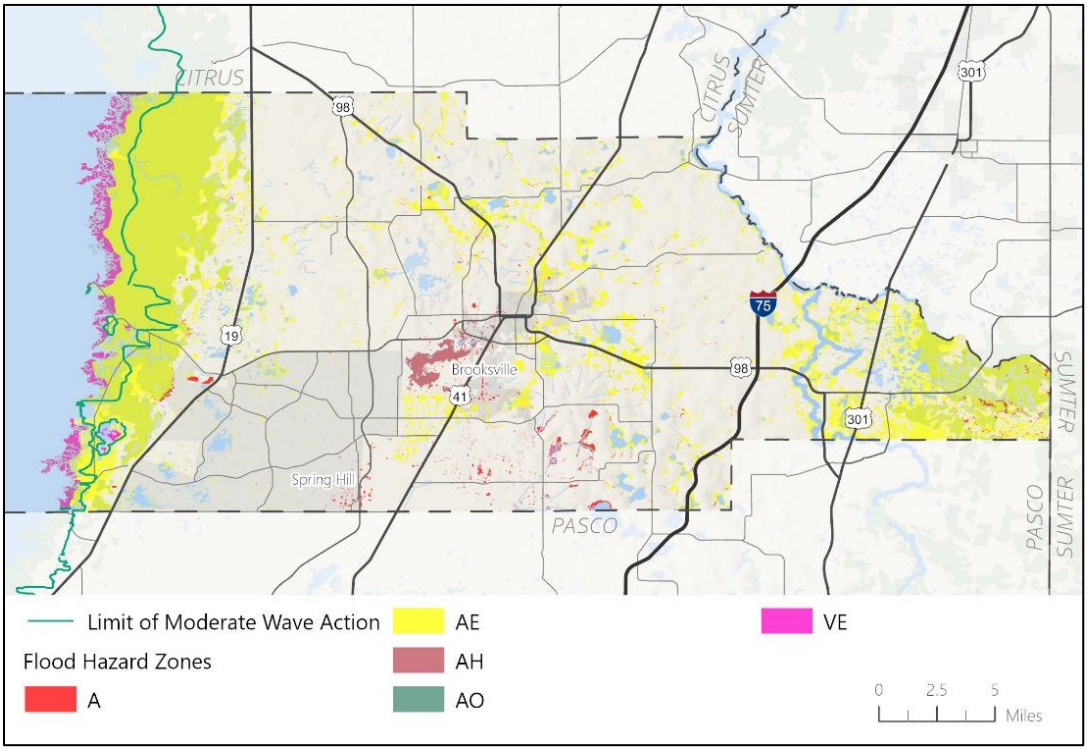
3.1.2 Inland Flooding (Riverine and Rainfall-Driven Events)

Inland flood risks are present throughout the County but most pronounced along the Withlacoochee River basin in eastern Hernando County. During heavy rainfall or prolonged storm events, the river can rise above its flood stage, affecting roads and neighborhoods. Repeated incidents of roadway inundation and local isolation are documented in the LMS, highlighting that historically, certain areas have experienced multiple flood events. The presence of the Green Swamp Upstream compounds this risk. This scenario was realized by rainwater associated with Hurricane Milton in 2024[2], resulting in significant flooding, especially in the Ridge Manor community.

These vulnerabilities are reflected through the FEMA Digital Flood Insurance Rate Maps (DFIRM)[3], which delineate the 100-year floodplain. This regulatory tool delineates areas with varying flood risks, guiding decisions on flood insurance requirements, land use planning, and building codes. These maps inform mortgage lenders on mandatory flood insurance for properties in high-risk zones, assist local governments in implementing floodplain management regulations, and influence real estate and development practices. Consequently, the use of DFIRMs directly affects community resilience, property values, and the financial stability of homeowners and businesses.

However, DFIRMs have notable shortcomings that can lead to misunderstandings and an incomplete picture of a community's flood risk. Some maps may be outdated, failing to incorporate recent environmental or infrastructure changes and advancements in modeling techniques, which can result in underestimating actual flood-prone areas. This can cause property owners to underestimate their true risk exposure and potentially neglect necessary precautions.

Figure 2 National Flood Hazard Zones



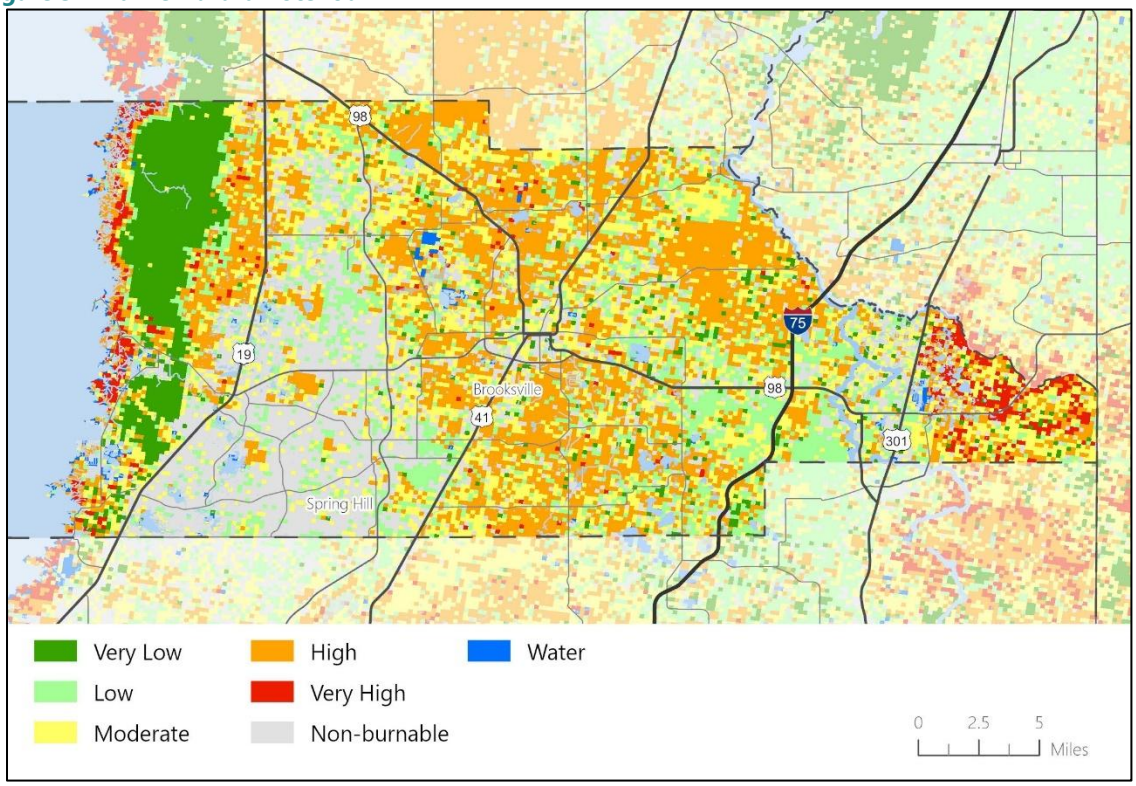
[2] Withlacoochee River Woes Continue - Hernando Sun

[3] FEMA's National Flood Hazard Layer (NFHL) Viewer

3.1.3 Wildfire Hazards

The County's upland, forested areas present significant wildfire risks. Data from the U.S. Department of Agriculture's (USDA) Forest Service classify swaths of northern and northeastern Hernando County as having a "High" or "Very High" potential for wildfires. Extended droughts and unmanaged vegetation would increase the likelihood and severity of these events. Although less frequent than floods or hurricanes, wildfires can close rural roads, threaten utility corridors (e.g., overhead lines that traverse wooded areas), and force short-notice evacuations. Both the LMS and the MPO Vulnerability Assessment acknowledge that wildfire risk is a concern, especially as temperature precipitation patterns vary year-to-year. Recent wildfire events from other Hawaii and California illustrate the importance of continuing to plan for these events, even as the community's primary focus is on hurricane-driven redevelopment planning due to the recent storm impacts.

Figure 3 Wildfire Hazard Potential



3.1.4 Other Hazardous Conditions

In addition to the primary hazards, Hernando County experiences severe thunderstorms, lightning strikes, and occasional tornados and severe wind episodes outside of tropical systems. While not typically modeled as extensively as storm surge or riverine floods, these hazards show up in damage reports and maintenance records, indicating a continuous "background" risk. The County's stormwater programs and ordinances reduce the effects of minor but recurring weather events by managing runoff and debris.

3.1.5 Previously Modeled Disaster Scenarios

The County's existing plans and regulations incorporate scenario-based modeling that provide forecasts of hazard impacts under different storm, flood, or fire conditions. The following sections provide an overview of these scenarios.

3.1.5.1 Storm Surge Simulations Using SLOSH

For coastal hazards, existing SLOSH maps simulate surge depths and extents for hurricanes of varying intensities and approach angles. A scenario might show a Category 2 hurricane pushing 4-6 feet of surge into Hernando Beach and Weeki Wachee's coastal outskirts, overtopping sections of Osowaw Boulevard and isolating neighborhoods until water recedes. By seeing precisely which segments become impassable, emergency managers can pre-position equipment, plan detours, or consider road elevation projects to reduce future disruption.

3.1.5.2 Riverine Flood Models and FEMA DFIRM Overlays

FEMA conducted its most recent Flood Insurance Study (FIS) in in January of 2021 which serves as the basis for its Flood Insurance Rate Maps. These maps serve as official tools on insurance related decisions but are not the most detailed flood maps developed for Hernando County. The county is served by the Southwest Florida Water Management District (SWFMD) which partners with local governments to develop detailed watershed studies as part of its Watershed Management Program. The floodplains developed through these studies are the basis of a Watershed Management Plan, which assess the capacity of a watershed to provide adequate water for people and the environment, flood protection, and improved water quality. These exercises help guide Environmental Resource Permits for new development and redevelopment as drainage improvements are proposed.

3.1.5.3 Wildfire Spread Assessments via USDA Hazard Maps

The U.S. Department of Agriculture prepares a national Wildfire Hazard Potential geospatial data set.[4] While the County overall has a low-to-moderate wildfire risk, specific hotspots have been identified as higher risk. This data can be used to show which roadways might be cut off, where evacuation orders must be rapid and well-coordinated, and which critical facilities might be indirectly threatened if firefighting crews can't access them. The LMS acknowledges this hazard as more seasonal and contingent on weather patterns, but scenario planning still informs brush clearing, prescribed burns, and firebreak creation.

[4] https://research.fs.usda.gov/firelab/products/dataandtools/datasets/wildfire-hazard-potential

3.2 Local Vulnerabilities

Vulnerabilities are shaped by how local hazards intersect with the built environment, population centers, economic assets, and key community lifelines. By comparing hazard data (from SLOSH, DFIRM, and USDA fire maps) onto the County's transportation network, land use patterns, and demographic distribution, both the LMS and the Vulnerability Assessment highlight specific vulnerabilities.

3.2.1 Coastal Zone Communities

There are multiple unincorporated communities in Hernando County situated west of US 19 which have heightened vulnerability due to their proximity to coast. These communities include:

- Aripeka (although most of this community is within Pasco County)
- Hernando Beach
- Bayport
- Weeki Wachee Gardens
- Pine Island
- North Weeki Wachee
- Weeki Wachee Hills
- River Country Estates
- Regency Oaks
- Lake in the Woods
- Royal Highlands

These communities are each unique. Aripeka, Hernando Beach, Weeki Wachee Gardens, Bayport, and Pine Island are all coastal communities oriented around the water. River Country Estates, Regency Oaks, and Lake in the Woods are residential subdivisions without direct coastal access and situated behind the commercial development along US 19. North Weeki Wachee is a sprawling, primarily residential community on both sides of US 19 north of SR 50. Royal Highlands is a sparsely populated "ghost subdivision"[5] that was platted and had its roads constructed by the Royal Palm Beach Colony Inc. which liquidated in 1985. This sprawling subdivision, which is primarily comprised of vacant lots with a scattering of occupied homes, is located along the northern boundary of the County, including a small portion in the Coastal Zone west of US 19.

3.2.2 Flood Prone Inland Communities

Inland flood vulnerability is especially pronounced where the Withlacoochee River floodplain intersects with populated areas, agricultural lands, or community access roads. These areas include Ridge Manor, Nobleton, portions of Spring Hill, and rural areas linked by routes like Lake Lindsey Road (CR 476). Homes built at older code standards, pre-dating current floodplain regulations, face more damage risks. Roads that dip into low-lying stretches are repeatedly overtopped, isolating communities and hindering relief efforts. The LMS's catalog of repetitive flood loss properties—some near these inland corridors—illustrates a chronic vulnerability that encourages long-term solutions like property elevations, floodproofing, or buyouts.

[5] Ghost subdivision haunts county

3.2.3 Critical Evacuation Routes

Key evacuation routes such as Osowaw Boulevard, Shoal Line Boulevard, and CR 595 are crucial for moving residents away from storm surge zones in an emergency but lie in areas subject to flooding during even moderate surge events. The repetition of flooding and closures along these segments, documented in local emergency management records, underscores the need to retrofit certain roads to continue the community's ability to conduct timely evacuations may be compromised in certain scenarios The County has begun to incorporate road elevation into certain capital improvement projects.

3.2.4 Critical Facilities and Infrastructure

Critical facilities, including hospitals, emergency shelters, water treatment plants, and major utility substations, depend on accessible, hazard-resistant routes for continuity of operations. If a hospital on higher ground can only be reached via a flood-prone roadway, its function during a disaster is effectively limited. Similarly, if power substations serving coastal neighborhoods lie within a surge zone, restoration times lengthen. Such insights, gleaned from cross-referencing critical facility locations with DFIRM and SLOSH outputs, paint a picture where certain essential services are one severe event away from significant disruption.

3.2.5 Socioeconomic and Demographic Factors

Vulnerability also comes from less tangible factors. Low-income areas, older populations with limited mobility, and neighborhoods with limited vehicle ownership rates face difficulties evacuating or safeguarding homes. The LMS and previous PDRP emphasize some communities lack the resources or knowledge to undertake mitigation measures or quickly recover. Without targeted outreach, assistance for home retrofits, or better public transportation options during evacuations, these demographic and socioeconomic vulnerabilities remain entrenched. Without assistance, these vulnerabilities could worsen into liabilities, pressuring County services for assistance in remaining in the County and returning to work.

3.2.6 Natural Resource and Environmental Constraints

Floodplains, wetlands, and coastal marshes, while providing essential ecosystem services, also complicate the placement and retrofit of infrastructure. Limited space to reroute roads away from hazards, environmental regulations that restrict certain engineering solutions, and delicate habitats that are easily damaged by flood control measures all combine to constrain mitigation options. Hernando County's regulatory frameworks aim to balance these environmental considerations with the need to reduce vulnerability, but trade-offs often arise in practice.

3.3 Existing Strategies and Policies to Address Risks

Hernando County has adopted the following regulations to mitigate the identified hazards, reduce vulnerabilities, and lower the overall risk of the community.

- Hernando County Post Disaster Redevelopment Plan (*Completed in 2012*)
- Hernando County 2040 Comprehensive Plan - Coastal Management Element (*Adopted in 2018*)
- Hernando County Flood Damage Prevention and Protection Ordinance
- Hernando County Code of Ordinances, Chapters 8 and 13 (build back standards)

This section provides an overview of the existing framework to allow the PDRP update recommendations to build upon or refine existing approaches. Additional county plans related to vulnerabilities and mitigation are to be assessed in a following Technical Memorandum.

3.3.1 Hernando County 2012 Post Disaster Redevelopment Plan

The following summary reflects on the original intent and structure of the 2012 PDRP. This plan was meant to guide Hernando County toward a more resilient, efficient, and sustainable long-term recovery after a large-scale disaster.

3.3.1.1 Purpose and Vision of the 2012 PDRP

The 2012 PDRP aimed to provide a strategic vision for harnessing the "window of opportunity" after a disaster to rebuild not only what was lost, but in a way that improved safety, economic stability, environmental integrity, and overall quality of life. Its guiding principle was that disasters, while destructive, could also serve as catalysts for stronger building codes, better land use decisions, more diverse economic strategies, and infrastructures built to withstand future hazards.

3.3.1.2 Plan Organization and Integration with Existing Frameworks

The PDRP was designed to complement and extend existing plans and policies:

- **Comprehensive Emergency Management Plan (CEMP):** Guides to County's immediate response to a range of disaster events.
- **Vulnerability Assessment:** Comprehensively inventories the County's hazards and its vulnerability to them.
- **Local Mitigation Strategy (LMS):** Identifies strategies to mitigate the County's exposure to risk.
- **Comprehensive Plan and Land Development Regulations:** Guides long-term growth, resource allocation, and development rules.

The PDRP is intended to enable the transition from response and short-term recovery activities (led by the CEMP) and improve the efficacy of the long-term rebuilding and redevelopment phase. It aims to provide a framework for the community's rebuilding efforts to be integrated into its overall vision.

3.3.1.3 Key Functional Areas of Long-Term Recovery and Redevelopment

The 2012 PDRP covered six major areas crucial to long-term post-disaster recovery:

- **Community Redevelopment (Housing, Building, Land Use, Historic Preservation):** Rapid and safe structural repairs, incorporating hazard mitigation measures into rebuilt homes and commercial buildings, ensuring adequate and appropriate temporary housing solutions, and long-term alignment with community planning goals. The PDRP also highlighted preserving historic structures and cultural resources, though this emphasis may warrant reflection: when people's immediate needs (food, shelter, safety) are critical, dedicating significant resources to salvaging historic architectural elements from debris might be impractical and poorly received.
- **Economic Redevelopment:** Quickly restore the local economy, assist businesses in continuity planning before disasters, and reopen or replace key employers promptly. It recognized the importance of helping small businesses navigate insurance, grants, and loans. The plan's emphasis on a unified marketing campaign and business retention strategies was sound but required proactive engagement and updated continuity plans well before a disaster hit.
- **Infrastructure and Public Facilities**: Prioritize assessment and repairs of roads, bridges, water and sewer systems, and public buildings. The plan encouraged upgrading infrastructure to meet higher resiliency standards, minimizing flood risk, and ensuring that debris removal did not create further environmental harm. While sensible, this required strong coordination, established contracts, and understanding that fully hardened infrastructure may take years to complete, extending beyond short-term repairs.
- **Health and Social Services**: Providing ongoing healthcare services, mental health support, and assistance to vulnerable populations. The plan called for reestablishing these services as a cornerstone of recovery, recognizing that health and well-being underpin all other recovery efforts. This area prioritized urgent human needs but demanded robust partnerships and pre-disaster planning with local healthcare providers and NGOs.
- **Environmental Issues**: Sustainable and safe debris management, restoring natural habitats, preventing hazardous materials from contaminating water supplies, and involving environmental experts in redevelopment decisions. Environmental stewardship is important, but the plan had to be realistic: initial clean-up might mean prioritizing safe disposal of hazardous debris rather than implementing more nuanced ecological restoration actions immediately.
- **Government Operations, Financing, and Public Outreach**: Maintaining continuity of government services, efficient financial management, transparent public communication, and community participation in redevelopment decisions. The PDRP's intent was to keep residents engaged and informed, manage grants and external funding, and ensure government staff were trained for recovery tasks. Without regular exercises and familiarization, the specific strategies remained theoretical, as evidenced by the plan's non-use in 2024.

3.3.1.4 Action Plan Goals and Objectives

The 2012 plan documented its "Action Plan Goals and Objectives" in a table that has been included in **Appendix B** of this report.

3.3.1.5 Preliminary Observations on Potential Update Considerations:

Overall, the goals and objectives set forth in the 2012 PDRP Action Plan represent an attempt to guide Hernando County and its municipalities through the redevelopment process after a major disaster. With the benefit of hindsight and evolving best practices, the following observations emerge when considering updated PDRP strategies.

Prioritize Systemic Capacity and Informing Pre-Storm Decisions

The 2012 plan made a range of pre-storm recommendations that have since gone on to inform subsequent plans and policies. However, in the months following the significant 2024 hurricane season's impacts, it was not directly utilized as a post-event resource in the early stages of the transition from recovery to redevelopment. This demonstrates the importance of regular updates and a need for scrutinize the feasibility of the PDRP post-storm strategies to ensure it remains a valuable tool resource for Hernando County's redevelopment efforts.

Additionally, this reflects the unfortunate reality that in the aftermath of a disaster, municipal capacity to implement programming is limited due to responding to many high priority needs of its communities, and plans. Multiple objectives call for establishing new post-storm processes or steps to existing processes that might be difficult to implement when the County is operating under severe constraints and competing priorities. The update's recommendations for post-storm processes should be highly scrutinized and evaluated for pre-storm, systemic implementation alternatives. For example, objectives related to expedited permitting at certain activation thresholds could be modified or augmented with "blue-sky" zoning reforms like development code simplification and pre-reviewed site plans. Similarly, updated strategies should be targeted to specific regulatory documents like Comprehensive Plan and land development code.

Plan for Flexible Decision Making

Post-disaster actions often demand flexibility and as previously stated, benefits from strategies already integrated into systemic policies. Multiple objectives of the 2012 PDRP relate to temporary recovery uses consistency with Future Land Use map designations or rely on planned development conditions. This update should consider relaxing use-based restrictions for temporary uses after a disaster, especially uses related to housing, response, recovery, and redevelopment. While keeping health and safety standards in place, these uses should be allowed broadly across Future Land Use and Zoning districts to enable emergency operations managers to make timely, situation-based decisions.

Since 2012, the State of Florida has preempted local jurisdictions from prohibiting the provisions to temporary housing on a residential property for 36-months after a declared disaster. The county may consider expanding the allowance for temporary housing beyond what is required by state statute, such as allowing multiple temporary housing units on a residential or commercial property when health and safety standards are met. Relaxed temporary commercial use standards may also help businesses recover.

Business Continuity and Workforce Development

While the plan's economic objectives include many effective strategies, like establishing Business Recovery Centers, some likely overstepped the county's role in attempting to fill every gap itself. This update should, in addition to other best practices and lessons learned, focus on providing resources, guidance, and incentives to create an environment where businesses plan for their own unique preparedness and recovery needs. This may include pre-disaster education, fostering private sector networks, streamlining support functions, and facilitating access to external resources.

3.3.2 2040 Comprehensive Plan Coastal Management Element

The Hernando County Comprehensive Plan provides a long-range blueprint for growth management, resource conservation, and community development. As a coastal community, the county is required to adopt a Coastal Management Element to guide coastal resource preservation, steer development patterns in vulnerable coastal areas, preserve coastal community character, and protecting marine resources. Adopted in 2018, this element sets forth policies in the form of Goals and Objectives—these are formal commitments made by the County. Under each Objective are Strategies—these represent methods, tools, or approaches for implementing the policies and, in some instances, identify areas for further exploration or future actions.

3.3.2.1 Coastal Resource Preservation (GOAL 11.01)

Policy Direction: Preserve and protect the ecological integrity of the coastal environment, including wetlands, springs, rivers, estuaries, beaches, bays, and islands.

Key Objectives:

- Limit development impacts in coastal habitats (Objective 11.01A).
- Manage, restore, and preserve coastal resources, including addressing saltwater intrusion (Objective 11.01B).

Key Strategies:

- Establish the coastal zone boundary and regulate development intensity accordingly (Strategy 11.01A(1)-(3)).
- Prohibit harmful activities, such as major water withdrawals and new mining operations, in sensitive coastal areas (Strategies 11.01A(4) & 11.01A(6)).
- Evaluate and consider partnerships for acquisition and restoration of ecologically significant coastal lands (Strategy 11.01B(3)).

These Strategies are implementation tools to support the Objectives and serve as potential actions the County could undertake or refine over time.

3.3.2.2 Coastal Zone Development (GOAL 11.02)

Policy Direction: Direct new population concentrations, vulnerable uses, and major infrastructure away from the **Coastal High Hazard Area (CHHA)** to reduce hazard exposure and manage the fiscal implications of disaster response.

Key Objectives:

- Define and regulate development in the CHHA, maintaining low densities and guiding redevelopment activities (Objective 11.02A).
- Limit public expenditures on new infrastructure within hazard-prone areas (Objective 11.02B).
- Manage transportation corridors in the CHHA to support safe and effective evacuation (Objective 11.02C).
- Mitigate hazards through data-informed strategies and post-disaster redevelopment planning (Objective 11.02D).

Key Strategies:

- Establish the CHHA boundary and restrict residential densities within this area (Strategy 11.02A(1)-(3)).
- Adopt hurricane evacuation clearance times as Levels of Service and identify mitigation measures if proposed development adversely impacts these times (Strategies 11.02A(4)-(6)).
- Implement best practices and regulatory standards to reduce flood risk, repetitive loss properties, and infrastructure vulnerability (Strategies 11.02A(7), 11.02B(1)-(6), 11.02D(1)-(5)).
- Utilize the Post-Disaster Redevelopment Plan (PDRP) as the guiding document for restoration, hazard mitigation, and future building standards after disasters (Strategies 11.02D(6)-(7)).

These Strategies suggest various actions—such as upgrading building codes, identifying flood mitigation projects, and acquiring vulnerable properties—that the County may incorporate to fulfill its policy commitments.

3.3.2.3 Coastal Community Character (GOAL 11.03)

Policy Direction: Preserve the character of coastal communities through land use prioritization, public shoreline access, scenic view protection, and the safeguarding of historic resources.

Key Objectives:

- Protect and promote water-dependent, traditional, and working waterfront uses (Objective 11.03A).
- Acquire and maintain public shoreline access (Objective 11.03B).
- Preserve scenic views and protect archaeological and historic resources (Objective 11.03C).

Key Strategies:

- Develop Specialty Commercial zoning to encourage working waterfronts (Strategy 11.03A(1)).
- Consider public acquisition of certain properties to enhance coastal access (Strategies 11.03B(1)-(2)).
- Review developments for impacts on scenic vistas and historically significant areas and integrate protective measures (Strategies 11.03C(1)-(3)).

These Strategies represent planning and regulatory approaches that can be explored to maintain the cultural, scenic, and historic fabric of coastal communities.

3.3.2.4 Protection of Marine Resources (GOAL 11.04)

Policy Direction: Conserve marine habitats, improve shoreline resilience, restore oyster reefs, develop artificial reefs, support fisheries, maintain navigational access, and protect seagrass and hardbottom habitats.

Key Objectives:

- Develop and update a Strategic Marine Area Plan (S MAP) to guide restoration and resource management activities (Objective 11.04A).

Key Strategies:

- Adopt programs for estuarine shoreline stabilization and oyster reef restoration (Strategies 11.04A(1)-(2)).
- Enhance recreational and commercial fisheries through artificial reef deployments and coordinated management (Strategies 11.04A(3)-(5)).

- Improve vessel navigation, access infrastructure, and educational outreach (Strategies 11.04A(6)-(8)).
- Protect and enhance water quality and habitats by documenting biodiversity and implementing monitoring as provided in the S MAP (Strategies 11.04A(9)-(11)).

These Strategies outline a range of potential marine resource management tools, from habitat restoration to infrastructure improvements and data collection, supporting the underlying policy objective of sustaining a healthy marine environment.

3.3.3 Flood Damage Prevention and Protection Ordinance

The Flood Damage Prevention and Protection Ordinance, adopted in Chapter 13 of the Hernando County Code of Ordinances[6], establishes rules and procedures within Hernando County to minimize flood-related damage to people, property, and the environment. It works alongside the Florida Building Code to ensure that development in areas prone to flooding is planned, constructed, and maintained in a way that reduces the risk of flood damage. Based on FEMA Flood Insurance Studies and Flood Insurance Rate Maps (FIRMs), it aims to protect public health, safety, and welfare; reduce property damage; safeguard natural floodplain functions; maintain tax bases; and maintain eligibility for the National Flood Insurance Program.

A designated **Floodplain Administrator** oversees the administration and enforcement of these regulations. The Floodplain Administrator reviews permit applications, determines flood zone boundaries, requires additional data as needed, ensures compliance, and keeps permanent records of flood-related documents. They also coordinate with the Building Official to ensure building construction in flood hazard areas meets standards.

The degree of flood protection required by Flood Damage Prevention and Protection Ordinance is considered the minimum reasonable for regulatory purpose. Larger floods can and will occur outside of mapped special flood hazard areas. This ordinance does not imply that land, or that uses permitted within such flood hazard areas, will be free from flooding or flood damage. The analysis conducted within the PDRP update aims to provide a broader understanding of the flood risk to specific communities and identify action strategies to reduce their vulnerability.

3.3.3.1 Floodplain Compliance for Different Components of Development:

To demonstrate compliance with the standards below, all development in flood hazard areas requires a floodplain development permit or approval, separate from building permits and zoning approvals. These standards must be at least as stringent the minimum standards set by the Florida Building Code and NFIP. New development in the floodplain must be built to these standards. Existing structures constructed before these criteria were adopted must comply when substantial (50% of structure value) improvements are conducted, or substantial damage is done.

- **Subdivisions:** Must be planned to minimize flood damage, ensure safe utility placement, and provide adequate drainage.
- **Site Improvements and Utilities:** Sewage, water supply, and other utilities must be protected from flood infiltration and damage.

[6] Chapter 13 - FLOOD DAMAGE PREVENTION AND PROTECTION | Code of Ordinances | Hernando County, FL

- **Buildings and Structures:** Must be constructed or retrofitted to meet or exceed flood-resistant standards as per the Florida Building Code and ASCE 24. This includes elevating the lowest floors above base flood elevations and using flood damage-resistant materials.
- **Manufactured Homes and Recreational Vehicles:** Subject to specific anchoring, foundation, and elevation requirements to reduce flood risks.
- **Tanks and Other Development:** Fuel and storage tanks must be anchored or elevated to prevent flotation. Certain non-building elements (such as fences, roads, decks in coastal high hazard areas) must be designed to avoid increasing flood risk.
- **Coastal High Hazard Areas:** Stricter standards apply. Development is more limited, and structures must often be elevated on open foundations to withstand wave action and high-velocity flooding.
- **Essential facilities** (e.g., hospitals, emergency operations centers) should, where possible, be located outside flood hazard areas or be accessible by routes above flood levels.
- Structures exempt from the Florida Building Code (e.g., certain agricultural or utility structures) still need floodplain development permits in flood hazard areas.

Development without proper permits or not following the rules is a violation and stop-work orders and notices of violation can be issued. Violators may face penalties as determined by county enforcement procedures. Variances to these regulations can be granted by the Board of County Commissioners only under strict conditions, ensuring minimal deviation from flood protection standards. Appeals can be made if a property owner disagrees with an interpretation.

3.3.3.2 Design Flood Elevation

Among the most impactful of these standards set by this ordinance is the ***design flood elevation*** (DFE), which is as the minimum elevation for the lowest floor of non-dry-floodproofed structures and critical components of structures and utilities. The ordinance establishes[7] the DFE as the **base flood elevation (BFE) plus one foot** or as specified by ASCE 24[8]—whichever is higher. The BFE is based on the "design flood" (1-percent chance of being equaled or exceeded in any given year) and listed on official flood maps. Like most communities, Hernando County adopts FEMA's FIRM for flood hazard area determinations, although also utilizes local watershed data that can affect development. The county encourages builders to contact the zoning office directly for determination of flood zones and elevation requirements.

Where flood zones are indicated on the FIRM without a specific base flood elevation, the ordinance prescribes methods for establishing or estimating the DFE. This ensures that structures, utilities, and other developments in flood hazard areas are designed and built above anticipated flood levels, reducing the risk of flood damage.

In areas designated as zone AO, the design flood elevation is the elevation of the highest existing grade of the building's perimeter plus the number of feet specified on the flood hazard map. In areas designated as zone AO where the depth number is not specified on the map, the depth number shall be taken as being equal to three (3) feet.

[7] See 13-31(7).

[8] Flood Resistant Design and Construction, American Society of Civil Engineers (ASCE) Standard 24.

ASCE 24 refers to American Society of Civil Engineers (ASCE) Standard 24, specifically the ordinance adopts[9] the version adopted by reference into the Florida Building Code (FBC). These details requirements Flood Resistant Design and Construction.

The relevant FBC language in Section 1612.3 - design flood elevations states:

> *"To establish flood hazard areas, the applicable governing authority shall, by local flood plain management ordinance, adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency.*

Where design flood elevations are not included in the flood hazard areas established in Section 1612.3, or where floodways are not designated, the building official is authorized to require the applicant to:

> *Obtain and reasonably utilize any design flood elevation and floodway data available from a federal, state or other source; or*
>
> *Determine the design flood elevation and/or floodway in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a registered design professional who shall document that the technical methods used reflect currently accepted engineering practice."*

Assessment of this FBC language against the Hernando County Flood Damage Prevention and Protection Ordinance indicates that Hernando County may choose to:

1. Establish flood hazard areas in its floodplain ordinance beyond the minimum of the Special Flood Hazard Areas depicted on FIRM maps.
2. Establish a higher Design Flood Elevation.
3. Require the use of flood elevation and floodway data available from any source.
4. Require the builder to determine the DFE with accepted engineering practices.

3.3.4 Hernando County Building Regulations

Chapter 8 of the Hernando County Code of Ordinances regulates a range of building and construction activities, including specific local amendments that integrate requirements for flood-resistant construction and outline procedures for addressing unsafe structures. These provisions, as found within Article II (Construction Code) and its various divisions, interact with and sometimes augment the Florida Building Code (FBC). Although the county defers broadly to the standards of the FBC, it has incorporated certain technical amendments and additional local requirements. Any local amendment to the FBC must be more stringent than the amended standard per state law. These modifications support post-disaster redevelopment objectives by establishing standards for flood-resistant construction, defining the conditions under which unsafe structures must be repaired or removed, and providing a framework to facilitate recovery efforts following severe weather events or other hazards that may lead to structural damage.

[9] See §13-4.

3.3.4.1 Overview of the Applicable Sections

Within Article II, Division 4 (Florida Building Code) contains the core regulations adopting the FBC and integrating county-specific amendments. The county largely follows the FBC's standards for design loads, structural integrity, and construction materials in flood-prone areas. The FBC prescribes procedures and specifications intended to reduce vulnerability to flooding, including the elevation of structures in flood hazard areas, the use of flood damage-resistant materials, and documentation of compliance with required elevation thresholds. These measures align with post-disaster redevelopment goals by fostering more robust construction practices and reducing long-term recovery costs.

Division 4 specifically addresses flood-resistant construction through the incorporation of Section 8-99, which provides a technical amendment to the residential provisions of the FBC. This amendment refines the requirements for enclosed areas below the design flood elevation, restricting their use to non-habitable purposes (e.g., parking, building access, or storage). This amendment does not fundamentally alter the primary intent of the FBC but rather clarifies and strengthens local adherence to flood resilience principles by limiting the potential for future damage and ensuring that structures in designated flood zones meet the most current resilience standards. By prohibiting finished living spaces and partitions below the design flood elevation, the amendment reduces post-disaster repair needs, contributes to more efficient rebuilding efforts, and maintains consistency with state-level flood-resistant construction protocols.

3.3.4.2 Local Policy Amendments and Their Relationship with the Florida Building Code

Enclosed Areas Below Design Flood Elevation (Section 8-99 referencing R322)

The local amendment restricts the use of enclosed areas below the required elevation to parking, building access, and storage. This directive is consistent with the FBC's overarching goal of mitigating flood damage. This amendment may prevent the creative use of space under elevated structures to include gyms, lounge areas, or small-scale commercial uses.

Breakaway Walls in Coastal High-Hazard Areas

The local provision concerning walls below the design flood elevation requires that non-structural breakaway walls be constructed of materials and connections capable of collapsing under specific flood load conditions without compromising the primary structure.

Unsafe Structures and Post-Disaster Redevelopment Considerations

In Division 6, which adopts and modifies the Standard Unsafe Building Abatement Code, the county provides a legal and procedural mechanism to address structures rendered unsafe due to disaster events. These provisions complement the flood-resistant construction standards by enabling the county to identify, assess, and remediate or remove damaged buildings. While these requirements do not directly change the FBC's technical specifications, they interact with the code's construction standards by offering a framework for post-disaster action. When a storm or flood compromises structural integrity, these measures permit the county to order repairs, rehabilitation, or demolition promptly, thus reducing safety hazards and facilitating more orderly redevelopment in affected communities.

4

Vulnerability Assessment

4.1 Disaster Modeling

Disaster modeling provides a data-driven way to understand the risk of specific disaster outcomes. It complements the qualitative insights from existing documents by offering quantifiable estimates of damage, loss, and vulnerability. Modeling tools such as Hazus, SLOSH, and GIS-based analyses translate hazard inputs and asset inventories into tangible forecasts of potential impacts, facilitating evidence-based decision-making for long-term redevelopment planning.

The core purpose of modeling is to create realistic approximations of what could happen during specific hazard events. Rather than relying solely on historical precedent or general assumptions, these models help identify which neighborhoods, infrastructure systems, or economic sectors may face the greatest risks. With this information, planning teams can prioritize mitigation projects, evacuation route upgrades, plan critical facility retrofits that reduce exposure, improve recovery potential, and enhance redevelopment capacity.

4.1.1 Methodology

4.1.1.1 Programs and Data Used

This vulnerability assessment utilized multiple programs together to conduct a nuanced, cumulative analysis accounting for multiple hazards and outcomes. The methodology integrates hurricane hazard inputs analyzed against social, economic, and environmental vulnerability information for a complete analysis into disaster impacts and redevelopment planning priorities. Parcel-level attributes and land use data, critical facility inventories, infrastructure location files, were analyzed against hazard inputs for surge, rainfall, and sea level rise used in combination with Hazus risk modeling software to estimate hurricane damage exposure. For coastal storm surge analysis, SLOSH outputs define the potential inundation areas under various storm intensities. FEMA Flood Insurance Rate Maps (FIRM) provide baseline flood risk data, additional potential flood risk areas were supplemented into the rainfall component of this analysis but were not determined according to FDEP planning horizon scenarios. Hazus conceptualizes hurricane wind risks with aggregated reporting while pre 1992 effective year-built structures conceptualize a wind risk vulnerability at the parcel level. A complete list of data inputs and analytical tools is contained in documentation below.

Hazus Hurricane Model

The Hazus hurricane model estimates physical and economic damage to buildings due to wind and windborne debris. Hazus projects Hurricane force wind impacts using building attributes such as year built and structural information to estimate uninhabitable structures and displaced households. Quantifying impacted structures translate into estimating displaced populations and shelter requirements. Housing and Economic loss estimations within the HAZUS model originate from the building stock inventory predefined at the National level and is collected at a Census tract level

geography. HAZUS Output report disclaimer: "Results may be improved by using enhanced inventory data."

The HAZUS software is capable of modeling storms representing a range of recurrence intervals and intensities, from more frequent, lower-level events to rare, catastrophic scenarios such as a 1,000-year wind event. By exploring multiple storm intensities, planners can appreciate the spectrum of possible outcomes, identifying both "everyday" vulnerabilities and extreme conditions that could overwhelm local capacity.

Maximum category 5 force event hazard impacts were modeled to present a maximum threat and planning responsibility for a jurisdiction. HAZUS demonstrates peak hurricane force winds impacts on building inventories, calculating damages estimations in dollars as output results.

The HAZUS software was applied to model a 1000-year magnitude Hurricane event directly impacting Hernando County.

The HAZUS Probabilistic Modeling Approach consists of the following:

- HAZUS-MH model results provide wind speeds estimates for the 1,000-year (0.1% annual chance) storm event.
- The storm track was auto generated based on the specific region and the chosen event magnitude.
- The resulting report estimates losses and potential damages. These are representative numbers using standardized data.

SLOSH

SLOSH stands for Sea, Lake, and Overland Surges from Hurricanes. MOM, in this context, stands for Maximum of Maximum Envelope of High Water. A MOM is a composite of the maximum storm surge heights from all simulated hurricanes of a specific category. SLOSH is a NOAA model, and Storm Surge depths and extents for a Category 5 Hurricane was the SLOSH scenario used for this Vulnerability Assessment. The SLOSH hazard presents the highest risk in this Vulnerability Assessment, and rainfall would compound under this SLOSH scenario and sea level rise would further compound (exacerbate) these effects during hurricanes(s) as observed during the 2024 hurricane season.

FEMA Floodplains

The DFIRM Flood plains and Flood zones of December 2024 National Flood Hazard Layer NFHL Florida Data Product ID: NFHL_12_20241220 are the basis for all Flood Hazard Risk used in this Vulnerability Assessment. The FIRM regulates property insurance requirements based on 100- and 500-year floodplain delineations with the flood zone risk classifications contained within them.

FEMA flood zones did not represent cumulative compounding impacts that occur during a hurricane event or the rapid succession of hurricane events observed during the 2024 hurricane season. FDEP planning horizons for water hazard risks attempt to conceptualize these future compounding effects but were not adopted for this Vulnerability Assessment. FIRM depths can be expected to occur at further extents in relation to storm surge and sea level rise during future Hurricane events.

Hydrologic Flow Accumulation Supplementing FEMA FIRM

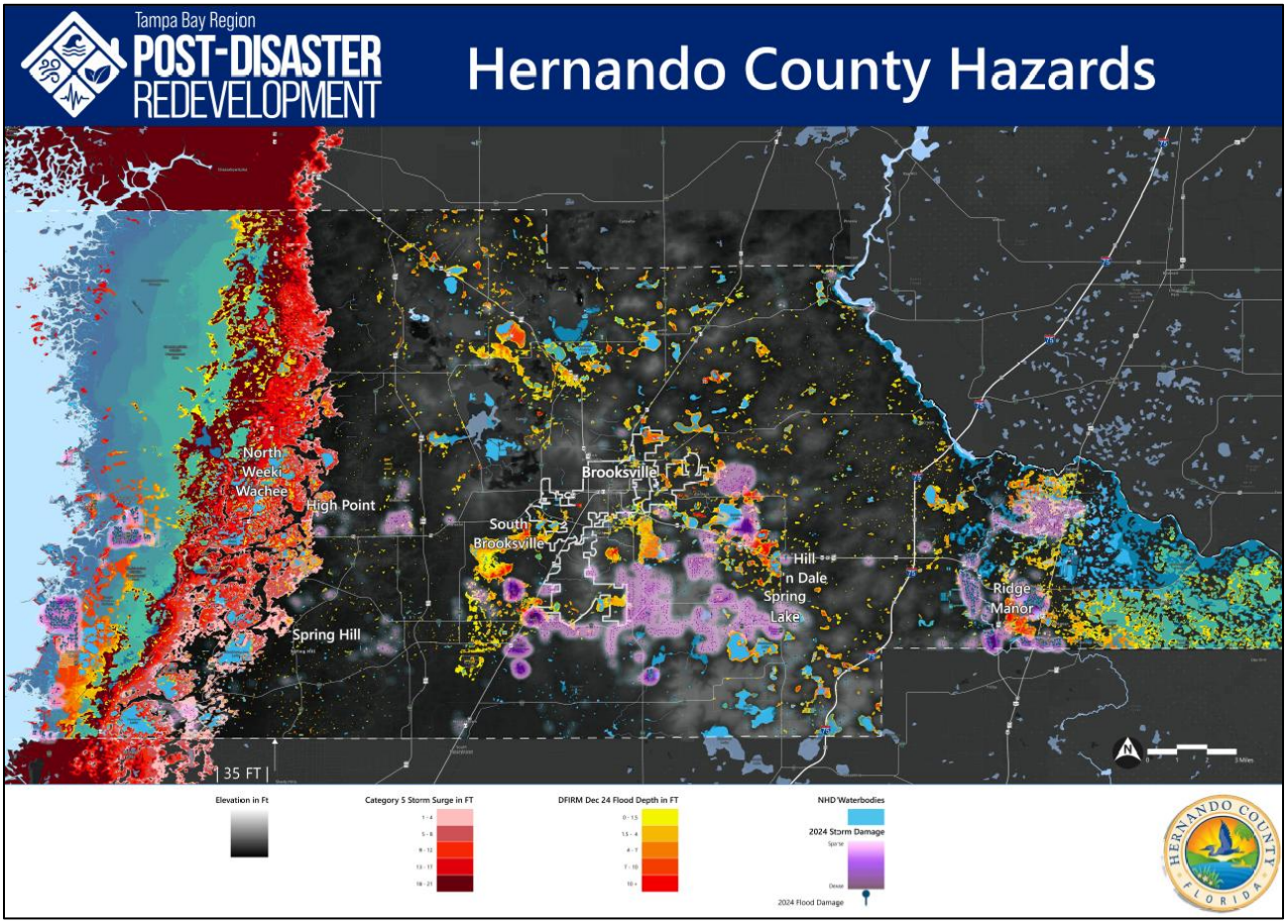
Additional Geographic Information Systems (GIS) analysis was used to compute potential high magnitude hydrologic flow accumulation on the surface of the Earth. Using a digital elevation model, high magnitude flow accumulations were computed to demonstrate where large quantities of water from precipitation events will accumulate first on the surface of the Earth according to a stream order. Absent

the consideration of infiltration dynamics with soils and impervious surfaces. This information was combined with FEMA and SLOSH Flood Risk to comprehensively assess water hazard risks. Consider applying hydrologic models for further detailed study on managing flows in high-risk critical areas. This analysis reveals high risk critical areas; hydrologic behavior within these areas should be studied and scrutinized with an engineering level of detail for building interventions and capital projects.

Hurricane Season 2024 Damage Assessment Integration

In lieu this analysis utilizes a high-level conception of vulnerability assigning a score for each identified hazard at the parcel level. Damage Assessment information from the 2024 Hurricane season was obtained and used to supplement the absence of FDEP scenario calculation. To protect property owner information with damages assessment data, these parcel level results were aggregated to the block group level for analysis with Census Bureau American Community Survey and Longitudinal Employer Household Dynamics Origin Destination Employer Statistics information. Hazard vulnerability with the 2024 Hurricane season damage provides an estimation of empirically impacted areas from the 2024 Hurricane season. Most damage from Hurricane Helene in Hernando County occurred as coastal impacts where high-risk was anticipated.

Figure 4: Hernando County 2024 Hurricane Season Damage Assessment



Critical Facilities

The Vulnerability Assessment results were attached to the Critical Facilities Index (CFI) to be discussed as parcels affected with summarized attributes and block group level demographic information to analyze criticality with physical vulnerability. The analysis calculates the criticality of an asset based on the population and jobs dependency of that asset. A Critical Facilities index was constructed to reflect critical vulnerability risk metrics.

- Infrastructure: Including road networks, electricity systems, and stormwater and wastewater facilities
- Emergency Response: Including fire rescue, emergency medical services, and law enforcement facilities.
- Community Services: Including day cares, social services, and community centers.
- Essential Commerce: Including grocery stores, pharmacies, hotels, and restaurants.

These facilities were overlayed the hazard data alongside property and land use data from the Florida Department of Revenue (FDOR) and the Hernando County Property Appraiser. Attributes of this data include just value, number of structures, and Future Land Use designations. The results describe vulnerability and the criticality of those vulnerabilities considering their location and population dependencies.

4.1.2 Disaster Modeling Results

Modeling results indicate that coastal and low-lying inland areas are at highest risk, with housing units, transportation corridors, and certain critical facilities exposed to potential flooding or severe wind damage. Economic losses tend to cluster in zones of concentrated residential, commercial, or industrial activity. Some areas may show consistent vulnerability across multiple modeled storms.

SLOSH and precipitation analysis offer a higher data resolution for impacts summarized at the parcel level and block group levels. Using high resolution (SLOSH and FEMA) and aggregate (Hazus) methods together, the analysis connects high level regional planning considerations for loss estimations with parcel level water hazard impacts for property and system level interventions. Both approaches are used to convey planning capacity requirements in the event of a disaster. Wind impacts loss estimations were quantified at a jurisdictional scale for management purposes while water hazard impacts were quantified at a parcel level data resolution for infrastructure and criticality planning purposes.

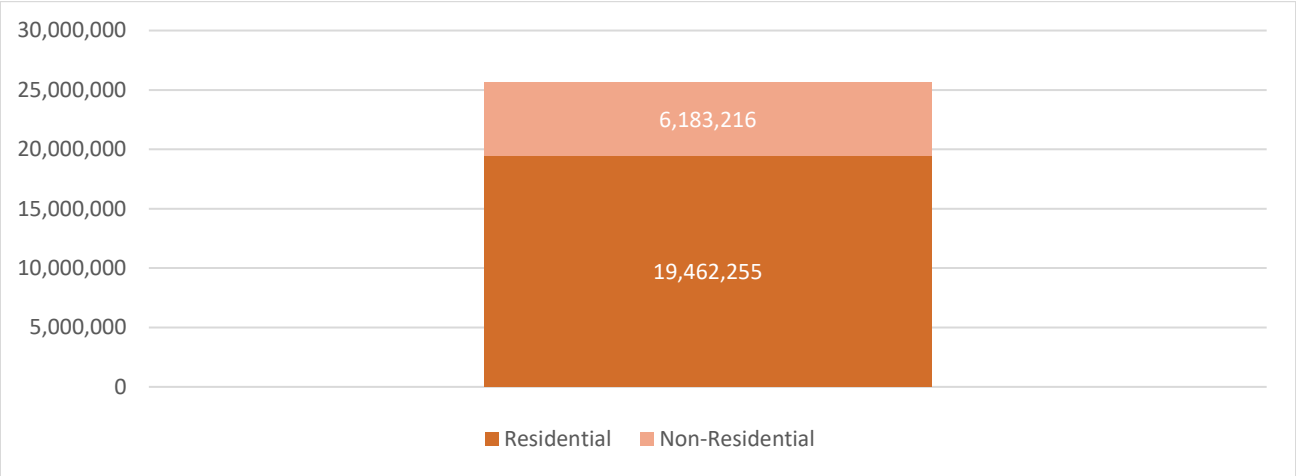
Model outputs should be regarded as best estimates rather than precise predictions. Modeling limitations stem from data quality, assumptions about building construction standards, and the inherent uncertainty of storm tracks and intensities. Despite these limitations, the models remain valuable tools that contribute significantly to understanding overall risk.

4.1.2.1 HAZUS Category 5 Hurricane Impacts

Hazus impacts explain estimated damages in building value. The data inputs for the HAZUS model were the default datasets for all buildings within jurisdiction census tracts. From these buildings, critical facilities are determined in the default HAZUS criteria as: Emergency Operation Centers, Fire Stations, Hospitals, Police Stations, and Schools.

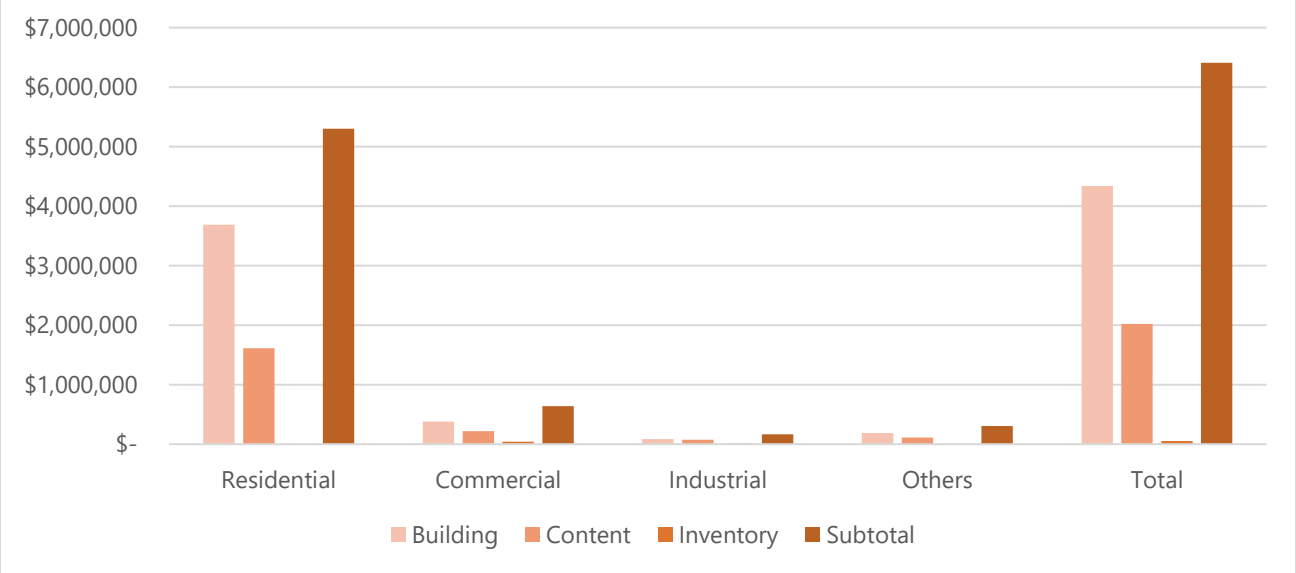
HAZUS also projects debris generation in tons using the input building dataset. Included in the buildings dataset are the building materials and categorizes debris into a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris.

Figure 5: Value of Hernando County Building Stock (In Thousands of dollars)



Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

Figure 6: Hazus estimated property damages by land use



Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

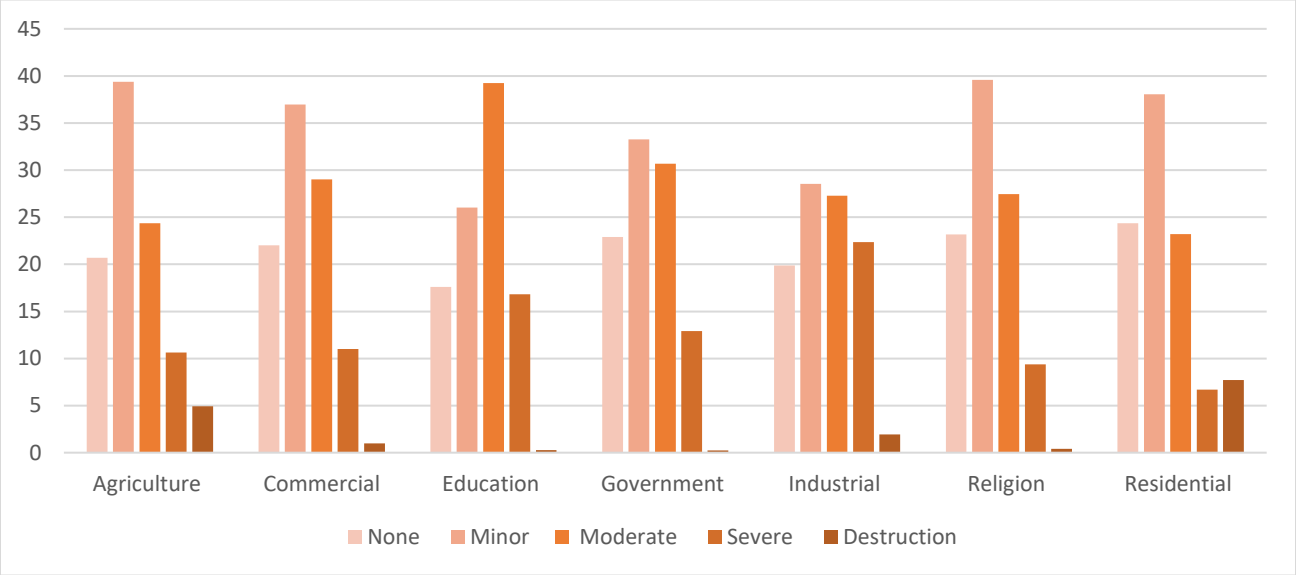
The 1000-year magnitude Category 5 event modeled for Hernando County estimates the highest damage exposure. This exposure corresponds mostly with the frequency of land use types. Residential land uses represent the highest percentage of total exposure at 75.89% and $19,462,255. Commercial Land uses represent the next highest category at 15.28% and $3,918,226. In order, the subsequent highest exposure land uses are Education (4% and $1,054,026), Industrial, Agricultural, Religious, and Government. Educational facilities would ordinarily serve as potential shelter locations, but some of them would be vulnerable to compromised structural integrity during a maximized hurricane wind gust event.

Building Stock Loss Estimations

HAZUS reports structures unable to withstand maximum event winds reporting quantities of housing units impacted as well as building assessed values. Results may be interpreted as specific housing damage estimates, such as the proportion of structures likely to experience substantial roof damage or flooding above first-floor elevations.

HAZUS presents residential housing stock losses at a jurisdictional level based on modeled wind impacts to residential structures. The HAZUS 1000-year event model estimates approximately 33,904 buildings in Hernando County will be at least moderately damaged, equivalent to 38% of total Hernando buildings.

Figure 7: Expected Building Damage by Land Use



Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

All land use categories are anticipated to incur approximately up to 40% of that land use category with impacts at varying levels of destruction. Residential land uses, being the most abundant in most general cases, will experience the most destruction, while other land uses could experience more moderate and severe damage. Education and Government facilities estimated to receive moderate to severe destruction should be additionally evaluated for site specific hazard mitigation options.

Table 4-1: Hazus Hurricane projected damage by Building Occupancy (Land Use)

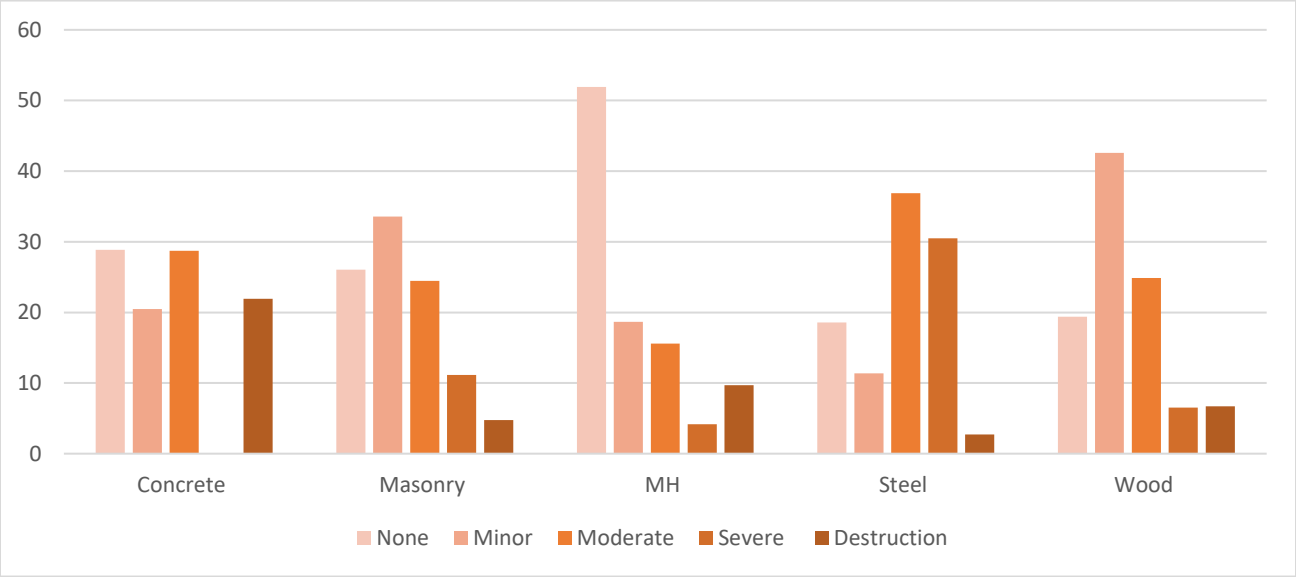
	None		Minor		Moderate		Severe		Destruction	
Occupancy	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	28	21	53	39	33	24.37	14	11	7	4.9
Commercial	779	22	1,310	37	1,028	29.02	391	11	35	1
Education	13	18	19	26	29	39.26	12	17	0	0.3
Government	25	23	36	33	33	30.68	14	13	0	0.3
Industrial	159	20	229	29	218	27.28	179	22	16	2
Religion	47	23	80	40	55	27.44	19	9.4	1	0.4
Residential	20,628	24	32,208	38	19,639	23.2	5,663	6.7	6,517	7.7

Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

The model estimates that a total of 1,619,951 tons of debris will be generated. Of the total amount, 827,134 tons (51%) is Other Tree Debris. Of the remaining 792,817 tons, Brick/Wood comprises 72% of the total.

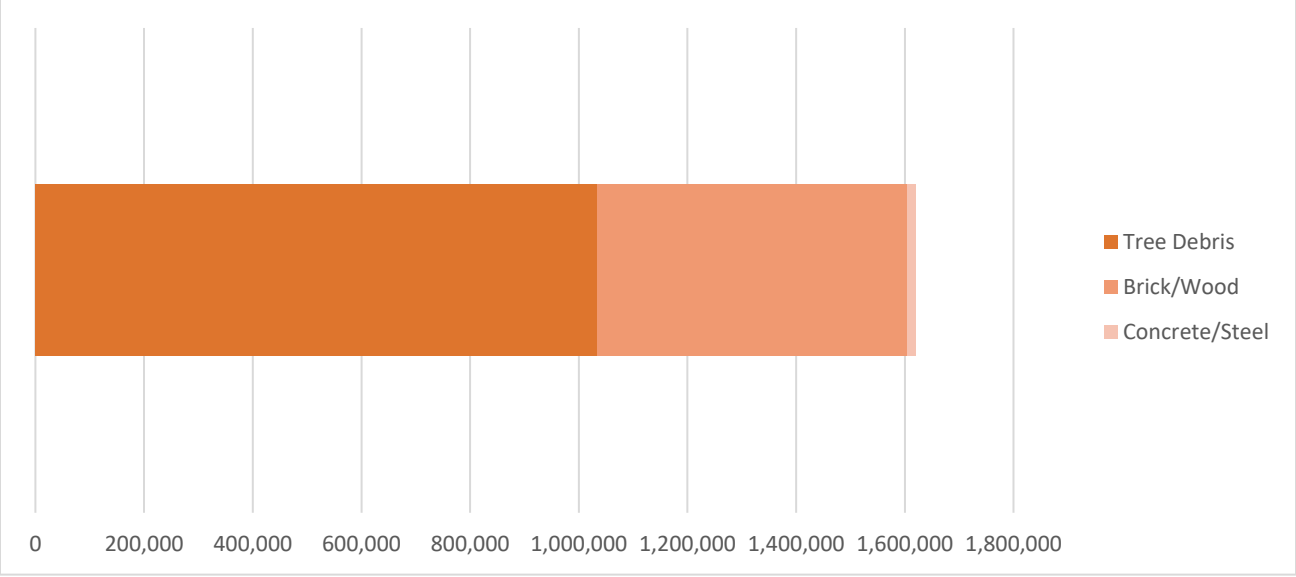
Reinforced Concrete/Steel comprises 2% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 23,435 truckloads (at 25 tons/truck) to remove the building debris generated by the hurricane.

Figure 8 Estimated Building Damage by Building Material Type



Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

Figure 9: Hazus Category 5 estimated Debris Generation in Tons

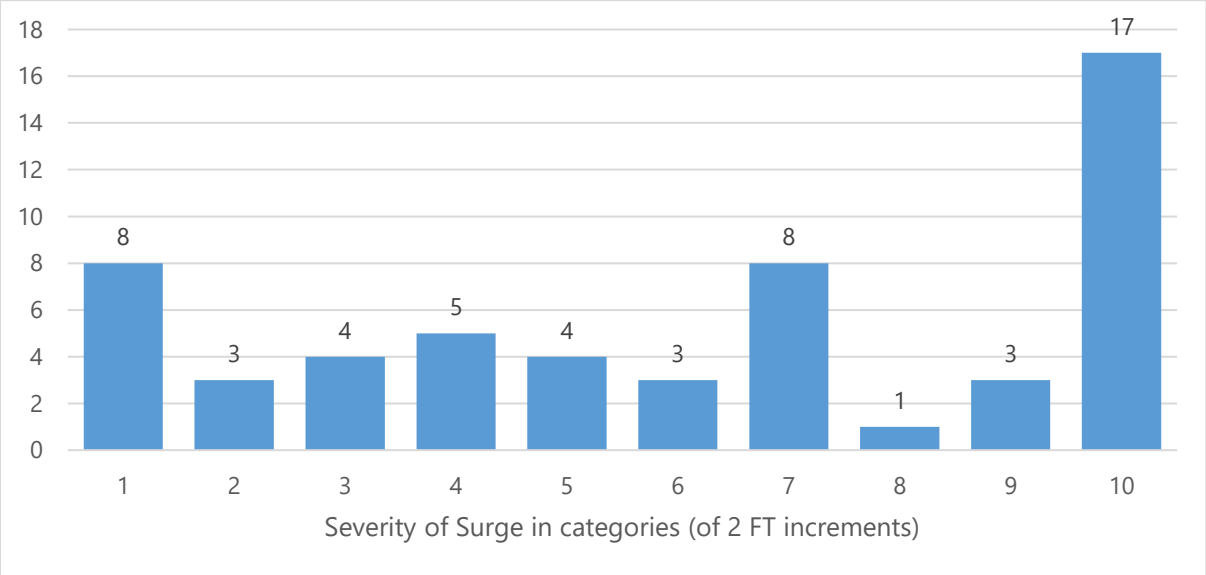


Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

4.1.2.2 SLOSH Category 5 Surge Impacts

The SLOSH Model raster output for a Category 5 Hurricane Surge Scenario was converted into a polygon format to interrelate with parcel level data. Critical facility point data was attached to parcels to be summarized along with building and taxable value attributes. The data points reported convey damage impacts in dollars based on the building and parcel taxable value fields. Existing land use and future land use attributes were also summarized for results to understand vulnerability and to direct redevelopment priorities. Nonresidential parcel criticality determined by the economic dependency in the form of jobs facilitated at that location (using the LEHD LODES jobs dataset).

Figure 10: Critical Facility Functions by Category 5 Surge Impacts



Infrastructure datasets were also integrated for SLOSH impact summaries. Criticality for these infrastructure datasets were quantified according to dependent population and each features' relationship to critical parcels.

4.1.2.3 FEMA Floodplain Impacts

Parcels were intersected with FEMA Floodplain polygons to determine parcels impacted by 1% and 2% annual flood events. Integrating with the Hazus Hurricane model which was parameterized at a 1000-year event level, floodplain impacts at the 100 and 500-year levels will be impacted first during a 1000-year magnitude event.

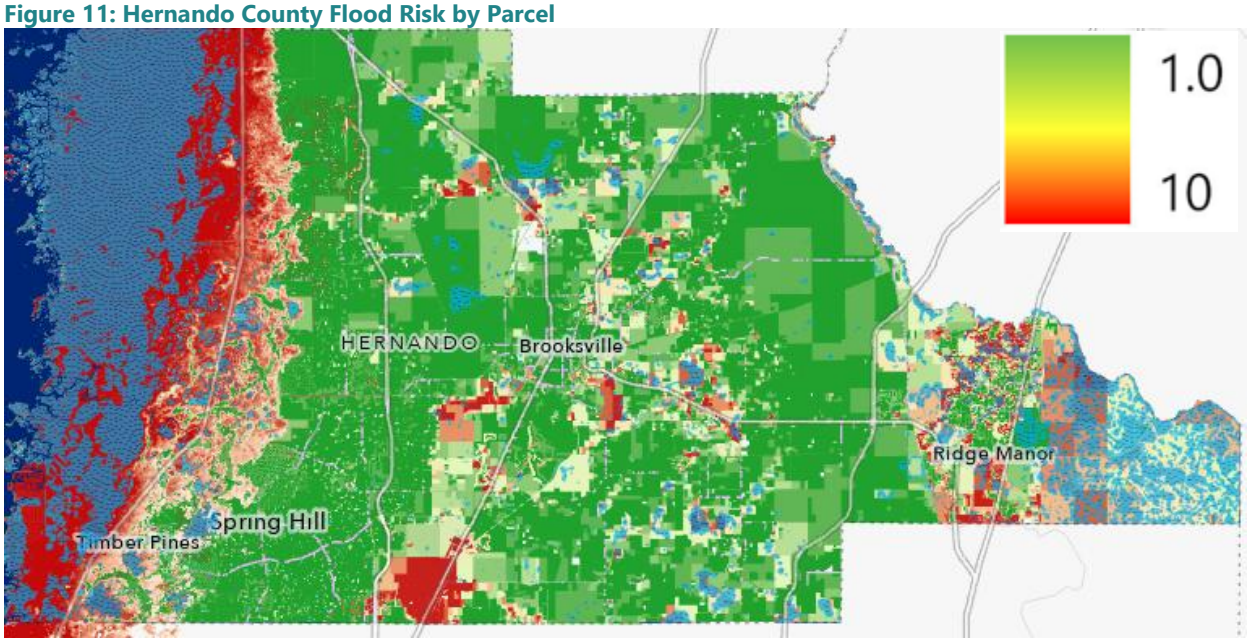
FEMA floodplain geographic attributes were then summarized against the affected parcels to quantify the amount of surface area estimated to be affected by precipitation - absent runoff or infiltration calculations. The amount of parcel surface area that is within the flood plain provides a flood impact that could occur on any given parcel. This understanding of rainfall risk with SLOSH risk, while not presented as compounding quantities, estimate double the vulnerability within the extents of these hazards.

Quantifying Flood Risk Beyond Designated Flood Plains

FEMA delineates Flood Insurance Rate Maps (FIRM) accounting Base Flood Elevations (BFE) from rainfall. Rainfall accumulates as stormwater flowing into drainages of the Earth, delineating flood plains where accumulation exceeds the rate of draining. Storm events pressure the rate at which water can drain into the Earth, creating conditions for surface flooding. Flood Zone X and areas not included in the FEMA FIRM studies still realize impacts from compounding hurricane effects. Watershed Management Plans (WMPs) include further studies of high magnitude water flows that could present vulnerabilities requiring mitigation.

Critical facilities near these large flows could be vulnerable during storm events and worsen as basins fill with water prior to additional rainfall as observed during the 2024 hurricane season. Potential Flood hazard locations were identified in addition to FEMA DFIRM delineations to capture compounding impacts outside extent of existing DFIRM risk. Many, but not all of these potential risk locations, are consistent with empirical damages from the 2024 hurricane season. These additional hazard locations should be studied and reviewed further with stormwater engineering personnel to integrate Interconnected Pond and Channel Routing (ICPR) and GIS workflows for improved watershed plan updates.

Figure 11: Hernando County Flood Risk by Parcel



Source: FEMA Floodplain enhanced method for identifying potential inundation flood risk. Flow accumulation raster surface generated and reclassified against thresholds of contributing flows from upstream locations. Method supplemented to NFHL Florida Data Product ID: NFHL_12_20241220.

Flood Hazard and Risk Reduction projects are recommended to correspond with red locations depicted above. Prioritizing the red areas' mitigations according to community economic priorities and capacity building initiatives is a recommended method for responding to the vulnerabilities quantified in this report. Site and system level interventions are recommended to be programmed into upcoming funding cycles and subsequent budget updates. Green Infrastructure evaluated and applied at these locations to be programmed into the Capital Improvements Plan (CIP) is recommended to mitigate the flood hazards at these potential flood risk locations. If flooding were to occur, it may occur in red locations first before other areas realized severe impacts.

4.1.2.4 Key Takeaways from Modeling

Hernando County has coastal vulnerabilities consistent with other hazardous coastlines in the state of Florida but to a lesser extent due to elevation, conservation buffering, and the location of population density in the county. In addition to hurricane force gusts, inland and coastal flooding poses the highest risk to life. During the 2024 hurricane season, inland areas outside of FEMA floodplain designations also experienced flooding, incapacitating roads and damaging households. These areas contained development that precede the 1992-1994 updated Florida Building Code but are also located near higher-order stream flows and flow accumulation that eventually becomes the floodplain. Housing in areas vulnerable to this water accumulation are also at a risk level not yet quantified in the FEMA 100 and 500-year floodplains or FIRM.

Hernando County's vulnerabilities are discussed in terms of criticality of facilities and infrastructure as resource provisions that become jeopardized during hazard events.

Hernando County Vulnerabilities:

1. **Coastal** – Vulnerable to sea level rise in the long term and storm surge up to 21 feet in the short term in the case of a maximum magnitude event.
2. **Inner Eastern Floodplain Areas** – Vulnerable due to riverine and high order stream flows transporting water through these lower depression elevation areas delineating FEMA floodplains as well as areas of additional floodplains.
3. **Green Swamp Adjacent Development –** The Ridge Manor community will experience flooding that will be exacerbated by severe rainfall events during the warm seasons. The natural environmental features surrounding development direct water to the Green Swamp for draining and at times will impact and inundate properties within these flows.

Spring Hill and Brooksville population centers contain less vulnerability comparatively to where floodplains, elevation, and high magnitude flows converge to endanger development. Most of the population resides in the Spring Hill coastal adjacent area.

The quantities of impacts to infrastructure systems, housing, economic capacity, and populations are discussed in detail.

4.2 Cumulative Assessment of Vulnerabilities

This section discusses the vulnerability of community sectors— Critical Facilities, Infrastructure, Housing, Economy, and Social Demographics—integrating both document review and modeling results. The objective is to present a multi-dimensional view of vulnerabilities that, taken together, shape Hernando County's long-term redevelopment needs. Understanding these vulnerabilities helps guide investments and policy reforms that build resilience and support a more sustainable recovery environment. The vulnerabilities analyzed considered potential flood risk, storm surge, and Category 5 Hurricane force gusts.

The American Community Survey (ACS) and LODES data were used to **analyze socioeconomic vulnerabilities** with physical hazard vulnerabilities. Population and jobs at a block group level summarize where dependency is high; combining this with where household level redevelopment capacity is low, synthesizes the greatest level of risk. Interrelating the ability of these populations to mitigate the physical hazards that affect them at a parcel level offers a more complete understanding of redevelopment priorities.

The Vulnerability Assessment pinpoints the community's most at-risk places and assets. Its analysis followed three main steps:

1. **Quantify Vulnerability**

- Flood-related hazards were mapped parcel-by-parcel. Using an enhanced FEMA method that traces how water accumulates on the landscape, the team predicted where floodwaters—whether from storm surge, rainfall, or compound events—are likely to arrive first and how deep they might be.
- Wind vulnerability was noted for buildings constructed before the 1992–1994 Florida Building Code update.
- For water hazards, results summarize the portion of each parcel exposed and expected depths of surge or precipitation.
- For a direct Category 5 hurricane, every building in the study area would experience hurricane-force winds. Aggregate dollar-loss estimates capture both physical damage and business interruption.

2. **Index Criticality**

- Assets and community resources were ranked by how essential they are, considering their function, the number of people they serve, and the jobs that depend on them.

3. **Index Prioritization**

- Finally, hazards and critical assets were prioritized using the same probability, impact, extent, and duration criteria found in the County's Local Mitigation Strategy and Capital Improvements Plan. The resulting priorities reflect both the document review and the analytical findings, guiding decisions on which vulnerable areas and facilities require action first.

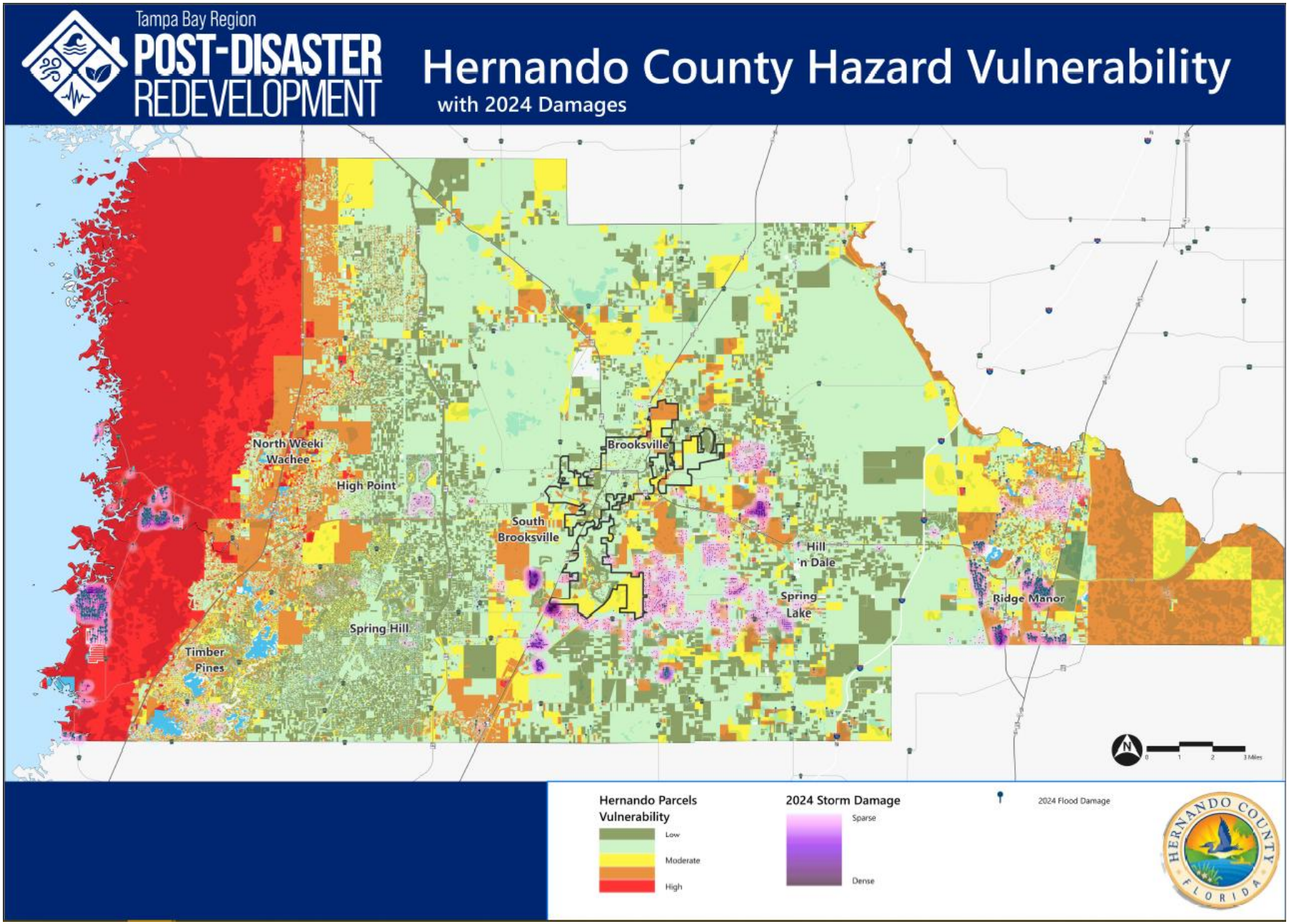
The cumulative assessment of hazards reflects hazard factor analysis where a vulnerability score was computed based on the amounting interaction of hazard factors. The score is comprised of:

Table 4-2: Vulnerability Metric Calculation of Factors

Hazard Factor	Score Scale
Storm Surge (NOAA Category 5 model broken into 2 ft depth increments as score categories)	1-10
Sea Level Rise (Binary factor to determine if parcel will have a SLR interaction in the future sourced from NOAA's 10 FT projection)	Binary (0 or 10)
Rainfall (FEMA Floodplains as percentage of parcel land area)	1-10
Wind Risk (FDOR Attribute effective year built pre-1992)	Binary (0 or 10)
2024 Hurricane Damage Assessment recorded (reflects all impacts)	Binary (0 or 10)

The maximum possible vulnerability score from this metric is 50.

Figure 12: Hernando County Hazard Vulnerability by Parcel (with 2024 Hurricane Season Damages)

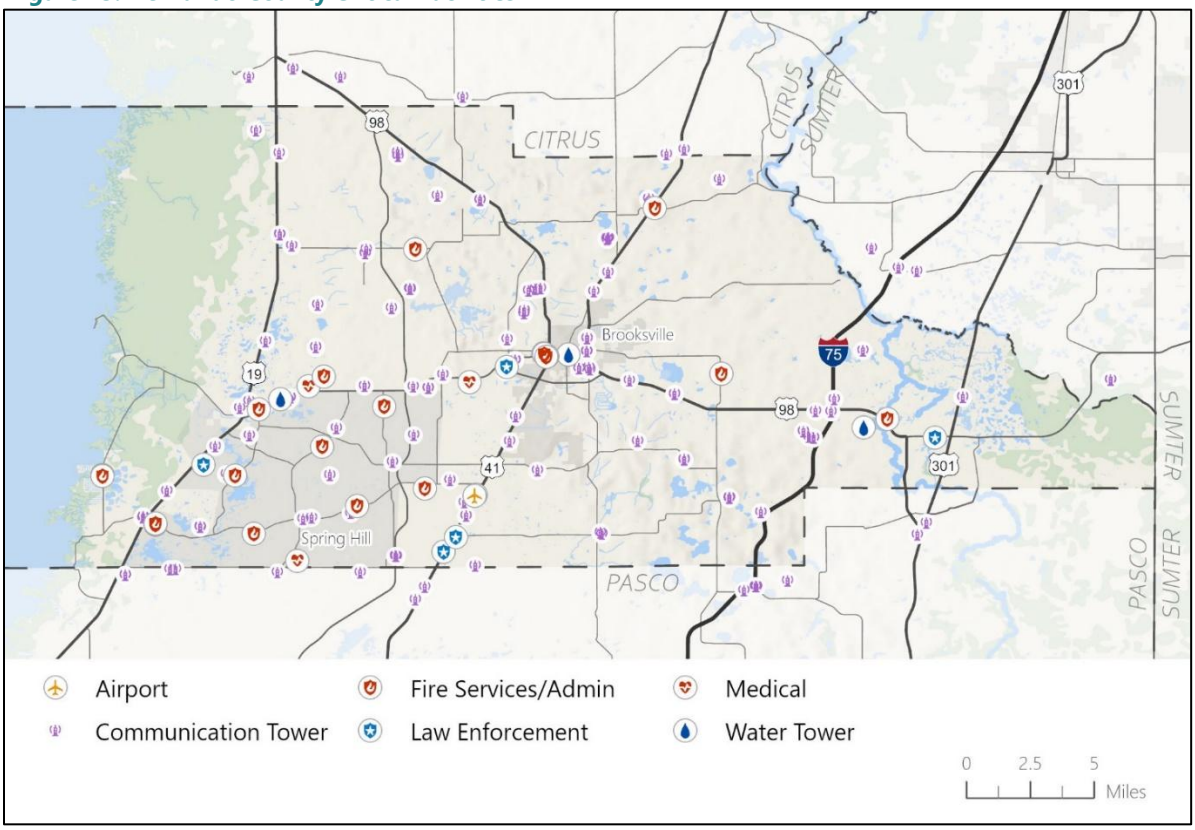


4.2.1 Critical Facilities

In addition to the Statewide FDEP CFI, Hernando County is tracking 291 Critical Facilities locally. The Critical Facility Index managed by Hernando County represents all the facilities deemed critical for operations and administration of essential governmental services. A Critical Facilities Index combining the State and local Critical Facilities Index was built and assessed for rainfall and storm surge inundation risk, and projected hurricane force gusts generated by a Category 5 Hurricane event. The facilities portion of the index includes:

- Healthcare Facilities (Including AHCA licensed facilities, Medical Assets, and Hospitals)
- Debris Staging Areas
- Logistical Staging Areas
- Communications Towers
- Fire Services
- Law Enforcement
- Host and Evacuation Shelters
- Points of Distribution

Figure 13: Hernando County Critical Facilities



Approximately 13 non-tower critical facilities (considered by the County) are in high categories of flood risk. These on a site-by-site basis may require a flood hazard reduction project. Project funds should pursue systemic approach for water flowing through ponding designs intended through catchment areas

and plan for those water volumes returning to ecosystem. Redevelopment should maintain the objective to prevent surface hazard impact to a property and reduce the risk and liability in doing so.

Figure 14: Disaster Specific Local Critical Facilities

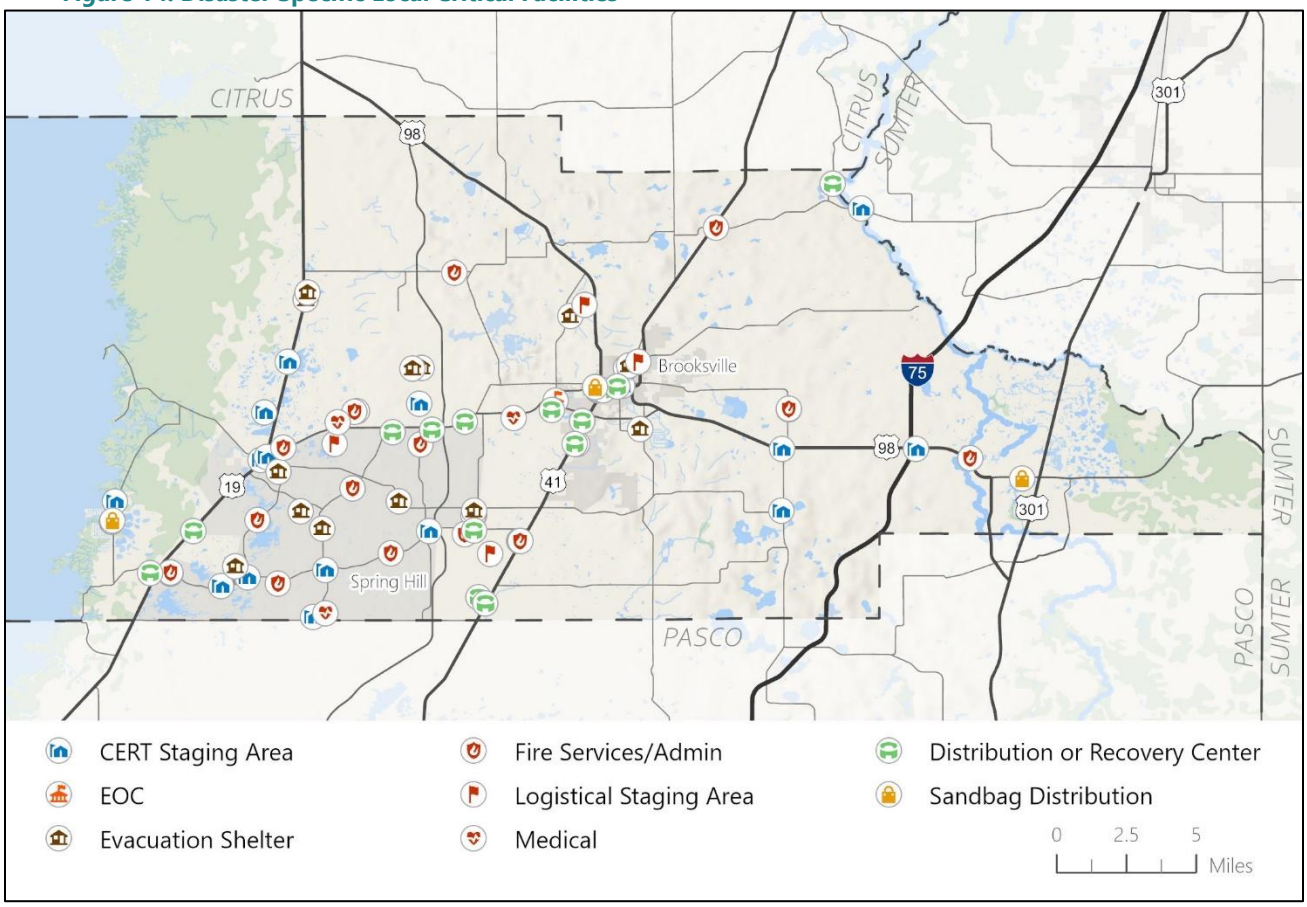
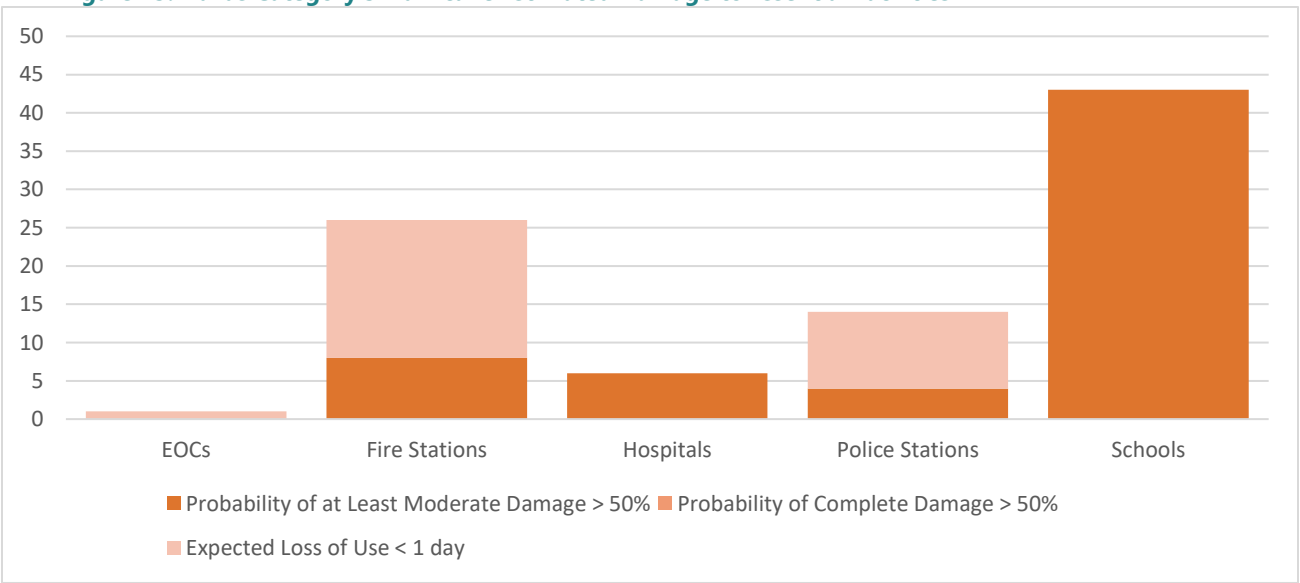


Figure 15: Hazus Category 5 Hurricane Estimated Damage to Essential Facilities



Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

4.2.1.1 Community Facilities

Additional datasets for Community Facilities were acquired to assess Hernando County capacity: Hospitals, emergency shelters, waste treatment plants, water supply systems, and essential government buildings form the basis of community function, especially after a disaster. Existing plans highlight the vulnerabilities of critical facilities, noting that even short service interruptions can magnify human suffering and slow recovery across all sectors. Addressing these vulnerabilities may involve physical retrofits, backup power systems, or the strategic relocation of some facilities to safer areas.

Critical Facilities were identified through an inventory of community resources. These include:

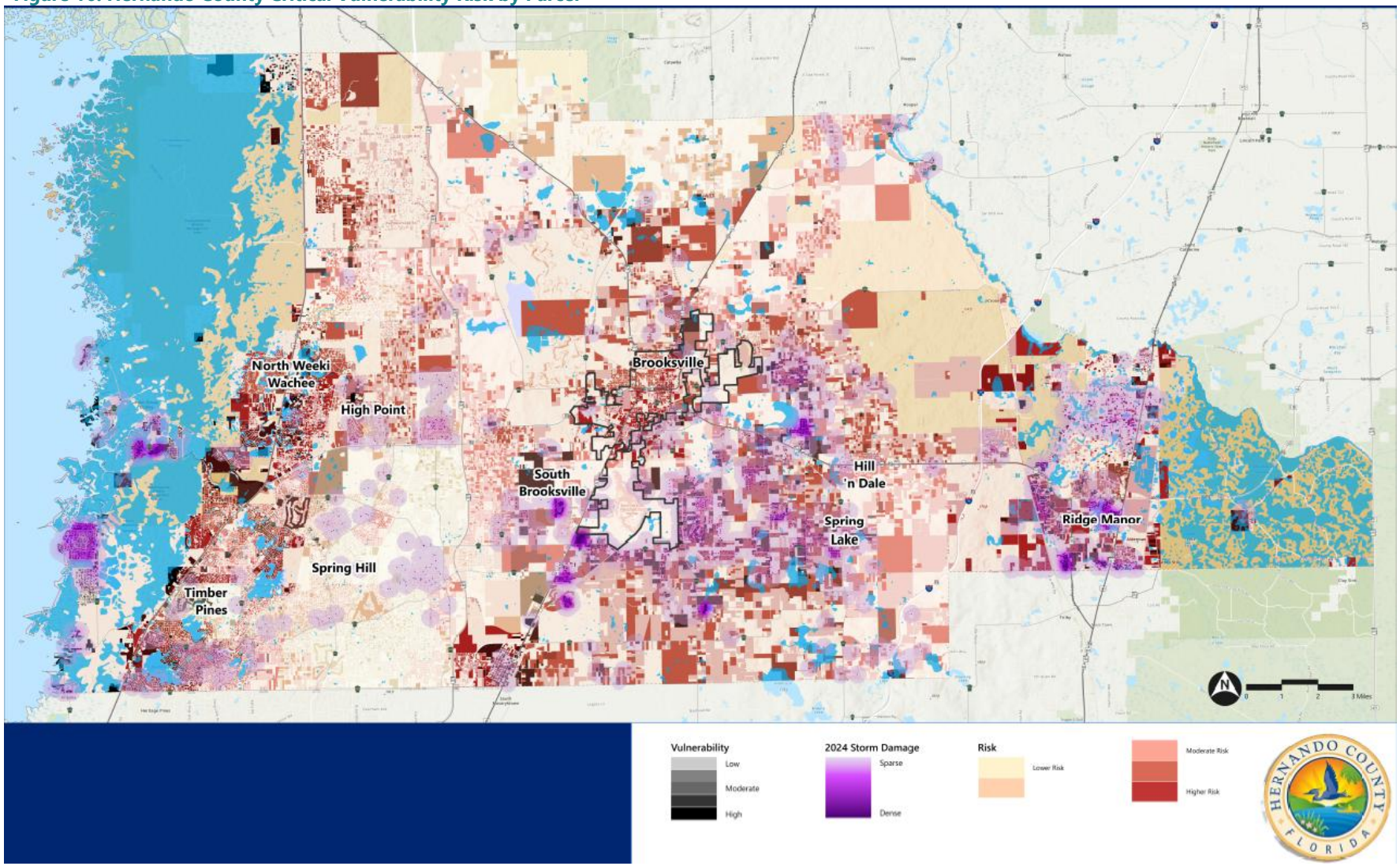
- Educational Facilities
- Medical Assets and Health Care Facilities
  - Hospitals
  - Emergency Medical Service Facilities
  - AHCA Certified Facilities
- Community Services
  - Day Care Facilities
  - Social Services
  - Community Centers
- Hotels
- Affordable Housing
- Businesses
- Distribution Points & Logistical Staging Areas
- Law Enforcement Facilities
- Government Facilities
- Disaster Recovery Centers
- Fire Stations

Table 4-3 Critical Facilities Threatened by Hazard

Hazard	Educational Facilities	Community Services	Health and Medical Assets	Affordable Housing	Hotels	Hernando CFI Businesses
Surge	10 of 76	24 of 121	156 of 433	6 of 29	29 of 86	328 of 1,087
Rainfall	9 of 76	6 of 121	8 of 433	1 of 29	13 of 86	81 of 1,087

Hazard	Government Facilities	Disaster Recovery Centers	Distribution & Staging Areas	Law Enforcement Facilities	Fire Stations
Surge	10 of 59	2 of 4	13 of 46	4 of 14	7 of 20
Rainfall	2 of 59	1 of 4	7 of 46	6 of 14	6 of 20

Figure 16: Hernando County Critical Vulnerability Risk by Parcel

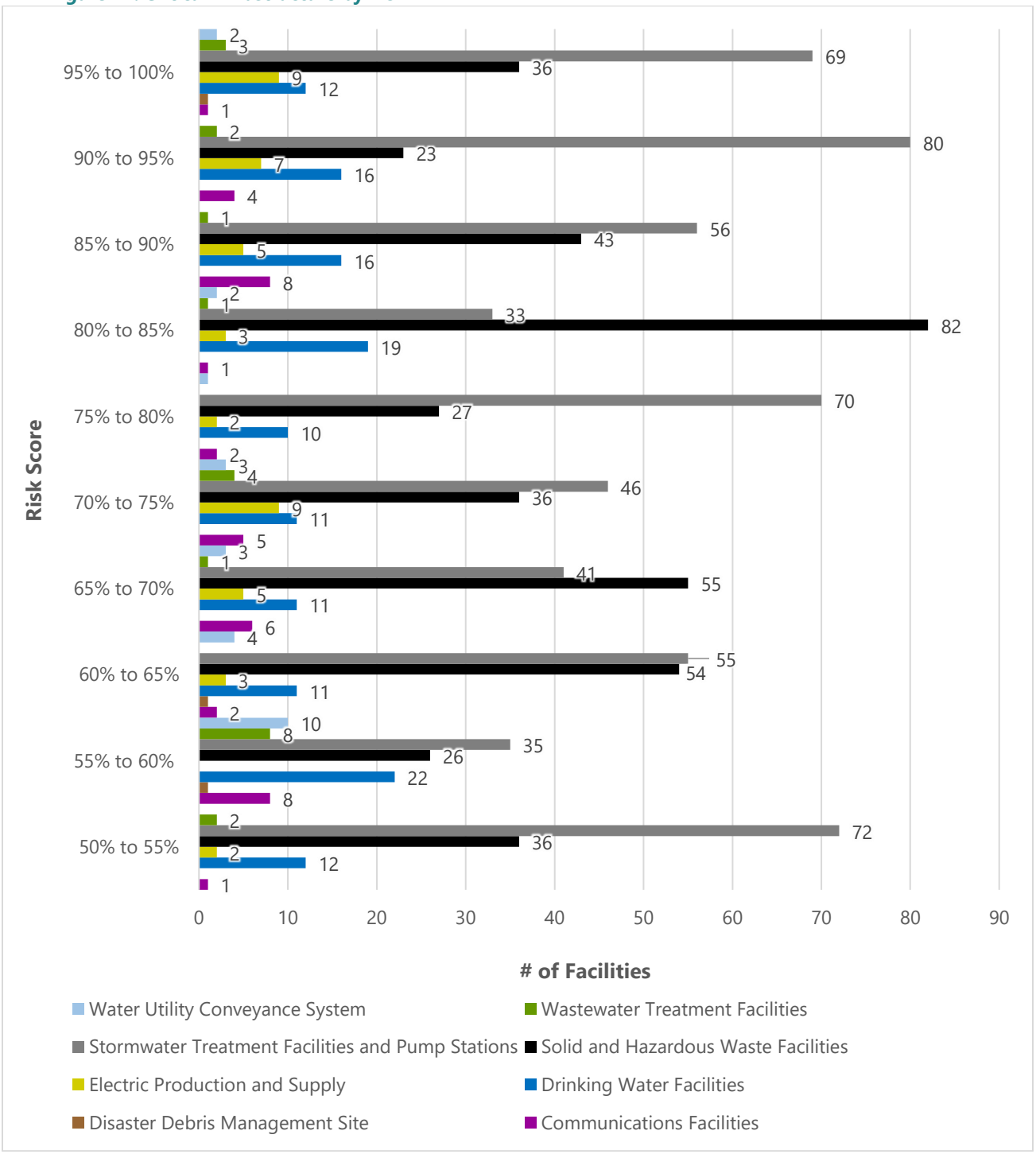


Parcel vulnerability visualized with block group criticality reveals areas at risk that could be considered for mitigation and adaptation in post disaster redevelopment strategies. Red and dark areas on the map above show these vulnerable and critical locations. Red areas are critical due to high population, jobs, and low household redevelopment capacity as median household income. Darker red and black areas are the most physically vulnerable.

4.2.1.2 Critical Facilities Index

A Critical Facilities index was constructed to reflect critical vulnerability risk metrics where criticality reflects the population, jobs, and median household income of a block group. This criticality metric was then multiplied by the parcel resolution vulnerability metric averaged to parcels within 1000 feet of any given asset to derive a risk score. The Critical Facilities Index was tabulated and visualized by Criticality Vulnerability and Risk. Additional data regarding critical facilities and their respective risks can be found in **Appendix D.**

Figure 17: Critical Infrastructure by Risk



4.2.1.3 Key Critical and Community Facility Vulnerabilities

Healthcare & Medical Asset Vulnerability

Healthcare remains a vital service, even at times of hazard, individuals always need them for the purpose of receiving treatments, surgical procedures, medical emergencies, or a casual visit to a clinic. With 433 medical facilities across the county, there are a total of 164 healthcare facilities and medical assets that are vulnerable to either storm surge or rainfall hazards, with 156 of them being under storm surge risk. The Oak Hill hospital in West Brooksville is the most vulnerable to a storm surge hazard, realizing depths at the facility up to 18 feet. This facility is also vulnerable to ponding according to the 100-year flood plain which may present site specific mitigation considerations. There are approximately 21 health care facilities that are storm surge vulnerable, 14 of which being assisted living facilities. Within the vulnerable impacts there are 78 medical doctor centers and 4 surgical centers that may need fortification or temporary relocation for continuity of services. The Ridge Manor Medical Clinic at 34498 Cortez Blvd. will be a critical clinic to service vulnerable areas in Eastern Hernando County. Hernando County is tracking Medical Assets locally as well, 51 of 316 or 16% are vulnerable medical assets.

There are 8 facilities that are vulnerable to rainfall hazards. The data has also indicated that there is a high chance of a 100-year rainfall-induced flood risk occurring. The Spring Hill Fire Rescue district at 3444 Bob Hartung CT, Spring Hill, 34606 could have its accessibility jeopardized via portions of Forest Oaks Blvd and County Road 589, impeding its ability to operate rescue. This is a pressured facility that may need other rescue assets to assist or increase the ability to navigate through depths of inundation. In the scenario in which either of these hazards occur, it is best to temporarily relocate doctors, patients, to healthcare facilities that are not vulnerable, these facilities will help provide individuals with the adequate care that they need during a rainfall or storm surge event.

Schools

Schools and other educational facilities are essential for helping shape the future generations of Hernando County through the facilitation of learning. Of the 76 educational facilities in the county, there are 19 educational facilities that fall under a hazard vulnerability risk in Hernando County; 10 of them are at a vulnerability risk for storm surge. Pasco Hernando State College is a higher education facility that could normally operate as a multifunctional service center despite being surrounded by vulnerable properties. Weeki Wachee High School has the highest vulnerability to storm surge. Hernando High School has the highest vulnerability to a 500-year floodplain risk. Estimated 9 of the 26 Hernando County schools are vulnerable to a damaging flood risk, which is defined as areas where more than half of the property is within a flood plain or elevation where water could accumulate in that location. There are 8 public schools that could face potential flood vulnerabilities, 5 of them being in Western Spring Hill: Winding Waters School (K-8), Weeki Wachee High School, Fox Chapel Middle School, Westside Elementary School, Explorer K-8 School, Gulf Coast Academy of Science and Technology, Deltona Elementary School. Brooksville Engineering, Science and Technology (B.E.S.T.) Academy is less vulnerable comparatively but could be a beneficial location to fortify operability. Though, while some educational facilities that are vulnerable to storm surge are less vulnerable than other educational facilities, it may be beneficial to temporarily cease operations and move students towards virtual learning during a storm surge event.

There are 9 educational facilities that could experience inundation during heavy storms. Those that are not within either a flood or a storm surge area can be used as public shelters for individuals seeking temporary refuge from such an event.

Fire Departments and Rescue Stations

Fire departments and rescue stations play an essential role in the community as they serve the public to protect against any emergencies and other hazards. There are a total of 20 fire and rescue stations across the county. Of those 20 fire stations, there are 8 fire and rescue stations that are vulnerable to either storm surge or rainfall risk. There are 5 vulnerable fire stations that fall under storm surge vulnerability risk. Hernando County Fire Department and Rescue Station 6 and 15 in Hernando Beach are the most vulnerable fire stations in the County with maximum surge risks up to 21 feet in a Category 5 event. Fire Station 1 is also storm surge vulnerable. Hernando County Fire Department and Rescue Station 12 in Brooksville, 11 in Spring Hill, and the Tri County Volunteer Fire Department Station 91 are also vulnerable to a flood risk approaching 50% of the properties.

There are 3 fire and rescue stations that are at risk for a rainfall-induced flooding event. To ensure that public safety is addressed during the duration of a hazard event, fire and rescue stations should harden their facilities to maintain normal function (Ch. 5 Sec. 1.7).

Law Enforcement Facilities

Law enforcement facilities play an essential role in ensuring public safety for those living in a community. Across Hernando County, there are 14 law enforcement facilities, which include police stations and correctional facilities. There are 10 that could be impacted by flooding during successions of heavy rainfall events, 4 of these facilities are at risk of storm surge. During a storm surge, personnel and equipment can be temporarily relocated to alternative facilities that are not at vulnerable to inundation entry. There are 3 Hernando Sherrif's Office Substations that could be impacted by flood hazards, the Eastside station was damaged during the 2024 season.

Government Facilities

The Port Authority Office is the most vulnerable government facility and was damaged in the 2024 season. Out of 59 total there are 27 Government Facilities in Hernando County that are vulnerable to hazard exposure, excluding parks, there are 12 government operations that are vulnerable to flooding, 10 of them being storm surge vulnerable. The East Hernando Branch Library and the Brooksville Regional airport are noted to have rain inundations which are mitigatable. Storm surge vulnerable facilities should seek continuity of operations in less vulnerable locations of the County while maintaining service thresholds and the underserved.

Table 4-2: Surge Vulnerable Government Facilities

Government Facility Name	Address	Surge Depth in Ft
Port Authority Office	6340 Shoal Line Blvd.	21
West Hernando Library Branch	6335 Blackbird Ave.	16
Hernando County Health Dept.	7551 Forest Oaks Blvd.	8
Hernando County Veteran Services	7479 Forest Oaks Blvd.	4
Spring Hill Post Office	8501 Philatelic Dr.	3
Utilities Department	7405 Forest Oaks Blvd.	4
Hernando County Tax Collector	7489 Forest Oaks Blvd.	4
Sheriff's Office Substation	7499 Forest Oaks Blvd.	4
Hernando County Supervisor of Elections	7443 Forest Oaks Blvd.	4
Hernando County Property Appraiser	7525 Forest Oaks Blvd.	4

Hotels

Hotels in a disaster can supplement as shelter as observed in past hurricane seasons. Many hotels will experience some level of inoperability during a disaster limiting the supply of hotels facilities that may act as temporary housing shelters. There are 29 hotels in Hernando County that will be inoperable during a storm surge event, sending this shelter defecit to be made up in less vulnerable and more inland locations. The hotels in potential flood areas estimate temporary disruption for shelter accomodation. Hotels that are able to maintain operations through a disaster will have a level of pressure to accommodate displaced populations and households in combination with shelter facilities. The extent this pressure can be shared amongst the County's official shelter program, temporary housing assistance, and the commercial hotel system, will determine the efficiency of resolving case management of the estimated number of displaced households and populations.

Community Services

Community services, which include community centers, libraries, daycares, and other social services, help to provide the public with services that may not be normally offered by other facilities. They also play a vital role in fostering a network of individuals with a common interest, whether it is in faith, hobbies, and much more; they act as a third place for some individuals. There are 121 community service facilities across Hernando County. Out of the 121 community service facilities, there are 30 that are located within vulnerable areas, with 24 that are within a storm surge vulnerability area. There are 6 community service facilities that are prone to rainfall-induced flooding events.

4.2.2 Infrastructure

The stability and functionality of infrastructure systems like roads, bridges, water, wastewater, power, and communications are cornerstones of effective recovery. The documents reviewed note coastal roads exposed to storm surge, and utility lines susceptible to wind damage and extended service interruptions. The vulnerability of infrastructure directly affects emergency response times, supply chain continuity, and the feasibility of rapid post-disaster rebuilding.

Infrastructure preparedness and hardening is a pursuit of existing plan documents. To understand locations with criticality for these investments, infrastructure datasets assessed include road and rail networks, utilities (electric, potable water, wastewater, and stormwater), debris management facilities, solid and hazardous waste facilities, and communication facilities.

Table 4-5: Vulnerable Infrastructure Systems

Hazard	Electric Facilities	Communication Facilities	Solid Waste	Debris Management
Surge	6 of 25	28 of 115	212 of 794	1 of 5
Rainfall	5 of 25	14 of115	196 of 794	1 of 5

Stormwater Facilities	Wastewater Facilities	Hernando Local CFI Potable Water Facilities	FDEP CFI Potable Water Facilities
3,794 of 14,617	31,470 of 88,119	30,140 of 246,985	14 of 367
3,398 of14,617	12,521 of 88,119	20,896 of 246,985	7 of 367

Figure 18: Critical Infrastructure by Vulnerability

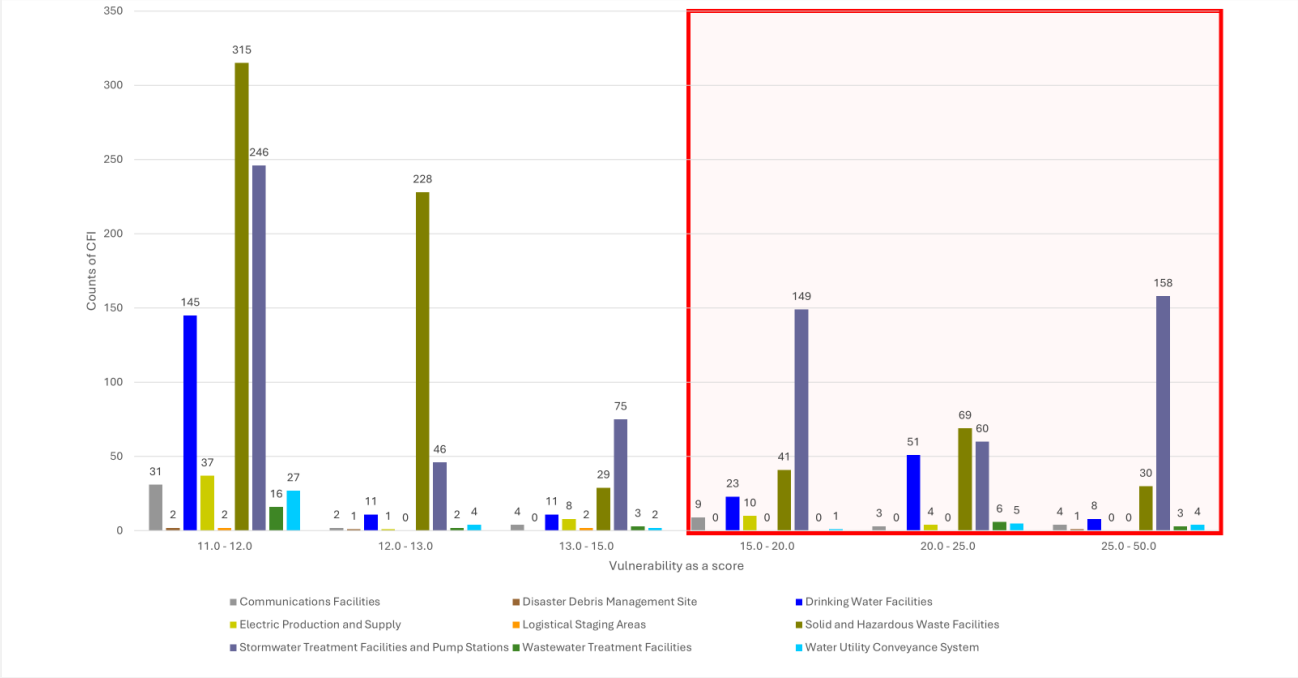
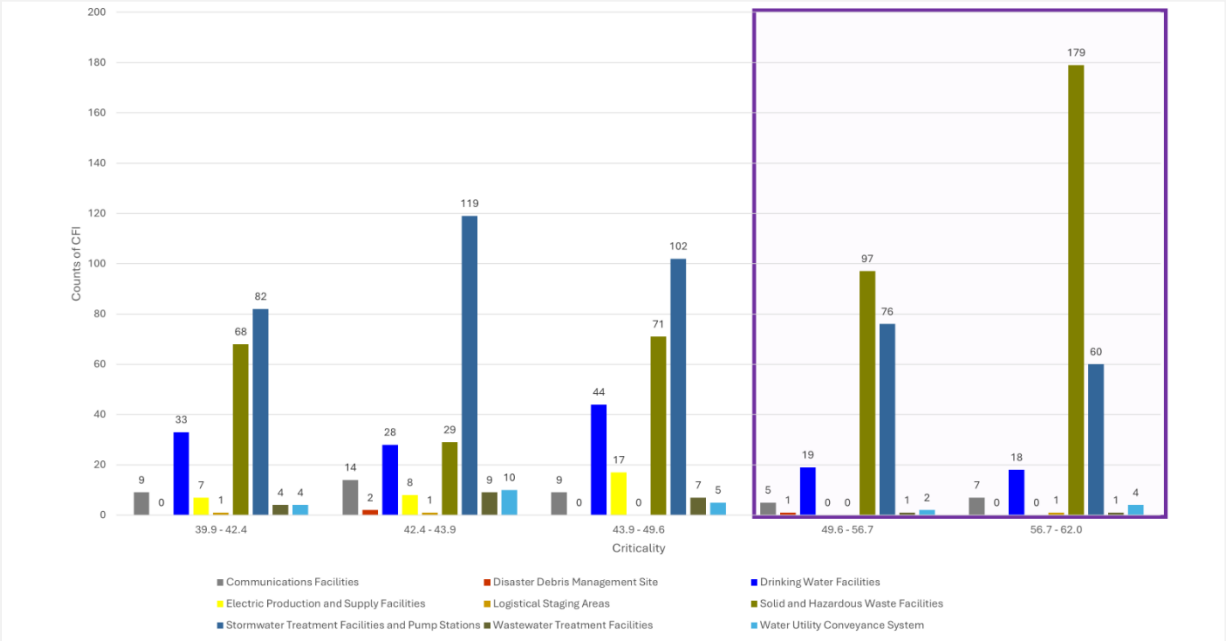


Figure 19: Critical Infrastructure by Criticality



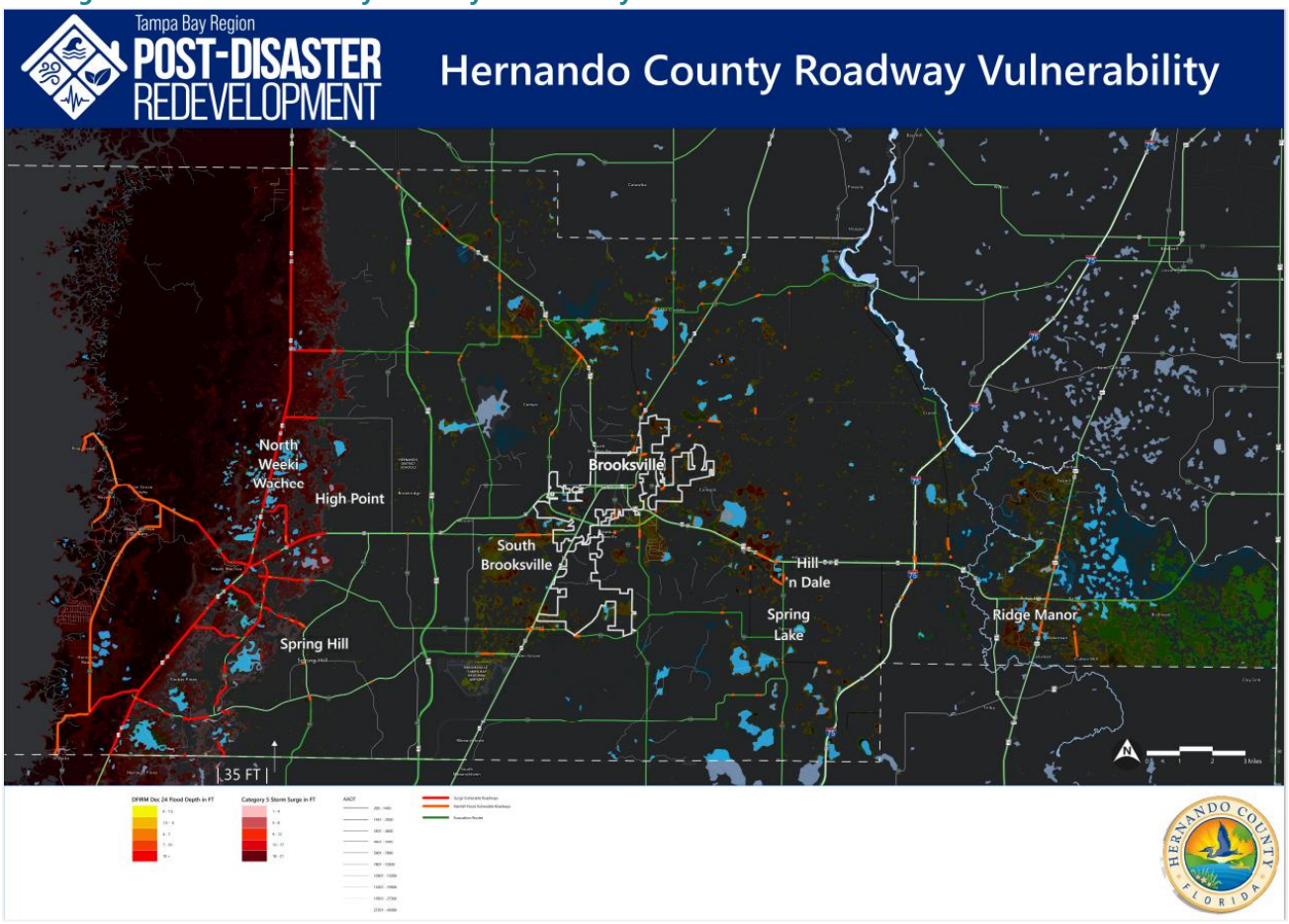
4.2.2.1 Transportation System Vulnerabilities

Vulnerability of FDOT Functional Class Roadways quantified into miles impacted by a potential flood hazard. The flood hazard is interpreted as areas where water could accumulate and pond into a surface water impeding a roadway.

Evacuation routes are included within the vulnerable roadways analysis. Approximately 4.2 miles of State Highway 589, and 3.5 miles of State Highway 574, are vulnerable to a surface flood risk. These routes are used to navigate East to West (574) and North to South (State Highway 589).

US-19/ Commercial Way has an AADT of approximately 24,500 and has approximately 2.2 miles of vulnerable road segments meaning they could be impeded by a flood risk.

Figure 20: Hernando County Roadway Vulnerability



The most vulnerable evacuation routes in Hernando County include State Highway 589, 574, 572, and 50; and US Highway 98, 19, and 41. Additional information on specific vulnerabilities of roads and other infrastructure can be found in **Appendix E.**

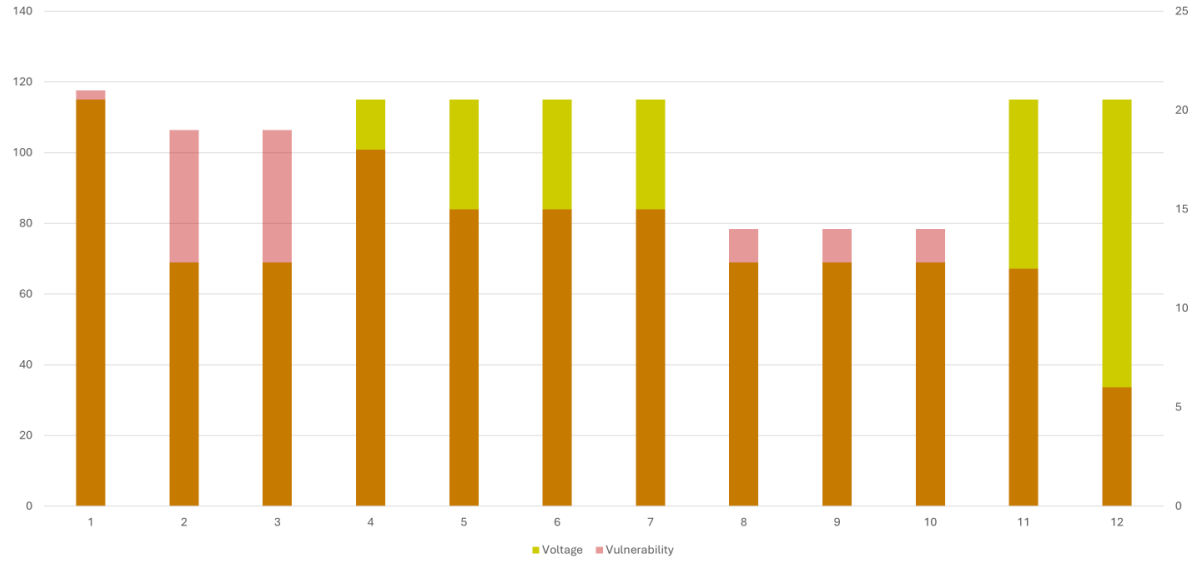
4.2.2.2 Key Infrastructure Vulnerabilities

Most infrastructure concentration in Hernando County corresponds to the Spring Hill population center, a coastal adjacent community, and vulnerable location for surge and some precipitous flood risk. Infrastructure in this area should be considered for long term redevelopment fortification to the degree that development and commercial activity should continue to occur in vulnerable locations, according to plan goals direction with reallocating infrastructure dollars to lower the intensity of water hazard risk in these locations. Within the Spring Hill community, prioritization should be consistent with the County Vulnerability Assessment process.

Energy Provision Vulnerabilities – Electric Substations and Powerplants

All substations should be evaluated for site specific and system hazard mitigation options with County Engineering staff. Reservedly, 4 of the 5 analyzed substations could be disrupted and taken offline due to a storm surge event. The depth of this projected damage impact ranges from 6 to up to 14 feet surge. The facilities experiencing impacts first, will factor into existing to be adopted County Vulnerability Assessment prioritization structure considering population and local economic dependency.

Figure 21: Distribution of Hernando Substations by Flood Hazard Percentage (%)



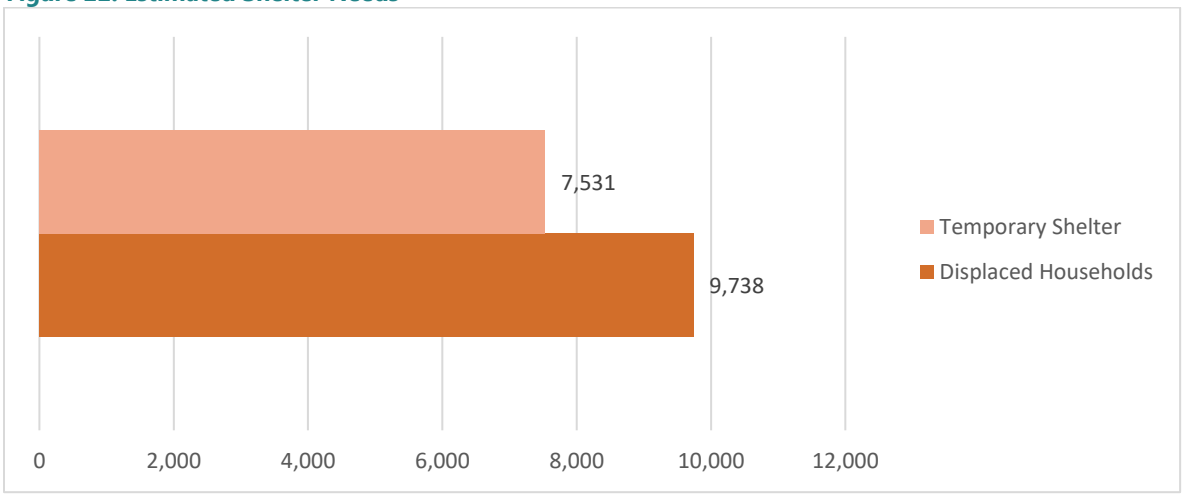
The Withlacoochee River Electric substation at Tarpon Blvd. in Spring Hill, has a 30% flood risk, potential surge risk of about 20 feet in a category 5 Hurricane event. This is a highly vulnerable facility that should be fortified to lower the flood risk and preserve operability during a disaster event if not transferring provision to storage or a less vulnerable location. Another vulnerable power facility is the Duke Energy Center at Cortez Blvd in Brooksville, there is a potential 14-foot storm surge risk that could occur at this location. There is an 8-foot surge risk that could occur at the substation at Northcliffe Blvd. in Spring Hill, making this another vulnerable power facility that should be fortified for a disaster event. The Withlacoochee River Electric substation at Croom Rd in Brooksville is mostly within a FEMA 100-year floodplain and could incur heavier impacts in a potential disaster event where basins are at storage capacity. While not in a FEMA Flood plain (Flood zone 'X') heavy precipitation events on full basins could produce surface inundation at these locations impacting the operability of Hernando power facilities. See the CFI map and list for more details on energy provision vulnerability in Hernando County.

4.2.3 Housing

Hernando County's housing stock varies in age, construction quality, and hazard exposure. Many older homes do not meet current wind or flood-resistant standards, increasing their susceptibility to major storms. Documented vulnerabilities highlight affordability concerns, as communities facing repeated flood damage or escalating insurance costs may struggle to maintain stable housing markets. Modeling supports these findings, indicating that significant portions of coastal and riverine housing could require major repairs or reconstruction following a substantial storm event. This poses long-term challenges for population retention and balanced growth.

In a Category 5 scenario, the Hazus model estimates a shelter deficit of 2,207 units. This deficit would pressure lodging services in the absence of facilitating temporary hotel accommodation for displaced populations. The TBRPC Hurricane Shelter Vulnerability Assessment of 2022 reports a shelter deficit for Hernando County of 5,646 units with a demand as high as 9,521 units.

Figure 22: Estimated Shelter Needs



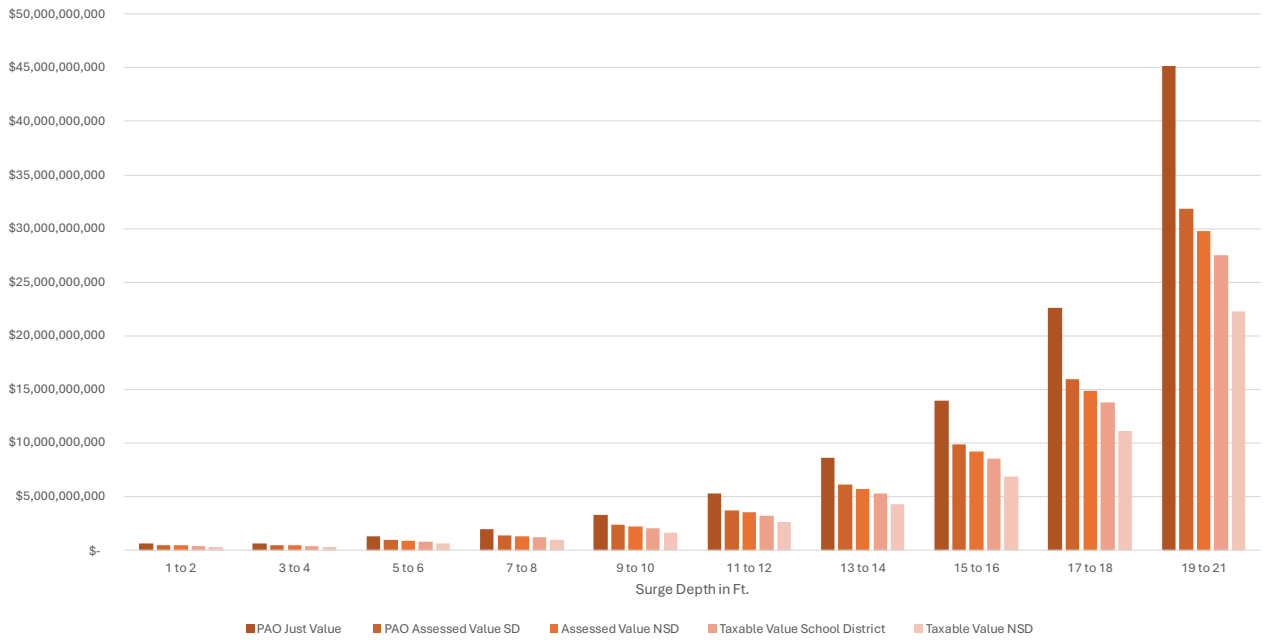
Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

Affordable Housing

There are 7 affordable housing developments in Hernando County vulnerable to hurricane hazards. Three of them are in more critical locations that are in employment centers and have limited household redevelopment capacity. Property managers of these affected should take proactive steps to improve structures to FBC effective year-built standards and work through County programming for needed drainage improvements in support of the governing WMP.

Future affordable housing developments should be entitled in lower vulnerable areas to limit public and household liability and site housing according to future development goals envisioned in the Comprehensive plan. More affordable housing will be needed which may initially need to be met with transitional housing (Ch. 5 Sec.5.2.2) in post disaster redevelopment in addition to blue skies construction of additional stock to the existing 29 affordable housing development in Hernando County. Promote the development of pro forma profiles (Ch. 5 Sec. 5.2.10) calibrated to the future workforce demands of Hernando County economic development goals.

Figure 23: Taxable Values by Surge Risks



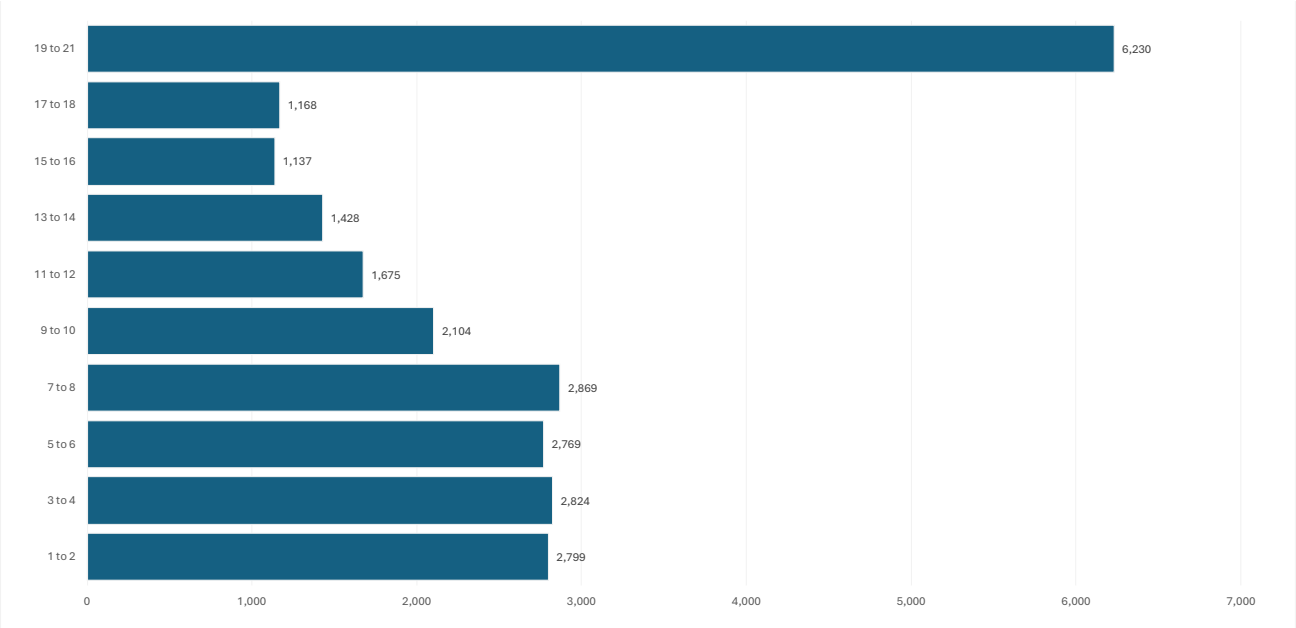
Source: FDOR 2024 Parcels Assessment by local Property Appraiser Office.

Table 4-8: Surge Vulnerable Tax Base Revenues

Surge Depth (Ft)	Just Value	Assessed Value (School Districts)	Assessed Value (Non-School)	Taxable Value (School Districts)	Taxable Value (Non-School)
1 to 2	663,715,495	468,731,130	437,826,391	404,614,287	326,980,843
3 to 4	663,715,495	468,731,130	437,826,391	404,614,287	326,980,843
5 to 6	1,327,430,990	937,462,260	875,652,782	809,228,574	653,961,686
7 to 8	1,991,146,485	1,406,193,390	1,313,479,173	1.21B	980,942,529
9 to 10	3,318,577,475	2,343,655,650	2,189,131,955	2.02B	1.63B
11 to 12	5,309,723,960	3,749,849,040	3,502,611,128	3.23B	2.61B
13 to 14	8,628,301,435	6,093,504,690	5,691,743,083	5.25B	4.25B
15 to 16	13,938,025,395	9,843,353,730	9,194,354,211	8.49B	6.86B
17 to 18	22,566,326,830	15,936,858,420	14,886,097,294	13.75B	11.11B
19 to 21	45,132,653,660	31,873,716,840	29,772,194,588	27.51B	22.23B

SLOSH surge impacts to housing are the most damaging in the initial impact extent where 21 feet of surge could occur on land. The analysis attached the surge depth footage that could impact a property first. The results include the maximum possible inundation footage that could occur at any given parcel in Hernando County. The maximum property value that rebuilding could cost was added together by each increment of vulnerability to estimate a basis for property tax revenue impact and estimate a redevelopment cost. Note that not every property is developed with a structure at risk.

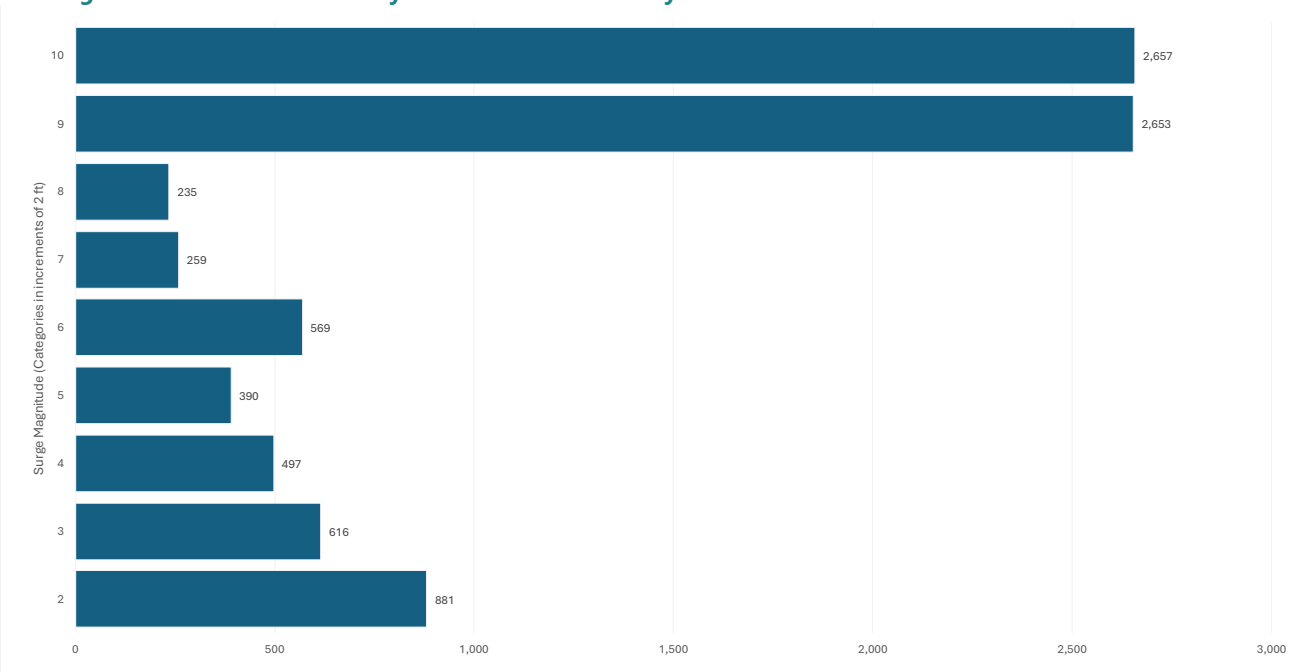
Figure 24: Residential Units by Surge Vulnerability (as Depth Footage on surface of Earth)



Source: NOAA Maximum of Maximums, MOMs, Category 5 Surge Model, and FDOR 2024 Assessment Parcels

Approximately 12% of the Hernando Housing Inventory are residential units with damaging flood risk. For analysis, a damaging flood risk was defined as a hazard surface area exceeding 50% of the total land area of any parcel. The residential units contained within residential parcels were summed by vulnerability category or severity of risk.

Figure 25: Residential Units by Flood Risk Vulnerability



Source: FDOR 2024 Assessment Parcels, FEMA Flood Risk NFHL Florida Data Product ID: NFHL_12_20241220, with ESRI Flow Accumulation Surface classification.

4.2.3.1 Key Housing Vulnerabilities

Broad Residential Flood Risk Exposure

There is an estimated 22,834 total people and 9,485 households living in highly vulnerable areas of the county. The average household income of those affected is $54,732.91. Areas in lower economic ability will struggle even further to meet hazard mitigation compliance at vulnerable locations. Hurricane force winds and storm surges will damage properties, but households will not all be able to accomplish a personal redevelopment decision without assistance.

In addition to floodplain development, approximately 12% of residential units could flood in some areas through intense storms. Disaster events could incur flood waters that reach flows over 50% of the total land square footage of a property. The total taxable value of Hernando parcels at this measure of flood risk is approximately $2,782,232,517 ($2.7B). It will be important to proactively source resiliency funding for potential $22 billion shortfall in the Category 5 Storm Surge scenario.

Coastal Communities

Housing units and inventory in coastal communities do not host the highest concentration of population and represent exclusive areas. Redevelopment considerations surrounding housing units in coastal communities include rebuilding damaged structures, infrastructure and subsequent access, and planning for additional housing that either comprise the housing profile of the damaged structure at mitigation standards, or present new housing profiles that could support population elsewhere.

Housing in Inland Environmental System Adjacent Lands

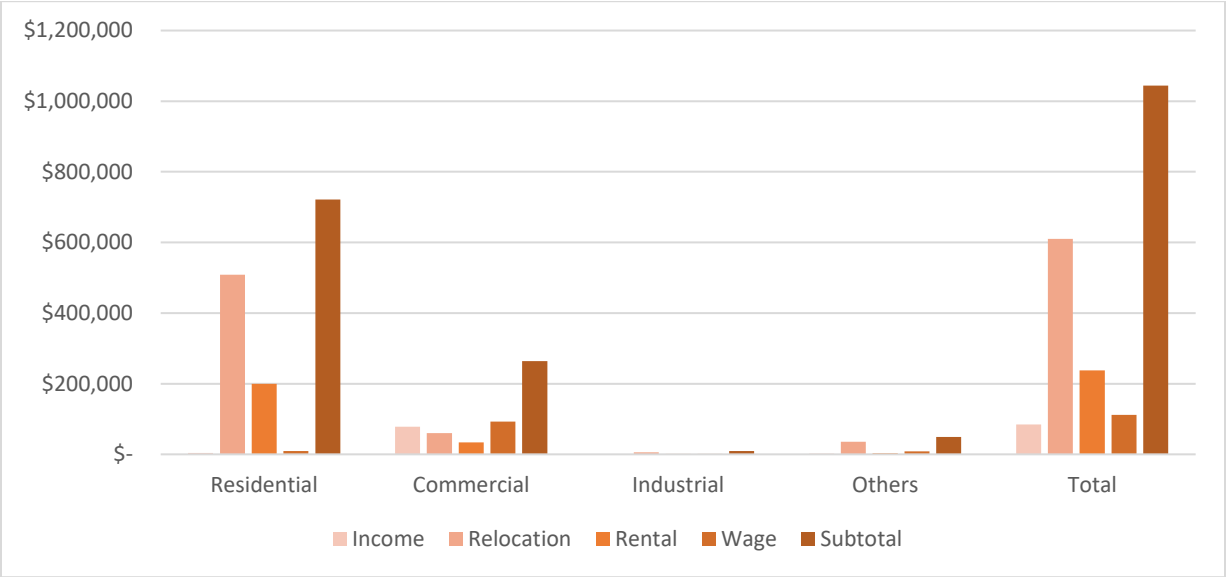
Hazard impacts include Eastern and Western geographies with each experiencing different types and magnitudes of flooding. While Eastern Impacts are less severe than Western coastal impacts, they are the second most hazardous type of housing development in the county and could flood more often as waters traverse the Green Swamp drainage network through Ridge Manor. Increased volumes in warmer periods of the year and season can further pressure housing risk in inland natural system adjacent lands.

4.2.4 Economy

Local businesses and employers, ranging from small retail establishments to key industrial facilities, face compound challenges in the wake of disasters. Document reviews underscore the importance of quick service restoration and the availability of financing for rebuilding. Modeling points to heavy economic impacts if critical commercial centers are damaged, potentially causing income loss, employment disruptions, and reduced tax revenues. Over time, repeated damage can deter investment, leaving the local economy less diversified and more vulnerable. Businesses being tracked as critical in Hernando County were assessed for vulnerability and risk.

LEHD LODES Work Area Characteristic file for 2022 was analyzed against the modeled hazard impacts to estimate economic vulnerabilities in the form of jobs and wages. If a disaster were to occur these jobs would be jeopardized by the hazard impacts in the short term but also in the long-term depending on the characteristics of these jobs. Economic vulnerabilities assessed in terms of disaster impacts include supply lines that rely on the employment within these affected job sectors. The ability of employees to return to work will direct intervention strategies for critical economic sector continuity and resiliency.

Figure 26: Hazus Category 5 Hurricane Estimated Business Interruption Losses



Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

Jobs impacted by water hazard inundation are primarily healthcare and social assistance sector jobs that are along the 589 North to South Corridor. To ensure economic continuity of these flood vulnerable locations, and as fortification of these facilities are underway, operations may need to be relocated to less vulnerable areas while maintaining service access. Satellite operation centers (temporary and transitional) could be part of maintaining operation continuity for vulnerable job center locations.

Development has long taken place considering 100 and 500-year floodplains. Job centers reflect this development adaptively in the sense that economic operations should continue despite floodplain delineations, through flood risk mitigation. The sufficiency of this flood risk mitigation is what could be expanded upon to lower future damage. This process of fortification could be explored when relocation of operations is not viable or preferred. In addition to FEMA floodplain delineations and zones, additional flood risk areas were determined.

US-19/Commercial Way facilitates most of the County's truck freight and AADT, and subsequently most of the county's economic commodities. The roadway is the most vulnerable to a flood risk that could occur during the hurricane season.

Economic Loss Estimations

Approximate loss ranges reflect the types of businesses most at risk and the sectors that may take the longest to recover. Economic loss estimations originate from damages to buildings assessed value as an output of the Hazus Modeling. Direct economic losses refer to the sum of capital stock losses (cost building damage, cost contents damage, and inventory loss) and income losses (cost of relocation, capital related loss value, wages lost, rental income lost).

The SLOSH and Hydrologic precipitation modeling summarize impacts to the economy in quantities of jobs and sectors disrupted. The analysis provides results into built environment impacts and the socioeconomic impacts to the economy.

Hernando County population approximates to 194,515 people. The total value of the building stock in Hernando County is approximately $25,645471 at $19,462,255 residential and $6,183,216 non-residential.

The maximum redevelopment liability was estimated in this report using a flood risk and storm surge analysis and a Hazus Loss Estimation method.

The modeled maximum magnitude event for Hernando County is projected to incur an estimated $7454.2 Million dollars for Hernando County. This figure equivocates to 29.07% of the total replacement value of Hernando County damaged buildings. HAZUS categorizes the building losses by direct property damage and by business interruption losses. Business interruption losses are defined as revenues prevented due to the inability to operate a business because of damage sustained during the hurricane. The HAZUS model also includes temporary living expenses of displaced populations as business interruption losses. Approximately 14% of the estimated $7.45 million are categorized as business interruption losses. Losses sustained by the residential occupancies comprise 81% of the total loss.

Table 4-9: Estimated Property Damages and Business Interruption Losses

Property Damage					
Area	Residential	Commercial	Industrial	Others	Total
Building	$ 3,687,308	$ 379,737	$ 82,901	$189,190	$ 4,339,136
Content	$1,612,423	$ 217,557	$ 73,750	$ 114,752	$ 2,018,483
Inventory	$ -	$ 40,822	$ 9,960	$ 1,690	$ 52,472
Subtotal	$ 5,299,732	$ 638,116	$ 166,611	$ 305,632	$ 6,410,092
Business Interruption Loss					
Area	Residential	Commercial	Industrial	Others	Total
Income	$ 3,885	$ 78,139	$ 891	$1,822	$ 84,738
Relocation	$ 508,325	$ 59,933	$ 6,159	$ 35,855	$ 610,271
Rental	$ 199,975	$ 33,481	$ 934	$ 3,004	$ 237,394
Wage	$ 9,129	$ 92,426	$ 1,354	$ 8,776	$ 111,684
Subtotal	$ 721,314	$ 263,979	$ 9,338	$ 49,457	$ 1,044,088

Source: FEMA Hazus Hurricane Category 5 Probabilistic Modeling Loss Estimation Method

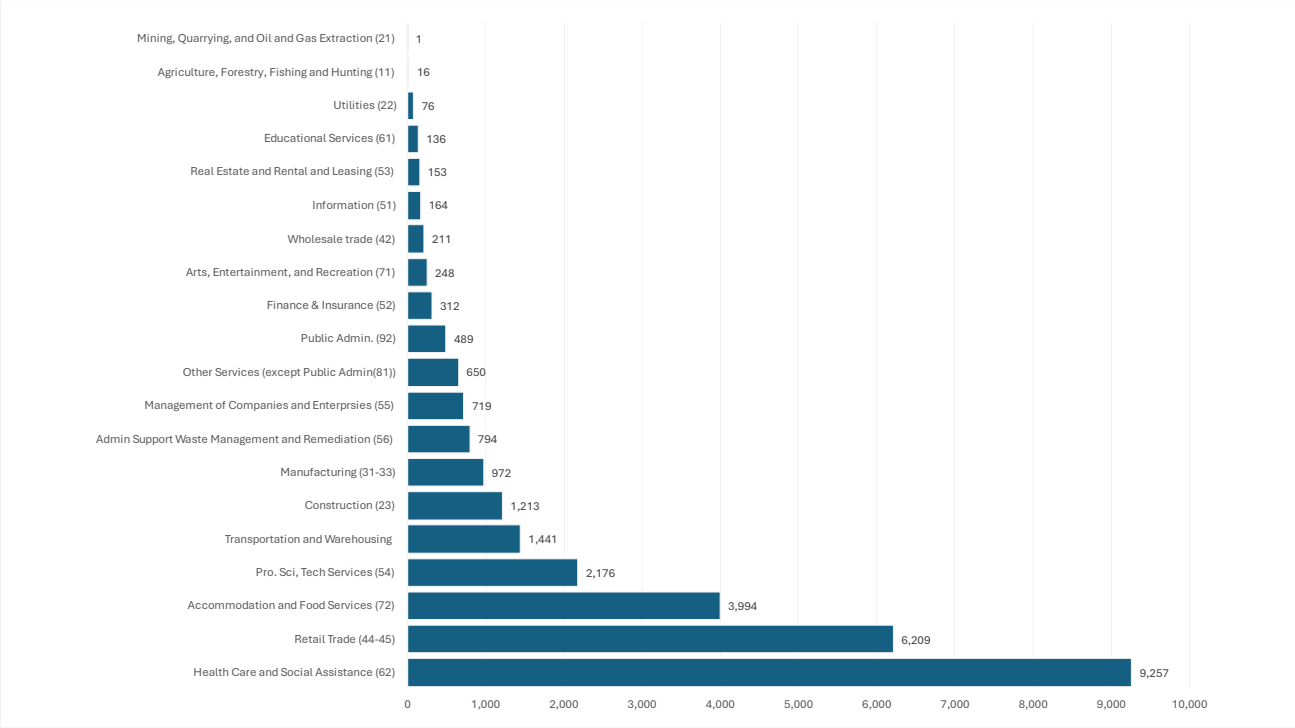
4.2.4.1 Key Economic Vulnerabilities

Vulnerable Sectors

Healthcare and Social Assistance sector jobs followed by retail jobs are the most vulnerable to hazard impacts regionally. A high priority will be protecting Healthcare and Social Assistance workers. Accommodation and food supply jobs are listed as a highly vulnerable NAICS sector.

The buildings and sites facilitating the jobs in these sectors may require facility hazard fortification and a continuity of operations plan for the 29,231 total jobs within the highest vulnerable locations of the County. Approximately 31% of these workers (9,164) also live within vulnerable areas. Approximately 12% of vulnerable workers are below the poverty line.

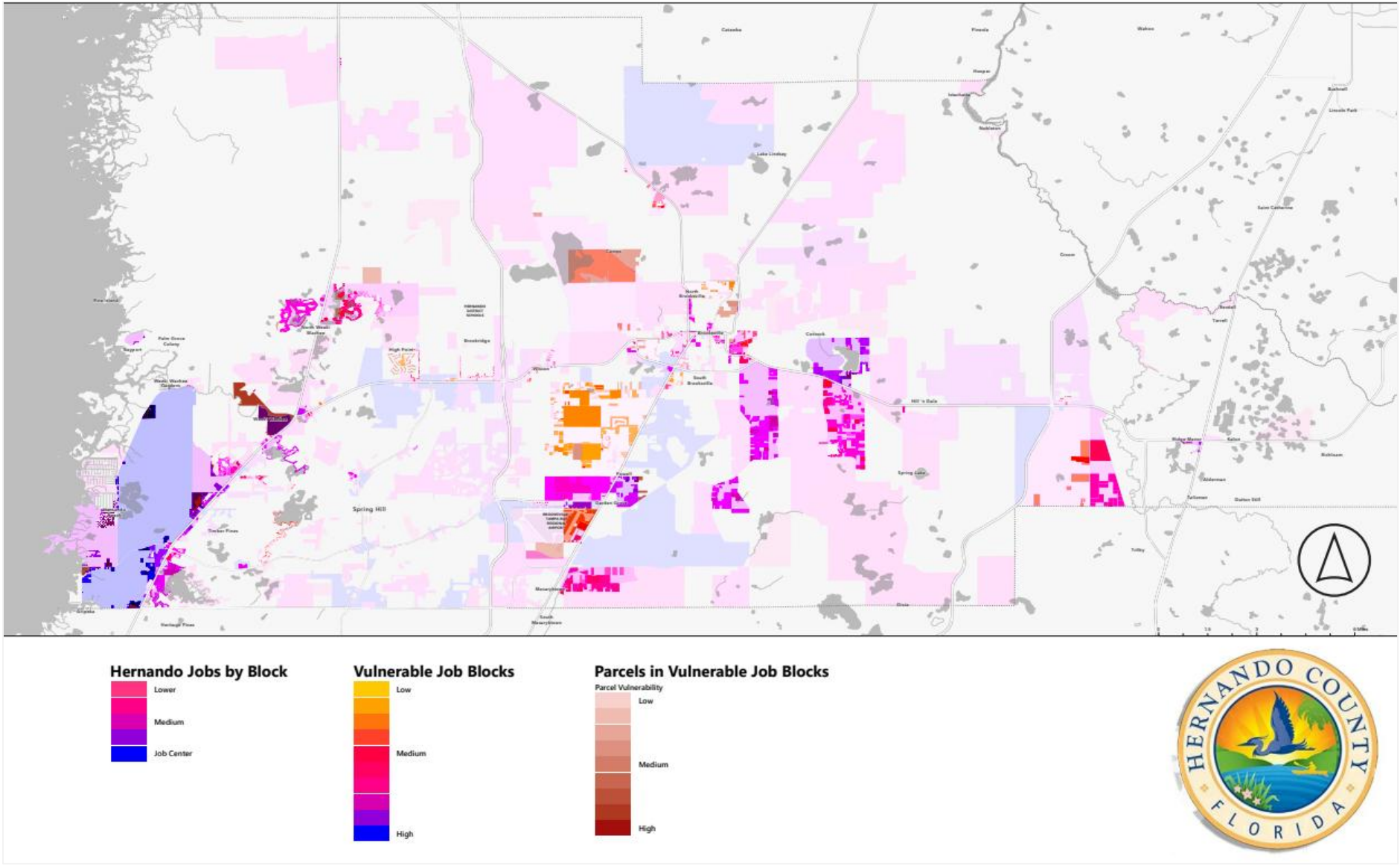
Figure 27 : Jobs by Sector in High Flood Risk Locations



Vulnerable Employment Centers

The locations of the most vulnerable job centers are along the North and East borders of Spring Hill and Southeastern Ridge Manor, as depicted in the following exhibit.

Figure 28: Economic Vulnerability by Geography



Source: Longitudinal Employer Household Dynamics Origin Destination Employment Statistics (LEHD LODES), 2022, Census American Community Survey Blocks with FDOR Parcels FEMA and NOAA Flood Hazards

4.2.5 Socioeconomic Conditions

Socially vulnerable populations, including seniors, low-income households, renters, and those with limited mobility or language barriers, experience disproportionate negative outcomes after disasters. This dynamic is captured in the conception of a household level ability to redevelop termed household level redevelopment capacity. Document synthesis points to a need for targeted outreach, culturally competent communication, and financial assistance to support these communities. Hazard vulnerability measured with social vulnerability provided in demographic data, can reveal correlations between high-hazard areas and populations least equipped to navigate recovery challenges. This understanding can guide the development of relief programs, temporary housing solutions, and job placement initiatives that foster equitable redevelopment. The results inventory the locations of these vulnerable populations within the community. These areas may need stronger hazard mitigation compliance assistance options provided by County designated resource networks to accomplish County redevelopment objectives.

Hazus reports damage to Structures within Hernando County Census tracts at a jurisdictional level. When a hurricane moves through a geography it is projected to damage structures that cannot withstand the hurricane force winds. The Hazus model projects a social impact of approximately 9,738 displaced households and estimates approximately 7,531 people will require temporary shelter. The total population input for this analysis projection is 194,515 people in Hernando County. This is a high-level summary of shelter demand and does not correspond with analysis of vulnerable populations other than the higher socially vulnerable populations that will comprise this shelter demand.

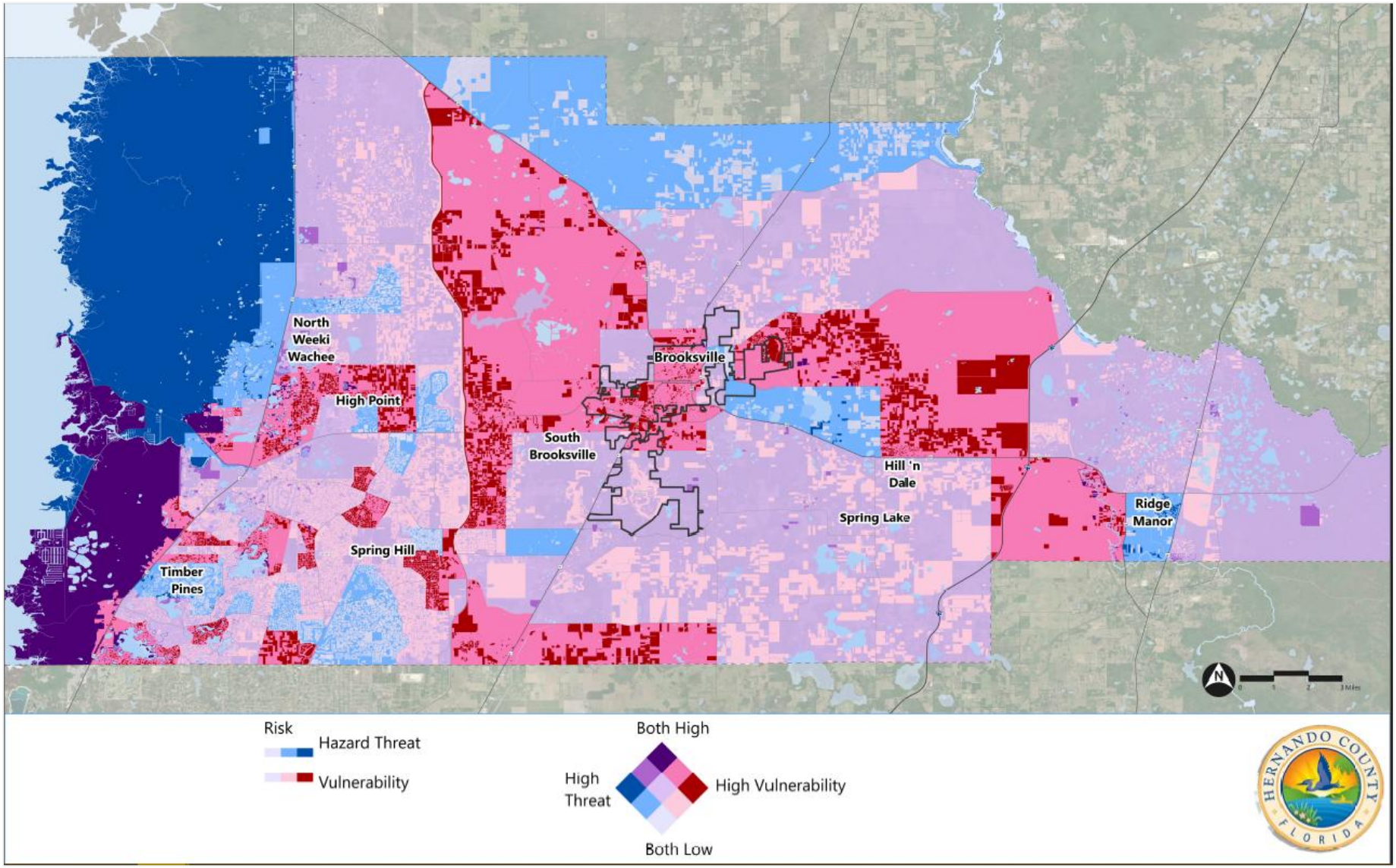
Populations within hazard vulnerable communities such as Ridge Manor and portions of Spring Hill have higher susceptibilities to flood risk but also face higher vulnerabilities in redevelopment capacity. The situation of having the highest risk and the lowest access to capital and subsequently the capacity to redevelop, make these locations the highest consideration for redevelopment procedures. Investments prioritizing the fortification of vulnerable job centers and community services will go farther in community redevelopment for critical scoring areas. Capacity building strategies in which the community may continue from initial County/ Public support catalysts may lower long term liability costs and enhance redevelopment capacity of these areas by equipping the community with the resources to secure vulnerable roadways, essential services, and maintain safe shelter for the workforce and population.

Community Centers and Social Services Vulnerability

CareerSource Pasco Hernando. Mid Florida Community Services, Inc., a social services organization in Kennedy in Park in Brooksville, may experience moderate ponding and flood risk at their site where they administer services but could still maintain operability. The United Way of Hernando County will face more immediate and severe surge risks up to 14 feet endangering the continuity and operability of the facility and the services offered there. Ponding flood risk on Commercial Way may impede the access and operability of United Way, social services organization. Establishing a network of social services organizations to (re) activate upon a disaster will be important to delegate roles and responsibilities upon to fill service and access gaps and assist the volume of assistance needed from a disaster.

There are 24 vulnerable childcare facilities in Hernando County that may require mitigation or temporary relocation for continuity of services in a disaster. Youth and Family Services organization in Spring Hill East of Commercial Way, Forests Oaks Lutheran Body and Soul Food Pantry, Masaryktown Community Center, and Boys & Girls Club; are all vulnerable services that may require continuity of operations or temporary alternative siting.

Figure 29: Criticality by Block Group based on Population, Jobs, and Median Household Income



4.3 Post-Disaster Redevelopment Capacity Evaluation

This section evaluates Hernando County's capacity to guide a successful long-term recovery. Capacity includes not only formal policies and procedures, but also the availability of trained personnel, existing funding mechanisms, pre-established intergovernmental agreements, and community support structures. Understanding capacity is critical to translating identified vulnerabilities into actionable strategies that can be realistically implemented.

4.3.1 Components of Redevelopment

Post-disaster redevelopment is the long-term effort to rebuild stronger and more resilient communities following major disasters. Unlike immediate response and recovery, which focuses on restoring essential services and ensuring public safety, redevelopment looks ahead. Its goal is to make improvements that reduce future risks and support the community's well-being over time. In this context, redevelopment covers a broad range of activities:

- Reconstructing homes, utilities, roads, and facilities to better withstand future hazards.
- Helping businesses reopen, encouraging reinvestment, and strengthening key industries.
- Preserving, restoring, and enhancing natural protective features and stormwater systems.
- Ensuring all residents have a pathway to stable housing and essential services.
- Updating codes, plans, procedures, and infrastructure standards to reflect lessons learned.
- Working with state, federal, and regional partners on joint initiatives.

Effective redevelopment aims to achieve:

- **Long-Term Risk Reduction:** Repairing and rebuilding so that homes, businesses, and critical systems can withstand stronger storms, floods, or other threats.
- **Practical Investments:** Making cost-effective improvements now to save time, money, and disruption in the future.
- **Local Control and Values:** Engaging residents, businesses, and civic leaders so that redevelopment respects community priorities and goals, maintains and enhances local character, and supports a stable, secure future.

4.3.2 2024 Redevelopment Observations

Hernando County faced significant storm impacts in the 2024 hurricane season. Hurricane Milton's storm surge in Hernando County reached up to 8 feet, ranking among the highest ever recorded in the area.[10] This surge led to widespread flooding in coastal areas of Hernando County. Many homes were inundated with water up to four feet deep, causing severe damage. Some low-lying streets remained flooded even

[10] Hurricane Helene Leaves Trail of Flooded Homes, Rescues, and Resilience in Hernando County - Hernando Sun

after the storm passed, complicating recovery efforts. Approximately 17,000 structures[11] were without power due to downed power lines and other storm-related damages. Major roads such as Pine Island Dr., Shoal Line Blvd., and parts of Highway 301 were closed due to flooding and debris, including displaced boats blocking roadways.

These events provide an opportunity for this plan to assess post-disaster redevelopment capacity in a real-world scenario. Additionally, the regional nature of this planning process allows for the consideration of the ongoing disaster recovery efforts in the City of Tampa, Hillsborough County, and Pinellas County. Observations made throughout these redevelopment efforts are presented by topic.

4.3.2.1 Debris Collection and Disposal

In the aftermath, Hernando County Public Works and contracted crews worked to clear massive amounts of debris. The county organized debris drop-off locations (e.g. at the West Hernando Convenience Center) and curbside pickup for both vegetative and construction/demolition debris from damaged homes.

The county provided information on volunteer cleanup assistance as the County provides a Debris Removal Hotline for missed pickups and real-time updates via an online dashboard[12], helping residents report any overlooked piles. In the wake of the storms, officials opened the main landfill and convenient drop-off centers with extended hours (even 24/7 in some cases) to accept storm debris, and tipping fees were temporarily waived to encourage proper disposal. Environmental precautions are emphasized: hazardous materials (like paints, batteries, and fuel) must be separated for safe handling, and appliances are required to be emptied of food or liquids before disposal to prevent health hazards. Thanks to these coordinated efforts, Hernando County's debris contractors removed hundreds of thousands of cubic yards of storm waste in the months after the hurricanes.

Figure 30 A Full Dumpster and Debris on Hernando Beach

Photo by Austyn Szempruch as provided by Hernando Sun. Views like this are common in the weeks and months following a major storm.

[11] Damage Assessment Underway in Hernando's Coastal Communities - Hernando Sun

[12] Hernando County Debris Removal Dashboard - Hurricane Helene

Based on observations from the 2024 response, debris management considerations for future response efforts include:

- Plan for an extreme level of debris where standard practices are unsuitable. This may include working with FEMA on flexibility related to debris source tracking and reporting requirements.
- Plan for debris management in a back-to-back disaster scenario. The 2024 season saw communities needing to expedite debris collection to remove hazardous materials from the streets before another storm made landfall.

4.3.2.2 Inspections and Permitting

Hernando County officials immediately began assessing structural damage to determine which homes were safe and which were "substantially damaged." By County ordinance (and FEMA floodplain rules), buildings with damage exceeding 50% of their pre-storm value must be brought up to current code when rebuilt. The County deployed damage assessment teams to visit affected homes, a process still ongoing into early 2025. To expedite repairs, the Building Division offered emergency permitting and even set up special email intake for hurricane-related permit applications. Fees for permits were in some cases waived or deferred for storm repairs. The county also held community meetings – for example, a Town Hall on Property Restoration on Nov. 12, 2024 – to guide residents through permitting and explain floodplain requirements. Following the 2024 storm season, the Florida Legislature passed a requirement for local governments to develop and publish a post-storm permitting plan. Development of this plan is discussed in Chapter 5 strategies.

4.3.2.3 Housing Affordability and Displacement

Hernando County Emergency Management opened shelters during each storm and kept one open for weeks afterward for those still displaced. FEMA, at the request of the state, approved Direct Temporary Housing Assistance for Hernando and 12 other counties – a step taken in only the most severe disasters. FEMA trailers or manufactured housing units were provided to survivors who can't find any other housing. These temporary homes helped transition community members out of emergency shelters.

Recognizing the gap for those not fully helped by FEMA, the Hernando County Housing & Supportive Services department allocated funding (likely from the State Housing Initiatives Partnership (SHIP) program and other sources) to assist residents. They announced funding available for qualified residents impacted by Helene/Milton to cover specific needs as well as leasing and repairing existing vacant apartments for survivors. Implementation takes time (finding sites, hooking up utilities to trailers, etc.), but by early 2025 some Hernando families were expected to receive FEMA trailers placed on their property or in a group site as interim housing.

Hurricane Helene: Damage Assessment Map Dashboard

4.3.2.4 Business Continuity and Economic Recovery

Damage to commercial properties and dislocated workers comprise post disaster economic impacts that radiate throughout the long term planning Horizons for Hernando County. Working toward safe reopening and workforce reintegration for dislocated workers should be Hernando County's top economic priority post disaster. Providing the facilities, personnel, and resources to meet PDR economic needs is how the County can assist entrepreneurs and workers achieve their redevelopment and blue sky goals.

Beloved Hernando Beach restaurant making a comeback

4.3.2.5 Critical Services and Infrastructure

Hernando County suffered no major disruption to its critical services and infrastructure during the 2024 season despite heavy flooding impacts severely condemning vulnerable properties in the County. These properties rely on County Critical services and infrastructure which will experience heavier impacts in the future, making proactive risk reduction crucial for future Hernando County tax base solvency.

4.3.3 Overall Redevelopment Progress

Hernando County has and is continuing to leverage its existing policies, staff capacity, inter-agency relationships, federal and state financing, and dedicated community members and civic institutions to work towards its long-term recovery from the 2024 hurricane season. The progress made to date has been significant but—like all communities impacted by the recent storms — not without challenges.

Permitting bottlenecks, cumbersome (and emotionally challenging) regulatory processes for impacted homeowners, uncertain futures for communities, and affordability challenges have been a hallmark of recovering communities across the state. While redevelopment following a disaster will never be easy or seamless, lessons learned can improve the process following future disasters. This is especially critical as the 2024 hurricane season was far from the worst case scenario that Hernando County is at risk of experiencing.

The following section provides groundwork for a comprehensive post disaster redevelopment strategy which aims to enhance Hernando County's capacity to rebuild. The strategies identify proactive, community-driven approaches that not only streamline redevelopment, but can also advance a range of other community priorities.

Table 4-10: Mitigation Matrix

Hazards	Strategy
All Hazards	Comprehensive Asset Management and Facility Hardening
	Pre-Reviewed Housing Plans
	Comprehensive Resilient Transportation Strategy
	Temporary Uses
	Zoning Reform
Wind	Incorporate "Stormscaping" in Tree Ordinances
Wildfire	Incorporate "Firescaping" into Landscape Ordinances.
Flooding (Both Types)	Strengthen Distribution Networks for Fill and Other Resilient Building Materials
	Flood-Resistant Construction Planning
	Increased Design Flood Elevations
Flooding (Surge & Coastal Inundation)	Regional Stormwater Program
	Coastal Engineering for Shoreline Stabilization
	Adaption Action Areas
Flooding (Rainfall)	Watershed Management
	Regional Stormwater Program
	Low Impact Development Techniques

5

Best Practices to Enhance Redevelopment Capacity

Building on the hazards, vulnerabilities, modeling insights, and capacity assessments presented above, the following best practices present strategies to foster resilient redevelopment outcomes. The preliminary strategies discuss best practices supported by state and federal guidance, as well as regionally relevant strategies that acknowledge the Tampa Bay area's interconnected communities and shared resilience goals.

These strategies can generally be thought as belonging to the following high-level adaption goals:

- **Protection** - Protection strategies involve "hard" and "soft" structurally defensive measures to mitigate the impacts of current and future hazards.
- **Accommodation** - Accommodation strategies alter systems and the built environment to be prepared for the impacts likely hazards.
- **Strategic Relocation (Retreat)** - Strategic relocation involves relocation of existing infrastructure and critical facilities in areas it is not feasible to redevelop given the likelihood of repeat hazard events. Such options usually involve the transition of vulnerable land from private to public ownership through voluntary and incentivized measures.
- **Avoidance** - Avoidance involves anticipatory actions taken to direct new infrastructure and development away from high hazard lands to safer areas.
- **Procedural** - Procedural strategies aim to generate vulnerability and adaptation information, increase awareness of vulnerabilities and adaptation options, or incorporate such information into plans or policies.

The following strategies aim to integrate a combination of these approaches into a holistic strategy for expanding post-disaster redevelopment capacity. The strategies are informed by the findings of the vulnerability analyses, disaster modeling, and lessons learned from prior events and existing policies.

5.1 Resilient Infrastructure

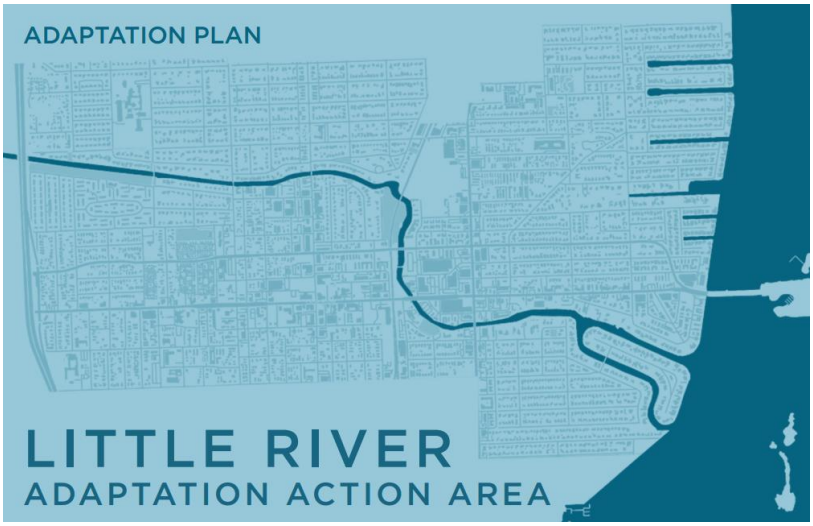
5.1.1 Adaptation Action Areas

Local governments can choose to designate vulnerable areas as **Adaptation Action Areas** (AAAs).[13] These designations are made in the Coastal Management Element of a local government's comprehensive plan and identify areas that experience coastal flooding due to extreme high tides and storm surge, and that are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and adaptation planning. In this context, **adaptation** refers to the adjustment of natural or human systems in response identified hazards and vulnerabilities to moderate harm or exploits beneficial opportunities. Proliferate natural absorption of hazard impacts designing with natural ecological system processes to contain downstream and upstream effects.

Adopted into Florida Statute 163.3164 in 2011, there is **significant flexibility** in how a local government can develop AAAs. Generally, they can be either an outcome of an overall adaption planning process or a vehicle for conduction adaptation planning. Because these strategies are part of Hernando County's PDRP update, it is best to consider AAAs as a potential outcome to implement higher-level PDRP strategies related to coastal infrastructure and as a tool for continued implementation. AAA considerations can be weaved in to planning and zoning, land use, infrastructure, and budget plans. There is also potential to integrate or augment the AAA framework with other area designations established in state statute, such as Community Development Districts (CDD), Community Redevelopment Areas (CRA), Neighborhood Improvement Districts (NID), and independent special taxing districts.

Guidance[14] states Adaptation Action Area criteria may include, but need not be limited to, areas with land elevations are below, or near mean higher high water; which have a hydrologic connection to coastal waters; or which are designated as evacuation zones for storm surge. While there is flexibility in its implementation, the statute language likely limits the use to exclusively coastal areas. An AAA example is Miami-Dade County's "Little River Adaptation Plan," published January 2022.

Figure 31: Little River Adaptation Action Plan



[13] Section 163.3177(6)(g)(10), Florida Statutes

[14] Florida Adaptation Planning - FloridaJobs.org

5.1.2 Evaluate and Program Coastal Engineering Solutions for Shoreline Stabilization and Hardening

Coastal zones in Hernando County continue to face erosion, storm surge, and rising sea levels. Identifying projects that warrant shoreline stabilization requires combining hazard vulnerability data, land use considerations, and cost-benefit insights. By focusing on these elements, the County can determine when—and where—public investments in coastal engineering will provide substantial benefits to both residents and the broader tax base.

- **Coastal Vulnerability Assessments in Adaptation Action Area Plans:** Reference the County's hazard vulnerability maps, sea level rise projections, and repetitive loss data to pinpoint segments of coastline most at risk. Prioritize areas with significant recurrent flooding or erosion, particularly where existing infrastructure (e.g., major roads, sea walls, utilities, parks, and other public facilities) housing, and businesses face hazards. Identify a range of engineering measures to bring the risk to these features to an acceptable level.
- **Conduct Cost-Benefit Analysis Grounded in Land Use Realities:** Evaluate how proposed engineering measures—whether nature-based, hard armoring, or hybrid solutions—align with both the current and planned land use in each targeted area. Consider whether protecting certain sections with large-scale investments is justifiable based on the property tax revenue, critical facility access, or economic and cultural roles these areas play. If the tax base is minimal and the physical risk is extreme, smaller-scale solutions or managed retreat may be more prudent. Set clear expectations on what can expect to be rebuilt following a major disaster.
- **Adopt Best Practices for Shoreline Stabilization:** Update coastal development standards and engineering criteria to guide projects toward ecologically sensitive options where feasible. Living shorelines, oyster reefs, and vegetated berms can stabilize sediment and buffer wave impacts in lower-energy zones. More substantial solutions, like revetments or low-profile breakwaters, may be appropriate where infrastructure is critical or waves are consistently high. There are a range of potential coastal engineering solutions with various considerations.
- **Secure and Layer Diverse Funding Sources:** Use the data-driven outcomes of vulnerability assessments and cost-benefit studies to bolster applications for Resilient Florida grants, federal hazard mitigation programs, or targeted state and federal initiatives as part of the community-wide adaptation strategy. When appropriate, explore value capture and cost-sharing with private landowners—especially when shoreline protection safeguards enhance private value through protection and allowing for more intense uses.

A vulnerability-driven process that compares long-term costs and benefits provides a framework for determining whether major coastal engineering upgrades are warranted in a particular location. By focusing on both the physical risk and the land use context, the County can prioritize investments that reduce hazard impacts and preserve public resources for areas where resilience measures offer the greatest benefit.

5.1.3 Improve Implementation of Watershed Management Plans (WMP) to reduce flood risk and improve water quality

Hernando County has worked closely with the Southwest Florida Water Management District (SWFWMD) to implement the District's Watershed Management Program (WMP) at the local level.[15] Under this program, SWFWMD and the County signed agreements to develop comprehensive watershed management plans for numerous watersheds in Hernando. The plans were finalized between 2008 and 2018. A strategic review and update of these plans can align innovative watershed-specific Best Management Practices (BMPs) with the County's broader long-term vision.[16]

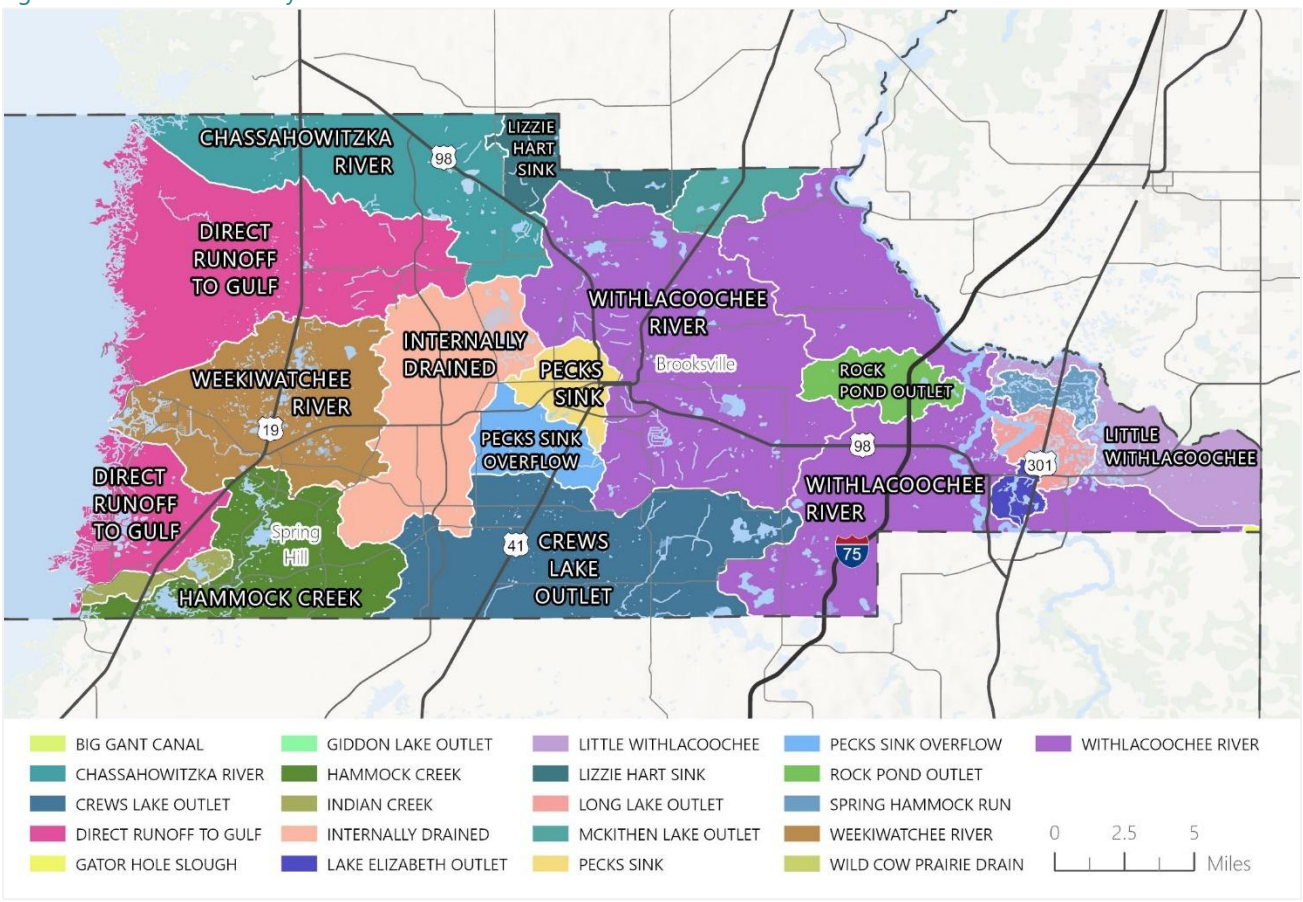
- **Review and Update Technical Analyses:** Incorporate fresh LiDAR data, revised floodplain modeling, and local development changes that have occurred since each plan was completed. Pay special attention to karst features, previously identified problem areas, and any emerging flood-prone sites that may not have been captured in earlier studies.
- **Conduct a Strategic Assessment of WMPs:** Evaluate whether the recommended stormwater and flood mitigation projects still reflect the County's modern growth patterns and resilience goals. Consider new design standards (e.g., nature-based features, treatment thresholds) and zoning updates that have been adopted in recent years. Document which legacy BMPs remain viable, which might need modification, and which can be phased out or combined with newer solutions. Additionally, upcoming updates to Florida's stormwater regulations and major update to the widely used BMP Trains stormwater software also add to the benefits of updating these WMPs. External engineering firms can be hired for these updates and incentives for private parties to facilitate these updates can be explored.
- **User-Focused Streamlining of WMPs**: Update WMPs to enable convenient access and interpretation by landscape and stormwater facility designers. Making WMPS easier to find, download, and understand will allow for more stakeholders to work towards achieving the goals of a given WMP. This may mean development of ancillary resources, such as web maps depicting the Best Management Practices identified in the WMP. Ultimately, this should aim to bring the gap between the BMPs within the WMP and the stormwater facility design of development through the Environmental Resource Permitting process.
- **Align Updates with Countywide Priorities:** Integrate revised watershed findings into the Capital Improvement Program, stormwater budgeting, and any current resilience strategies (e.g., roadway elevation plans, Adaptation Action Areas, or low-impact development requirements). This ensures watershed-level goals are integrated with flood protection, economic development, public gathering spaces, green infrastructure, restored ecological functions and trail connections rather than competing for funds or duplicating efforts.
- **Engage Stakeholders and the Public:** Coordinate with community groups, landowners, and municipal service providers to gather input on recurring flooding issues and new development considerations. Public workshops or online dashboards can share updated maps, model outputs, and BMP priorities.
- **Leverage Cooperative Funding Opportunities:** Identify potential upgrades or projects emerging from the plan updates that align with state and federal grant programs. Highlight how updated

[15] Floodplain Mapping Application | SWFWMD

[16] Reinventing Stormwater Retention Areas as Community Assets | Urban Land Institute Tampa Bay

data and strategic BMP prioritization increase the County's competitiveness for SWFWMD Cooperative Funding Initiatives, Resilient Florida grants, and other hazard mitigation resources.

Figure 32: Hernando County Watersheds



5.1.4 Establish a Regional Stormwater Program

Contemporary stormwater management practices typically require on-site stormwater retention and detention to limit flood discharge to nearby properties and treat pollutants in the water before it returns to the ground or flows back into the county's water bodies. This requirement can act as an obstacle to redevelopment, especially for smaller-scale projects on small lots.

Regional stormwater ponds are a strategy being pursued throughout Tampa Bay[17] which encourage the creation of larger, centralized stormwater management facilities for use by multiple properties as an alternative to individual, on-site ponds. For example, this was the approach of the regional stormwater pond constructed at the Trailhead site in 2017 as an outcome of the Brooksville Community Redevelopment Area Stormwater Master Plan.

This approach has several benefits over the on-site model:

- Facilitates redevelopment by removing the need for large and costly on-site facilities.
- Facilitates redevelopment by allowing for more of each parcel to be used.
- Provides the county with more control over stormwater facilities to expand the use of Best Management Practices that are typically not utilized in private facilities.
- Enables the facility to be designed with a higher total storage capacity, improving the resilience of the surrounding community from extreme rain events that would overwhelm smaller single-property ponds.
- Enables more strategic pond location siting to work with natural systems and existing topography.
- Facilitates inspections and maintenance by limiting the number of facilities and failure points.
- Enables the incorporation of recreational uses around the facility, increasing access to park facilities and natural environments. In more urban areas, this could incorporate centralized parking facilities which can built with underground stormwater vaults.
- Creates more public parks and amenity space.

The main limitation to this strategy is the challenge in coordinating unassociated property owners. While innovative approaches to implementation of this strategy (such as AAAs) can continue to be explored throughout the PDRP update process, there are two non-exclusive implementation approaches to consider.

The first approach is the provision of the facility by a government agency and allowing surrounding development to discharge their stormwater to it. Public costs are recouped through requiring the builder to pay a "fee-in-lieu" or through collection of property taxes realized through redevelopment enabled by the facility.

The second approach is private or semi-private provision of the regional stormwater facility through a Community Development District (CDD). A CDD is a governmental unit with landowner elected supervisors created to plan, finance, construct, operate and maintain community-wide infrastructure specifically for the benefit of its residents. While the county would have less control over this approach, they can provide resources and set ordinances to guide CDD decisions towards resilient stormwater management practices. Several CDDs already exist in Hernando County.[18]

[17] Housing for All Report - Draft to Boards-Commission.pdf | City of Largo, FL

[18] Community Development Districts | Hernando County, FL

5.1.5 Comprehensive Resilient Transportation Strategy

Hernando County's road network faces distinct coastal and inland flooding risks—from surge events along the Gulf to heavy rainfall hazards feeding into rivers and creeks. This strategy aims to strengthen local roads, evacuation corridors, and critical access points in a way that supports community safety, quick recovery, and coordinated economic development. By weaving resilience into existing processes—from zoning updates to the annual Capital Improvement Program—this approach can protect residents, reduce repetitive disaster costs, and reinforce trust in public infrastructure.

- **Integrate updated flood zone data and storm surge modeling** into all new or substantially improved road projects—particularly in areas around Hernando Beach, Aripeka, Bayport, and near the Withlacoochee River.
- Use the annual **Capital Improvement Program to prioritize upgrades** on road segments that frequently flood or serve as key evacuation or emergency routes, such as Shoal Line Boulevard, Pine Island Drive and CR 550.
- Work with the Hernando/Citrus MPO, FDOT, and Southwest Florida Water Management District to **share hazard projections** and **program vulnerable roadway segments and bridge retrofits**.

Many of the County's low-lying roads could benefit from **protective materials, improved drainage, and natural barriers**. Elevated roadbeds or hybrid "living seawalls" may prevent washouts, limit saltwater intrusion, and bolster public confidence in local infrastructure.

- Incorporate corrosion-resistant surfaces or subgrades in flood-prone corridors, and evaluate living shorelines, wetlands restoration, or vegetative berms to buffer coastal roads from wave action.
- Provide robust drainage systems (bioswales, culverts, or retention basins) that tie into existing or planned stormwater facilities, reducing neighborhood flooding during heavy rainfall.
- Where feasible, combine these upgrades with multimodal elements—like bike lanes, sidewalks, or shared-use paths—so community members retain safe access even if driving becomes temporarily restricted.

A regularly updated and adaptive **asset management program** helps the County target maintenance dollars where they have the greatest benefit. Understanding which roads are on the brink of frequent flood closures can support proactive reinforcement and reduce repetitive repair costs.

- Track pavement condition, culvert capacity, and signal performance through detailed GIS layers and inspections; rank roads for storm-related risk.
- Schedule more frequent inspections for roads with repeated flood losses and align repairs or resiliency upgrades with capital projects already scheduled for those locations.
- Pair vulnerability data with flood insurance savings initiatives (e.g., CRS program enhancements) to illustrate how incremental road improvements can translate to cost savings for residents.

Advanced traffic operations, real-time monitoring, and rapid debris removal keep roads usable when storms approach or floodwaters recede. Quick, data-driven decisions also speed up the County's transition from response to long-term redevelopment.

- Integrate flood sensors, backup power sources, and robust traffic signal housings at intersections along major evacuation routes, using grants or targeted local funds.
- Coordinate with the Sheriff's Office and Emergency Management to close and reopen roads based on live water-level data and share GIS-based route updates with the public.

- Reserve suitable staging areas for debris and sand clearance, especially near major corridors like US 19 and SR 50, so post-storm clean-up happens quickly without lengthy relocation times.

Collaboration with local developers, neighborhood associations, and large employers can unlock **innovative funding partnerships** that reduce the County's financial burden. Linking road improvements with new development can simultaneously address growth demands and hazard exposure.

- Encourage fee-in-lieu or special taxing districts where raising or retrofitting a road benefits a specific set of adjacent projects.
- Collaborate with employers to highlight their interest in improved evacuation routes or safer employee commutes, creating cost-share opportunities that also accelerate project timelines.
- Provide predictable incentives or streamlined approvals for development proposals that incorporate resilient infrastructure or share responsibility for regional stormwater solutions.

After each major storm, County staff can **evaluate how well elevated roads, drainage installations, or natural buffers performed**, and integrate these insights into future projects and land use policies.

- Document field observations and repair costs for roads, bridges, and drainage structures in an after-action report, noting which design features were most effective.
- Incorporate lessons learned into local roadway design standards, building codes, and comprehensive plan updates, expanding or refining existing best practices over time.
- Maintain regular outreach to community stakeholders—publishing data on completed improvements, upcoming projects, and hazard-mitigation outcomes—to build transparency and public support.

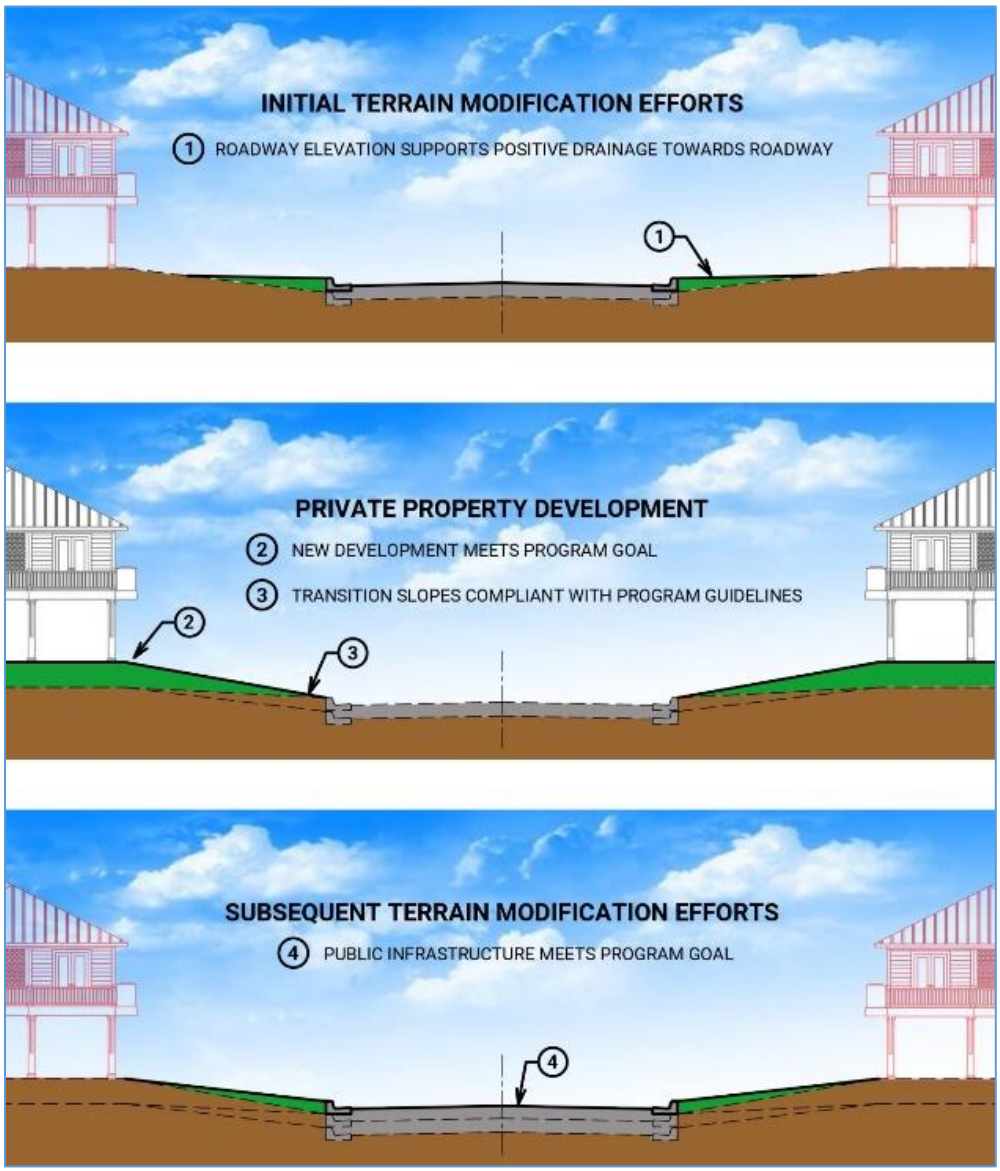
A proactive, locally tailored transportation resilience strategy can safeguard vital routes, support private investment, limit repetitive losses, enhance the effectiveness of long-range planning, and strengthen the County's overall capacity for post-disaster redevelopment. By selecting specific road segments, leveraging partnerships, and capturing lessons after each event, Hernando County can continue to adapt its mobility network to the growing challenges of coastal and inland hazards.

5.1.6 Plan for Context-Sensitive Roadway Elevation

Roadways are essential lifelines for emergency response, evacuation, and community connectivity. However, many coastal and low-lying roads are vulnerable to flooding and damage during storm events and high tides and can be made inaccessible by standing water for prolonged periods of time. This PDRP update can explore innovative methods of thoughtfully raising road surfaces while considering the road's hazards, criticality, character of the surrounding community, and the needs of its various users.

This can be implemented in conjunction with the organic cycle of development to dampen financial burdens over extended time periods and be coordinated with the elevation of surrounding properties. The Pinellas County community of Treasure Island has recently adopted an innovative Terrain Modification Program to promote the coordination of roadway elevation and voluntary private property elevation. This program may serve as a model for a version tailored to Hernando County.

Figure 33: Example Roadway and Property Elevation Program



Source: Elevate Treasure Island Draft Terrain Modification Manual

Additional considerations for the implementation of the roadway elevation strategy include:

- **Prioritized Elevation Projects:** Identify critical evacuation routes, emergency response corridors, frequently flooded road segments, and segments that provide access to critical facilities for priority elevation.
- **Stormwater Management Integration:** Combine roadway elevation with stormwater Best Management Practices including improved drainage systems, bioswales, and infiltration basins to manage runoff and reduce standing water.
- **Context Sensitive Design & Multi-Modal Considerations:** Incorporate sidewalks, bike paths, and transit infrastructure into elevated roadway designs to maintain accessibility and promote mobility choice based on the existing and future context. This can be done through integration with a local roadway context classification system.[19]

Figure 34: Example of Local Florida Government Roadway Context Classifications

[19] 2024 City of Sarasota Draft Engineering Design Criteria Manual

5.1.7 Comprehensive Asset Management & Facility Hardening

A holistic asset management program ensures that local governments can systematically track, evaluate, and maintain infrastructure resources. This approach helps prioritize investments, reduce life-cycle costs, and build community resilience by proactively addressing vulnerabilities before a disaster strikes.

- Develop a centralized database (or a series of databases broken out by responsible department or other categorization, as feasible) of all public assets, including roads, bridges, utilities, public buildings, stormwater infrastructure, natural areas, and other public or semi-public assets.
- Identify relevant hazard to the assets—flooding, storm surge, sea level rise, fire, etc.—and identify critical needs and set adaptation priorities.
- Implement scheduled maintenance programs and plan for strategic upgrades and retrofits based on a data-driven understanding of asset conditions and risk exposure.
- Identify specific post-disaster roles, responsibilities, and potential funding sources for post-disaster redevelopment, recovery, repair, or replacement of the asset.
- Share the status of relevant assets with the broader public so there is clarity in what facilities are usable and what areas are accessible in a post-storm event.
- Prioritize the hardening[20] of critical facilities—such as hospitals, fire stations, emergency shelters, water treatment plants, pump stations and communication centers—must remain operational during and after disaster events. Hardening these facilities involves strengthening structures, utility systems, and technological components so they can withstand hazardous conditions and recover more quickly.

[20] Rebuild Florida Critical Facility Hardening Program - FloridaJobs.org

5.1.8 Energy Grid System Resilience

The relationship between energy demand and hazard vulnerability falls within infrastructure capacity building for post disaster redevelopment needs. Consider these actions as a method for achieving energy supply and demand goals.

- **Evaluate Solar**[21] **energy Production Potential** and the capacity necessary for supporting the installation, operation, and maintenance of applicable facilities.
- Enhance energy grid resilience by **evaluating energy output demands offsetable with microgrid** and decentralized grid options for applicable sites and specialized facilities. Decide criteria as part of this.
- Enhance energy grid by setting energy production projections and meeting them with **centralized**[22] **and decentralized renewable sources**.[23]
- **Capacity build in the industrial sectors** for resilient technology supply inputs such as panels and batteries.
- Consider Urban scale options for solar: in underutilized spaces for **siting and permitting of energy provision**.[24]
- Support Property Owners in conducting rooftop area **solar potential evaluations**.[25]
- Consider supplementing domestic cooling with **Ground-Source Heat Pumps**. Pair GSHP installations at critical facilities (shelters, hospitals, community centers) with solar + battery systems to maintain HVAC during outages, enhancing occupant comfort and safety post-disaster.
- Pair **grid source diversity with redundancy.**[26]
- Coordinate Utility Stakeholders energy demand projections with energy master plans and modeling.
- Consider incentives for households to take part in **property level renewable connections**[27]
- Begin **sourcing industry and labor for energy storage** including batteries[28] for distribution for critical facilities and residential and commercial markets.
- Ensure generator procurement can be sufficiently insulated from disruption via **local capacity alternatives**.
- **Consider building energy systems locally that reduce long term hazard vulnerability** including net positive[10] horizon metrics where energy production and supply are exportable for commerce and utility.
- **Continue expanding ratepayer affordability**[29] through cooperative surpluses and optimizing energy draw efficiencies.
- Continue expanding cooperative energy capacity by increasing renewable production.
- Cooperative return on investment structures for ratepayers as users and stakeholders, **expand ratepayer access to stakeholder decision making**.[30]
- Consider incentives for businesses owners to utilize lower emission equipment, appliances.

[21] https://www.duke-energy.com/our-company/future/solar-and-renewables

[22] https://www.wrec.net/solar-energy

[23] https://www.duke-energy.com/our-company/florida-future/growing-solar

[24] Florida Legislature Solar Facility Approval process 163.3205

[25] https://www.wrec.net/solar-calculatorincentives

[26] https://www.duke-energy.com/our-company/future/self-healing-technology

[27] Solar Energy Subscription - Florida

[28] https://www.duke-energy.com/our-company/future/solar-and-renewables/energy-storage

[29] https://www.duke-energy.com/home/products/clean-energy-connection/incomequalified

[30] https://www.wrec.net/cooperative-principles

5.2 Land Use and Housing Redevelopment

Disasters have the potential to massively disrupt a community, destroy homes, and damage them to the extent they cannot be repaired by the typical community member. This can lead to heartbreaking[31] outcomes where communities are disrupted[32], neighbors are separated, and families are dislocated from homes. This happens both immediately after the disaster and in the following months as homeowners are notified that they will not be able to make repairs without meeting other unaffordable retrofits. The community character may be significantly altered as pre-storm residents are replaced by wealthier ones who can afford the higher housing costs of disaster-impacted communities.[33]

The PDRP update has the regrettable opportunity to observe the ongoing redevelopment activities, which has land use policy updates at the federal, state, and local levels often struggle to attract widespread attention when adopted in blue sky conditions but come into sharp focus as they impact the community's capacity to rebuild after a disaster. Land use and housing policies must be carefully planned to consider how they will impact the community in a post-disaster environment. Before the disaster, land use and housing policies, existing and historical, also have a direct impact on the vulnerability of the community.

5.2.1 Recovery Permitting Plan & Property Owner Guide

The coordination of inspections and permits have been a significant hurdle to redevelopment in communities across Florida impacted by disasters in recent years. Impacted areas see a huge surge in demand for inspections and permitting, exceeding the capacity of local governments. While there is no easy solution to this problem, a few steps can be taken to mitigate this after future events (some of which are now required by state statute.[34]

- Publish a **post-disaster permitting plan** prior to events. This should include plans for both: internal staffing and permitting/inspection procedures; and what assistance will be requested from the Florida Department of Emergency Management and neighboring jurisdictions.
- Publish a **property owners post-disaster permitting guide** which provides an easy to understand overview of the post-storm application processes and rebuilding criteria.
- Establish **mutual aid agreements** with surrounding jurisdictions to quickly mobilize practitioners from other communities.
- Document procedures to train and allow for **certified private parties** to conduct inspections and issue certain permits in times when demand for these services exceeds local capacity.
- Establish temporary remote permitting offices near affected communities.
- Establish **regionally consistent permitting and inspection procedures** to minimize confusion and the need for practitioners to specialize to a singular jurisdiction. Guidance on this will be provided in the Tampa Bay Regional PDRP.

[31] Citrus County fishing village heartbroken after homes fail FEMA '50% Rule'

[32] Ridge Manor residents feel forgotten 8 weeks after suffering hurricane damage | WFLA

[33] Lee County flood insurance prices rise after storm rebuilding Miami Herald

[34] Refer to FL Senate Bill 180 (2025). As of writing, this bill has been adopted by the legislature but not yet signed by the Governor.

5.2.2 Flexible or Permissive Policies for Temporary Uses

Promoting compatibility of adjacent uses is a key function of Future Land Use and Zoning maps. These tools typically emphasize property owners' preferences, property values, and the uninterrupted enjoyment of land—legitimate priorities under normal ("blue sky") conditions. However, effective post-disaster response requires more adaptive decision-making, as communities face urgent demands for sites that can host critical activities and services.

After a disaster, a wide range of temporary uses may be needed, including housing, aid stations, business support centers, and debris collection. Overly strict adherence to the Future Land Use map can unintentionally block these vital functions, leading to legal challenges and logistical difficulties for emergency managers. A flexible policy framework—coordinated with temporary housing[35] and post-disaster programs—gives local governments the latitude to approve, locate, and operate temporary uses where they are most needed to protect the health, safety, and welfare of the community.

Flexibility in allowing temporary uses also supports economic recovery. By allowing businesses to operate in temporary or unconventional spaces such as trailers or pop-up shops, communities can help employers maintain revenue streams and keep workers employed during rebuilding efforts. Pre-event recovery ordinances and emergency zoning overlays, like those recommended by FEMA and the American Planning Association, kick in automatically when a disaster is declared. These measures permit relaxed zoning approvals, expedite permit processes, and accommodate activities (e.g., food trucks, open-air markets) in places not normally zoned for commerce. Short-term relaxations of home occupation rules can further promote entrepreneurship and help businesses adapt quickly.

5.2.3 Improve the County's Community Rating System Ranking

The NFIP Community Rating System[36] (CRS) recognizes, encourages, and rewards – by offering flood insurance premium adjustments up to 45%– community activities that go beyond the minimum required by the NFIP to reduce and avoid flood damage to insurable property, strengthen and support the insurance aspects of the NFIP, and foster comprehensive floodplain management. The CRS offers an important cost savings to Hernando County residents who – like communities around the state – have seen a sharp increase in insurance and other housing costs in recent years.

The county's CRS rating directly tied to county's planning practices to tangible community benefit, and achievement of the highest feasible rating should be prioritized as a goal of the county's floodplain management efforts. As Hernando County updates its Post Disaster Redevelopment Plan, it can explore strategies that will improve the community's CRS rank. The CRS recognizes 19 creditable activities[37] organized under four categories: **Public Information, Mapping and Regulations, Flood Damage Reduction, and Warning and Response**.

Hernando County has been participating in the CRS program since 1992 and currently has a rating of five[38] on a one-to-nine scale, with a lower rating being better. This results in a 25% discount on NFIP policies for Hernando County residents. Further development of this strategy would involve coordination with the county's CRS Coordinator to identify feasible strategies to further improve the rating, ideally working them in to a comprehensive approach to long term redevelopment planning.

[35] https://www.fema.gov/press-release/20241108/direct-temporary-housing-approved-hurricane-helene-and-hurricane-milton

[36] Community Rating System | FEMA.gov

[37] The CRS Coordinator's Manual - CRSresources

[38] fema_crs_eligible-communities_oct-2024.xlsx | FEMA

5.2.4 Establish or Incentivize a Higher Design Flood Elevation

The county's floodplain ordinance sets a Design Flood Elevation (DFE) of the Base Flood Elevation plus two feet. The DFE sets the elevation standard for construction within floodplains, typically exceeding the Base Flood Elevation (BFE) by incorporating additional freeboard. This approach accounts for uncertainties in flood modeling, future sea level rise, and increased storm intensity. This reflects that even minor differences in elevation can have significant impacts on the extent of flood damage.[39]

Further development of this policy should consider:

- To the extent feasible, the DFE should be made easily accessible to builders and municipal reviewers. This critical design criteria should be provided along other development criteria, potentially through the county's online geospatial data hub.
- Expansion of the areas applicable to DFE to include areas at risk of flooding but are outside of the official flood zones. This may include expansion of the regulatory floodplains or creation of advisory floodplain areas where elevation is recommended but not required.
- Incentivize raising residential structures above the minimum DFE through state programs, development incentives, and competitive grant programs.[40]
- Incorporate sea level rise forecasts in the establishment of DFEs in coastal areas. While these forecasts include a range of potential future sea level elevations, incorporating mid-range estimates will improve resilience not only to sea level rise but also storm surge events.
- The tradeoffs of a higher elevation on construction cost, and potential strategies to support cost reduction like workforce training, development support tools (such as pre-reviewed housing plans, pro-forma templates, or small-scale developer resource directories)[41], or fill material source support.

[39] Filled Up: Elevation in Hernando County Prevents Flood Damage | FEMA.gov

[40] Private Property Adaptation | Miami Beach - Rising Above

[41] Build South Bend - South Bend, Indiana

5.2.5 Proactively Promote and Plan for Flood-Resistant Construction

Expand or strengthen floodplain management policies, procedures, and guidance for flood-resistant construction in at risk of flood damage. These techniques include three approaches: Dry Floodproofing, Wet Floodproofing, and Elevated Structures

These techniques are adopted into the Florida Building Code, but the PDRP update can make recommendations to advance their use and provide clear guidance to property owners and builders for pre- and post-event development.

Dry Floodproofing

These construction techniques make a structure watertight, meaning that the interior remains dry even as significant flood events occur. Dry floodproofing allows the lowest occupied floor to be at or below the Design Flood Elevation. However, dry floodproofing is not allowed for residential-only buildings, meaning it is only applicable to commercial or mixed-use buildings.

Flood panels and flood shields are common and cost-effective methods to dry floodproof a structure and can sometimes be installed as a retrofit to an existing structure.

Figure 35 Flood Panel

Section 1612.3.1 of the Florida Building Code states "Dry floodproofing of nonresidential structures and nonresidential areas of mixed-use structures shall not be allowed unless such structures are located outside of High Risk Flood Hazard areas and Coastal High Hazard Areas. Dry floodproofing shall be permitted in Coastal A Zones provided wave loads and the potential for erosion and local scour are accounted for in the design. Dry floodproofing of residential structures or residential areas of mixed-use structures shall not be permitted."

Wet Floodproofing

Conversely, wet floodproofing techniques allow water to enter the first floor of the structure and then easily drain out as flood levels subside. It also allows for walls to be easily drained and cleaned without the need to rip out drywall and conduct significant repairs for mold mitigation—an unfortunately common, costly, and emotionally burdensome task for homeowners and businesses impacted by floods.

When wet floodproofing is used, the lowest occupied floor must be at or above the Design Flood Elevation. The lowest floor also cannot be used for residential or commercial uses, limiting its use to parking, access, and storage. This strategy can be promoted in commercial areas, with residential parking, and in conjunction with live-work and potentially accessory commercial units.

Figure 36: Typical Wet Floodproofed House

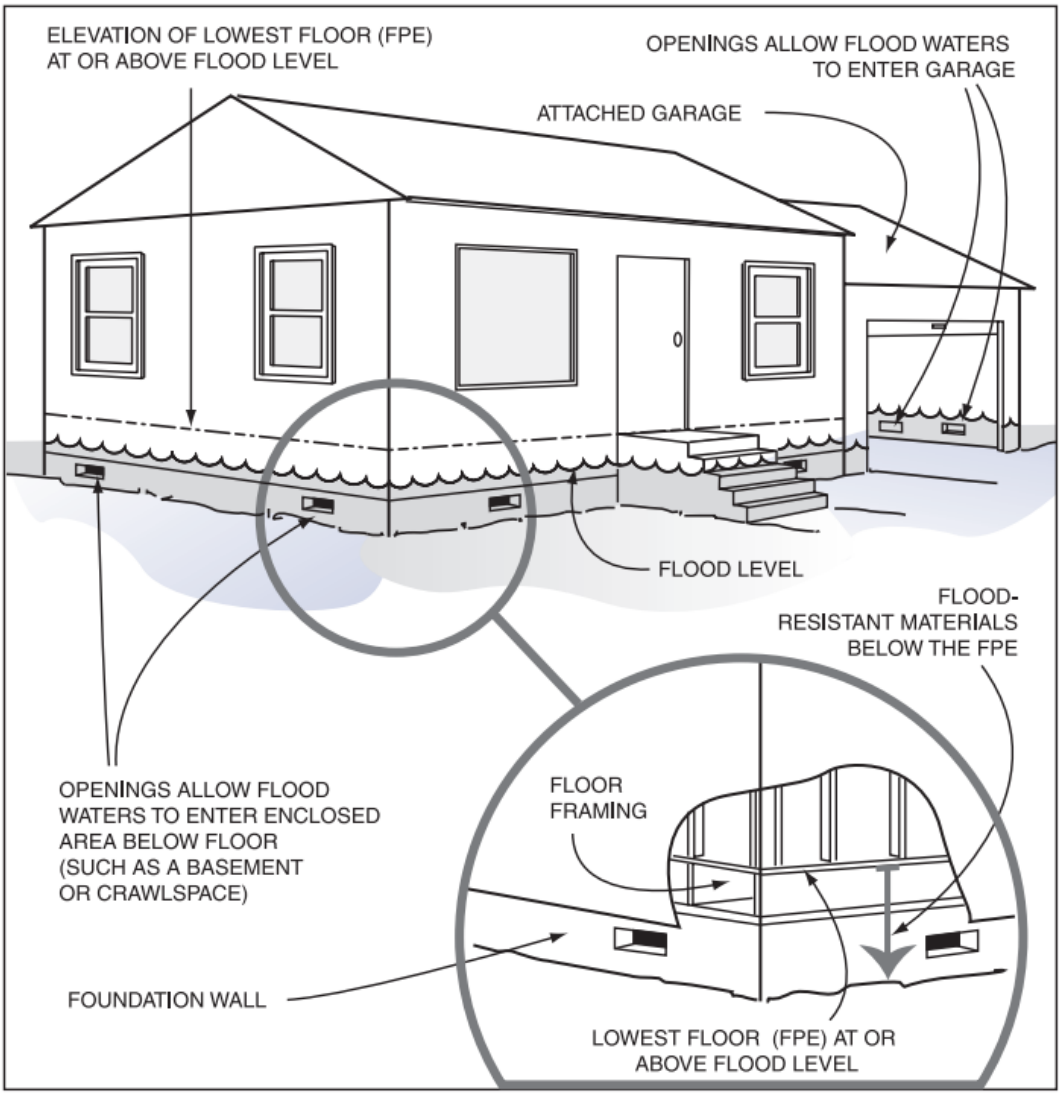


Photo Source: FEMA's Homeowner's Guide to Retrofitting

Elevated Structures

Elevated structures must have their lowest *structural component* at or above the Design Flood Elevation. Elevation may be achieved through a variety of methods, including elevating on continuous foundation walls; elevating on open foundations, such as piles, piers, posts, or columns; and elevating on fill. When the space under the elevated structure is accessible, it may be used for parking, access, or storage and not for residential or commercial use.

Figure 37: A Fort Myers Beach structure rebuilt and elevated after Hurricane Ian

Photo Source: Business Observer

These three construction techniques are enabled through the Florida Building Code. The development of this strategy should relate them to broader redevelopment goals and long term community-visioning efforts. Hernando County should explore a proactive approach to encourage the use of these techniques, identify how they fit into the community's character, and guide how elevated structures interact with their surrounding context through development regulations.

5.2.6 Require Low Impact Development Techniques

Low Impact Development (LID) strategies reduce impervious surfaces, manage stormwater, and utilize natural processes to mitigate flood risks. By incorporating mandatory hazard area setbacks and LID techniques, communities can protect vulnerable areas while enhancing ecological function and property values.

- **Hazard Area Setbacks:** Establish minimum development setbacks from flood-prone zones, coastlines, wetlands, and other sensitive habitats to reduce exposure and preserve protective natural buffers. Where feasible, these setback areas should integrate natural or hybrid defenses like mangroves or sand dunes and maintain access to the water. This may be an expansion of the 75' wetland buffer[42] zones to apply to other delineated features.
- **Cluster Development:** Encourage clustered site designs that preserve open space and natural drainage patterns, reducing the need for extensive stormwater infrastructure.
- **Green Infrastructure:** Require the use of rain gardens, permeable pavements, green roofs, and vegetated swales to slow runoff, increase infiltration, and improve water quality.
- **Plan for Maintenance:** Prioritizing ease of maintenance in green infrastructure design standards will maximize environmental benefits and reduce the cost over the long-term.[43] To the extent feasible, green infrastructure maintenance should be able to be conducted by non-specialized property managers and landscape maintenance professionals.
- **Native Landscaping and Integrated Landscape Management:** Work with the UF/IFAS Hernando County Extension[44] to develop landscaping ordinance that integrate of native plants tolerant to the range of soil and salt conditions in the county to stabilize soils, enhance native Florida ecosystems, and reduce maintenance costs.
- These requirements should be incorporated into existing stormwater regulations, zoning codes, and other regulations to provide consistency and clarity for developers and property owners.

New regulations may be burdensome to builders who are already faced with many regulatory obstacles to constructing homes and businesses. Any new regulation should be reviewed for its impact on development feasibility. When possible, new regulations should be offset with the removal or streamlining of other requirements. For example, properties subject to a new hazard area setback may benefit from reduction of front yard setback requirements.

[42] https://library.municode.com/fl/hernando_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH23PL_ARTVIRIPR_S23-210BUZO

[43] Green Stormwater Infrastructure Maintenance and Planting Manual – UF/IFAS

[44] Hernando County - University of Florida, Institute of Food and Agricultural Sciences - UF/IFAS

5.2.7 Incorporate "Firewise" Design Principles Into Landscape Code

Firewise landscaping focuses on creating a defensible space around home and businesses to reduce the risk of wildfires.[45] This involves reducing fuel loads, using fire-resistant plants, and maintaining a clean, green landscape. By minimizing the amount of flammable vegetation and debris near a home, Firewise landscaping can help slow or stop the spread of a wildfire and provide firefighters with a safe area to operate.

- Update Ordinance Language to Favor Fire-Resistant Plants & Layouts
  - Amend § 10-23 (Tree Preservation) and § 10-24 (Tree Planting) to designate low-flammability[46], long-lived natives as "preferred replacements" within 100 ft of structures. These may include, live oaks, red maple, sparkleberry, dogwood , viburnum, redbud, sycamore, magnolia, beautyberry, oaks, red maple, wild azalea, sweetgum, coontie, winged elm, black cherry, persimmon, wild plum, sugarberry, Florida soapberry, fringetree, ferns, wild olive, blue beech, hophornbeam, sparkleberry, and bald-cypress when planted in a wet zone such as a pond edge.
  - Explicitly discourage highly flammable understory species—saw palmetto, dense wax-myrtle thickets, sand-pine saplings—inside the first 30 ft ("Immediate Zone") of any habitable building.
  - Encourage mulch placed within 5 ft of foundations to be hard-landscape (rock, pavers, chunky hardwood chips) rather than pine straw or shredded cypress.
  - Tailor guidelines and standards based on the USDA Hardiness Zone[47] and fire-risk[48] context of a given property.
- Build "Defensible-Space" Standards into Permitting & Site Plans
  - When a land-clearing or landscape plan is filed under § 10-22 or § 10-25, require the applicant depict three concentric Firewise zones:
    - **0-5 ft Immediate Zone**—non-combustible ground covers only;
    - **5-30 ft Intermediate Zone**—widely spaced shrubs (< 10 ft high), well-irrigated turf or ground-covers, canopy limbs pruned > 10 ft above ground;
    - **30-100 ft Extended Zone**—selective thinning of ladder fuels; canopy continuity > 30 ft.
- Align Subdivision Design with Prescribed-Burn & Fuel-Break Needs
  - For new plats subject to § 10-28, require a 20-ft greenbelt or trail easement (sodded, irrigated, or hard-surfaced) to act as a community-wide fuel break and staging lane for fire apparatus.
  - Where developments border managed conservation lands, mandate a 30-ft shaded fuel break, planted with fire-tolerant, low-flammability natives and kept free of ladder fuels; credit that acreage toward the ordinance's preserved-vegetation requirement.
- Refine Maintenance Provisions & Mulch/Understory Rules
  - Add a new subsection to § 10-21(a)(4) requiring or encouraging annual inspection (self-certified or third-party arborist) of ladder-fuel build-up in required buffers and parking-lot islands.
  - Clarify in § 10-26 that buffer shrubs must be arranged in clumps with 2–3 ft gaps rather than continuous hedges when located within 30 ft of buildings.

[45] View of Developing Land in Florida with Fire in Mind: Recommendations for Designers, Developers, and Decision-Makers | EDIS

[46] Circular 1445/FR147: Fire in the Wildland-Urban Interface: Selecting and Maintaining Firewise Plants for Landscaping

[47] USDA Plant Hardiness Zone Map. Most of Hernando is in Zone 9b with some portions of the south and northeast being 9a.

[48] SGSF WRAP - Basic Viewer

› Couple Tree-Preservation Goals with Strategic Thinning

- Revise § 10-23(a)(3) so that removal of sand-pines < 12 inches in diameter at breast high (DBH), dead palm skirts, or diseased laurel oak limbs inside defensible space can be counted as "mitigated on-site" without triggering inch-for-inch replacement.
- Encourage crown-raising vs. whole-tree removal to maintain shade while eliminating ladder fuels.

› Launch a "Firewise Florida" Guide & Home-Visit Program

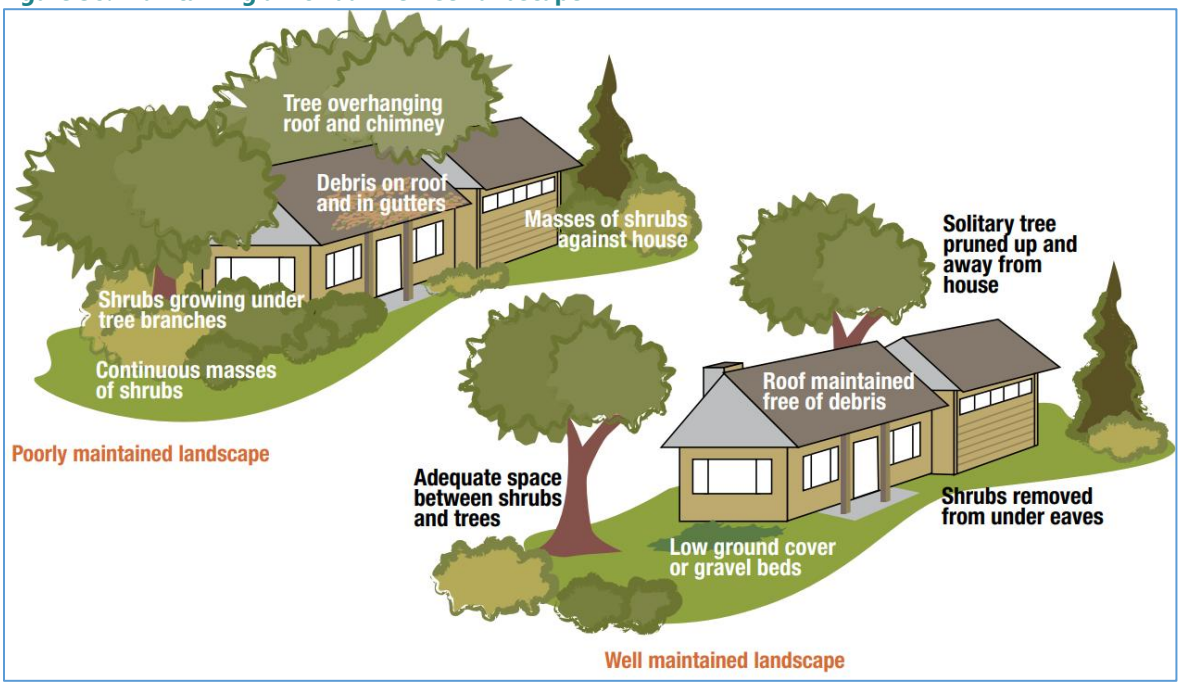
- Partner with UF/IFAS Extension, Hernando County Fire Rescue, and Florida Forest Service to produce an online/printed "Firewise Landscaping Guide for Hernando County"—integrated into the permit-application packet and county website (parallel or integrated with the Stormscaping Guide). This should include guidance to Homeowners Associations on land management plans for natural areas within the subdivision.
- Offer free or low-cost site visits by certified Wildfire Mitigation Specialists for homeowners seeking to meet the new defensible-space standard.

› Integrate Firewise Practices into Post-Fire Response & Recovery

- Include Firewise tips in disaster-debris flyers: which scorched pines can survive, how to dispose of hazardous palm fronds, and fast-germinating ground-covers for erosion control.

By integrating Firewise provisions into §§ 10-21 through 10-26—alongside Stormscaping principles—Hernando County keeps a unified tree-preservation and landscaping framework that simultaneously addresses wind, wildfire, water, and ecological concerns. The strategy aligns with the principles of Integrated Landscape Management (ILM) to provide clear, evidence-based guidelines and standards to developers and property owners which promote community safety, economic resilience, and biodiversity.

Figure 38: Maintaining a Florida Firewise Landscape



Source: Florida Department of Agriculture and Consumer Services, Division of Forestry[49]

[49] RCAP_Wildfire_Risk_Reduction_in_FL.pdf

5.2.8 Incorporate "Stormscaping" Principles into Tree Ordinance

Many of the region's residents are removing trees—even healthy ones—out of fear following recent hurricanes. While some species, such as older laurel oaks, pose legitimate hazards, removing healthy trees can lead to unnecessary loss of shade, wildlife habitat, and other human and environmental benefits. A "Stormscaping" approach would encourage property owners, developers, and local government to prioritize wind-resistant species, conduct proactive maintenance, and align long-term canopy goals with hazard mitigation.[50]

- **Refine Ordinance Provisions to Promote Storm-Resistant Trees**: Revisit Sec. 10-23 and 10-24 to incorporate references to wind-resistant or long-lived species (e.g., live oaks, turkey oaks, magnolias) as preferred replacements when removing hazardous trees. Provide an online or printed "Stormscaping Guide" that draws from the UF/IFAS Urban Forest Hurricane Recovery Program.[51]
- **Refine Ordinance Provisions to Support Succession Planting**: Encourage "succession planting" for older, less wind-tolerant species (like mature laurel oaks at the end of their lifespan) so that younger, hardier trees can grow before the older canopy is lost. This could include ordinance incentives—such as partial credit toward tree preservation requirements—when property owners plant high-resilience species before a required removal.
- **Promote Proactive Maintenance and Expertise**: Collaborate with arborists, local IFAS Extension, and environmental groups to offer voluntary inspections for large or suspect trees. Provide educational materials on identifying rot, pest infestations, or structural weaknesses, reducing panic-based removals. This can be incorporated into the existing permitting process so that homeowners have easy access to credible arborist evaluations.
- **Encourage Replanting in Damaged or Newly Sunny Areas**: When hurricanes remove canopy, give residents practical options for replanting. Provide resources and cost-share opportunities (e.g., discounted native saplings and perennials) for those who want to fill in storm-damaged gaps with wind-resilient and wildlife-friendly species. Emphasize how newly sunny yards can host transitional plantings, like native viburnums or coonties (*Zamia integrifolia*), that tolerate both sun and future shade once replacement trees mature.
- **Highlight Ecological and Community Benefits**: Reinforce that oaks and other native canopy trees are critical to birds, pollinators, and beneficial insects, helping maintain biodiversity and neighborhood character. Combine this with the County's broader messaging so residents see trees not only as potential storm risks but also vital green infrastructure that can mitigate heat islands, slow floodwaters, and support property values.
- **Integrate Stormscaping with Disaster Preparation and Response:** Include "Stormscaping" guidelines in post-disaster communications and debris-removal protocols. For example, create quick-reference materials explaining that immediate removal is warranted for trees that present a hazard, while healthy but wind-damaged trees might recover with proper pruning. A simplified replanting permit could incentivize canopy restoration.

By embedding "Stormscaping" into the existing tree preservation framework, Hernando County can balance hurricane risk reduction with a healthy tree canopy. Over time, this approach will help shift public perception away from "trees are hazards" toward an understanding of ***right tree, right place, proper care***.

[50] Stormscaping: Enjoy ecosystem benefits with careful planning - Bay Soundings

[51] Trees and Hurricanes | UF/IFAS

5.2.9 Expand Redevelopment Options through Blue Sky Zoning Reforms

Providing homeowners more flexibility with their land can alleviate some of the challenges they face when rebuilding.[52] When a disaster damages a home by more than 50% of its value, NFIP policy requires the owner bring the structure into compliance with floodplain standards before non-emergency repairs can be made. Elevating a single-family home is a significant undertaking, with costs influenced by factors such as the home's size, construction type, foundation, and the elevation height required. While there is a wide range of costs due to level of expertise, crew availability, and localized conditions, on average, homeowners can expect to spend between $200,000 and $500,000 or more for this process. In a post-disaster situation where this service is in high demand, costs can be significantly higher.

Although the NFIP offers up to $10,000 toward these costs (though actual payouts are often lower) and the Elevate Florida program provides additional financial assistance to low-income households, many Tampa Bay homeowners after the 2024 hurricane season have concluded they cannot afford the expense or find the process too uncertain, timely, or difficult to navigate. Instead, they sell their homes "as is," often to developers who demolish them and build compliant replacements. To cover redevelopment and elevation costs, developers typically construct larger, more expensive houses than those they replace. This process displaces existing communities after storms and ultimately attracts higher-income residents.

Allowing the homeowner to construct a compliant accessory dwelling unit (ADU[53]), missing middle housing types, or live-work units, can provide homeowners with a wider range of redevelopment options. They can finance elevation or other modifications with future revenue they would not earn by redeveloping to a single detached residence. This allows the homeowner to remain in the community, contribute to Hernando County's post-disaster housing supply needs, and be more financially resilient themselves. This also reduces the property owner's reliance on federal and state subsidies which may be insufficient, made unavailable with unforeseen legislative decisions, or dispersed after long delays.

Under Florida Statute 193.1555, property that is rebuilt within 110% of its original square footage and maintains the same use is protected from being reassessed at full market value. This offers meaningful savings for homeowners able to rebuild in kind but limits flexibility for those who need or want to make more substantial changes. While the statute supports one pathway to recovery, local codes can create alternative options for recovery which does not fit that narrow mold while also expanding the tax base.

This strategy would mean underlying future land use and zoning codes would need to allow additional density within the footprint of already developed areas. This policy direction, should it be pursued, may be controversial among community members who feel it would detract from the rural or suburban character of their communities. However, this strategy would be pursued through the comprehensive planning process that includes stakeholder engagement; identifies context-sensitive density ranges; accounts for utility, transportation, and evacuation route capacity[54]; and strengthens design standards to maintain and enhance community character. Importantly, "missing middle housing scales" similar to single family houses should be considered over the scale of the large apartment complexes many community members envision when they hear "density". Communities across the nation have developed a series of housing strategies to encourage small-scale, locally led development that gives community's more control over their future.[55]

[52] Column: Florida can rebuild smarter after the hurricanes | Jeff Brandes | tbnweekly.com

[53] While Hernando County currently allows ADUs, the owner is not allowed to sell or rent the ADU. This means owners will not be able to earn future revenue, making ADUs an unattractive investment, especially when already stretching finances for post-disaster recovery.

[54] Regional Evacuation Study | Tampa Bay Regional Planning Council

[55] When We Make It Hard to Build, We Give Developers More Power Over Our Communities | Strong Towns

5.2.10 Adopt Pre-Reviewed Housing Plans

Whether they are "pre-designed", "pre-reviewed", or "pre-approved", standardized building templates provided by the local government have the potential to streamline the redevelopment process. Being pursued by local governments across the nation aiming to boost housing supply, this strategy also has a straightforward relevance to post disaster redevelopment efforts. Key features of this strategy may include:

- **Tailor Templates to Hazards:** Develop a library of building plans that meet or exceed local flood and wind resistance standards. These plans should encompass a range of various lot sizes, elevations, and housing types. They can also incorporate enhanced flood resistant design and construction techniques.
- **Integration with Permit Systems:** Incorporate pre-reviewed plans into the local permitting process, allowing property owners to quickly obtain relevant permits after a disaster without extensive design and review steps.
- **Partnerships with Builders:** Collaborate with local architects, contractors, and modular home manufacturers to create a diverse portfolio of high-quality and feasible home designs that appeal to different community segments.

By adopting these pre-reviewed templates, Hernando County can help homeowners rebuild, letting them get back to normal life sooner. This approach reduces the prolonged use of temporary housing—which sometimes lasts multiple years—and facilitates a more efficient recovery process.

Pre-designed or pre-approved plans are a contemporary best practice[56] in housing development and beginning to be adopted in communities across the nation and state.[57] Relatedly, there are also a growing number of modular home developers offering "hurricane proof" products.[58]

Figure 39: Pre-Reviewed Housing Product Example

Source: Orange County's "Ready-Set-Orange" Pre-Designed Housing Product Catalog

[56] Cities moving ahead with pre-approved house plans | Congress for New Urbanism

[57] Ready Set Orange | Orange County Pre-Designed Floorplans

[58] Hurricane Proof Modular Homes Break Into Miami's Construction Scene

5.2.11 Transferable Development Rights (TDR)

TDRs are a widely used "managed retreat" tool which allows property owners in "sending areas" to sell their pre-existing development rights to property owners in "receiving areas." Typically used to prevent sprawl and preserve sensitive lands (such as Crystal River's Three Sisters parcel), TDRs are increasingly being used to direct development away from hazards.[59] As one part of a comprehensive community wide strategy, they can play the key role of guiding development. Guiding development is the key function of the Comprehensive Plan's Future Land Use Element, so the two are closely interlinked.

Below are five factors for Hernando County to keep in mind as they consider a TDR strategy.

1.) Success Depends on a Strong Market

The success of any TDR program largely depends on a strong market for development rights, meaning there needs to be a clear demand for additional density in designated "receiving areas" to incentivize landowners in "sending areas" to sell their development rights. The purchase of these development rights is typically a decision made by a builder and their financer based on the financial performance impact to the development project. If the market conditions are suitable for higher density development, features of the TDR program they consider may include:

- If the development rights available are significant relative to existing entitlements
- If use of the program requires additional processes or significant submittals (studies, plans, renderings, etc.) that would not otherwise be required, especially if their typical development program works without the need for existing density.
- If use of the program presents uncertainty through uncertain or unclear approval processes or criteria.
- If use of the program is likely to be unsupported or controversial in the receiving area community, especially when elected body approval is required.

2.) Foster Trust in Market Outcomes through Dependable and Objective Zoning

To promote use of the program, any potential TDR program should provide clear and certain value to development projects utilizing them. A higher value means property owners in the sending areas will be more incentivized to participate in the program. The value will be higher the more widely usable they are and how certain the outcomes. In an ideal framework, purchasing development rights is akin to purchasing pre-approved additional density with very clear stipulations.

Established communities in receiving areas (likely in "urbanized", "urbanizing" and "infill" areas of the County as identified in the Comprehensive Plan) are likely to have some level of concern over allowing more density. Allowable densities in these areas should be aligned with the long term vision established within the Comprehensive Plan Future Land Use Element. Context sensitive design standards should be incorporated into zoning codes to ensure by-right development maintains and enhances community character.

3.) Consider the Future of Sending Area Communities

TDR's conceptual goal of "guiding development away from hazard areas" is commendable on its face, but it is vital to consider unintended consequences to sending communities in development of a TDR strategy, as redevelopment presents the opportunity to rebuild more resilient buildings and

[59] Managed Retreat Toolkit » Transfer of Development Rights - Georgetown Climate Center

infrastructure with modern techniques. There are multiple close-knit, established coastal communities in Hernando County, and many see the hazard associated with living on the coast as an inherent tradeoff to the lifestyle and may not wish to see investment directed away from their community. At the same time, after a disaster, many are unable to rebuild for a number of reasons (age, finances, etc.) and look for a way to offload their property without a financial hit, which a successful TDR program would offer.

The drawing of sending area boundaries should be part of a comprehensive, community generated vision[60] for the communities they are located in. The ability of modern building and infrastructure hardening techniques to reduce vulnerability to an acceptable degree of risk is a key consideration, along with evacuation route capacity and clearance times, and how conditions may change in the future.

4.) Plan for the Future of Participating Sending Properties

Because TDRs are a voluntary program, its likely participating properties would "checker" sending communities. Conventionally, the owner of the sending property retains ownership of the land and all non-development property rights. If not addressed, this could result in a surplus of vacant lots maintained at code-minimum standards throughout established communities, providing little else but pervious surface. This is a negative quality of life factor and considered one of the attributes of "blight". Any TDR strategy should consider how these properties can provide lasting value to the remaining community and surrounding environment.

For example, the strategy can explore funding mechanisms to purchase sending properties after rights are transferred away. This would provide for more affordable land in high hazard areas, potentially in existing communities where retrofits are most needed. This could potentially be integrated with the regional stormwater facility strategy. Further incorporating public recreational and open space amenities would provide a transformative positive impact on the remaining community.

5.) Understand Long-Term Administrative Commitments

Many communities have been unsuccessful[61] in their pursuit of a TDR program, in part due to underestimation of the complexity, costs, and long-term nature of maintaining a financial market. The program also requires continuous updates to keep up with the community's changing land use needs and market conditions. Successful programs typically involve the creation of a **TDR Bank** managed by administrative body created by the local government.

[60] Ideally this vision is developed and regularly updated in the Future Land Use Element of the Comprehensive Plan. It is then implemented through the Land Development Regulations. These are two key "crosswalk" policies to identify in PDRP recommendations.

[61] Preserving Miami: An Evaluation of Miami's Transferable Development Rights Program

5.2.12 High-Risk Property Acquisitions (Buybacks)

Property buyback programs offer Hernando County a proactive opportunity to permanently reduce vulnerability in high-hazard areas through voluntary acquisition of flood-prone properties. This managed retreat strategy provides an alternative for property owners repeatedly impacted by flooding, especially in areas where physical infrastructure improvements are either cost-prohibitive or insufficient to mitigate risk effectively.

Target High-Priority Acquisition Areas:

- Prioritize properties identified through hazard vulnerability analyses, repetitive flood-loss data, and community input, specifically targeting locations where redevelopment after future disasters is likely to remain costly or unfeasible. This includes areas with a high frequency of flood insurance claims or locations identified as chronic flood-prone zones.

Leverage Federal and State Funding Sources:

- Actively pursue funding through FEMA's Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA), and HUD's Community Development Block Grant–Disaster Recovery (CDBG-DR) to offset local costs associated with property acquisitions.
- Incorporate acquisition projects into Hernando County's Local Mitigation Strategy (LMS), facilitating efficient access to state-administered mitigation funds and ensuring alignment with broader resilience planning.

Strategic Integration with County Planning Efforts:

- Establish clear criteria for prioritizing acquisitions, including cost-benefit analyses comparing buybacks with potential infrastructure investments in high-risk locations.
- Integrate buyback efforts with broader County initiatives, such as Adaptation Action Areas (AAAs), watershed management, stormwater improvements, and green infrastructure projects, to enhance community-wide resilience and maximize benefits of acquired lands.

Maximize Community and Environmental Benefits:

- Plan for meaningful post-acquisition use of lands, such as conservation areas, stormwater retention basins, recreation, or habitat restoration. Clearly communicate these beneficial outcomes to stakeholders to build community support and mitigate concerns about property value loss and community fragmentation.

Fair Implementation:

- Design the buyback program to prioritize outreach and support to vulnerable communities, particularly those who have limited financial capacity to relocate without assistance.
- Offer relocation assistance, counseling, and financial incentives to allow participating property owners to move to safer locations within Hernando County.
- Set clear criteria on when, if at all, eminent domain would be used.

5.3 Economic Development and Recovery

5.3.1 Business Continuity and Disaster Recovery Planning

After a disaster, prolonged business closures result in a loss of income for employees, a loss of tax revenue for the local government, a lack of access to goods and services, and continued sense of disruption to the entire community. The best way for a business to remain open or reopen quickly after a disaster is for it to implement a Business Continuity Plan to and a Disaster Recovery Plan that was created and practiced before the event. These plans include information on the business's essential functions, the systems and processes that need to be maintained, how to maintain those systems and processes, and how to respond to and recover from an incident or crisis.

These plans must be created by and tailored to individual private businesses, and it is unlikely they can be required to do so. Local government can best pursue this strategy through providing resources, support, and incentives to businesses that have a Continuity Plan and Disaster Recovery Plan in place. Coordination with the Hernando County Chamber of Commerce is recommended for effective outreach and implementation. Resources for this initiative include:

- Planning for Businesses | Florida Disaster
- Ready Business | Ready.gov
- Risk Management Tips from Waffle House | Association for Supply Chain Management
- Business Continuity: Small Business Planning and Considerations | US Chamber of Commerce
- How to Build a Disaster Recovery Plan | US Chamber of Commerce

5.3.2 Public Communication of Areas with Operational Businesses

Even when a business is undamaged or quickly reopens after a disaster, it may continue to struggle if the public is unsure on what areas of the community are inaccessible or not yet wanting visitors. Many people will err on the side of caution and stay home or visit a different location, not wanting to be denied access or intrude on a community not ready for their visit.

Providing the public with up-to-date information on where businesses are operating can help to alleviate this. This could include a GIS based interface, but also press releases, social media posts, news interviews, and other regular outreach modes. When and where appropriate, this could also include events like street festivals or farmers markets to bring people to areas businesses are operating to reactivate commercial activity and provide a community gathering opportunity in challenging time.

5.3.3 Align Workforce Development with Redevelopment Needs

Hernando County offers a range of workforce development initiatives to enhance the skills of its residents and meet the needs of local employers. Accomplishing long term economic development goals and increasing access to the specific labor inputs necessary for reducing vulnerabilities of the infrastructure system that the economy depends on will also facilitate Post Disaster Redevelopment. The Economic Development Administration (EDA) facilitates the Workforce Innovation and Opportunity Act (WIOA) which finances skills and jobs training for workers. In Florida, Career Source administers WIOA locally for human capital development. A Needs Assessment is usually conducted to document local economy labor input needs for County Economic Development Goals such as key industry growth areas.

This strategy can support dislocated workers while meeting redevelopment and exposure and risk reduction needs. Key programs and institutions include:

- **CareerSource Pasco Hernando:** Serving both Pasco and Hernando counties, CareerSource Pasco Hernando provides comprehensive employment and training services. They assist job seekers with career counseling, skills assessments, resume building, and job placement support. Employers benefit from recruitment assistance, training grants, and labor market information.
- **Pasco-Hernando State College (PHSC):** PHSC plays a pivotal role in workforce development by offering a variety of degree and certificate programs tailored to the region's economic needs. In October 2024, PHSC opened the Workforce Development Center at Gowers Corner. This center focuses on training individuals for careers in the construction industry.
- **Suncoast Technical Education Center:** Located in Brooksville, this public technical school is a collaboration between the Hernando County School District and the Office of Business Development. It offers programs for students aged 16 and older, providing technical education and vocational training to prepare them for various careers.
- **Florida High Tech Corridor Council:** Hernando County is part of the Florida High Tech Corridor, an initiative that fosters high-tech industry growth through partnerships supporting research, marketing, workforce development, and entrepreneurship. This collaboration between the University of Central Florida, the University of South Florida, and the University of Florida benefits 23 counties by promoting innovation and economic development.

These initiatives reflect Hernando County's commitment to developing a skilled workforce, supporting local industries, and fostering economic growth. These initiatives will help develop the workforce that will make Hernando County more resilient and rebuild communities when they are damaged in disaster events. Key focus areas the programs above may expand their programming to support this vision are:

- **Local, small-scale builders**[62] who have the construction and financial expertise to develop a range of housing and commercial property types that a respectful of the varied community contexts across the county. This includes training General Contractors to provide labor demanded for post disaster reconstruction.
- **Landscape professionals** familiar with Florida Friendly Landscaping[63] principles who can incorporate native plants into attractive landscapes for commercial, residential, and public projects to reduce stormwater runoff and reduce water, fertilizer, and pesticide needs.
- **Environmental Professionals** can support a range of environmental assessment needs associated with redevelopment.
- **Energy sector professionals** trained through programs such as the Florida Solar Energy Apprenticeship Program (FSEAP)[64] and the Florida Department of Education's Energy Career Cluster[65], who possess expertise in energy technologies to support redevelopment and enhance energy resilience.

[62] Where Did All the Small Developers Go? - Strong Towns

[63] Florida-Friendly Landscaping™ Program - University of Florida, Institute of Food and Agricultural Sciences - UF/IFAS

[64] Florida Solar Energy Apprenticeship Program – Providing a Pathway to Becoming a Florida Solar Contractor

[65] Florida Department of Education's Energy Career Cluster

5.3.4 Strengthen Distribution Networks for Fill and Other Resilient Building Materials

Elevating structures and infrastructure before a storm can significantly reduce future rebuilding costs, yet the high price and scarcity of fill often deter property owners from acting proactively. After disasters, competition for these same materials further inflates prices, delaying rebuilding, especially for properties deemed substantially damaged. By coordinating material sources regionally, aligning stormwater excavations with rebuilding schedules, and creating clear vendor information, Hernando County can cut costs for both pre-storm elevations and post-storm reconstruction.

The TBRPC regularly convenes local governments, agencies, and private sector representatives to discuss regional growth and resilience. These forums (new or existing) can be leveraged to **discuss potential surpluses of fill, aggregate, and other building materials** while identifying constraints.

- Invite quarries, bulk distributors, and municipal departments to share production capacity and surplus at specific TBRPC meetings or working sessions.
- Assess opportunities to coordinate the reuse and recycling of storm debris materials.
- Maintain a running "who-has-what" list of material providers so builders can respond swiftly to price surges or shortages.
- Provide incentives for residents and critical facilities to use more resilient, lower-emitting building materials to reduce the effects of externalities.

Coordinating stormwater excavations with rebuilding or elevation needs can create local fill reserves, reducing logistical hurdles.

- Time major earthmoving efforts—such as pond or canal digs—to generate fill around when building elevations or roadway projects are slated to begin.
- Store excavated soil on stable land outside flood-prone zones, ensuring it meets quality checks before use.
- Share a concise set of sampling and testing steps so excavated materials can be reliably cleared by a geotechnical engineer for new construction or protective retrofits.
- Berms can be used to redirect stormwater flows and shape neighborhood level drainage improvements through collaborating through the Hernando County MSBU.[66]

A simple **online bulletin board** helps property owners and contractors secure materials early and avoid last-minute price spikes.

- Post a directory on the County's Contractor Portal (or another widely used site) listing local suppliers, their contacts, and the types of fill or aggregate they stock.
- Encourage or require registered vendors to update their available volume periodically, giving smaller-scale projects better visibility into real-time supply.
- Tie these listings to broader public notices about upcoming stormwater or roadway improvements, so participants can plan for mutual benefit.

[66] https://www.hernandocounty.us/home/showpublisheddocument/8521/638249487540630000

5.3.5 Adopt a Funding Strategy for a Community-Wide Adaptation Program

This strategy proposes the development holistic approach that weaves together multiple funding sources to support hazard mitigation, long-term resilience, and efficient recovery. By tapping existing federal and state programs—and layering them where appropriate—local governments can pursue infrastructure upgrades, property protections, and other measures while minimizing local budget impacts.

Federal Funding Sources

Below are federal programs frequently used in Florida to fund or finance hazard mitigation and post-disaster recovery. Most require a local or state match, and many can be combined or layered for comprehensive projects.

- **FEMA Hazard Mitigation Grant Program (HMGP):** Post-disaster grants for local mitigation projects (e.g., home elevations, flood control) funded after a Presidential disaster declaration. Typically covers 75% of costs, requiring a 25% non-federal match.
- **FEMA Flood Mitigation Assistance (FMA)**: Targets NFIP-insured properties to reduce repetitive flood losses (elevations, acquisitions, floodproofing). Offers up to 100% federal funding for severe repetitive loss properties.
- **FEMA Public Assistance (PA):** Primary post-disaster funding for debris removal and repair of damaged public facilities (roads, utilities). Includes Section 406 mitigation to rebuild stronger, with federal cost-shares of at least 75%.
- **FEMA Community Disaster Loan Program (CDL):** Low-interest loans to local governments that lose tax revenue due to a declared disaster, helping maintain essential services until recovery stabilizes budgets.
- **HUD Community Development Block Grant – Disaster Recovery (CDBG-DR):** Large, flexible federal grants for long-term recovery following major disasters. Can fund housing repair, infrastructure, and economic revitalization.
- **HUD Community Development Block Grant – Mitigation (CDBG-MIT):** One-time mitigation funding to address risks from future disasters in areas impacted by past events. Often used for critical facility hardening, stormwater upgrades, and planning.
- **U.S. Economic Development Administration (EDA):** Disaster grants to rebuild and diversify local economies. Funds infrastructure, workforce centers, and other projects that restore or strengthen economic resilience after disasters.
- **U.S. EDA Workforce Innovation Opportunity Act (WIOA):** Jobs and skills training program for workforce skill gap needs. Apply program to workforce gap needs to create local capacity in the form of enhancing the local availability of labor inputs for utilities restoration and developing hazard resistance in the built environment. Enhance redevelopment capacity for building resilience and energy systems while supporting dislocated workers.
- **USDA Natural Resources Conservation Service – Emergency Watershed Protection (EWP):** Covers immediate measures to address flood- and storm-related erosion, debris in waterways, and other watershed hazards, typically with a local sponsor providing a 25% match.
- **NOAA/NFWF National Coastal Resilience Fund:** Competitive grants for nature-based coastal protection (e.g., living shorelines, marsh restoration). Focuses on reducing flood and erosion risks while enhancing habitat.

- **Small Business Administration (SBA) Disaster Loans:** Low-interest loans to homeowners, renters, and businesses for repairs and economic injury post-disaster. Although not for county use directly, critical for community-wide rebuilding.
- **FEMA Individual Assistance (IA):** Direct grants to individuals for housing and other needs after a major disaster. Complements local recovery efforts but is not a funding source for government-led projects.
- **FHWA Emergency Relief (ER) Program:** Provides funding for the repair or reconstruction of roads and bridges on federal-aid highways after a disaster. Often combined with FEMA funds for comprehensive transportation recovery.
- **USDA Community Facilities Programs:** Low-interest loans and grants to rural communities for rebuilding public buildings (e.g., hospitals, fire stations) to higher resilience standards post-disaster.
- **FEMA Fire Management Assistance Grants (FMAG):** Reimburses local governments for firefighting costs when a wildfire threatens destruction. It can also lead to post-fire mitigation funding to reduce future erosion or flooding risks.

State Funding Sources

Florida-specific programs offer planning grants, direct homeowner assistance, and large-scale project funding. Many can be used alongside federal sources for match requirements or to expand the scale of local initiatives. Some of these programs are funded through federal programs above and "double dipping" needs to be considered in development of this strategy.

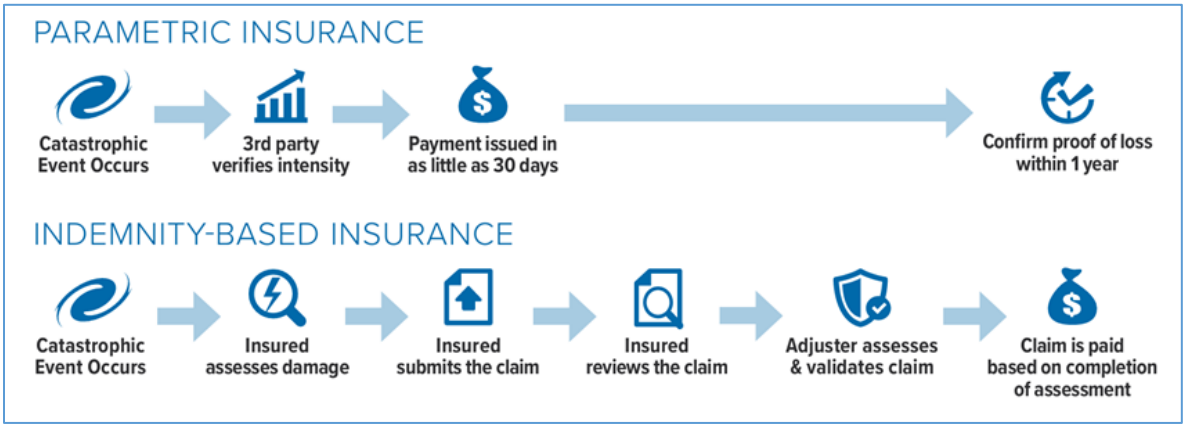
- **Resilient Florida Program (DEP):** Grants to conduct vulnerability assessments and to implement flood and sea-level rise resilience projects. Supports both planning and infrastructure, with potential for 50–100% funding.
- **Florida Resilient Coastlines Program (FRCP):** Technical and financial support for coastal communities to address erosion, sea-level rise, and ecosystem-based adaptation. Often provides smaller grants that serve as groundwork for bigger investments.
- **Elevate Florida (FDEM):** State-run residential elevation program targeting NFIP-insured homes with repetitive flood losses. Homeowners apply directly to the state for grant assistance, reducing local administrative burdens.
- **Hurricane Loss Mitigation Program (HLMP):** Annual state-funded support (approx. $7M) for wind mitigation, mobile home tie-downs, and public education. Counties can receive grants to retrofit public buildings or partner on local residential hardening efforts.
- **Rebuild Florida (CDBG-DR/MIT):** State-managed HUD funding for housing, infrastructure, and voluntary buyouts in disaster-affected areas. Includes programs that can pay the local match on FEMA grants, effectively making mitigation projects 100% grant funded.
- **My Safe Florida Home Program:** Offers free wind mitigation inspections and matching grants (up to $10k) for homeowners statewide to strengthen roofs, doors, and windows. Increases community resilience to hurricane winds and reduces long-term damage.
- **STORM Revolving Loan Fund (in development):** A forthcoming low-interest loan program through FDEM that will help local governments finance hazard mitigation projects. Intended to complement grant funding by covering large capital costs or required local matches.

5.3.6 Expand the Use of Parametric Insurance

Parametric insurance, also known as index-based insurance, provides payouts based on predefined triggers—such as specific weather events or natural disaster metrics—rather than actual assessed losses. For example, a parametric policy might disburse funds when a hurricane exceeds a certain category. Parametric insurance can significantly enhance a county's ability to recover after a disaster. Since payouts are triggered automatically by measurable events, funds are disbursed quickly, providing immediate liquidity for urgent recovery needs. This helps address delays in reconstruction, stabilizes infrastructure, and minimizes economic disruption. This strategy aligns with recommendations from FEMA's National Advisory Council.[67]

Parametric insurance is particularly valuable because it aligns costs with the actual level of risk. Traditional insurance models, such as the National Flood Insurance Program, often fail to reflect true risk exposure, leaving property owners underinsured or paying premiums that do not correspond to their vulnerability. Parametric insurance addresses this gap by using accurate, real-time metrics and advanced modeling to determine triggers for payouts. While parametric insurance may have higher upfront costs, these premiums reflect the actual likelihood and severity of events, ensuring that coverage is appropriately matched to risk. This alignment not only provides certainty to property owners and communities that funds will be available when disaster strikes but also informs real estate investment decisions.

Figure 40: Parametric Insurance Framework



Source: "How Parametric Products Benefit Catastrophe-Driven Risk Transfer," 2020, Amwins

Additional considerations for development of this strategy include:

- **Cost Burden:** While parametric policies offer significant benefits, cost remains a concern for many homeowners who are already facing high insurance and other costs. The county should assess feasibility, potential subsidies, partnerships, and land use policies to reduce or offset premium costs for property owners.
- **Community-Level Policies:** The county can explore purchasing a community-wide[68] parametric insurance policy that provides base-level coverage for residents and businesses. This approach reduces administrative burdens and ensures broad protection for the community.

[67] National Advisory Council Report to the FEMA Administrator, 2019, Recommendation 2019a-04

[68] A Proposed Design for Community Flood Insurance, 2015, Resources for the Future

A

Appendix A:
Disaster Modeling Technical Documentation

Following the Hazus[69] run of a 1000-year magnitude hurricane event to plan for Hernando County by community and consider post disaster redevelopment needs the analysis considered block group level populations across the County with housing, block employment, community services and commerce. A Critical Facilities Index from the FDEP Statewide Critical Assets[70] dataset was supplemented to the 291 Critical Facilities that Hernando County is tracking locally. Infrastructure and critical facility functions were assets analyzed against hazard impacts with a vulnerability score of hazard factors.

Vulnerability (parcel resolution score: "*VADA_MET_V3*") based off water hazard factors and pre 1992 Florida Building Code Update structures. Damage Assessments from the 2024 season were included as a factor in this score.

"*Criticality*" is Block Group[71] resolution composite score reflecting population, jobs, median household income, and poverty to identify where redevelopment capacity is low and economic viability and population dependency are high.

"*Risk*" is a Block group level product score (product in math multiplication sense) that reflects the vulnerability score averaged to the block group then multiplied by the Block Group's "Criticality score" to conceptualize the amount of populace at risk to the physical hazard threat. Be aware there is a second Risk score that is a recalculation of a higher resolution mean of the Vulnerability score (averaged from parcels within 1000 ft rather than the entire block group). The second risk score makes a more informed relationship with infrastructure program decision making.

Source: Longitudinal Employer Household Dynamics Origin Destination Employment Statistics (LEHD LODES)[72], 2022, United States Census Bureau American Community Survey Blocks and Block Groups with FDOR[73] Parcels[74] FEMA[75] and NOAA[76] Flood Hazards

[69] FEMA Hazus Hurricaine Model

[70] https://fdep.maps.arcgis.com/home/item.html?id=8f8043e84f694fb695adc8be67c9ba62

[71] https://fgdl.org/zips/metadata/xml/cenacs_2022.xml

[72] https://lehd.ces.census.gov/doc/help/onthemap/LODESTechDoc.pdf

[73] Florida Department of Revenue 2024

[74] Hernando County Property Aprraiser 2024

[75] https://fgdl.org/zips/metadata/xml/dfirm_fldhaz_dec24.xml

[76] https://www.nhc.noaa.gov/surge/momOverview.php

B

Appendix B: 2012 PDRP Action Plan Goals and Objectives

Table B-1: 2012 PDRP Action Plan Goals and Objectives

Goal #	Goal	Objective
Goal 1: Community Redevelopment (includes Housing, Structural Recovery, Planning, Land Use, Historic Preservation) The County and the cities of Brooksville and Weeki Wachee, agencies and organizations will collaboratively work together to plan for and provide temporary housing for its community members and incoming disaster workforce to support expedient repair and/or replacement of residences and businesses. This will include expedited repair procedures and incorporating hazard vulnerability reduction measures for permanent structures. The County and its municipalities will endeavor to participate in procuring and providing aid for adequate permitting and inspections to accommodate post-disaster volume. Priorities for housing and structural repairs should include establishing criteria for on-site and group site temporary housing to ensure proper zoning, identifying suitable sites, ensuring workforce housing, implementing hazard mitigation, and creating an expedited permitting process. The County and the cities of Brooksville and Weeki Wachee will enforce compliance with applicable regulations for construction and reconstruction, and leverage hazard vulnerability reduction opportunities. Hazard mitigation measures will focus on Special Flood Hazard Areas, Repetitive Loss Areas, and increasing wind loading capabilities, especially for pre-1993 structures. Post-disaster redevelopment should consider rebuilding less vulnerable infrastructure that aligns with Comprehensive Plans. High priority issues include the vulnerabilities identified in Chapter 4.		
Goal 1.1 Support structural repairs, licensing, and permitting to expedite redevelopment.		**Objective 1.1.1:** Develop and maintain an inventory of non-conforming uses and structures, prior to a disaster, to expedite redevelopment orders and permits; evaluate policies regarding nonconformance. **Objective 1.1.2:** Identify a process for expediting permits\\vhb.com\gbl\proj\Tampa\66700.00 Tampa Post-Disaster Plan\tech\03_Risk and Vulnerability Assessment\Hernando County Deliverable\ss\Comprehensive Risk Analysis and Best Practices Report_jj.htm - _msocom_1, based on the type of permit needed.

	Objective 1.1.3: Develop staff augmentation, training, and processing mechanisms to support increased demand in permitting and inspection. **Objective 1.1.4:** Encourage requiring damaged structures to be restored using hazard mitigation measures to reduce hazard vulnerability. **Objective 1.1.5:** Establish a process for vetting contractors from outside the area to ensure only licensed and approved contractors are used. **Objective 1.1.6:** Provide public outreach regarding building repair requirements and hazard mitigation techniques. **Objective 1.1.7:** Educate the general public about the use of licensed contractors after a disaster. **Objective 1.1.8:** Create partnerships within the business community to provide building supplies after a disaster. **Objective 1.1.9:** Establish housing demolition protocols for destroyed homes for absent property owners.
Goal 1.2: Identify short-and long-term housing availability and requirements	**Objective 1.2.1:** Develop policies and procedures ensuring post-disaster housing strategies are consistent with long-term visioning and State of Florida Housing Guidance. **Objective 1.2.2:** Ensure temporary recovery uses are consistent with future land uses. **Objective 1.2.3:** Identify short term housing availability. **Objective 1.2.4:** Establish criteria for on-site temporary housing. **Objective 1.2.5:** Establish criteria for siting requirements for temporary group housing. **Objective 1.2.6:** Ensure adequate housing for special needs populations. **Objective 1.2.7:** Ensure availability of workforce housing. **Objective 1.2.8:** Establish guidelines to transition from shelters to temporary housing.
Goal 1.3: Identify policies and best practices	**Objective 1.3.1:** Evaluate need to revise ordinances/regulatory processes for post-disaster conditions; develop activation thresholds

to support redevelopment efforts	**Objective 1.3.2:** Develop a best practice guide on managing non-conforming uses and appropriate administrative processes for a post-disaster environment. **Objective 1.3.3:** Identify potential sites where public facilities could be relocated if substantially damaged in high hazard areas. **Objective 1.3.4:** Encourage planned development conditions that allow temporary emergency housing. **Objective 1.3.5:** Encourage new homeowner/neighborhood association covenants to include hazard mitigation measures. **Objective 1.3.6:** Identify critical priority redevelopment areas, focusing on the CRA and the Enterprise Zone. **Objective 1.3.7:** Convene Housing/Building/Planning workgroup charettes with residents in high hazard areas to gather redevelopment ideas post-disaster. **Objective 1.3.8:** Adjust transit routes to meet new housing/employment distribution post-disaster.
Goal 1.4: Preserve and restore historical assets throughout the county	**Objective 1.4.1:** Develop historic preservation plan with unique policies for damage assessment, emergency repairs, and stabilization of historic assets. **Objective 1.4.2:** Revise land development regulations to support historic preservation. **Objective 1.4.3:** Incorporate hazard mitigation when preserving/restoring historic assets as per "Disaster Mitigation for Historic Structures." **Objective 1.4.4:** Ensure debris management and temporary housing do not adversely impact historical and archaeological sites. **Objective 1.4.5:** Include historic preservation experts in damage assessment teams in historic areas. **Objective 1.4.6:** Consult with local historic preservation societies to provide input on decisions affecting historical assets. **Objective 1.4.7:** Strengthen collaboration between building departments and historic preservation experts.

	Objective 1.4.8: Provide educational resources for historic property owners on repair/rehabilitation methods.
Goal 2: Economic Redevelopment The county and its cities will support the local business community through pre-disaster continuity and recovery planning, and post-disaster damage assessment, needs identification, infrastructure restoration, employee assistance, and funding. High priority issues include determining/prioritizing business recovery resources, identifying funding sources, establishing a business recovery center, assessing damage and impacts, and tracking data.	
Goal 2.1: Develop strategies for pre-disaster business continuity and recovery planning	**Objective 2.1.1:** Identify gaps/weaknesses in business preparedness and continuity planning locally. **Objective 2.1.2:** Develop a website with tools to assist in business continuity plan creation. **Objective 2.1.3:** Pre-identify large businesses that can assist small businesses post-disaster. **Objective 2.1.4:** Establish varied activities to provide knowledge and technical expertise for continuity planning.
Goal 2.2: Identify and prioritize post-disaster business recovery resources	**Objective 2.2.1**: Identify needed business recovery resources for local businesses. **Objective 2.2.2:** Identify recovery resources that can be provided by local businesses. **Objective 2.2.3:** Develop a list of key/essential businesses and points of contact. **Objective 2.2.4:** Identify alternate locations for local businesses. **Objective 2.2.5:** Develop and implement Business Recovery Centers (BRCs) providing phone, internet, and employee communication access. **Objective 2.2.6:** Implement expedited permitting for business repairs/reconstruction.
Goal 2.3: Support post-disaster damage and impact	**Objective 2.3.1:** Develop and implement a program for business owners/staff to assess post-disaster losses. **Objective 2.3.2:** Leverage tax incentives from damage assessments and property re-evaluation post-disaster.

assessment for local businesses	**Objective 2.3.3:** Identify existing tax/incentives in CRA/Enterprise Zones to leverage post-disaster.
Goal 2.4: Identify post-disaster funding resources for business recovery	**Objective 2.4.1:** Develop/maintain a list of federal/state/local funding sources for businesses on continuity website. **Objective 2.4.2:** Identify banks/financial institutions for bridge loans including agriculturally friendly sources. **Objective 2.4.3:** Identify commercial loans/foundations/corporate philanthropy for pre/post-disaster business funding. **Objective 2.4.4:** Assist with short-term financial assistance (bridge loans) through coordination and technical help. **Objective 2.4.5:** Administer and oversee the NEG grant.
Goal 2.5: Foster retention of local workforce and businesses	**Objective 2.5.1:** Develop a concept and field disaster recovery components to support small businesses. **Objective 2.5.2:** Enhance permitting incentives, regulatory waivers, and logistical support for employers. **Objective 2.5.3:** Identify strategies/resources for workforce transportation countywide. **Objective 2.5.4:** Identify strategies to locate temporary school facilities near housing sites. **Objective 2.5.5:** Identify/develop strategies for business retention and attracting new businesses or reinvestment.
Goal 2.6: Coordinate disaster information sharing (internal/local and external) to ensure consistent messaging	**Objective 2.6.1**: Establish ESF 18 to facilitate business community info gathering, coordination, and dissemination.\\vhb.com\gbl\proj\Tampa\66700.00 Tampa Post-Disaster Plan\tech\03_Risk and Vulnerability Assessment\Hernando County Deliverable\ss\Comprehensive Risk Analysis and Best Practices Report_jj.htm - _msocom_46 **Objective 2.6.2:** Develop/maintain pre-incident notification/warning information sharing network. **Objective 2.6.3:** Develop a unified marketing campaign to ensure consistent media messages for community and potential visitors/investors.

Goal 3: Infrastructure and Public Facilities The county, its jurisdictions, and local utility providers will coordinate to restore infrastructure and public facilities to support recovery. High priorities include deciding whether to rebuild stronger, relocate facilities, restore transportation networks, coordinate with utilities for critical services, and incorporate mitigation and cost-effective techniques.	
Goal 3.1: Support post-disaster damage assessment	**Objective 3.1.1:** Provide GIS training for PDA Teams (Brooksville/Hernando). **Objective 3.1.2:** Collect a GIS inventory of street signs/traffic signals pre-disaster. **Objective 3.1.3**: Identify road network improvements pre-disaster. **Objective 3.1.4:** Identify critical infrastructure mitigation project sites. **Objective 3.1.5:** Conduct PDA of streets and Rights of Way (ROW).
Goal 3.2: Support emergency infrastructure repairs	**Objective 3.2.1:** Develop a methodology to prioritize critical public infrastructure repairs. **Objective 3.2.2:** Determine accelerated measures for demolition of unsafe structures. **Objective 3.2.3:** Develop mechanisms (MOUs, pre-arrangements) to secure external resources for recovery (contractors, support services).
Goal 3.3: Support long-term infrastructure repairs and restoration	**Objective 3.3.1:** Consult LMS for including mitigation measures in utility restoration planning. **Objective 3.3.2:** Repair/maintain drainage facilities to minimize repetitive flooding. **Objective 3.3.3:** Prioritize repair of streets/signals/signage based on business/workforce needs, schools reopening, and access to critical facilities. **Objective 3.3.4:** Incorporate mitigation, smart growth, and sustainability into infrastructure redevelopment decisions.
Goal 3.4:	**Objective 3.4.1:** Implement FDOT debris removal contract and Hernando County Debris Management Plan. **Objective 3.4.2:** Establish a debris collection monitoring plan.

Support Debris Management Operations	**Objective 3.4.3:** Monitor debris sites to prevent environmental/ecosystem damage (invasive species, runoff, seepage). **Objective 3.4.4**: Ensure debris removal is environmentally sound, protects resources and public health, and restores wetlands. **Objective 3.4.5:** Ensure debris management strategies address a major/catastrophic event.
Goal 4: Health and Social Services The County, Health Department, DOH, health care providers, agencies, and organizations will coordinate to deliver health and social services post-disaster. High priorities include meeting increased demand for physical/mental health care, ensuring proper long-term functioning of facilities, alternative service providers, reestablishing schools, and ensuring accessible service centers.	
Goal 4.1: Maintain an adequate, responsive medical workforce post-disaster	**Objective 4.1.1:** Identify strategies for out-of-county medical professionals to commute or be housed locally to ensure patient access. **Objective 4.1.2:** Develop incentives to attract/retain medical professionals. **Objective 4.1.3:** Identify efficient placement of healthcare workforce, including spousal employment. **Objective 4.1.4:** Develop mutual aid agreements with area/regional facilities and coordinate with Career Central for recruiting medical staff. **Objective 4.1.5:** Identify need for onsite office space (trailers/modular) during reconstruction for healthcare providers.
Goal 5: Environmental and Natural Resources Restoration *Goal text not included in PDRP document.*	
Goal 5.1, its objectives, and Goal 5.2 are missing from provided PDRP document. *It appears to be a page missed in the scan.*	**Objective 5.2.1:** Ensure debris management does not adversely impact environment/ecosystems (hazardous chemicals, contaminated debris). **Objective 5.2.2:** Conduct outreach to educate the public on invasive vegetation. **Objective 5.2.3:** Educate public/homeowners on consequences of environmental contamination from improper hazardous material disposal.

	Objective 5.2.4: Include environmental experts in damage assessment for natural resources/sensitive areas. **Objective 5.2.5:** Control hazardous spills/disposal to prevent contamination of water bodies/groundwater.
Goal 6: Government Operations, Financing, and Public Outreach The county and its cities, agencies, and organizations will coordinate to restore and maintain government operations and services. This involves sustaining mission-essential functions, maintaining community communication, reestablishing housing/workforce, and securing funding.	
Goal 6.1: Re-establish county/city government functions and communications as soon as possible	**Objective 6.1.1:** Identify buildings suitable for government functions based on Continuity of Operations Plans. **Objective 6.1.2:** Develop emergency staffing policy to utilize non-essential personnel post-disaster. **Objective 6.1.3:** Establish pre-determined communication links on websites for office locations/services/agency link. **Objective 6.1.4:** Explore use of social media for status updates of recovery operations. **Objective 6.1.5:** Prioritize post-disaster activities and adjust staff assignments based on skill sets. **Objective 6.1.6:** Activate MOUs/staff augmentation contracts as needed (developed pre-disaster).
Goal 6.2: Augment financial management capacity	**Objective 6.2.1:** Augment staffing for Grants Compliance Specialist to handle increased disaster grants. **Objective 6.2.2:** Develop tracking procedures for bond funds, external funds, and grants to meet auditing requirements. **Objective 6.2.3:** Develop MOUs with agencies (e.g. United Way) for receiving financial donations. **Objective 6.2.4:** Develop procedures for estimating revenue shortfalls. **Objective 6.2.5:** Pursue private sector grants and corporate philanthropic awards.

Goal 6.3: Encourage public understanding, participation, and engagement in redevelopment decisions	**Objective 6.3.1:** Incorporate post-disaster redevelopment education into disaster preparedness messages. **Objective 6.3.2:** Coordinate scheduled/targeted public outreach and community engagement throughout redevelopment.

C

Appendix C: Key Terms

This report contains terminology that is, generally, not always understood by the broader public. To promote shared understanding and wide accessibility, key terms are defined in this section and broken up by topic.

Disaster Planning Terms

Some of these terms have nuanced meaning in disaster planning that is inconsistent with their use in other contexts.

- **Hazard** generally refers to the probability that a particular event (e.g., hurricanes, floods, wildfires) will occur and the range of likely magnitude of the hazard's attributes. Risks are typically outside of a community's immediate control, meaning that they must adequately prepare for them.
- **Vulnerability,** on the other hand, focuses on how susceptible the community's infrastructure, populations, economy, and critical systems are to these risks. Even if a hazard is likely (high risk), the community may be less vulnerable if structures and infrastructure are well-built, transportation networks are highly connective, and pre-developed response plans are in place and flexible to allow for an adaptive response. Conversely, an area may experience a relatively rare event (lower risk), but if the infrastructure is poorly constructed or located in a high-hazard zone, its vulnerability is high.
- **Risk** is the combination of both hazards and vulnerability, essentially the likelihood of a hazard causing significant damage due to existing vulnerabilities in a particular area; meaning, risk is the potential for loss or harm resulting from a hazard interacting with a vulnerable population or environment.

Redevelopment Terms

- **Community Rating System:** A voluntary program under FEMA's National Flood Insurance Program (NFIP) that incentivizes communities to implement floodplain management practices exceeding NFIP's minimum requirements. By engaging in activities that reduce flood risk, participating communities earn CRS credits, leading to discounted flood insurance premiums for their residents. These discounts range from 5% to 45%, depending on the community's CRS classification.
- **Repetitive Loss Properties:** Properties with two or more claims of more than $1,000 paid by the NFIP within any 10-year period since 1978.
- **Substantial Damage:** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damage condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred.
- **Substantial Improvement:** Any repair, reconstruction, rehabilitation, alteration, addition or improvement of a building or structure the cost of which equals or exceeds fifty (50) percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either:

  - Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions.
  - Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

- **Build Back Standards:** This term refers broadly to the various requirements that dictate how structures should be rebuilt following substantial damage or destruction. These standards are contained across a range of regulatory documents including the Florida Building Code and local amendments, the local floodplain ordinance, and local zoning regulations.
- **Base Flood Elevation (BFE):** The BFE represents the computed elevation to which floodwaters are anticipated to rise during a base flood, which has a 1% annual chance of occurring (commonly referred to as the "100-year flood"). This elevation is determined through hydrological analyses and is depicted on Flood Insurance Rate Maps (FIRMs).
- **Design Flood Elevation (DFE):** The DFE is the elevation to which new construction or substantial improvements in flood-prone areas are required to be elevated or floodproofed. It typically exceeds the BFE by incorporating additional height, known as "freeboard," to account for factors such as future sea-level rise, increased storm intensity, or uncertainties in flood modeling. The DFE is optional and can be established by local floodplain ordinances and reflects a community's chosen level of protection beyond the minimum federal requirements (BFE).
- **Freeboard:** An additional amount of height above the BFE used as a factor of safety in determining the level at which a building's lowest floor must be elevated or floodproofed to be in accordance with local floodplain management regulations.

Hazard-Related Geographies

Coastal Geographies

- **The Coastal Zone:** Hernando County's Comprehensive Plan establishes all areas west of U.S Highway 19 as the Coastal Zone and is subject to certain regulations related to development and activities.
- **Coastal High Hazard Area (CHHA):** Hernando County designates the Coastal High Hazard Area as the area below the elevation of the Category 1 storm surge line as established by the Sea, Lake and Overland Surges from Hurricanes (SLOSH) storm surge model. This area is subject to more stringent regulations related to development and activities.
- **Coastal Construction Control Line:** The line established by the State of Florida which defines that portion of the beach-dune system subject to severe fluctuations based on a 100-year storm surge, storm waves or other predictable weather conditions.
- **Limit of Moderate Wave Action (LiMWA)**: The line on a FEMA flood map that indicates the inland boundary of an area where waves exceeding 1.5 feet in height are likely to occur during a major flood event, essentially marking the edge of a "Coastal A Zone" where moderate wave damage could be expected
- **Building Code Windborne Debris Zone:** The Florida Building Code defines a wind-borne debris region as an area that is prone to hurricanes and has high winds. These regions are subject to stringent building code requirements to ensure structures can withstand impacts from wind-borne debris during hurricanes. This includes the use of impact-resistant windows, doors, or protective coverings that comply with state-approved standards.

Flood Geographies

- **Watershed:** An area of land that water flows across as it moves toward a common body of water, such as a stream, lake or coast.
- **Floodway:** The channel of a river or other riverine watercourse and the adjacent land areas as defined by the effective flood insurance rate map that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.
- **Floodplain:** A general, non-regulatory term used to refer to any land area susceptible to being inundated by floodwaters from any source.
- **Administrative Floodplain Areas:** Hernando County has adopted a series of "Administrative Floodplain Areas" that require compliance with its floodplain ordinance. These areas were developed through detailed watershed studies by the Southwest Florida Water Management District (SWFMD) as part of its Watershed Management Program[77]. This information is not the official FEMA Flood Insurance Rate Map information.
- **Flood Insurance Rate Map (FIRM):** Official map of a community on which FEMA has delineated the Special Flood Hazard Areas (SFHAs), the Base Flood Elevations (BFEs), and the risk premium zones applicable to the community.
- **Risk Premium Zones:** Also referred to as "Flood Insurance Risk Zones" and "Flood Insurance Rate Zones," these areas are shown on the FIRM and used to determine flood insurance rates. These are the SFHA and areas outside the SFHA (Zones B, X, D, M, N, P, E).
- **Flood Hazard Area:** Areas subject to the county's floodplain ordinance and applicable portions of the Florida Building Code that are designated as a flood hazard area on the county's flood hazard map, or otherwise legally designated or otherwise within a floodplain subject to a 1-percent or greater chance of flooding in any year. Additional areas may be considered a Flood Hazard Area if the ground elevation is below the closest applicable BFE, even in areas not delineated as a special flood hazard area on a FIRM. If an area's is designated as a flood hazard area and the ground elevation is above the closest applicable BFE, the area shall be regulated as special flood hazard area unless the applicant obtains a letter of map change that removes the area from the special flood hazard area.
- **Special Flood Hazard Area (SFHA):** Less frequently referred to as High Risk Flood Hazard Areas, these areas are delineated on a National Flood Insurance Program map as being subject to a 1-percent or greater chance of flooding in any given year. Homes in these areas require flood insurance when financed by government-backed mortgages. Special flood hazard areas are shown on FIRMs as Zones starting with "A" or "V".
    - **Zone A:** Areas subject to inundation by the 1% annual chance flood event. Detailed hydraulic analyses have not been performed; therefore, no base flood elevations are shown.
    - **Zones A1-A30:** Numbered A Zones (e.g., A7 or A14); these are areas subject to inundation by the 1% annual chance flood event determined by detailed methods. Base flood elevations are shown.
    - **Zone AE:** Areas subject to inundation by the 1% annual chance flood event, where base flood elevations are provided.

[77] Watershed Management Program | WaterMatters.org

- **Zone AH:** Areas subject to inundation by 1% annual chance shallow flooding (usually ponding) where average depths are between 1 and 3 feet. Base flood elevations are shown.
- **Zone AO:** Areas subject to inundation by 1% annual chance shallow flooding, usually sheet flow on sloping terrain, with average depths of 1 to 3 feet. Average flood depths are shown.
- **Zone AR:** Areas with a temporarily increased flood risk due to the restoration of a flood control system, such as a levee, that has been decertified. Mandatory flood insurance purchase requirements apply.
- **Zone A99:** Areas subject to 1% annual chance flood risk but which are in the process of being protected by a Federal flood control system such as a dam, dike, or levee. "A99" indicates that enough progress has been made in the construction of protective measures that it is considered complete for the purpose of insurance rating. Depths and base flood elevations are not shown within these areas**.**
- **Zone V:** Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. No base flood elevations are provided.
- **Zones V1-V30:** Numbered V Zones (e.g., V5 or V10); these are coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. Base flood elevations are shown.
- **Zone VE:** Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. Base flood elevations are provided**.**
- **Zone VO:** Areas with shallow flooding, typically with depths between 1 and 3 feet, and unpredictable flow paths accompanied by velocity hazards.

› **Moderate Flood Hazard Areas:** These areas are between the limits of the base flood and the 0.2% annual chance (or 500-year) flood. While the risk is lower than in SFHAs, it is not negligible. Flood insurance is not federally required in these zones but is recommended. The zones in this category include:

- **Zone B:** Areas with a moderate risk of flooding, typically depicted as areas protected by levees from 100-year floods or with shallow flooding with depths less than 1 foot.
- **Zone X (shaded):** Areas of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods.

› **Areas of Minimal Flood Hazard:** These areas are outside the SFHA and higher than the elevation of the 0.2% annual chance flood. The risk of flooding is minimal but not entirely absent. Flood insurance is available but not mandatory. The zones in this category include:

- **Zone C**: Areas of minimal flood hazard, usually depicted as above the 500-year flood level. Zone C may have ponding or local drainage problems that don't warrant a detailed study or designation as base floodplain.
- **Zone X (unshaded)**: Areas determined to be outside the 500-year floodplain.

› **Undetermined Flood Risk Areas (Zone D):** Areas with possible but undetermined flood hazards or unstudied areas. Flood insurance rates reflect the uncertainty of the flood risk.

D

Appendix D: Critical Facilities Data

Figure 41: Critical Facilities by Risk

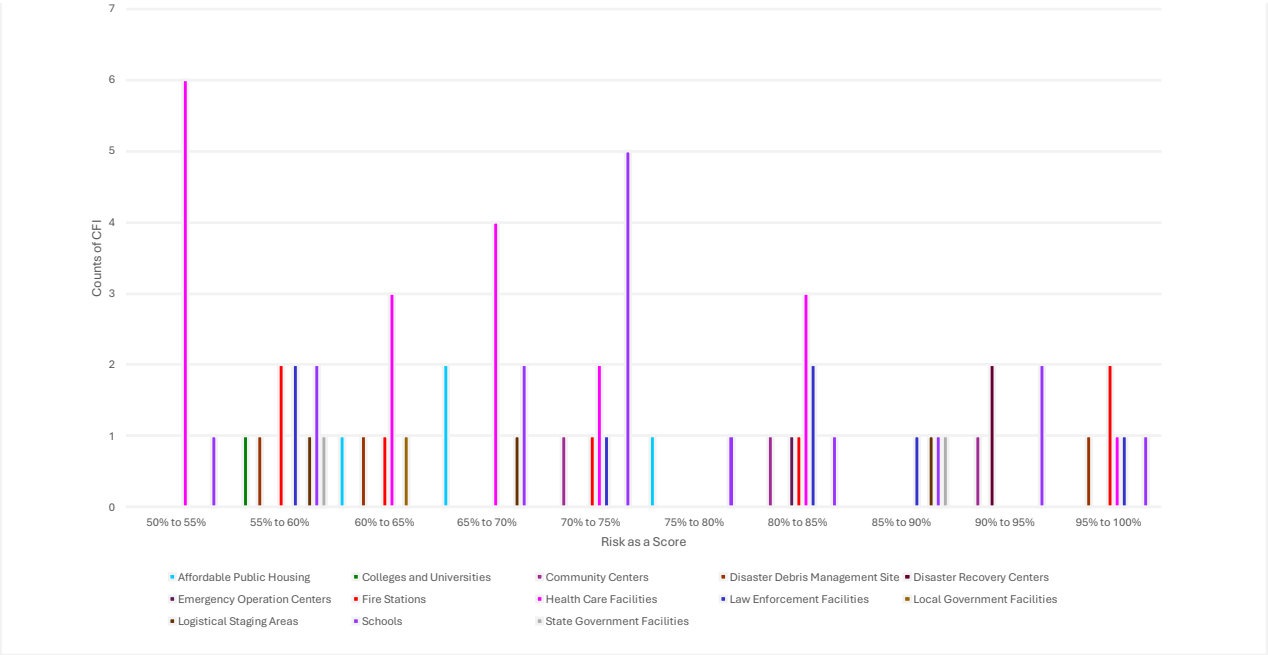


Figure 42: Hernando County Vulnerable Medical Assets

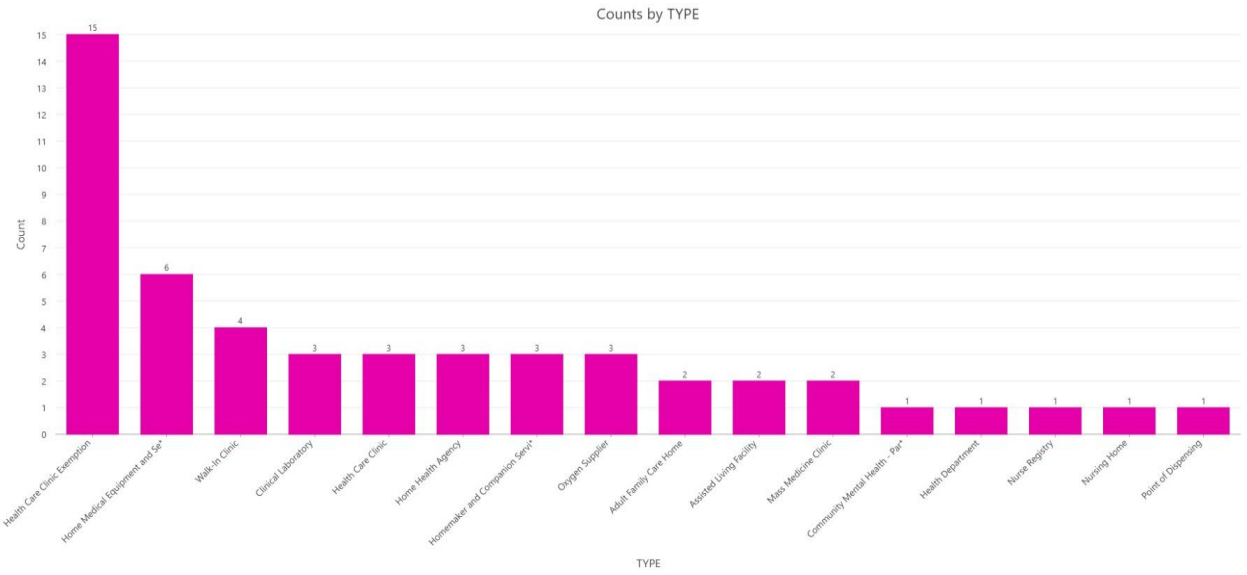


Figure 43: Hernando County Critical Facilities Index by Risk (Layout of CFI Application)

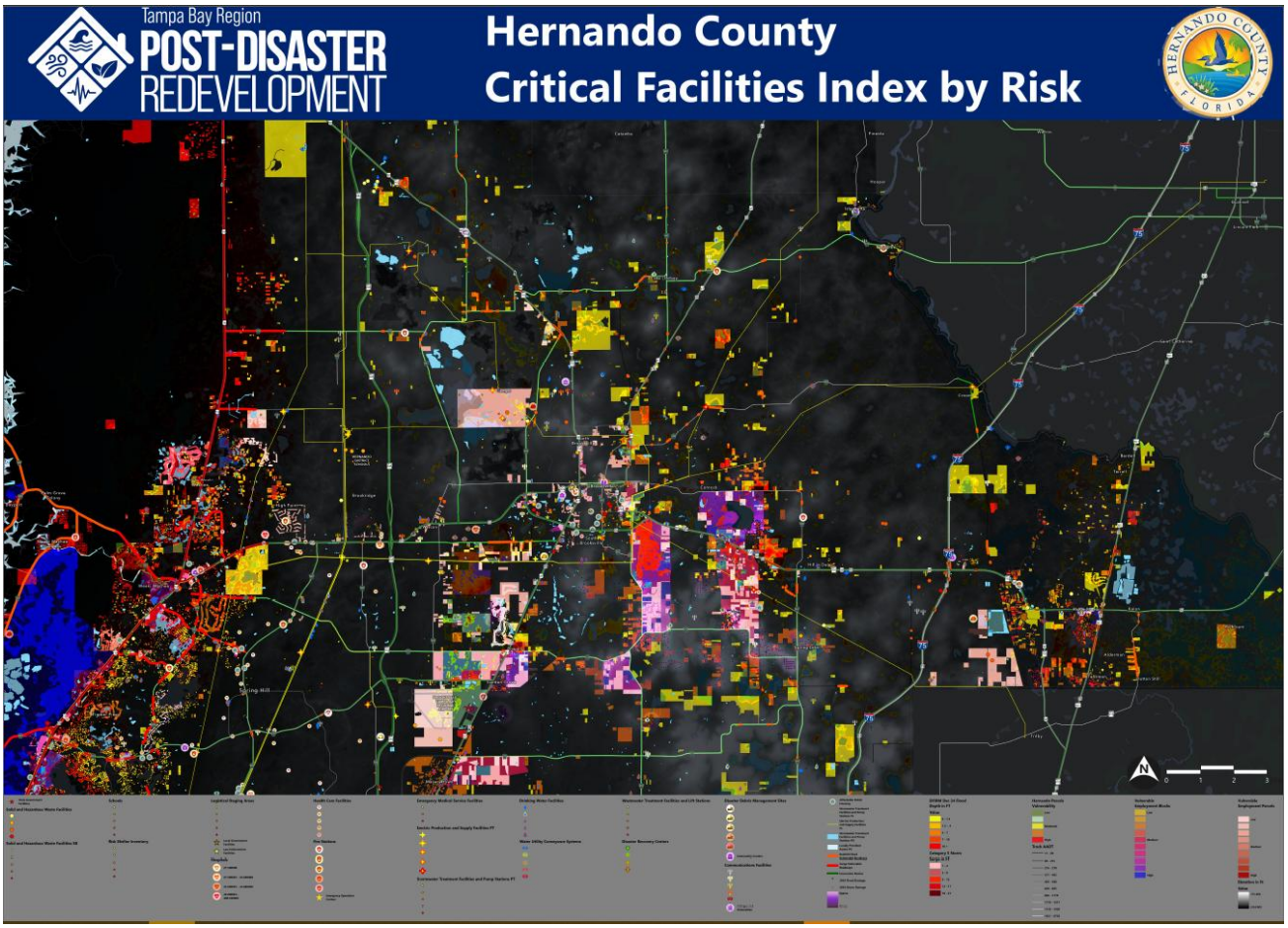


Figure 44:: Critical Facilities by Vulnerability

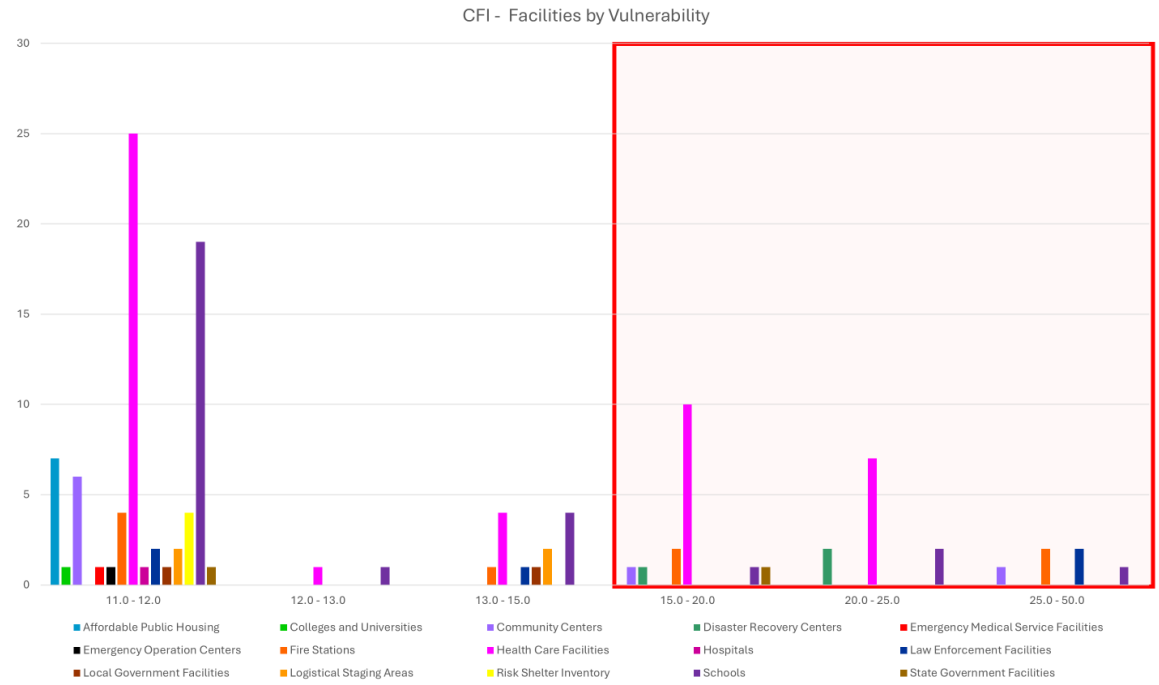
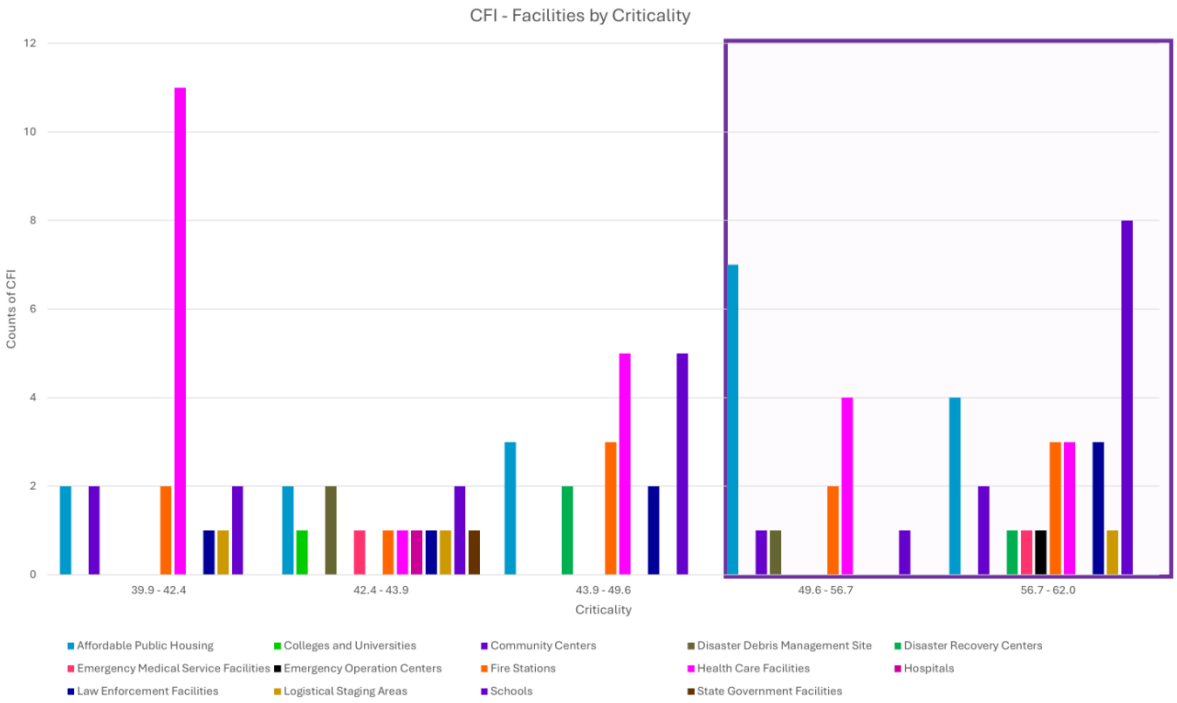


Figure 45: Critical Facilities by Criticality



E

Appendix E: Infrastructure Vulnerability Data

Table 4-6 Estimated Roadways Impacted by Category 5 Surge Event with Average Annual Daily Traffic

ROADWAY	FROM	TO	AADT	TRUCK AADT	MEAN Surge Depth	MAX Surge Depth	MEAN FIRM Depth	MAX FIRM Depth	SLOSH Mi Imp
08610000	CR-595/OSOWAW BLVD	CR-550/CORTEZ BLVD	7,700	424	21.00	21	11	10+	7.17
08020000	CR-476/CENTRALIA RD	CITRUS CO LINE	13,100	1,598	11.60	21	1+	1+	5.54
08020000	SR-50/CORTEZ BLVD	HEXAM RD	25,769	1,314	11.60	21	1+	1+	4.20
08000021	N END BRG 140059	US-19/COMMERCIAL WAY	1,700	94	19.00	21	10+	10+	3.80
08020000	HUNTERS LAKE RD	FOREST OAKS BLVD	41,000	2,993	11.60	21	1+	1+	3.68
08000010	SPRING HILL DR	CORTEZ BLVD	19,500	1,053	6.38	21	0.50	1	3.27
08040500	CR597/SHOAL LINE BLV	US-19/COMMERCIAL WAY	8,900	721	11.30	21	9.32	10+	3.27
08040500	BAYPORT PARK ENTR	CR597/SHOAL LINE BLV	2,500	138	11.30	21	9.32	10+	2.93
08000022	CR-550/CORTEZ BLVD	PINE ISLAND PARK ENT	1,000	55	21.00	21	18.57	10+	2.43
08020000	HEXAM RD	CR-476/CENTRALIA RD	19,200	1,517	11.60	21	1+	1+	2.07
08000008	SPRINGHILL DR	COMMERCIAL WAY	33,000	1,782	6.16	13	0.25	1	2.05
08000044	CORTEZ BLVD	COMMERCIAL WY	8,900	721	7.90	17	1+	1+	1.70

08000009	US-19/COMMERCIAL WAY	N/A	24,500	1,323	5.55	17	0.78	3	1.67
08508000	COMMERCIAL WAY	CITRUS WAY	2,300	127	12.15	21	1+	1+	1.60
08000042	FREEPORT DR	MARINER BLVD	13,500	729	6.39	14	1+	1+	1.34
08000016	US-19/COMMERCIAL WAY	CR-589/DELTONA BLVD	12,000	648	5.16	14	1+	1+	1.28
08020000	FOREST OAKS BLVD	NORTHCLIFFE BLVD	39000	1638	11.60	21	1+	1+	1.26
08040000	JULY AVE	CR-587/MARINER BLVD	41500	1909	6.40	15	-	-	1.19
08020000	CR578/COUNTY LINE RD	HUNTERS LAKE RD	38500	2195	11.60	21	1+	1+	1.08
08040000	COMMERCIAL WAY	JULY AVE	33500	1474	6.40	15	-	-	1.03
08505000	SR-50/CORTEZ BLVD	COMMERCIAL WAY	14500	783	10.88	17	-	-	0.99

The flood risk of Hernando County roadways is most severe according to storm surge impacts especially in connecting coastal Hernando County through the Spring Hill population center. Commercial Way and Spring Hill Drive are particularly vulnerable roadways with approximately 2 miles of roadway impacted.

ROADWAY	FROM	TO	AADT	TRUCK AADT	MEAN Surge Depth	MAX Surge Depth	MEAN FIRM Depth	MAX FIRM Depth	FIRM Mi Imp
08610000	CR-595/OSOWAW BLVD	CR-550/CORTEZ BLVD	7700	424	21	21	11	10+	7.23
08040500	BAYPORT PARK ENTR	CR597/SHOAL LINE BLV	2500	138	11.30	21	9.32	10+	2.94
08000022	CR-550/CORTEZ BLVD	PINE ISLAND PARK ENT	1000	55	21	21	18.57	10+	2.46
08000021	N END BRG 140059	US-19/COMMERCIAL WAY	1700	94	19	21	27.33	10+	2.01
08040500	CR597/SHOAL LINE BLV	US-19/COMMERCIAL WAY	8900	721	11.30	21	9.32	10+	1.08
08000035	SR-50/CORTEZ BLVD	US-41/SR-45/BROAD ST	10500	567	-	-	1	1+	0.78
08507000	US-41/SR-45/BROAD ST	NOBLETON CROOM RD	4000	220	-	-	0.55	2	0.63

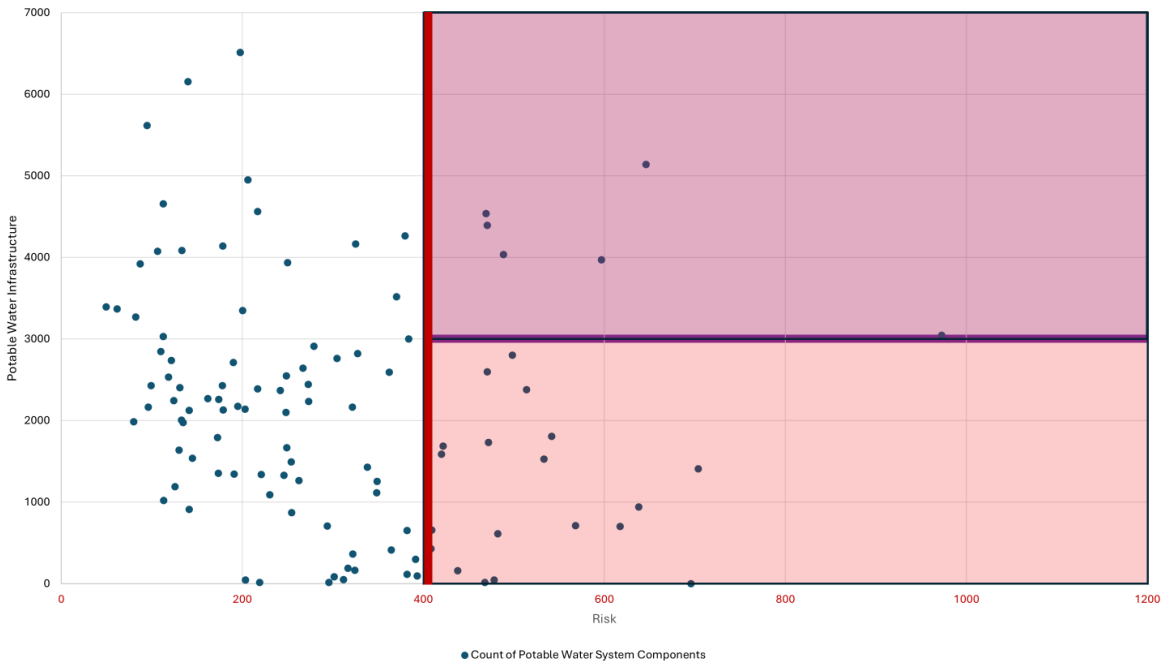
08030000	PASCO CO LINE	SR-50/CORTEZ BLVD	7700	1178	-	-	0.50	2	0.63
08060000	PASCO CO LINE	SR-50/CORTEZ BLVD	750	41	-	-	0.40	2	0.59
08030000	SR-50/CORTEZ BLVD	SUMTER CO LINE	5400	788	-	-	0.50	2	0.59
08050000	US98/SR50/700/CORTEZ	JASMINE DR	27500	6738	-	-	0.33	1	0.56

Table 4-7 Examine for Additional Potential Flood Impacts (as roadway miles)

Roadway ID	From	To	AADT	Truck AADT	Miles
8000043	COUNTY LINE RD	SPRING HILL DR	12,000	648	1.64
8000017	COUNTY LINE RD	CR-572/POWELL RD	24,000	1,320	1.11
8000004	CORTEZ BLVD/SR-50	LAKE LINDSEY RD	700	39	0.83

The following scatter plots convey block groups as points and feature the amount of infrastructure system units within them by risk.

Figure 46: Hernando County Local Potable Water Infrastructure by Risk



Points represent block groups, and the Y axis represents the amount of infrastructure system components within them against Risk score as the X axis.

Figure 47: Stormwater Infrastructure by Risk

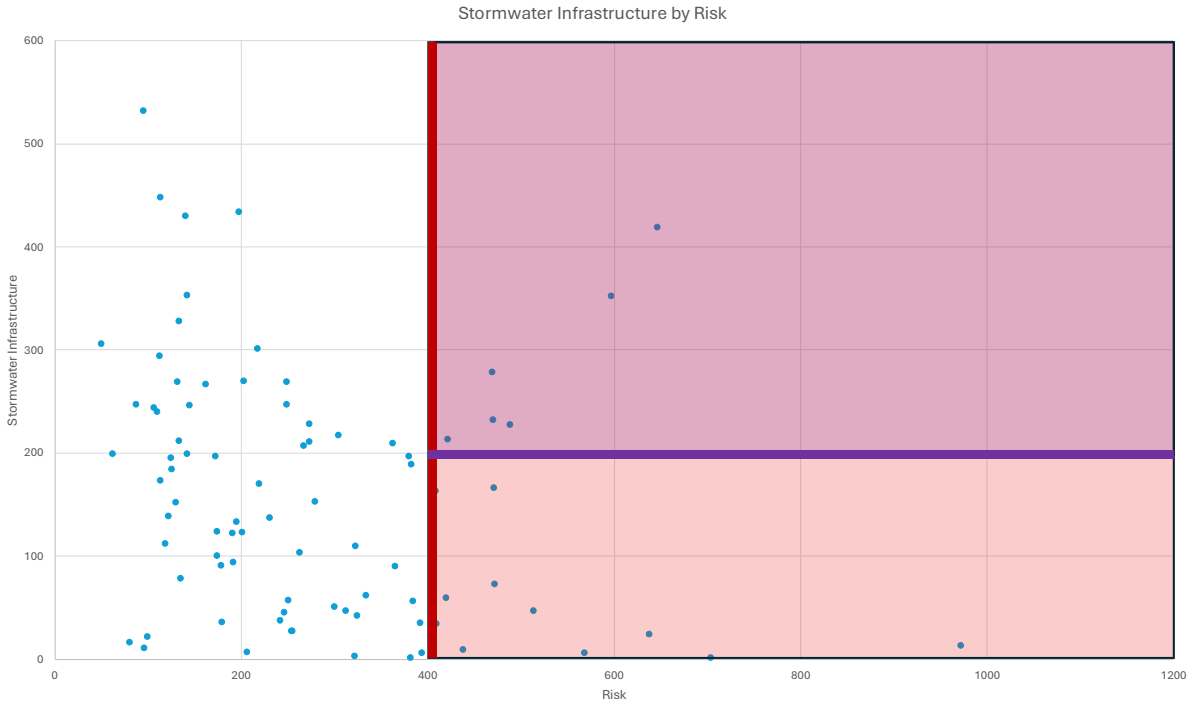


Figure 48: Sanitary Sewer System by Risk