

## **Sand Bypass and Coastal Resilience Proposed Adaptation Action Area Designation Briefing Document**

Prepared by the Environmental Planning and Community Resilience Division  
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### Implementation of Sand Bypass Project as Adaptation Action Area

In 2011, the Florida Legislature passed the Community Planning Act (CPA 2011) providing for the definition and optional designation of Adaptation Action Areas within a Coastal Management Element of a local government comprehensive plan. The intent of such a designation would be to address coastal hazards and potential impacts to sea level rise in a specific location by pursuing adaptation planning within the designated area and prioritizing funding for infrastructure improvements. To elevate the importance of, and federal support for, the Port Everglades Sand Bypass Project as a critical shoreline resilience strategy for Broward County, staff proposes the designation of the Sand Bypass project area as an Adaptation Action Area.

### Summary of Objectives

This memorandum recommends the designation of the Port Everglades Entrance Sand Bypass Project area as an Adaptation Action Area (AAA) to achieve the following objectives:

- Increase the resilience of critical natural resources and infrastructure
- Address an erosional hotspot area along the shoreline
- Fortify storm protection for critical infrastructure and valuable property including the US Coast Guard Station, port facilities and over \$345 million in property (within the AAA)
- Reduce shoaling in the navigation channel
- Preserve habitat and nesting areas for three endangered and four threatened species in one of the most highly developed urban areas in the state
- Maintain opportunity for public outdoor recreation at John U. Lloyd Beach State Park, serving over half a million residents and visitors annually
- Advance towards achieving the priority goals set in Broward County's Climate Change Action Plan
- Increase potential federal permitting and funding support based on the federal administration's resiliency objectives.

### Critical Importance of Port Everglades Entrance Sand Bypass Project for Community Resilience

The navigational inlet at Port Everglades is documented to interrupt the natural alongshoremigration of sand from the north side of the inlet (Segment II) to the south side (Segment III). Sand that would generally be transported south alongshore instead accumulates

within the channel itself and a rubble shoal north of the channel, or is transported offshore. The lack of sand supply to the south side has resulted in significant chronic sand starvation along the length of the segment III beach, thus reducing its storm protection capacity and resilience to surge and wave action. Additionally, shoaling within the Federal navigation channel (buildup of sand on the channel bottom) is approaching problematic levels compared to historical rates of accumulation, thereby increasing maintenance costs to avoid navigation hazards. As a remedy and long-term shoreline resilience strategy, the Port Everglades Sand Bypass Project is proposed as a means for mitigating for the effects of the Channel Inlet on the downstream shoreline. The project is proposed to include a sand trap on the north side where sand will naturally collect and then be excavated every two-to-three years for the purpose of renourishing the beach along the south side of the inlet (Figure 1). This process is known as artificial sand bypassing.

Sand bypassing at Port Everglades Inlet will have both physical and economic benefits to sand management at the inlet. The primary benefit of the project is the reestablishment of north to south sediment transport across the inlet. The project is expected to provide a volume of sand, on average, that is essentially equivalent to the average demand south of the inlet within the area of inlet influence. Bypassing would reduce the need to import sand from remote sand sources for future renourishment of Segment III and reduce and/or eliminate sand shoaling within the Port Everglades Federal navigation channel. Recent studies have demonstrated sand bypassing to be economically feasible compared to importing other sources of beach compatible sediments. It is well documented that offshore sediment sources suitable for beach restoration in Broward County are almost depleted, and the location and economics of alternate sources for future beach project requirements are uncertain. Therefore, sand bypassing at Port Everglades is needed to address the adverse effects of the inlet upon the Segment III shoreline and as a regional sediment management system.

The proposed project and designation are consistent with the regional resilience strategy for Southeast Florida. The proposed project serves to strengthen regional resilience through 1) a reduction in financial and physical losses (Regional Climate Action Plan (RCAP) Goal: Sustainable Communities) through storm protection provided by a regularly nourished beach, 2) implementation of management programs designed to protect natural systems and improve their capacity for climate adaptation (RCAP Goal: Natural Systems) through habitat restoration and preservation 3) a reduction in fuel consumption (RCAP Goal: Energy and Fuel) by nourishing with local bypassed sand rather than truck-hauling or dredging sand from far distance sources 4) providing a more resilient natural and built physical environment in light of climate change (RCAP Goal: Risk and Emergency Management) by mitigating risk of storm damage and vulnerability to sea level rise and mitigating public safety hazards by preventing shoaling in the navigation channel and preserving emergency response access through the channel by the USCG and on the beach by local emergency responders.

This shoreline resilience strategy is also well-aligned with draft recommendations being advanced to the President by the State, Local, and Tribal Leaders Task Force on Climate Resilience and Preparedness which include:

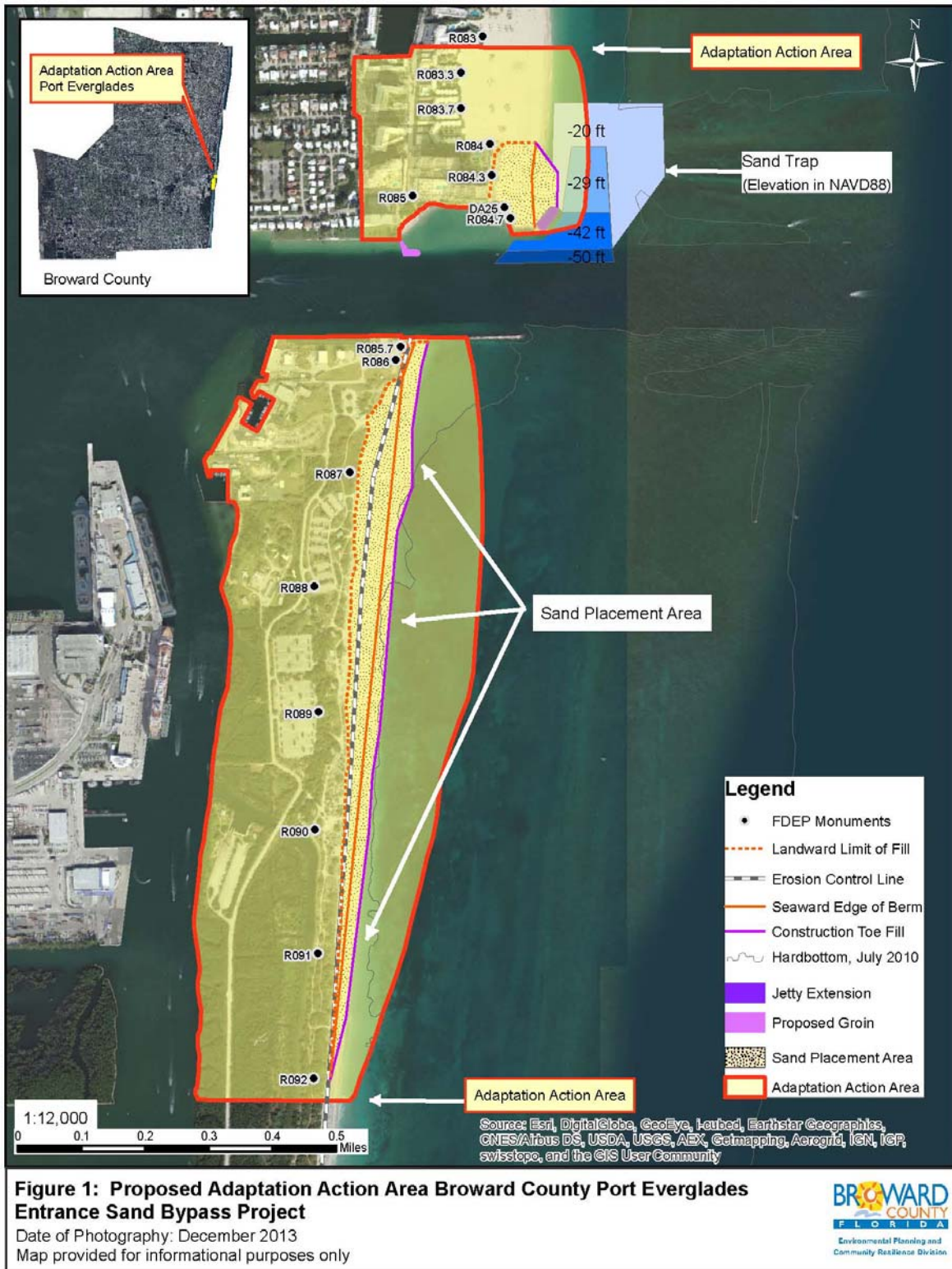
1. Increased support for climate resilience as part of coastal infrastructure planning and investments, especially support for sea-level rise and coastal erosion research and planning and implement response strategies that address both current and future impacts of climate change on coastal ecosystems and communities
2. Promotion and prioritization of green and natural infrastructure, inclusive of beaches
3. Expanded use of regional sediment management (RSM) programs to address coastal erosion threats in a comprehensive and cost-effective manner, focusing on the support of coastal sediment supplies and movement, beneficial reuse of dredged harbor sands, and implementation of innovative beach retention technologies, including nature-based “soft” armoring.

### Implementation of Sand Bypass Project as Adaptation Action Area

In 2011, the Florida Legislature passed the Community Planning Act (CPA 2011), which made significant changes to the state’s growth management laws, including the addition of an optional designation of an Adaptation Action Area within a Coastal Management Element of a local government comprehensive plan. This language was successfully advanced as a regional effort by partners in the 4-County Southeast Florida Regional Climate Change Compact (Compact) with the intent providing local governments with additional planning and policy tools to address coastal hazards and the potential impacts of sea level rise within vulnerable areas, to formally advance the infrastructure improvements and prioritization of funding needed to build community resilience to climate impacts.

In order to integrate adaptation planning into the existing state framework and coordinate adaptation efforts statewide, the Florida Department of Economic Opportunity (DEO) initiated a Section 309 Strategy titled “Community Resiliency: Planning for Sea Level Rise,” funded by the National Oceanographic and Atmospheric Administration (NOAA). As a lead author of the enabling language and partner in the Compact, Broward County and the City of Fort Lauderdale were invited to partner in a pilot project in the identification of Adaptation Action Areas within a municipal setting and the development of general guidance to aid local governments interested in employing Adaptation Action Area designations in furtherance of community resilience.

To continue the implementation of adaptation strategies, Broward County included the language for Adaptation Action Area designation in the Climate Change Element of the County’s Comprehensive Plan in 2012. Additionally, the Coastal Management Element was recently updated to include policy language specific to Adaptation Action Areas while the County’s 10-year water supply plan and other elements of the Comprehensive Plan, including the Land Use Plan, are also being updated to support the County’s efforts in support of climate resilience with similar references. Regionally and state-wide there has been increasing interest in the use of Adaptation Action Areas to support diverse climate resilience strategies, ranging from stormwater retrofits to natural area conservation.



In addition to the inclusion of Adaptation Action Areas in the Broward County comprehensive plan, the City of Fort Lauderdale has also adopted Adaptation Action Area policies into the City's 2014 Comprehensive Plan and the City of Satellite Beach is undertaking a similar process. A summary of these and other local efforts was presented at a widely-attended Regional Climate Action Plan Implementation workshop hosted by the Compact on August 29, 2014, specifically focusing on Adaptation Action Area planning. This planning approach was also highlighted at the annual meeting of the Florida Shore and Beach Preservation Association in September 2014.

Broward County's participation in furthering Adaptation Action Area planning is well-aligned with the ever-increasing federal emphasis on climate resilience and preparedness. In the absence of new funding streams, it is expected that federal support for local and state projects will increasingly seek to prioritize funding for projects that not only further community resilience to climate impacts, but that are also designed to maximize the conservation and enhancement of natural systems and infrastructure. These priorities are well-established as part of the President's Climate Action Plan and are represented in the diverse program opportunities announced during this last year with increased federal support for initiatives organized around climate resilient communities and investments in green infrastructure. The Port Everglades Sand Bypass Project represents a critical resiliency strengthening measure for the Broward County community. By designating the area within the sand bypass project footprint as an Adaptation Action Area, the County will formally present the sand bypass project at Port Everglades as a keystone climate resilience strategy for Broward County.

### Stakeholders

Community stakeholders associated with the Port Everglades Sand Bypass project include condominium associations located immediately north of the inlet and those south of John U Lloyd State Park. Agency stakeholders include the Broward County Board of County Commissioners (Port Everglades), U.S. Army Corps of Engineers (Federal navigation channel), the State of Florida (John U. Lloyd State Park), and the cities of Dania Beach and Fort Lauderdale.

### Recommendation

Development of Adaptation Action Area designations can be accomplished through a variety of mechanisms within or authorized by a local government's Comprehensive Plan. These can include capital improvement plans, floodplain regulations, zoning and overlay zones, setbacks and buffers, transferable development rights, conservation easements, rebuilding restrictions, by comp plan amendment, resolution or ordinance, or by other planning tools. Staff recommends designation of the Sand Bypass Project Area as an Adaptation Action Area within the Broward County Land Use Plan and the Priority Planning Areas for Sea Level Rise Map.