

TASK 4: Adaptation Action Planning. Developing a Citywide Adaptation Action Strategy/Plan (Priority 3 & 4)

Task 4.2 Deliverable:

Based on the modeled scenarios, a robust set of draft goals, objectives and policies that collectively comprise an adaptation action plan/strategy emphasizing the implementation of natural resources that can be integrated into the Comprehensive Plan or serve as a freestanding strategic plan to guide community decision-making and future grant opportunities.

Based on the modeled scenarios shown in Task 1 of this study, the study recommends several changes to the Goals, Objectives and Policies to the City of Marathon's Conservation and Coastal elements to comply with the requirements of the "Peril of Flood" act amendments to Section 163.3178(2)(f). The recommended additions are in red underlined text while text recommended for deletion is ~~stricken~~. The text in grey boxed paragraphs that follow text amendment recommendations includes the legal analysis and reasoning that supports the proposed changes. These recommendations shall also serve the City of Marathon to address sea level rise and resiliency planning in other elements of its Comprehensive Plan.

PURPOSE

Pursuant to Chapter ~~Sections~~ Sections 163.3177(6)(d)&(g), and 163.3178, F.S., the purpose of the Conservation and Coastal Element is to promote the conservation, use and protection of natural resources as well as to plan for, and where appropriate, restrict development and redevelopment activities where such activities would damage or destroy coastal resources, and protect human life and property ~~and~~ while limiting public expenditures in ~~areas~~ locations that are subject to destruction by natural disaster, high tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea level rise. The Conservation and Coastal Element also includes a redevelopment component that outlines the broad Goals, Objectives and Policy principles that must be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise as mandated by Section 163.3178(2)(f), Florida Statutes.

The proposed language clarifies and focusses the intent and purpose of the Conservation and Coastal Element to comply with statutory mandates as well as to identify what specific statutory requirements are implemented.

GOAL 4-1 CONSERVE, MANAGE, USE AND PROTECT NATURAL AND ENVIRONMENTAL RESOURCES

It is the goal of the City to conserve, manage, use and protect the natural and environmental resources within the City to ensure continued resource availability and environmental quality and to manage development and redevelopment activities to protect coastal resources, protect human life and property and limit public expenditures in areas subject to destruction by natural disasters, flooding, and sea level rise. §163.3177(6)d.2, §163.3177(6)(g) F.S. & 163.3178(2)(f).

This proposal complies with §163.3178(2)(f) generally. These additions to Goal 4-1 which establish the broad policy missions of the Coastal Management Element will provide the necessary emphasis to establish a "redevelopment component" that focuses on reducing or eliminating flood risk. The proposed text additions in the introductory "Purpose" paragraph and in the broad policy language

of Goal 4-1 will provide a broad policy foundation for the City of Marathon to enact and implement adaptation and resilience measures.

Policy 4-1.3.3 Surface Water Management and Flood Damage Prevention

The City shall continue to maintain surface water management and flood damage prevention regulations. New development and all redevelopment encroaching into the 100-year floodplain shall incorporate elevation and flood protection measures sufficient to protect against the 100-year flood. The City shall maintain consistency with program policies of the National Flood Insurance Program to ensure that it maintains the highest possible rating within the National Flood Insurance Program's Community Rating System. The City shall monitor and implement new cost-effective ~~programs~~ development and redevelopment principles, strategies, and engineering solutions for minimizing flood damage resulting from high tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea level rise. Such ~~programs~~ principles, strategies, and engineering solutions may include modifications to construction setback requirements, ~~or other~~ site design techniques, as well as upgraded building and construction techniques which include resilient construction techniques and increasing "Freeboard" elevation requirements.

This proposal complies with §163.3178(2)(f)(1), (3) & (4). More than 20 states and hundreds of communities require new construction be elevated higher than FEMA requires, which is based on the 100 year flood plain. The practice of requiring greater elevation than FEMA is known as "freeboard." The additional text proposed here is an aspirational goal for the City of Marathon to consider requiring increasing freeboard and other resilient construction techniques in order to minimize flood damage related to sea level rise and other natural disasters. Such practices not only ensure human health and property will remain safe, but may result in an increased community rating system score which in turn saves residents money on FEMA Flood Insurance. When communities go beyond the minimum standards for floodplain management required by the NFIP, the CRS can provide discounts of up to 45 percent off of flood insurance premiums. However, regulations that require new construction techniques may increase costs to property owners so the City must always balance cost-effectiveness with benefit to the community. Which is why the propose language in Policy 4-1.3.3 is aspirational versus mandatory. But by including this proposed language, the City is further meeting the requirements of §163.3178(2)(f). Refer to the Resources Appendix of this Report for more information about resilient construction techniques and strategies.

Other Florida local governments that have adopted Freeboard redevelopment regulations: Escambia County, City of Layton, Palm Beach County, Village of Tequesta, City of Gulf Breeze, City of Milton, Town of Indian Shores, Town of Longboat Key and Pensacola Beach.

FEMA defines "Freeboard" as follows:

"Freeboard is a factor of safety usually expressed in feet above a flood level for purposes of floodplain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed. Freeboard is not required by NFIP standards, but communities are encouraged to adopt at least a one-foot freeboard to account for the one-foot rise built into the concept of designating a floodway and the

encroachment requirements where floodways have not been designated. Freeboard results in significantly lower flood insurance rates due to lower flood risk.”

For communities participating in the NFIP, structures within the Special Flood Hazard Area (SFHA) are subject to floodplain management regulations that create certain construction requirements to minimize flood risk. The Code of Federal Regulations (44 CFR 60.3c2) requires that the lowest floor of a residential structure (including basement), be at or above the Base Flood Elevation (BFE) if located in the SFHA. However, even though freeboard requirements are not required by NFIP, increasing freeboard in land development regulations can be an effective strategy for mitigating flood risk in certain locations.

Objective 4-1.17 Minimum Coastal Hazards

The City shall continue to maintain Land Development Regulations which regulate development and redevelopment activities in a manner that minimizes the danger to life and property occasioned by hurricane events, high tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea level rise. §163.3178(2)(f) & §163.3178(2)(h) F.S.

This proposal complies with §163.3178(2)(f)(1) & (2).

Policy 4-1.17.8 Strategies for Responding to Sea-level rise

The City will develop strategies for responding to sea-level rise, including consideration of the effects of sea-level rise on potable water sources, saltwater intrusion, septic systems, wastewater treatment facilities and associated systems, the water table, public infrastructure, redevelopment strategies, and affordable housing policies. The City’s planning decisions shall consider and utilize the 1-Foot, 2-Foot, and 3-Foot Sea Level Rise planning horizon projections as established by the Southeast Florida Climate Change Compact’s “Unified Seal Level Rise Projection” report published in October 2015. Those planning horizons are: 1) short term, by 2030, sea level is projected to rise 6 to 10 inches above 1992 mean sea level, 2) medium term, by 2060, sea level is projected to rise 14 to 34 inches above 1992 mean sea level, 3) long term, by 2100, sea level is projected to rise 31 to 81 inches above 1992 mean sea level.

This proposal complies with §163.3178(2)(f)(3). In 2012, the Southeast Florida Regional Climate Change Compact (the “compact”) published its Inundation Mapping and Vulnerability Assessment which included maps and tables that demonstrating potential vulnerability for 1,2, and 3 foot sea level rise scenarios in the Southeast Florida region covering Monroe, Miami-Dade, Broward, and Palm Beach Counties. This Vulnerability Assessment includes three maps of the City of Marathon. The one foot scenario is predicted to occur between 2040-2070, 2 foot from 2060-2115 and 3 foot from 2075-2150. Uncertainty in the tidal surface and the elevation data is presented on each map in two categories: (1) More likely to be inundated defined as 100-75% certainty of a given location having an elevation below sea level at high tide for a given scenario and (2) Possibly inundated defined as 25-74.9% certainty. The maps and tables of information contained in the 2012 Vulnerability Assessment are intended to be used for Hospitals, Schools, Emergency shelters, Evacuation routes, Marine facilities, value of property impacted, acres of future land planning purposes among the four Compact Counties to begin to identify infrastructure at risk and to develop adaptation strategies and policies for

inclusion in the Regional Climate Action Plan to address these risks with the intent of becoming a more climate-resilient community. The 2012 Vulnerability Assessment urges that more complex modeling is necessary to refine predictive capability of actual inundation. Since this analysis was originally performed just prior to 2012, other Counties have used extreme high tide events that occur in the fall of each year to ground truth select locations for inundation from rising seas. The 2012 Vulnerability Assessment is available here:

<http://southeastfloridacclimatecompact.org/wp-content/uploads/2014/09/vulnerability-assessment.pdf>

In October 2015, the Compact published its updated “Unified Sea Level Rise Projection” and those projections are what are recommended be adopted as the base sea-level rise projections for Marathon in Policy 4-1.17.8 above. These projections can be used to estimate future sea level elevations in Southeast Florida and the relative change in sea level from today to a point in the future. The Compact’s 2015 “Unified Sea Level Rise Projection” report provides a “Guidance for Application” section which contains directions and specific examples of how the projection can be used by local governments, planners, designers and engineers and developers. “This regional projection is offered to ensure that all major infrastructure projects throughout the Southeast Florida region have the same basis for design and construction relative to future sea level.” A copy of the Compact’s 2015 “Unified Sea Level Rise Projection” report is available here: <http://southeastfloridacclimatecompact.org/wp-content/uploads/2015/10/2015-Compact-Unified-Sea-Level-Rise-Projection.pdf>

Because the National Flood Insurance Program has adopted NOAA’s “intermediate-high” sea level rise projection as a base minimum projection for the purposes of CRS credit and meeting CRS prerequisites, NOAA’s “intermediate-high” projection for 2100 (as included in its 2012 report “Global Sea Level Rise Scenarios for the United States National Climate Assessment,” should be the minimum sea level rise projection that the City will use for planning purposes. However, the NFIP CRS permits communities to consider other sea-level rise projections provided that they are equal to or greater than NOAA’s “intermediate-high” projection for year 2100. The Southeast Florida Regional Climate Change Compact’s 2100 sea level rise projections are consistent or greater than the NOAA Intermediate High projection of 3.9 feet.

Policy 4-1.17.9 Flood-resistant Development Requirements

All development and redevelopment in the City will be consistent with or more stringent than the flood-resistant construction requirements in the Florida Building Code and applicable floodplain management regulations set forth in 44 C.F.R. part 60. All new development and redevelopment shall incorporate freeboard of at least three feet over minimum Base Flood Elevation as depicted on current FEMA Flood Insurance Rate Maps. The City shall develop and adopt regulations in its Land Development Code to implement this requirement.

This proposal complies with §163.3178(2)(f)(4). As stated by DEO, Subsection 163.3187(2)(f)(4) can be implemented merely by mimicking the statutory language as done here.

Policy 4-1.17.10 Extreme Weather Event Mitigation

The City shall document and maintain maps depicting the extent of flood inundation from extreme high tides (“king tides”), more frequent severe rainfall events, and newly revealed areas at risk of flooding to efficiently target mitigation efforts.

This proposal complies with §163.3178(2)(f)(1), (2), & (3).

Policy 4-1.17.11 Best Practices and Mitigation Strategies

The City shall utilize best practices and initiate mitigation strategies to reduce the flood risk in coastal areas that result from high tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea level rise by incorporating into its land development regulations where practical and economically feasible, resilient construction technique requirements, promotion of living shorelines, protection of coastal marsh and mangroves, and use of innovative natural material breakwaters to reduce wave energy.

This proposal complies with §163.3178(2)(f)(1) & (2).

Objective 4-1.22 Reduce Exposure to Natural Hazards

The City shall reduce or eliminate exposure of human life and public and private property to natural hazards resulting from high-tide events, storm surge, flash floods, nuisance flooding, stormwater runoff, and the related impacts of sea-level rise, through establishment and update of a Post Disaster Redevelopment Plan. In addition, the City shall develop local plan components including policies for managing recovery operations through a Recovery Task Force. §163.3178(2)(f) F.S.

This proposal complies with §163.3178(2)(f)(1).

Policy 4-1.22.5 Manage Redevelopment Activities

The City shall manage unanticipated future redevelopment activities necessitated by hurricane events, high-tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea-level rise or other natural disasters through this Plan, the adopted Land Development Regulations and the City Master Plan. Redevelopment in the City will be consistent with or more stringent than the flood-resistant construction requirements in the Florida Building Code and applicable floodplain management regulations set forth in 44 C.F.R. part 60. Furthermore, in the event that coastal construction control lines become established within the City’s jurisdiction pursuant to Section 161.053, F.S., all construction activities seaward of established coastal construction control lines shall be consistent with Chapter 161, Florida Statutes.

This proposal complies with §163.3178(2)(f)(1), (4) & (5).

Policy 4-1.22.8 Regulate Redevelopment of Non-Conforming Structures ~~Non-Conforming~~ to the Required Base Flood Elevation

If an existing structure which is non-conforming to the required base flood elevation is substantially damaged (based on the definition in Chapter 161, F.S.) or abandoned, it shall be rebuilt ~~only to the extent that complies with the current Flood Plain Management standards for the affected property.~~ to add freeboard at least three feet over minimum Base Flood Elevation as depicted on current FEMA Flood Insurance Rate Maps. The City shall develop and adopt regulations in its Land Development Code to implement this requirement.

This proposal complies with §163.3178(2)(f)(1), (2), & (3). The freeboard suggested here for redevelopment of substantially damaged structures is consistent with other Florida communities (Escambia County, City of Layton, Palm Beach County, Village of Tequesta, City of Gulf Breeze, City of Milton, Town of Indian Shores, Town of Longboat Key and City of Pensacola Beach). While costly for property owners today, the addition of three feet to a substantially damaged or abandoned structure will increase an improved property's resiliency to storm events while also increasing the potential for an increase in the City's CRS score – which in turn could bring an insurance cost savings to property owners.

IV. SECTION 163.3178(2)(F) STATUTORY REQUIREMENTS ALREADY ADDRESSED IN THE CITY'S CONSERVATION & COASTAL ELEMENT

The City's current Conservation and Coastal Management Element already addresses some of the statutory mandates required by Section 163.3187(2)(f). Below are provisions already in compliance with the statute and which further the statute's intent:

Policy 4-1.3.3 Steering development away from danger

"Directing growth away from VE Flood Zones through Local Mitigation Strategies and the Building Permit Allocation System identified in this Plan;" (Policy 4-1.3.1)

✓Complies with Fla. Stat. §163.3178(2)(f)(2), (6)

Policy 4-1.3.3 Surface Water Management and Flood Damage Prevention

The City shall continue to maintain surface water management and flood damage prevention regulations. New development encroaching into the 100 year floodplain shall incorporate elevation and flood protection measures sufficient to protect against the 100 year flood. The City shall maintain consistency with program policies of the National Flood Insurance Program. The City shall monitor new cost effective programs for minimizing flood damage. Such programs may include modifications to construction setback requirements or other site design techniques, as well as upgraded building and construction techniques.

✓Complies with Fla. Stat. §163.3178(2)(f)(2), (6)

Policy 4-1.3.5 Protect Coastal and Estuarine Environmental Quality and the Shoreline

The City shall continue to maintain Land Development Regulations mandating that the potential impacts of shoreline development be analyzed as part of the development review process..... All development shall: ...

e. Reduce exposure to natural hazards;

✓Complies with Fla. Stat. §163.3178(2)(f)(1), (3). The language could be emphasized to ensure that sea level rise projections are considered.

Policy 4-1.3.6 Protect, Stabilize and Enhance Shorelines

The City shall continue to maintain Land Development Regulations that stipulate that no native vegetation shall be removed from shorelines without a duly authorized permit. Similarly, criteria shall be included requiring applicants for development along the shoreline to re-vegetate, stabilize and enhance damaged vegetative shorelines by planting native plant species, which:...

b. Offer protection from erosion and flooding;

✓Complies with Fla. Stat. §163.3178(2)(f)(1)

Policy 4-1.4.8 Shoreline Setback Development Criteria

Minimum coastal construction setbacks in the City shall be established in the Land Development Regulations to protect: ...

d. Structures from the effects of long-term sea level rise;

e. Beaches and shorelines from erosion;

✓Complies with Fla. Stat. §163.3178(2)(f)(1), (2)

Policy 4-1.5.14 Protect Natural Resources through Development Review

The City shall require development review of all proposed development or redevelopment to prevent unnecessary destruction or inappropriate use of existing natural resources and natural sites. Through the development review process the City shall enforce qualitative and quantitative development criteria consistent with the Plan that governs:

a. The management of surface water;

b. The preservation of open space; ...

✓Complies with Fla. Stat. §163.3178(2)(f)(1), (2), (6)

Policy 4-1.17.5 Identify Areas Particularly Susceptible to Damage within the CHHA The Local Mitigation Strategy shall identify areas particularly susceptible to damage within the CHHA; including FEMA designated V-zones within the City and repetitive loss areas as defined by FEMA's analytical model and shall specify procedures for relocating or to replacing public infrastructure away from these locations, where feasible.

✓Complies with Fla. Stat. §163.3178(2)(f)(2), (3), (6)

Policy 4-1.17.6 Limit Redevelopment in CHHA

The City shall limit redevelopment in areas within the CHHA shown by the Local Mitigation Strategy to be particularly susceptible to repeated damage. Criteria for assessing redevelopment potential for these properties shall be addressed within the Post Disaster Redevelopment Plan, to be prepared pursuant to Policy 4-1.22.3.

✓Complies with Fla. Stat. §163.3178(2)(f)(2), (3), (6)

Policy 4-1.17.7 Implement General Hazard Mitigation by Restricting the Density/Intensity of Development.

Maximum densities and intensities within the CHHA shall be restricted by the densities and intensities established pursuant to Policy 1-3.2.7, in conjunction with open space requirements also established by Policy 1-3.2.7, of the Future Land Use Element of this Plan. Based upon the findings of the adopted Local Mitigation Strategy, within the Land Development Regulations, densities and intensities permitted within locations indicated by the Local Mitigation Strategy may further be restricted.

✓Complies with Fla. Stat. §163.3178(2)(f)(2), (3), (6)

V. CONCLUSION AND REFERENCES

This report's authors recommend that, if the above proposed text amendments are adopted, the City of Marathon will fully comply with the new requirements established by Fla. Stat. §163.3178(2)(f). Not only will the City's Conservation and Coastal Element comply with Florida law, but would lay the foundation for future changes that would enhance the resiliency of the City of Marathon's real property and structures to flooding events and potentially increase the City's CRS rating.