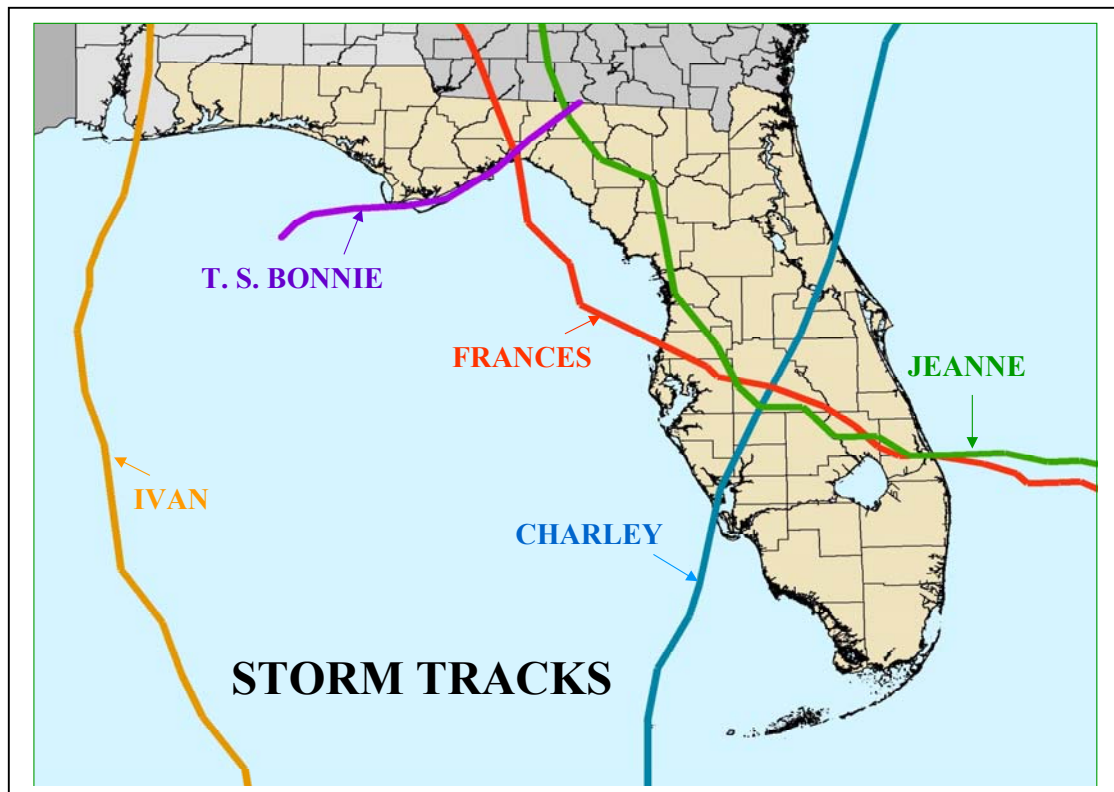


2004 Hurricane Recovery Plan for Florida's Beach and Dune System



**Florida Department of Environmental Protection
Division of Water Resource Management
Bureau of Beaches and Coastal Systems
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2004 Hurricane Recovery Plan for Florida's Beach and Dune System

Introduction

Purpose

During the 2004 hurricane season one tropical storm and four major hurricanes made landfall along Florida's coastline. Nearly all of the state's sandy beach shoreline has been affected. The Department has proposed this hurricane recovery plan to address both short term and long term recovery of the state's beaches. It outlines management strategies that incorporate on-going and emergency federal, state and local efforts to repair and restore the beach and dune system that is vital to the health, safety and economic welfare of the State of Florida. Appendix A contains maps of the project areas identifying the various recovery strategies.

Summary of Impacts

The Florida Department of Environmental Protection, in concert with local and federal agencies, conducted impact assessments of the state's Gulf and Atlantic fronting sandy beaches. Over 695 miles of beach have been impacted to some degree. Many of the impact areas will require varying levels of recovery activities ranging from natural recovery to dune restoration or full scale beach nourishment. Many structures were damaged or destroyed and many structures are currently threatened due to the condition of the beach and dune system.

The Bureau of Beaches and Coastal Systems (BBCS) has prepared detailed Damage Assessment Reports of the four hurricanes, each of which contains an analysis of post-storm beach conditions. The reports have been posted to the BBCS website and can be accessed at: <http://www.dep.state.fl.us/beaches/#HotTopics/>

Summary of Recovery Activities and Costs

This recovery plan focuses on the projects, along with associated state funding, that need to be constructed prior to the next hurricane season in order to provide a reasonable level of protection to upland development along the impacted beaches. The plan also attempts to show how these activities fit within the context of the state's ongoing Statewide Strategic Beach Management Plan, which is designed to provide adequate protection to the state's sandy beaches in the long term. In some cases, projects that were already in the planning stages can be expedited as part of the recovery plan. Similarly, in some cases funding for needed projects has already been appropriated by the Florida Legislature, and no additional funds are necessary. In other cases, new projects and activities, not already a

part of the ongoing program, are required, and these constitute the majority of the emergency funds requested in this plan. In all cases, the plan works to coordinate the recovery efforts and routine and emergency funding provided by federal, state, and local sources to achieve the most efficient recovery of impacted shorelines.

In reviewing this recovery plan, it is important to understand the preferred strategy for managing and protecting Florida's sandy beaches. The most effective, long-term protection for Florida's sandy beaches is considered to be beach restoration and periodic maintenance nourishment. This entails dredging sand from an offshore source, pumping it to the beach and shaping it to provide a higher and wider beach profile and, in most cases, a protective dune feature. Where these large scale projects can be accomplished in the near term (prior to the next hurricane season) given planning, permitting and funding constraints, these projects are included in the plan to repair damaged shorelines. In areas where this is not possible, the plan includes the construction of dune restoration projects in order to provide interim protection to upland structures prior to the next hurricane season. The dune restoration projects included in the plan incorporate the public assistance provided by the Federal Emergency Management Agency (FEMA) in the form of emergency protection sand berms by expanding the effort into larger, contiguous, vegetated dunes. These reconstructed dunes will aid in the natural recovery process and will serve as interim storm protective measures until such time as appropriate long-term management strategies can be implemented.

The plan also includes statewide activities that are needed to effectively protect the state's beaches, such as debris removal and sand source studies, as well as additional staffing and resource needs of the Department to effectively implement the plan. The plan provides descriptions of recommended activities, both short term and long term, by county. Each activity is tied to reference monuments both in the text and the associated maps, so that the project location along the shoreline can be identified. The plan also provides the federal, state and local funds needed and available to implement the project. The total additional state funds needed this year to implement the activities in the Recovery Plan is estimated to be 68.3 million dollars. A summary of the costs is provided in Table 1, which follows the county by county descriptions of the recovery activities. This amount is above and beyond that funding which currently exists in the Beach Management Program for FY 2003-2004 and FY 2004-2005, which has been incorporated in the recommended projects listed in this Recovery Plan. A summary of all actions proposed is provided in Table 2.

This Recovery Plan is considered by the Department to be a preliminary planning document. Estimates contained in the plan are based on limited information provided by local governments, the FEMA, the United States Army Corps of Engineers (USACE), and Department staff. It is important that this plan be flexible to allow project funding to be adjusted based on new information and conditions that exist at the time the work will be contracted. Detailed planning and engineering tasks will be conducted for each project to formulate the most cost-effective design.

Storm Overviews

Tropical Storm Bonnie

Tropical Storm Bonnie came ashore near Apalachicola around noon Thursday, August 12, 2004, with sustained winds near 50 mph after having traveled north through the Gulf of Mexico for four days and losing strength before landfall. Bonnie induced a 4-foot storm surge and minor flooding along the northeastern Panhandle coast. Minor beach and dune erosion occurred on Alligator Point in Franklin County and parts of St. Joseph Peninsula in Gulf County, with severe erosion at Cape San Blas. Cape San Blas is the most erosive area of the state, and approximately 25 feet of dune recession was observed on the United States Air Force property.

Hurricane Charley

Hurricane Charley made landfall in Lee County near the Captiva Island coast on Friday, August 13, 2004 as a Category Four hurricane on the Saffir-Simpson scale. The eye of the storm crossed the barrier islands, moved up Charlotte Harbor and crossed the state, emerging at Volusia County near Daytona Beach. The nine Lee County barrier islands sustained the predominant erosion. Minor erosion occurred in Charlotte County to the north and Collier County to the south. Minor impacts also occurred to beaches in Volusia County.

Hurricane Frances

Hurricane Frances formed August 25, 2004 and continued a steady track across the southern Atlantic Ocean. It strengthened into a Category Four hurricane on August 31 and caused the largest hurricane evacuation effort in the United States, as warnings were posted along the entire Florida East Coast. The outer squalls of the storm were moving over the east coast by Friday, September 3 2004, while the center of the storm was 200 miles east-southeast of Florida. The storm slowed its approach, weakened to a Category Two status, and the eye-wall drifted slowly across portions of St. Lucie, Martin and Palm Beach Counties. The eye made landfall on south Hutchinson Island around Sewall's Point about 1 p.m. on September 5 with maximum sustained winds of 105 mph. The storm crossed Florida north of Lake Okeechobee and entered the Gulf of Mexico near New Port Richey. It then continued northwest across the Gulf of Mexico and made a second landfall near the St. Marks River with maximum sustained winds of 65 mph.

Hurricane Ivan

Hurricane Ivan formed from a depression off the Cape Verde Islands on September 3, 2004, at an unprecedented low latitude, and strengthened and weakened between a Category Four and Five hurricane several times as it traveled westward, crossed the Caribbean and moved into the Gulf of Mexico. It made landfall at 2 a.m. CDT September 16, 2004 near Gulf Shores, Alabama with winds of 130 mph, just under Category Four strength. Most of the damage occurred on the east side of the eye with storm surges of +15 to +20 feet. Damage ranged from severe in Escambia County to moderate in Franklin County.



Major beach erosion at habitable structures
City of Navarre Beach

Hurricane Jeanne

Tropical Storm Jeanne formed in the eastern Caribbean on Tuesday, September 14, 2004, and moved north-northwest at 12 mph. On Wednesday, it crossed Puerto Rico and intensified to become the eighth hurricane of the season on Thursday, September 16. It then drifted westward along the coast of the Dominican Republic and weakened back to a tropical storm. Becoming nearly stationary off the coast of Haiti, it further weakened, then regained tropical storm strength and moved slowly northwest to the Turks and Caicos Islands. This highly erratic storm then slowly regained strength while making a clockwise loop in the Atlantic. By Saturday, September 25, Jeanne was a powerful Category Three hurricane, passing over Abaco Island and Grand Bahama Island with maximum sustained winds of 115 mph. Crossing the Gulf Stream, Jeanne further intensified and its eye grew to 40 miles in diameter. Landfall occurred near midnight in essentially the same location as Frances (southern Hutchinson Island) with maximum sustained winds of 120 mph. Jeanne tracked westward across the state north of Lake Okeechobee, then veered north and entered Georgia east of Tallahassee. Tropical storm winds were recorded on both coasts from Sarasota to St. Augustine, and many areas experienced severe flooding.

Storm Impacts

Damage to Beaches and Dunes

Beach and dune erosion during the 2004 season was the result of both direct impact as waves from the storm surge came ashore, and cumulative impacts, as beach berms were lowered by one storm and then subject to additional erosion from subsequent passing storms. The southwest Florida coastal beaches affected by Hurricane Charley were further impacted as storm swells from passing Hurricane Ivan came ashore. Brevard, Indian River, St. Lucie, Martin and Palm Beach Counties experienced two severe events, with both Hurricane Frances and Hurricane Jeanne making landfall within approximately one mile of each other three weeks apart. The northeast Florida coast in Flagler, Volusia and St. Johns Counties realized impacts from Hurricanes Charley and Jeanne.

Property and upland development located landward of beaches that had been restored fared much better than areas where the beaches were eroded and narrow. The storms removed sand from the restored beaches, but much of the material remains within the nearshore area. Narrow beaches not within beach restoration projects that were subjected to combined storm surge and wave impacts had significant dune erosion that in some instances undermined upland structures and roadways. There will be some natural recovery of these beaches as sand is gradually washed back onto the berm from the nearshore area. In other cases, the sand is too far off the beach, and natural recovery will be slow, subjecting the upland structures and habitat to further erosion from winter storms and next year's hurricane season.

Much beach erosion in Florida is caused by sand being trapped behind or "updrift" of jetties and in channels at coastal inlets. The beach on the other side or "downdrift" of the inlet is eroded due to the "sand starving" effect of the inlet improvements. Many inlet districts conduct some kind of "by-passing" in an attempt to re-establish the natural movement of sand along the coast. Many of the federal shore protection projects are located downdrift of these inlets and have been impacted from the storms, and remediative measures to these projects have been proposed where appropriate.

Impacts to Coastal Structures

Most structural damage to commercial buildings, residences and infrastructure was caused by high winds. Damage from falling trees and flying debris added to the damage directly imposed by hurricane force winds on roofs, siding, windows and walls. In some places where the beach was narrow, the storm surge was high enough to cause structural damage to upland development, particularly to structures built before establishment of the Coastal Construction Control Line or the current Florida Building Code building standards. Coastal armoring was often undermined or broken apart in areas of direct impact. Dune walkovers, and other recreational structures, such as boardwalks, picnic areas, restrooms,

and parking areas were damaged from wind and water. The Damage Assessment Reports record observations from specific areas, but overall it is evident that an improved building code, and restored beaches both provided reductions in structural damage.



Shell Street - Scale of scour and dune erosion after Hurricanes Frances and Jeanne (R97), City of Satellite Beach

Beach and Dune Recovery Strategy

Many of the impacted beach and dune systems will experience some level of natural recovery based on the storm impact and sediment supply. The primary purpose of the recovery strategies detailed in this plan is to accelerate the natural process through the partial reconstruction of the beach and dune systems, intended as a short term measure, to provide a limited level of storm protection. Long-term strategies to fully restore the beach and dune system are included, where sufficient design work and permitting is complete.

Agency Coordination

The hurricane recovery plan contains implementation strategies involving the need for state, federal and local agency cooperation. Successful implementation of the plan will require extensive coordination to address multiple funding sources, timing associated with marine turtle impacts, potential impacts to environmental resources, and cost-effective designs. While the plan contains a number of short-term measures, such as dune restoration, to address immediate threats, it should be recognized that long-term implementation activities will continue over the next several years as the beach restoration and maintenance nourishment activities are accomplished.

A primary goal of the agency coordination is the integration of various funding opportunities intended to minimize, where possible, the fiscal and personnel resource impacts to any one agency. The Department has initiated, and will continue to provide, coordination with the federal and local agencies to facilitate cost sharing opportunities. It is expected that the implementation of many of the recovery activities will involve multiple agencies. One may fund the data collection, another the design and permitting, with another responsible for the actual construction. Successful implementation will be directly related to agency coordination.

In addition, each of the implementation strategies recommended in the plan will require coordination with state and federal resource agencies, such as the Florida Fish and Wildlife Conservation Commission and the United States Fish and Wildlife Service. Many of the proposed measures will require state and/or federal permits. The Department has already initiated consultation meetings with the appropriate state and federal agencies to coordinate activities and to facilitate streamlined permitting where feasible.

Funding Opportunities

Funding for the Recovery Plan is limited to three state and federal public assistance programs. The following summarizes the funding programs that will be used to implement the Plan.

FEMA

FEMA administers a public assistance program to state and local governments to assist with storm recovery activities. Although beach and dune restoration is not a specific recovery program area, FEMA recognizes the storm protective value that beaches provide and offers funding assistance under two program areas. For this year's storm recovery activities, funding is provided to local governments at 90% of the cost for authorized activities. The State of Florida is contributing 5% toward the cost through the Governor's Emergency Fund and the Department of Community Affairs, with the local government responsible for the remaining 5%. A final cost determination is not available from FEMA at this writing. However, the state share for FEMA funds does not need to be included in the Supplemental Funding Requests described herein, as this request only reflects funds to be administered through the Department's Beach Management Program.

Category B: Emergency Protective Measures can provide a small volume of sand to prevent flooding to developed upland properties. To qualify, a property (public or private development) must be threatened by a 5-year return interval storm event. Properties are evaluated on a case by case basis, with qualifying properties eligible to receive funding to construct a small berm or dune feature. Because some properties qualify while others do not, there is typically little continuity of the constructed berms, thereby limiting their storm protective value. Due to this lack of continuity, it is important that the state's Recovery Plan include provisions to "fill in the gaps" to provide a continuous line of protection and where appropriate, to increase the level of protection above that provided by FEMA.

Category G: Permanent Work is intended to assist with the repair of public facilities. Qualifying non-federal beach projects are eligible for replacement of the sand that was lost as a result of the storm. Eligible costs would include design, permitting and construction of the beach "repair." Federally funded beach projects (U.S. Army Corps of Engineers projects) are not eligible under the program. To date, there are approximately 60 miles of non-federal restored beaches statewide that may qualify under Category G. In addition, following storm impacts in the 1990's several miles of dune reconstruction occurred utilizing a combination of federal and state funding that may also qualify for Category G funds if it is demonstrated that the projects were improved and maintained.

USACE

The USACE provides public assistance under a variety of programs that could assist in beach and dune restoration activities. Two program areas, navigation and shore protection, specifically provide beach restoration and nourishment opportunities.

The Navigation Program consists of numerous projects, specifically authorized by Congress, to maintain a system of harbors and waterways. Maintenance dredging of the authorized channels and waterways often result in suitable material available for placement on adjacent beaches. Opportunities to obtain this maintenance-dredged material are actively pursued by the Department to ensure that all suitable material is placed directly on

the state's beaches, in lieu of offshore deposition areas. In instances where beach placement is the least cost disposal option, it is done so at no cost to the local or state government. In other instances, the additional cost for beach placement is borne by local or state government.

The Federal Shore Protection Program works directly with local governments to construct beach restoration projects for the primary purpose of protecting upland developed properties. After detailed feasibility studies, projects are individually authorized by Congress for construction and long term maintenance. Authorized projects usually have a maintenance period of fifty years, during which time periodic beach nourishment is conducted to maintain the designed storm protection values. Under the program, the federal government can provide between 50 to 80% of the total project costs. The remaining non-federal cost is the responsibility of the local sponsor and the state of Florida as cost-sharing partners. As a result of the storm impacts, a special federal emergency appropriation totaling over \$62 million has been provided to accelerate the maintenance nourishment of authorized and constructed projects affected by the storms throughout the state.

In addition the USACE provides technical and financial assistance in response to natural disasters. Financial assistance can be provided under Public Law 84-99 to repair damage to federally authorized shore protection projects. Based upon the findings of special project investigation reports (PIR), qualifying projects are eligible for 100% federal funding of the cost to replace the material lost as a result of the storm events. Congress has appropriated over \$148 million under Public Law 84-99, an unspecified portion of which can be used to repair federal shore protection projects.

Florida's Beach Management Program

Florida's Beach Management Program works with local governments to achieve protection, preservation and restoration of the State's sandy beach shoreline. The program is a comprehensive, long range, statewide plan for restoring and maintaining critically eroded shoreline accomplished through implementation of the Statewide Strategic Beach Management Plan and the Statewide Long Range Budget Plan. Financial assistance is available for eligible shore protection and preservation activities. Eligible activities include construction of beach restoration and nourishment activities, project design and engineering studies, environmental studies and monitoring, inlet management planning, inlet sand transfer, dune restoration and protection activities and other beach erosion prevention related activities. The Department annually requests an appropriation out of the Ecosystem Management and Restoration Trust Fund to implement priority projects.

Recommended Beach and Dune Recovery Plan

Statewide and Regional Management Strategies

Areawide Needs

- Initiate and develop regional sand sources to locate beach quality offshore sand deposits.
Estimated State Share Cost \$1,000,000
- Survey impacted beach areas and refine evaluations of storm impacts to restored beaches.
Estimated State Share Cost \$500,000
- Debris Removal: Extensive amounts of debris from damaged structures were generated by the storms impacting the State's shoreline. This debris was deposited along the shoreline areas proposed for dune restoration and/or nourishment and must be removed to alleviate the environmental and public safety hazard.
Estimated State Share Cost \$500,000
- Revalidate Coastal Siting and Design Criteria: Assess beach and dune erosion and impacts to coastal structures in the five most-impacted coastal counties to determine: 1) if existing regulatory criteria provides adequate protection to the beach and dune system and; 2) if existing engineering design criteria provides adequate structural requirements for hurricane-resistant construction.
Estimated State Share Cost \$400,000
- Limited sand placement to pocket beaches of the Big Bend area and Florida Keys. Funds will be used to truck sand to those beaches determined to be in need.
Estimated State Share Cost \$500,000

Restoration of State Parks

Many of the State Parks have suffered significant impacts from the storms. Restoration activities include dune restoration in the form of revegetation and sand fencing and in a few cases, placement of sand fill material to protect facilities.

Estimated State Share Cost \$3,800,000

County Management Strategies

Nassau County

Accelerate design, permitting and construction of the federal Nassau County Shore Protection Project, R10 – R33.

Project design and permitting is currently underway by USACE. Construction is expected to occur in FY2006-07. **Future funding for construction is anticipated to be required in FY2006-07.**

Duval County

Construct maintenance nourishment of the federal Duval County Shore Protection Project, South jetty at Mayport to Duval/St. John's County Line. R31 – R80.

Construction is anticipated to begin in spring 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. **State funding match was previously appropriated.**

St. Johns County

Initiate federal feasibility study for potential beach restoration at Vilano Beach R110 – 117 and South County areas (Summerhaven) R197 – R209.

State and federal funds have been appropriated. **Additional state funds for the completion of the feasibility study and construction will be required in the future.**

Accelerate the maintenance nourishment of the federal St. Johns County Shore Protection Project, R137 – R150.

Construction is anticipated to begin in spring 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments.

Estimated State Share Cost \$1,264,400

Flagler County

Initiate countywide federal feasibility study for potential beach restoration in Flagler County.

State and federal funds have been appropriated. **Additional state funds for completion of the study and construction will be required in the future.**

Conduct dune restoration activities at Washington Oaks State Park, R12 – R16.
Project consists of the installation of sea oats to facilitate dune recovery.
Estimated costs are shown in the areawide needs section.

Conduct dune restoration activities at Flagler Beach State Park, R95 – R98.
Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Volusia County

Initiate countywide federal feasibility study for potential beach restoration in Volusia County.
State and federal funds have been appropriated. **Additional state funds will be required in the future.**

Conduct dune restoration activities at North Peninsula State Park, R1 – R16.
Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Construct dune restoration project throughout northern Volusia County, R40 – R145.
Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.
Estimated State Share Cost \$2,220,000

Construct dune restoration project at New Smyrna Beach/Bethune Beach, R161 – R208.
Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.
Estimated State Share Cost \$3,780,000

Accelerate design, permitting and construction of beach restoration project at New Smyrna Beach/Bethune Beach, R161 – R208.
Project design and permitting was recently initiated by Volusia County with state funding assistance. Construction is expected to occur in FY2006-07. **Future funding for construction is anticipated to be requested in FY2006-07.**

Brevard County

Construct Canaveral Inlet sand bypass project, R1 – R15.
Project was designed and permitted with state funding assistance. Construction is anticipated in FY2006-07, pending a federal appropriation. **There will be no required state or local construction costs.**

Accelerate the maintenance nourishment of the federal Brevard County Shore Protection Project (North Reach), R1 – R53.

Construction is anticipated to begin in spring 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments.

Estimated State Share Cost \$575,600

Accelerate design, permitting and construction of beach restoration at the Mid-Reach section of the federal Brevard County Shore Protection Project (Mid-Reach), R75 – 118.

Project design was initiated by Brevard County with state funding assistance. Additional planning and design necessary for federal authorization is currently underway by USACE. Construction is expected to occur no sooner than FY2007-08. **State funding to support federal design effort has been previously appropriated. Future state funding for construction is anticipated to be requested in FY 2007-08.**

Construct dune restoration project at Satellite Beach and Indian Harbour Beach, R85 – R118.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$3,540,000

Accelerate the maintenance nourishment of the federal Brevard County Shore Protection Project (South Reach), R118 – R138.

Construction is anticipated to begin in spring 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments.

Estimated State Share Cost \$919,400

Construct dune restoration project throughout southern Brevard County, R138 – R218.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$4,730,000

Indian River County

Bypass Sebastian Inlet sand trap to Ambersand Beach, R4 – R8.

Maintenance dredging activities at Sebastian Inlet can be used to extend the nourishment cycle of a portion of the Ambersand Beach Restoration project. **State funding share was previously appropriated.**

Accelerate the maintenance nourishment of the Ambersand Beach Restoration Project, R4 – R17.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **Additional state funds will be required at the time of construction.**

Construct dune restoration project throughout northern Indian River County, R17 – R70.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$5,910,000

Construct dune restoration project at Vero Beach, R70 – R86.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$3,540,000

Construct dune restoration project throughout southern Indian River County, R100 – R107.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$580,000

Accelerate design and permitting of beach restoration projects in areas environmentally suited at Wabasso Beach, (R37 – R49), Vero Beach, (R74 – R86), and South Indian River County, (R100 - R107).

Project design was initiated by Indian River County with state funding assistance. **State funding to continue the design and permitting effort has been previously appropriated. Future state funding will be necessary at the time of construction.**

St. Lucie County

Conduct dune restoration activities at Avalon State Park, R2 – R9.

Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Accelerate the maintenance nourishment of the federal St. Lucie County Shore Protection Project, R34 – R46.

Construction is anticipated to begin in spring 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. **State funding match was previously appropriated.**

Construct dune restoration project throughout southern St. Lucie County, R98 – R115.
Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$3,760,000

Accelerate federal feasibility study for potential beach restoration of South St. Lucie County area, R98 – Martin County Line.

**State and federal funds have been appropriated to initiate the study.
Additional state funds will be requested in the future.**

Martin County

Accelerate the maintenance nourishment of the federal Martin County Shore Protection project, R1 – R25.

Construction is anticipated to begin in spring 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. Additional state funds will be required. **State funding match was previously appropriated.**

Construct dune restoration project throughout southern Hutchinson Island, R25 – R36.
Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$1,220,000

Bypass material from St. Lucie Inlet sediment trap to Jupiter Island, R62 – R67.

Maintenance dredging activities at Jupiter Inlet can be used to maintain the downdrift beaches and extend the nourishment cycle of the Jupiter Island beach nourishment project. **Additional state funds will be requested for construction in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.**

Accelerate the maintenance nourishment of the Jupiter Island Beach Restoration Project, R75 – R117.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **Additional state funds will be requested at the time of construction.**

Construct dune restoration project at southern Jupiter Island, R126 – R127.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$190,000

Palm Beach County

Construct dune restoration project at Coral Cove Park, R3 – R10.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$590,000

Accelerate the maintenance nourishment of the federal Jupiter/Carlin Shore Protection Project, R13 – R19.

It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. **Additional state funds will be requested at the time of construction.**

Accelerate the maintenance nourishment of the Juno Beach Restoration Project, R24 - 39.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **Additional state funds will be requested at the time of construction.**

Construct dune restoration project at Singer Island, R60 – R69.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$240,000

Accelerate design, permitting and construction of a beach restoration project where environmentally suited at Singer Island, R60 – R68.

A feasibility study was initiated by Palm Beach County with state funding assistance. **Additional state funds to proceed with the design of an appropriate project will be requested in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.**

Rehabilitate sand transfer plant at Lake Worth Inlet.

The sand transfer plant is currently non-operational as a result of storm induced damage. Repair of the facility is necessary to reestablish sediment bypassing at Lake Worth Inlet. **It is expected that FEMA will provide emergency funding to repair damage to the facility.**

Accelerate the maintenance nourishment of the Mid-Town Beach Restoration Project, R90 – R102.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **Additional state funds will be requested at the time of construction.**

Construct beach restoration project at Phipps Ocean Park, R116 – R126.

Project was designed and permitted with state funding assistance. Construction is anticipated in FY2005-06, pending issuance of a federal permit by the USACE. **Additional state funds will be requested at the time of construction.**

Construct dune restoration project along Southern Palm Beach Island, R116 – 133.

Project involves the reconstruction of dune system to replace material lost to storm events. The project will include the vegetation of the material at appropriate locations within the area.

Estimated State Share Cost \$4,043,000

Construct dune restoration project at South Palm Beach, R133 – R137.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$240,000

Accelerate design, permitting and construction of beach restoration projects in areas environmentally suited throughout Palm Beach Island; Reach 2, R78 – R90; Reach 5, R103 – R111; Reach 8, T125 – R134.

Project design was initiated by the Town of Palm Beach with state funding assistance. **State funding to continue the design and permitting effort will be requested in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.**

Rehabilitate sand transfer plant at South Lake Worth Inlet.

The sand transfer plant is currently non-operational as a result of storm induced damage. Repair of the facility is necessary to reestablish sediment bypassing at South Lake Worth (Boynton) Inlet. **It is expected that FEMA will provide emergency funding to repair damage to the facility.**

Accelerate the maintenance nourishment of the federal Ocean Ridge Shore Protection Project, R152 – R160.

Construction is anticipated to begin in fall 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. **Additional state funds will be requested in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.**

Construct dune restoration project at Gulfstream Park, R165 – R166.

It is expected that FEMA will provide emergency funding to repair damage to the beach and dune system.

Accelerate the maintenance nourishment of the federal Delray Beach Shore Protection Project, R175 – R188.

It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. **Additional State funds will be requested at the time of construction.**

Accelerate the maintenance nourishment of the federal North Boca Raton Shore Protection Project, R205 – R212.

Construction is anticipated to occur in FY2006-07. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. **State funds to conduct design and permitting activities will be requested in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.**

Accelerate the maintenance nourishment of the Central and South Boca Raton Beach Nourishment Projects, R216 – 222 and R223 – R228.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **Additional state funds will be required at the time of construction.**

Broward County

Accelerate the maintenance nourishment of the Hillsboro Beach/Deerfield Beach Nourishment Project, R6 – R12.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **State funds for construction will be requested in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.**

Accelerate the maintenance nourishment of the federal Broward County Shore Protection Project, R25 – R128.

Construction of Segment III is anticipated to begin in April 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. **State funding for construction activities has been previously appropriated. Additional state funds for monitoring of Segment III and design and permitting of Segment II will be requested in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.**

Dade County

Accelerate the maintenance nourishment of the federal Dade County Shore Protection Project, R6 – R74.

Federal funding has been appropriated to evaluate storm impacts and conduct maintenance nourishment as needed. **Additional state funds will be required at the time of construction.**

Monroe County

Evaluate erosion conditions at sandy beaches throughout the county to determine if limited sand placement is warranted. **Estimated costs are shown in the areawide needs section.**

Escambia County

Construct dune restoration project at Perdido Key, R1 – R13, R21 – R32.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$2,910,000

Initiate feasibility study for potential beach restoration of Perdido Key, R1 – 32.

Conduct necessary engineering and environmental studies to determine appropriate beach management strategy.

Estimated State Share Cost \$200,000

Bypass Pensacola Pass maintenance dredged material to Perdido Key, R1 – R32.

Maintenance dredging activities at Pensacola Pass can be used to maintain the downdrift beaches. Material should be placed in the area of greatest need.

Additional state funds may be needed at the time of construction to offset additional placement costs beyond the federal “least cost” disposal option.

Conduct dune restoration activities at Perdido Key State Park, R13 – R21.

Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Accelerate the maintenance nourishment of the Pensacola Beach Restoration Project, R107 -R151.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **Additional state funds will be requested at the time of construction.**

Construct dune restoration project at Pensacola Beach, R107 – R151.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$620,000

Santa Rosa County

Accelerate the construction of the Navarre Beach Restoration Project, R192 – R211.

Project was designed and permitted with state funding assistance. Construction is anticipated to begin in spring 2005. **Partial state funding is in place for construction. Additional state funds will be requested in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.**

Construct dune restoration project at Navarre Beach, R192 – R211.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$2,120,000

Okaloosa County

Construct dune restoration project at Ft. Walton Beach, R1 – R15.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$1,860,000

Initiate feasibility study for potential beach restoration of Ft. Walton Beach, R1 – R15.

Conduct necessary engineering and environmental studies to determine appropriate beach management strategy.

Estimated State Share Cost \$200,000

Bypass East Pass maintenance dredged material to Eglin Air Force Base on Okaloosa Island.

Maintenance dredging activities at East Pass can be used to maintain the downdrift beaches. Material should be placed in the area of greatest need. **Additional state funds may be needed at the time of construction to offset additional placement costs.**

Construct dune restoration project at Destin, R17 – R32.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$890,000

Conduct dune restoration activities at Henderson Beach State Park, R32 – R39.

Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Construct dune restoration project at Destin, R39 – R50.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$1,500,000

Accelerate construction of Destin Beach Restoration Project, R39 – R50.

Project was designed and permitted with state funding assistance. Construction is anticipated in FY2005-06, pending resolution of legal issues. **State funding share was previously appropriated.**

Walton County

Accelerate construction of Walton County Beach Restoration Project, R1 – R22.

Project was designed and permitted with state funding assistance. Construction is anticipated in FY2005-06, pending resolution of legal issues. **State funding share was previously appropriated.**

Construct dune restoration project throughout western Walton County, R1 – R23.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$1,750,000

Conduct dune restoration activities at Topsail Hill State Park, R23 - R41.

Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Construct dune restoration project throughout central Walton County, R41 – R69.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$1,680,000

Conduct dune restoration activities at Grayton Beach State Park, R69 - 78.

Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Construct dune restoration project at Seaside and Seagrove Beach, R78 – R98.
Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$1,210,000

Conduct dune restoration activities at Deer Lake State Park, R98 - R101.
Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Construct dune restoration project throughout eastern Walton County, R101 – R127.
Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$930,000

Accelerate federal feasibility study for potential beach restoration throughout Walton County.
State and federal funds have been appropriated. **Additional state funds will be requested in the future.**

Bay County

Conduct dune restoration activities at Camp Helen State Park, Walton County Line – R1.
Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Accelerate the maintenance nourishment of the federal Panama City Beaches Shore Protection Project, R5 – R92.
Construction is anticipated to begin in spring 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments.

Estimated State Share Cost \$1,253,000

Conduct dune restoration activities at St. Andrews State Park, R92 – R121.
Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Bypass St. Andrews Inlet maintenance dredged material to St. Andrews State Park, R92 – R97.
Maintenance dredging activities at St. Andrews Inlet can be used to maintain the downdrift beaches and extend the nourishment cycle of the Panama City Beaches Shore Protection Project. **Construction costs should be borne by the USACE.**

Construct dune restoration project at Mexico Beach, R129 – R138.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$350,000

Gulf County

Conduct dune restoration activities at St. Joseph Peninsula State Park, R32 – R75.

Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Construct dune restoration project on St. Joseph Peninsula, R75 – R105.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$870,000

Initiate feasibility study for potential beach restoration on St. Joseph Peninsula, R75 – R105.

Conduct necessary engineering and environmental studies to determine appropriate beach management strategy.

Estimated State Share Cost \$200,000

Franklin County

Conduct dune restoration activities at St. George Island State Park, R105 – R149.

Project consists of the installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Accelerate design and permitting of beach restoration at Alligator Point, R210 – R215.

Project design was initiated by Franklin County with state funding assistance.

State funding to continue the design and permitting effort has been previously appropriated. Future state funding will be requested at the time of construction.

Wakulla County

Evaluate erosion conditions at sandy beaches throughout the county to determine if limited sand placement is suitable. **Estimated costs are shown in the areawide needs section.**

Taylor County

Evaluate erosion conditions at sandy beaches throughout the county to determine if limited sand placement is suitable. **Estimated costs are shown in the areawide needs section.**

Levy County

Evaluate erosion conditions at sandy beaches throughout the county to determine if limited sand placement is suitable. **Estimated costs are shown in the areawide needs section.**

Citrus County

Evaluate erosion conditions at sandy beaches throughout the county to determine if limited sand placement is suitable. **Estimated costs are shown in the areawide needs section.**

Hernando County

Evaluate erosion conditions at sandy beaches throughout the county to determine if limited sand placement is suitable. **Estimated costs are shown in the areawide needs section.**

Pasco County

Evaluate erosion conditions at sandy beaches throughout the county to determine if limited sand placement is suitable. **Estimated costs are shown in the areawide needs section.**

Pinellas County

Accelerate the maintenance nourishment of the federal Pinellas County Shore Protection Project - Sand Key segment, R56 – R107.

It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. Construction at Sand Key is anticipated to begin in spring 2005.

Estimated State Share Cost \$3,032,500

Accelerate the maintenance nourishment of the federal Pinellas County Shore Protection Project, Pass-a-Grille segment, R160 – R165.

It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. Pass-a-Grille is currently under construction.

Estimated State Share Cost \$246,000

Hillsborough County

Accelerate federal feasibility study for potential beach restoration on Egmont Key.

The USACE has initiated a feasibility study, requiring no local or state matching funds.

Manatee County

Accelerate the maintenance nourishment of the federal Anna Maria Island Shore Protection Project, R12 – R36.

It is expected that the USACE will provide emergency funding to replace material lost to storms. **Construction costs should be borne by the USACE.**

Investigate feasibility of extending Anna Maria Island Beach Restoration Project to encompass the entire island, R2 – R41.

Conduct necessary engineering and environmental studies to determine feasibility of expanding the project area.

Estimated State Share Cost \$100,000

Sarasota County

Construct maintenance nourishment of Longboat Key Beach Restoration Project, Manatee County R47 - Sarasota County R29, inclusive.

Project was designed and permitted with state funding assistance. Construction is anticipated to begin in spring 2005. **State funding share is currently in place.**

Accelerate the maintenance nourishment of the Lido Key Beach Restoration Project, R35 – R44.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **Additional state funds will be requested at the time of construction.**

Accelerate design and permitting of beach restoration at South Siesta Key, R67 – R77.

Project design was initiated by Sarasota County with state funding assistance.

State funding for construction activities will be requested in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.

Construct maintenance nourishment of the federal Venice Shore Protection Project, R116 – R133.

Construction is anticipated to begin in spring 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. **State funding share is currently in place.**

Charlotte County

Conduct dune restoration activities at Stump Pass State Park, R15 – R21.

Project consists of the construction of a dune feature and installation of sea oats to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Accelerate the maintenance nourishment of the Knight Island/Don Pedro Beach Restoration Project, R28 – R31.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **Additional state funds will be requested at the time of construction.**

Conduct dune restoration activities at Don Pedro Island State Park, R41 – 47.

Project consists of the construction of a dune feature and installation of sea oats to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Lee County

Accelerate the construction of the federal Gasparilla Island Shore Protection Project, R11 – R24.

Project was designed and permitted with state funding assistance. Construction is anticipated to begin in FY2005-06, pending federal appropriation and execution of Project Cooperation Agreement. **State funding share is currently in place.**

Conduct dune restoration activities at Gasparilla State Park, R22 – R26.

Project consists of the construction of a dune feature and installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Initiate feasibility study to determine appropriate management activities for North Captiva Island, R78 – R82.

Conduct necessary engineering and environmental studies to determine appropriate beach management strategy. **State funding for study is currently in place.**

Accelerate the maintenance nourishment of the federal Captiva Island Shore Protection Project, R85 – R109.

Construction is anticipated to begin in spring 2005. It is expected that the USACE will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by USACE, state and local governments. **State funding share is currently in place.**

Construct dune restoration project at Sanibel Island, R110 – R114.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$930,000

Accelerate the construction of the federal Estero Island Shore Protection Project, R175 – R199.

Project was designed and permitted with state funding assistance. Construction is anticipated to begin in FY2005-06, pending federal appropriation and execution of Project Cooperation Agreement. **State funding share is currently in place.**

Construct dune restoration project at Fort Myers Beach, R176 – R200.

Project is intended to supplement the emergency berms that are anticipated to be funded by FEMA. The project will include additional material and vegetation to be constructed at appropriate locations within the area.

Estimated State Share Cost \$890,000

Accelerate the maintenance nourishment of the Bonita Beach Restoration Project, R226 – R230.

It is expected that FEMA will provide emergency funding to replace material lost to storms. Remaining maintenance volume to be cost shared by state and local governments. **Additional state funds will be requested at the time of construction.**

Collier County

Conduct dune restoration activities at Delnor-Wiggins State Park, R17 – R22.

Project consists of the construction of a dune feature and installation of sea oats and sand fencing to facilitate dune recovery. **Estimated costs are shown in the areawide needs section.**

Accelerate the maintenance nourishment of the Collier County Beach Restoration Project located at Vanderbilt Beach, R22 – R31, Parkshore T50 – T54, and Naples R58 – R78.

Project was designed with state funding assistance and is currently in the permitting process. Construction is anticipated to begin in fall 2005. **State cost share for construction activities will be requested in the Department's FY2005-06 Fixed Capital Outlay Legislative Budget Request.**

Agency Resources Required to Implement Recovery Plan

The Bureau of Beaches and Coastal Systems employs seventy-one (71) full-time equivalent positions to administer the routine management and regulation of the sandy beaches of the state of Florida. The short and long-term recovery needs statewide as a result of the unprecedented four hurricanes impacting Florida in the 2004 hurricane season will result in significant increase in staff workload in the Bureau. Additional resources will be needed in order to provide relief and recovery to the impacted citizens by effectively implementing the Recovery Plan.

Experience from Hurricane Opal, which made landfall in the Florida panhandle in October 1995, demonstrated that greatly increased workload and staffing needs continued for a minimum of five years following the storm. These needs were particularly acute in the Bureau's regulatory programs (Coastal Construction Control Line permitting and Joint Coastal Permitting) and beach management functions.

The level of hurricane impact to older, less substantial (non-building code compliant) structures in the Panhandle led to a significant post-storm reconstruction effort along the barrier islands, resulting in a significant increase in structures built along the coastline. Dune restoration and revegetation required over three years from identification to implementation. The number of Coastal Construction Control Line (CCCL) field permits in the Florida Panhandle issued by the Bureau in state fiscal year (FY) 1995 (pre-Opal) was less than 200, whereas this number dramatically increased to 1,067 in FY 1996 (the year subsequent to Hurricane Opal's landfall). Similarly, the number of CCCL administrative permit applications received for the Florida Panhandle in FY 1995 was 162, sharply contrasted by 370 and 340 such applications received in FY 1996 and 1997, respectively.

The larger scale, comprehensive efforts associated with the planning, design, and permitting of the Panama City Beaches Shore Protection Project (constructed in 1999), and the Pensacola Beach Restoration Project (constructed in 2003) required staff resources for *both* the regulatory (Joint Coastal Permitting) and beach management (contracting) aspects to realize successful implementation.

Given the widespread beach and dune erosion and structural damage that occurred to beaches statewide in the 2004 hurricane season, it is anticipated that the increased staffing needs in the Bureau will persist for eight to ten years. Specifically, additional staff will be needed to:

1. Evaluate, manage and permit dune restoration projects to restore partial storm protection to upland structures;
2. Evaluate, manage and permit beach restoration and nourishment (maintenance) of severely eroded shorelines;
3. Evaluate and permit the repair and reconstruction of structures seaward of the Coastal Construction Control Line;
4. Evaluate and permit coastal armoring needed as a result of the storms;

5. Conduct field inspections to evaluate shoreline conditions and conduct compliance and enforcement activities; and,
6. Conduct the necessary data acquisition, analysis and data management to support all of the above functions.

The requested full-time equivalent staffing allocation, comprising eight (8) positions inclusive of benefits and an annual travel allotment, totals \$517,619.72.

The labor allocation of the additional staffing will be utilized in the regulatory, beach erosion control, coastal data acquisition and coastal engineering sections as follows:

Regulatory Programs

Engineer/Environmental Specialist III – Due to the extent of beach and dune erosion attributed to each of the landfalling hurricanes, the increase in coastal armoring permit requests dictates additional CCCL staff assistance in the review, evaluation and processing. In addition, this position would provide assistance in the processing and review of applications with storm water components and Florida Building Code issues.

Engineer III – This position in the CCCL section is a Field Engineer to further distribute and balance the staffing requirements presently conducted by seven field staff. There are presently four such staff for the Panhandle and Southwest Gulf of Mexico coasts, with three field engineers to cover inspections, field permitting and compliance and enforcement duties on the east coast. This position would serve as an additional field engineer for the East Coast, which would improve service to the public, as well as reduce the travel distances presently covered by three staff employees, and further increase vehicular service life.

Environmental Specialist III – This position would be responsible for review and processing of the Joint Coastal Permit (JCP) section of the Bureau, which is responsible for beach restoration, inlet sand transfer, deep water port, and navigational maintenance dredging and disposal requests from local governments, the USACE, and the Florida Inland and West Coast Navigation Districts. The recovery period following the storms of 2004, coupled with both current and anticipated requests from the above entities, dictates additional staffing to manage workload.

Environmental Manager – The increased permit processing requirements associated with storm recovery projects will necessitate a JCP staff position to review draft permits, assist with supervision of permit processing staff, and allow for a continued staff presence when the Environmental Administrator must attend meetings or site visits outside of the office. Processing timeframes can be reduced accordingly, resulting in more efficient function of the section and more expedient issuance of state authorization to construct projects.

Beach Erosion Control Program

Environmental Specialist III – With an anticipated twofold increase in workload associated with both emergency and planned beach restoration and nourishment projects, additional Beach Erosion Control Program (BECF) staff resources are required to provide responsible project management and fiscal oversight for the local government funding

requests. This staff position will assist the Environmental Manager in contract file establishment, coordination and contact with the local government contract sponsor, project tracking and progress reporting and payment processing.

Engineer Technician IV – Currently BECP staff utilizes OPS (college student) support to assist the Contract Manager. The position will allow for preliminary review of project billings from local government sponsors to provide additional quality control and quality assurance checking of invoicing. This service will be necessary to assist all of the project managers in review and processing of billing requests.

Coastal Data Acquisition

Engineer Technician IV – Coastal Data Acquisition (CDA) staff conduct annual monitoring of beaches, with the state divided into four distinct regions. This effort requires considerable field work in the form of topographic and bathymetric surveys, laser survey and aerial photography ground control establishment and truthing, and aerial videography. This staff position will assist field crews in the completion of this tasking, to allow existing supervisory staff to more productively balance time spent in the field with planning and management time spent in the office.

Coastal Engineering

Professional Engineer III – The Coastal Engineering (CE) section of the Bureau conducts engineering review and evaluation of both local government scopes of work and permit submittal technical documents. The increased workload to review beach and dune recovery projects will necessitate an additional staff engineer to assist with the review.

Vehicular Fleet (Partial) Replacement

The beach surveying and mapping functions of the Bureau are currently carried out with an aging fleet of four-wheel drive vehicles, prompting the immediate need to replace three of the seven trucks currently in use. This replacement cost is estimated at \$81,000. The higher-mileage vehicles (over 170,000 miles on the 1996 Suburban) will be targeted for the initial replacement, as well as reducing maintenance and repair costs to the fleet.

The total costs for additional staff and vehicle replacement, \$598,600, is shown as a part of the overall Recovery Plan costs as “Agency Resources” in Table 1. More detailed costs associated with the staff labor and vehicular replacement are summarized in Table 3.

TABLE 1: Post-Hurricane Beach and Dune Recovery Plan Cost Summary
 (NOTE: Values Reflect Anticipated Emergency Federal Funding and Additional State Funds Needed for Emergency Protective Measures)

COUNTY	DEP RANGE MONUMENT - START	DEP RANGE MONUMENT - FINISH	PROJECT NAME	PROJECT ACTIVITY	FEDERAL FUNDS	LOCAL SHARE	STATE SHARE	SUPPLEMENTAL STATE FUNDING REQUIRED
Statewide	N/A	N/A	Regional Sand Search	Data Acquisition	\$0	TBD	\$1,000,000	\$1,000,000
Statewide	N/A	N/A	Condition Surveys	Data Acquisition	\$0	TBD	\$500,000	\$500,000
Statewide	N/A	N/A	Beach Debris Removal	Debris Removal	\$0	TBD	\$500,000	\$500,000
Statewide	N/A	N/A	Revalidate Coastal Siting & Design Criteria	Data Acquisition; Research & Development	\$0	\$0	\$400,000	\$400,000
Statewide	N/A	N/A	Agency Resources	Staffing & Vehicles	\$0	\$0	\$598,600	\$598,600
Statewide	N/A	N/A	Florida State Parks	Dune Restoration	\$0	\$0	\$3,800,000	\$3,800,000
Regional	N/A	N/A	Big-Bend Gulf Coast & Florida Keys - Beach and Dune Restoration	Beach & Dune Restoration	\$0	TBD	\$500,000	\$500,000
Duval	R31	R80	Duval County Shore Protection Project	Beach Nourishment	\$11,550,000	\$1,856,445	\$1,593,555	\$0 (Currently Funded)
St. Johns	R137	R150	St. Johns County Shore Protection Project	Beach Nourishment	\$12,900,000	\$993,317	\$1,264,400	\$1,264,400
Volusia	R40	R145	North Volusia County Dune Restoration Project	Dune Restoration	\$27,000	TBD	\$2,220,000	\$2,220,000
Volusia	R161	R208	New Smyrna Beach/Bethune Dune Restoration Project	Dune Restoration	\$453,060	TBD	\$3,780,000	\$3,780,000
Brevard	R1	R53	Brevard County Shore Protection Project - North Reach	Beach Nourishment	\$3,142,000	\$575,600	\$575,600	\$575,600
Brevard	R85	R118	Satellite Beach/Indian Harbour Beach Dune Restoration Project	Dune Restoration	\$500,930	TBD	\$3,540,000	\$3,540,000
Brevard	R118	R138	Brevard County Shore Protection Project - South Reach	Beach Nourishment	\$5,077,000	\$919,400	\$919,400	\$919,400
Brevard	R138	R218	South Brevard County Dune Restoration Project	Dune Restoration	\$1,460,759	TBD	\$4,730,000	\$4,730,000
Indian River	R17	R70	North Indian River County Dune Restoration Project	Dune Restoration	\$645,729	TBD	\$5,910,000	\$5,910,000
Indian River	R70	R86	Vero Beach Dune Restoration Project	Dune Restoration	\$661,007	TBD	\$3,540,000	\$3,540,000
Indian River	R100	R107	South Indian River County Dune Restoration Project	Dune Restoration	\$239,347	TBD	\$580,000	\$580,000

NOTES: - denotes emergency funding provided to repair constructed Federal Shore Protection Project (USACE)
 TBD - denotes funding amount not yet known (To Be Determined)
 TBD (FEMA) - denotes funding amount not yet known (To Be Determined) - awaiting final values from FEMA

TABLE 1: Post-Hurricane Beach and Dune Recovery Plan Cost Summary
 (NOTE: Values Reflect Anticipated Emergency Federal Funding and Additional State Funds Needed for Emergency Protective Measures)

COUNTY	DEP RANGE MONUMENT - START	DEP RANGE MONUMENT - FINISH	PROJECT NAME	PROJECT ACTIVITY	FEDERAL FUNDS	LOCAL SHARE	STATE SHARE	SUPPLEMENTAL STATE FUNDING REQUIRED
St. Lucie	R34	R46	St. Lucie County Shore Protection Project	Beach Nourishment	\$1,850,000	\$370,000	\$370,000	\$0 (Currently Funded)
St. Lucie	R98	R115	South St. Lucie County Dune Restoration Project	Dune Restoration	\$1,059,470	TBD	\$3,760,000	\$3,760,000
Martin	R1	R25	Martin County Shore Protection Project	Beach Nourishment	\$4,400,000	\$1,604,211	\$1,335,789	\$0 (Currently Funded)
Martin	R25	R36	South Hutchinson Island Dune Restoration Project	Dune Restoration	TBD (FEMA)	TBD	\$1,220,000	\$1,220,000
Martin	R126	R127	South Jupiter Island Dune Restoration	Dune Restoration	TBD (FEMA)	TBD	\$190,000	\$190,000
Palm Beach	R3	R10	Coral Cove Park Dune Restoration	Dune Restoration	TBD (FEMA)	TBD	\$590,000	\$590,000
Palm Beach	R13	R19	Jupiter/Carlin Shore Protection Project	Beach Nourishment	\$1,700,000	\$0	\$0	\$0
Palm Beach	R60	R69	Singer Island Dune Restoration	Dune Restoration	TBD (FEMA)	TBD	\$240,000	\$240,000
Palm Beach	R116	R133	Southern Palm Beach Island Dune Restoration	Dune Restoration	TBD (FEMA)	TBD	\$4,043,000	\$4,043,000
Palm Beach	R133	R137	South Palm Beach Dune Restoration	Dune Restoration	TBD (FEMA)	TBD	\$240,000	\$240,000
Palm Beach	R152	R160	Ocean Ridge Shore Protection Project	Beach Nourishment	\$1,500,000	TBD	TBD	\$0
Palm Beach	R175	R188	Delray Beach Shore Protection Project	Beach Nourishment	\$5,000,000	TBD	TBD	\$0
Palm Beach	R205	R212	North Boca Raton Shore Protection Project	Beach Nourishment	\$2,750,000	TBD	TBD	\$0
Broward	R25	R128	Broward County Shore Protection Project	Beach Nourishment	\$3,750,000	TBD	TBD	\$0

NOTES:

- denotes emergency funding provided to repair constructed Federal Shore Protection Project (USACE)
- TBD - denotes funding amount not yet known (To Be Determined)
- TBD (FEMA) - denotes funding amount not yet known (To Be Determined) - awaiting final values from FEMA

TABLE 1: Post-Hurricane Beach and Dune Recovery Plan Cost Summary
 (NOTE: Values Reflect Anticipated Emergency Federal Funding and Additional State Funds Needed for Emergency Protective Measures)

COUNTY	DEP RANGE MONUMENT - START	DEP RANGE MONUMENT - FINISH	PROJECT NAME	PROJECT ACTIVITY	FEDERAL FUNDS	LOCAL SHARE	STATE SHARE	SUPPLEMENTAL STATE FUNDING REQUIRED
Escambia	R1	R32	Perdido Key Dune Restoration	Dune Restoration	\$1,873,212	TBD	\$2,910,000	\$2,910,000
Escambia	R1	R32	Perdido Key Feasibility Study	Beach Restoration Studies	\$0	TBD	\$200,000	\$200,000
Escambia	R107	R151	Pensacola Beach Dune Restoration Project	Dune Restoration	\$769,824	TBD	\$620,000	\$620,000
Santa Rosa	R192	R211	Navarre Beach Dune Restoration	Dune Restoration	\$496,347	TBD	\$2,120,000	\$2,120,000
Okaloosa	R1	R15	Ft. Walton Beach Dune Restoration	Dune Restoration	\$132,864	TBD	\$1,860,000	\$1,860,000
Okaloosa	R1	R15	Ft. Walton Beach Restoration Feasibility Study	Beach Restoration Studies	\$0	TBD	\$200,000	\$200,000
Okaloosa	R17	R32	Destin/Holiday Isle Dune Restoration	Dune Restoration	\$464,058	TBD	\$890,000	\$890,000
Okaloosa	R39	R50	Eastern Destin Dune Restoration	Dune Restoration	\$464,058	TBD	\$1,500,000	\$1,500,000
Walton	R1	R24	Western Walton County Dune Restoration	Dune Restoration	\$686,554	TBD	\$1,750,000	\$1,750,000
Walton	R41	R72	Central Walton County Dune Restoration	Dune Restoration	\$788,266	TBD	\$1,680,000	\$1,680,000
Walton	R78	R98	Seaside/Seagrove Beach Dune Restoration	Dune Restoration	\$508,558	TBD	\$1,210,000	\$1,210,000
Walton	R105	R127	Eastern Walton County Dune Restoration	Dune Restoration	\$559,414	TBD	\$930,000	\$930,000
Bay	R5	R91	Panama City Beaches Shore Protection Project	Beach Nourishment	\$18,025,000	\$2,722,027	\$1,253,000	\$1,253,000
Bay	R129	R138	Mexico Beach Dune Restoration Project	Dune Restoration	TBD (FEMA)	TBD	\$350,000	\$350,000
Gulf	R75	R105	St. Joseph Peninsula Dune Restoration Project	Dune Restoration	\$426,300	TBD	\$870,000	\$870,000
Gulf	R75	R105	St. Joseph Peninsula Beach Restoration Feasibility Study	Beach Restoration Studies	N/A	TBD	\$200,000	\$200,000
Pinellas	R56	R107	Pinellas County Shore Protection Project - Sand Key	Beach Nourishment	\$11,000,000	\$3,032,500	\$3,032,500	\$3,032,500
Pinellas	R144	R166	Pinellas County Shore Protection Project - Pass-a-Grille	Beach Nourishment	\$608,000	\$246,000	\$246,000	\$246,000
Manatee	R2	R41	Anna Maria Island Beach Restoration Project Extension Feasibility Study	Beach Restoration Studies	N/A	N/A	\$100,000	\$100,000
Manatee	R12	R36	Anna Maria Island Shore Protection Project	Beach Nourishment	\$2,500,000	\$0	\$0	\$0
Sarasota	R116	R133	Venice Shore Protection Project	Beach Nourishment	\$9,800,000	\$1,148,256	\$1,011,744	\$0 (Currently Funded)
Lee	R85	R109	Captiva Island Shore Protection Project	Beach Nourishment	\$8,300,000	\$8,756,650	\$3,943,350	\$0 (Currently Funded)
Lee	R110	R114	Sanibel Island Dune Restoration	Dune Restoration	TBD (FEMA)	TBD	\$930,000	\$930,000
Lee	R176	R200	Fort Myers Beach Dune Restoration	Dune Restoration	\$190,500	TBD	\$890,000	\$890,000
TOTALS					\$116,259,256	\$22,224,406	\$76,636,938	\$68,382,500

TABLE 2: Post-Hurricane Beach and Dune Recovery Plan
State Funding Requirements

COUNTY	PROJECT NAME	Federal Funds Available/ Anticipated	Future State Request	Prior State Appropriation	State Funds Requested December 2004
Statewide	Regional Sand Search				\$1,000,000
Statewide	Condition Surveys				\$500,000
Statewide	Beach Debris Removal				\$500,000
Statewide	Revalidate Coastal Siting & Design Criteria				\$400,000
Statewide	Agency Resources				\$598,600
Statewide	Florida State Parks				\$3,800,000
Regional	Big-Bend Gulf Coast & Florida Keys - Beach and Dune Restoration				\$500,000
Nassau	Nassau County Shore Protection Project	X	X	X	
Duval	Duval County Shore Protection Project	X		X	
St. Johns	Vilano Beach Restoration Feasibility Study	X	X	X	
St. Johns	St. Johns County Shore Protection Project	X			\$1,264,400
St. Johns	South St. Johns County Beach Restoration Feasibility Study	X	X	X	
Flagler	Flagler County Beach Restoration Feasibility Study	X	X	X	
Volusia	Volusia County Beach Restoration Feasibility Study	X	X	X	
Volusia	North Volusia County Dune Restoration Project	X			\$2,220,000
Volusia	New Smyrna Beach/Bethune Dune Restoration Project	X			\$3,780,000
Volusia	New Smyrna Beach/Bethune Beach Restoration Project		X	X	
Brevard	Canaveral Inlet Sand Bypass Project	X		X	
Brevard	Brevard County Shore Protection Project - North Reach	X			\$575,600
Brevard	Brevard County Shore Protection Project - Mid Reach	X	X	X	
Brevard	Satellite Beach/Indian Harbour Beach Dune Restoration Project	X			\$3,540,000
Brevard	Brevard County Shore Protection Project - South Reach	X			\$919,400
Brevard	South Brevard County Dune Restoration Project	X			\$4,730,000
Indian River	Sebastian Inlet Sand Trap Bypassing			X	
Indian River	Ambersand Beach Restoration Project	X	X		
Indian River	North Indian River County Dune Restoration Project	X			\$5,910,000
Indian River	Wabasso Beach Restoration Project		X	X	
Indian River	Vero Beach Dune Restoration Project	X			\$3,540,000
Indian River	Vero Beach Restoration Project		X	X	
Indian River	South Indian River County Dune Restoration Project	X			\$580,000
Indian River	South Indian River County Beach Restoration Project				

TABLE 2: Post-Hurricane Beach and Dune Recovery Plan
State Funding Requirements

COUNTY	PROJECT NAME	Federal Funds Available/ Anticipated	Future State Request	Prior State Appropriation	State Funds Requested December 2004
St. Lucie	St. Lucie County Shore Protection Project	X		X	
St. Lucie	South St. Lucie County Dune Restoration Project	X			\$3,760,000
St. Lucie	South St. Lucie County Federal Feasibility Study	X	X	X	
Martin	Martin County Shore Protection Project	X		X	
Martin	South Hutchinson Island Dune Restoration Project	X			\$1,220,000
Martin	St. Lucie Inlet Sand Transfer	X	X		
Martin	Jupiter Island Beach Restoration Project	X	X		
Martin	South Jupiter Island Dune Restoration	X			\$190,000
Palm Beach	Coral Cove Park Dune Restoration	X			\$590,000
Palm Beach	Jupiter/Carlin Shore Protection Project	X	X		
Palm Beach	Juno Beach Restoration Project	X	X		
Palm Beach	Singer Island Dune Restoration	X			\$240,000
Palm Beach	Singer Island Beach Restoration Feasibility		X		
Palm Beach	Lake Worth Inlet Sand Transfer Plant	X			
Palm Beach	Palm Beach Island Beach Restoration Project - Reach 2		X	X	
Palm Beach	Mid-Town Beach Restoration Project	X	X		
Palm Beach	Palm Beach Island Beach Restoration Project - Reach 5		X	X	
Palm Beach	Phipps Ocean Park Beach Restoration Project		X	X	
Palm Beach	Southern Palm Beach Island Dune Restoration	X			\$4,043,000
Palm Beach	Palm Beach Island Beach Restoration Project - Reach 8		X	X	
Palm Beach	South Palm Beach Dune Restoration	X			\$240,000
Palm Beach	South Lake Worth Inlet Sand Transfer Plant Rehabilitation	X		X	
Palm Beach	Ocean Ridge Shore Protection Project	X	X		
Palm Beach	Gulfstream Park Dune Restoration	X			
Palm Beach	Delray Beach Shore Protection Project	X	X		
Palm Beach	North Boca Raton Shore Protection Project	X	X		
Palm Beach	Central Boca Raton Beach Nourishment Project	X	X		
Palm Beach	South Boca Raton Beach Nourishment Projects	X	X		
Broward	Hillsboro Beach/Deerfield Beach Restoration Project		X		
Broward	Broward County Shore Protection Project	X	X	X	
Dade	Dade County Shore Protection Project	X	X		

TABLE 2: Post-Hurricane Beach and Dune Recovery Plan
State Funding Requirements

COUNTY	PROJECT NAME	Federal Funds Available/ Anticipated	Future State Request	Prior State Appropriation	State Funds Requested December 2004
Escambia	Perdido Key Dune Restoration	X			\$2,910,000
Escambia	Perdido Key Beach Restoration Feasibility Study				\$200,000
Escambia	Pensacola Beach Restoration Project	X	X		
Escambia	Pensacola Pass Sand Bypass	X	X		
Escambia	Pensacola Beach Dune Restoration Project	X			\$620,000
Santa Rosa	Navarre Beach Restoration Project		X	X	
Santa Rosa	Navarre Beach Dune Restoration	X			\$2,120,000
Okaloosa	Ft. Walton Beach Dune Restoration	X			\$1,860,000
Okaloosa	Ft. Walton Beach Restoration Feasibility Study				\$200,000
Okaloosa	Destin/Holiday Isle Dune Restoration	X			\$890,000
Okaloosa	Eastern Destin Dune Restoration	X			\$1,500,000
Okaloosa	Destin Beach Restoration Project				
Okaloosa	East Pass Sand Bypass	X	X		
Walton	Walton County Beach Restoration Project			X	
Walton	Western Walton County Dune Restoration	X			\$1,750,000
Walton	Central Walton County Dune Restoration	X			\$1,680,000
Walton	Seaside/Seagrove Beach Dune Restoration	X			\$1,210,000
Walton	Eastern Walton County Dune Restoration	X			\$930,000
Walton	Walton County Beach Restoration Feasibility Study	X	X	X	
Bay	Panama City Beaches Shore Protection Project	X			\$1,253,000
Bay	Mexico Beach Dune Restoration Project	X			\$350,000
Bay	St. Andrews Inlet Sand Bypass	X			
Gulf	St. Joseph Peninsula Dune Restoration Project	X			\$870,000
Gulf	St. Joseph Peninsula Beach Restoration Feasibility Study				\$200,000
Franklin	Alligator Point Beach Restoration Project		X	X	
Pinellas	Pinellas County Shore Protection Project - Sand Key	X			\$3,032,500
Pinellas	Pinellas County Shore Protection Project - Pass-a-Grille	X			\$246,000
Hillsborough	Egmont Key Feasibility Study	X			
Manatee	Anna Maria Island Beach Restoration Project Extension Feasibility Study				\$100,000
Manatee	Anna Maria Island Shore Protection Project	X			
Manatee	Longboat Key Beach Restoration Project	X		X	

TABLE 2: Post-Hurricane Beach and Dune Recovery Plan
State Funding Requirements

COUNTY	PROJECT NAME	Federal Funds Available/ Anticipated	Future State Request	Prior State Appropriation	State Funds Requested December 2004
Sarasota	Lido Key Beach Restoration				
Sarasota	South Siesta Key Beach Restoration Project		X	X	
Sarasota	Venice Shore Protection Project	X		X	
Charlotte	Knight Island/Don Pedro Beach Restoration Project	X	X	X	
Lee	Gasparilla Island Shore Protection Project	X		X	
Lee	North Captiva Feasibility Study			X	
Lee	Captiva Island Shore Protection Project	X		X	
Lee	Sanibel Island Dune Restoration	X			\$930,000
Lee	Estero Island Shore Protection Project	X		X	
Lee	Fort Myers Beach Dune Restoration	X			\$890,000
Lee	Bonita Beach Restoration Project	X	X		
Collier	Collier County Beach Restoration Project - Parkshore		X		
Collier	Collier County Beach Restoration Project - Vanderbilt Beach		X		
Collier	Collier County Beach Restoration Project - Naples		X		
	TOTALS				\$68,382,500

Table 3
 Bureau of Beaches and Coastal Systems
 Post-Hurricane Beach and Dune Recovery Plan Implementation - Staffing and Vehicle Replacement Request

Bureau Section	Class Title/Pay Grade	Annual Salary	Fringe Benefits	Recurring Expenses	Non-Recurring Expenses	Non Recurring Operating Capital Outlay (OCO)	Travel	Total
CCCL	Environmental Specialist III/P.G. 24	\$ 39,358.02	\$ 11,807.41	\$ 6,513.00	\$ 3,230.00	\$ 1,800.00	\$ 2,000.00	\$ 64,708.43
CCCL	Engineer III/P.G. 24	\$ 39,358.02	\$ 11,807.41	\$ 6,513.00	\$ 3,230.00	\$ 1,800.00	\$ 2,000.00	\$ 64,708.43
JCP	Environmental Specialist III/P.G. 24	\$ 39,358.02	\$ 11,807.41	\$ 6,513.00	\$ 3,230.00	\$ 1,800.00	\$ 2,850.00	\$ 65,558.43
JCP	Environmental Manager/P.G. 26	\$ 44,580.12	\$ 13,374.04	\$ 6,513.00	\$ 3,230.00	\$ 1,800.00	\$ 2,850.00	\$ 72,347.16
BECP	Environmental Specialist III/P.G. 24	\$ 39,358.02	\$ 11,807.41	\$ 6,513.00	\$ 3,230.00	\$ 2,100.00	\$ 3,600.00	\$ 66,608.43
BECP	Engineer Tech IV/P.G. 17	\$ 26,841.62	\$ 8,052.49	\$ 5,364.00	\$ 2,786.00	\$ 2,100.00	\$ 3,600.00	\$ 48,744.11
CDA	Engineer Tech IV/P.G. 17	\$ 26,841.62	\$ 8,052.49	\$ 5,364.00	\$ 2,786.00	\$ 2,100.00	\$ 5,100.00	\$ 50,244.11
CE	Professional Engineer III/P.G. 29	\$ 53,967.42	\$ 16,190.23	\$ 6,513.00	\$ 3,230.00	\$ 1,800.00	\$ 3,000.00	\$ 84,700.65
	TOTALS	\$ 309,662.86	\$ 92,898.86	\$ 49,806.00	\$ 24,952.00	\$ 15,300.00	\$ 25,000.00	\$ 517,619.72
CDA	Chevrolet Suburban FWD Vehicle (3)					\$ 81,000.00		

Appendix A

Maps Showing Project Areas

STATE OF
GEORGIA

NASSAU COUNTY HURRICANE RECOVERY PLAN

St. Marys River

R001

R010

R020

R030

R040

R050

R060

R070

R080

Nassau River

R001

R010

R020

R030

R040

R050

R060

R070

DUVAL
COUNTY

LEGEND

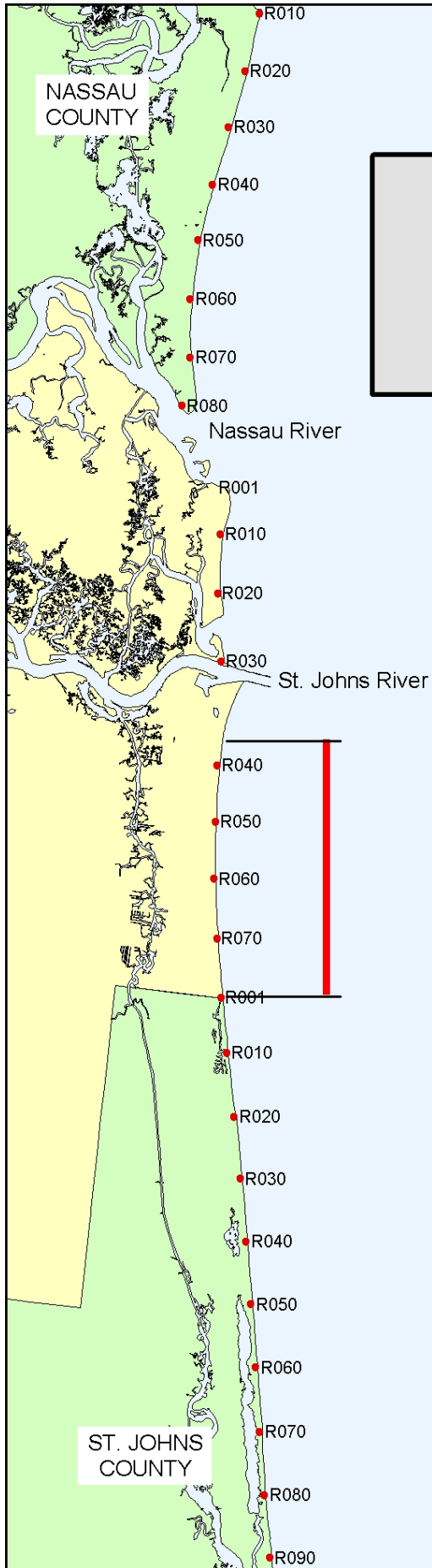
- Dune Restoration
- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer

Atlantic Ocean



1 inch equals 5 miles

DUVAL COUNTY HURRICANE RECOVERY PLAN



LEGEND

- Dune Restoration
- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer

Atlantic Ocean



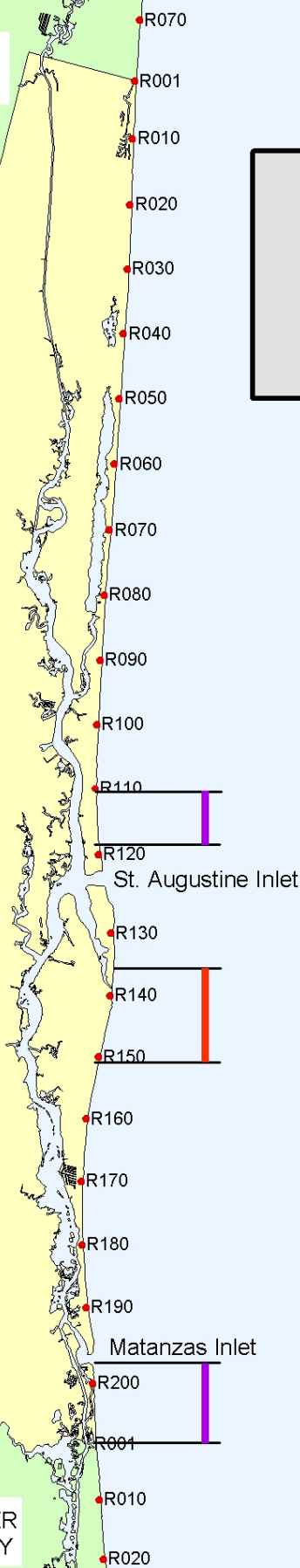
1 inch equals 5 miles

DUVAL COUNTY

ST. JOHNS COUNTY HURRICANE RECOVERY PLAN

LEGEND

- Dune Restoration
- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer



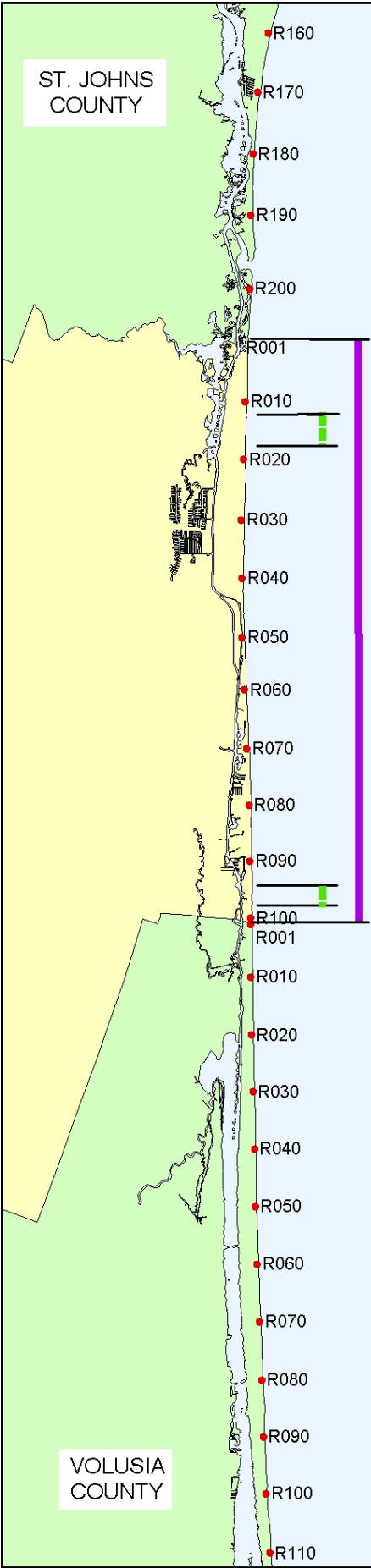
Atlantic Ocean



1 inch equals 5 miles

FLAGLER COUNTY

FLAGLER COUNTY HURRICANE RECOVERY PLAN



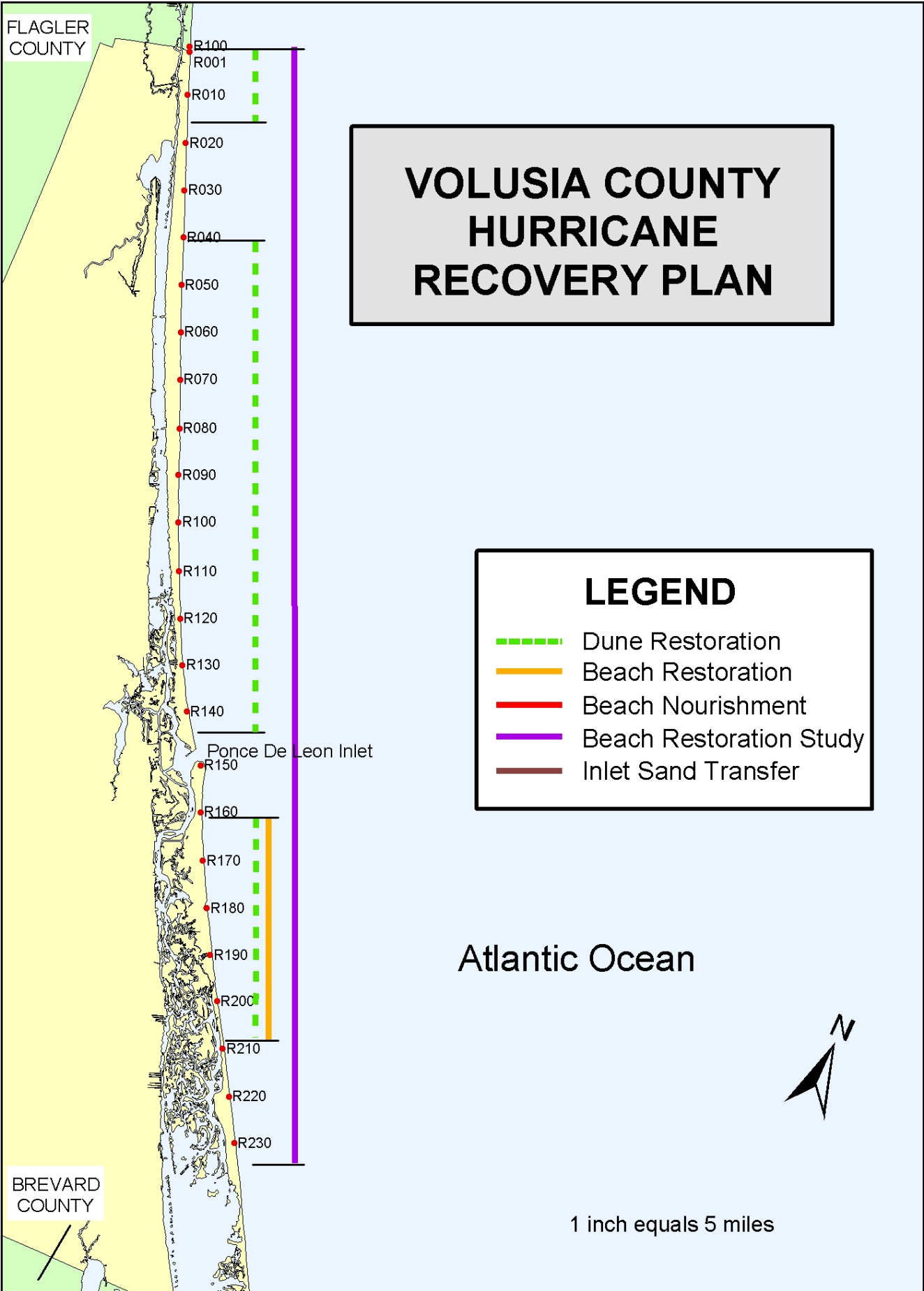
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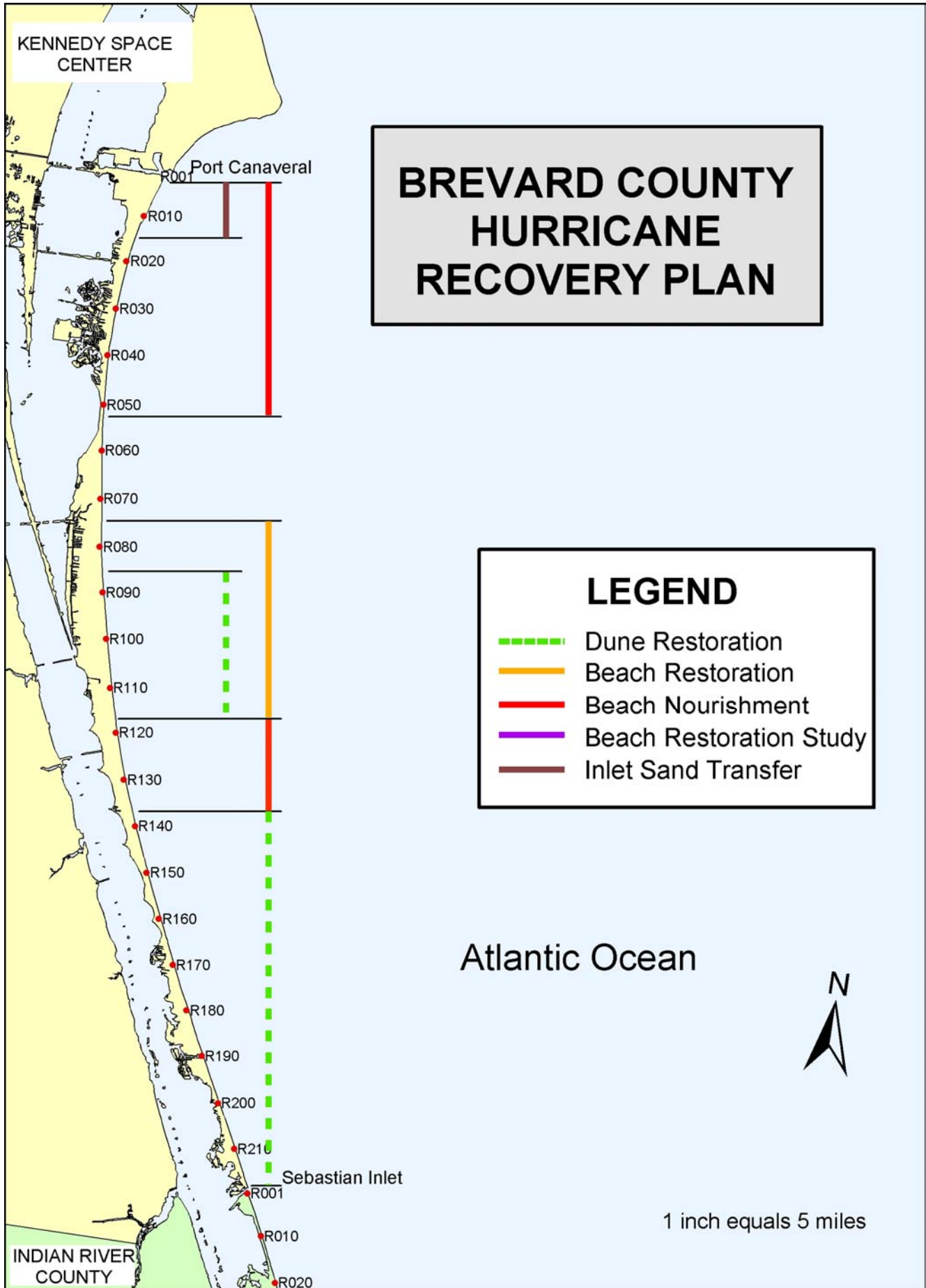
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- _ _ _ _ _ Beach Restoration
- _ _ _ _ _ Beach Nourishment
- _ _ _ _ _ Beach Restoration Study
- _ _ _ _ _ Inlet Sand Transfer

Atlantic Ocean

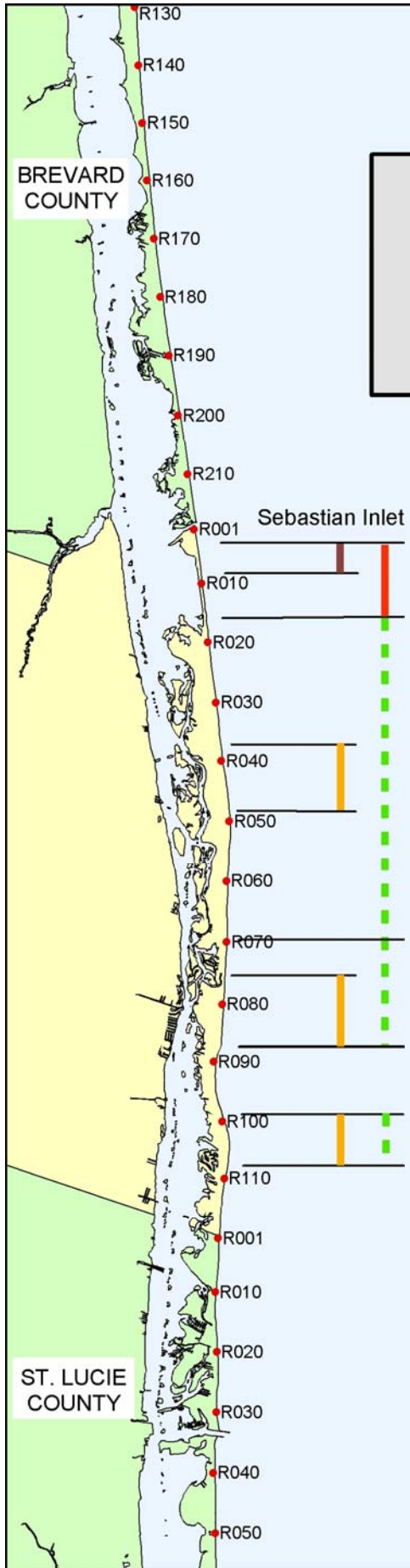


1 inch equals 5 miles





INDIAN RIVER COUNTY HURRICANE RECOVERY PLAN



LEGEND

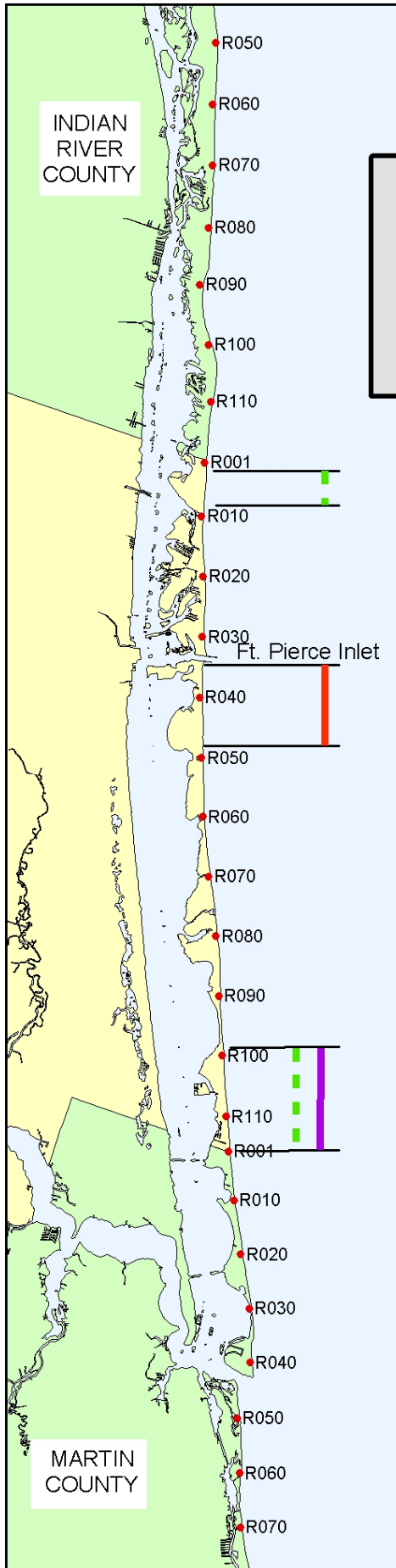
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- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer

Atlantic Ocean



1 inch equals 5 miles

ST. LUCIE COUNTY HURRICANE RECOVERY PLAN



LEGEND

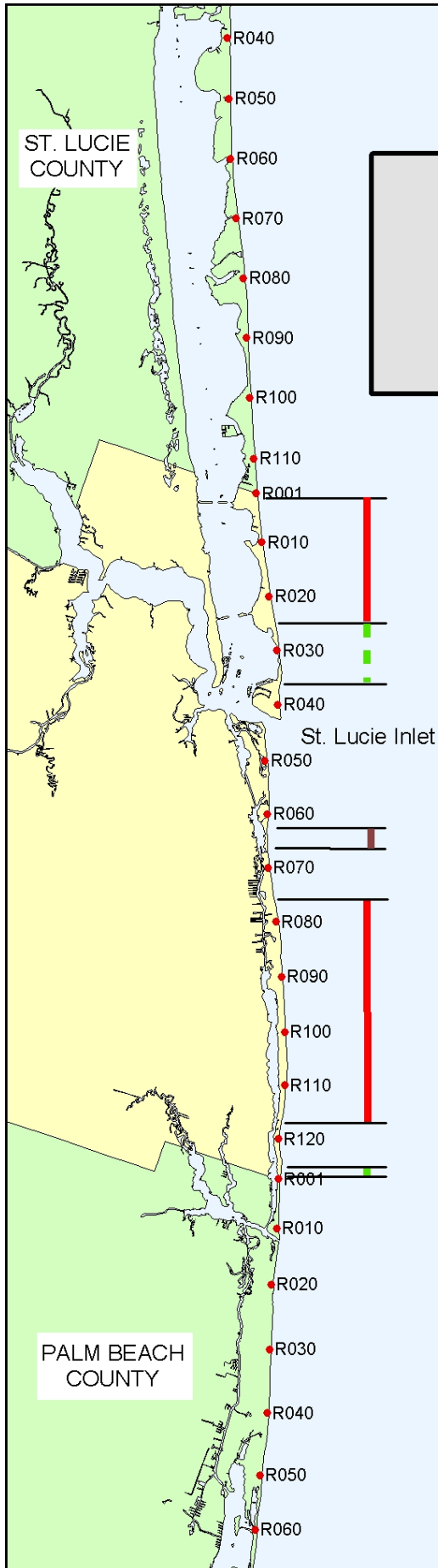
- Dune Restoration
- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer

Atlantic Ocean



1 inch equals 5 miles

MARTIN COUNTY HURRICANE RECOVERY PLAN



LEGEND

- Dune Restoration
- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer

Atlantic Ocean

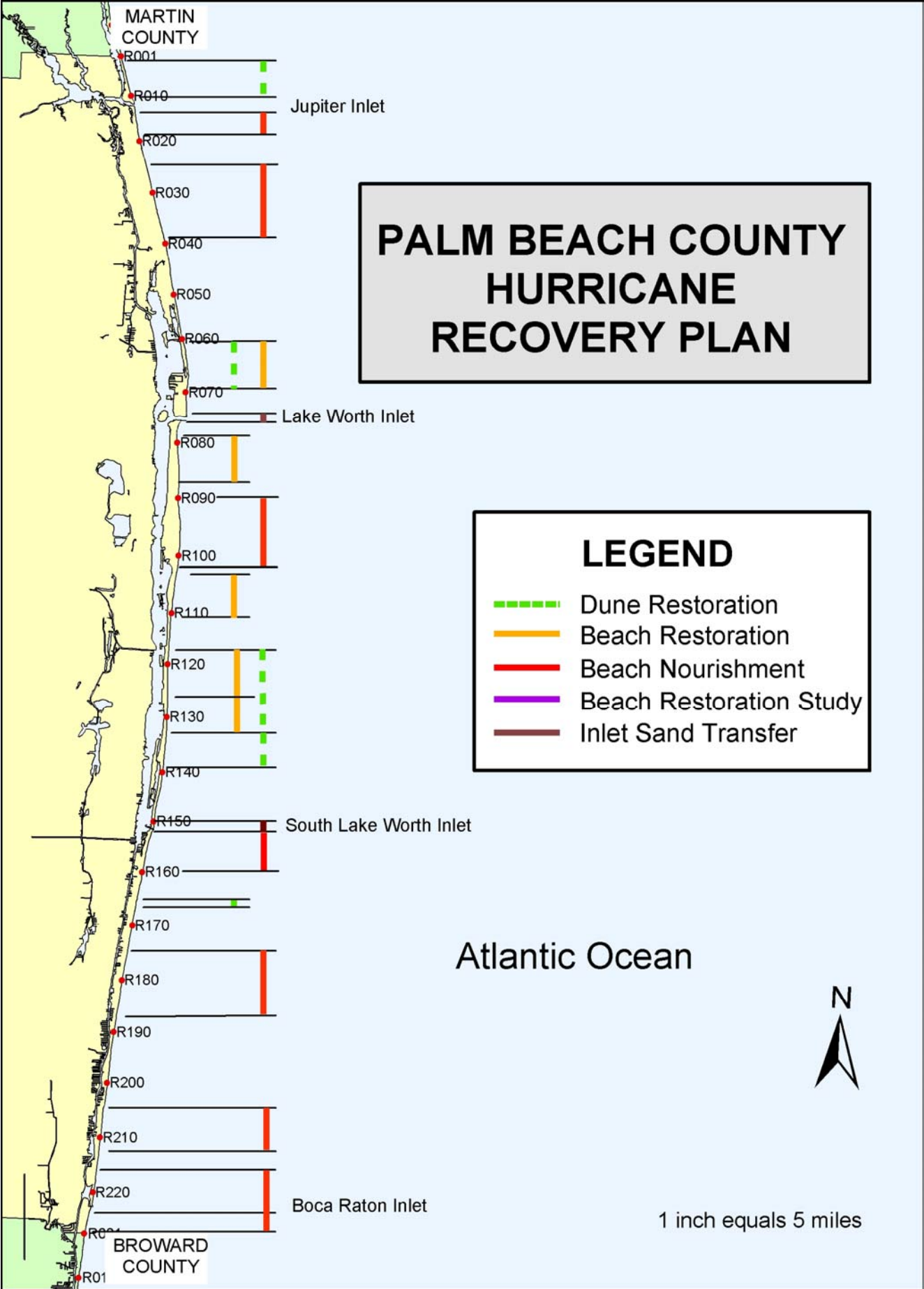


1 inch equals 5 miles

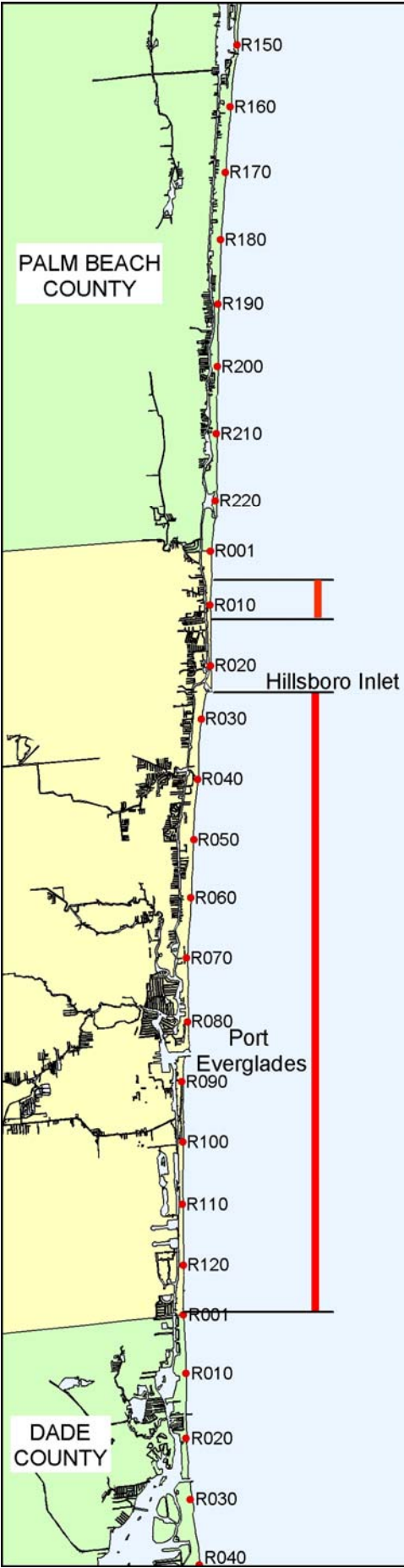
PALM BEACH COUNTY HURRICANE RECOVERY PLAN

LEGEND

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- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer



BROWARD COUNTY HURRICANE RECOVERY PLAN



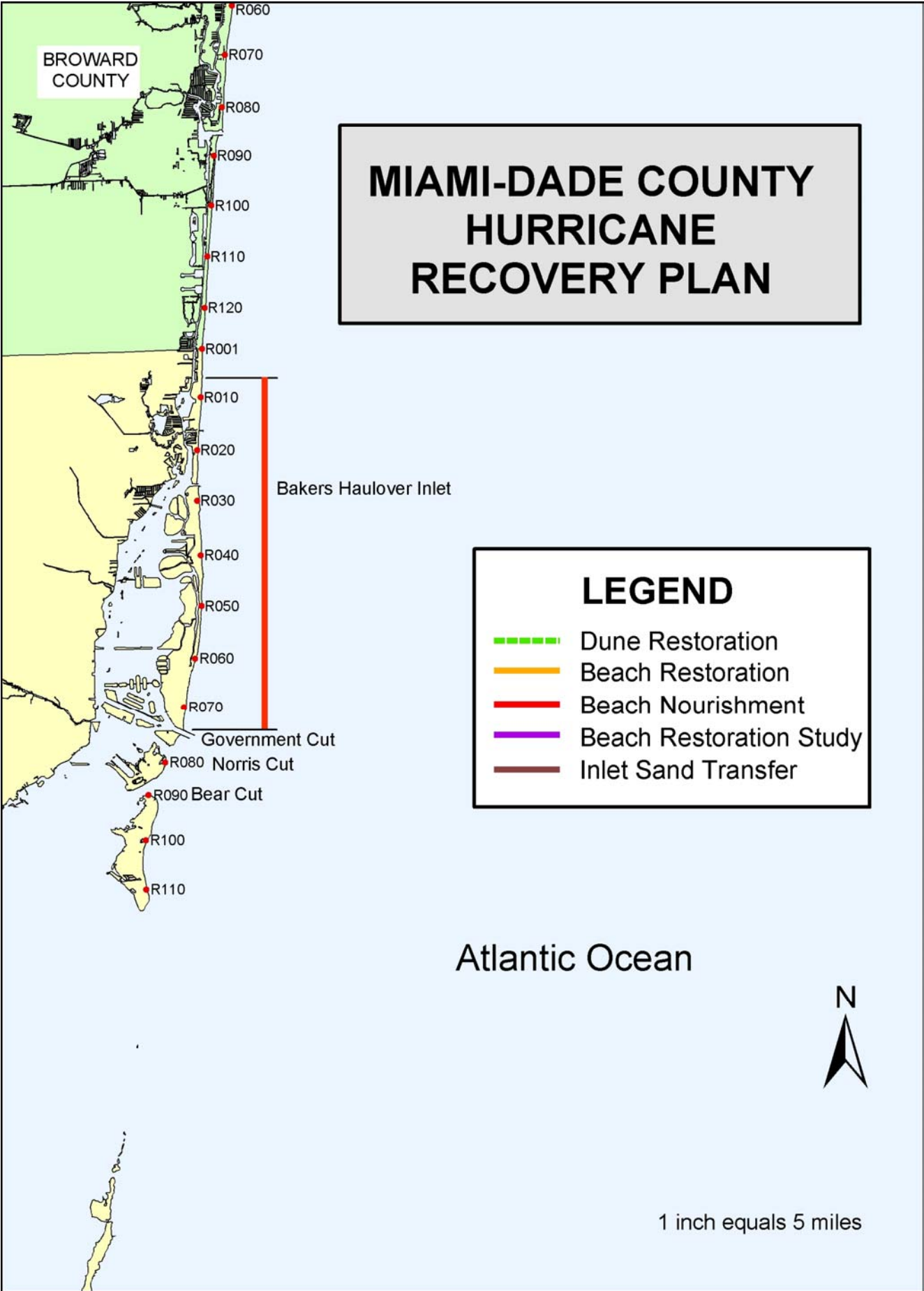
LEGEND

- — — — Dune Restoration
- — — — Beach Restoration
- — — — Beach Nourishment
- — — — Beach Restoration Study
- — — — Inlet Sand Transfer

Atlantic Ocean



1 inch equals 5 miles



ESCAMBIA AND SANTA ROSA COUNTY HURRICANE RECOVERY PLAN

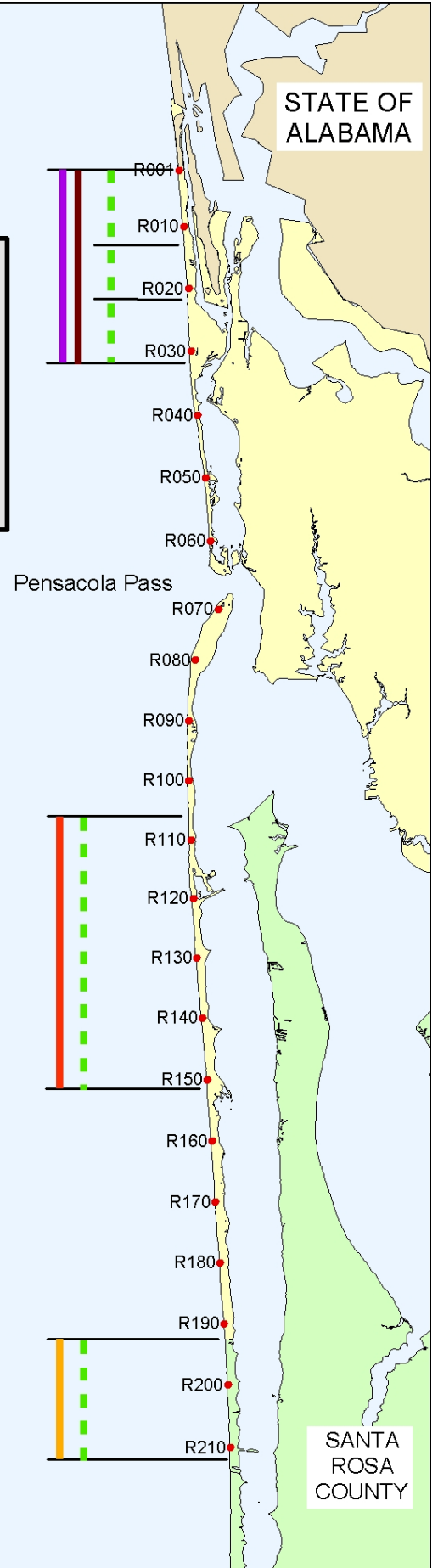
LEGEND

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- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer

Gulf of Mexico



1 inch equals 5 miles



OKALOOSA COUNTY HURRICANE RECOVERY PLAN

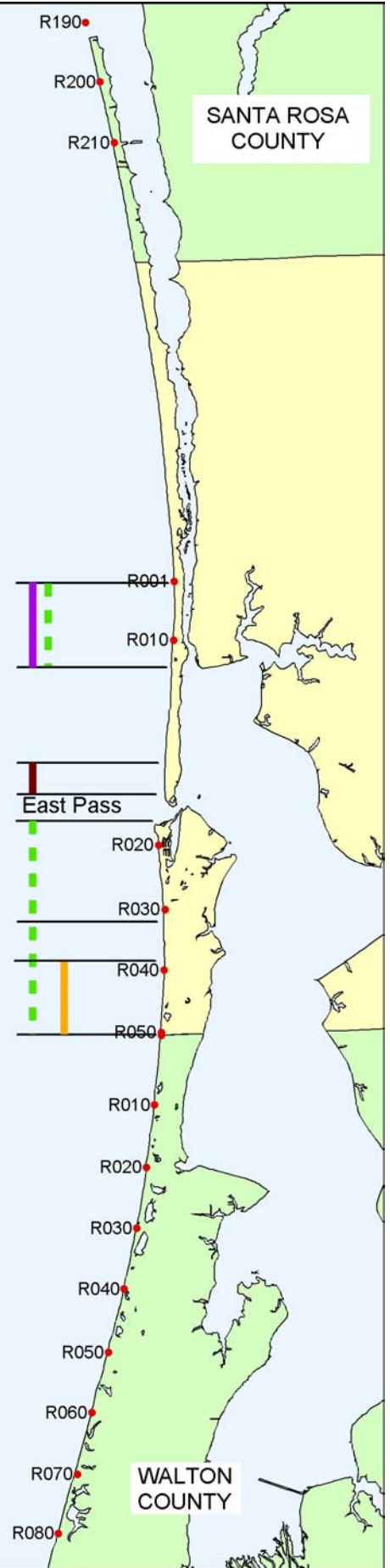
LEGEND

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- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer

Gulf of Mexico



1 inch equals 5 miles



WALTON COUNTY HURRICANE RECOVERY PLAN

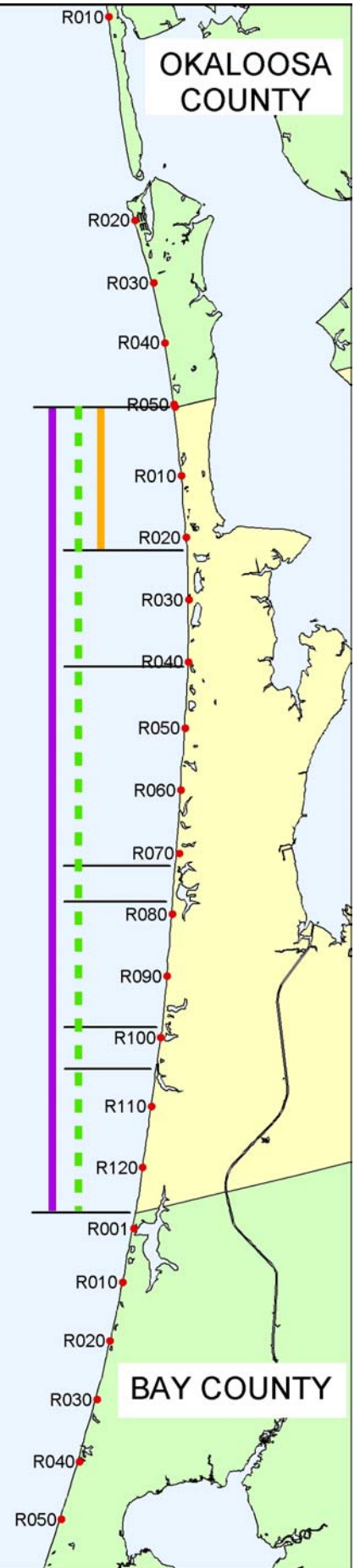
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- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer

Gulf of Mexico



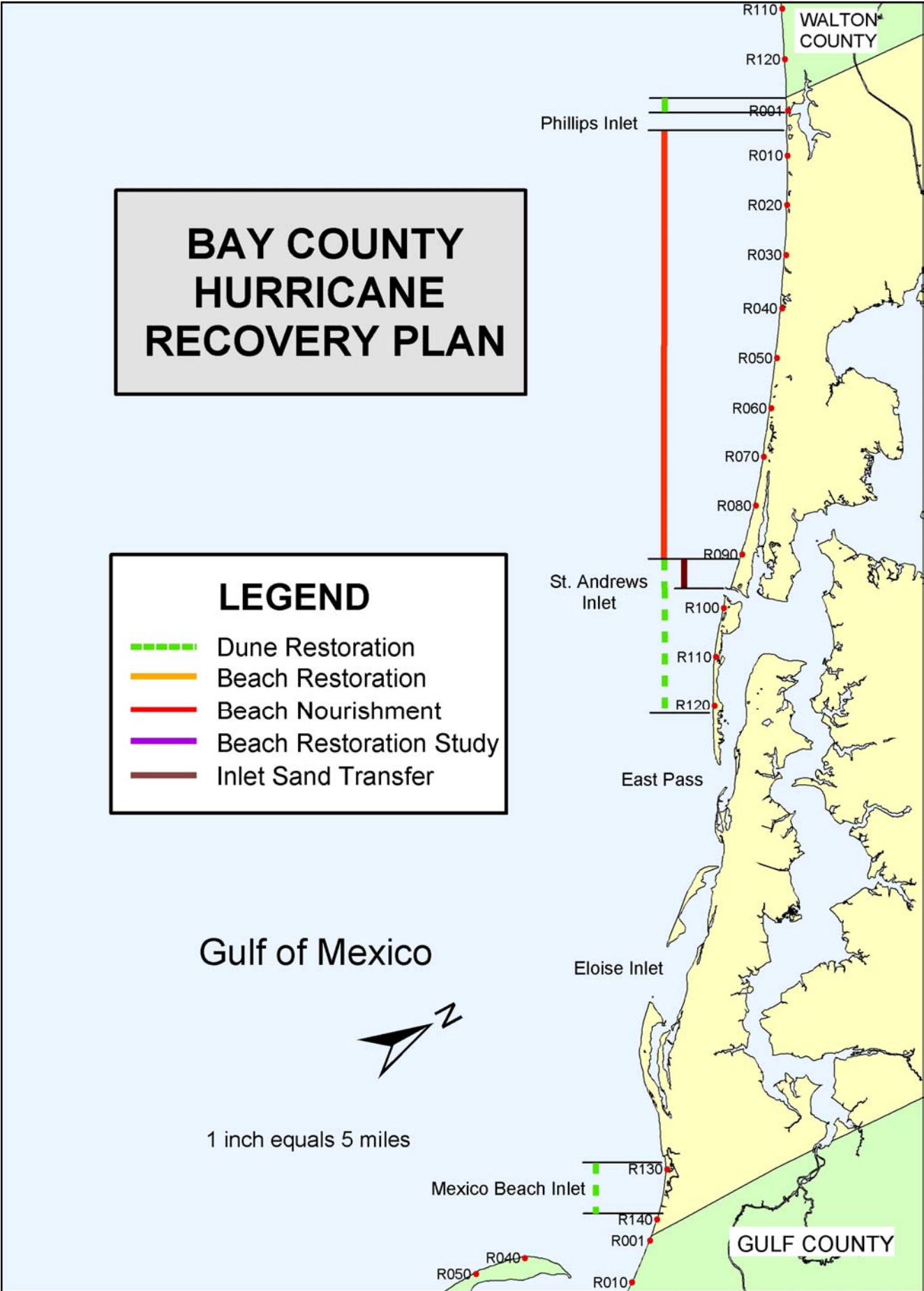
1 inch equals 5 miles



BAY COUNTY HURRICANE RECOVERY PLAN

LEGEND

- █ Dune Restoration
- █ Beach Restoration
- █ Beach Nourishment
- █ Beach Restoration Study
- █ Inlet Sand Transfer




Gulf of Mexico

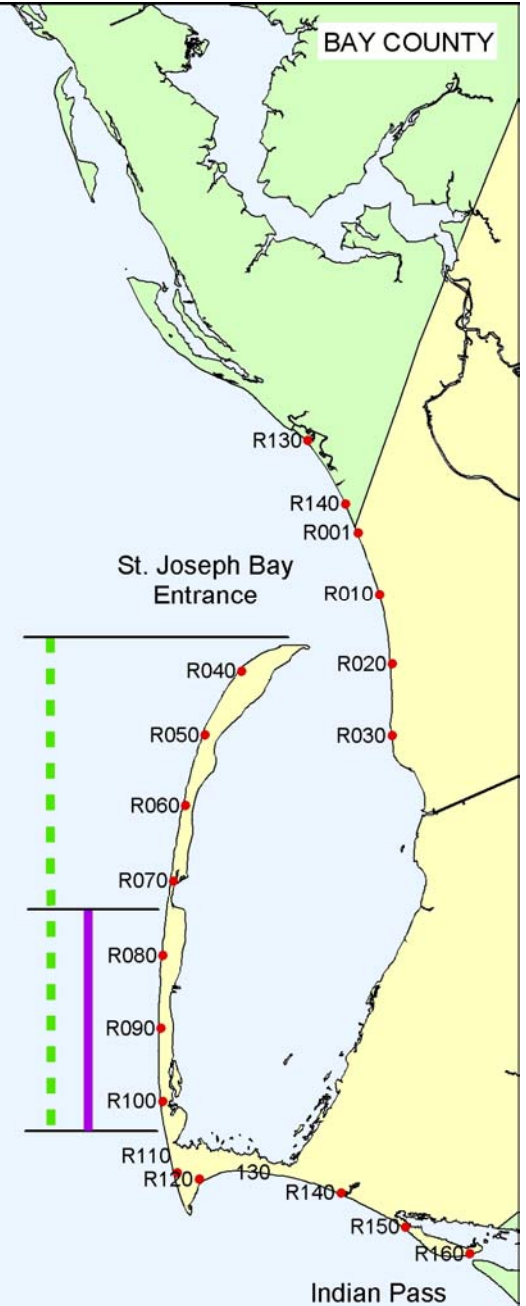


1 inch equals 5 miles

GULF COUNTY HURRICANE RECOVERY PLAN

LEGEND

-  Dune Restoration
-  Beach Restoration
-  Beach Nourishment
-  Beach Restoration Study
-  Inlet Sand Transfer








Gulf of Mexico

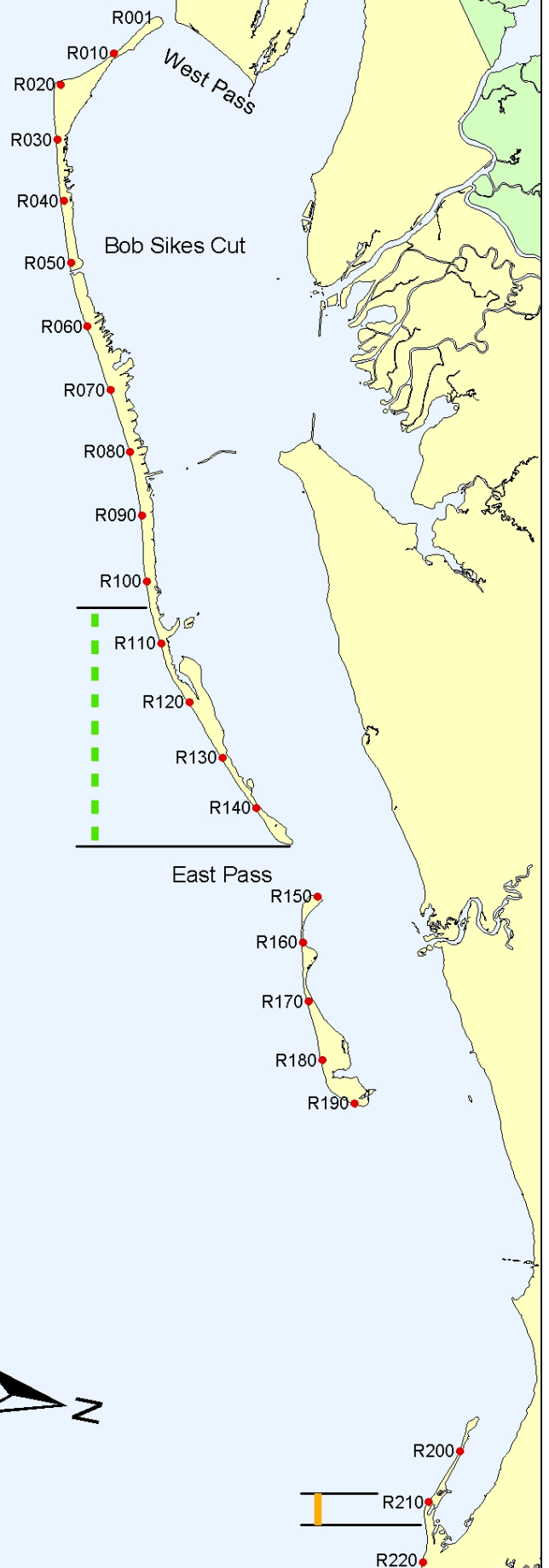


1 inch equals 5 miles

FRANKLIN COUNTY HURRICANE RECOVERY PLAN

LEGEND

-  Dune Restoration
-  Beach Restoration
-  Beach Nourishment
-  Beach Restoration Study
-  Inlet Sand Transfer



Gulf of Mexico



1 inch equals 5.004119 miles

PINELLAS AND HILLSBOROUGH COUNTY HURRICANE RECOVERY PLAN

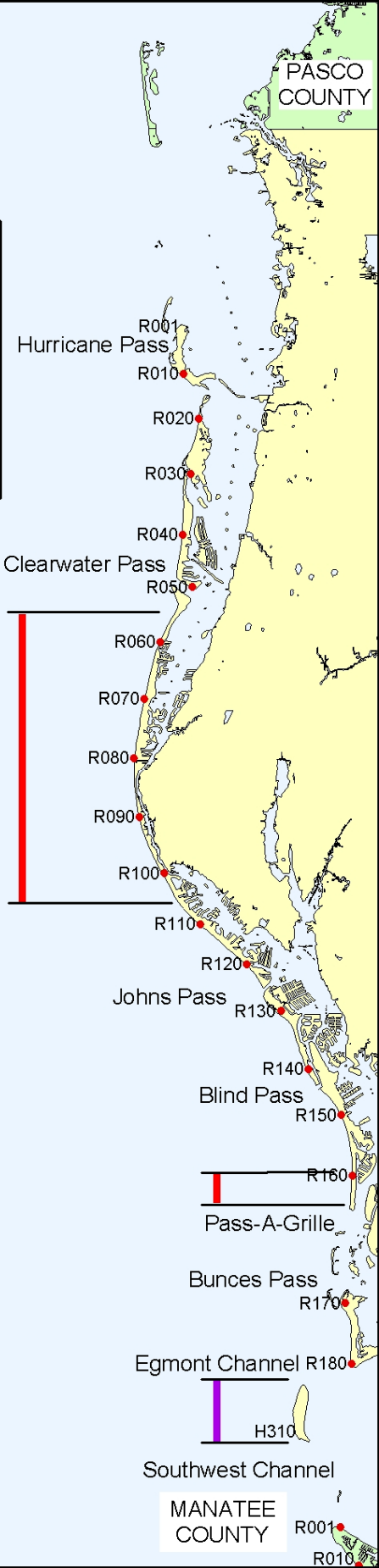
LEGEND

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- ▬▬▬ Beach Restoration
- ▬▬▬ Beach Nourishment
- ▬▬▬ Beach Restoration Study
- ▬▬▬ Inlet Sand Transfer

Gulf of Mexico



1 inch equals 5 miles



MANATEE COUNTY HURRICANE RECOVERY PLAN

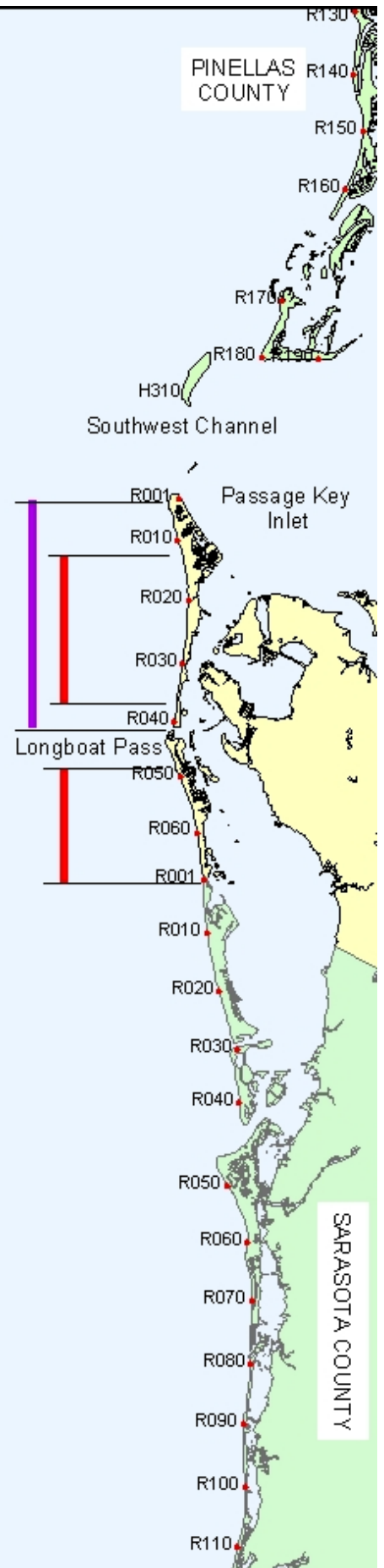
LEGEND

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- ▬▬▬▬ Beach Restoration
- ▬▬▬▬ Beach Nourishment
- ▬▬▬▬ Beach Restoration Study
- ▬▬▬▬ Inlet Sand Transfer

Gulf of Mexico



1 inch equals 5 miles



SARASOTA COUNTY HURRICANE RECOVERY PLAN

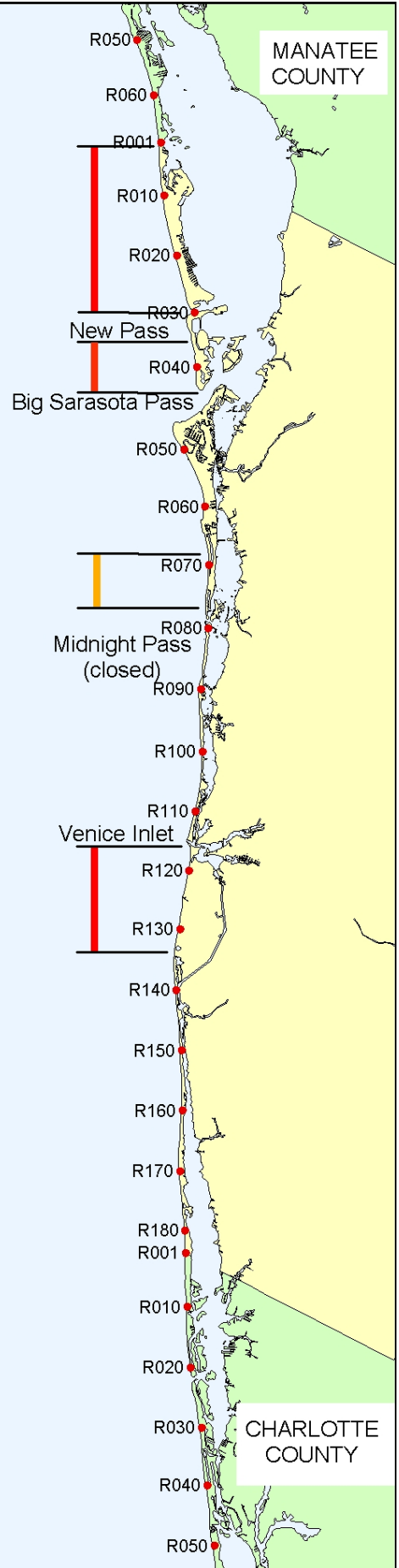
LEGEND

- Dune Restoration
- Beach Restoration
- Beach Nourishment
- Beach Restoration Study
- Inlet Sand Transfer

Gulf of Mexico








1 inch equals 5 miles



CHARLOTTE COUNTY HURRICANE RECOVERY PLAN

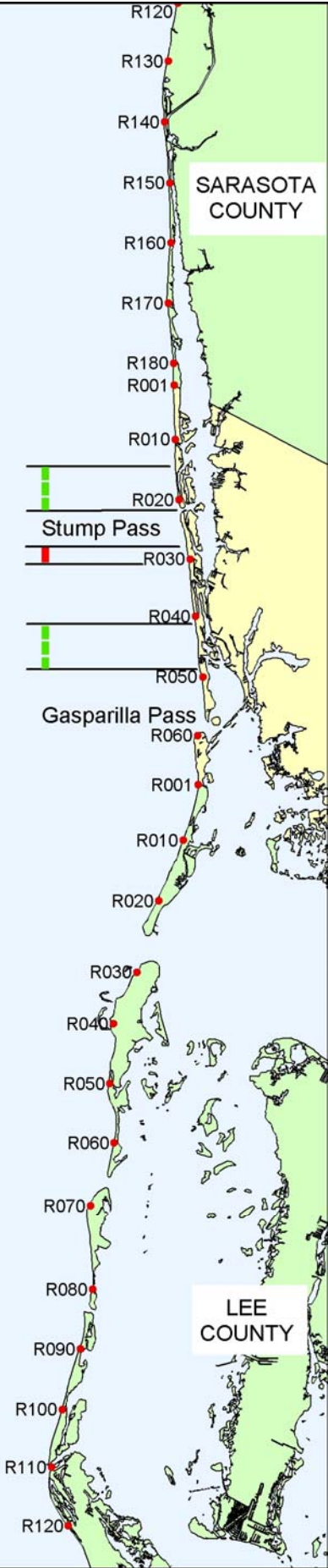
LEGEND

-  Dune Restoration
-  Beach Restoration
-  Beach Nourishment
-  Beach Restoration Study
-  Inlet Sand Transfer

Gulf of Mexico





1 inch equals 5 miles



LEE COUNTY HURRICANE RECOVERY PLAN

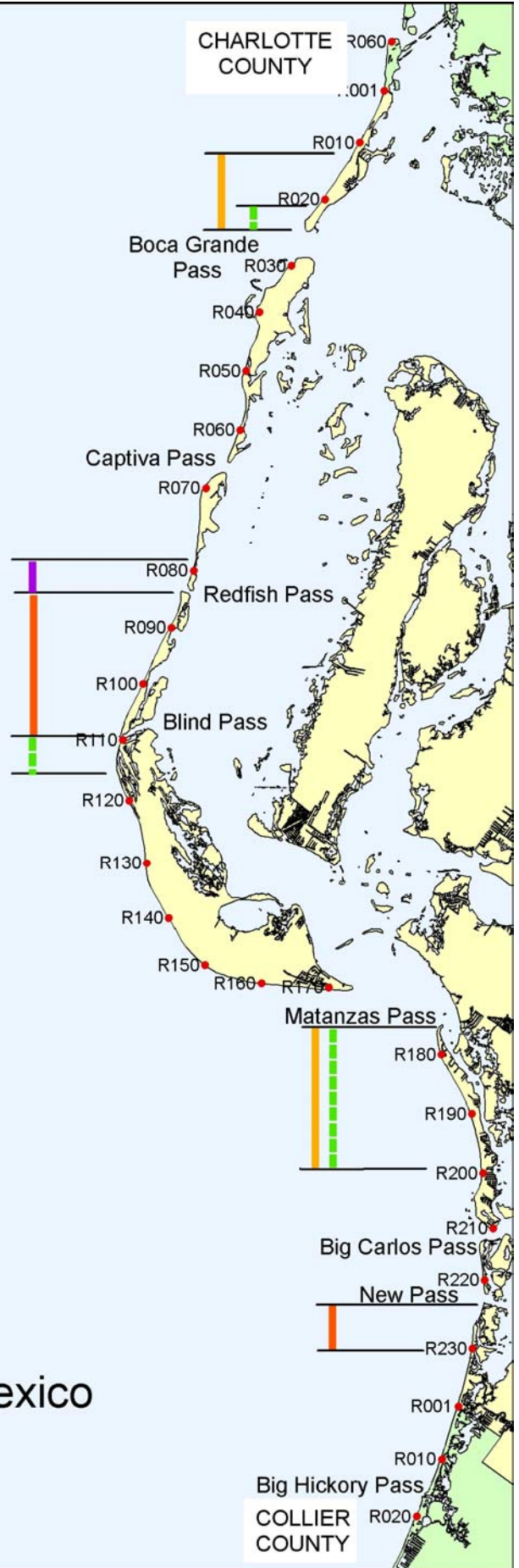
LEGEND

-  Dune Restoration
-  Beach Restoration
-  Beach Nourishment
-  Beach Restoration Study
-  Inlet Sand Transfer



1 inch equals 5 miles

Gulf of Mexico



COLLIER COUNTY HURRICANE RECOVERY PLAN

LEGEND

-  Dune Restoration
-  Beach Restoration
-  Beach Nourishment
-  Beach Restoration Study
-  Inlet Sand Transfer

Gulf of Mexico



1 inch equals 5 miles

