

18.0 COASTAL MANAGEMENT ELEMENT

Few university campuses worldwide are located in the type of sub-tropical, coastal setting in which Biscayne Bay Campus of Florida International University is found. This coastal environment offers many opportunities and challenges to the Campus Master Planning process. The challenges include optimizing the amenities offered by the coastal setting, while limiting the vulnerability of the campus to hurricanes, tropical storms, flooding, and sea level rise as well as protecting and enhancing important natural resources (see Element 18.3 and 13.0 Conservation Element Figures 13.1, 13.2 and 13.3).

The State University System is required to assess existing facilities to identify the extent to which each campus has public shelter space adequate to house those students, faculty, and employees expected to seek public shelter prior to or during a disaster and those persons for which the campus has agreed with the local emergency management agency or other voluntary organization to provide shelter space. The State University System is also required to survey existing University facilities to determine those that are appropriately designed and located to serve as shelters. The goals, objectives and policies contained in this element are designed to establish the framework for meeting these requirements.

Coordination with DERM is recommended for all aspects of this element. At the Biscayne Bay Campus this coordination is highly recommended to respond to and protect the shoreline and coastal wetlands existing on site. A DERM Class II permit is necessary to construct any outfall that will discharge to any surface in Miami-Dade County and a DERM Class I permit is required for any work in, on, over or upon tidal waters or coastal wetland in Miami-Dade County.

GOAL 1: Manage FIU development activities to protect, conserve and maintain coastal and estuarine resources on the University property at Biscayne Bay Campus.

Objective 1.1 Implement and manage coastal and estuarine resource policies through the use of appropriate University faculty and staff.

Policy 1.1.1 Utilize knowledgeable FIU experts to oversee the implementation of the coastal resource management policies defined in the Conservation and Coastal Management Elements of this Campus Master Plan. These individuals shall prepare any necessary additional policies, guidelines, procedures and implementation schedules within one year of the adoption of the Master Plan. The adopted Campus Master Plan shall be amended as necessary to incorporate those guidelines, procedures and implementation schedules. The University shall provide a staff person to serve as Environmental Coordinator to manage the activities. The

Environmental Coordinator shall periodically review proposed University improvements and activities to ensure University compliance with the policies defined in the Conservation and Coastal Management Elements of this Master Plan. The Environmental Coordinator shall also periodically review host community, state and federal conservation and coastal management policies to ensure University compliance with these policies.

Objective 1.2 Protect and maintain coastal and estuarine resources on the University property.

Policy 1.2.1 The University shall undertake a binding jurisdictional determination of those areas identified as potentially jurisdictional wetlands in the Inventory and Analysis Document. Determination of jurisdictional wetlands status should be done prior to the commencement of any clearing or building activities in these areas. FIU will endeavor to obtain and comply with all required local, state and federal permits prior to any work in wetlands or tidal waters, or prior to trimming or altering mangroves where feasible.

Policy 1.2.2 Protect and enhance shallow-water communities and sea grass beds in the waters of Biscayne Bay fronting Biscayne Bay Campus by reducing the impacts of contaminated and nutrient rich stormwater runoff to these areas.

Policy 1.2.3 The Environmental Coordinator shall evaluate any proposed changes to the siting of buildings or other University improvements to determine whether such changes are in compliance with regulations governing jurisdictional wetlands. The adopted Master Plan shall be amended as necessary to incorporate the findings and recommendations of the Environmental Coordinator. Piers and docks for recreation and research boats and vessels that require water access may be developed in accordance with local guidelines. FIU shall not site or plan any non-water dependent fixed or floating structures in coastal wetlands or tidal waters, such facilities will be located on upland areas.

Policy 1.2.4 Monitor the water quality of the lakes, canals and mangrove areas on each campus on a quarterly basis. Should the water quality of the water in the water bodies fall below the standards set by the State of Florida Department of Environmental Protection, the Miami-Dade County Department of Environmental Resources Management, the South Florida Water Management District, and the U.S. Environmental Protection Agency, an assessment of probable causes of pollution shall be performed and a plan

developed and implemented to eliminate the point and non-point sources of pollution

- Policy 1.2.5 Perform engineering and design analyses prior to construction of facilities that border the coastal and estuarine habitats to ensure that facilities will not contribute polluted run-off into those habitats.
- Policy 1.2.6 Designate and post the mangrove-lined canals in the northern and southern portions of campus as restricted-access or no-access areas. FIU will avoid and minimize trimming or alteration of any mangroves and obtain required local, state and federal permits prior to trimming or altering mangroves where feasible.
- Policy 1.2.7 Future development activity, except for pathways, landscape improvements and water-access-dependent facilities shall occur no closer than 100 feet from any Biscayne Bay shoreline.
- Policy 1.2.8 Do not engage in water management practices that result in significant or permanent draw-down of the water table.
- Policy 1.2.9 Design buildings, roadways and paths to facilitate and support proper drainage of water to estuarine and coastal habitats. Use structures to maintain drainage into estuarine and coastal habitats.
- Policy 1.2.10 Where feasible, comply with recommendations in the state-approved Miami-Dade County Protection Plan regarding mangroves.

Objective 1.3 Protect beaches, beach strand and dune systems and restore them from the impacts of development.

- Policy 1.3.1 Ensure that the placement of buildings and infrastructure does not encroach on shoreline areas, beach strand or mangrove restoration areas. No future buildings or infrastructure should be located within 100 feet of shoreline areas or beach strand vegetation.
- Policy 1.3.2 Post signs instructing beach visitors not to remove or destroy the beach strand or other native vegetation.
- Policy 1.3.3 Establish designated areas for boat docking, and prohibit such use from the areas with beach strand vegetation.
- Policy 1.3.4 Encourage managed access to the shoreline that is compatible with protection of wetland and aquatic vegetation and sensitive marine resources.

- Policy 1.3.5 Ensure that new construction and operation on campus facilities does not alter the hydrologic regime needed to maintain beach strands.
- Policy 1.3.6 As an element of landscape and pedestrian access improvements to open spaces along the Biscayne Bay shoreline, protect and enhance existing native beach strand vegetation. Use native beach strand vegetation in enhancement plantings in these areas.
- Policy 1.3.7 Monitor existing shoreline stability. Take the appropriate steps to accomplish needed stabilization. Use native vegetation to stabilize beaches and dunes.
- Policy 1.3.8 Protect the shoreline stabilization project carried out by Miami-Dade County Department of Environmental Resources Management (DERM) in 1989-1991.
- Objective 1.4 Limit specific and cumulative impacts of development on natural resources.**
- Policy 1.4.1 In order to protect native vegetative communities, provide a development buffer of at least 25 feet between native vegetative and any future construction projects, including, but not limited to, the siting of buildings, roadways, pathways and recreation facilities. Use visible barriers during construction or maintenance operations to delineate the boundaries of native plant communities and wetlands, where feasible.
- Policy 1.4.2 Maintain a 25-foot minimum buffer zone between future buildings, ancillary facilities and infrastructure and those areas determined to be jurisdictional wetlands (including, but not limited to, mangrove areas).
- Policy 1.4.3 Monitor the surface water hydrology of on-campus areas determined to be jurisdictional wetlands on a seasonal basis. Use resultant hydrologic data to produce a plan to maintain or improve surface water flow into and out of jurisdictional wetlands. Design structures, including roadways and walkways, to maintain the surface water flow to wetland areas. Use visible barriers during construction and maintenance operations to delineate the boundaries of native plant communities and wetlands.
- Objective 1.5 Restore and enhance the coastal natural resources on Biscayne Bay Campus property.**

Policy 1.5.1 Remove invasive exotic plant species from natural vegetation associations. Give priority to removing exotic species from those native vegetation associations indicated in Element 13.3. Focus efforts on the removal of Brazilian pepper (*Schinus terebinthifolius*), melaleuca (*Melaleuca quinquenervia*) and Australian pine (*Casuarina equisetifolia*). Remove exotic species in a manner that minimizes impacts to native vegetation associations. Replant areas where exotic plants have been removed with appropriate native plant species. Removal of exotic species from natural vegetation associations shall be carried out quarterly during the first year and yearly thereafter, unless monitoring activities indicate that more frequent removal is warranted. Refer to Element 13.0, Conservation, for additional guidelines for the treatment of natural resources. Encourage removal of invasive species in mangrove areas near campus that are controlled by North Miami and Oleta State Park to reduce the re-infestation potential on campus.

Objective 1.6 Maintain and enhance water quality in estuarine and aquatic areas on Biscayne Bay Campus. Also see 13.0 Conservation Element policies limiting the impacts of campus operational and maintenance activities on the natural environment.

Policy 1.6.1 Review existing and proposed development activities for compliance with the surface water policies of the South Florida Water Management District. Limit negative impacts of campus activities on soils, wetlands, hydrology and hydroperiod.

Policy 1.6.2 Test storm water runoff for compliance with standards set by the State of Florida Department of Environmental Protection, the Miami-Dade County Department of Environmental Resources Management, the South Florida Water Management District, and the U.S. Environmental Protection Agency. Failure to meet relevant standards for stormwater runoff shall result in an assessment of probable causes and the production and implementation of a plan to improve the quality of runoff.

Policy 1.6.3 Inventory herbicide, pesticide and fertilizer use and evaluate their impacts on campus water quality. Modify or reduce herbicide, pesticide and fertilizer usage to minimize or eliminate negative impacts on water quality.

Objective 1.7 Maintain Consistencies with Host Communities' Coastal Policies:
The University's development activities and environmental protection and enhancement policies shall be consistent with the policies of the City of North Miami and Miami-Dade County

and with all applicable regional, state and federal policies regarding development in the coastal zone.

Policy 1.7.1 On a regular basis, review the host communities' natural resources management plans. If necessary, amend the Campus Master Plan to be consistent .

Policy 1.7.2 On a regular basis, review all applicable rules, regulations and policies governing coastal zone development in the host communities during the planning and development of protection, conservation, restoration, enhancement and management activities. Confirm compliance with the host communities' rules, regulations and policies governing coastal zone development.

Policy 1.7.3 All applicable rules, regulations and policies governing coastal zone development in the host communities shall be adhered to in University development activities.

Policy 1.7.4 Plant and animal species and habitats protected by the host communities or regional, state or federal agencies shall be protected on Biscayne Bay Campus (see policies in the 13.0 Conservation Element of this Master Plan).

Policy 1.7.5 Enhancement and restoration activities of coastal resources shall, at a minimum, be consistent with those activities found in the host communities.

Objective 1.8 Enhance pedestrian and visual access to beach and shoreline areas for FIU students, faculty and staff.

Policy 1.8.1 Due to the availability of oceanfront parks and nearby beach areas at Oleta River State Park, public access to the beach and shoreline at Biscayne Bay Campus is discouraged.

Policy 1.8.2 Improve pedestrian connections along the Biscayne Bay shoreline. Construct a continuous waterfront bike path and pedestrian promenade. Preserve and enhance the bayfront edge as open space. Locate the waterfront pedestrian promenade primarily on upland. Avoid and minimize impacts to coastal wetlands, tidal waters and mangroves.

GOAL 2: Provide adequate hurricane evacuation procedures and facilities for both Modesto A. Maidique Campus and Biscayne Bay Campus.

- Objective 2.1** **Hurricane Evacuation:**
Coordinate with Miami-Dade County, the NOAA National Hurricane Center and regional emergency management authorities to ensure that adequate hurricane evacuation times for residents of Biscayne Bay Campus are maintained or reduced.
- Policy 2.1.1 Order the evacuation of students and other residents of Biscayne Bay Campus upon issuance of a Category 1 or greater hurricane warning, or 24 hours prior to potential landfall whichever is greater. Provide transit vehicles as necessary to ensure that all residents are safely evacuated to Modesto A. Maidique Campus no less than 12 hours prior to expected landfall.
- Policy 2.1.2 Order the relocation of all residents of Modesto A. Maidique Campus to on-campus shelters upon issuance of a Category 2 or greater hurricane warning. Provide transit vehicles as necessary to ensure that all residents are safely relocated to on-campus shelters no less than 12-18 hours prior to projected landfall.
- Policy 2.1.3 In coordination with Miami-Dade County Emergency Management, Florida International University shall survey all students, faculty and staff residing off-campus in coastal or other areas susceptible to storm surge inundation, those residing in structures incapable of withstanding hurricane force winds, and others needing to be evacuated. Based on survey results, modify the FIU "Procedures and Control Operations for Hurricanes" to provide evacuation assistance and on-campus shelter space, if necessary, and coordinate with the Miami-Dade Emergency Operations Plan.
- Policy 2.1.4 Prior to the development of additional student housing or lodging on the Biscayne Bay Campus, FIU shall coordinate with the Miami-Dade County Office of Emergency Management and Greater Miami Convention and Visitors Bureau to develop an evacuation plan that, at a minimum, allows for early evacuation of residents and hotel guests, identifies an off-campus shelter or alternate hotel to accommodate evacuees and establishes a communication plan to notify residents and guests of hurricane evacuation procedures. Such plan should allow for the timely evacuation of residences and lodging facilities without increasing the overall evacuation time for the area as identified in the Miami-Dade County Comprehensive Emergency Management Plan.

**Objective 2.2 Hurricane Shelter Space:
Expand public shelter space at Modesto A. Maidique Campus as necessary to accommodate all students, faculty and staff needing evacuation and double the capacity for evacuating Monroe County residents.**

Policy 2.2.1 Continue to follow construction standards for the construction of University facilities to serve as hurricane shelters.

Policy 2.2.2 Coordinate with Miami-Dade and Monroe County Emergency Operations to refine measures of demand for shelter space on-campus and to determine total additional square footage required, applying a standard of 40 square feet per person, or other acceptable standard, to include the following:

- Student residents of Biscayne Bay Campus and Modesto A. Maidique Campus.
- Students, faculty and staff requiring evacuation from off-campus areas, in areas appropriate for evacuation to the Modesto A. Maidique campus.
- Monroe County evacuees (expected to triple from 5,000 to 15,000 spaces).

Policy 2.2.3 Provide additional on-campus public hurricane shelter space estimated in the following minimum amounts:

<u>Additional Users</u>	<u>Est. Persons</u>	<u>Space Std.</u>	<u>Total S.F.</u>
Additional on-campus students	1,650	40 s.f	66,000 s.f
Monroe County* evacuees	10,000	40 s.f	400,000 s.f
Est. Total Additional need at present			466,000 s.f

* In addition to 5,000 Monroe evacuees for which space is reserved.

Policy 2.2.4 Evaluate and measure the ability to expand shelter space within the Recreation Center and the expanded Graham Center. Evaluate the ability to convert additional existing buildings for use as hurricane shelters. Evaluate the ability of projected and planned

structures to be utilized as hurricane shelters, applying new construction standards.

- Policy 2.2.5 In coordination with Miami-Dade County and Monroe County Emergency Management, develop a phased action plan to establish timing for the retrofitting of designated University facilities for use as public shelters during hurricanes. Preliminary priorities for gaining additional shelter space through retrofitting existing buildings are as follows:
- Priority 1: Expansion of designated shelter areas within the Recreation Center
 - Priority 2: Expansion of designated shelter areas with Graham Center with necessary retrofit to protect or replace glass exterior walls.
 - Priority 3: Utilization and, if necessary, retrofit of hallway areas in U.S. Century Bank Arena.
 - Priority 4: Other existing or planned structures.
- Policy 2.2.6 Coordinate with American Red Cross for the designation of specific portions of existing open land, where feasible, or parking lots adjacent to the Recreation Center and the Graham Center for use in staging emergency management personnel, equipment and resources. Establish a designated emergency helicopter landing pad in coordination with American Red Cross, Federal Aviation Administration and Miami-Dade Emergency Management.
- Policy 2.2.7 Should emergency helicopter landing be needed at Biscayne Bay Campus utilize existing open land rather than parking lots when possible.
- Policy 2.2.8 Calculate costs to provide expanded shelter space and negotiate a cost sharing formula with Miami-Dade County and Monroe County.
- Policy 2.2.9 In conjunction with its host communities, continue to update a post-disaster plan to recover from the disruption of University activities.

BAYVISTA BOULEVARD

LEGEND

- MANGROVES
- MANGROVE MITIGATION
- WETLAND RESTORATION
- SHORELINE VEGETATION
- BEACH RIP RAP SHORELINE
- WATER
- PROPOSED / EXISTING BUILDING
- 100' DEVELOPMENT ZONE

**ELEMENT 18.3: COASTAL MANAGEMENT
BISCAYNE BAY CAMPUS**

