AN ORDINANCE OF THE TOWN OF HILTON HEAD ISLAND

ORDINANCE 2016- 16 **PROPOSED ORDINANCE 2016-11**

AN ORDINANCE OF THE TOWN OF HILTON HEAD ISLAND ADOPTING THE 2016 BEACH MANAGEMENT PLAN; AND TO PROVIDE FOR SEVERABILITY AND AN EFFECTIVE DATE.

WHEREAS, in November of 2008, Town Council adopted the Beach Management Plan as an Appendix to the Town of Hilton Head Island Comprehensive Plan, and addressed the needs for management of the Island's shoreline and the provision of public access to the beach, including an inventory of public access locations and parking; and

WHEREAS, the Beach Management Plan was amended in March of 2011 to address changes related to public beach parking for beach renourishment funding; and

WHEREAS, the Town of Hilton Head Island Comprehensive Plan is required to be adopted in accordance with Section 6-29-520, and 6-29-530 of the Code of Laws of South Carolina; and

WHEREAS, the Town Council of the Town of Hilton Head Island wishes to be in compliance with the Coastal Zone Management Act which mandates the Town's Beach Management Plan which has a definition of full and complete public beach access; and

WHEREAS, on April 6, 2016, the Planning Commission approved a resolution recommending adoption of the 2016 Beach Management Plan to the Town Council of the Town of Hilton Head Island; and

WHEREAS, on May 5, 2016, the Public Planning Committee of Town Council held a meeting at which time a presentation was made by staff on the 2016 Beach Management Plan, and thereby recommended adoption to Town Council; and

WHEREAS, on August 16, 2016, the Town Council held a public hearing to receive comments on the amendments to the 2016 Beach Management Plan, and Town Council now desires to adopt these amendments.

NOW, THEREFORE, BE IT ORDERED AND ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF HILTON HEAD ISLAND, SC; AND IT IS ORDAINED BY SAID AUTHORITY OF THE SAID COUNCIL:

Section 1. Adoption. The 2016 Beach Management Plan is hereby adopted as shown in Attachment A pursuant to Article 2 of Chapter 1 of Title 16 (adopted July 21, 1998) of the Municipal Code of the Town of Hilton Head Island, South Carolina and Sections 629-510, 6-29-520, and 6-29-530 of the Code of Laws of South Carolina.

Section 2. Severability. If any section, phrase, sentence or portion of this Ordinance is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision, and such holdings shall not affect the validity of the remaining portions thereof.

Section 3. Effective Date. This Ordinance shall be effective upon adoption by the Town Council of the Town of Hilton Head Island, South Carolina.

PASSED, APPROVED, AND ADOPTED, BY THE TOWN COUNCIL OF THE TOWN OF HILTON HEAD ISLAND THIS 16th DAY OF AUGUST, 2016.

David Bennett, Mayor

ATTEST:

Victoria Pfannenschmidt, Town Clerk

Public Hearing: AUGUST 16, 2016

First Reading: JULY 19, 2016

Second Reading: AUGUST 16, 2016

APPROVED AS TO FORM:

Gregory M. Alford, Town Attorney

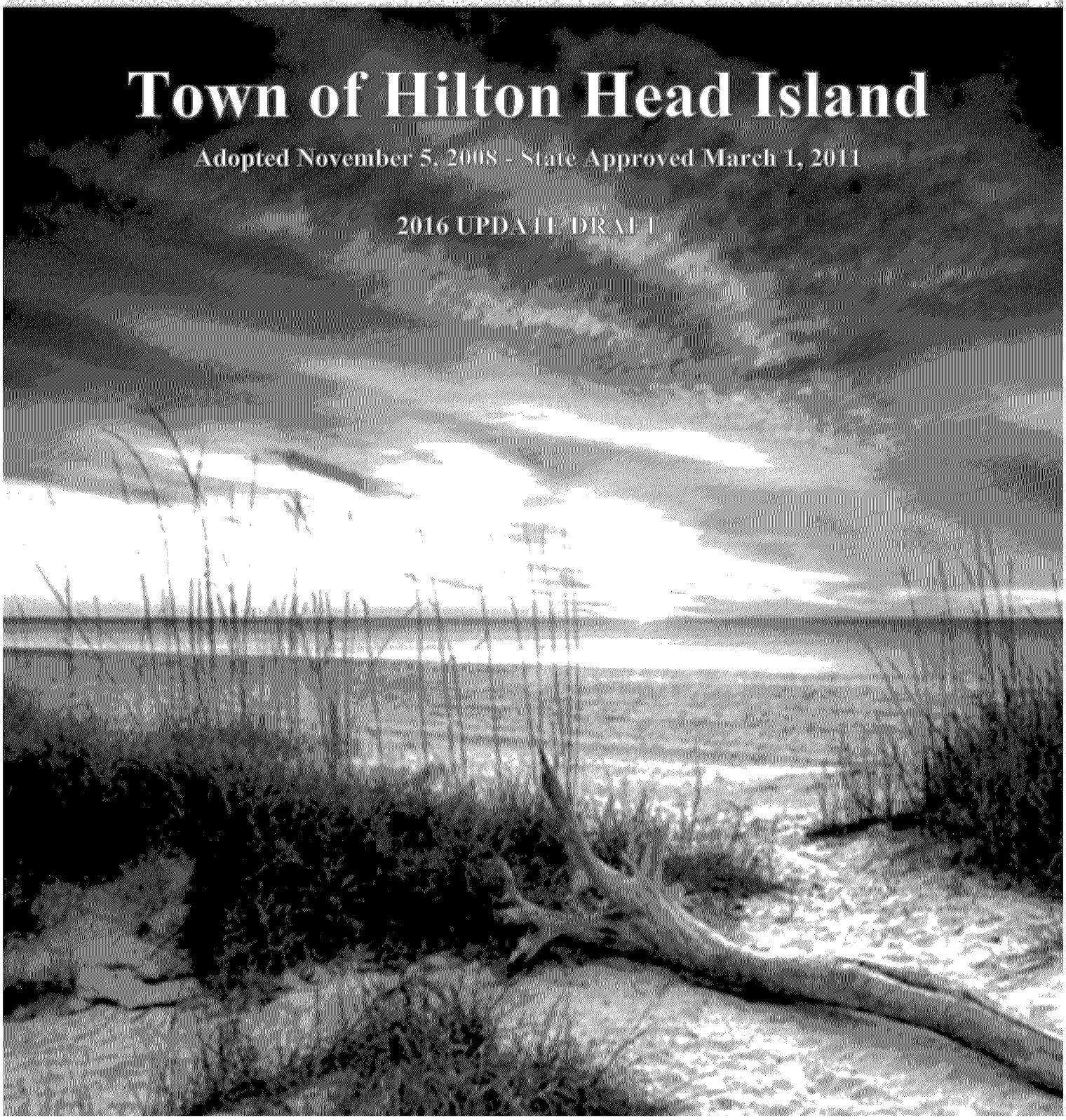
Introduced by Council Member: KIMBERLY W. LIKINS

Beach Management Plan

Town of Hilton Head Island

Adopted November 5, 2008 - State Approved March 1, 2011

2016 UPDATE DRAFT



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EXECUTIVE SUMMARY

The United States Congress recognized the importance of meeting the challenge of continued growth in coastal areas by passing the Coastal Zone Management Act (CZMA) in 1972. This law established the guidelines of a state-federal partnership program to comprehensively manage coastal resources and was authorized in South Carolina in 1977 under South Carolina's Coastal Tidelands and Wetlands Act (CTWA) with the goal of achieving a balance between the appropriate use, development, and conservation of coastal resources in the best interest of all citizens of the state. The South Carolina Department of Health and Environmental Control's Office of Ocean and Coastal Resource Management (DHEC OCRM) is the designated coastal management agency for the State of South Carolina and is responsible for the implementation of the Coastal Management Program in conjunction with the National Oceanic Atmospheric Administration (NOAA) and coastal communities.

In 1988, the State of South Carolina adopted the South Carolina Beachfront Management Act, which gives the State authority over the direct regulation of impacts to coastal resources within the critical areas of South Carolina's coastal waters, tidelands, beaches and beach dune systems; and indirect certification authority over federal actions and state permit decisions within the eight coastal counties. This law is complex and requires the use of scientific studies of coastal processes to establish precise building setback lines along the coast based on historic erosion rates. In addition, the Act adopts a policy of retreat for development away from the erosional beach and requires oceanfront counties and municipalities to prepare local comprehensive beach management plans in coordination with DHEC OCRM that become part of the State's management plan upon approval. These plans must be updated every 5 years.

This Beach Management Plan was prepared in compliance with the South Carolina Beachfront Management Act and was adopted as part of the Town's Comprehensive Plan It contains all the following:

- ✓ an inventory of beach profile data and historic erosion rate data for each standard erosion zone and inlet erosion zone;
- ✓ an inventory of public beach access and attendant parking along with a plan for enhancing public access and parking;
- ✓ an inventory of all structures located in the areas seaward of the setback line;
- ✓ an inventory of turtle nesting and important habitats of the beach/dune system and a protection and restoration plan if necessary;
- ✓ a conventional zoning and land use plan for the area seaward of the setback line;
- ✓ an analysis of beach erosion control alternatives, including renourishment;
- ✓ a drainage plan for the area seaward of the setback;

- ✓ a post disaster plan including provisions for cleanup, maintaining essential services, protecting public health, emergency building ordinances, and the establishment of priorities;
- ✓ a detailed strategy for achieving the goals of this chapter by the end of the forty-year retreat period, which shall consider relocating buildings, removal of erosion control structures, and relocation of utilities;
- ✓ a detailed strategy for achieving the goals of preserving existing public access and the enhancement of public access to assure full enjoyment of the beach by all residents of the State of South Carolina.

Through this plan the following shoreline retreat policies and beach management needs, goals and implementation strategies are adopted:

Beach Management Needs, Goals and Implementation Strategies

1. Shoreline Retreat

Need 1: *The Town should investigate methods to continue to protect existing beach/dune features and those features resulting from renourishment projects from development and redevelopment pressures.*

Goal 1.1: Have a well maintained beach and dunes system that helps to preserve and protect the Island's manmade and natural resources and provides for a sound economic base; the Town does not support movement of the baseline or any other action that would result in encroachment of development into the dunes system or seaward of the baseline that was established in 1999.

Goal 1.2: Continue to Protect and Enhance the Beach/Dune System though the regulation of beachfront development.

Implementation Strategies:

A. The Town should continue to implement its Capital Improvement Program and Land Acquisition Program to develop, renovate, or expand its beach parks.

B. Continue to hold densities along the beachfront to their current levels or below.

C. Continue to amend and enforce the LMO and Municipal Code to protect the established dunes systems on our beachfront, to provide for re-establishment of the dunes systems during redevelopment, and to provide for redevelopment scenarios after a natural disaster.

D. Work with DHEC OCRM during the update of the Town's Local Comprehensive Beach Management Plan when designated by the State and to review, as requested, public petitions to move the Baseline on individual properties to ensure compatibility with this Plan. It is the policy of the Town of Hilton Head Island that the baseline not be moved seaward.

E. Continue to promote environmental education programs and standards that stress protection of fragile areas and wildlife.

F. Coordinate with the Chamber of Commerce in tourism efforts to promote our beach.

G. Work to revise state legislation for enhanced protection of the beach and dunes system which should include an effective retreat policy in addition to considering renourishment efforts when determining baseline locations to prevent movement of the baseline further seaward as a result of renourishment.

H. Provide input to DHEC OCRM during the update of the State's Beach Management Plan to help ensure that the DHEC OCRM Baseline does not move further seaward along the Town of Hilton Head Island shoreline.

I. Work with the State to receive beach renourishment funds in the event the Town does not have local funding to renourish.

2. Beach Access

Need 2: *With the large majority of oceanfront land under private ownership, the Town should seek ways to work with developers to allow for public beach access in redeveloped sites, and to work with Property Owners Associations to protect accesses that currently exist.*

Goal 2.1: Have adequate public beach access at Town-owned sites and seek innovative solutions to provide additional beach access for the public in privately owned neighborhoods and commercial areas.

Implementation Strategies:

A. The Town should continue to implement its 10 year Capital Improvement Program to develop, renovate, or expand its beach parks.

B. Continue to work with oceanfront developments to provide public access to the beach during redevelopment. Also work with neighborhood associations to protect neighborhood access points.

C. Develop methods of increasing public awareness concerning beach access points through better access signage, informational kiosks, directional signage and brochures.

Town of Hilton Head Island's Shoreline Retreat Policy

The State's Beach Management Act requires local plans to include a 40 year retreat policy that should consider relocation of buildings, removal of erosion control structures and relocation of utilities. When the Town's Beach Management Plan was first adopted in 1991, the State was in the process of drafting their own policy, so very little direction was received at that time. In 1992, the Town amended its original Beach Management Plan to include a 40 Year Retreat Policy which stated:

1. Locate development landward of the Setback line to the extent possible;
2. Adopt various growth management techniques and procedures to reduce development levels;
3. Retain open space seaward of the Setback line to the extent possible;
4. Utilize land acquisition; and
5. Address retreat during redevelopment scenarios after a disaster.

With the adoption of this Beach Management Plan, this Policy continues to be in effect. The Town's zoning, density and design standards help fulfill this policy along with other techniques mentioned in the next Section.

To accompany the above Retreat Policy, this Plan details an additional Policy on beach renourishment as part of the 40 Year Retreat Policy. Beginning in 1990, the Town embarked on an ambitious renourishment program with an ongoing maintenance program of sand fencing and native plantings. As a result of these beach renourishment and maintenance projects, portions of the beach and dunes system have been enhanced, thereby resulting in expanded areas that are subject to development pressures by construction that is not in the public interest and would not be in accordance with retreat policies and goals of the State of South Carolina and the Town of Hilton Head Island. In a few instances, the DHEC OCRM has designated a newly formed embryonic dune as the new primary dune, allowing development on the landward, and sometimes larger, dune. There have been petitions to the state administrative law judges to move the DHEC OCRM Baseline further seaward, in accordance with SC. Code Section 48-39-280 (A) (4) increasing the number of areas for loss of the larger dunes system. In addition, the DHEC OCRM is also required under Section 48-39-280 (C) to revise the Baseline every eight to ten years, which could possibly result in moving the line seaward. This would further encourage development on top of the larger dunes system.

It is not and has not been the intent of the Town to encourage or permit development to move seaward as a result of the Town's beach renourishment projects and efforts, or to support any effort to move the DHEC OCRM baseline established by the DHEC OCRM seaward, where such effort to relocate the baseline is based in whole or in part on the existence of new dunes and/or new beach areas formed as a result of the Town's beach renourishment projects and efforts, or by other private efforts. The Town's intent in pursuing the renourishment program is:

- ✓ To protect, preserve, restore, stabilize and enhance the beach/dune system through beach renourishment and other appropriate means, to provide for the protection of life and property, and to act as a buffer from high tides, storm surge, hurricanes, and erosion;
- ✓ To prohibit development from moving seaward onto new dunes or beach areas formed as a result of the Town's beach renourishment projects and efforts;
- ✓ To provide an important basis for a tourism industry that generates annual revenue for the State of South Carolina and the Town;
- ✓ To provide habitat for numerous species of plants and animals which are threatened or endangered, or which may become threatened or endangered as a result of the loss of the beach/dune system;
- ✓ To provide habitat for beach/dune system vegetation that is unique and extremely important to the vitality and preservation of the system; and
- ✓ To create a recreational beach at high tide.

1 – INTRODUCTION

1.1 PURPOSE

Local comprehensive beach management plans are an important and effective management tool for local governments to develop strategies for managing and protecting coastal resources. In South Carolina, if a local government wishes to participate in the state funding programs available for beach renourishment or other grant programs, the governing body must adopt and enforce a Local Comprehensive Beachfront Management Plan that is consistent with the South Carolina Beachfront Management Act. Section 48-39-350 of the South Carolina Code of Laws required local governments to prepare a local comprehensive beach management plan by July 1, 1991. This plan is to be updated at least every five years following its approval by the State of South Carolina.

The purpose of the Town of Hilton Head Island's Beach Management Plan is to:

- ✓ Fulfill the State-mandated requirement for a local beach management plan;
- ✓ Provide guidance for ordinances and actions that protect and preserve the beach and dunes;
- ✓ Provide guidance for local ordinances and actions that regulate development near the beach and dunes;
- ✓ Provide guidance and goals for future beach access;
- ✓ Provide guidance for beach management and maintenance; and
- ✓ Provide goals for future protection, preservation and regulation of the beach and dunes system.

1.2 HISTORY OF PLAN APPROVALS AND REVISIONS

The Town's first Beach Management Plan was approved by the South Carolina Coastal Council (SCCC; now known as South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management - DHEC OCRM) and was adopted by Town Council on June 17, 1991. In 1992, the Plan was amended by Town Council and approved by the State to include a 40 Year Retreat Policy. Additional Plan modifications were adopted by Town Council including amendments to the public access improvement section, changing the number of beach access parking spaces and the implementation schedule of the Plan. The Beach Management Plan was also adopted as part of the Town's Comprehensive Plan in 2004 and 2010. Since initial adoption, the Plan has been reviewed by the State in 1992, 1995, 1998 and 2001. In 2009 a complete update of the plan was approved and minor modifications to beach parking were approved in 2011, which were also adopted as an appendix to the Town's Comprehensive Plan.

1.3 OVERVIEW OF HILTON HEAD ISLAND

Hilton Head Island is located along the Atlantic Coast in Beaufort County, South Carolina. The Island is located about 22 miles northeast of Savannah, Georgia, and 15 miles south of Beaufort, South Carolina. It occupies a land area of approximately 23,000 acres or 54 square miles, with approximately 34.4 square miles of high ground, and is approximately 12 miles long and 5 miles wide, making it the largest oceanfront island on the Atlantic seaboard between New York and Florida. It is bounded on the northeast by Port Royal Sound, Calibogue Sound to the southwest, and Skull Creek, part of the Atlantic Intracoastal Waterway, to the north.

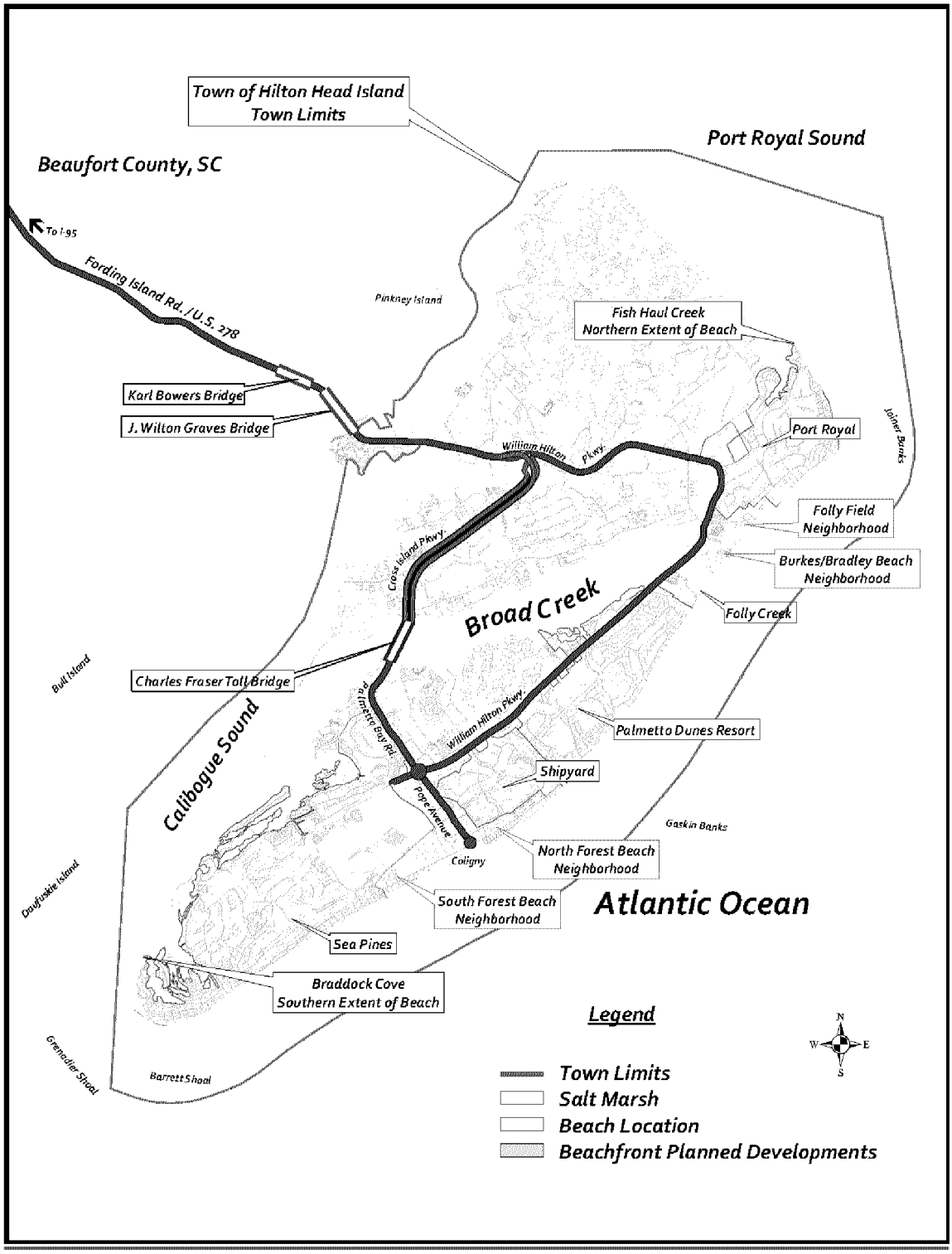
FIGURE 1: HILTON HEAD ISLAND LOCATION

Source: DHEC OCRM (http://gis.dhec.sc.gov/shoreline/)

The Island's southeast shoreline faces the Atlantic Ocean and has a beach that stretches 13 miles from Braddock Cove in the south to Fish Haul Creek in the north. The beach runs uninterrupted except for a small tidal inlet located mid-island, called the Folly. Historically, the Island has had a wide, sandy beach to the north and south and a narrow, recreational beach mid-island at low tide. A seven mile tidal inlet, Broad Creek, runs diagonally across the Island and opens into Calibogue Sound. The island is relatively flat with a maximum elevation of twenty-four feet in limited places. The average tidal range along the island can be between six and thirteen feet.

Access to the Island is provided by U.S. 278 over two toll-free bridges, Graves Bridge and Karl Bowers Bridge. William Hilton Parkway (US 278 Business) and the Cross Island Parkway (US 278) serve as the Island's primary roadways. The Fraser Bridge spans across Broad Creek to connect the Cross Island Parkway with William Hilton Parkway on the south end of the Island. All other roads connect these roads, making them the life line connecting area residents and visitors to local residential, business and recreational areas. From its beginnings as a rich and abundant agrarian community to its current status as a distinguished resort and retirement community, Hilton Head Island has become known for its unique island character which integrates high quality design in the built environment with the superior natural beauty of the Island's beaches, extensive wetlands, diverse wildlife and natural landscape. Currently, approximately 70% of the Island has been developed as a part of master planned communities, also referred to as Planned Unit Developments (PUDs), which contribute significantly to the unique character and demographic composition of the Island. These PUDs reflect a tradition of planned street patterns, dwelling sites, and locations for public and institutional activities adapted to a modern resort concept that has become unique to Hilton Head Island.

FIGURE 2: ISLAND DESCRIPTION



1.4 CURRENT BEACH MANAGEMENT ISSUES

Development Issues

One of the most significant threats to the shoreline of Hilton Head Island is from continuous development pressure to construct as closely to the dunes system as possible, and in some cases, to build on older, more well-established dunes that are located outside of any required setbacks. With the Island approaching build-out, older developments are renovating or redeveloping with larger building footprints that push ever closer to the dunes system and beach. Some recent development and redevelopment projects have even petitioned the State to move the DHEC OCRM line further seaward in order to create more land on which to build.

There are also several vacant parcels of land seaward of existing developments that usually encompass the dunes system, known as strand blocks. These parcels have historically been owned by property owners' associations. Some of these have been sold to developers who wish to develop the parcels. This endangers the existing dunes system and causes the landward parcels, which were marketed as oceanfront, to no longer have a view of or direct access to the beach. Furthermore, the economic, societal and safety risks that result from such development are of great concern to the Town.

Environmental Issues

The Town also faces various environmental concerns in relationship to the management of its shoreline. Erosion of the beach is ongoing at some locations and has prompted a very ambitious and expensive renourishment program by the Town. The Town of Hilton Head Island has spent over $50 million in beach renourishment projects from 1990-2012 resulting in a wider, higher and more robust beach configuration suitable for both active and passive use opportunities at all stages of the tide. Currently, a large scale renourishment project is planned for this year that is estimated to cost approximately $50 million dollars. Constant monitoring is undertaken and a continuous local funding source has been established for renourishment. The potential for negative impacts from global warming and rising sea levels will require the Town to continue to evaluate the feasibility of renourishment as its primary shoreline management technique and plan accordingly.

In addition to beach renourishment, shoreline stabilization has also been performed in seven locations through the use of hard structures, such as groins, revetments and bulkheads. Some of these efforts were undertaken by homeowners, developers, hotels or property owners associations; however, the Town must evaluate issues such as liability, ownership, maintenance, cost and permit matters to determine the future role of the Town and the public's interest in these structures in relationship to overall shoreline management.

The protection and enhancement of the dunes system and its vegetation, as a part of an overall approach to beach management, is an extremely important issue for the Town. This area helps to protect life and

property by serving as a storm barrier and habitat for numerous species of plants and animals, some of which are threatened or endangered. As the number of beachgoers and activities on the beach increases, more demand will be placed on these important resources. Additionally, the protection of critical habitats, such as tidal inlets and creeks, like the Folly, as well as Fish Haul Creek, are also concerns.

Beach Access

There are very few undeveloped beachfront parcels remaining on the Island. This makes preservation and enhancement of any current beach parking and access location critical. Redevelopment projects also offer the opportunity to secure additional easements open to the general public. Prior to the incorporation of the Town in 1983, public access to the beach was provided by more informal access areas. People often parked along the sides of roadways or on undeveloped properties to access the beach. As the Island has continued to develop, additional parking and access areas have been developed by the Town and the other beachfront developments for visitors and residents of the Island. The Town has constructed eight public beach parks. Other private developments contain a total of seven beach parks that serve thousands of visitors and residents of the Island.

Water Quality

It is important to maintain a high level of beach water quality to protect the natural functions (i.e. chemical, biological and physical) and recreational opportunities (i.e. swimming, fishing, wading, boating). To support this, the Town of Hilton Head Island directs all drainage away from the beach area. Moreover, storm water quality is monitored at 16 locations twice a month on Hilton Head Island. DHEC OCRM monitors locations throughout the recreational swimming season, designated as April 15 through October 15. The Town of Hilton Head Island has documented less than 5 advisories in the past two years; overall, beach water quality is very good. In order to ensure that this does not change, the Town must continue to monitor water quality and make any necessary changes as a result of test indications.

Hurricane and Storm Damage

As a coastal community, the potential for hurricanes and the associated impacts must be considered. In addition to the Town's efforts to maintain adequate storm protection through the continuation of beach renourishment, dune refurbishment and maintenance of selected shoreline protection structures, disaster recovery and response are being addressed. Since 2003, the Town has an adopted post-disaster recovery plan that will be implemented after experiencing the effects of a major storm event. This plan was recently updated. In relationship to beach management recovery efforts, issues for the Town include the recovery and disposition of overwash sand, damage assessment of structures and the permitting process for oceanfront properties. A later chapter will discuss planning efforts currently underway in regard to these issues.

Social Issues

The increasing popularity of the beach has resulted in more intense use of the beach for recreational and commercial purposes. In addition to the increasing numbers of beach goers, commercial companies are marketing the beach as a location for special events, such as weddings, parties, fitness programs, animal training, racing events, religious services, and even movies. The Town must ensure that these events do not interfere with any other franchise agreements that currently exist for beach areas and that other codes are not violated. This requires increased efforts by Town staff and other enforcement agencies.

FIGURE 3: HILTON HEAD ISLAND RECREATIONAL BEACH

2 - INVENTORY OF EXISTING CONDITIONS

2.1 GENERAL CHARACTERISTICS OF THE BEACH

Hilton Head Island is a compound barrier island formed by the advancing and falling sea during which sediment was deposited and leveled a number of times. The northern portion is a core of marine sediments deposited during periods of higher sea level caused by melting of continental ice sheets in the early Pleistocene epoch (1 million- 10,000 years ago). This area generally extends from Skull Creek, east to Port Royal Sound and Fish Haul Creek, and west to Brams Point following the western bank of Broad Creek. Much of the land area east and southeast of Broad Creek is a "fringe" of marine sediments. Fine sand was pushed inland by the rising sea level, caused by another time of warming and thawing of ice during the Holocene Period of the Pleistocene Epoch. The approximate foot shape of Hilton Head Island is typical of barrier islands on the "mesotidal" shoreline, in the interior of the Georgia Bight. Islands in this area are wider than other barriers, strongly influenced by tides (2-4 meters in range), shaped by waves and currents, and develop ebb-tidal deltas such as Joiner Bank (Port Royal Sound) and Barrett Shoals (Calibogue Sound).

The existing conditions along the shoreline of Hilton Head Island are the result of natural erosion patterns and various shoreline stabilization efforts. Historically, wide, sandy beach areas generally occur along portions of the Island's shoreline, indicating areas of accretion. Accretion is the gradual buildup of sediment that results in an increase in the size of the beach. Other areas of the Island's shoreline have been more vulnerable to erosion and have a narrower beach area. Typically a wide, sandy beach occurs on the northern and southern ends of the Island with a narrower beach occurring mid-island. Ongoing erosion has been continually mitigated by beach renourishment projects.

According to Section 8-1-112 of the Town's Municipal Code, the beach extends from Fish Haul Creek to Braddock Cove, from the first property line into the water 75 yards from the low water mark. The surface material of the beach contains a mix of silica sand, or quartz sand and shell fragments, which is typical of other shorelines along this area of the coast and has a light brown appearance. The native sand is approximately 0.16mm in size.

Along the shoreline, the existing dunes system varies in depth and height. This system is defined by the Town of Hilton Head Island's Municipal Code as "one or a series of hills or ridges of wind-blown sand or one or a series of hills or ridges of sand resulting directly or indirectly from restoration or beach renourishment, all of which may or may not be anchored by vegetation and is in the vicinity of the beach." The average dune height is approximately six feet, with heights ranging from three to twelve feet.

Calibogue Sound lies between Hilton Head Island to the west and Bull Island and Daufuskie Island to the east. It is the southernmost embayment in South Carolina. This Sound floods and drains extensive salt marshes landward of Hilton Head and Daufuskie Islands. A large intertidal shoal, Grenadier Shoal, has remained stable on the west side of Calibogue Sound for all of the 20th century. It lies seaward of Daufuskie Island and to the southwest of the main channel (See Figure 4- Shoreline Changes, Calibogue Sound 1898-1977). Eastward of this channel the shoals are more short-lived. They result from the littoral transport of sediment eroded from the central portion of Hilton Head Island. The accumulation of these shoals at the southwest corner of Hilton Head Island is the first step in forming the ebb tidal delta of Calibogue Sound.

FIGURE 4 – SHORLINE CHANGES CALIBOGUE SOUND 1898-1977

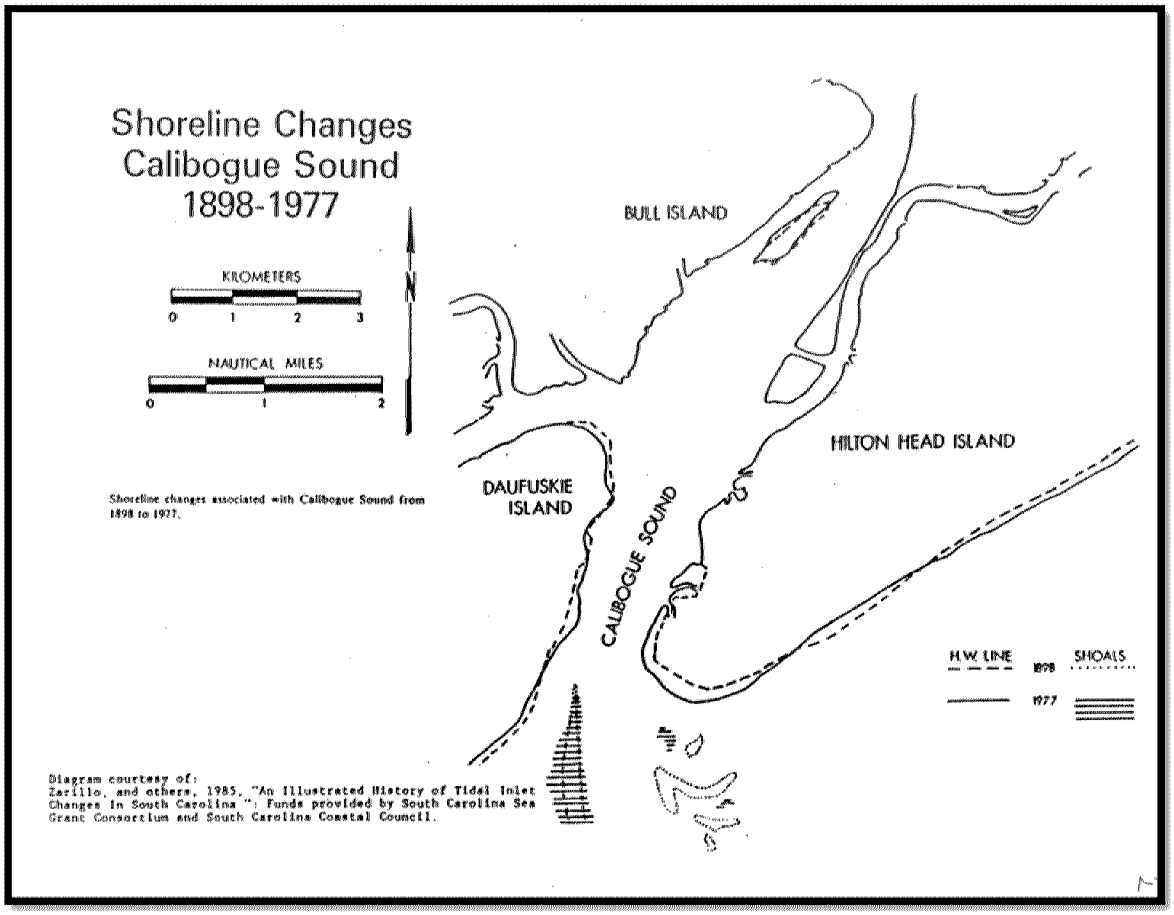
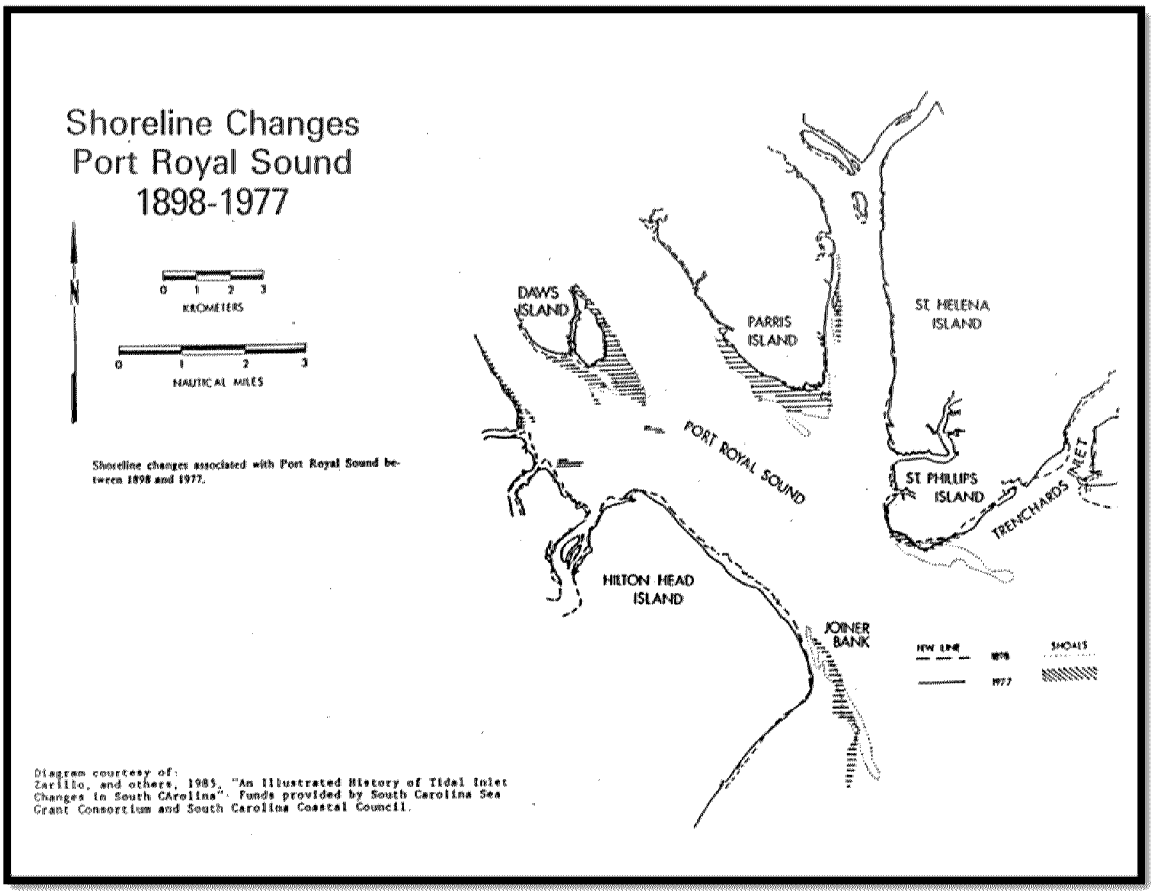


FIGURE 5: SHORELINE CHANGES CALIBOGUE SOUND 1898-1977



2.2 GENERAL LAND USE PATTERNS

Hilton Head Island is known for its incredible natural beauty and a sense of harmony between the natural and built environment. Over 70% of Hilton Head Island has been developed with master planned communities, which occupy the majority of the Island's shoreline. These beachfront planned developments include Sea Pines, Palmetto Dunes, Port Royal, and a small portion of Shipyard. In general, these developments are largely single family developments with some multi-family and resort areas along the beach. Other beachfront areas include South and North Forest Beach, Folly Field, Singleton, and Bradley Neighborhoods. (See Figure 2: Hilton Head Island Description.)

According to the 2010 Census, there are approximately 37,099 permanent residents on the Island. .Census data also indicates that the Island's population consists of a higher percentage of older adults and retirees with a median age of 50.9 and average income of $70,041. The racial composition of Island

residents is predominately white, 75.2% with an average household size of 2.3 people. The beach and associated amenities drive the Island's economy and contribute significantly to the economic vitality of the region supported by the Island's tourism industry support the Island's tourism industry, which drives the Island's economy and contributes significantly to the economic vitality of the region (See Figure 2 - Island Description).

2.2.1 Beach Uses

In the past 25 years, the beach at Hilton Head Island has gone from an area where only a few beach walkers, sunbathers, and swimmers frequented, to an area with more varied activities. The primary uses of the beach include the traditional uses of walking, wading, swimming and sunbathing. The Town contracts with a private company, Shore Beach Services, to provide life guard services during certain times of the year. This service also includes litter patrol, including recycling, and beach rental items. Other activities that have become popular are fishing, surfing, kiting, volleyball, sailing, bocce ball and other beach games. The beach is also used for special events such as weddings, parties, fitness program locations, animal training locations, racing events, religious services, and even movies.

2.2.2 Benefits and Values of the Beach

Natural habitats and resources are also recognized for the economic benefits that they provide. Protection of natural resources is identified in the Town's Comprehensive Plan as essential to maintaining the high quality of life on Hilton Head Island. Residents indicate that the attributes of coastal ecosystems, including marshes, mature trees, marine waters, and sandy beaches influenced their decision to purchase property on Hilton Head Island. In addition, the accessible ocean beach is a predominant factor in the local tourism and vacation rental economy. Eco-tourism has also increased as an economic market around Beaufort and on Hilton Head Island.

Hilton Head Island's shoreline is a diverse and productive ecosystem that serves as a critical link between the water and the land. The sandy beach and dunes system serves as the Island's first line of protection from the high winds and waves associated with storm activities and turbulent seas. This area also supports a rich web of life including animals like worms, clams, shrimp and crabs that in turn attract predators such as seabirds, which depend on sandy beaches for their foraging activities. The beach provides critical nesting habitat for several species of birds and animals, particularly the threatened loggerhead sea turtle. Recreational opportunities such as fishing, swimming, beachcombing, bird-watching, and sunbathing are also provided by the beach and contribute significantly to the success of the multi-million dollar tourism industry on the island.

According to the Hilton Head Island-Bluffton Chamber of Commerce, the Island hosts approximately 2.4 million annual visitors with the beach and its associated amenities being the most important reason

for choosing Hilton Head Island (Hilton Head Island Visitor Profile and Conversion Study, 2010). According to this same study, travel parties reported spending an estimated $2,726 per trip during week-long trips to the Island. In order to help maintain the recreational quality of the beach associated with this industry, the Town of Hilton Head Island exercises beach renourishment as its primary means of shoreline management, which is anticipated to be needed every seven years.

The primary source of funding for these renourishments is a 2% local Accommodations Tax levied on short term rentals, hotels and motel accommodations, which provided $5.3 million last year in funding dedicated to beach renourishment and related monitoring, dune refurbishment, maintenance and operations, and new beach parks and beach access facilities. It is anticipated that this source of funding will remain a viable option in future years. This document contemplates this and other issues surrounding the continuation of the Town's Beach Management Program and other alternatives for shoreline management, including shoreline retreat. The Town adopted special zoning districts along the beachfront to prevent development from moving further seaward, which is discussed in more detail in the Land Use Development and Zoning section.

The economic impact of the coastal areas has also been recognized by DHEC OCRM in a report that was issued in October of 2002. According to this report, 22% of the state's economy is a result of the output of revenues from coastal areas. This report also indicated that a quarter of the state's population growth in the last 10 years has occurred in the eight coastal counties. One in every three new private jobs during the past decade has been created along the coast and when compared to other areas of the State the average income in coastal areas is higher (Henry, M.S. & Barkley, D.L. 2002. The Contribution of the Coast to the South Carolina Economy. Clemson University Regional Economic Development Research Laboratory).

2.3 BEACHFRONT DEVELOPMENTS AND ZONING

The Town's Land Management Ordinance, in Chapter 3 (Zoning Districts) provides for the establishment of certain base and overlay districts for the purpose of guiding development in accordance with existing and future needs and in order to protect, promote and improve the public health, safety, morals, convenience, order, appearance, prosperity and general welfare. Of these zones, a large portion of the beachfront area is zoned PD-1 (Planned Development Mixed-Use District). Sea Pines and Port Royal Master Plans specifically identify much of their beachfront area as 'open space.' To change this land use, it typically would require a vote of the majority of property owners as this property is typically owned by the POA. Such a change would then require a rezoning by Town Council.

Other areas along the beach are classified into different zones. The designation of 'open space' along the beach is not specifically identified in these other zones as it is in the PD-1 zone. In some instances, this

has led to certain parcels "(strand blocks)" being sold to developers who are looking into the possibility of developing these parcels. These strand blocks typically contain remnants of the dunes system that lie landward of the primary dune. Development of these areas would therefore destroy the remaining dunes system. The Town is taking steps to prevent this, as described later in the Shoreline Retreat Policy Section.

Density in the zoning districts is limited, in part to protect and preserve the beach and dunes system. The PD-1 zoning districts are typically 2 or fewer units/acre. The beachfront zones which allow the most density are the Coligny Resort District, for which the allowable density is undefined. It is limited by applicable design and performance standards such as height and parking. The Resort Development District allows 16 dwelling units per acre.

The following is a listing and brief description of the character and purpose of each of the beachfront zoning districts (See Figure 6 - Zoning District Map.)

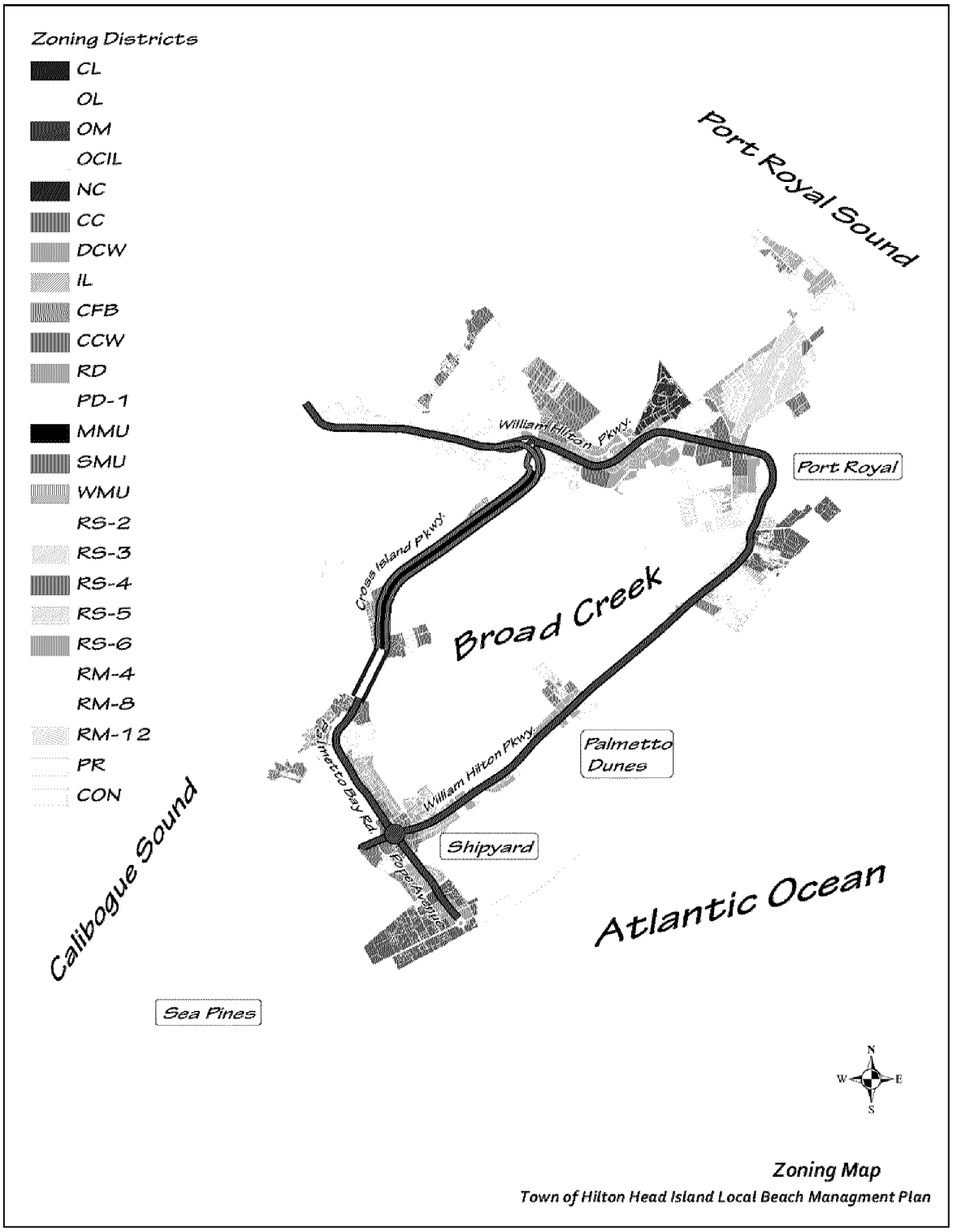
- PD-1 (Planned Development Mixed-Use District):
  The purpose of the Planned Development Mixed-Use (PD-1) District is to recognize the existence within the Town of certain unique Planned Unit Developments (PUDs) that are greater than 250 acres in size. Generally, these PUDs have served to establish the special character of Hilton Head Island as a high quality resort and residential community. It is the intent in establishing this district to allow the continuation of well planned development within these areas. In limited situations, some commercially planned portions of PUDs are placed within other base districts to more specifically define the types of commercial uses allowed.
- RSF-6 Residential Single-Family-6 District:
  The purpose of the Residential Single-Family-6 (RSF-6) District is to primarily accommodate single-family dwellings at densities ranging up to six units per acre. It is intended to discourage any use that would substantially interfere with the development of single-family dwellings or would be detrimental to the quiet residential nature of single-family neighborhoods. The district also accommodates agricultural uses and parks as permitted uses.
- RM-8 Moderate Density Residential District:
  The purpose of the Moderate Density Residential (RM-8) District is to allow the development of residential uses at densities up to eight dwelling units per net acre. The district allows a variety of residential uses, along with uses that support neighborhoods. The district is intended to discourage development that would substantially interfere with, or be detrimental to, moderate residential character.
- Coligny Resort District:
  The purpose of the Coligny Resort (CR) District is to recognize and promote further investment in the area near Coligny Circle as an activity center and a core high-energy and visitor oriented resort destination that encourages people to live, work, and recreate within the district. The district is

intended to accommodate relatively high-intensity commercial, office, residential, and mixed-use development that is pedestrian oriented and human-scale. It is also intended to promote development that integrates civic and public gathering spaces and connects to such places in nearby developments and public places.

- RD (Resort Development District):
  It is the purpose of the Resort Development (RD) District to provide for resort development in the form of multifamily development, bed and breakfasts, and resort hotels. It is also the purpose of this district to provide for commercial development aimed at serving the island visitor.
- PR (Parks and Recreation District):
  The purpose of the Parks and Recreation (PR) District is to accommodate and manage the land uses allowed on publicly held land used for active or passive recreation purposes, or publicly owned land preserved in its natural state for public enjoyment. Development in this district shall be allowed and designed to minimize, as much as possible, its impact on both the natural environment and the community.
- CON (Conservation District):
  The purpose of the Conservation (CON) District is to preserve and protect environmentally sensitive tidal wetland and beachfront lands subject to natural hazards by ensuring these areas only accommodate very low intensity development that minimally disrupts natural features or systems (either temporarily or permanently). The upland boundary of this district corresponds to the OCRM Critical Line and therefore is approximately coterminous with all tidal wetlands and the upland boundary of the beach, as defined in Section 8-1-112 of the Municipal Code, and extends outward to the Town jurisdictional boundary, as identified in Section 2-1-20 of the Municipal Code.
- FF-NC-O Folly Field Neighborhood Character Overlay District:
  The purpose of the Folly Field Neighborhood Character Overlay (FF-NC-O) District is to protect the single-family residential character of the district and in particular the development and redevelopment of lots within the district. All new development and changes to existing development in the district are subject to the overlay district regulations in addition to those listed in Sec. 16-3-104.C, Residential Single-Family-5 (RSF-5) District.
- FB-NC-O Forest Beach Neighborhood Character Overlay District:
  The purpose of the Forest Beach Neighborhood Character Overlay (FB-NC-O) District is to protect the single-family residential character of the district and in particular the development and redevelopment of lots within the district. All new development and changes to existing development in the district are subject to the overlay district regulations in addition to those listed in Sec. 16-3-104.C, Residential Single-Family-5 (RSF-5) District.
- HH-NC-O Holiday Homes Neighborhood Character Overlay District:
  The purpose of the Holiday Homes Neighborhood Character Overlay (HH-NC-O) District is to protect the single-family residential character of the district and in particular the development and redevelopment of lots within the district. All new development and changes to existing

development are subject to the overlay district regulations, in addition to those listed in Sec. 16-3-104.D, Residential Single-Family-6 (RSF-6) District. Existing nonconforming structures and site features may be expanded as long as the site complies with certain standards for the required floor area ratio (FAR) and maximum impervious cover.

FIGURE 6 – ZONING MAP



Zoning regulations for beachfront areas adjacent to these PUD's are based on their individual master plans as part of the Planned Development Mixed Use Zoning District (PD-1) within the Town. In addition to these regulations, the Town's Land Management Ordinance requires that developments along the beach comply with special zoning districts.

Table 1: Major Beachfront Planned Developments

Sea Pines Plantation: 4,694 acres 5,890 residential units maximum permitted (includes both single family and multi-family)
Shipyard: 726.3 acres 279 single family lots 1,588 multi-family/hotel units 1,867 units total
Palmetto Dunes: 1839 acres 1,231 single family 3,653 multi-family 4,884 total units
Port Royal: 1,254 acres 1,021 single family lots/homes 1,032 multi-family 2,053 total units

Town of Hilton Head Island, 2007

The following is a summary of the private covenants and restrictions that apply to each of the beach-front planned developments moving south to north along the Island's shore.

Sea Pines

Setbacks and other restrictions for properties in this PUD are outlined in the "Guidelines and Procedures for Design and Construction of Single Family Residences" (November 1991).

Owners of oceanfront lots are strongly encouraged to locate new homes as far from the beach as possible. Thus, the Sea Pines Architectural Review Board (ARB) has established a setback from the oceanfront property line for all vertical construction of 50 feet or 25 percent of the lot depth, whichever is greater. The ARB reserves the right, depending on special circumstances on a case-by-case basis, to approve variances from this setback guideline. The ARB also applies several aesthetic and natural setting considerations as it reviews proposed beachfront projects.

Setback requirements for pools and spas are also outlined in the guidelines for beachfront lots the decks of "in-ground" and "above-ground" pool and spa units, including decking, are considered "vertical" structures and are thus subject to the minimum 50 foot setback from the beachfront property line.

Persons who believe these regulations are unfair, inconsistent with past practices, or fail to consider all relevant facts and information may formally request the matter be reviewed and reconsidered again by the ARB via an appeal or variance. The Guidelines and Procedures outline the process for such appeals or variances.

Shipyard

This development has very limited beachfront area, which is currently developed with a hotel and beach club for visitors and residents of the development. Beachfront setbacks for the development are not mentioned within the Shipyard ARB guidelines or restrictive covenants, so the Town's setbacks apply that are further described in Section 4.2.4, Beachfront Development Regulations.

Palmetto Dunes

Setback requirements for this development are outlined in its "Architectural Review Board Policies, Procedures and New Construction Guidelines" (March 2005). This outlines the beachfront setback requirements as generally being 50 feet from the beachfront. Pools and their surrounding decks have a setback of 20 feet. Variances from these setbacks may also be sought from the Architectural Review Board.

Port Royal

Setbacks in this PUD are outlined in the "Port Royal Plantation Plans Approval Board Guidelines and Procedures" (November, 2005). Property line setback regulations require that no vertical construction shall be closer than 50 feet from a property line adjoining a golf course, lagoon, ocean, dune area or marsh. Variances and appeal procedures area also included.

2.3.1 Beachfront Structural Inventory

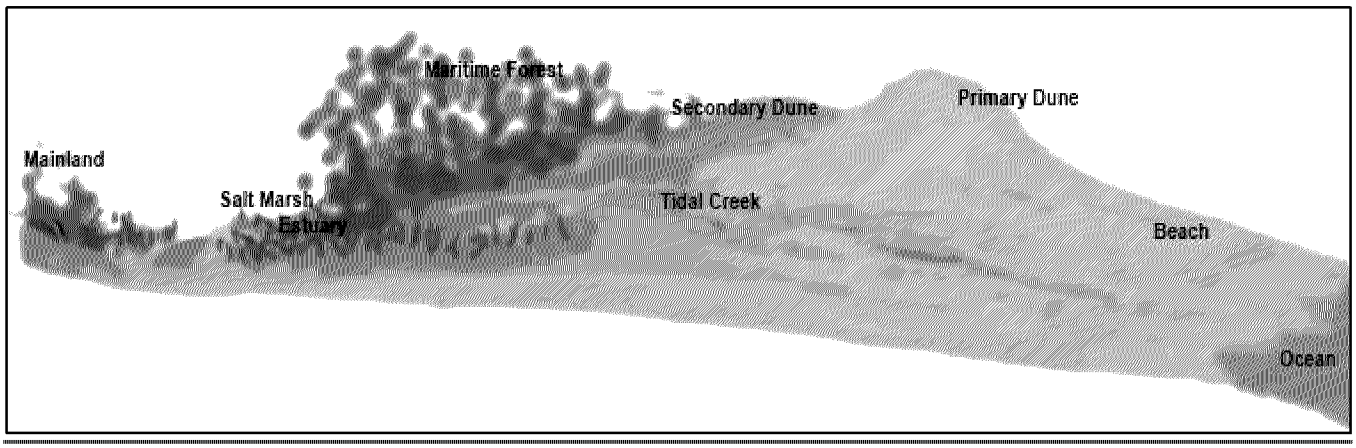
Section 48-39-350(A) (3) of the Beachfront Management Act requires all communities to include an inventory of all structures located seaward of the DHEC OCRM setback line as part of their local beach management plan. This inventory was conducted using the Town's GIS system and can be found in Appendix A.

Structural inventory guidelines required by the state are as follows:

- If any portion of a structure is seaward of the setback line document the distance seaward the structure is located.
- Commercial structures are considered habitable structures;
- Count all detached structures as separate buildings (decks, boardwalks, pools, etc.); and
- An erosion control structure which covers more than one tax parcel should be counted as a separate structure for each parcel.

2.4 NATURAL RESOURCES AND ECOLOGICAL HABITATS

FIGURE 7: BARRIER ISLAND ENVIRONMENTS



A main concern in managing South Carolina's ocean beaches is the protection and conservation of coastal natural resources and ecological habitats. As part of a coastal barrier island, the Hilton Head Island beachfront exhibits a variety of natural resources due to the diversity of ecotypes and habitats that occur. The interaction between shifting terrestrial sand dune and beach habitats, shallow coastal waters, and the open ocean result in a dynamic landscape that is used by various organisms.

Three terrestrial habitats are found around the Hilton Head Island beachfront, namely the beach community, maritime shrub thickets, and maritime forest. Maritime forests are upland communities

typified by live oak, cabbage palmetto, and loblolly pine. Small remnant patches of this habitat are scattered throughout the island. Maritime shrub thicket communities commonly grow in older dunes, behind the primary dunes, and include salt tolerant shrubs such as wax myrtle, yaupon holly, and red cedar. Finally, the beach community generally includes the open beach and dune habitats, as well as the foreshore zone that is frequently inundated by the tides. Each ecological community provides benefits to plants and animals that use the habitat to forage, as shelter for nesting or for a combination of these uses.

The zone of dunes extends from the seaward edge of the beach berm to the seaward edge of the maritime forest tree line. Dunes on Hilton Head Island are relatively small due to the lack of strong, direct winds. Dunes form when wind-blown sand lodges against an obstacle. Native plants, including sea rocket, seaside pennywort, morning-glory species, beach pea, dune sandbur, sea oats, seaside panicum, camphorweed, yucca species, wax myrtle and yaupon, are resistant to blowing salt and stabilize the dunes with their roots. The typical "dune field" has five zones:

- Sea wrack: Debris, primarily dead spartina grass, deposited by high tides.
- Embryo dune: Sand that collects in the sea wrack.
- Foredune: The seaward dune that is stabilized by plants.
- Interdune troughs: Low areas between dune ridges.
- Back dunes: One or more dunes landward of the foredune populated by common seaside grasses, shrubs and stunted trees.

The importance of barrier islands as habitat for plants and animals is significant. Many animals are dependent on smaller prey available on open beach habitats as part of complex food webs. Some animals also require the sands of primary dunes on barrier islands, such as at Hilton Head Island, for nesting sites and are unable to successfully reproduce without access to this habitat. In the water, nearshore subtidal bars and sand flats can support large numbers and species of marine invertebrates and fish that cannot thrive in the open ocean. Long-term or permanent alteration to these habitats can affect the type, health, and vitality of marine plants and animals.

Natural habitats and resources are also recognized for the social and economic benefits that they provide. Protection of natural resources is identified in the Town's Comprehensive Plan as essential to maintaining the high quality of life on Hilton Head Island. Residents indicate that the attributes of coastal ecosystems, including marshes, mature trees, marine waters, and sandy beaches influenced their decision to purchase property on Hilton Head Island. In addition, the accessible ocean beach is a predominant factor in the local tourism and vacation rental economy. Eco-tourism has also increased as an economic market around Beaufort and on Hilton Head Island.

FIGURE 8: THE FOLLY TIDAL CREEK ESTUARY

Several natural resource protection efforts have been achieved and continue for the Town of Hilton Head Island.

- **Beach nourishment:** Conducted in 1990, 1997, 1999 (emergency work at South Beach) and, 2007 and 2012This created a suitable nesting habitat for sea turtles along miles of previously eroded and/or reveted beach. It protects the sand dune habitat, promotes native plant and animal species that depend upon it and protects the shoreline from destruction by erosion. Approximately 8 miles of beach have been renourished.
- **Dune rebuilding/revegetation:** Sand fencing and native beach plants are routinely installed to help enhance the restoration of dune habitat previously destroyed by erosion.
- **Sea Turtle Protection Ordinance:** Established in 1990, this ordinance helps protect nesting sea turtles and emerging hatchlings by reducing disorientation caused by artificial lights shining onto the nesting beach. Prior to each season, the Town and the Coastal Discovery Museum use the media and informational brochures to advertise the ordinance. Town Code Enforcement Officers patrol the beaches regularly at night throughout the season to ensure compliance.
- **Sea turtle monitoring**: This has been an ongoing program of the Coastal Discovery Museum since 1984 (funded by the Town since 1989) that surveys and inventories sea turtle nests which provides information on nesting activity and hatchling success rate. The Town has been accurately mapping the nests since 1999 using GPS technology.

Educational benefits are afforded to the general public through opportunities for participation in the program, staff lectures and the distribution of a brochure written by the Town that gives information on sea turtle life history, states the regulations protecting them and gives contact numbers to report violations. (See Figure 10: Sea Turtle Nesting Densities.)

- **Tree protection ordinance:** Established in 1986, this ordinance protects native vegetation. Through the tree approval process, parcels are examined prior to development to ensure trees are marked for removal according to the approved site plan. Applicants are also encouraged to protect non-tree understory plants and are required to replant native trees similar to those removed if the post-development site no longer meets ordinance standards.
- **Wetland protection ordinance:** Established in 1986, this protects both salt and freshwater wetlands through the use of setbacks and buffers. Mitigation in-kind and on-site or - at another location on the Island is required for any wetland alteration. Monitoring the success of the mitigation is required for three years, with written reports required every six months and corrective action taken as necessary.
- **Design Review Board:** Established in 1987, this board reviews development projects along major roads, conservation districts, and waterfront areas (including beaches). It requires vegetated buffers (natural preferred) along waterfronts; reviews landscape plans to insure that a post-development site is adequately vegetated and encourages the use of native plant materials.
- **Land Acquisition Program:** Established in 1990, this program allows the Town to purchase properties for a variety of reasons, including beachfront and environmentally sensitive lands. The Town now owns over 1,312acres. Most undeveloped beachfront property outside of the gated communities is now owned by the Town.
- **Town Staff:** An Environmental Planner and Sustainable Practices Coordinator have been hired since the initial adoption of the Town's Beach Management Plan. The Environmental Planner reviews site plans (including beachfront). The Sustainable Practices Coordinator prepares educational material such as brochures, performs biological monitoring, works to insure the Town is green in all its operations, implements the Town's Sustainability Plan (Green Blueprint) and performs other natural resources functions for the Town. The Codes Enforcement Officer is responsible for tree and wetland protection, including beachfront codes enforcement.
- **Water Quality Monitoring:** DHEC manages the water quality monitoring program for the Island's monitoring and testing of the beachfront for enterococcus.

2.4.1 Threatened and Endangered Species

The following is a listing of Endangered and Threatened Species, and species of Special Concern that use the beachfront, followed by a map (Figure 9—Piping Plover Critical Habitat) of the only known beachfront critical habitat on the Island for the piping plover.

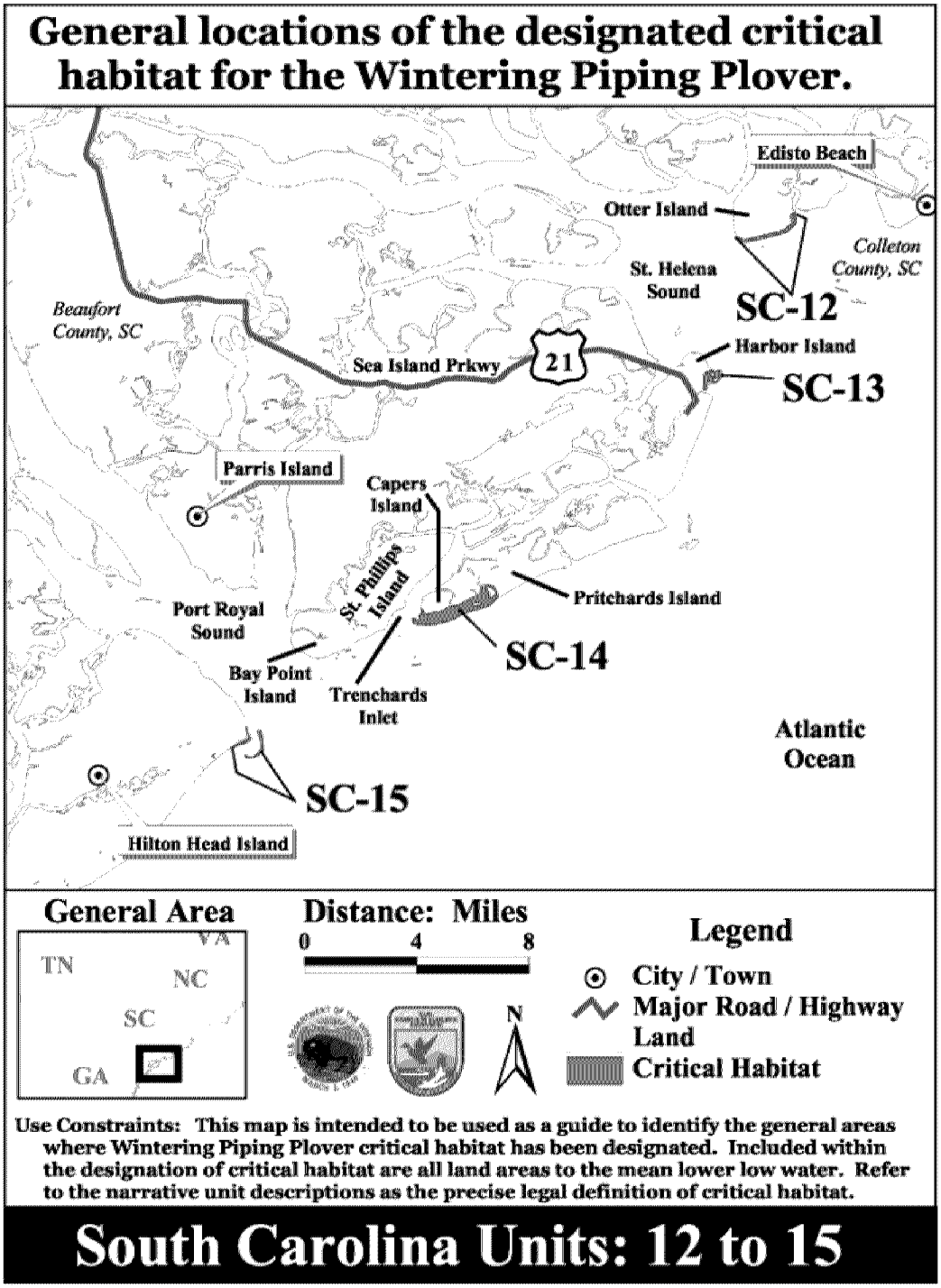
Table 2: Endangered and Threatened Species, and Species of Special Concern Using Hilton Head Island Beach

Name	***Status***	***Habitat/Activity***
Loggerhead Sea Turtle	Threatened, FS	Beaches (nesting)
Green Sea Turtle	Threatened, FS	Beaches (nesting)
Kemps-Ridley Sea Turtle	Endangered, FS	Nearshore waters (Foraging)
Leatherback Sea Turtle	Endangered, FS	Beaches (nesting)
Eastern Brown Pelican	Species of Special Concern, S	Beaches
Least Tern	Threatened, S	Beaches, Dunes (nesting)
Wilson's Plover	Threatened, S	Beaches, Dunes (nesting)
Piping Plover Red Knot	Threatened, F Threatened, S Threatened, F	Beaches Intertidal Flats(Wintering) Beaches, Intertidal Flats (Wintering)
Island Glass Lizard	Species of Special Concern, S	Dunes
Seabeach Amaranth	Species of Special Threatened, F Threatened, S	Dunes (Plant)

F—Federally Protected Species S— State Protected Species

Source: USFWS and Town of Hilton Head Island, 2014

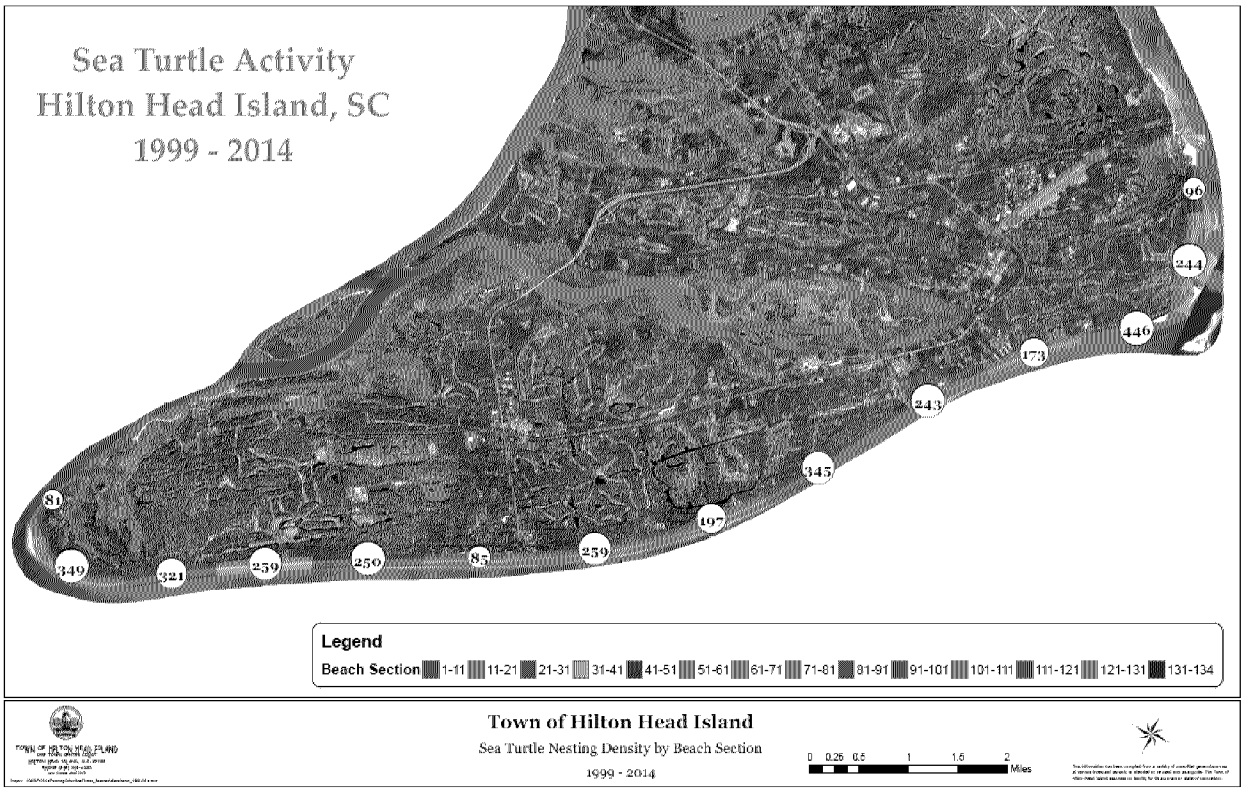
FIGURE 9: PIPING PLOVER CRITICAL HABITAT



Source: U.S. Fish and Wildlife Service

2.4.2 SEA TURTLE NESTING

FIGURE 10 – SEA TURTLE ACTIVITY 1999-2014



2.5 EXISTING PUBLIC ACCESS AND MAP

In 1989, the Town of Hilton Head Island received a $6,200,000 grant from the State of South Carolina (of which $2,500,000 was received from SCCC) for a beach renourishment project. As part of this agreement, the Town committed to providing between 2,000-3,000 beach parking spaces on the Island, with all of the facilities being within 1,000 feet of public beach access points.

The Town's original 1991 Beach Management Plan detailed public access parks, undesignated private parking areas, privately-owned beach access points (hotels, condominiums and beach clubs), neighborhood access points, future public beach parks and facilities, and emergency vehicular access points. This was approved by the State and included a commitment of 2,000-2,500 parking spaces.

In 1998, the Beach Management Plan was amended by the Town and approved by South Carolina Department of Health and Environmental Control to include a Beach Access Plan, which outlined a plan to construct a total of 1,400 public parking spaces by December 2008, reducing the previous 2,000-2,500 parking spaces in the earlier plan. This plan included the construction of spaces that could be reserved for Island residents and property owners; however, such spaces are not counted when the State designates "full and complete public access" areas on the beach, which can impact grant eligibility. Currently, the Town has 1,454 beach parking spaces, of which 1,062 are open to the general public of the State, so they do not meet the requirements to be considered in the calculation of the areas that are considered "Full and Complete Public Access" by the State, in accordance with the State's Beachfront Management Act. However, these spaces are recognized by DHEC OCRM for the purpose of meeting the previous 1990 grant requirement. Currently, the Town has met this revised obligation.

Figure 11: Town-owned Beach Parks and Parking, shows the location of Town-owned beach access and parking areas. Table 3 details the existing number of public parks owned by the Town of Hilton Head Island with their facilities.

Figure 12: Neighborhood Beach Access and Parking, shows the location of neighborhood beach access and parking. These facilities are provided by the PUD's and neighborhood associations and are used by thousands of Island residents and visitors. There are a total of 107 neighborhood beach access locations, eight of which have parking areas, which are used predominately by visitors and residents within the gated community in which they are located.

Figure 13: Private Beach Access and Parking, shows the location of private and multifamily beach access points and parking locations. These facilities are provided by hotels and condominium complexes. There are a total of 59 private access locations with parking on the Island.

Table 3: Existing Town-Owned Beach Parks and Parking

	Handicapped access	Boardwalk	Restrooms	Trash receptacles	Showers	Bike Racks	Drinking Fountain	Life guards/ rentals	Picnic pavilion	Natural trails	Sitting Deck	Viewing scope	Emergency Access	Historical Marker	Public Parking Spaces	Notes
Alder Lane Access	✓	✓	✓	✓	✓	✓	✓	✓							23*	
Coligny Area	✓		✓	✓	✓	✓	✓	✓			✓	✓	✓		522*	Parking breakdown: Coligny Circle Lot: 12 Paved Lot: 430 Unpaved: 80
Chaplin Park & Burkes Beach Road			✓	✓	✓	✓	✓	✓		✓			✓		258*	Parking breakdown: Burkes Beach Road: 13 w/in 1000' Chaplin Park: 110 w/in 1000' Castnet: 135 via shuttle
Driessen Beach Park	✓	✓	✓	✓	✓	✓	✓	✓	✓						179* 28	28 Spaces for Island Beach Pass Holders (Residents and Property Owners)
Folly Field Park	✓	✓	✓	✓	✓	✓	✓	✓							55*	
Islanders Beach Park	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓		25* 131	131 Spaces reserved for Island Beach Pass Holders (Residents and Property Owners)
Fish Haul Park	✓		✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	47	
Mitchelville Beach Park & Barker Field	✓	✓	✓	✓		✓	✓				✓	✓		✓	186	101 at Mitchelville Beach Park and 85 via boardwalk at Barker Field

*Parking contributing to full and complete public access.

FIGURE 11 – EXISTING BEACH PARKS WITH PARKING

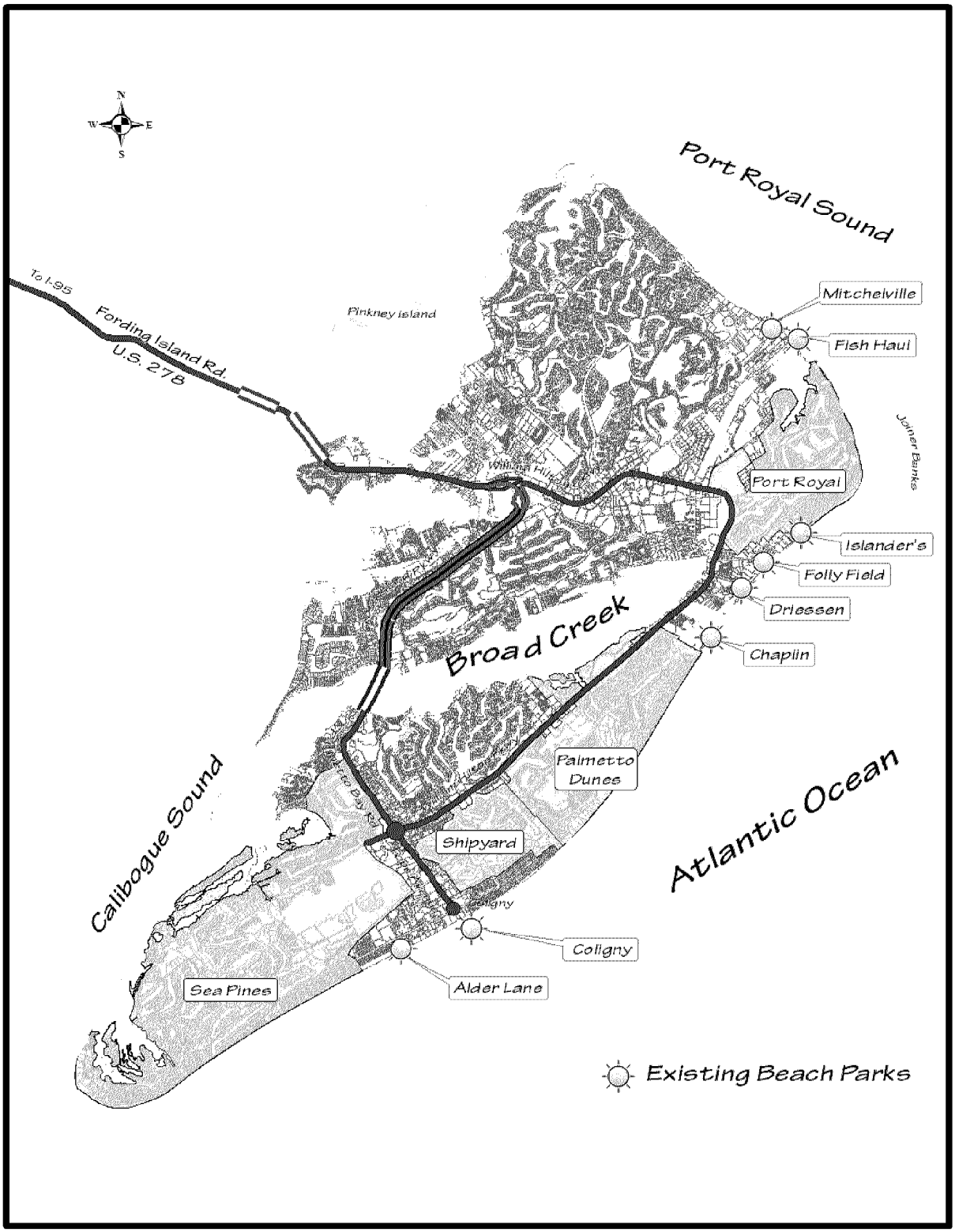


FIGURE 12 – NEIGHBORHOOD BEACH ACCESS AND PARKING LOCATIONS

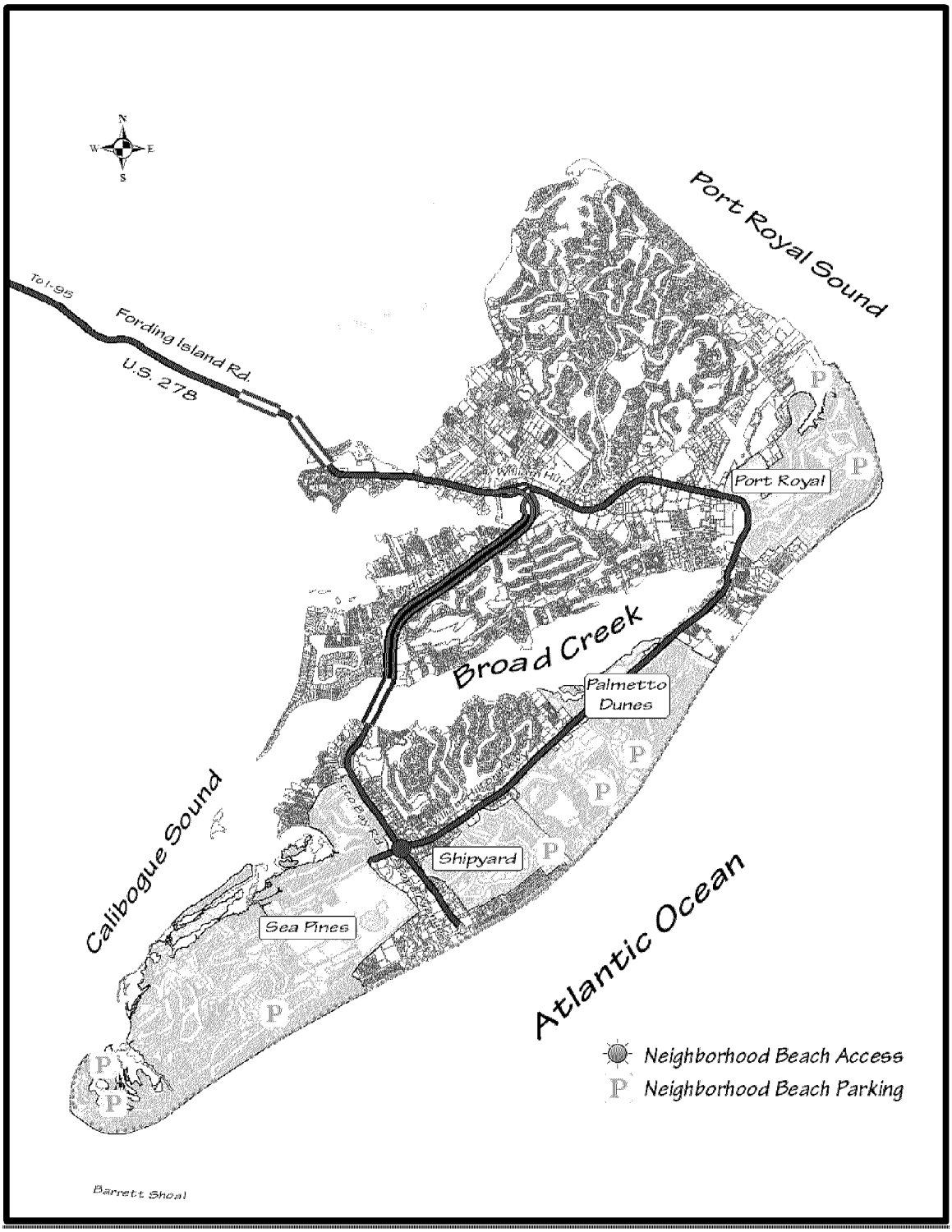
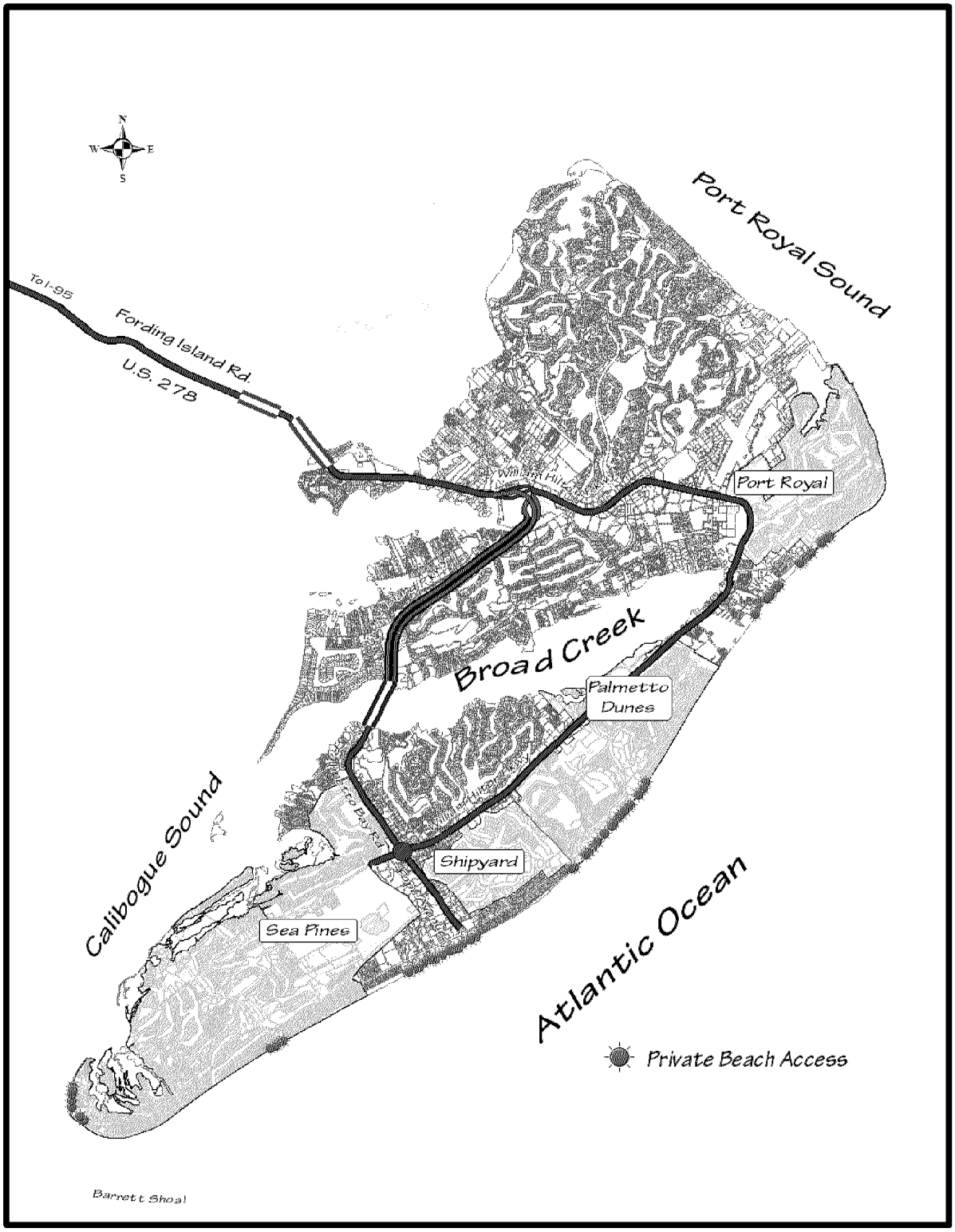


FIGURE13 – PRIVATE BEACH ACCESS



FULL AND COMPLETE PUBLIC ACCESS

DHEC OCRM classifies areas along the beach that are considered to offer full and complete public access, which is defined based on the criteria shown in Table 4 below. This classification is factored into the review of some State grants.

Table 4:
DHEC-OCRM Public Beach Access Facility Classification
(SCCC, 1995)

Type of Facility	Distance on either side of Access Point which will be considered as having Full and Complete Access	Minimum Facilities
Public Access Point	**1/8 Mile**	**Trash Receptacle, Walkover/Improved Surface Access; Signage; On-Street Parking For 6 Vehicles**
Local Public Access Park	**1/4 Mile**	**As Above, Parking For 10 Vehicles**
Neighborhood Public Access Park	**1/2 Mile**	**As Above, Showers, Restrooms, Parking For 25 Vehicles**
Community Public Access Park	**3/4 Mile**	**As Above, Showers, Handicapped Access; Parking For 75 Vehicles**
Regional Public Access Park	**1 Mile**	**As Above, Parking For 150 Vehicles And Greater**

On Hilton Head Island, the number and distribution of public access points are excellent. Sufficient access points, signage, facilities and parking exist to classify approximately 20% of the Hilton Head Island beach as having full and complete access per the State guidelines (SCCC, 1995; see Table 4). DHEC OCRM recognizes that full and complete public access is provided in two main areas along approximately 3.9 miles of the 13-mile beach (see Figures 14 and 15):

1. from a point ½ mile (2,640 feet) northeast of the public beach access at Islanders Park to a point ¾ mile (3,960 feet) southwest of the public beach access at Chaplin Park; and

2. from a point 1 mile (5,280 feet) northeast of the public access point at Coligny Beach park to a point ¼ mile (1,320 feet) southwest of the public beach access at Alder Lane.

While Mitchelville and Fish Haul Parks provide significant public access and parking, both parks are located outside of the extent of the state ocean beachfront jurisdiction. These parks are noted as providing public access and parking but are not included in calculations related to "full and complete public access". DHEC OCRM does not recognize these parks as providing "full and complete public access" in accordance with the State Beachfront Management Plan.

The majority of public parking associated with the Town-owned public beach access points is located within 1,000 feet of the accesses. Only one beach parking location is in excess of 1,000 feet. Shuttle service is available for this location if the need arises. Establishing public parking closer to the beach would be infeasible due to infrastructure and development constraints. Based on these considerations, DHEC OCRM has agreed to allow public parking located greater than 500 feet away from the sand beach to be a factor in classifying these sections of Hilton Head Island's beach as achieving "full and complete" public access in accordance with the guidelines established in the State Beachfront Management Plan.

Signage indicating the public access points, as well as local beach regulations is located at each of the Town's public beach access points. In addition, dog waste collection and disposal containers are located at many of the public access points, as well as recycling collection bins.

FIGURE 14: ALDER LANE AND COLIGNY-FULL AND COMPLETE ACCESS AREA

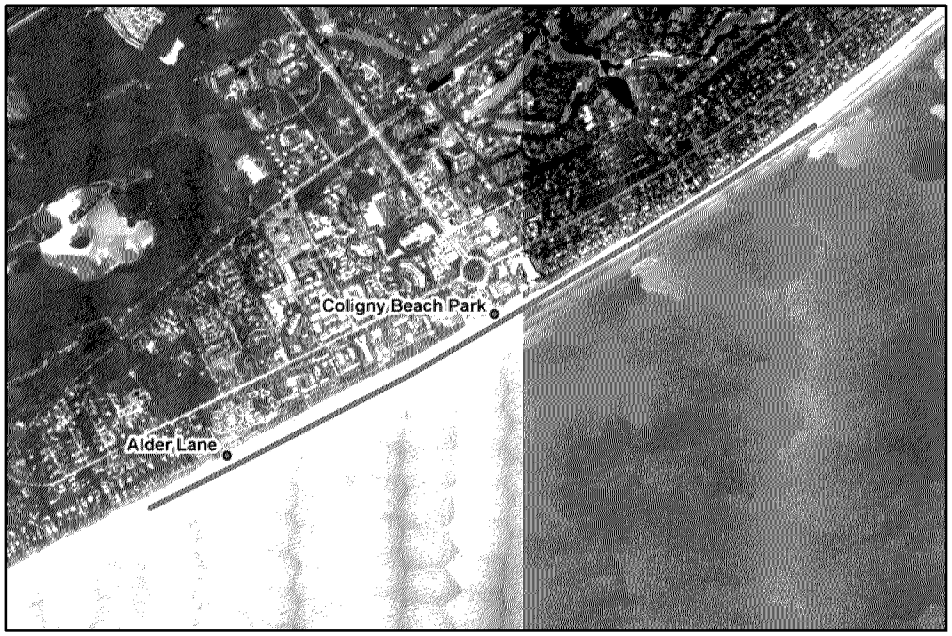


FIGURE 15: CHAPLIN TO ISLANDER'S-FULL AND COMPLETE ACCESS AREA

3 - BEACHFRONT DRAINAGE PLAN

The Town of Hilton Head Island does not have any existing drainage outfalls along the beachfront (either natural or anthropogenic) and Section 16-5-602 of the Town Code prohibits any future development from directly discharging storm water onto the beach.

The beachfront areas of the Island can be divided into 6 major natural drainage basins none of which drain to outfall structures on the beach (see Figure16: Hilton Head Island Watersheds). In all of the drainage basins, the most common methods of conveyance are lagoons, swales, and pipes. In general, storm water is carried from the beachfront areas to the adjacent inland bodies of water. There are no significant grade differences on the island, necessitating the use of four pump stations during heavy rains to protect against flooding. They are located at Lawton Creek in Sea Pines, Cordillo Parkway in Shipyard, Broad Creek in Wexford and Jarvis Park.

The southernmost portion of the Island drains into Baynard Cove and Braddock Cove which in turn drain into Calibogue Sound. To the north, the second basin in Sea Pines Resort and South Forest Beach drains into Lawton Canal which is pumped toward Calibogue Sound.

The North Forest Beach area drains through the lagoons of Shipyard Plantation. A pump station was constructed in 2004 to help push the water through the lagoon system. Then the stormwater runs under William Hilton Parkway via a pipe through a canal in Wexford Plantation and is pumped into Broad Creek.

The Palmetto Dunes drainage basin contains approximately 11 miles of canals, which carry the storm water under William Hilton Parkway and into Broad Creek.

Storm water from the Folly Field basin is transported to the Folly, the Island's only tidal inlet to the Atlantic Ocean. The Folly is made up of several meandering creeks which accept runoff and carry it to the Ocean.

The northernmost drainage basin is Port Royal Plantation. The storm water from this basin is carried via a large drainage ditch to Broad Creek.

Overall, the effectiveness of the beachfront drainage systems is good. An inherent problem with Hilton Head Island is the lack of elevation (See Figure 17: Hilton Head Island Elevations). The vast majority of land being drained has an elevation of less than 10 feet. Therefore a common problem is capacity of the systems to convey runoff during an intense storm of short duration.

In 1995, the Town completed The Island Wide Drainage Study. Since then, all projects have been implemented.

1. Palmetto Hall Outfall Improvements (partnership) 1995
2. Lawton Canal Pump Station upgrades (partnership) - 1997
3. Jarvis Creek Pump Station - 1999
4. South Forest Beach Phase I - 2000
5. William Hilton Parkway, Culvert at Wendy's - 2000
6. Gum Tree Area – 2000
7. South Forest Beach Phase II – 2001
8. Pineland Mills Shops - 2001
9. North Forest Beach Phase 1 - 2003
10. North Forest Beach Wexford Pump Station - 2004
11. North Forest Beach Phase II - 2004
12. Ashmore Tract – 2003
13. Folly Field -2004
14. Northridge – 2006
15. Beach City Road / Airport – 2006
16. Lawton Canal Pump Replacement (partnership) – 2006
17. Club Course Drainage Project (partnership) – 2007/8

In terms of estimated life, the existing drainage systems are expected to remain in place well beyond a 20-year horizon. Build-out is substantially complete in these beachfront areas. The drainage systems in place should adequately handle future conditions since minimal new development can occur.

Cleaning, dredging and maintaining the existing drainage system is a foremost priority. The Beaufort County Stormwater Utility collects $3.56 million dollars yearly from the Town. The Town provided 5% $91,992) last year to the Utility for administrative overhead. The Utility returns the entire $3.56 million of fees (minus the administrative overhead) for the Town to use for drainage infrastructure maintenance and debt service on a $17 million SWU Revenue Bond.

The Town also monitors water quality at 18 sites Island-wide. This project was initiated in 1999 in an effort to monitor stormwater drainage improvements. The Town currently tests for dissolved oxygen, pH, salinity, temperature, turbidity, nitrate, total phosphates, fecal coliform, total kjeldahl nitrogen, and ammonia.

Stormwater studies are being conducted for individual watersheds to develop drainage inventories, flood models, water quality models and lists of potential capital improvement projects.

FIGURE 16 - WATERSHEDS

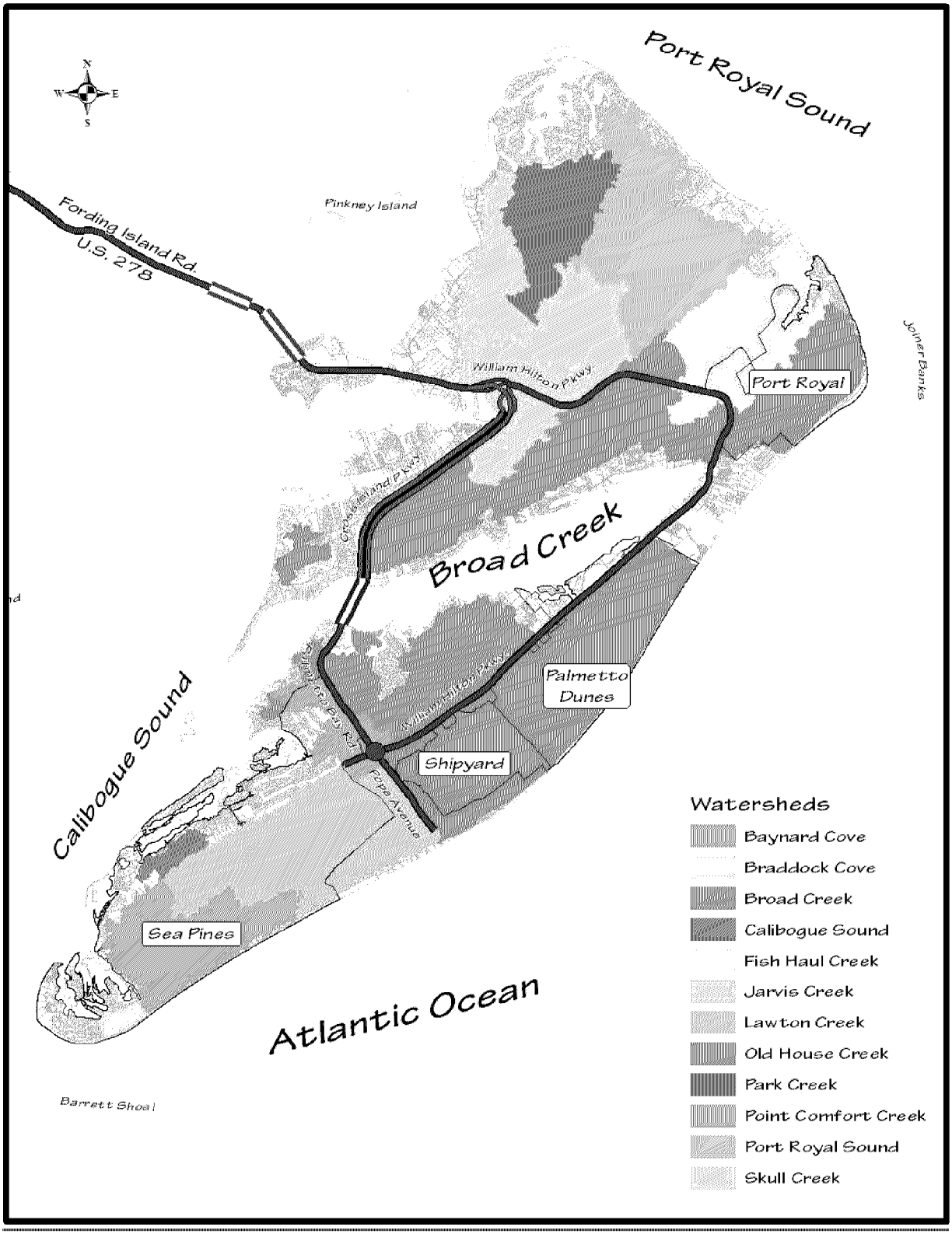
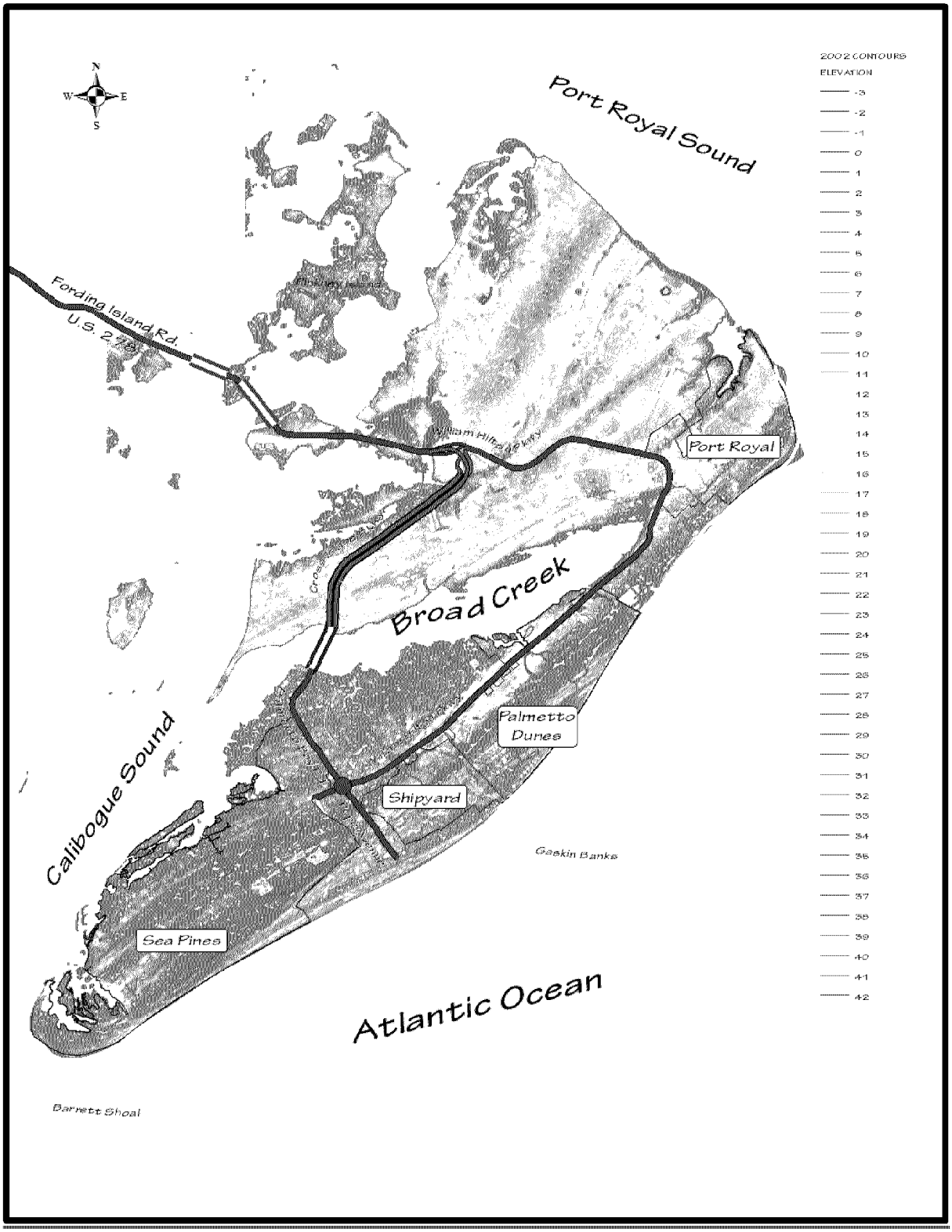


FIGURE 17 – ELEVATIONS



4 - BEACH MANAGEMENT & AUTHORITIES

The Public Trust Doctrine provides much of the basis for the management of public lands and waters in the United States. The Public Trust Doctrine is an example of common law, meaning rules derived from the traditional laws of England in the Middle Ages that were based on custom and precedent rather than legislative action. Common law often addresses issues of access, fairness, commerce, and land uses. The Public Trust Doctrine established that public trust lands, waters, and living resources are held in trust by the State for the benefit of all citizens. It also created the right of the people to fully enjoy public trust lands, waters, and living resources for a multitude of public uses. Finally, the doctrine established responsibilities for the State when managing these public trust resources, and set limitations on the ways government, public, and private owners can use public trust resources.

In the coastal zone, the Public Trust Doctrine covers navigable waters and lands that are subject to the ebb and flow of the tide, including tidal marshes and oceanfront beaches. While each state is able to implement the Public Trust Doctrine according to its own views of justice and policy, the core principles are the same throughout the country. These principles, and the responsibility they establish for the state, are at the heart of many of the state's coastal laws, regulations, and policies. In many states, including South Carolina, the jurisdiction of the Public Trust Doctrine on the beach and navigable waters of the ocean extends landward to the mean high water line. Generally, the Public Trust Doctrine protects the right of the public to pass along the shoreline up to the mean high water line and utilize the space for fishing, navigation or recreation. The Public Trust Doctrine does not authorize the public to trespass on upland private property in order to access the beach. However, the doctrine does help preserve and protect the right of the public to access and utilize the beach

In South Carolina, as with much of the United States, the Public Trust Doctrine has been at the center of numerous court cases and deliberations and will likely continue to be. This doctrine is at the core of the philosophy of coastal zone management and should be recognized and considered by the government, private landowners, and the public at large in the course of decision-making along the beach. Numerous federal and state agencies have responsibility or authority for assisting beach management on Hilton Head Island. A summary and description of the agencies with regulatory or management authority relevant to beach management in the Town of Hilton Head Island can be found as Appendix E to this plan.

4.1 STATE AUTHORITIES

4.1.1 Overview of State Policies (Beachfront Management Act)

Refer to Appendix E on regulatory agencies.

4.1.2 Beachfront Setback Area

The State of South Carolina established a forty-year policy of retreat as part of the Beachfront Management Act. DHEC OCRM, as the steward of the State's coastal resources, is responsible for implementing this policy. The implementation is derived from a baseline established by DHEC OCRM which runs parallel to the shoreline on oceanfront beaches. The baseline is evaluated and redrawn by DHEC OCRM every eight to ten years and, as directed by the Beachfront Management Act, stretches of beach are divided into standard erosion zones and inlet erosion zones based on their erosion characteristics.

The baseline for a standard erosion zone is established at the location of the crest of the primary oceanfront sand dune in that zone. If the shoreline in a standard erosion zone had previously been altered naturally or artificially by the construction of erosion control or other anthropogenic structures, the baseline is established where the crest of the dunes would be had the disturbance not occurred.

The baseline for inlet erosion zones is determined differently for inlets that are stabilized by jetties, groins or other structures, and inlets that are not stabilized. For unstabilized inlets, DHEC OCRM establishes the baseline at the most landward point of erosion at any time during the past forty years. For inlet zones that are stabilized by jetties, groins, or other structures, DHEC OCRM establishes the baseline at the location of the crest of the dune, and not at the location that the dunes would be had the inlet remained unstabilized.

All baseline decisions are determined by DHEC OCRM, founded on the best scientific and historical data available. In determining the baseline location for inlet erosion zones, DHEC OCRM must consider historical inlet migration, inlet stability, channel and ebb tidal delta changes, the effects of sediment bypassing on shorelines adjacent to the inlets, and the effects of nearby beach restoration projects on inlet sediment budgets.

The second part of implementing the forty-year retreat policy at the State level is the setback line. The setback line is a boundary established by DHEC OCRM that is landward of the established baseline at a distance equal to forty times the average erosion rate, and not less than twenty feet.

No new construction is permitted seaward of the baseline, with the exception of wooden walkways not more than six feet wide, wooden decks no larger than 144 square feet, public fishing piers, golf courses,

normal landscaping, pools that were located landward of existing functioning erosion control structures, groins built before 1988, or structures permitted by a DHEC OCRM special permit. A DHEC OCRM permit is required for all of the above actions except for the construction of wooden walkways not more than six feet wide.

Construction within the State setback line is restricted in order to implement the State forty-year retreat policy. Construction, reconstruction, or alterations between the State baseline and setback lines are governed as habitable structures, erosion control devices, and swimming pools. All other construction between the baseline and setback lines requires a permit from DHEC OCRM. New habitable structures built between the baseline and setback line may not exceed five thousand square feet of heated space, be located as far landward on the property as possible, and not incorporate any erosion control structure or device as part of the integral habitable structure. No part of the building may be constructed seaward of the baseline or on the primary sand dune. The applicant must certify to DHEC OCRM in writing that these conditions are accurate, and submit a drawing that shows the footprint of the structure on the property, a cross section of the structure, and the structure's relation to property lines and setback lines which may be in effect.

Owners may replace habitable structures permitted within the setback that have been destroyed beyond repair by natural causes after notifying DHEC OCRM. The owner must certify that the total square footage of the replaced structure seaward of the setback line is not greater than the original square footage beyond the setback line, the replaced structure is no further seaward than the original structure, and is constructed as far landward as possible, considering local zoning and parking requirements.

No new erosion control devices are allowed seaward of the setback line except to protect a public highway which existed prior to the enact ion of the Beachfront Management Act. Erosion control structures that existed before 1988 may not be repaired or replaced if destroyed more than fifty percent above grade. DHEC OCRM is responsible for assessing the damage to erosion control devices and structures, as well as habitable structures, to determine the extent of damage following hurricanes or other events.

Finally, no new pools are permitted to be constructed seaward of the setback line, unless they are located as landward as possible of an existing, functional erosion control device. Pools that existed prior to 1988 may be repaired or replaced, if destroyed beyond repair, if the owner in writing certifies to DHEC OCRM that it is moved as far landward as practical, it is rebuilt no larger than the destroyed pool, and is constructed in such a manner that cannot become or act as an erosion control device. DHEC OCRM may issue a special permit for all other construction or alteration between the setback line and baseline.

Town of Hilton Head Island's Retreat Policy

The South Carolina Beachfront Management Act requires that local plans include a 40 year retreat policy that considers relocation of buildings, removal of erosion control structures and relocation of utilities. When the Town's Beach Management Plan was first adopted in 1991, the State was in the process of drafting their own policy, and provided little direction to the Town at that time. In 1992, the Town amended its original Beach Management Plan to include a 40 Year Retreat Policy which stated:

1. Locate development landward of the DHEC OCRM Setback line to the extent possible;
2. Adopt various growth management techniques and procedures to reduce development levels;
3. Retain open space seaward of the DHEC OCRM Setback line to the extent possible;
4. Utilize land acquisition; and
5. Address retreat during redevelopment scenarios after a disaster.

With the adoption of this 2008 Beach Management Plan, this Policy continued to be in effect. The Town's zoning, density and design standards mentioned previously help fulfill this policy along with other techniques outlined in the next Section.

To accompany the above Retreat Policy, this Beach Management Plan details an additional Policy on beach renourishment as part of the 40 Year Retreat Policy. Beginning in 1990, the Town embarked on an ambitious renourishment program with an ongoing maintenance program. As a result of these projects, portions of the beach and dunes system have been enhanced, thereby resulting in expanded areas subject to development pressures by construction that is not in the public interest and not in accordance with retreat policies and goals of the State and the Town. In a few instances, DHEC OCRM has designated a newly formed embryonic dune as the new primary dune, allowing development on the landward, and sometimes larger, dune. Because of this, there have been petitions to the DHEC OCRM to move the Baseline further seaward, increasing the number of areas for loss of the larger dunes system. In addition, DHEC OCRM re-examines the possibility of relocating the Baseline every 8-10 years, possibly seaward. This would further encourage development on top of the larger dunes system.

It is not and has not been the intent of the Town to encourage or permit development to move seaward as a result of the Town's beach renourishment projects and efforts, or to support any effort to move the DHEC OCRM established baseline seaward, where such effort to relocate the baseline is based in whole or in part on the existence of new dunes and/or new beach areas formed as a result of the Town's beach renourishment projects and efforts, or by other private efforts. The Town's intent in pursuing the renourishment program is:

1. To protect, preserve, restore, stabilize and enhance the beach/dune system through beach renourishment and other appropriate means, to provide for the protection of life and property, and to act as a buffer from high tides, storm surges, hurricanes, and erosion;
2. To prohibit development from moving seaward onto new dunes or beach areas formed as a result of the Town's beach renourishment projects and efforts;
3. To provide an important basis for a tourism industry that generates annual revenue for the State of South Carolina and the Town;
4. To provide habitat for numerous species of plants and animals which are threatened or endangered, or which may become threatened or endangered as a result of the loss of the beach/dune system;
5. To provide habitat for beach/dune system vegetation that is unique and extremely important to the vitality and preservation of the system; and
6. To create a recreational beach at high tide.

In support of this, the Town adopted two overlay zoning districts along the beachfront for the purpose of limiting the seaward migration of development as a result of renourishemnt.

- CPA-O Coastal Protection Area Overlay District
  The purpose of the Coastal Protection Area Overlay (CPA-O) District, in conjunction with the Transition Area Overlay (TA-O) District, is to eliminate the potential for seaward migration of the built environment along the Island's beachfront to the greatest extent possible. This environmentally sensitive area:
  i. Protects life and property by serving as a storm barrier;
  ii. Provides an important basis for a tourism industry that generates annual tourism industry revenue;
  iii. Provides habitat for numerous species of plants and animals that are important to the natural functioning of the beach and dune system, or that are threatened or endangered; and
  iv. Provides beach and dune system vegetation that is unique and extremely important to the vitality and preservation of the barrier island environment.

- TA-O Transition Area Overlay District
  The purpose of the Transition Area Overlay (TA-O) District, in conjunction with the Coastal Protection Area Overlay (CPA-O) District, is to eliminate the potential for seaward migration of the built environment along the Island's beachfront as well as protect the area between existing construction and the mean high water mark, to the greatest extent possible. This environmentally sensitive area:
  i. Protects life and property by serving as a storm barrier;
  ii. Provides an important basis for a tourism industry that generates annual tourism industry revenue;

iii. Provides habitat for numerous species of plants and animals that are important to the natural functioning of the beach and dune system, or that are threatened or endangered; and

iv. Provides beach and dune system vegetation that is unique and extremely important to the vitality and preservation of the barrier island environment.

4.2 LOCAL GOVERNMENT AND AUTHORITIES

4.2.1 Municipality's Comprehensive Plan

The Town's first Comprehensive Plan was adopted in 1985. This was revised and adopted in 1990, 1996, 2000, and 2004. The plan was then rewritten and adopted in 2010 and was updated in 2012. The Comprehensive Plan is a continuing planning program for the physical, social and economic growth, development and redevelopment of the Island. The original 1991 Town Beach Management Plan was adopted as part of the Town's Comprehensive Plan. The plan approved in 2009 was a revision and update of the previous 1991 Beach Management Plan and was adopted as an Appendix to the Town's Comprehensive Plan.

Other Elements of the Comprehensive Plan promote protection and preservation of the beach and dune systems. The Natural Resources Element describes the Island's beach systems and coastal dunes, as well as the endangered, threatened and rare plant communities and species. It also lists goals and strategies for continued research and monitoring of natural resources; improvement of water quality and reduction of pollutants; development and implementation of a wildlife protection plan; continued land acquisition to further protect sensitive and endangered environments; creation of view corridors; promotion of environmental education programs; and incorporation of environmental protection into development projects. The Land Use Element describes goals and strategies for reduction of allowable density to ensure that development does not create adverse impacts on natural resources and encourages incentives and voluntary compliance with the 40 year setback zones. The Recreation Element provides strategies for park development and guidelines for the continued creation or expansion of public beach parks and beach accesses.

Regional Planning Efforts

In 2006, the Town of Hilton Head Island adopted by resolution the Southern Beaufort County Regional Plan. In relationship to Beach Management, this plan recommended that the participating local governments adopt the same regulations, if possible. As part of the implementation of this plan, a regional Natural Assets Working Group was formed which compiled a list of baseline standards that should be adopted by the applicable participating local governments and also be made available to the region. These included such recommendations as uniform dune/dune system definition, protection of more than just the primary dune, protection of all dune plants, reasonable dune plant pruning, re-establishment of dunes systems by redevelopments, restriction of structures in dune systems and buffer areas, uniform lighting standards for protection of wildlife, and standards for violations. These recommended suggestions have been reviewed by the Regional Plan's Implementation Committee.

4.2.2 Municipality's Hazard Mitigation Plan

In 2004, the Town adopted the Beaufort County Hazard Mitigation Plan which replaced earlier mitigation plans. It was updated in 2009 and identifies natural hazards to the Island, contains a vulnerability assessment, and gives goals to continue periodic beach renourishment. A Disaster Recovery Commission was formed that worked on the implementation of the 2003 Recovery Plan. This Plan will be discussed in more detail below.

4.2.3 Municipality's Disaster Preparedness and Evacuation Plan

The Town developed a Post-Disaster Plan in 1991 to guide its citizens and post-disaster operations. The plan was incorporated into the Town's Comprehensive Plan in 1999. In 2003, the Town prepared a Comprehensive Emergency Management Plan (CEMP), which was updated in 2014. According to this plan, Recovery is defined as actions taken in the long term after the immediate impact of the disaster has passed to stabilize a community and to restore some semblance of normalcy.

The Town's Disaster Recovery Plan is designed to supplement the Town's *Emergency Operations Plan – Basic Plan (EOP – Basic Plan)*, and identify agencies to provide assistance to disaster victims in conjunction with Federal, State and County governments and coordinate emergency recovery activities. This plan provides local emergency management personnel with operational guidance in order to effectively manage recovery activities in the aftermath of a major or catastrophic disaster or emergency. The Town works with all appropriate agencies, in advance of a disaster (if predictable) and after, to minimize potential injury and damage, and to expedite recovery and redevelopment.

The organization of the Town's recovery activities is consistent with the concepts of the Incident Management System (IMS) and Integrated Emergency Management System (IEMS). Storm recovery is divided into short-term phases, which begins during the response phase of an emergency and can last up to six months, and long-term recovery which focuses on restoring the community to pre-disaster condition or better. The Town's recovery activities and programs are grouped into 22 Recovery Functions (RF) including, Recovery and Redevelopment (RF1), Continuation of Government (RF3), Damage Assessment and Impact Analysis (RF 9), Emergency Permits and Inspections (RF 13), and Mitigation (RF 19).

In the event of a hurricane threat, the Town will activate all or part of the Town Emergency Operation Center (EOC).

Cleanup

The purpose of the Debris Management Plan is to effectively manage debris generated by natural and man-caused disasters and contains the following policies:

1. First focus debris removal efforts on clearing of major transportation routes and roadways into damaged areas to allow for the movement of emergency vehicles, personnel, equipment and supplies.

2. Remove debris in affected areas to prevent the development and spread of vector-based epidemiological agents and general sanitation problems.

3. Conduct disposal activities with health and environmental concerns being the foremost consideration.

Maintaining essential services

The repair and restoration of public infrastructure, services and buildings after a disaster will be completed for the purpose of returning public infrastructure and the Town's services to pre-event levels or better. Restoration of utility services is critical to the success of both short and long-term recovery programs. Complete utility restoration could take months. Initial roadway clearance will push debris to the right-of-ways, providing access to underground cables. Restoration of the commercial power supply will be the pacing activity for reestablishing water and sewer systems, and the restoration of power will be passed by the clearance of debris along the transmission line rights-of-way.

Damage to transportation systems will influence the accessibility of disaster relief services and supplies. Restoration of transportation systems is designed to make sure that the Town (service, equipment, facilities, etc.) can facilitate the movement of emergency personnel, vehicles, equipment and supplies.

Restoration of electrical services and communication systems will begin as soon as major transportation routes are cleared of debris to allow emergency vehicles and crews to enter the disaster area.

Protecting public health

The Town will also work to identify the threats to public health during the recovery period and to provide remedies. It is the policy of the Town that the continuation of public health functions and control of environmental factors related to public health is essential following a disaster to prevent the outbreak of disease and to monitor the spread of vectors associated with the disaster itself.

Emergency Building Ordinances

After a disaster the Town will provide an emergency permitting plan to streamline the permitting process on Hilton Head Island, which will include coordination with DHEC OCRM regarding the

permitting for reconstruction of any oceanfront structures. This process will include determining whether repair or reconstruction of damaged structures will be allowed and under what conditions, coordinating and streamlining the Town's permitting processes, and implementing a system to verify that repairs/redevelopment comply with all applicable codes and laws.

Mitigation

In 1999, the Town developed a Flood Hazard Mitigation Plan. It was one of the first mitigation plans in the nation to be officially incorporated into a Town's Comprehensive Plan—a concept now embraced by the American Planning Association through their *Planning Advisory Series*, and FEMA, through the *Disaster Mitigation Act of 2000* (*DMA) regulations*. In 2004, the County joined with its municipalities to create the *Beaufort County Hazard Mitigation Plan*, which was adopted by the Town as part of its Comprehensive Plan. This Plan was updated in 2009 and outlines hazard identification, vulnerability assessment, community mitigation capability assessment, goals and objectives, and hazard mitigation projects and Action Plan.

As mentioned in this Plan, floodplain management and development policies and procedures are in good order and contribute to the Town's commendable Community Rating System (CRS) rating of 5, which provides a 25% reduction in the cost of flood insurance to the more than 30,000 policyholders. This represents an approximate annual savings of $5.5 million.

4.2.4 Beachfront Development Regulations

The Town's Land Management Ordinance (LMO) is a set of laws that regulate land use and development activity within the Town. It has several sections that regulate development activity on the beach and dune system.

Development review and site design standards for all development on Hilton Head Island are regulated in LMO Chapter 2, 3, 4, 5 and 6. This includes regulations on density, buffers, setbacks, aesthetics, landscaping, tree protection, wetland alteration, traffic circulation, open space standards, street and pathway standards, parking and loading standards, stormwater management standards, lighting, flood zone standards, fire protection water supply and utility standards.

Other local setbacks exist regarding adjacent use and adjacent street setbacks in LMO:

Chapter 5: Adjacent Use Setbacks (for Single family, Multifamily/Recreational, Institutional/Commercial, and Industrial/Utility) and adjacent street setbacks (Single family detached and other uses) in areas outside the beachfront PUD's are governed by Chapter 5 of the LMO. Required setbacks for development shall be determined according to the relationship of the proposed use to the existing contiguous use on each property adjacent to the development. For purposes of determining the

appropriate setback distance where the adjacent property is vacant, it shall be classified as the use which would require the greatest setback allowed by right in that district. As mentioned previously, the PUD's also contain their own adjacent use and street setback requirements.

One consequence of this setback restriction may be that the buildable area of a parcel of land is diminished. The State has attempted to overcome this limitation by adopting a policy encouraging buildings to be located as far landward as practical. However, once the local setbacks required by the Town and/or a local architectural review board are included, the buildable size of the parcel may be even further diminished. A local avenue of relief for landowners who find themselves in this dilemma exists in the form of a variance required from local setback requirements. The Town's Board of Zoning Appeals determines whether to grant the variance based on those findings dictated in the State enabling legislation which requires consideration of the Town's Comprehensive Plan and therefore the Beach Management Plan.

LMO Chapter 6: (Natural Resource Protection) contains regulations designed to promote the protection and stabilization of existing beaches.

Before development plan approval is granted, it must meet the following general standards:

- Will not result in the removal or diminution of the amount of sand, silt, shell, sediment or other geologic components of any beach, or interfere with natural patterns of wind and water movement of sand, silt, shell, sediment or other beach components, except for maintenance of any structures causing these effects which were existing prior to the enactment of this Title;
- Will not result in the direct discharge of stormwater onto any beach;
- Will not result in the discharge of treated or untreated sewage or other human waste from land or waterborne sources, with the exception of advanced treated effluent irrigation systems approved by the SCDHEC;
- Will not result in the direct or indirect removal, destruction, depletion or digging out of vegetation which contributes to beach stability;
- Will minimize any interference with the natural use of the beach for feeding, foraging, resting, nesting and breeding by indigenous and migratory birds, shellfish, marine fishes, sea turtles and other wildlife. Such interference shall include the destruction or diminution of organisms or material upon which wildlife feed;
- Will not interfere with the customary rights of the public for access to and use of the active beach; and
- Will not remove, alter or destroy any beach protection structure, such as walls or revetments, unless specifically authorized by an appropriate development plan approval or building permit.

4.2.5 Regulations on Beach and Shoreline Protection

The Town's Municipal Code defines a dunes system as one or a series of hills or ridges of wind-blown sand or one or a series of hills or ridges of sand resulting directly or indirectly from restoration or beach renourishment, all of which may or may not be anchored by vegetation (e.g., sea oats) and is in the vicinity of the beach. Damage to or development of this dune system is not in the public interest and would not be in accordance with retreat policies of the State of South Carolina and the Town of Hilton Head Island. Furthermore, the Town wishes to protect, preserve, restore, and enhance the beach/dune system for the protection of life and property so it acts as a buffer from high tides, storm surge, hurricanes, and erosion.

In 2006, Town Council adopted an amendment to the Municipal Code Title 8 which strictly regulated the South Forest Beach area by establishing a Critical Storm Protection and Dune Accretion Area along the beach between the State-mandated Setback Line and the actual line of habitable existing construction. The Town determined that dunes systems exist in this area between the OCRM Setback Line and the line of existing construction that could be developed. Therefore, in 2006, Town Council adopted a Resolution and Ordinance to create and define the Landward Barrier Line, define and designate a Critical Storm Protection and Dune Accretion Area and Transition Area, and limit the type of construction activities within these areas. These provisions were expanded and ultimately incorporated into the Town's Land Management Ordinance natural resource protection requirements referenced above when it was rewritten as the CPA-O and TA-O overlay zoning districts that help to protect the dunes and oceanfront properties by protecting the dunes and limiting the intensity of uses in these areas, which are included as an appendix to this plan.

The activities and uses permitted and prohibited in the CPA-O District are as follows:

All development is prohibited in the CPA-O District except the following permitted uses and activities:

- Boarded pathways as perpendicular to the beach as practical and not larger than six feet in width and their associated wooden deck not larger than 144 square feet (must comply with Sec. 16-6-103, Beach and Dune Protection);
- Beach renourishment;
- Emergency vehicular beach access; and
- Permitted beach maintenance activities such as sand fencing, re-vegetation with native plant material and erosion control.
- All activities and uses in the CPA-O District must also comply with all current local, State and federal laws.

The activities and uses permitted in the TA-O District are as follows:

- In addition to the activities and uses permitted in the CPA-O District (see Sec. 16-3-106.L.3), the TA-O District may include any uses that do not require enclosed space to operate. These activities and uses include, but are not limited to, swimming pools, boardwalks, fire pits, decks, required drainage improvements, and necessary utilities.
- The activities and uses in the TA-O District shall be located as far landward as possible. Activities or uses in the TA-O District shall be accessory activities or uses to the development to which they are directly seaward.
- Development in the TA-O District shall conform to the standards for impervious cover and open space for the underlying base zoning district.
- Activities or uses in the TA-O District shall not be on or in any part of a dune or dune system.

4.2.6 Other Regulations on Beach Management

Chapter 6 of the LMO also describes general standards, beach nourishment and erosion control standards, beach access standards, and dune protection standards.

- Standards for beach nourishment and erosion control detail requirements for fill materials; the use of natural features of the beach and dune system over artificial structures; limited approval of erosion control structures; interference with existing or planned public access to the beach; and timing of beach nourishment or construction of control structures.
- Beach access standards regulate elevated walkways; vehicular access to the beach; general public interest in development applications (such as the need for land acquisition for public use); and prohibitions on development adjacent to the beach that would cause net loss of any officially designated beach access. Beach access will be discussed later in more detail.
- Dune protection standards prohibit development on dunes with certain exceptions; prohibit primary dune destruction, disturbance or alteration with exceptions; restrict elevated walkways; allow vegetation planting and construction of wood, sand and wire fences; and prohibit removal, alteration or destruction of any dune protection structure. It also outlines when restoration or stabilization of existing dunes and creation of new dunes may be required for new developments and redeveloping properties.

Title 8 of the Town of Hilton Head Island Municipal Code is the Town's Beach Ordinance. It covers activities which are prohibited or regulated on the beach, defines Designated Areas, and regulates enforcement. In order to ensure the public health, safety and welfare of individuals using the beach, the following activities are regulated or prohibited by the Town's Municipal Code:

- Prohibited: vehicles, para-sailing, glassware, horses on the beach, interfering with marine life and wildlife, indecent exposure, disorderly conduct, unauthorized wearing of lifeguard emblems, littering, possession or consumption of alcoholic beverages, and open containers.

- Regulated: operation of motorized watercraft, sand sailing, kites, sleeping on the beach, animals, shark fishing, fires, firework discharge, disturbing the public peace, and franchising commercial activities on the beach.

In addition, the Town contracts with two organizations for beach safety; the Beaufort County Sheriff's Office to provide law enforcement and security on the beach and Shore Beach Services to provide a patrol boat and rescue jet skis, life guards (9:00 a.m.-5:00 p.m. from Memorial Day weekend through Labor Day weekend), litter patrol, and beach rental items (chairs, umbrellas, paddleboats, sailboats, fun cycles, sailboards, etc.) Beach markers were also installed as part of the Sea Turtle Program every 0.1 miles along the beachfront. These markers are used to help identify beach access points.

The Town of Hilton Head Island is proactive on educating the public on the accessibility of its beaches. This includes information on access locations, parking rules, swimming areas, beach rules, pathways, and beach renourishment. In addition, the Town's Facilities Management Division operates and maintains the beach parks, including overseeing contracts for life guards, boat rentals, and litter patrol; collecting beach fees; park security; and public relations. Kiosks are being installed at several parks, and beach rule signs have been posted at every public access point. In addition, South Carolina Department of Transportation signs assist in directing beach-goers to the various parks.

Brochures and other information locations produced or funded by the Town include:

- Island Pathways Brochure
- Island Parks Brochure
- Beach Renourishment Brochure
- Resident and Visitor Guide to Hilton Head Island's Beaches
- EcoMap (funded with Southeastern Ecological Institute)
- Sea Turtle Information Brochure
- Website *www.hiltonheadislandsc.gov*

5 - EROSION CONTROL & MANAGEMENT

When the Town was incorporated in 1986, the need for a beach management strategy was also identified. A Shore Protection Task Group was created, along with a semi-annual beach monitoring program. The beach monitoring results revealed areas of highly erosional shoreline and sediment deficits that placed upland areas at risk along certain areas of the beach. The Town evaluated alternatives including no action and encouraging individual property owner's to protect their properties from potential beach erosion impacts. This led to the identification of an initial program philosophy of restoring and maintaining the entire beach system with a comprehensive approach and a program was developed by the Town that included comprehensive beach restoration, comprehensive beach

monitoring, strategic use of shoreline stabilization structures to improve performance/increase longevity of beach nourishment, use of near-island sand sources, as available, and attempts to control seaward advancement of development and protect beach/dune resources. The benefits of this program include:

- Recreational – Provides/maintains recreational amenity for visitors and residents of the Island.
- Storm/Erosion Protection – Provides/maintains buffer between the ocean and upland.
- Environmental – Maintains beach habitat for turtles, birds, etc.
- FEMA Benefits – Can help decrease storm damage.

This program has been highly successful. The performance of nourishment projects has far exceeded program expectations and there have been island-wide improvements in beach and dune conditions.

FIGURE 18: HILTON HEAD ISLAND BEACH EROSION NEAR PORT ROYAL SOUND

5.1 SHORELINE CHANGE ANALYSIS

The Beachfront Management Act defines three types of shoreline zones. A standard erosion zone is a segment of shoreline which is not directly influenced by the inlet or associated shoals. An unstabilized inlet erosion zone is a segment of shoreline along or adjacent to a tidal inlet which is directly influenced by the inlet and its associated shoals and which is not stabilized by jetties, terminal groins or other structures. A stabilized inlet erosion zone is a segment of shoreline along or adjacent to a tidal inlet which is directly influenced by the inlet and its associated shoals and which is stabilized by jetties, terminal groins or other structures.

In accordance with the Beachfront Management Act, Hilton Head Island is divided into 3 inlet erosion zones and 2 standard erosion zones. These zones are defined and described from south to north according to the numbering system of the State's beach monitoring network. The location of each monitoring monument and zone designation is shown in Figure 19 - Beach Control Monuments & Erosion Rate Zones. Each of the inlet zones are unstabilized by terminal groins, jetties or other types of shoreline armor.

5.1.1 Beach Profiles

There are 45 beach monitoring stations on Hilton Head Island that were surveyed in March 2014. Stations 1400-1406 show a low-lying dune field hundreds of feet wide at the southwest end of the island. Profiles at stations 1409-1436 in Sea Pines and South Forest Beach show a well-established dune field, with crests of 12-15 ft., and a wide high-tide sand berm. Stations 1437-1448 in North Forest Beach and Shipyard Plantation exhibit a similar beach profile with a wide beach and a dune crest peaking at 15 ft. At stations 1451 and 1454 in the southern end of Palmetto Dunes, the dune field becomes even wider, and stations 1456-1466 in the remaining section of Palmetto Dunes also have a mature dune field and wide dry-sand beach. In many places three distinct rows of sand dunes have formed seaward of the oceanfront houses. Stations 1468 and 1469 at Singleton Beach and also station 1472 on the other side of The Folly at Burkes Beach all have a wide dune field and dry-sand beach.

Stations 1474-1478 are located on Bradley Beach and Folly Field Beach. At stations 1474-1477 the dune field remains wide but becomes narrower and flatter at station 1478. The area to the northwest, where stations 1481 and 1484 are located in Port Royal Plantation, became highly erosional around 10 years ago. At that time an offshore sand shoal called Joiner Bank had dissipated, resulting in higher-energy waves reaching the shoreline and causing extreme erosion. The Town of Hilton Head Island responded to this situation by constructing a groin and a beach renourishment project here in 2011. The project has stabilized the beach, and the most recent profile data shows a 300-ft wide shelf of dry sand seaward of the vegetation line.

Stations 1487-1493 are located in Port Royal Plantation, along the Port Royal Sound shoreline up to Fish Haul Creek. Profiles here show a wide beach with a low-lying dune field, and the offshore portion of the profiles also show massive sand bars associated with the channels of Port Royal Sound. Station 1496, on the inland side of Fish Haul Creek, is far enough into Port Royal Sound to be out the state's beachfront jurisdiction. This is a typical estuarine shoreline, with a minimal sand beach.

Beach profile and volume over time graphs for representative monuments of each erosion zone are provided in Figures 20-27.

FIGURE 19 - BEACH CONTROL MONUMENTS & EROSION RATE ZONES

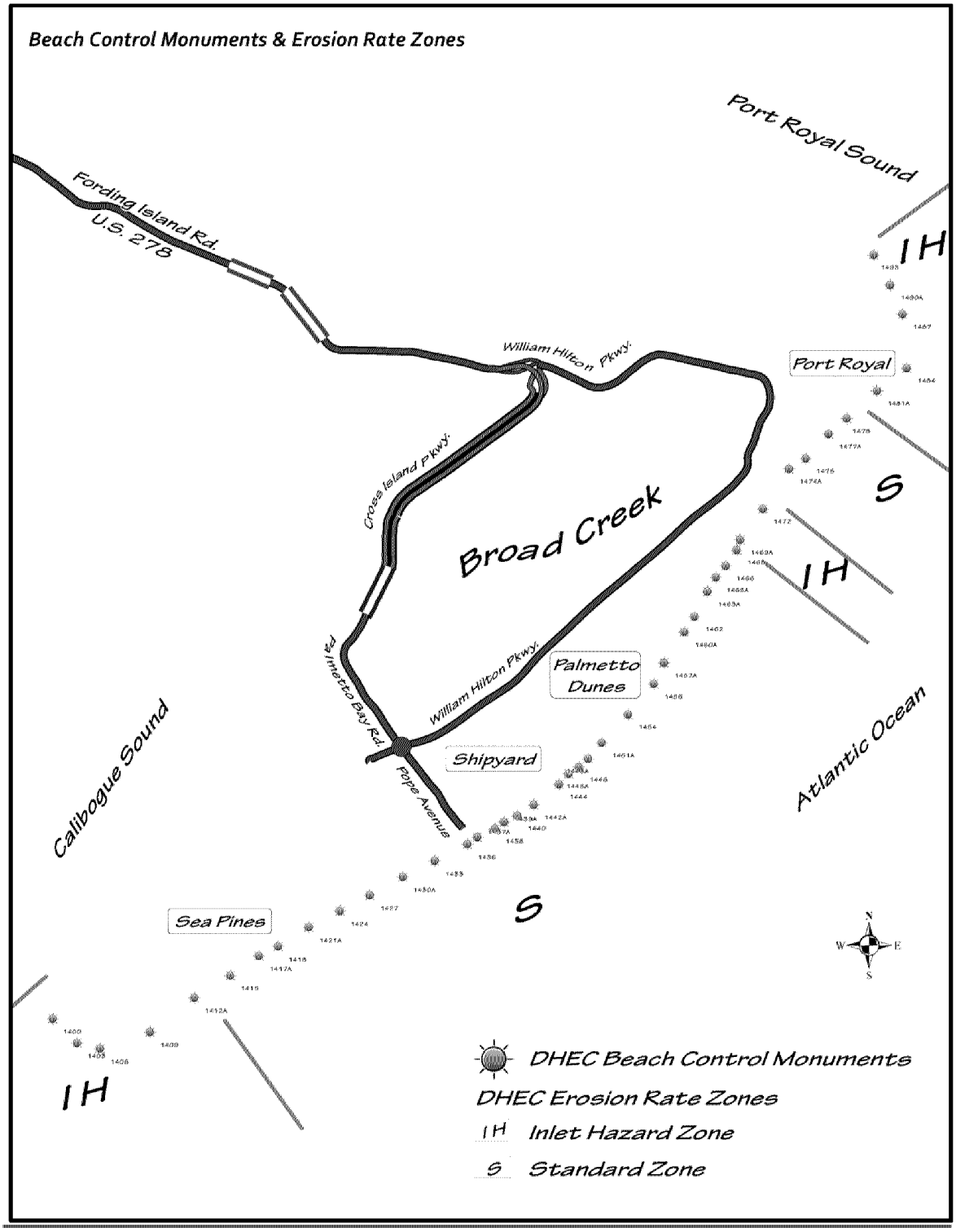
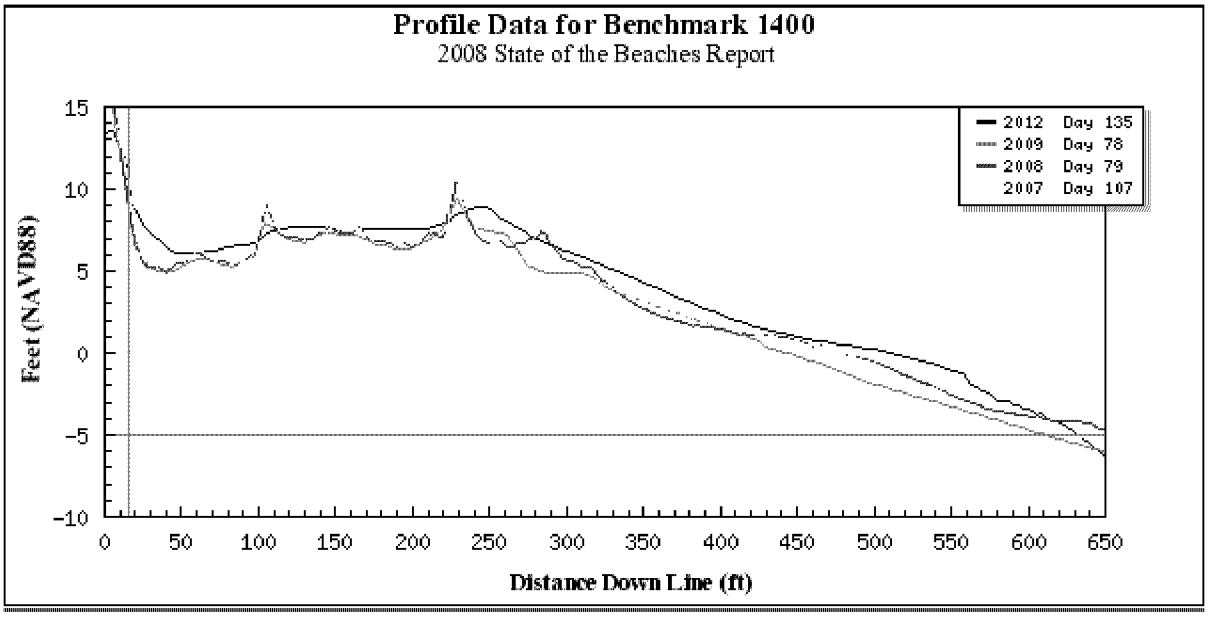


FIGURE 20: BEACH CONTROL MONUMENT 1400



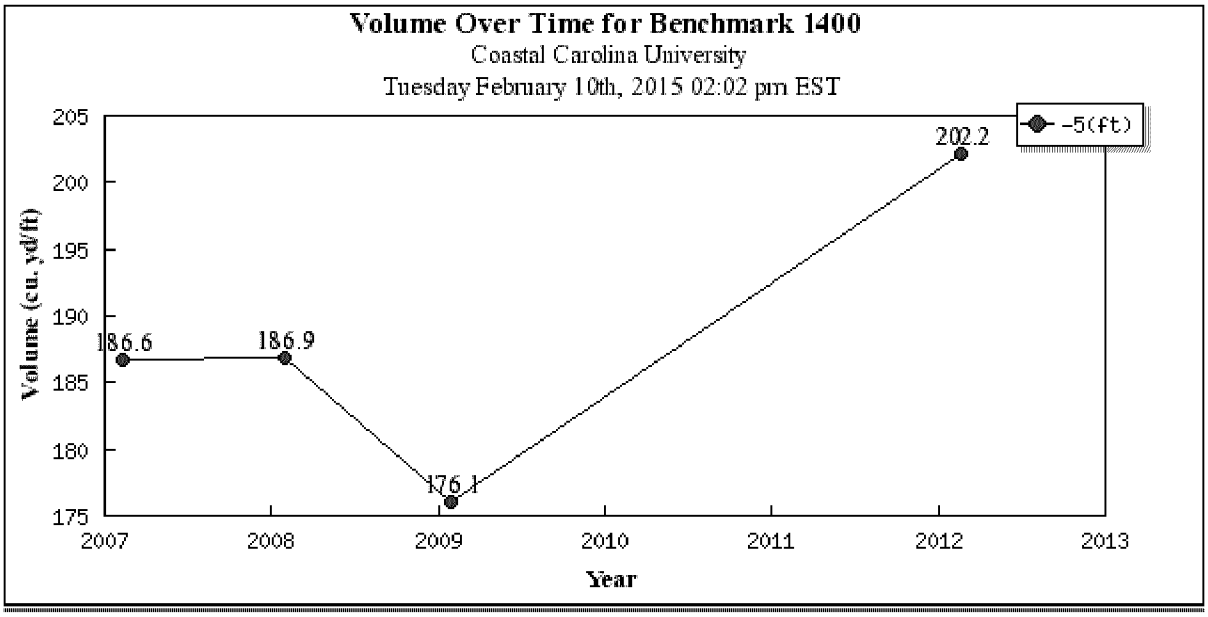
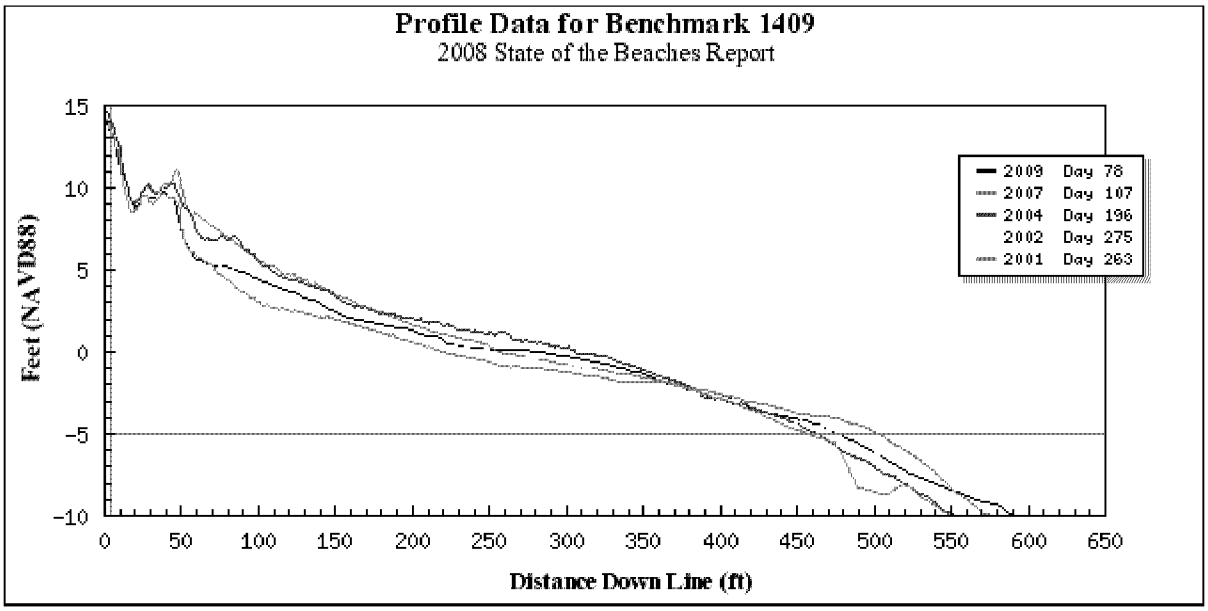


FIGURE 21: BEACH CONTROL MONUMENT 1409



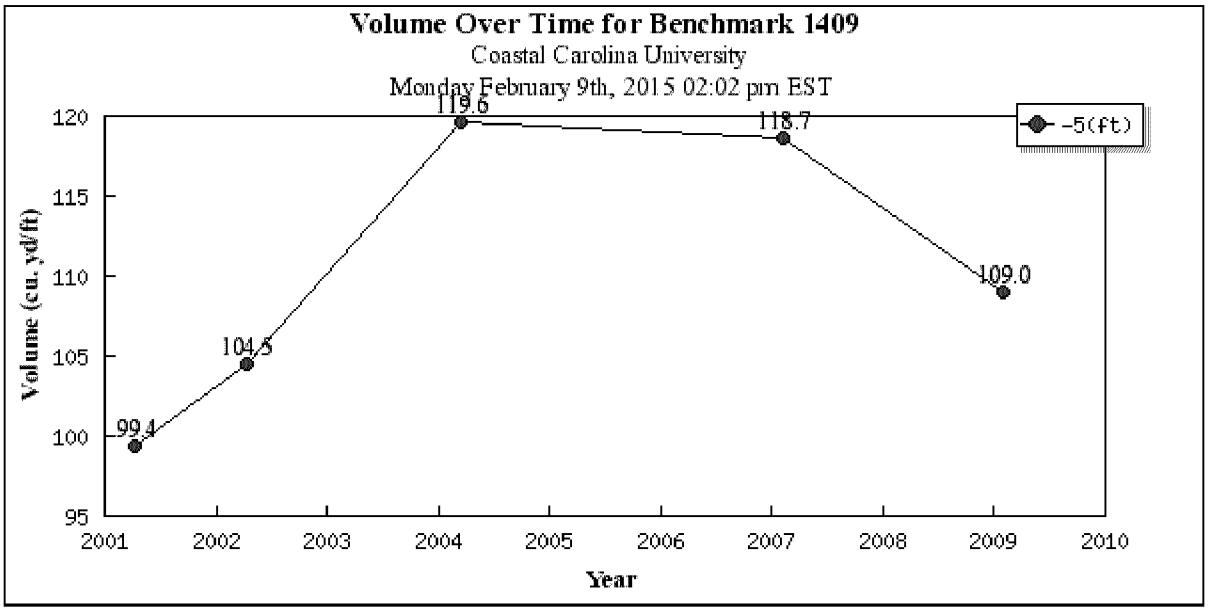
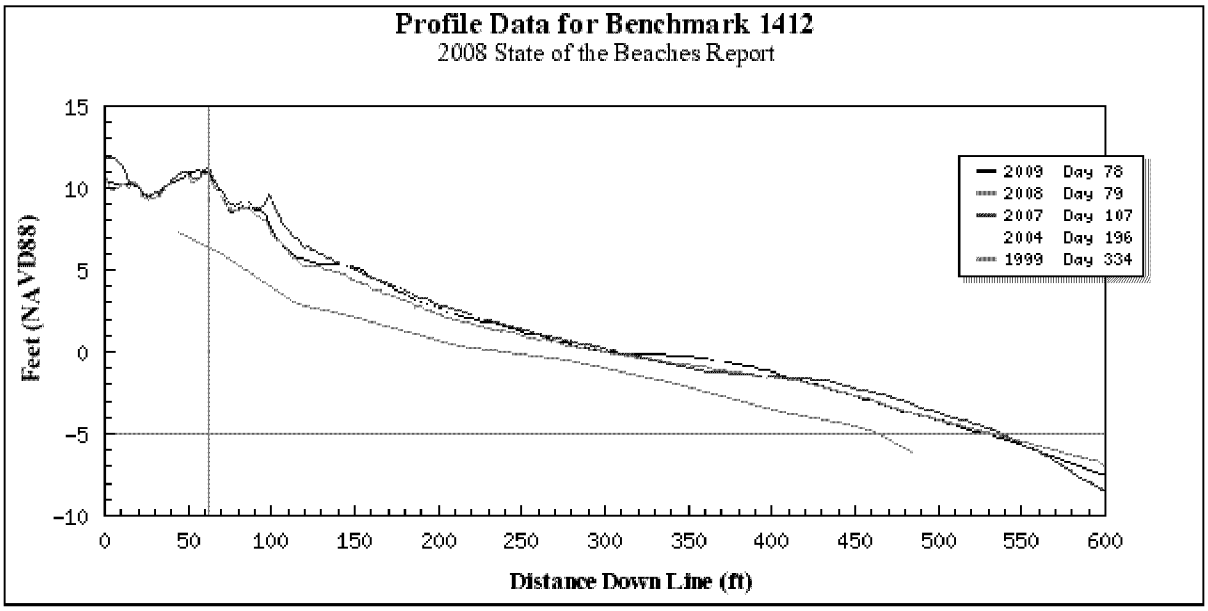


FIGURE 22: BEACH CONTROL MONUMENT 1412



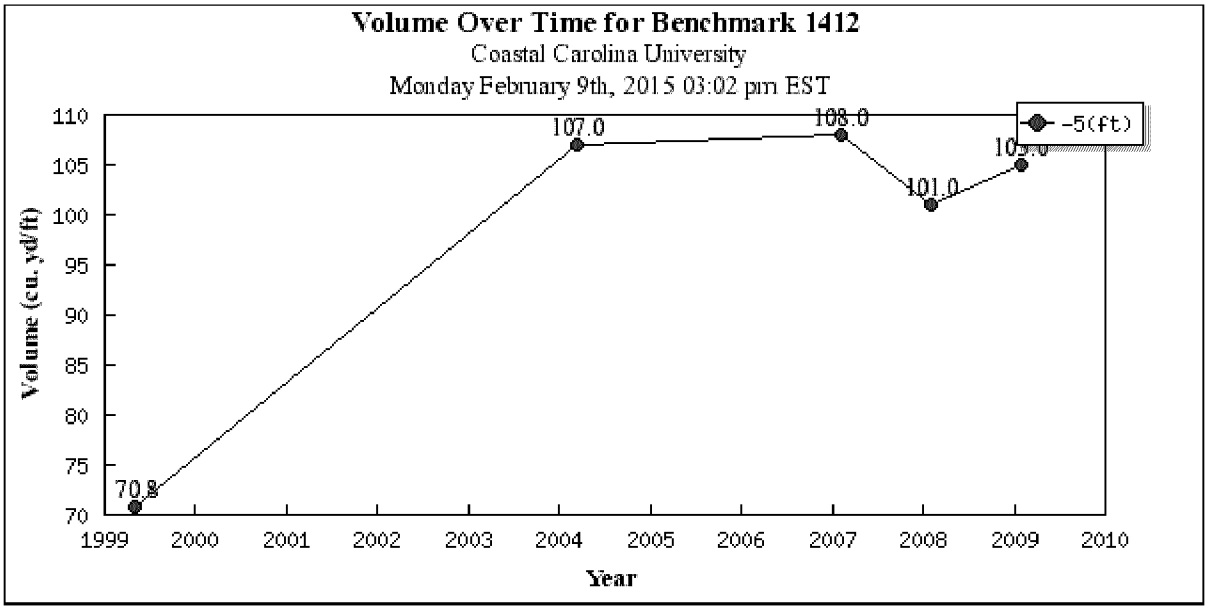
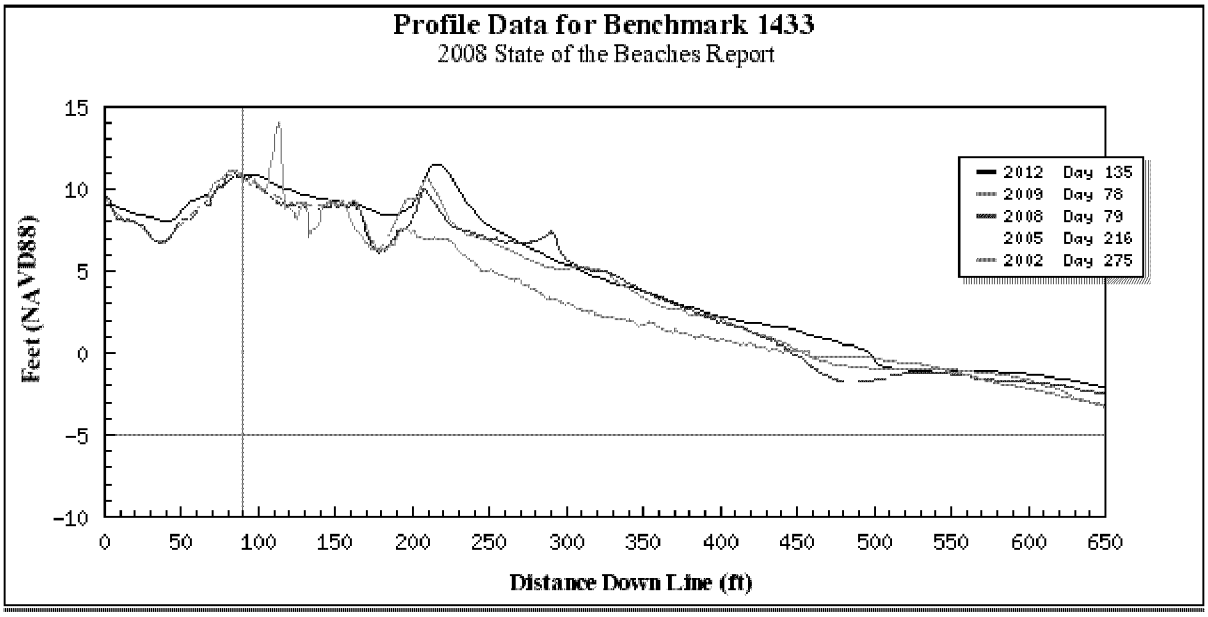


FIGURE 23: BEACH CONTROL MONUMENT 1433



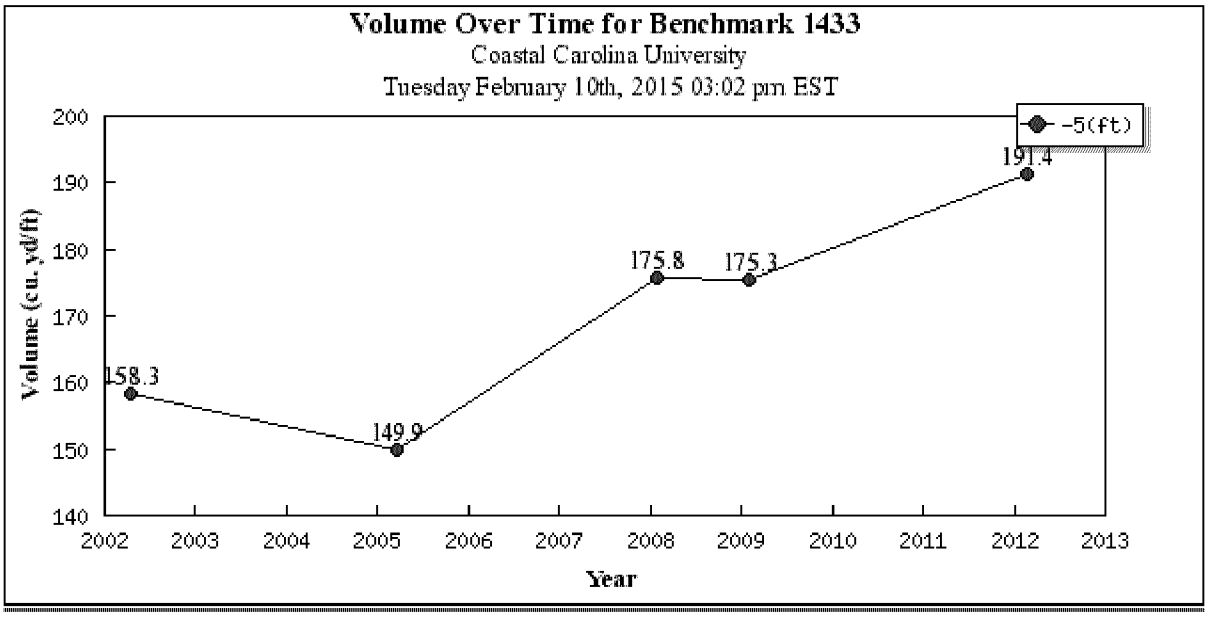
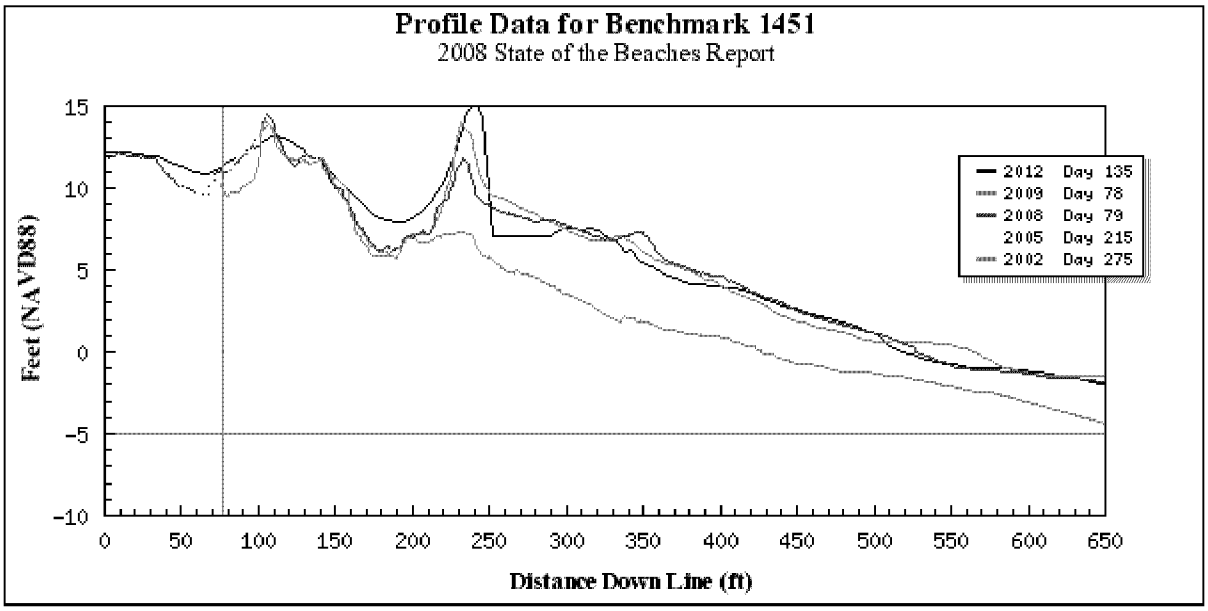


FIGURE 24: BEACH CONTROL MONUMENT 1451



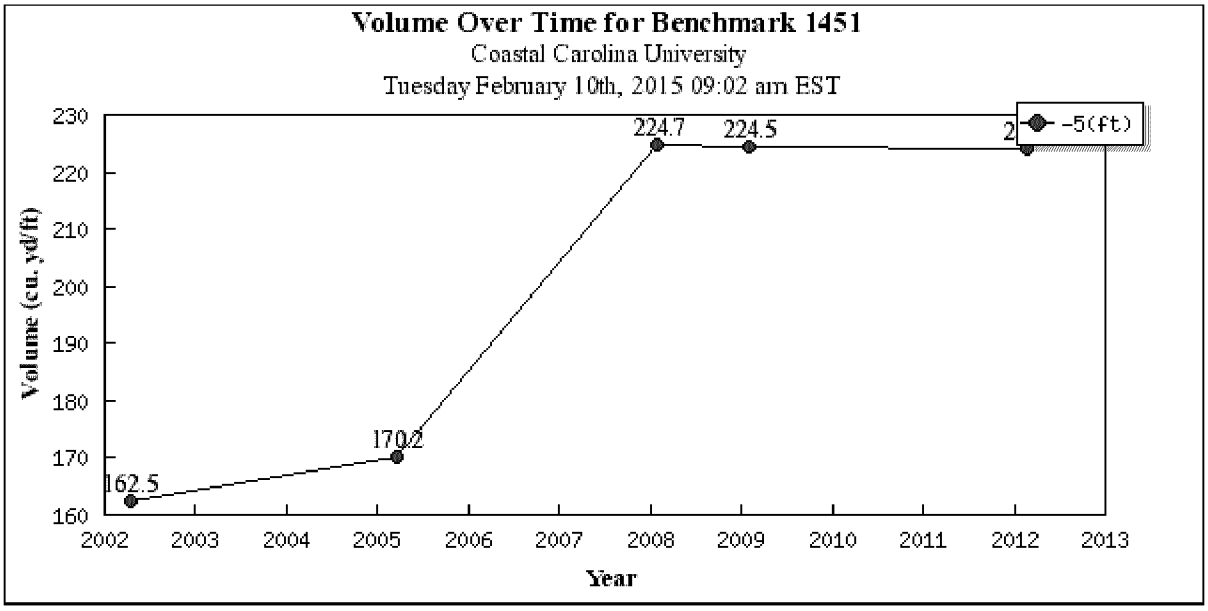
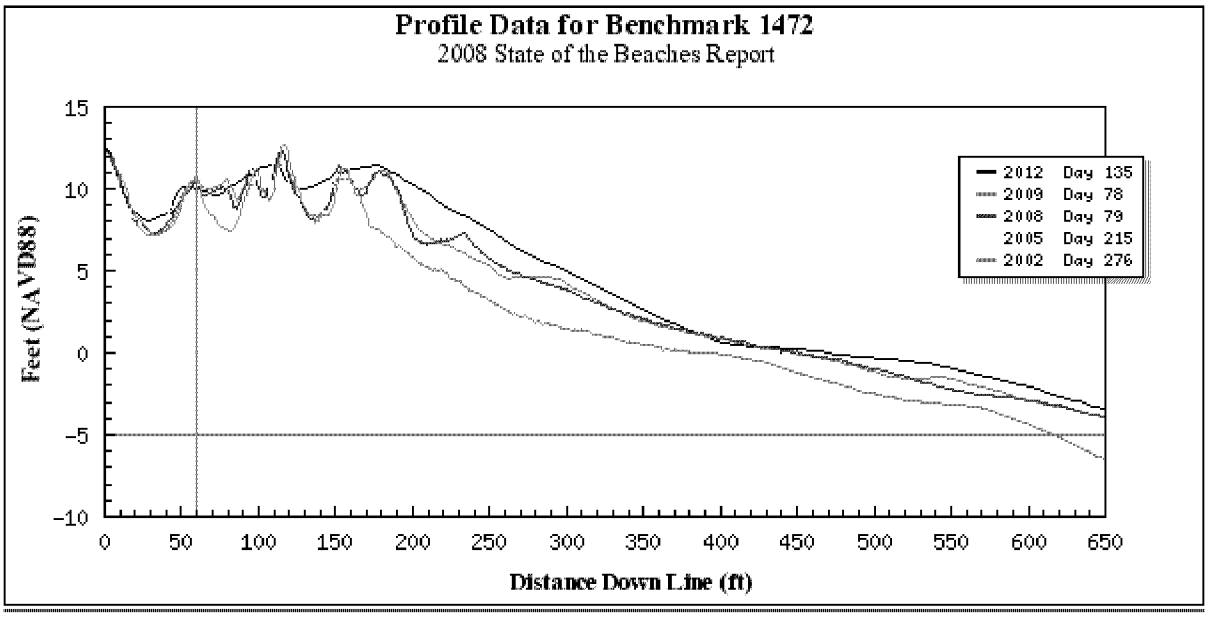


FIGURE 25: BEACH CONTROL MONUMENT 1472



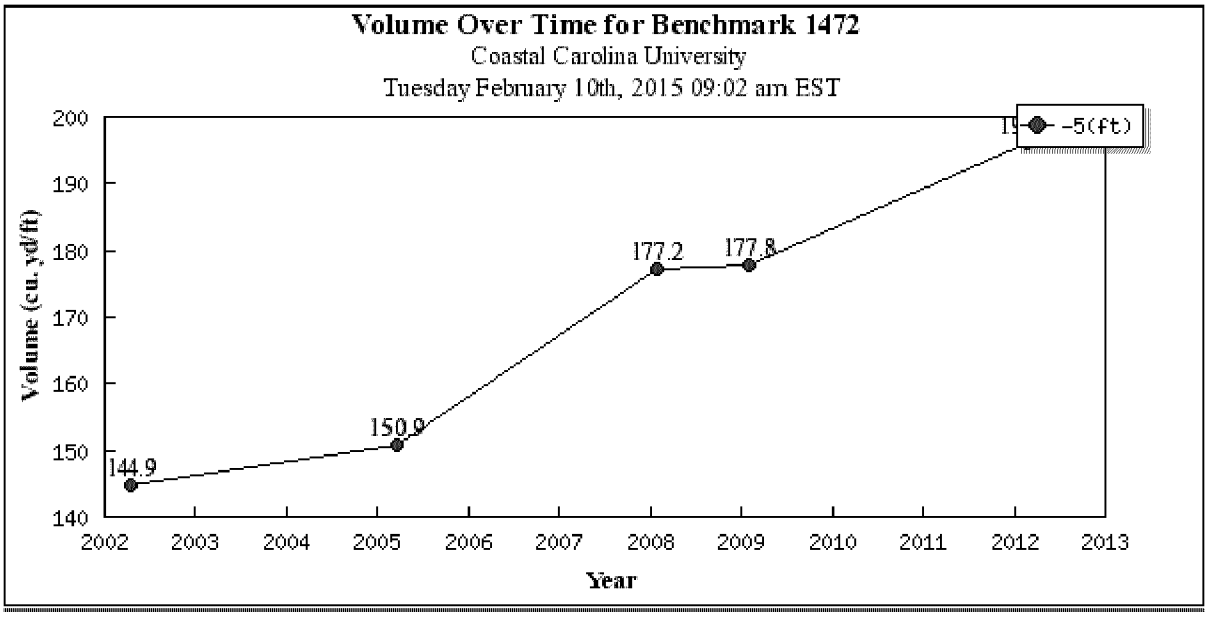
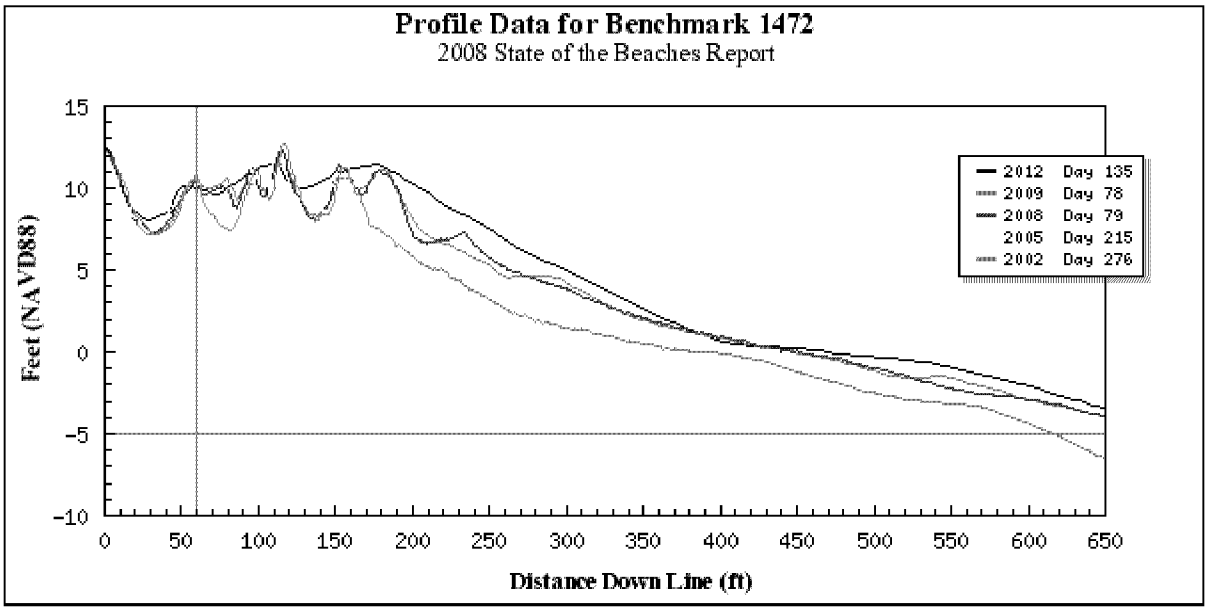


FIGURE 26: BEACH CONTROL MONUMENT 1478



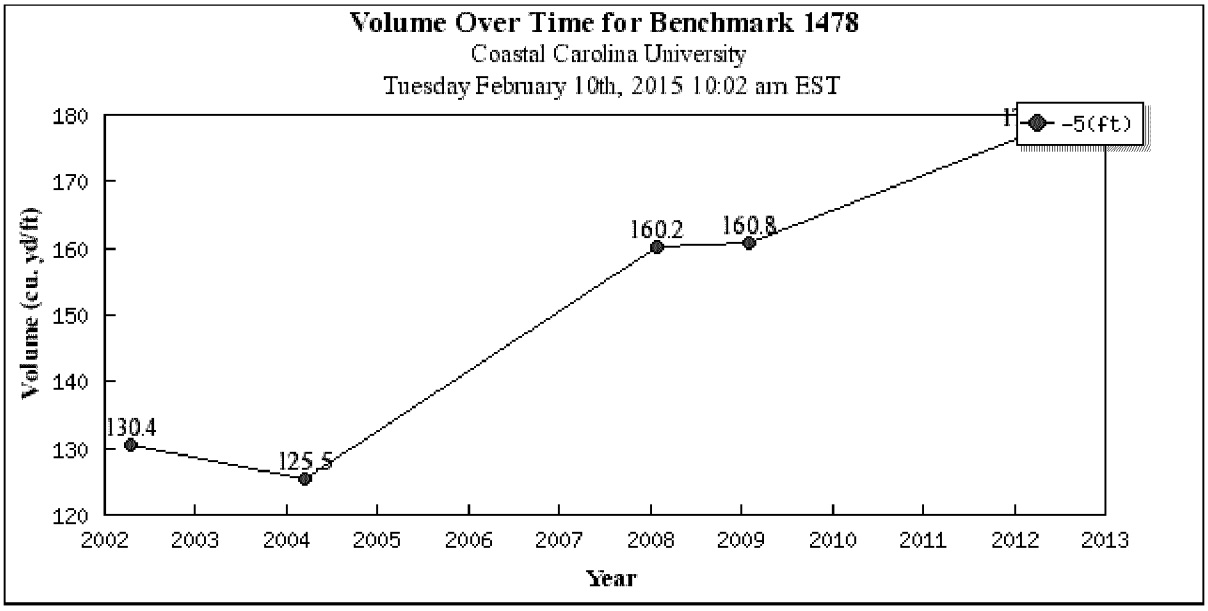
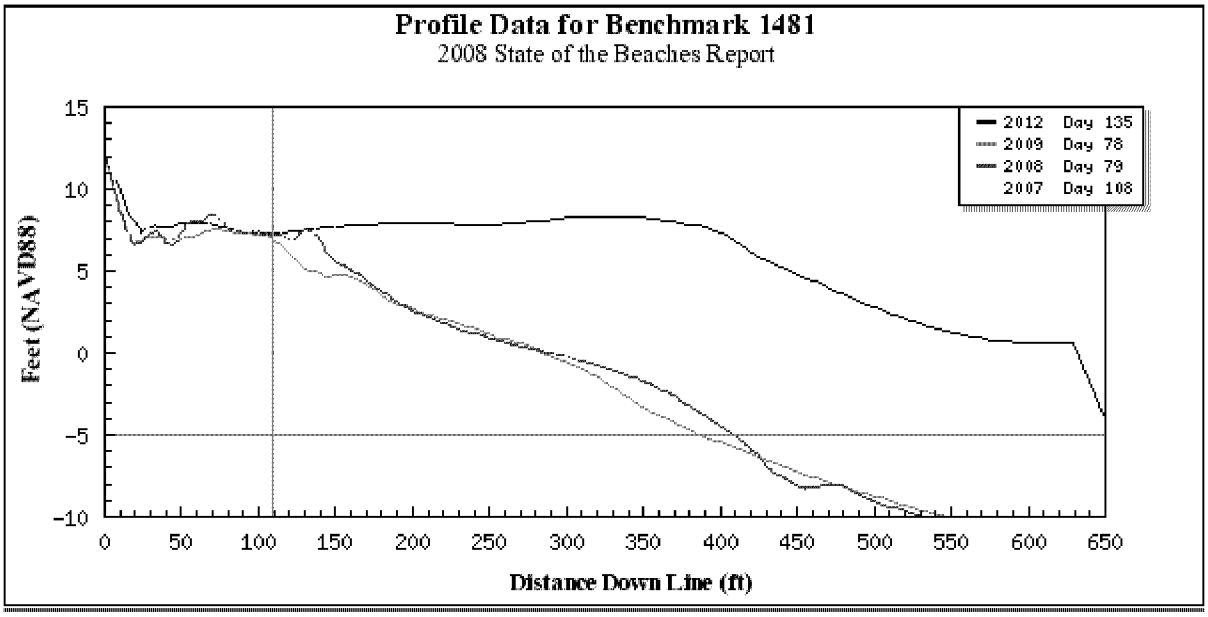
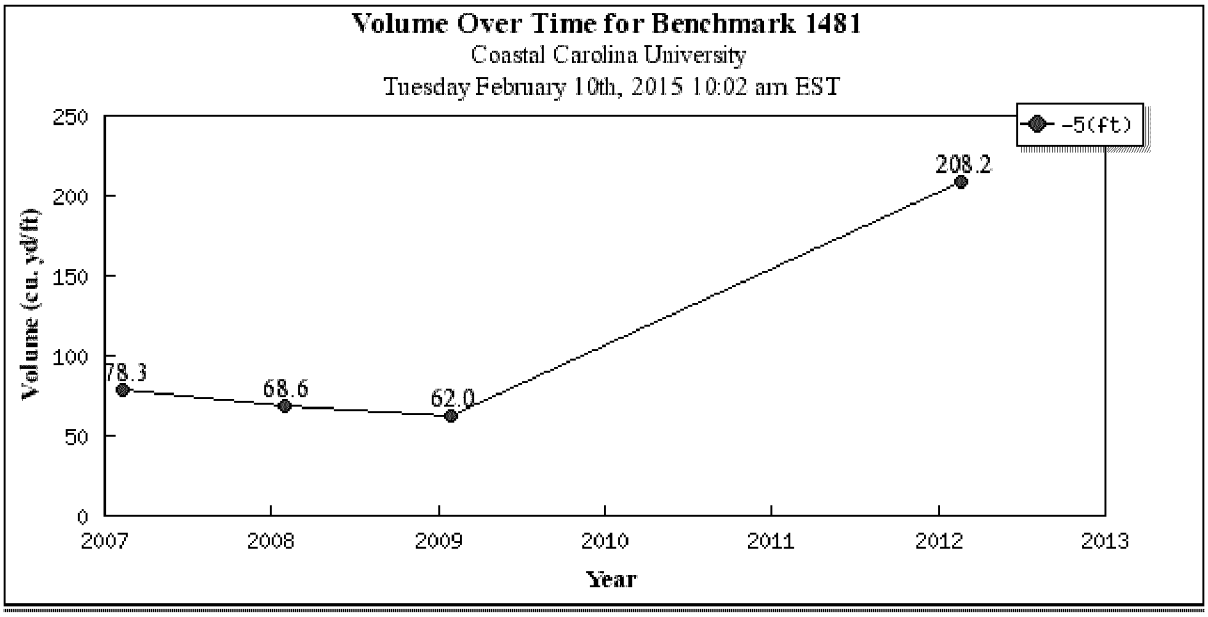


FIGURE 27: BEACH CONTROL MONUMENTS 1481





5.1.2 Long Term Erosion Rates and Shoreline Change

Hilton Head Island can be divided into five geomorphologic reaches, which are each discussed below:

The portion of Sea Pines Plantation bordering on Calibogue Sound is an unstabilized inlet zone, subject to the influence of the Sound and tidal processes. This section of shoreline is historically accretional.

The second zone on Hilton Head is a 10 mile-long standard zone that extends from station 1412 in Sea Pines Plantation to station 1469 just south of the Folly. This area includes South Forest Beach, North Forest Beach, and Palmetto Dunes. Long-term shoreline change rates vary in this zone. They are generally accretional for the area south of Coligny Circle and also north of Coligny Circle up to Lark St. Beyond Lark Street the beach becomes erosional up to Singleton Swash, with the rate of erosion increasing with distance from the Circle and reaching a maximum of -7 ft. per year in Palmetto Dunes.

The third zone on Hilton Head is a 2,200-ft long unstabilized inlet zone, located on either side of the Folly. Stations 1468, 1469 and 1472 are the monitoring stations in this reach, which historically was very dynamic because of the inlet channel. However, a small jetty constructed on the south side of the Folly in 1997 has helped stabilize this region. Long-term erosion rates here are around -6 ft. per year.

The fourth zone is a 1.3 mile-long standard zone that extends from just north of Burke's Beach Road to the Westin Hotel and includes stations 1474 through 1478. Long-term shoreline change rates here are stable to -3 ft. per year of erosion.

The fifth zone is an unstabilized inlet zone that includes all of the Port Royal Plantation shoreline. Survey stations 1481 through 1496 are located here. Stations 1481 and 1484 on the Atlantic Ocean shoreline are accretional on decadal time scales, but experienced extreme erosion in recent years. A new groin was built here in 2011 to stabilize the beach. Stations 1487-1496, on the Calibogue Sound shoreline, have long-term erosion rates of -1 to -5 feet per year.

The long-term erosion rates adopted by the State are shown in Table 5.

Table 5:
2015 Annual Erosion Rates for Current Beachfront Baseline
DHEC-OCRM,

Station	Erosion Rate (ft./yr.)	Station	Erosion Rate (ft./yr.)	Station	Erosion Rate (ft./yr.)	Station	Erosion Rate (ft./yr.)
1400	20.80	1433	3.90	1454	-4.76	1475	-1.71
1403	11.29	1436	3.71	1456	-5.45	1477A	-0.59
1406	10.43	1437A	3.58	1457A	-5.94	1478	0.69
1409	S/A	1438	2.99	1460A	-6.17	1481A	0.69
1412A	S/A	1439A	2.89	1462	-6.69	1484	1.94
1415	S/A	1440	2.30	1463A	-6.59	1487	-0.36
1417A	S/A	1442A	0.89	1465A	-6.33	1490A	-0.33
1418	S/A	1444	-0.95	1466	-6.23	1493	-2.00
1421A	S/A	1445A	-1.80	1468	-5.84		
1424	2.20	1446	-2.30	1469A	-5.64		
1427	3.97	1448A	-2.76	1472	-4.69		
1430A	4.17	1451A	-3.02	1474A	-2.72		

5.2 BEACH ALTERATION INVENTORY

Although the Town's preferred approach to shoreline stabilization is beach renourishment, historic efforts to stabilize the Island's shoreline have resulted in structures being installed by various entities at six locations along the Island's shoreline.

Existing Shoreline Stabilization Structures

South Beach Groins:
Seven shore-stabilizing structures presently exist along the southern extremity of the Island within Sea Pines. Six of these structures constitute the groin field found along South Beach's ocean-facing shoreline, while the seventh structure is a terminal groin commonly called the Land's End Groin, located immediately adjacent to the Braddock Cove tidal creek. These structures were installed during the late 1960's and 1970's by Sea Pines Company.

North Forest Beach Armoring:
In conjunction with the development of this residential area in the 1960's and prior to the adoption of the S. C. Beachfront Management Plan and DHEC OCRM setback line in the 1980's, over a mile of various forms of armoring was constructed along the North Forest Beach shoreline by property owners. Typical types of armoring ranged from walls, to granite rip rap and concrete rubble, most of which was placed in

an undesigned fashion on an as-needed basis. As a result of the Town's renourishment efforts, this zone of shoreline hardening has been effectively isolated from normal day to day wave and tide impacts by beach fill projects conducted in 1990 and 1997. Since the section of central Hilton Head Island shoreline extending from North Forest Beach to the present day Marriott Hotel naturally experiences the most erosional stress, it is deemed to be an important trigger for beach restoration activities.

Marriott Hotel Sloping Concrete Revetment with Seawall:
The existing Marriott Hotel complex (formerly the Hyatt Hotel) is an example of the placement of a major habitable shorefront structure at the natural dividing point along Hilton Head Island's littoral system. A massive sloping concrete revetment with seawall was constructed in conjunction with and upland of the original project, clearly acknowledging that the hotel complex would be subjected to wave and tide impacts. However, what may not have been realized was the magnitude for potential chronic shoreline recession at that location. A Littoral Transport Study of the island's oceanfront shoreline (Olsen, June, 1996) confirmed that the natural dividing point for littoral transport lies in the vicinity of the hotel and that phenomenon has been partially responsible for increased background erosion rates measured at that location. Although two previous beach renourishment projects have overtly sought to both reduce erosion vulnerability at the Marriott hotel site and to maximize post-construction beach widths sufficient to address high intensity recreational demand, it is recognized that a comprehensive solution is neither practical nor cost-effective seaward of the hotel complex. It is acknowledged that erosion of this area will occur faster than other areas along the shoreline; however due to the specific nature of this area, such an occurrence will not be used as the trigger for a large scale renourishment, like erosion in the North Forest Beach area.

Folly Terminal Groin:
A relatively short rock terminal groin was built along the west side of the small tidal inlet known as the Folly, as part of the 1997 renourishment project. The primary purpose of the structure was to allow beach restoration operations to occur in close proximity to the Folly (westward of the inlet only) without increasing the probability of closure due to project induced shoaling. DHEC OCRM permits for beach nourishment on Hilton Head Island, require that the Folly "must be kept in an open and flowing condition" since the tidal inlet is connected to a small isolated estuarine area deemed to be an important environmental resource. Accordingly, maintenance of the groin structure at its current location and approximate existing configuration is an important mechanism for minimizing fill impacts at this location of the island. Conversely, the eastern limit of the Folly has remained unstabilized and beach fill operations at that location are not allowed to encroach toward the inlet.

Port Royal Plantation Groin Field:
Along the Port Royal Shoreline, 17 shore perpendicular groins and two shore parallel rock revetments were constructed between 1969 and 1974. The 17 groins were constructed of varying mixes of small, medium and large granite stone. Some groins included concrete rubble. The two remaining groins,

located at the southeastern most section of the Port Royal Sound shoreline, were constructed of palm tree trunks combined with granite stone. It is estimated that these two structures were constructed around 1960. The groins' lengths vary from about 100 to 600 feet and the spacing between groins varies from approximately 165 to 850 feet.

Town/SPA Breakwaters:
As part of the 2006 Beach Renourishment Project, a new section of Port Royal Sound facing shorefront received limited beach fill to the northwest of Fish Haul Creek. As a complement to the small sand fill, six small rock detached breakwaters were constructed seaward of the limits of sand placement. The purpose of the rock breakwaters is to extend the life (and performance) of the very small isolated fill project. The structures are likewise intended to reduce sand migration from the fill towards Fish Haul Creek. Subsequent to rock placement, marsh vegetation was planted in the lee of each structure to further encourage long term natural stabilization along this shoreline which is at the transition point from sandy beach to an estuarine environment. It should be noted that this shore stabilization project is not located within the DHEC OCRM Beach/Dune Critical Area, but serves to more evenly distribute beach access points throughout the Island.

Town/Port Royal Groin:
A new section of Port Royal Sound facing the Atlantic shorefront received limited beach fill and a 700 foot long rubble mound terminal groin at the northeastern end of the project. The groin is low crested and mostly buried. The purpose of the rock breakwaters is to extend the life (and performance) of the small isolated fill project.

Beach Renourishment

In 1980, United States Army Corps of Engineers (USACE) issued a permit for the deposition of 300,000 cubic yards of sand along approximately 14,000 linear feet of the beach to Sea Pines Company. The renourishment sand was transported from the permitted dredging project of Shelter Cove Marina, located mid-island on Broad Creek, as a result of its compatibility with existing beach front sand. A Palmetto Dunes Resort project was the only renourishment project on Hilton Head Island permitted by the USACE and certified by the South Carolina Coastal Council prior to 1990, and predates the incorporation of the Town.

In 1990, the Town of Hilton Head Island undertook a nourishment project that was jointly funded by the State and the Town. This project involved the placement and contouring of as much as 2.5 million cubic yards of compatible sand along 35,000 linear feet of the beach. This renourishment project covered an area of the beach from just north of the Westin Hotel to south of Coligny Circle, with a small area excluded around the Folly. The sand was excavated and placed by hydraulic dredge from two offshore borrow sites located at Joiner and Gaskin Banks.

In 1997, the Town performed another renourishment project located very similarly to the 1990 project; however, this project addressed an additional 1.5 mile segment along Port Royal Sound, the reconfiguration of a tidal channel and the installation of sand fencing and native vegetation to encourage dune formation and stabilization.

In 1999, another renourishment project was permitted for emergency work to renourish along the South Beach shoreline as the preferred solution to the localized erosion problem which was occurring at that time. This fill was placed over the South Beach groin field rather than maintaining the structures themselves.

In 2007, the Town finished a $16.6 million project that was similar to the projects constructed in 1990 and 1997, with the exception of certain design refinements near the Marriott and along North Forest Beach. In addition, the Town elected an area near Fish Haul Creek along the shoreline of Port Royal Sound due to chronic erosion. This project placed about 2 million cubic yards of sand along 6.6 miles of Atlantic shorefront, from just south of Coligny Circle to just north of the Westin Hotel at Port Royal Plantation, 85,000 cubic yards of sand along 2,000 feet of the Port Royal Sound shoreline north of Fish Haul Creek at the Spa, and 42,000 cubic yards of sand along 1,500 feet of Atlantic Shorefront at South Beach. As with previous projects, the nourishment sand was excavated by hydraulic dredge from two offshore shoal features.

The 2011-12, beach renourishment project was a smaller scale project that built up the beach from just north of The Westin Resort to the Beach House in Port Royal Plantation. The 9.8 million dollar project included two principal parts: The placement of about 1.0 million cubic yards of sand along 1.0 miles of Atlantic shorefront and the construction of a 700 foot long rubble mound terminal groin at the northeastern end of the project. The groin is low crested and mostly buried.

The 2016 beach renourishment of the Atlantic oceanfront shoreline is expected to be similar to the projects constructed in 1990, 1997 and 2006 and is estimated to cost over $20 million dollars, will also include sand placement along localized portions of previously restored shoreline in Port Royal Plantation and the area just north of Fish Haul Creek on Port Royal Sound.

The planned 2016 renourishment project will include four principal parts:

1. Placement of about 1.3 million cubic yards of sand along 5.5 miles of Atlantic Ocean shorefront from just South of Coligny Circle to The Folly tidal inlet at Singleton Beach,
2. Placement of about 0.5 million cubic yards of sand along 7,000 feet of the Atlantic Ocean and Port Royal Sound shorelines in northern Port Royal Plantation,
3. Placement of about 0.3 million cubic yards of sand along 5,000 feet of Atlantic Shorefront in southern Sea Pines near South Beach, and

4. Placement of up to 60,000 cubic yards of sand along 2,400 feet of the Port Royal Sound shoreline north of Fish Haul Creek in the vicinity of the Fish Haul Park, Mitchelville Beach Park and The Spa of Port Royal.

FIGURE 28: 2016 BEACH RENOURISHMENT MAP

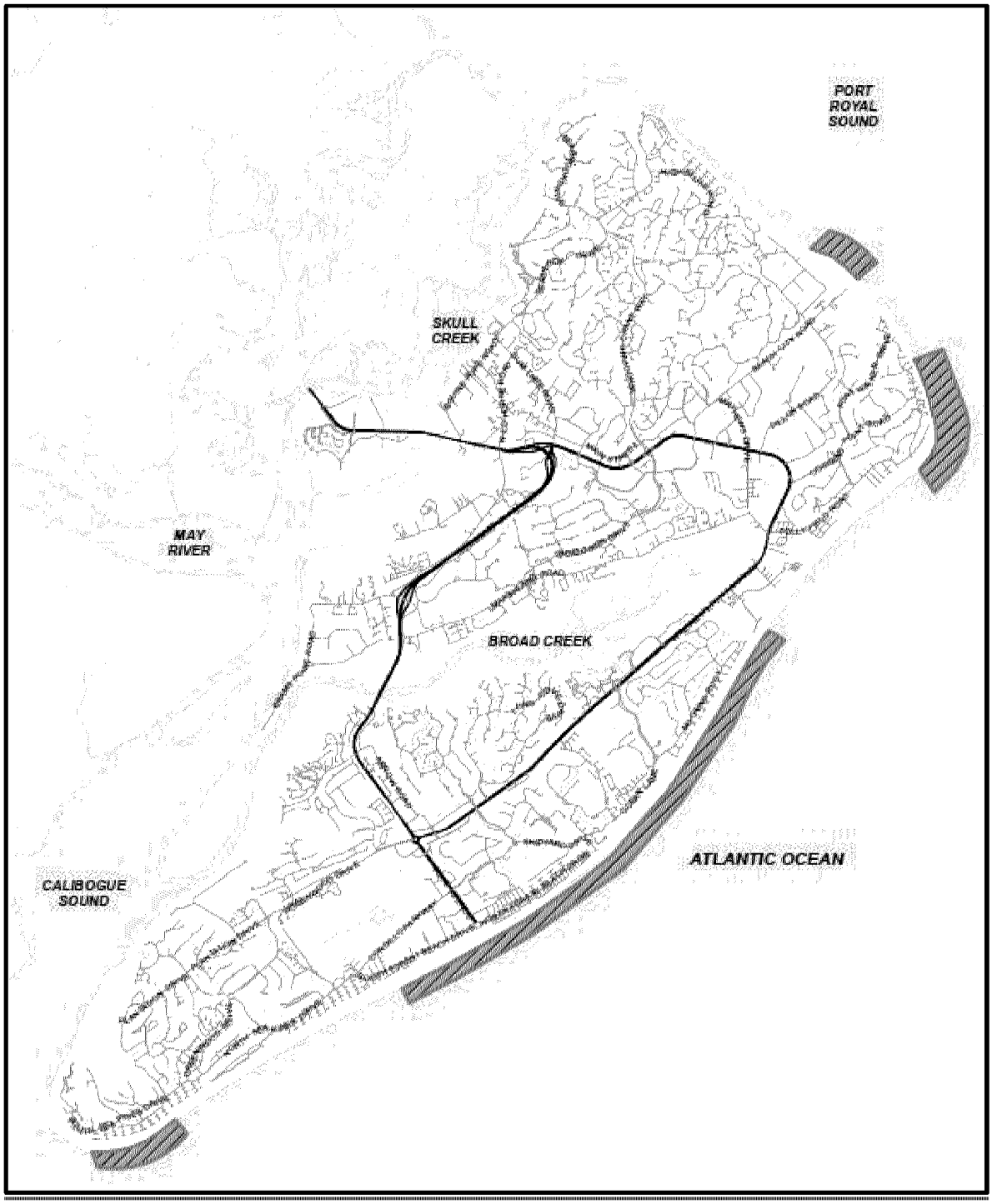


FIGURE 29: PRE-1990 SHORELINE AND 2006 PROJECT COMPLETION

5.3 EROSION CONTROL ALTERNATIVES

Since about 1986 a fundamental tenet of the Town's beach management strategy is that reliance upon "*hard*" structures should be minimized. Prior to the initiation of beach restoration through nourishment, different types of hard structures implemented for shore stabilization by the private sector (*i.e.* homeowners, developers, hotels, P.O.A.'s, etc.) have typically consisted of structures such as groins and seawalls or bulkheads. For the purpose of evaluation, two basic types of shoreline stabilization techniques have been considered: hard and soft shoreline treatments. In 2005, Olson and Associates prepared a white paper on shoreline stabilization structures that included the following evaluation of alternatives for both "hard" and "soft" erosion control techniques.

"Armoring consists of shoreline *hardening* through the application of bulkheads, seawalls or revetments.

- Bulkheads are vertical retaining walls designed to hold or prevent soil from sliding waterward.
- Seawalls are usually massive, vertical designed structures used to protect backshore areas from heavy wave action. In highly erosive conditions or exposed locations they may separate land from water.

- Revetments provide a sloping protective cover of erosion resistant material to protect a shorefront from waves and/or strong currents. They can be solid (*i.e.* sloping concrete for example), but most typically are comprised of a designed cross section of natural rock (like granite), or on less frequent occasions manmade type armor units.

Although armoring may be successful in limiting or reducing the extent of horizontal shoreline recession along a chronically eroding shorefront, it does *not* serve to alleviate deflation (*i.e.* vertical erosion) of the beach profile seaward. Hence, armoring is considered to be net impactive with respect to littoral processes. Most vertical armoring is highly reflective of incident wave energy; thereby further accentuating offshore sediment losses, in particular during storm events. For this reason, a sloping rock revetment (with a lower coefficient of reflectivity) is typically preferable over a vertical seawall or bulkhead in open coast environments.

Groins are one of the oldest and most common shore connected beach stabilization structures. Groins are structures typically constructed perpendicular to a shoreline in the zone of most active littoral transport across the beach profile. As such, groins are often designed to interrupt longshore transport in order to trap, or retain sand mobilized by waves or currents. Groins are often deployed as a field of structures in order to spatially affect a section of shorefront. At the terminus of a littoral cell, a single "terminal structure" may be used to anchor the beach, and/or limit the removal of sand from the shore into a navigational channel or the shoals of a tidal inlet."

Rather than these hard structures, the principal means of shore stabilization embraced by the Town of Hilton Head Island Shoreline Management Plan should be beach nourishment, a restorative "*soft*" structure which provides for improved shorefront conditions suitable for recreation, protection of upland development or infrastructure, as well as global environmental enhancement. In the mid 1980's the Town commissioned an "Erosion Assessment Study for Hilton Head Island" which was followed by an "Engineering Evaluation of a Beach Restoration Strategy for Hilton Head Island." In addition to providing the technical rationale for beach nourishment, these two documents formed the basis for the Town's initial and first request to use State funds for the purpose of beach nourishment in 1989.

Since that time, the Town has enacted a local "Beach Preservation Fee" which amounts to a 2% assessment on short-term rental accommodations. Rental to the same person or party of ninety (90) continuous days or more is not considered short term. The collection of this fee has allowed the Town to unilaterally fund subsequent beach renourishment projects, conduct semi-annual beach surveys and annual shoreline aerial photography, provide annual monitoring reports, acquire land, develop beach parks to enhance access, and install and maintain sand fencing and dune vegetation. The program generates approximately $4 million per year. The Town of Hilton Head Island has spent $50 million for beach renourishment projects between 1990 and 2012, and the Town's Capital Improvements Program includes funding to continue providing beach re-nourishment and maintenance in future years.

The Town has undertaken large scale fill projects on its oceanfront beach in 1990, 1997 and 2006. Besides the creation of a wider, higher and more robust beach configuration suitable for both active and passive opportunities at all stages of the tide, the Town has also been able to initiate a wide array of additional beach and shoreline management functions. These efforts benefit the local population as well as the island's natural environment. Noteworthy accomplishments directly associated with the Town's existing management program include, but are not necessarily limited to the following areas:

1. A coincident program of dune and vegetation restoration,
2. Improved beach protection laws for existing shorefront development and future redevelopment,
3. Enhanced property values and concurrent ad valorem tax base,
4. Eligibility for unique post-disaster financial assistance from FEMA,
5. Acquisition of undeveloped oceanfront lands for purposes of improved public access and park creation,
6. Improved promotional opportunities and amenities for resorts, hotels, property management firms, etc.
7. Protection of the Folly and its unique estuarine environment,
8. Improved Federal Flood Insurance program compliance,
9. More effective regulation of inappropriate oceanfront development,
10. Enhanced habitat for birds and endangered sea turtles.
11. Semi-annual beach surveys and annual shoreline aerial photography are used for modeling erosion and accretion rates when studying the Island's renourishment needs.

FIGURE 30: SAND FENCING

FIGURE 31: BEACH RENOURISHMENT RESULTS

6 - NEEDS, GOALS AND IMPLEMENTATION STRATEGIES

With the adoption of the Land Management Ordinance and the Comprehensive Plan and appendices, including the Beach Management Plan, many of the Town's policies and goals on shoreline retreat are being met. However, continuous pressure from developers to move development toward the newly renourished beach is of grave and immediate concern to the Town.

Need 1: *The Town should investigate methods to continue to protect the existing beach/dune features and those features resulting from renourishment projects from development and redevelopment pressures.*

Goal 1.1: Have a well maintained beach and dunes system that helps to preserve and protect the Island's manmade and natural resources and provides for a sound economic base; the Town does not support movement of the baseline or any other action that would result in encroachment of development into the dunes system or seaward of the baseline that was established in 1999.

Goal 1.2: Continue to Protect and Enhance the Beach/Dune System though the regulation of beachfront development.

Implementation Strategies:

A. The Town should continue to implement its Capital Improvement Program and Land Acquisition Program to develop, renovate, or expand its beach parks.

Achievements:

- ✓ Town Council authorized the first phase of a comprehensive Shoreline Management Plan. The first element, an inventory and analysis of shoreline stabilization structures, has been completed.
- ✓ The Town has completed four major and one emergency beach renourishments since 1990, with another large scale project currently underway.
- ✓ Detached breakwaters were installed along parts of Port Royal Sound Shoreline.
- ✓ The Town has begun post 2007 project monitoring, studies on groins at Port Royal Plantation, South Beach, and the Spa area on Port Royal Sound.
- ✓ The Town contracted with Olsen Associates for studies on groins at Port Royal Plantation, South Beach, and the Spa area on Port Royal Sound.

- ✓ Semi-annual beach surveys are conducted and an annual monitoring report is prepared.
- ✓ Sea turtle monitoring continues on island beaches. Staff is mapping all nesting sites.
- ✓ A dedicated funding source has been established for beach renourishment in the form of a beach fee, derived from an additional two percent Local Accommodations Tax levied by Town Council. This source provides $4 million each year, dedicated to beach renourishment and related monitoring, dune refurbishment, maintenance and operations, and new beach parks and beach access facilities.
- ✓ Completed a Port Royal beach erosion study.
- ✓ In accordance with continuing beach maintenance activities, shorebird monitoring is entering its seventh season. The Town's monitoring of threatened or endangered shorebirds is assisting federal and state agencies in the protection and recovery of those species.

B. Continue to hold densities along the beachfront to their current levels or below.

Achievements:

- ✓ The Town adopted *Resolution 2003-08,* that states: "to ensure that the intent of the ten Planned Unit Developments within the Town's PD-1 District is not compromised, *the master plan caps for those Planned Unit Developments should be held at current levels or below* until the Comprehensive Plan review/revision process is completed and this resolution is incorporated into the same, unless it can be clearly demonstrated that such a change will result in a reduced impact on infrastructure and the natural resources of the Island."
- ✓ A goal of the Land Use Element states*: "the reduction in allowable densities is preferred.*" The Town should "reduce allowable development densities to ensure that development and redevelopment do not create adverse impacts on the natural resources of the Island, and so, not place an unreasonable burden on the community's infrastructure. Further, since 70% of the Town is within areas that were master planned, the "*master plan caps should be held at or below current levels* to ensure that the intent of those PUDs is not compromised" *(Comprehensive Plan 2004).*

C. Continue to amend and enforce the LMO and Municipal Code to protect the established dunes systems on our beachfront, to provide for re-establishment of the dunes systems during redevelopment, and to provide for redevelopment scenarios after a natural disaster.

Achievements:

- ✓ LMO Chapters 3 & 5 regulate growth management requirements regarding site design and density; LMO Chapter 6 regulates natural resources, including beach protection and preservation. These chapters address building location on the site and requirements for protection of beach/dunes systems and vegetation.
- ✓ Municipal Code Title 8 Chapter 1 regulates beach/dune use and activities. Municipal Code Title 8 Chapter 3 provides for Sea Turtle Protection.
- ✓ Town Council adopted the Recovery Plan in 2003, which was updated in 2014. The Disaster Recovery Commission was formed to work with staff to further research certain unresolved issues in the Recovery Plan.
- ✓ Town Council adopted the Coastal Protection Area and Transition Area Overlay Zoning Districts.
- ✓ The Town installed fences and plantings to support buildup and retention of dunes.

D. Work with DHEC OCRM during the update of the Town's Local Comprehensive Beach Management Plan when designated by the State and to review, as requested, public petitions to move the Baseline on individual properties to ensure compatibility with this Plan. It is the policy of the Town of Hilton Head Island that the baseline not be moved seaward.

Achievements:

- ✓ Beach Management Plan was first adopted in 1991 and amended in 1992 (inclusion of 40 Year Retreat Policy) and in 1998 (update of Beach Access section).
- ✓ This constitutes the update of the 2008 Beach Management Plan that was last amended in 2011. Town Staff coordinated heavily with OCRM Staff on its outline and content.

E. Continue to promote environmental education programs and standards that stress protection of fragile areas and wildlife.

Achievements:

- ✓ In 2001, USFWS identified critical wintering habitat for the Piping Plover along parts of the Island's shoreline.
- ✓ The Town supports the Loggerhead Sea Turtle Protection Program through funding.
- ✓ The Town provides brochures that addresses habitat on the beach.
- ✓ The Town conducted a habitat inventory near Fish Haul Creek in 2003.

- ✓ Ordinance enforcement is carried out by Town Codes Enforcement Officers, Facilities Management staff, Shore Beach franchise employees and BCSO deputies.
- ✓ Town Staff works with OCRM, DNR, the Coastal Discovery Museum, Clemson Extension, Lowcountry Estuarium and other partners to present public education programs on such topics as water quality, low impact development, wildlife and native beach plantings to both the general public and the development community.

F. Coordinate with the Chamber of Commerce in tourism efforts to promote our beach.

Achievements:

- ✓ ATAX grants are given to the Chamber for promotions.

G. Work to revise state legislation for enhanced protection of the beach and dunes system which should include an effective retreat policy in addition to considering renourishment efforts when determining baseline locations to prevent movement of the baseline further seaward as a result of renourishment.

H. Provide input to DHEC OCRM during the update of the State's Beach Management Plan to help ensure that the DHEC OCRM Baseline does not move further seaward along the Town of Hilton Head Island shoreline.

I. Work with the State to receive beach nourishment funds in the event the Town does not have local funding to renourish.

2. Beach Access

Need 2: *With the large majority of oceanfront land under private ownership, the Town should seek ways to work with developers to allow for public beach access in redeveloped sites, and to work with Property Owners Associations to protect accesses that currently exist.*

Goal 2.1: Have adequate public beach access at Town-owned sites and seek innovative solutions to provide additional beach access for the public in privately owned neighborhoods and commercial areas.

Implementation Strategies:

A. The Town should continue to implement its 10 year Capital Improvement Program to develop, renovate, or expand its beach parks.

Achievements:

- ✓ The Town owns 8 dedicated beach parks with over 1400 parking spaces.
- ✓ The Town has a dedicated funding source for land acquisition on the beach.
- ✓ The Town has spent $ 171 million for land acquisition to acquire over 1150 1,300 acres, some for beach parks.
- ✓ The Town has renovated the Coligny Beach Park to open views to the ocean and to provide a better designed park.

B. Continue to work with oceanfront developments to provide public access to the beach during redevelopment. Also work with neighborhood associations to protect neighborhood access points.

Achievements:

- ✓ LMO 16-6-304 provides the ability for the Town to "consider the need for beach access to meet the general public interest" while reviewing all development applications involving property adjacent to the beach. This allows Town Staff to recommend to Town Council purchasing the property for beach access.
- ✓ The Town has negotiated with beachfront developers to include emergency vehicle access in some of the new development along the beach (Marriott Oceanfront, Disney).

C. Develop methods of increasing public awareness concerning beach access points through better access signage, informational kiosks, directional signage and brochures.

Achievements:

- ✓ The Town installed beach matting at Coligny, Driessen, Folly Field, Alder Lane, Mitchellville and Islander's beach parks for access to the lower beach area by wheelchairs and other mobility devices used by disabled people to traverse the dry, soft sand.
- ✓ The Town installed GEOWEB to stabilize emergency accesses to the beach. Accesses are in the Coligny Beach Park, Islanders Park, Bradley and Burkes Beach Roads, Mitchellville and future Collier Beach Park.

- ✓ Staff worked with oceanfront beach developers to allow beach access emergency markers for location identification and installed them for efficient emergency vehicle access.
- ✓ The Fire & Rescue Master Plan recommends special emergency response vehicles be purchased in order to facilitate medical emergency response on the beach.
- ✓ The Town produced a Beach brochure and a Park Brochure detailing beach access locations and pathways to the beach.
- ✓ The Town coordinated with SCDOT for highway identification signs directing the public to beach parks.

TOWN OF HILTON HEAD ISLAND

Community Development Department

TO:	Stephen G. Riley, ICMA-CM, Town Manager
VIA:	Charles Cousins, Director of Community Development CFC
FROM:	Shawn Colin, Deputy Director of Community Development SAC
DATE:	July 25, 2016
SUBJECT:	Second Reading of Proposed Ordinance: 2016-11 - Beach Management Plan Approval

There were no changes made to Proposed Ordinance 2016-11 during the first reading on July 19, 2016.

TOWN OF HILTON HEAD ISLAND

Community Development Department

TO:	Stephen G. Riley, ICMA~CM, Town Manager
FROM:	Shawn Colin, *Deputy Directory of Community Development*
VIA:	Charles Cousins, *Directory of Community Development*
DATE:	June 23, 2016
SUBJECT:	Beach Management Plan Adoption

RECOMMENDATION

The Public Planning Committee recommends Town Council adopt the Town of Hilton Head Island Beach Management Plan as an appendix to the Town's Comprehensive Plan. On May 5, 2016 the Public Planning Committee voted unanimously to forward the plan to Town Council with this recommendation.

On April 6, 2016 the Planning Commission voted to recommend that Town Council adopt the Town of Hilton Head Island Beach Management Plan as an appendix to the Town's Comprehensive Plan.

BACKGROUND

In 1977 the South Carolina Tidelands and Wetlands Act was enacted by the State of South Carolina to protect coastal resources from unwise development. This Act did not provide adequate jurisdiction to the state's coastal management agency. Consequently, unwise development had jeopardized the stability of the beach and dune system, accelerating erosion and endangering adjacent property. So, the law was amended in 1988 to adopt the South Carolina Beachfront Management Act, which outlined eight beach policies described below. This Act required local governments of the State's beachfront localities to develop comprehensive beach management plans consistent with these policies and to update them every five years.

State Beachfront Management Act Policies:

1. Protect, preserve, restore, and enhance the beach/dune system;
2. Create a comprehensive, long-range beach management plan and require local beach management plans for the protection, preservation, restoration, and enhancement of the beach/dune system, each promoting wise use of the state's beachfront to include a gradual retreat from the system over a forty-year period;
3. Severely restrict the use of hard erosion control devices and eucourage the replacement of hard erosion control devices with soft technologies which will provide for the protection of the shoreline without long-term adverse effects;
4. Encourage the use of erosion-inhibiting techniques which do not adversely impact the long-term well-being of the beach/dune system;
5. Promote carefully planned nourishment as a means of beach preservation and restoration where economically feasible;
6. Preserve existing public access and promote the enhancement of public access for all citizens including the handicapped and encourage the purchase of lands adjacent to the Atlantic Ocean to enhance public access;
7. Involve local governments in long-range comprehensive planning and management of the beach/dune system in which they have a vested interest; and

8. Establish procedures and guidelines for the emergency management of the beach/dune system following a significant storm event.

These policies are implemented through a variety of mechanisms at the state and local levels, including through the local comprehensive beach management plans.

The Act specifies ten components that local beach plans must contain. Once these plans are submitted by a beachfront locality to DHEC OCRM, a Beach Management Committee, comprised of the State's technical review staff, evaluates the plan. When the plan is found to be satisfactory and has been adopted by the local government, the Beach Management Committee makes a final recommendation for approval to the DHEC OCRM Deputy Commissioner, who formally approves the local beach management plan and it is incorporated into the State's management plan.

The Town's first Beach Management Plan was adopted by Town Council on June 17, 1991. In 2008, this plan underwent a comprehensive update that was approved by the State and adopted as an appendix to the Town's Comprehensive Plan, which was later amended by the Town and approved by the State on March 1, 2011 to address changes related to public beach parking for beach renourishment funding. The purpose of this draft is to address updates to the 2008 plan and to reorganize the plan based on guidelines that have been developed by the State for the organization of all local plans.

SUMMARY

The purposes of the Town of Hilton Head Island's Beach Management Plan are to:

- Fulfill the State-mandated requirement for a local beach management plan;
- Provide guidance for ordinances and actions that protect and preserve the beach and dunes;
- Provide guidance for local ordinances and actions that regulate development near the beach and dunes;
- Provide guidance and goals for future beach access;
- Provide guidance for beach management and maintenance; and
- Provide goals for future protection, preservation and regulation of the beach and dunes system.

At a minimum, State law requires that the Plan must contain all of the following:

1. An inventory of beach profile data and historic erosion rate data for each standard erosion zone and inlet erosion zone;

This information is used by DHEC OCRM to establish the beachfront baseline which is located on the crest of the primary dune. The plan contains data on erosion rates that are measured at 45 DHEC Beach Control Monuments along the Island's beachfront. This data is also used to establish historic erosion rates that determine where the 40 year setback should be located. The purpose of the baseline and setback is to implement the State's 40 year retreat policy, which is discussed in more detail below. . (Refer to pages 46-47.)

2. An inventory of public beach access and attendant parking along with a plan for enhancing public access and parking;

In 1998, the Beach Management Plan was amended by the Town and approved to include a Beach Access Plan, which outlined a plan to construct a total of 1,400 public parking spaces by December 2008. The Town has met this revised obligation. (Refer to pages 33 & 34.)

3. An inventory of all structures located in the areas seaward of the setback line;

All structures located along the DHEC OCRM setback line are inventoried in an appendix to the plan to determine the number of structures that exist within this area in the Town. At the time of this inventory there were 204 habitable structures existing seaward of the DHEC OCRM setback.

4. An inventory of turtle nesting and important habitats of the beach/dune system and a protection and restoration plan if necessary;

The importance of barrier islands as habitat for plants and animals is significant. Many animals are dependent on smaller prey available on open beach habitats as part of complex food webs. Some animals also require the sands of primary dunes on barrier islands for nesting sites and are unable to successfully reproduce without access to this habitat. In the water, nearshore subtidal bars and sand flats can support large numbers and species of marine invertebrates and fish that cannot thrive in the open ocean. Long-term or permanent alteration to these habitats can affect the type, health, and vitality of the marine plants and animals.

In order to help protect one of these important species, sea turtle monitoring has been an ongoing program of the Coastal Discovery Museum since 1984 (funded by the Town since 1989). This program surveys and inventories sea turtle nests which provides information on nesting activity and hatchling success rate. This information as well as information on other important species is included in the plan. (Refer to Pages 26-32.)

5. A conventional zoning and land use plan for the area seaward of the setback line;

The Town's Official Zoning Map has been included along with a description of beachfront development regulations. In addition to this conventional zoning plan the Town also has designated a Coastal Protection Area and a Transition Area as Overlay Zoning Districts included in the Town's Land Management Ordinance to better protect the dunes system from encroaching development. (Refer to Section 2.3 starting on page 19.)

6. An analysis of beach erosion control alternatives, including renourishment;

Prior to the initiation of beach restoration through nourishment, different types of hard structures were implemented for shore stabilization by the private sector (*i.e.* homeowners, developers, hotels, P.O.A.'s, etc.). These structures have typically consisted of groins and seawalls or bulkheads. For the purpose of evaluation, two basic types of shoreline stabilization techniques are discussed in the plan: hard and soft shoreline treatments.

Rather than these hard structures, the principal means of shore stabilization embraced by the Town of Hilton Head Island Shoreline Management Plan is beach nourishment, a restorative "*soft*" structure which provides for improved shorefront conditions suitable for recreation, protection of upland development or infrastructure, as well as environmental enhancement. (Refer to Section 5 starting on page 59.)

7. A drainage plan for the area seaward of the setback;

Drainage outfalls along the beachfront do not exist in the Town and the Town Code prohibits any future development from directly discharging storm water onto the beach. The beachfront areas of the Island can be divided into 6 major natural drainage basins, none of which drain to outfall structures on the

beach. In general, stormwater is carried from the beachfront areas to the adjacent inland bodies of water.

In 1995, the Town completed The Island Wide Drainage Study. Since then, all 17 projects have been implemented. Currently stormwater studies are being conducted for individual watersheds to develop drainage inventories, flood models, water quality models and lists of potential capital improvement projects. (Refer to Section 3 starting on page 41.)

8. A post disaster plan including provisions for cleanup, maintaining essential services, protecting public health, emergency building ordinances, and the establishment of priorities;

The Town developed a Post-Disaster Plan in 1991 to guide its citizens and post-disaster operations. The plan was incorporated into the Town's Comprehensive Plan in 1999. In 2003, the Town prepared a Comprehensive Emergency Management Plan (CEMP), of which, Volume IV represents the Town's Recovery Plan and establishes the Town's recovery policies and schedule that detail the Town's pre-event responsibilities and recovery actions. The Town works with all appropriate agencies, in advance of a disaster (if predictable) and after, to minimize potential injury and damage, and to expedite recovery and redevelopment. The Beaufort Hazard Mitigation Plan that was last updated in 2009 is an appendix to the Beach Management Plan. It addresses unincorporated Beaufort County, the City of Beaufort, the Town of Bluffton, the Town of Hilton Head Island and the Town of Port Royal. (Refer to Section 4.2.2, Section 4.2.3.)

9. A detailed strategy for achieving the goals of the State's Beachfront Management Act by the end of the forty-year retreat period, which shall consider relocating buildings, removal of erosion control structures, and relocation of utilities;

The South Carolina Beachfront Management Act requires that local plans include a 40 year retreat policy that considers relocation of buildings, removal of erosion control structures and relocation of utilities. When the Town's Beach Management Plan was first adopted in 1991, the State was in the process of drafting their own policy, and provided little direction to the Town at that time. In 1992, the Town amended its original Beach Management Plan to include a 40 Year Retreat Policy which stated to:

- Locate development landward of the DHEC OCRM Setback line to the extent possible;
- Adopt various growth management techniques and procedures to reduce development levels;
- Retain open space seaward of the DHEC OCRM Setback line to the extent possible;
- Utilize land acquisition; and
- Address retreat during redevelopment scenarios after a disaster.

With the adoption of this updated Beach Management Plan, this Policy continues to be in effect. The Town's zoning, density and design standards mentioned previously help fulfill this policy.

To accompany the above Retreat Policy, this Beach Management Plan details an additional Policy on beach renourishment as part of the 40 Year Retreat Policy. Beginning in 1990, the Town embarked on an ambitious renourishment program with an ongoing maintenance program. As a result of these projects, portions of the beach and dunes system have been enhanced, thereby resulting in expanded areas subject to development pressures by construction that is not in the public interest and not in accordance with retreat policies and goals of the State and the Town. In a few instances, DHEC OCRM has designated a newly formed embryonic dune as the new primary dune, allowing development on the landward, and sometimes larger, dune. Because of this, there have been petitions to the DHEC OCRM to move the baseline further seaward, increasing the potential for loss of the larger dunes system. In addition, DHEC OCRM re-examines the possibility of relocating the baseline every 8-10 years, possibly seaward. This would further encourage development on top of the larger dunes system.

It is not and has not been the intent of the Town to encourage or permit development to move seaward as a result of the Town's beach renourishment projects and efforts, or to support any effort to move the DHEC OCRM established baseline seaward, where such effort to relocate the baseline is based in whole or in part on the existence of new dunes and/or new beach areas formed as a result of the Town's beach renourishment projects and efforts, or by other private efforts. (Refer to page 48-50.)

10. A detailed strategy for achieving the goals of preserving existing public access and the enhancement of public access to assure full enjoyment of the beach by all residents of the State of South Carolina.

The Town owns 8 beach parks with a total of over 1400 parking spaces. Additionally, there are over 150 other privately-owned beach access points (neighborhoods, hotels, condominiums and beach clubs). Most of these private access points are located in gated communities and are accessible to their residents and visitors. With over 70% of the land on Hilton Head Island in gated communities, and near build-out conditions of the Island, there are very few parcels remaining next to or adjacent to the ocean that could be purchased by the Town and developed into a beach park. It is therefore critical for the Town to coordinate with private property owners during redevelopment of commercial areas to allow beach access for the public on their oceanfront areas and to protect existing access locations.

ATTACHMENTS

A. Proposed Ordinance 2016-11
B. Revised Beach Management Plan

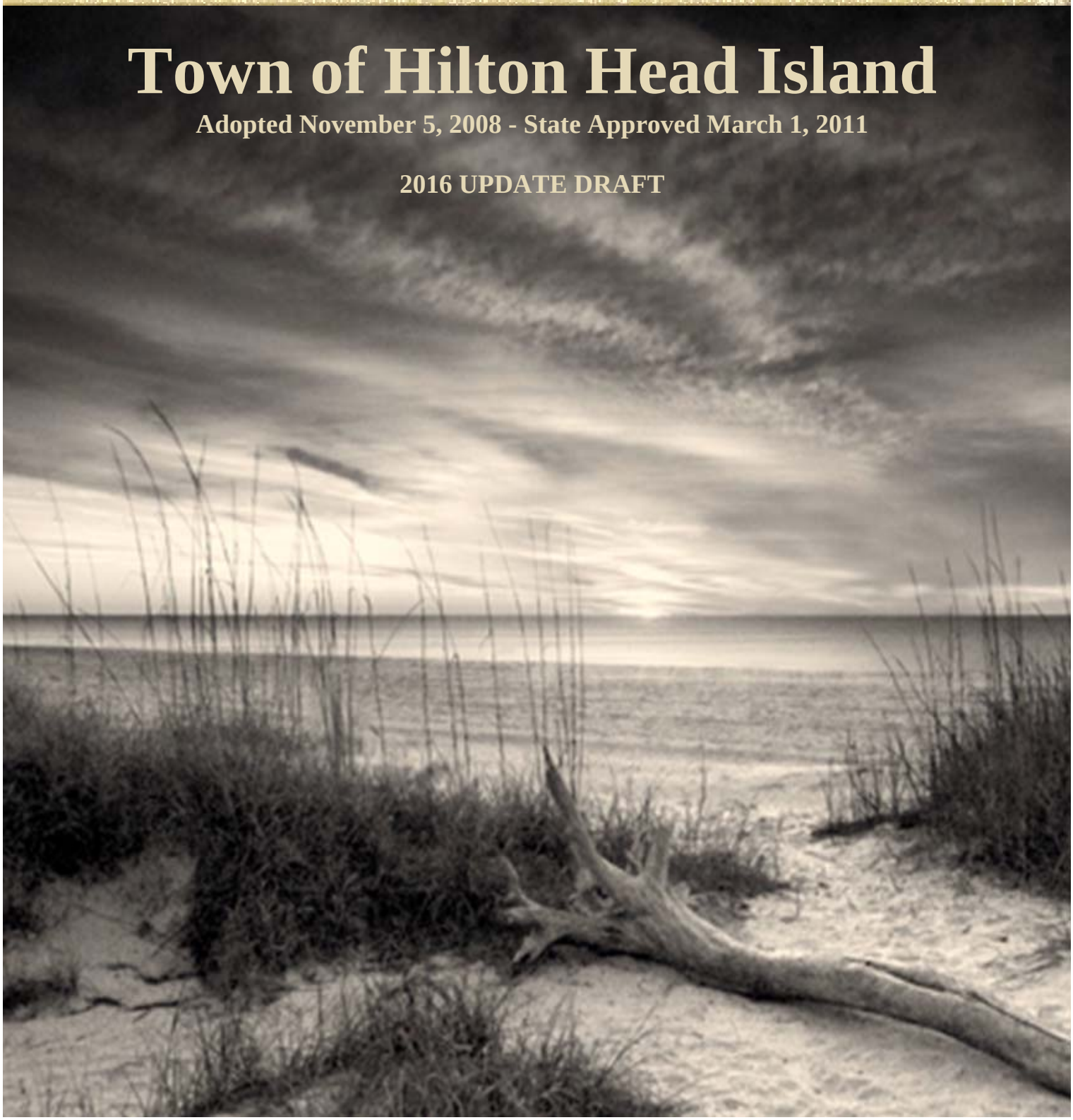
Please contact me at (843) 341-4696 or at shawnc@hiltonheadislandsc.gov with any questions.

Beach Management Plan

Town of Hilton Head Island

Adopted November 5, 2008 - State Approved March 1, 2011

2016 UPDATE DRAFT



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EXECUTIVE SUMMARY

The United States Congress recognized the importance of meeting the challenge of continued growth in coastal areas by passing the Coastal Zone Management Act (CZMA) in 1972. This law established the guidelines of a state-federal partnership program to comprehensively manage coastal resources and was authorized in South Carolina in 1977 under South Carolina's Coastal Tidelands and Wetlands Act (CTWA) with the goal of achieving a balance between the appropriate use, development, and conservation of coastal resources in the best interest of all citizens of the state. The South Carolina Department of Health and Environmental Control's Office of Ocean and Coastal Resource Management (DHEC OCRM) is the designated coastal management agency for the State of South Carolina and is responsible for the implementation of the Coastal Management Program in conjunction with the National Oceanic Atmospheric Administration (NOAA) and coastal communities.

In 1988, the State of South Carolina adopted the South Carolina Beachfront Management Act, which gives the State authority over the direct regulation of impacts to coastal resources within the critical areas of South Carolina's coastal waters, tidelands, beaches and beach dune systems; and indirect certification authority over federal actions and state permit decisions within the eight coastal counties. This law is complex and requires the use of scientific studies of coastal processes to establish precise building setback lines along the coast based on historic erosion rates. In addition, the Act adopts a policy of retreat for development away from the erosional beach and requires oceanfront counties and municipalities to prepare local comprehensive beach management plans in coordination with DHEC OCRM that become part of the State's management plan upon approval. These plans must be updated every 5 years.

This Beach Management Plan was prepared in compliance with the South Carolina Beachfront Management Act and was adopted as part of the Town's Comprehensive Plan It contains all the following:

- ✓ an inventory of beach profile data and historic erosion rate data for each standard erosion zone and inlet erosion zone;
- ✓ an inventory of public beach access and attendant parking along with a plan for enhancing public access and parking;
- ✓ an inventory of all structures located in the areas seaward of the setback line;
- ✓ an inventory of turtle nesting and important habitats of the beach/dune system and a protection and restoration plan if necessary;
- ✓ a conventional zoning and land use plan for the area seaward of the setback line;
- ✓ an analysis of beach erosion control alternatives, including renourishment;
- ✓ a drainage plan for the area seaward of the setback;

- ✓ a post disaster plan including provisions for cleanup, maintaining essential services, protecting public health, emergency building ordinances, and the establishment of priorities;
- ✓ a detailed strategy for achieving the goals of this chapter by the end of the forty-year retreat period, which shall consider relocating buildings, removal of erosion control structures, and relocation of utilities;
- ✓ a detailed strategy for achieving the goals of preserving existing public access and the enhancement of public access to assure full enjoyment of the beach by all residents of the State of South Carolina.

Through this plan the following shoreline retreat policies and beach management needs, goals and implementation strategies are adopted:

Beach Management Needs, Goals and Implementation Strategies

1. Shoreline Retreat

Need 1: *The Town should investigate methods to continue to protect existing beach/dune features and those features resulting from renourishment projects from development and redevelopment pressures.*

Goal 1.1: Have a well maintained beach and dunes system that helps to preserve and protect the Island's manmade and natural resources and provides for a sound economic base; the Town does not support movement of the baseline or any other action that would result in encroachment of development into the dunes system or seaward of the baseline that was established in 1999.

Goal 1.2: Continue to Protect and Enhance the Beach/Dune System though the regulation of beachfront development.

Implementation Strategies:

A. The Town should continue to implement its Capital Improvement Program and Land Acquisition Program to develop, renovate, or expand its beach parks.

B. Continue to hold densities along the beachfront to their current levels or below.

C. Continue to amend and enforce the LMO and Municipal Code to protect the established dunes systems on our beachfront, to provide for re-establishment of the dunes systems during redevelopment, and to provide for redevelopment scenarios after a natural disaster.

D. Work with DHEC OCRM during the update of the Town's Local Comprehensive Beach Management Plan when designated by the State and to review, as requested, public petitions to move the Baseline on individual properties to ensure compatibility with this Plan. It is the policy of the Town of Hilton Head Island that the baseline not be moved seaward.

E. Continue to promote environmental education programs and standards that stress protection of fragile areas and wildlife.

F. Coordinate with the Chamber of Commerce in tourism efforts to promote our beach.

G. Work to revise state legislation for enhanced protection of the beach and dunes system which should include an effective retreat policy in addition to considering renourishment efforts when determining baseline locations to prevent movement of the baseline further seaward as a result of renourishment.

H. Provide input to DHEC OCRM during the update of the State's Beach Management Plan to help ensure that the DHEC OCRM Baseline does not move further seaward along the Town of Hilton Head Island shoreline.

I. Work with the State to receive beach renourishment funds in the event the Town does not have local funding to renourish.

2. Beach Access

Need 2: *With the large majority of oceanfront land under private ownership, the Town should seek ways to work with developers to allow for public beach access in redeveloped sites, and to work with Property Owners Associations to protect accesses that currently exist.*

Goal 2.1: Have adequate public beach access at Town-owned sites and seek innovative solutions to provide additional beach access for the public in privately owned neighborhoods and commercial areas.

Implementation Strategies:

A. The Town should continue to implement its 10 year Capital Improvement Program to develop, renovate, or expand its beach parks.

B. Continue to work with oceanfront developments to provide public access to the beach during redevelopment. Also work with neighborhood associations to protect neighborhood access points.

C. Develop methods of increasing public awareness concerning beach access points through better access signage, informational kiosks, directional signage and brochures.

Town of Hilton Head Island's Shoreline Retreat Policy

The State's Beach Management Act requires local plans to include a 40 year retreat policy that should consider relocation of buildings, removal of erosion control structures and relocation of utilities. When the Town's Beach Management Plan was first adopted in 1991, the State was in the process of drafting their own policy, so very little direction was received at that time. In 1992, the Town amended its original Beach Management Plan to include a 40 Year Retreat Policy which stated:

1. Locate development landward of the Setback line to the extent possible;
2. Adopt various growth management techniques and procedures to reduce development levels;
3. Retain open space seaward of the Setback line to the extent possible;
4. Utilize land acquisition; and
5. Address retreat during redevelopment scenarios after a disaster.

With the adoption of this Beach Management Plan, this Policy continues to be in effect. The Town's zoning, density and design standards help fulfill this policy along with other techniques mentioned in the next Section.

To accompany the above Retreat Policy, this Plan details an additional Policy on beach renourishment as part of the 40 Year Retreat Policy. Beginning in 1990, the Town embarked on an ambitious renourishment program with an ongoing maintenance program of sand fencing and native plantings. As a result of these beach renourishment and maintenance projects, portions of the beach and dunes system have been enhanced, thereby resulting in expanded areas that are subject to development pressures by construction that is not in the public interest and would not be in accordance with retreat policies and goals of the State of South Carolina and the Town of Hilton Head Island. In a few instances, the DHEC OCRM has designated a newly formed embryonic dune as the new primary dune, allowing development on the landward, and sometimes larger, dune. There have been petitions to the state administrative law judges to move the DHEC OCRM Baseline further seaward, in accordance with SC. Code Section 48-39-280 (A) (4) increasing the number of areas for loss of the larger dunes system. In addition, the DHEC OCRM is also required under Section 48-39-280 (C) to revise the Baseline every eight to ten years, which could possibly result in moving the line seaward. This would further encourage development on top of the larger dunes system.

It is not and has not been the intent of the Town to encourage or permit development to move seaward as a result of the Town's beach renourishment projects and efforts, or to support any effort to move the DHEC OCRM baseline established by the DHEC OCRM seaward, where such effort to relocate the baseline is based in whole or in part on the existence of new dunes and/or new beach areas formed as a result of the Town's beach renourishment projects and efforts, or by other private efforts. The Town's intent in pursuing the renourishment program is:

- ✓ To protect, preserve, restore, stabilize and enhance the beach/dune system through beach renourishment and other appropriate means, to provide for the protection of life and property, and to act as a buffer from high tides, storm surge, hurricanes, and erosion;
- ✓ To prohibit development from moving seaward onto new dunes or beach areas formed as a result of the Town's beach renourishment projects and efforts;
- ✓ To provide an important basis for a tourism industry that generates annual revenue for the State of South Carolina and the Town;
- ✓ To provide habitat for numerous species of plants and animals which are threatened or endangered, or which may become threatened or endangered as a result of the loss of the beach/dune system;
- ✓ To provide habitat for beach/dune system vegetation that is unique and extremely important to the vitality and preservation of the system; and
- ✓ To create a recreational beach at high tide.

1 – INTRODUCTION

1.1 PURPOSE

Local comprehensive beach management plans are an important and effective management tool for local governments to develop strategies for managing and protecting coastal resources. In South Carolina, if a local government wishes to participate in the state funding programs available for beach renourishment or other grant programs, the governing body must adopt and enforce a Local Comprehensive Beachfront Management Plan that is consistent with the South Carolina Beachfront Management Act. Section 48-39-350 of the South Carolina Code of Laws required local governments to prepare a local comprehensive beach management plan by July 1, 1991. This plan is to be updated at least every five years following its approval by the State of South Carolina.

The purpose of the Town of Hilton Head Island's Beach Management Plan is to:

- ✓ Fulfill the State-mandated requirement for a local beach management plan;
- ✓ Provide guidance for ordinances and actions that protect and preserve the beach and dunes;
- ✓ Provide guidance for local ordinances and actions that regulate development near the beach and dunes;
- ✓ Provide guidance and goals for future beach access;
- ✓ Provide guidance for beach management and maintenance; and
- ✓ Provide goals for future protection, preservation and regulation of the beach and dunes system.

1.2 HISTORY OF PLAN APPROVALS AND REVISIONS

The Town's first Beach Management Plan was approved by the South Carolina Coastal Council (SCCC; now known as South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management - DHEC OCRM) and was adopted by Town Council on June 17, 1991. In 1992, the Plan was amended by Town Council and approved by the State to include a 40 Year Retreat Policy. Additional Plan modifications were adopted by Town Council including amendments to the public access improvement section, changing the number of beach access parking spaces and the implementation schedule of the Plan. The Beach Management Plan was also adopted as part of the Town's Comprehensive Plan in 2004 and 2010. Since initial adoption, the Plan has been reviewed by the State in 1992, 1995, 1998 and 2001. In 2009 a complete update of the plan was approved and minor modifications to beach parking were approved in 2011, which were also adopted as an appendix to the Town's Comprehensive Plan.

1.3 OVERVIEW OF HILTON HEAD ISLAND

Hilton Head Island is located along the Atlantic Coast in Beaufort County, South Carolina. The Island is located about 22 miles northeast of Savannah, Georgia, and 15 miles south of Beaufort, South Carolina. It occupies a land area of approximately 23,000 acres or 54 square miles, with approximately 34.4 square miles of high ground, and is approximately 12 miles long and 5 miles wide, making it the largest oceanfront island on the Atlantic seaboard between New York and Florida. It is bounded on the northeast by Port Royal Sound, Calibogue Sound to the southwest, and Skull Creek, part of the Atlantic Intracoastal Waterway, to the north.

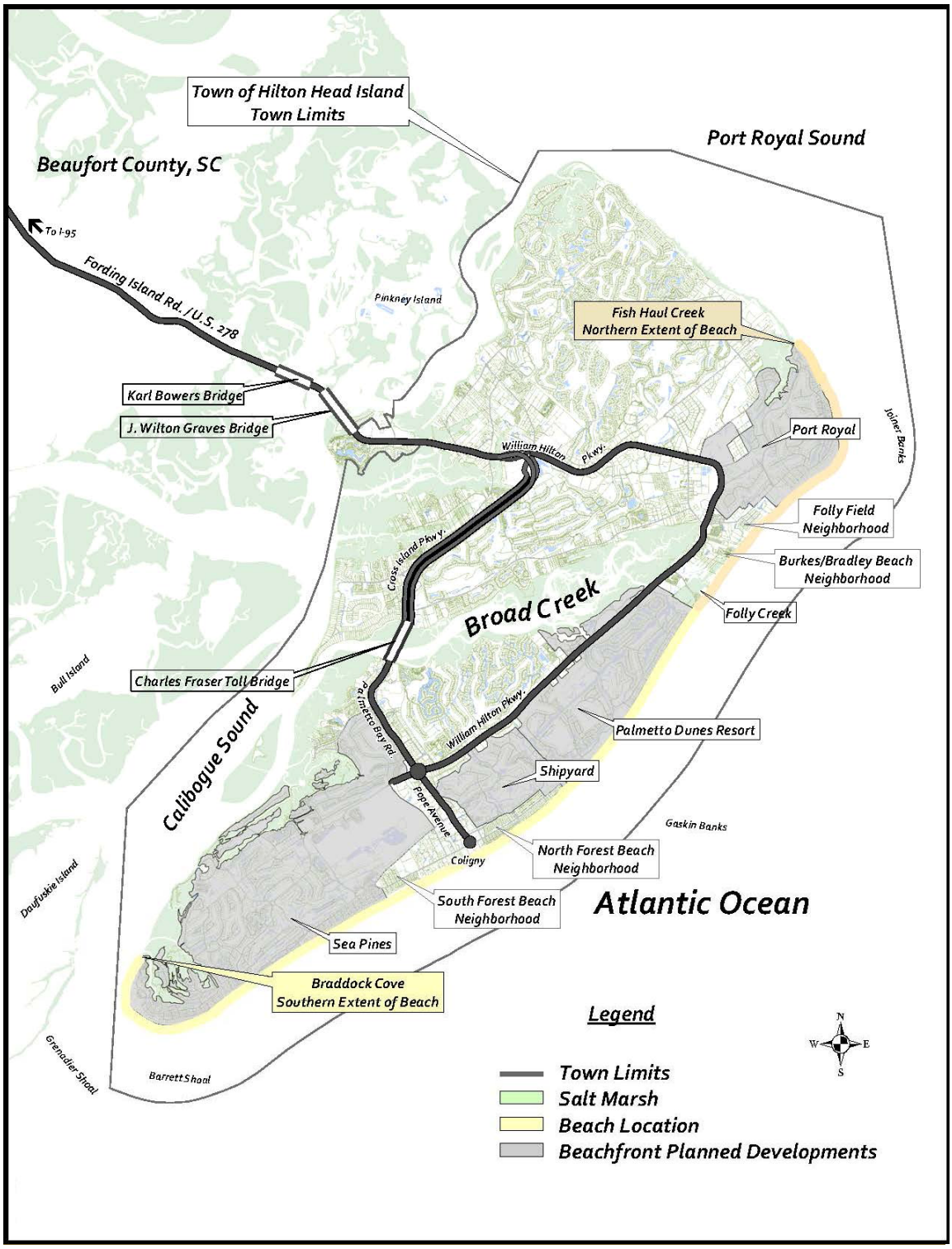
FIGURE 1: HILTON HEAD ISLAND LOCATION

Source: DHEC OCRM (http://gis.dhec.sc.gov/shoreline/)

The Island's southeast shoreline faces the Atlantic Ocean and has a beach that stretches 13 miles from Braddock Cove in the south to Fish Haul Creek in the north. The beach runs uninterrupted except for a small tidal inlet located mid-island, called the Folly. Historically, the Island has had a wide, sandy beach to the north and south and a narrow, recreational beach mid-island at low tide. A seven mile tidal inlet, Broad Creek, runs diagonally across the Island and opens into Calibogue Sound. The island is relatively flat with a maximum elevation of twenty-four feet in limited places. The average tidal range along the island can be between six and thirteen feet.

Access to the Island is provided by U.S. 278 over two toll-free bridges, Graves Bridge and Karl Bowers Bridge. William Hilton Parkway (US 278 Business) and the Cross Island Parkway (US 278) serve as the Island's primary roadways. The Fraser Bridge spans across Broad Creek to connect the Cross Island Parkway with William Hilton Parkway on the south end of the Island. All other roads connect these roads, making them the life line connecting area residents and visitors to local residential, business and recreational areas. From its beginnings as a rich and abundant agrarian community to its current status as a distinguished resort and retirement community, Hilton Head Island has become known for its unique island character which integrates high quality design in the built environment with the superior natural beauty of the Island's beaches, extensive wetlands, diverse wildlife and natural landscape. Currently, approximately 70% of the Island has been developed as a part of master planned communities, also referred to as Planned Unit Developments (PUDs), which contribute significantly to the unique character and demographic composition of the Island. These PUDs reflect a tradition of planned street patterns, dwelling sites, and locations for public and institutional activities adapted to a modern resort concept that has become unique to Hilton Head Island.

FIGURE 2: ISLAND DESCRIPTION



1.4 CURRENT BEACH MANAGEMENT ISSUES

Development Issues

One of the most significant threats to the shoreline of Hilton Head Island is from continuous development pressure to construct as closely to the dunes system as possible, and in some cases, to build on older, more well-established dunes that are located outside of any required setbacks. With the Island approaching build-out, older developments are renovating or redeveloping with larger building footprints that push ever closer to the dunes system and beach. Some recent development and redevelopment projects have even petitioned the State to move the DHEC OCRM line further seaward in order to create more land on which to build.

There are also several vacant parcels of land seaward of existing developments that usually encompass the dunes system, known as strand blocks. These parcels have historically been owned by property owners' associations. Some of these have been sold to developers who wish to develop the parcels. This endangers the existing dunes system and causes the landward parcels, which were marketed as oceanfront, to no longer have a view of or direct access to the beach. Furthermore, the economic, societal and safety risks that result from such development are of great concern to the Town.

Environmental Issues

The Town also faces various environmental concerns in relationship to the management of its shoreline. Erosion of the beach is ongoing at some locations and has prompted a very ambitious and expensive renourishment program by the Town. The Town of Hilton Head Island has spent over $50 million in beach renourishment projects from 1990-2012 resulting in a wider, higher and more robust beach configuration suitable for both active and passive use opportunities at all stages of the tide. Currently, a large scale renourishment project is planned for this year that is estimated to cost approximately $50 million dollars. Constant monitoring is undertaken and a continuous local funding source has been established for renourishment. The potential for negative impacts from global warming and rising sea levels will require the Town to continue to evaluate the feasibility of renourishment as its primary shoreline management technique and plan accordingly.

In addition to beach renourishment, shoreline stabilization has also been performed in seven locations through the use of hard structures, such as groins, revetments and bulkheads. Some of these efforts were undertaken by homeowners, developers, hotels or property owners associations; however, the Town must evaluate issues such as liability, ownership, maintenance, cost and permit matters to determine the future role of the Town and the public's interest in these structures in relationship to overall shoreline management.

The protection and enhancement of the dunes system and its vegetation, as a part of an overall approach to beach management, is an extremely important issue for the Town. This area helps to protect life and

property by serving as a storm barrier and habitat for numerous species of plants and animals, some of which are threatened or endangered. As the number of beachgoers and activities on the beach increases, more demand will be placed on these important resources. Additionally, the protection of critical habitats, such as tidal inlets and creeks, like the Folly, as well as Fish Haul Creek, are also concerns.

Beach Access

There are very few undeveloped beachfront parcels remaining on the Island. This makes preservation and enhancement of any current beach parking and access location critical. Redevelopment projects also offer the opportunity to secure additional easements open to the general public. Prior to the incorporation of the Town in 1983, public access to the beach was provided by more informal access areas. People often parked along the sides of roadways or on undeveloped properties to access the beach. As the Island has continued to develop, additional parking and access areas have been developed by the Town and the other beachfront developments for visitors and residents of the Island. The Town has constructed eight public beach parks. Other private developments contain a total of seven beach parks that serve thousands of visitors and residents of the Island.

Water Quality

It is important to maintain a high level of beach water quality to protect the natural functions (i.e. chemical, biological and physical) and recreational opportunities (i.e. swimming, fishing, wading, boating). To support this, the Town of Hilton Head Island directs all drainage away from the beach area. Moreover, storm water quality is monitored at 16 locations twice a month on Hilton Head Island. DHEC OCRM monitors locations throughout the recreational swimming season, designated as April 15 through October 15. The Town of Hilton Head Island has documented less than 5 advisories in the past two years; overall, beach water quality is very good. In order to ensure that this does not change, the Town must continue to monitor water quality and make any necessary changes as a result of test indications.

Hurricane and Storm Damage

As a coastal community, the potential for hurricanes and the associated impacts must be considered. In addition to the Town's efforts to maintain adequate storm protection through the continuation of beach renourishment, dune refurbishment and maintenance of selected shoreline protection structures, disaster recovery and response are being addressed. Since 2003, the Town has an adopted post-disaster recovery plan that will be implemented after experiencing the effects of a major storm event. This plan was recently updated. In relationship to beach management recovery efforts, issues for the Town include the recovery and disposition of overwash sand, damage assessment of structures and the permitting process for oceanfront properties. A later chapter will discuss planning efforts currently underway in regard to these issues.

Social Issues

The increasing popularity of the beach has resulted in more intense use of the beach for recreational and commercial purposes. In addition to the increasing numbers of beach goers, commercial companies are marketing the beach as a location for special events, such as weddings, parties, fitness programs, animal training, racing events, religious services, and even movies. The Town must ensure that these events do not interfere with any other franchise agreements that currently exist for beach areas and that other codes are not violated. This requires increased efforts by Town staff and other enforcement agencies.

FIGURE 3: HILTON HEAD ISLAND RECREATIONAL BEACH

2 - INVENTORY OF EXISTING CONDITIONS

2.1 GENERAL CHARACTERISTICS OF THE BEACH

Hilton Head Island is a compound barrier island formed by the advancing and falling sea during which sediment was deposited and leveled a number of times. The northern portion is a core of marine sediments deposited during periods of higher sea level caused by melting of continental ice sheets in the early Pleistocene epoch (1 million- 10,000 years ago). This area generally extends from Skull Creek, east to Port Royal Sound and Fish Haul Creek, and west to Brams Point following the western bank of Broad Creek. Much of the land area east and southeast of Broad Creek is a "fringe" of marine sediments. Fine sand was pushed inland by the rising sea level, caused by another time of warming and thawing of ice during the Holocene Period of the Pleistocene Epoch. The approximate foot shape of Hilton Head Island is typical of barrier islands on the "mesotidal" shoreline, in the interior of the Georgia Bight. Islands in this area are wider than other barriers, strongly influenced by tides (2-4 meters in range), shaped by waves and currents, and develop ebb-tidal deltas such as Joiner Bank (Port Royal Sound) and Barrett Shoals (Calibogue Sound).

The existing conditions along the shoreline of Hilton Head Island are the result of natural erosion patterns and various shoreline stabilization efforts. Historically, wide, sandy beach areas generally occur along portions of the Island's shoreline, indicating areas of accretion. Accretion is the gradual buildup of sediment that results in an increase in the size of the beach. Other areas of the Island's shoreline have been more vulnerable to erosion and have a narrower beach area. Typically a wide, sandy beach occurs on the northern and southern ends of the Island with a narrower beach occurring mid-island. Ongoing erosion has been continually mitigated by beach renourishment projects.

According to Section 8-1-112 of the Town's Municipal Code, the beach extends from Fish Haul Creek to Braddock Cove, from the first property line into the water 75 yards from the low water mark. The surface material of the beach contains a mix of silica sand, or quartz sand and shell fragments, which is typical of other shorelines along this area of the coast and has a light brown appearance. The native sand is approximately 0.16mm in size.

Along the shoreline, the existing dunes system varies in depth and height. This system is defined by the Town of Hilton Head Island's Municipal Code as "one or a series of hills or ridges of wind-blown sand or one or a series of hills or ridges of sand resulting directly or indirectly from restoration or beach renourishment, all of which may or may not be anchored by vegetation and is in the vicinity of the beach." The average dune height is approximately six feet, with heights ranging from three to twelve feet.

Calibogue Sound lies between Hilton Head Island to the west and Bull Island and Daufuskie Island to the east. It is the southernmost embayment in South Carolina. This Sound floods and drains extensive salt marshes landward of Hilton Head and Daufuskie Islands. A large intertidal shoal, Grenadier Shoal, has remained stable on the west side of Calibogue Sound for all of the 20th century. It lies seaward of Daufuskie Island and to the southwest of the main channel (See Figure 4- Shoreline Changes, Calibogue Sound 1898-1977). Eastward of this channel the shoals are more short-lived. They result from the littoral transport of sediment eroded from the central portion of Hilton Head Island. The accumulation of these shoals at the southwest corner of Hilton Head Island is the first step in forming the ebb tidal delta of Calibogue Sound.

FIGURE 4 – SHORLINE CHANGES CALIBOGUE SOUND 1898-1977

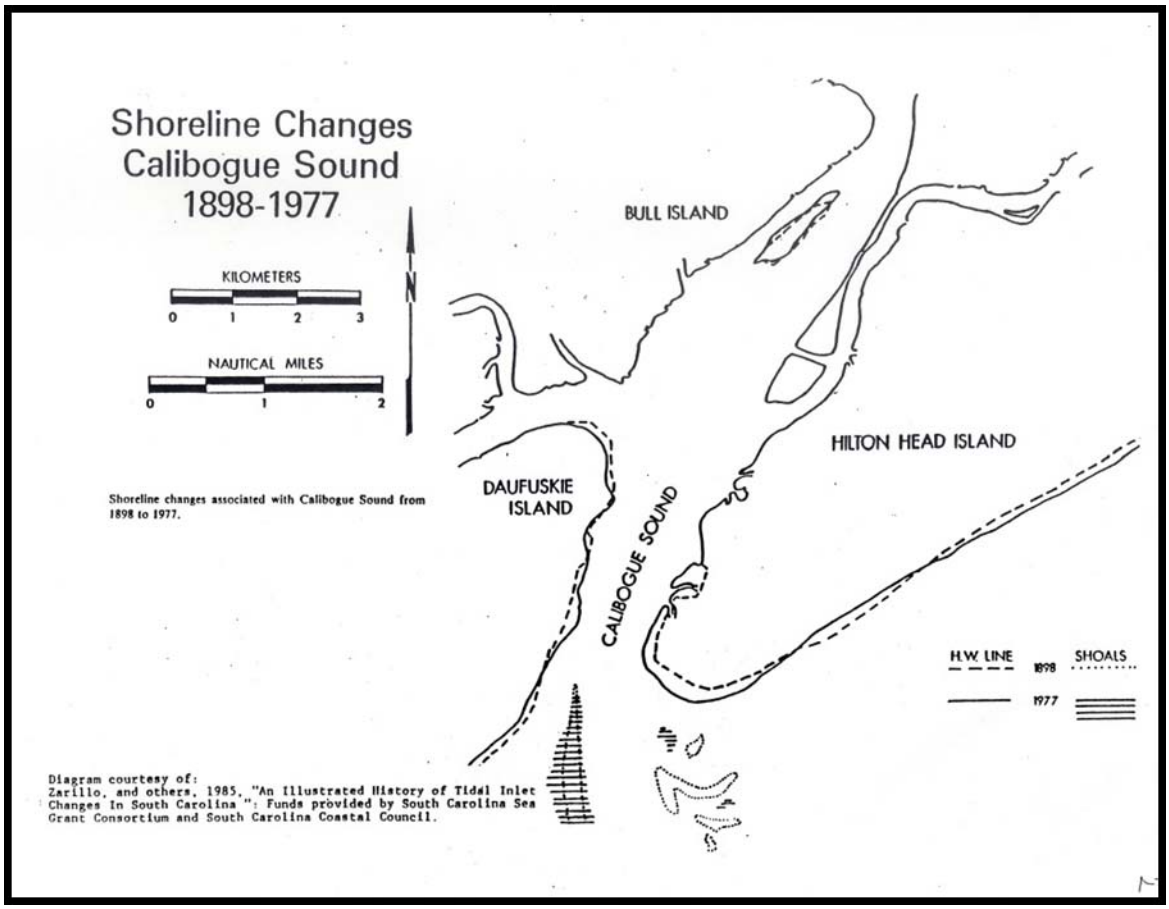
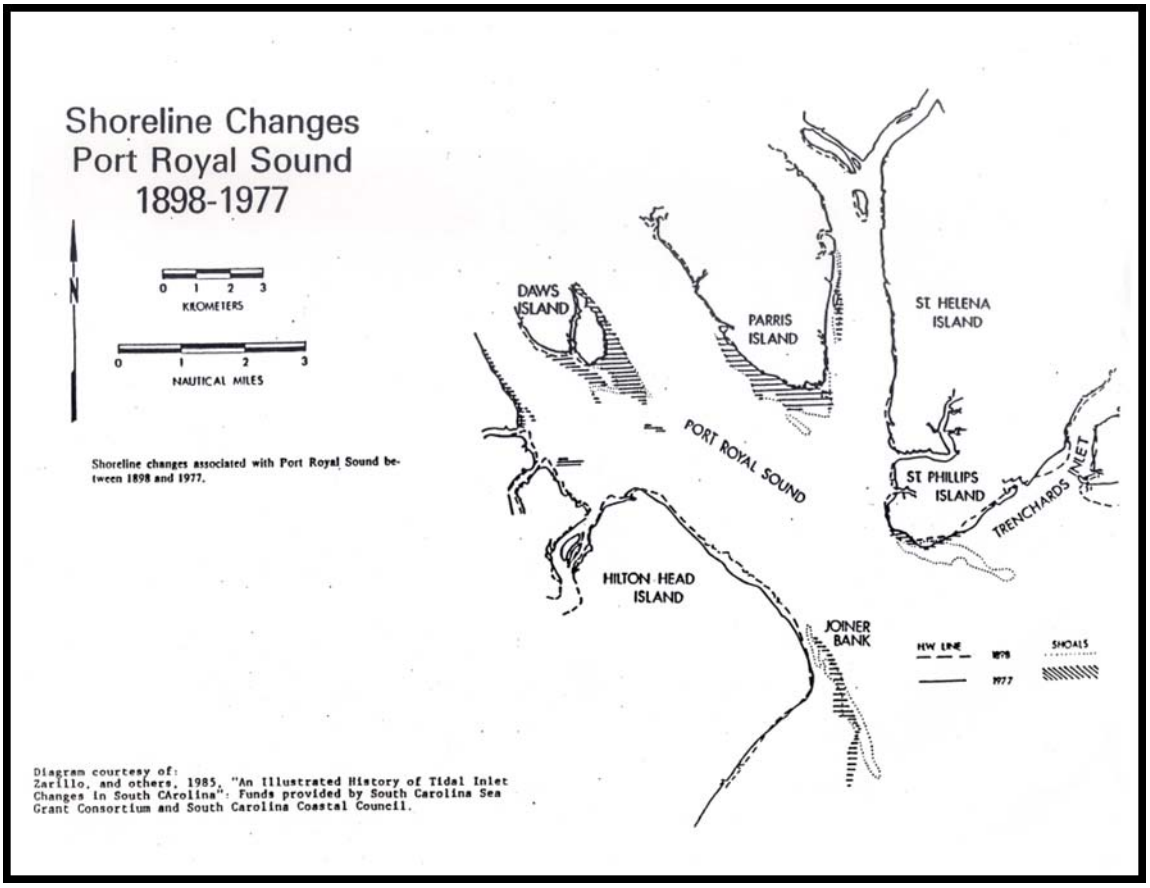


FIGURE 5: SHORELINE CHANGES CALIBOGUE SOUND 1898-1977



2.2 GENERAL LAND USE PATTERNS

Hilton Head Island is known for its incredible natural beauty and a sense of harmony between the natural and built environment. Over 70% of Hilton Head Island has been developed with master planned communities, which occupy the majority of the Island's shoreline. These beachfront planned developments include Sea Pines, Palmetto Dunes, Port Royal, and a small portion of Shipyard. In general, these developments are largely single family developments with some multi-family and resort areas along the beach. Other beachfront areas include South and North Forest Beach, Folly Field, Singleton, and Bradley Neighborhoods. (See Figure 2: Hilton Head Island Description.)

According to the 2010 Census, there are approximately 37,099 permanent residents on the Island. .Census data also indicates that the Island's population consists of a higher percentage of older adults and retirees with a median age of 50.9 and average income of $70,041. The racial composition of Island

residents is predominately white, 75.2% with an average household size of 2.3 people. The beach and associated amenities drive the Island's economy and contribute significantly to the economic vitality of the region supported by the Island's tourism industry support the Island's tourism industry, which drives the Island's economy and contributes significantly to the economic vitality of the region (See Figure 2 - Island Description).

2.2.1 Beach Uses

In the past 25 years, the beach at Hilton Head Island has gone from an area where only a few beach walkers, sunbathers, and swimmers frequented, to an area with more varied activities. The primary uses of the beach include the traditional uses of walking, wading, swimming and sunbathing. The Town contracts with a private company, Shore Beach Services, to provide life guard services during certain times of the year. This service also includes litter patrol, including recycling, and beach rental items. Other activities that have become popular are fishing, surfing, kiting, volleyball, sailing, bocce ball and other beach games. The beach is also used for special events such as weddings, parties, fitness program locations, animal training locations, racing events, religious services, and even movies.

2.2.2 Benefits and Values of the Beach

Natural habitats and resources are also recognized for the economic benefits that they provide. Protection of natural resources is identified in the Town's Comprehensive Plan as essential to maintaining the high quality of life on Hilton Head Island. Residents indicate that the attributes of coastal ecosystems, including marshes, mature trees, marine waters, and sandy beaches influenced their decision to purchase property on Hilton Head Island. In addition, the accessible ocean beach is a predominant factor in the local tourism and vacation rental economy. Eco-tourism has also increased as an economic market around Beaufort and on Hilton Head Island.

Hilton Head Island's shoreline is a diverse and productive ecosystem that serves as a critical link between the water and the land. The sandy beach and dunes system serves as the Island's first line of protection from the high winds and waves associated with storm activities and turbulent seas. This area also supports a rich web of life including animals like worms, clams, shrimp and crabs that in turn attract predators such as seabirds, which depend on sandy beaches for their foraging activities. The beach provides critical nesting habitat for several species of birds and animals, particularly the threatened loggerhead sea turtle. Recreational opportunities such as fishing, swimming, beachcombing, bird-watching, and sunbathing are also provided by the beach and contribute significantly to the success of the multi-million dollar tourism industry on the island.

According to the Hilton Head Island-Bluffton Chamber of Commerce, the Island hosts approximately 2.4 million annual visitors with the beach and its associated amenities being the most important reason

for choosing Hilton Head Island (Hilton Head Island Visitor Profile and Conversion Study, 2010). According to this same study, travel parties reported spending an estimated $2,726 per trip during week-long trips to the Island. In order to help maintain the recreational quality of the beach associated with this industry, the Town of Hilton Head Island exercises beach renourishment as its primary means of shoreline management, which is anticipated to be needed every seven years.

The primary source of funding for these renourishments is a 2% local Accommodations Tax levied on short term rentals, hotels and motel accommodations, which provided $5.3 million last year in funding dedicated to beach renourishment and related monitoring, dune refurbishment, maintenance and operations, and new beach parks and beach access facilities. It is anticipated that this source of funding will remain a viable option in future years. This document contemplates this and other issues surrounding the continuation of the Town's Beach Management Program and other alternatives for shoreline management, including shoreline retreat. The Town adopted special zoning districts along the beachfront to prevent development from moving further seaward, which is discussed in more detail in the Land Use Development and Zoning section.

The economic impact of the coastal areas has also been recognized by DHEC OCRM in a report that was issued in October of 2002. According to this report, 22% of the state's economy is a result of the output of revenues from coastal areas. This report also indicated that a quarter of the state's population growth in the last 10 years has occurred in the eight coastal counties. One in every three new private jobs during the past decade has been created along the coast and when compared to other areas of the State the average income in coastal areas is higher (Henry, M.S. & Barkley, D.L. 2002. The Contribution of the Coast to the South Carolina Economy. Clemson University Regional Economic Development Research Laboratory).

2.3 BEACHFRONT DEVELOPMENTS AND ZONING

The Town's Land Management Ordinance, in Chapter 3 (Zoning Districts) provides for the establishment of certain base and overlay districts for the purpose of guiding development in accordance with existing and future needs and in order to protect, promote and improve the public health, safety, morals, convenience, order, appearance, prosperity and general welfare. Of these zones, a large portion of the beachfront area is zoned PD-1 (Planned Development Mixed-Use District). Sea Pines and Port Royal Master Plans specifically identify much of their beachfront area as 'open space.' To change this land use, it typically would require a vote of the majority of property owners as this property is typically owned by the POA. Such a change would then require a rezoning by Town Council.

Other areas along the beach are classified into different zones. The designation of 'open space' along the beach is not specifically identified in these other zones as it is in the PD-1 zone. In some instances, this

has led to certain parcels "(strand blocks)" being sold to developers who are looking into the possibility of developing these parcels. These strand blocks typically contain remnants of the dunes system that lie landward of the primary dune. Development of these areas would therefore destroy the remaining dunes system. The Town is taking steps to prevent this, as described later in the Shoreline Retreat Policy Section.

Density in the zoning districts is limited, in part to protect and preserve the beach and dunes system. The PD-1 zoning districts are typically 2 or fewer units/acre. The beachfront zones which allow the most density are the Coligny Resort District, for which the allowable density is undefined. It is limited by applicable design and performance standards such as height and parking. The Resort Development District allows 16 dwelling units per acre.

The following is a listing and brief description of the character and purpose of each of the beachfront zoning districts (See Figure 6 - Zoning District Map.)

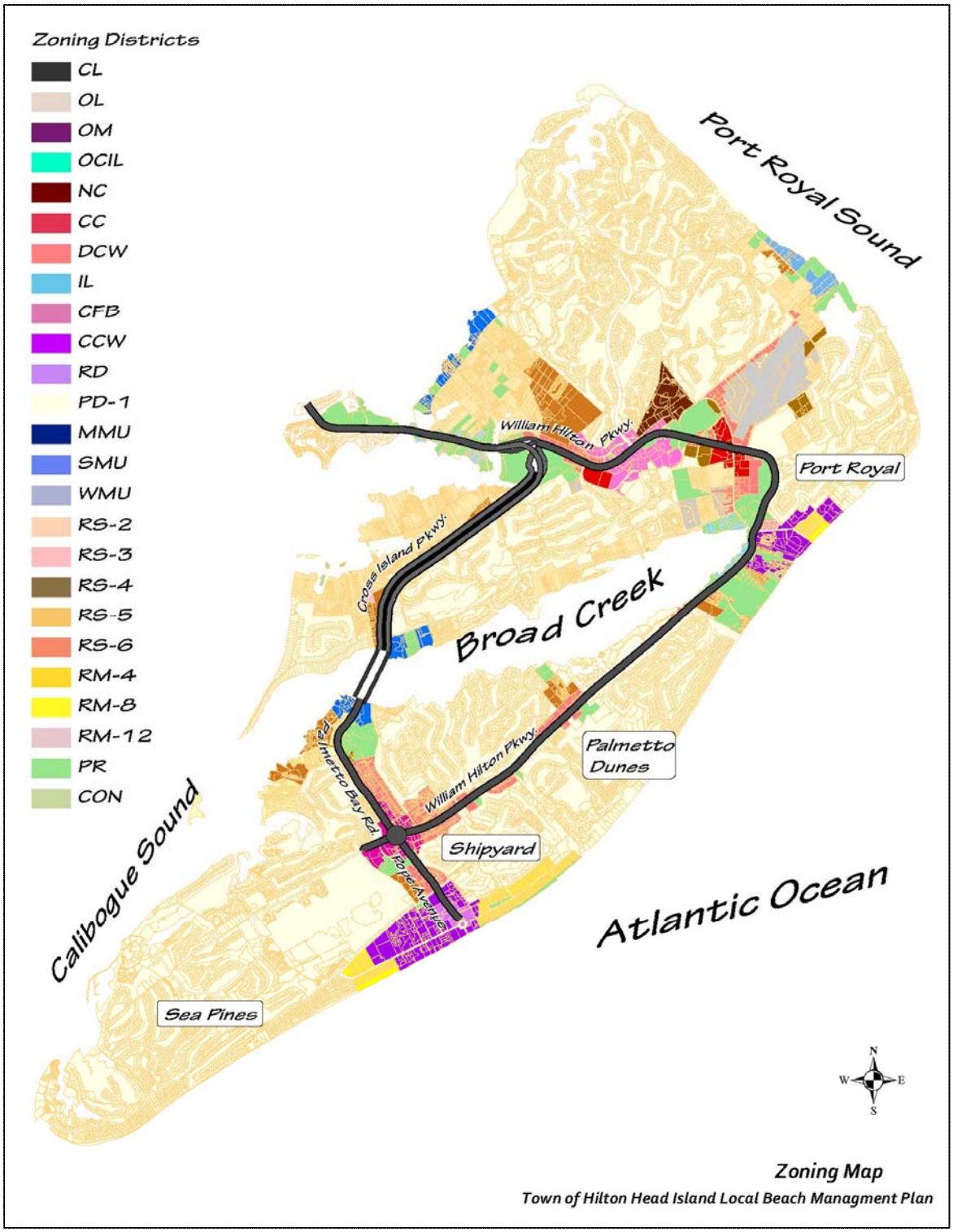
- PD-1 (Planned Development Mixed-Use District):
  The purpose of the Planned Development Mixed-Use (PD-1) District is to recognize the existence within the Town of certain unique Planned Unit Developments (PUDs) that are greater than 250 acres in size. Generally, these PUDs have served to establish the special character of Hilton Head Island as a high quality resort and residential community. It is the intent in establishing this district to allow the continuation of well planned development within these areas. In limited situations, some commercially planned portions of PUDs are placed within other base districts to more specifically define the types of commercial uses allowed.
- RSF-6 Residential Single-Family-6 District:
  The purpose of the Residential Single-Family-6 (RSF-6) District is to primarily accommodate single-family dwellings at densities ranging up to six units per acre. It is intended to discourage any use that would substantially interfere with the development of single-family dwellings or would be detrimental to the quiet residential nature of single-family neighborhoods. The district also accommodates agricultural uses and parks as permitted uses.
- RM-8 Moderate Density Residential District:
  The purpose of the Moderate Density Residential (RM-8) District is to allow the development of residential uses at densities up to eight dwelling units per net acre. The district allows a variety of residential uses, along with uses that support neighborhoods. The district is intended to discourage development that would substantially interfere with, or be detrimental to, moderate residential character.
- Coligny Resort District:
  The purpose of the Coligny Resort (CR) District is to recognize and promote further investment in the area near Coligny Circle as an activity center and a core high-energy and visitor oriented resort destination that encourages people to live, work, and recreate within the district. The district is

intended to accommodate relatively high-intensity commercial, office, residential, and mixed-use development that is pedestrian oriented and human-scale. It is also intended to promote development that integrates civic and public gathering spaces and connects to such places in nearby developments and public places.

- RD (Resort Development District):
  It is the purpose of the Resort Development (RD) District to provide for resort development in the form of multifamily development, bed and breakfasts, and resort hotels. It is also the purpose of this district to provide for commercial development aimed at serving the island visitor.
- PR (Parks and Recreation District):
  The purpose of the Parks and Recreation (PR) District is to accommodate and manage the land uses allowed on publicly held land used for active or passive recreation purposes, or publicly owned land preserved in its natural state for public enjoyment. Development in this district shall be allowed and designed to minimize, as much as possible, its impact on both the natural environment and the community.
- CON (Conservation District):
  The purpose of the Conservation (CON) District is to preserve and protect environmentally sensitive tidal wetland and beachfront lands subject to natural hazards by ensuring these areas only accommodate very low intensity development that minimally disrupts natural features or systems (either temporarily or permanently). The upland boundary of this district corresponds to the OCRM Critical Line and therefore is approximately coterminous with all tidal wetlands and the upland boundary of the beach, as defined in Section 8-1-112 of the Municipal Code, and extends outward to the Town jurisdictional boundary, as identified in Section 2-1-20 of the Municipal Code.
- FF-NC-O Folly Field Neighborhood Character Overlay District:
  The purpose of the Folly Field Neighborhood Character Overlay (FF-NC-O) District is to protect the single-family residential character of the district and in particular the development and redevelopment of lots within the district. All new development and changes to existing development in the district are subject to the overlay district regulations in addition to those listed in Sec. 16-3-104.C, Residential Single-Family-5 (RSF-5) District.
- FB-NC-O Forest Beach Neighborhood Character Overlay District:
  The purpose of the Forest Beach Neighborhood Character Overlay (FB-NC-O) District is to protect the single-family residential character of the district and in particular the development and redevelopment of lots within the district. All new development and changes to existing development in the district are subject to the overlay district regulations in addition to those listed in Sec. 16-3-104.C, Residential Single-Family-5 (RSF-5) District.
- HH-NC-O Holiday Homes Neighborhood Character Overlay District:
  The purpose of the Holiday Homes Neighborhood Character Overlay (HH-NC-O) District is to protect the single-family residential character of the district and in particular the development and redevelopment of lots within the district. All new development and changes to existing

development are subject to the overlay district regulations, in addition to those listed in Sec. 16-3-104.D, Residential Single-Family-6 (RSF-6) District. Existing nonconforming structures and site features may be expanded as long as the site complies with certain standards for the required floor area ratio (FAR) and maximum impervious cover.

FIGURE 6 – ZONING MAP



Zoning regulations for beachfront areas adjacent to these PUD's are based on their individual master plans as part of the Planned Development Mixed Use Zoning District (PD-1) within the Town. In addition to these regulations, the Town's Land Management Ordinance requires that developments along the beach comply with special zoning districts.

Table 1: Major Beachfront Planned Developments

Sea Pines Plantation: 4,694 acres 5,890 residential units maximum permitted (includes both single family and multi-family)
Shipyard: 726.3 acres 279 single family lots 1,588 multi-family/hotel units 1,867 units total
Palmetto Dunes: 1839 acres 1,231 single family 3,653 multi-family 4,884 total units
Port Royal: 1,254 acres 1,021 single family lots/homes 1,032 multi-family 2,053 total units

Town of Hilton Head Island, 2007

The following is a summary of the private covenants and restrictions that apply to each of the beach-front planned developments moving south to north along the Island's shore.

Sea Pines

Setbacks and other restrictions for properties in this PUD are outlined in the "Guidelines and Procedures for Design and Construction of Single Family Residences" (November 1991).

Owners of oceanfront lots are strongly encouraged to locate new homes as far from the beach as possible. Thus, the Sea Pines Architectural Review Board (ARB) has established a setback from the oceanfront property line for all vertical construction of 50 feet or 25 percent of the lot depth, whichever is greater. The ARB reserves the right, depending on special circumstances on a case-by-case basis, to approve variances from this setback guideline. The ARB also applies several aesthetic and natural setting considerations as it reviews proposed beachfront projects.

Setback requirements for pools and spas are also outlined in the guidelines for beachfront lots the decks of "in-ground" and "above-ground" pool and spa units, including decking, are considered "vertical" structures and are thus subject to the minimum 50 foot setback from the beachfront property line.

Persons who believe these regulations are unfair, inconsistent with past practices, or fail to consider all relevant facts and information may formally request the matter be reviewed and reconsidered again by the ARB via an appeal or variance. The Guidelines and Procedures outline the process for such appeals or variances.

Shipyard

This development has very limited beachfront area, which is currently developed with a hotel and beach club for visitors and residents of the development. Beachfront setbacks for the development are not mentioned within the Shipyard ARB guidelines or restrictive covenants, so the Town's setbacks apply that are further described in Section 4.2.4, Beachfront Development Regulations.

Palmetto Dunes

Setback requirements for this development are outlined in its "Architectural Review Board Policies, Procedures and New Construction Guidelines" (March 2005). This outlines the beachfront setback requirements as generally being 50 feet from the beachfront. Pools and their surrounding decks have a setback of 20 feet. Variances from these setbacks may also be sought from the Architectural Review Board.

Port Royal

Setbacks in this PUD are outlined in the "Port Royal Plantation Plans Approval Board Guidelines and Procedures" (November, 2005). Property line setback regulations require that no vertical construction shall be closer than 50 feet from a property line adjoining a golf course, lagoon, ocean, dune area or marsh. Variances and appeal procedures area also included.

2.3.1 Beachfront Structural Inventory

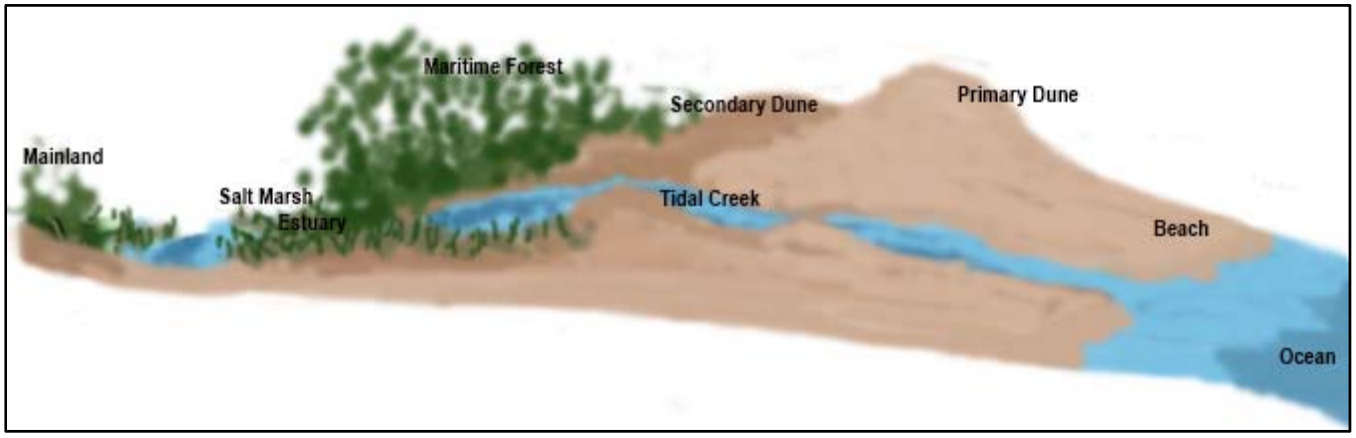
Section 48-39-350(A) (3) of the Beachfront Management Act requires all communities to include an inventory of all structures located seaward of the DHEC OCRM setback line as part of their local beach management plan. This inventory was conducted using the Town's GIS system and can be found in Appendix A.

Structural inventory guidelines required by the state are as follows:

- If any portion of a structure is seaward of the setback line document the distance seaward the structure is located.
- Commercial structures are considered habitable structures;
- Count all detached structures as separate buildings (decks, boardwalks, pools, etc.); and
- An erosion control structure which covers more than one tax parcel should be counted as a separate structure for each parcel.

2.4 NATURAL RESOURCES AND ECOLOGICAL HABITATS

FIGURE 7: BARRIER ISLAND ENVIRONMENTS



A main concern in managing South Carolina's ocean beaches is the protection and conservation of coastal natural resources and ecological habitats. As part of a coastal barrier island, the Hilton Head Island beachfront exhibits a variety of natural resources due to the diversity of ecotypes and habitats that occur. The interaction between shifting terrestrial sand dune and beach habitats, shallow coastal waters, and the open ocean result in a dynamic landscape that is used by various organisms.

Three terrestrial habitats are found around the Hilton Head Island beachfront, namely the beach community, maritime shrub thickets, and maritime forest. Maritime forests are upland communities

typified by live oak, cabbage palmetto, and loblolly pine. Small remnant patches of this habitat are scattered throughout the island. Maritime shrub thicket communities commonly grow in older dunes, behind the primary dunes, and include salt tolerant shrubs such as wax myrtle, yaupon holly, and red cedar. Finally, the beach community generally includes the open beach and dune habitats, as well as the foreshore zone that is frequently inundated by the tides. Each ecological community provides benefits to plants and animals that use the habitat to forage, as shelter for nesting or for a combination of these uses.

The zone of dunes extends from the seaward edge of the beach berm to the seaward edge of the maritime forest tree line. Dunes on Hilton Head Island are relatively small due to the lack of strong, direct winds. Dunes form when wind-blown sand lodges against an obstacle. Native plants, including sea rocket, seaside pennywort, morning-glory species, beach pea, dune sandbur, sea oats, seaside panicum, camphorweed, yucca species, wax myrtle and yaupon, are resistant to blowing salt and stabilize the dunes with their roots. The typical "dune field" has five zones:

- Sea wrack: Debris, primarily dead spartina grass, deposited by high tides.
- Embryo dune: Sand that collects in the sea wrack.
- Foredune: The seaward dune that is stabilized by plants.
- Interdune troughs: Low areas between dune ridges.
- Back dunes: One or more dunes landward of the foredune populated by common seaside grasses, shrubs and stunted trees.

The importance of barrier islands as habitat for plants and animals is significant. Many animals are dependent on smaller prey available on open beach habitats as part of complex food webs. Some animals also require the sands of primary dunes on barrier islands, such as at Hilton Head Island, for nesting sites and are unable to successfully reproduce without access to this habitat. In the water, nearshore subtidal bars and sand flats can support large numbers and species of marine invertebrates and fish that cannot thrive in the open ocean. Long-term or permanent alteration to these habitats can affect the type, health, and vitality of marine plants and animals.

Natural habitats and resources are also recognized for the social and economic benefits that they provide. Protection of natural resources is identified in the Town's Comprehensive Plan as essential to maintaining the high quality of life on Hilton Head Island. Residents indicate that the attributes of coastal ecosystems, including marshes, mature trees, marine waters, and sandy beaches influenced their decision to purchase property on Hilton Head Island. In addition, the accessible ocean beach is a predominant factor in the local tourism and vacation rental economy. Eco-tourism has also increased as an economic market around Beaufort and on Hilton Head Island.

FIGURE 8: THE FOLLY TIDAL CREEK ESTUARY

Several natural resource protection efforts have been achieved and continue for the Town of Hilton Head Island.

- **Beach nourishment:** Conducted in 1990, 1997, 1999 (emergency work at South Beach) and**,** 2007 and 2012This created a suitable nesting habitat for sea turtles along miles of previously eroded and/or reveted beach. It protects the sand dune habitat, promotes native plant and animal species that depend upon it and protects the shoreline from destruction by erosion. Approximately 8 miles of beach have been renourished.
- **Dune rebuilding/revegetation:** Sand fencing and native beach plants are routinely installed to help enhance the restoration of dune habitat previously destroyed by erosion.
- **Sea Turtle Protection Ordinance:** Established in 1990, this ordinance helps protect nesting sea turtles and emerging hatchlings by reducing disorientation caused by artificial lights shining onto the nesting beach. Prior to each season, the Town and the Coastal Discovery Museum use the media and informational brochures to advertise the ordinance. Town Code Enforcement Officers patrol the beaches regularly at night throughout the season to ensure compliance.
- **Sea turtle monitoring**: This has been an ongoing program of the Coastal Discovery Museum since 1984 (funded by the Town since 1989) that surveys and inventories sea turtle nests which provides information on nesting activity and hatchling success rate. The Town has been accurately mapping the nests since 1999 using GPS technology.

- **Tree protection ordinance:** Established in 1986, this ordinance protects native vegetation. Through the tree approval process, parcels are examined prior to development to ensure trees are marked for removal according to the approved site plan. Applicants are also encouraged to protect non-tree understory plants and are required to replant native trees similar to those removed if the post-development site no longer meets ordinance standards.
- **Wetland protection ordinance:** Established in 1986, this protects both salt and freshwater wetlands through the use of setbacks and buffers. Mitigation in-kind and on-site or - at another location on the Island is required for any wetland alteration. Monitoring the success of the mitigation is required for three years, with written reports required every six months and corrective action taken as necessary.
- **Design Review Board:** Established in 1987, this board reviews development projects along major roads, conservation districts, and waterfront areas (including beaches). It requires vegetated buffers (natural preferred) along waterfronts; reviews landscape plans to insure that a post-development site is adequately vegetated and encourages the use of native plant materials.
- **Land Acquisition Program:** Established in 1990, this program allows the Town to purchase properties for a variety of reasons, including beachfront and environmentally sensitive lands. The Town now owns over 1,312acres. Most undeveloped beachfront property outside of the gated communities is now owned by the Town.
- **Town Staff:** An Environmental Planner and Sustainable Practices Coordinator have been hired since the initial adoption of the Town's Beach Management Plan. The Environmental Planner reviews site plans (including beachfront). The Sustainable Practices Coordinator prepares educational material such as brochures, performs biological monitoring, works to insure the Town is green in all its operations, implements the Town's Sustainability Plan (Green Blueprint) and performs other natural resources functions for the Town. The Codes Enforcement Officer is responsible for tree and wetland protection, including beachfront codes enforcement.
- **Water Quality Monitoring:** DHEC manages the water quality monitoring program for the Island's monitoring and testing of the beachfront for enterococcus.

2.4.1 Threatened and Endangered Species

The following is a listing of Endangered and Threatened Species, and species of Special Concern that use the beachfront, followed by a map (Figure 9—Piping Plover Critical Habitat) of the only known beachfront critical habitat on the Island for the piping plover.

Table 2: Endangered and Threatened Species, and Species of Special Concern Using Hilton Head Island Beach

Name	***Status***	***Habitat/Activity***
Loggerhead Sea Turtle	Threatened, FS	Beaches (nesting)
Green Sea Turtle	Threatened, FS	Beaches (nesting)
Kemps-Ridley Sea Turtle	Endangered, FS	Nearshore waters (Foraging)
Leatherback Sea Turtle	Endangered, FS	Beaches (nesting)
Eastern Brown Pelican	Species of Special Concern, S	Beaches
Least Tern	Threatened, S	Beaches, Dunes (nesting)
Wilson's Plover	Threatened, S	Beaches, Dunes (nesting)
Piping Plover Red Knot	Threatened, F Threatened, S Threatened, F	Beaches Intertidal Flats(Wintering) Beaches, Intertidal Flats (Wintering)
Island Glass Lizard	Species of Special Concern, S	Dunes
Seabeach Amaranth	Species of Special Threatened, F Threatened, S	Dunes (Plant)

F—Federally Protected Species S— State Protected Species

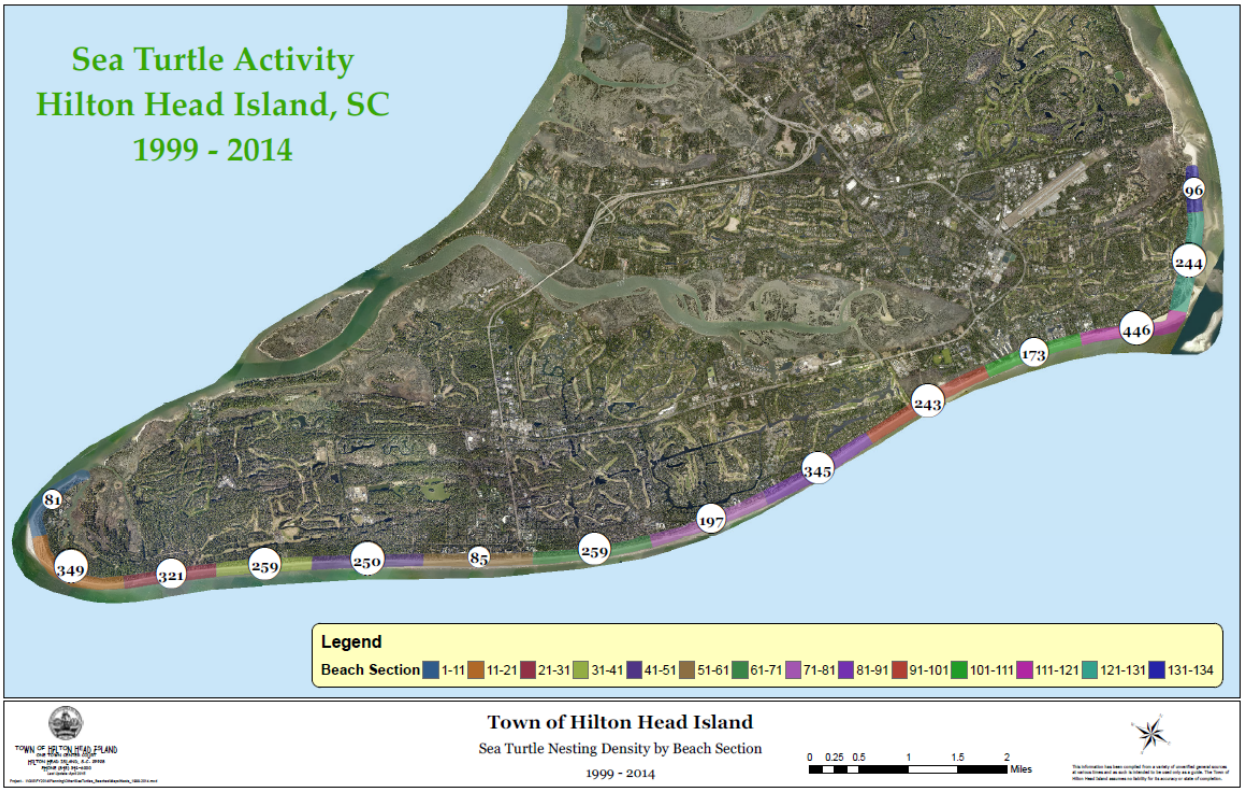
Source: USFWS and Town of Hilton Head Island, 2014

FIGURE 9: PIPING PLOVER CRITICAL HABITAT

Source: U.S. Fish and Wildlife Service

2.4.2 SEA TURTLE NESTING

FIGURE 10 – SEA TURTLE ACTIVITY 1999-2014



2.5 EXISTING PUBLIC ACCESS AND MAP

In 1989, the Town of Hilton Head Island received a $6,200,000 grant from the State of South Carolina (of which $2,500,000 was received from SCCC) for a beach renourishment project. As part of this agreement, the Town committed to providing between 2,000-3,000 beach parking spaces on the Island, with all of the facilities being within 1,000 feet of public beach access points.

The Town's original 1991 Beach Management Plan detailed public access parks, undesignated private parking areas, privately-owned beach access points (hotels, condominiums and beach clubs), neighborhood access points, future public beach parks and facilities, and emergency vehicular access points. This was approved by the State and included a commitment of 2,000-2,500 parking spaces.

In 1998, the Beach Management Plan was amended by the Town and approved by South Carolina Department of Health and Environmental Control to include a Beach Access Plan, which outlined a plan to construct a total of 1,400 public parking spaces by December 2008, reducing the previous 2,000-2,500 parking spaces in the earlier plan. This plan included the construction of spaces that could be reserved for Island residents and property owners; however, such spaces are not counted when the State designates "full and complete public access" areas on the beach, which can impact grant eligibility. Currently, the Town has 1,454 beach parking spaces, of which 1,062 are open to the general public of the State, so they do not meet the requirements to be considered in the calculation of the areas that are considered "Full and Complete Public Access" by the State, in accordance with the State's Beachfront Management Act. However, these spaces are recognized by DHEC OCRM for the purpose of meeting the previous 1990 grant requirement. Currently, the Town has met this revised obligation.

Figure 11: Town-owned Beach Parks and Parking, shows the location of Town-owned beach access and parking areas. Table 3 details the existing number of public parks owned by the Town of Hilton Head Island with their facilities.

Figure 12: Neighborhood Beach Access and Parking, shows the location of neighborhood beach access and parking. These facilities are provided by the PUD's and neighborhood associations and are used by thousands of Island residents and visitors. There are a total of 107 neighborhood beach access locations, eight of which have parking areas, which are used predominately by visitors and residents within the gated community in which they are located.

Figure 13: Private Beach Access and Parking, shows the location of private and multifamily beach access points and parking locations. These facilities are provided by hotels and condominium complexes. There are a total of 59 private access locations with parking on the Island.

Table 3: Existing Town-Owned Beach Parks and Parking

	Handicapped access	Boardwalk	Restrooms	Trash receptacles	Showers	Bike Racks	Drinking Fountain	Life guards/ rentals	Picnic pavilion	Natural trails	Sitting Deck	Viewing scope	Emergency Access	Historical Marker	Public Parking Spaces	Notes
Alder Lane Access	✓	✓	✓	✓	✓	✓	✓	✓							23*	
Coligny Area	✓		✓	✓	✓	✓	✓	✓			✓	✓	✓		522*	Parking breakdown: Coligny Circle Lot: 12 Paved Lot: 430 Unpaved: 80
Chaplin Park & Burkes Beach Road			✓	✓	✓	✓	✓	✓		✓			✓		258*	Parking breakdown: Burkes Beach Road: 13 w/in 1000' Chaplin Park: 110 w/in 1000' Castnet: 135 via shuttle
Driessen Beach Park	✓	✓	✓	✓	✓	✓	✓	✓	✓						179* 28	28 Spaces for Island Beach Pass Holders (Residents and Property Owners)
Folly Field Park	✓	✓	✓	✓	✓	✓	✓	✓							55*	
Islanders Beach Park	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓		25* 131	131 Spaces reserved for Island Beach Pass Holders (Residents and Property Owners)
Fish Haul Park	✓		✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	47	
Mitchelville Beach Park & Barker Field	✓	✓	✓	✓		✓	✓				✓	✓		✓	186	101 at Mitchelville Beach Park and 85 via boardwalk at Barker Field

*Parking contributing to full and complete public access.

FIGURE 11 – EXISTING BEACH PARKS WITH PARKING

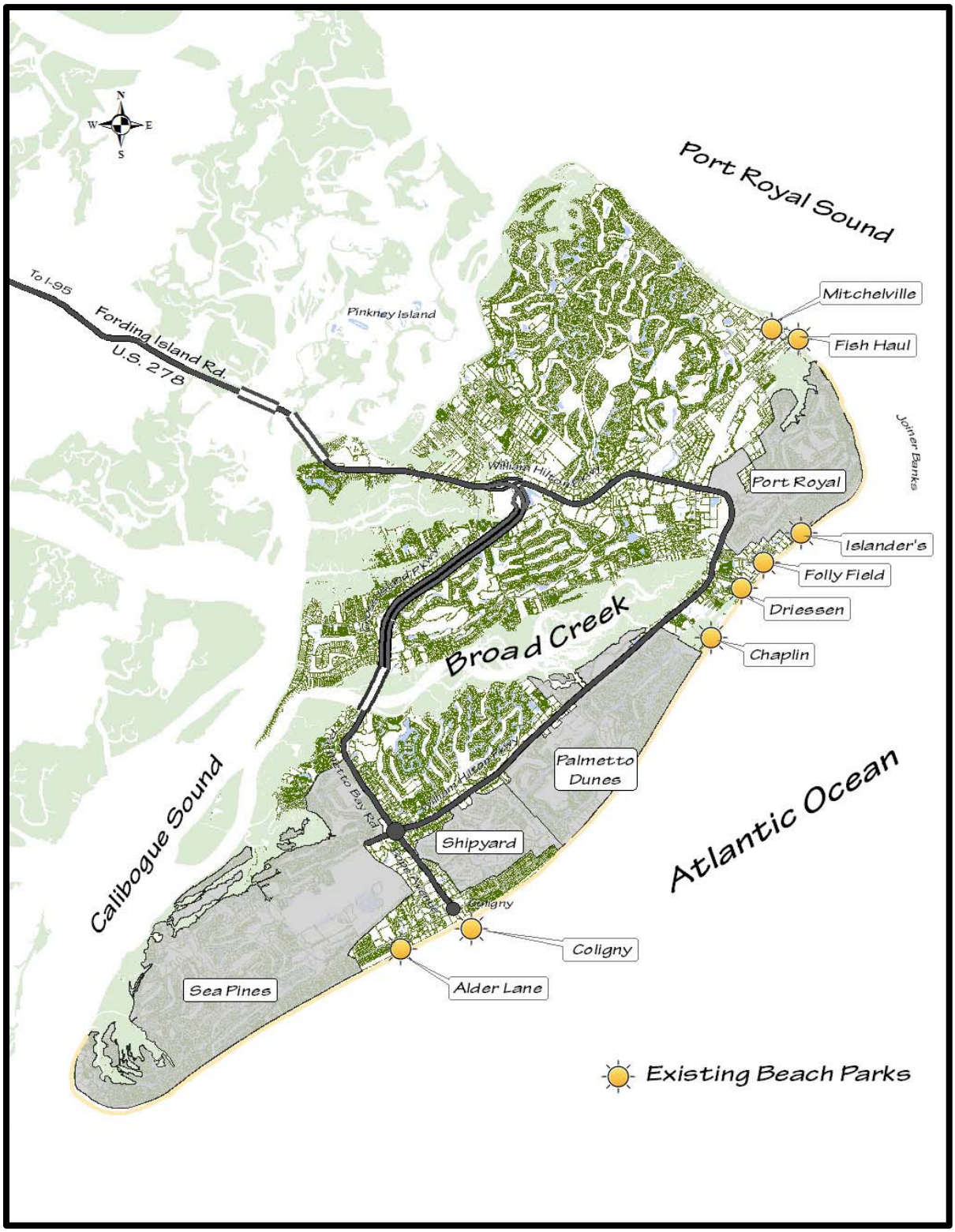


FIGURE 12 – NEIGHBORHOOD BEACH ACCESS AND PARKING LOCATIONS

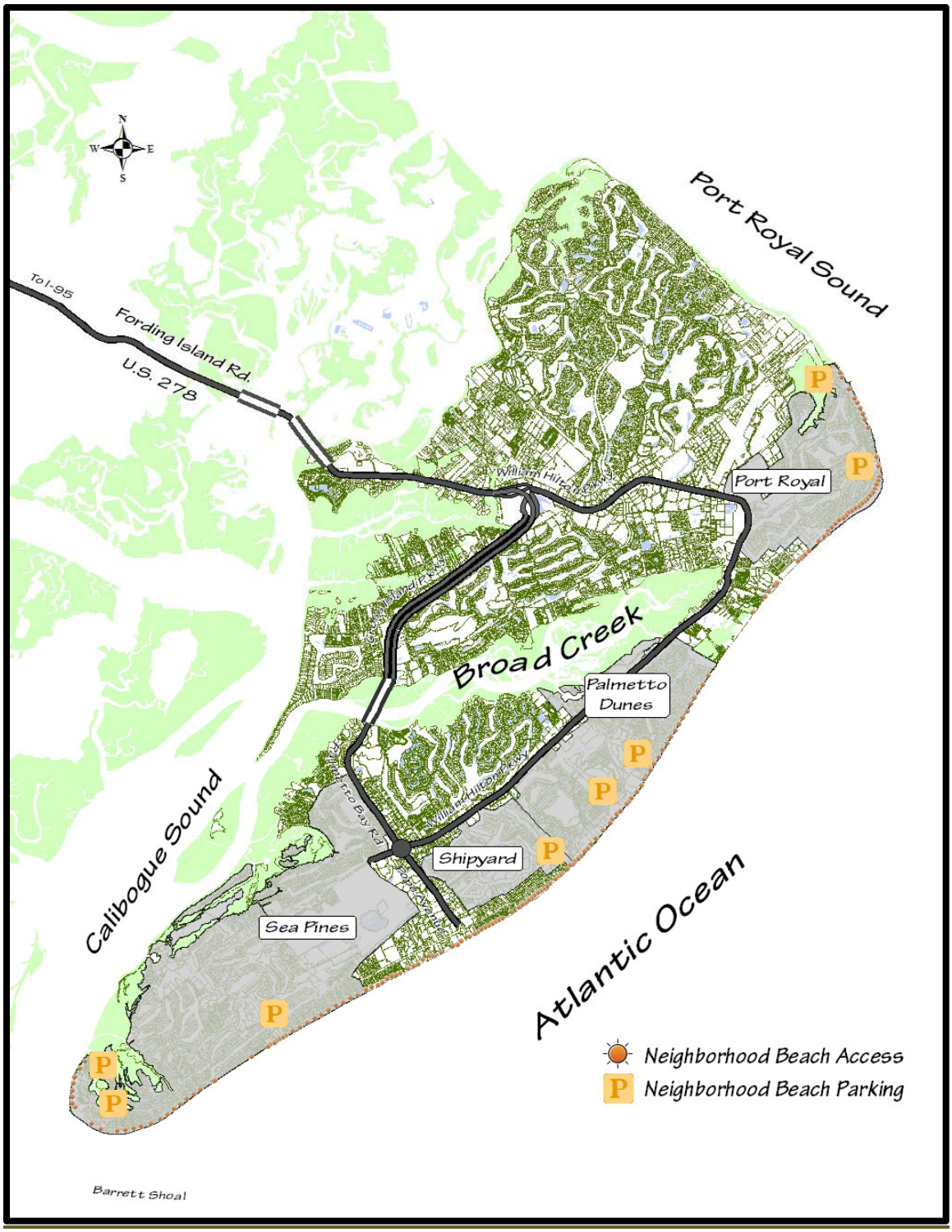
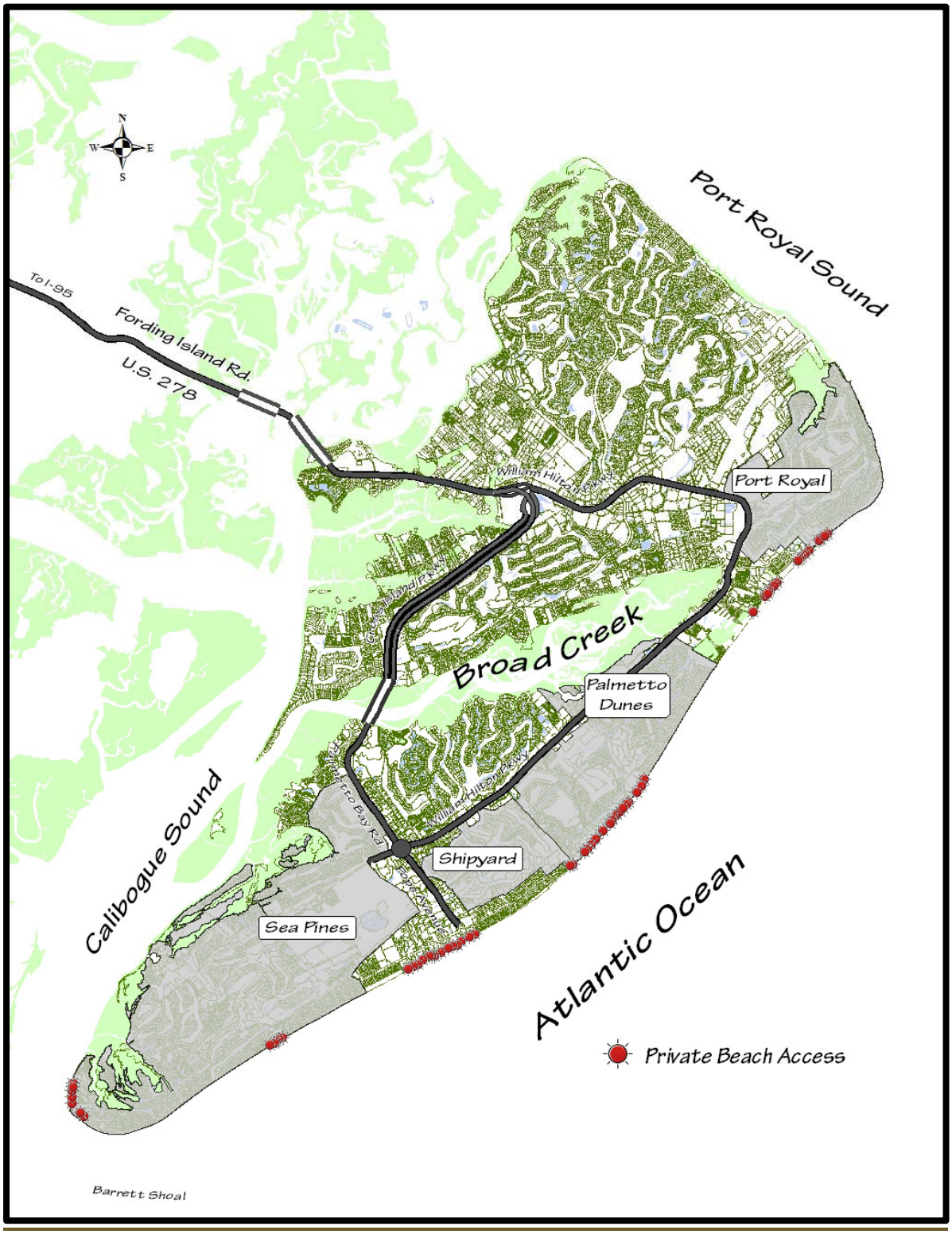


FIGURE13 – PRIVATE BEACH ACCESS



FULL AND COMPLETE PUBLIC ACCESS

DHEC OCRM classifies areas along the beach that are considered to offer full and complete public access, which is defined based on the criteria shown in Table 4 below. This classification is factored into the review of some State grants.

Table 4:
DHEC-OCRM Public Beach Access Facility Classification
(SCCC, 1995)

Type of Facility	Distance on either side of Access Point which will be considered as having Full and Complete Access	Minimum Facilities
Public Access Point	**1/8 Mile**	**Trash Receptacle, Walkover/Improved Surface Access; Signage; On-Street Parking For 6 Vehicles**
Local Public Access Park	**1/4 Mile**	**As Above, Parking For 10 Vehicles**
Neighborhood Public Access Park	**1/2 Mile**	**As Above, Showers, Restrooms, Parking For 25 Vehicles**
Community Public Access Park	**3/4 Mile**	**As Above, Showers, Handicapped Access; Parking For 75 Vehicles**
Regional Public Access Park	**1 Mile**	**As Above, Parking For 150 Vehicles And Greater**

On Hilton Head Island, the number and distribution of public access points are excellent. Sufficient access points, signage, facilities and parking exist to classify approximately 20% of the Hilton Head Island beach as having full and complete access per the State guidelines (SCCC, 1995; see Table 4). DHEC OCRM recognizes that full and complete public access is provided in two main areas along approximately 3.9 miles of the 13-mile beach (see Figures 14 and 15):

1. from a point ½ mile (2,640 feet) northeast of the public beach access at Islanders Park to a point ¾ mile (3,960 feet) southwest of the public beach access at Chaplin Park; and

2. from a point 1 mile (5,280 feet) northeast of the public access point at Coligny Beach park to a point ¼ mile (1,320 feet) southwest of the public beach access at Alder Lane.

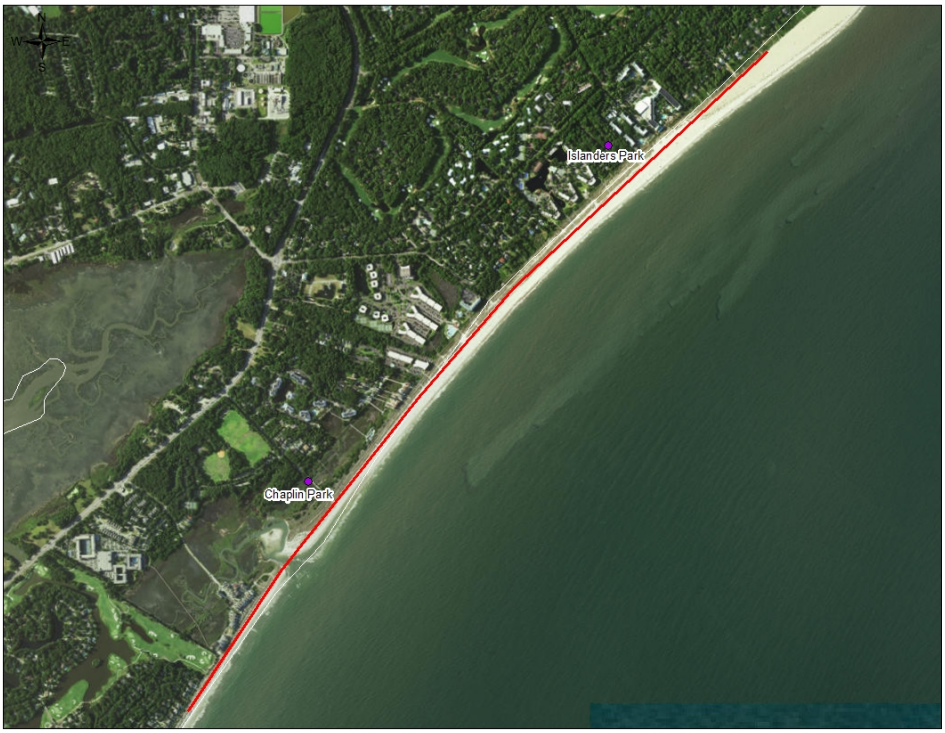
While Mitchelville and Fish Haul Parks provide significant public access and parking, both parks are located outside of the extent of the state ocean beachfront jurisdiction. These parks are noted as providing public access and parking but are not included in calculations related to "full and complete public access". DHEC OCRM does not recognize these parks as providing "full and complete public access" in accordance with the State Beachfront Management Plan.

The majority of public parking associated with the Town-owned public beach access points is located within 1,000 feet of the accesses. Only one beach parking location is in excess of 1,000 feet. Shuttle service is available for this location if the need arises. Establishing public parking closer to the beach would be infeasible due to infrastructure and development constraints. Based on these considerations, DHEC OCRM has agreed to allow public parking located greater than 500 feet away from the sand beach to be a factor in classifying these sections of Hilton Head Island's beach as achieving "full and complete" public access in accordance with the guidelines established in the State Beachfront Management Plan.

Signage indicating the public access points, as well as local beach regulations is located at each of the Town's public beach access points. In addition, dog waste collection and disposal containers are located at many of the public access points, as well as recycling collection bins.

FIGURE 14: ALDER LANE AND COLIGNY-FULL AND COMPLETE ACCESS AREA

FIGURE 15: CHAPLIN TO ISLANDER'S-FULL AND COMPLETE ACCESS AREA



3 - BEACHFRONT DRAINAGE PLAN

The Town of Hilton Head Island does not have any existing drainage outfalls along the beachfront (either natural or anthropogenic) and Section 16-5-602 of the Town Code prohibits any future development from directly discharging storm water onto the beach.

The beachfront areas of the Island can be divided into 6 major natural drainage basins none of which drain to outfall structures on the beach (see Figure16: Hilton Head Island Watersheds). In all of the drainage basins, the most common methods of conveyance are lagoons, swales, and pipes. In general, storm water is carried from the beachfront areas to the adjacent inland bodies of water. There are no significant grade differences on the island, necessitating the use of four pump stations during heavy rains to protect against flooding. They are located at Lawton Creek in Sea Pines, Cordillo Parkway in Shipyard, Broad Creek in Wexford and Jarvis Park.

The southernmost portion of the Island drains into Baynard Cove and Braddock Cove which in turn drain into Calibogue Sound. To the north, the second basin in Sea Pines Resort and South Forest Beach drains into Lawton Canal which is pumped toward Calibogue Sound.

The North Forest Beach area drains through the lagoons of Shipyard Plantation. A pump station was constructed in 2004 to help push the water through the lagoon system. Then the stormwater runs under William Hilton Parkway via a pipe through a canal in Wexford Plantation and is pumped into Broad Creek.

The Palmetto Dunes drainage basin contains approximately 11 miles of canals, which carry the storm water under William Hilton Parkway and into Broad Creek.

Storm water from the Folly Field basin is transported to the Folly, the Island's only tidal inlet to the Atlantic Ocean. The Folly is made up of several meandering creeks which accept runoff and carry it to the Ocean.

The northernmost drainage basin is Port Royal Plantation. The storm water from this basin is carried via a large drainage ditch to Broad Creek.

Overall, the effectiveness of the beachfront drainage systems is good. An inherent problem with Hilton Head Island is the lack of elevation (See Figure 17: Hilton Head Island Elevations). The vast majority of land being drained has an elevation of less than 10 feet. Therefore a common problem is capacity of the systems to convey runoff during an intense storm of short duration.

In 1995, the Town completed The Island Wide Drainage Study. Since then, all projects have been implemented.

1. Palmetto Hall Outfall Improvements (partnership) 1995
2. Lawton Canal Pump Station upgrades (partnership) - 1997
3. Jarvis Creek Pump Station - 1999
4. South Forest Beach Phase I - 2000
5. William Hilton Parkway, Culvert at Wendy's - 2000
6. Gum Tree Area – 2000
7. South Forest Beach Phase II – 2001
8. Pineland Mills Shops - 2001
9. North Forest Beach Phase 1 - 2003
10. North Forest Beach Wexford Pump Station - 2004
11. North Forest Beach Phase II - 2004
12. Ashmore Tract – 2003
13. Folly Field -2004
14. Northridge – 2006
15. Beach City Road / Airport – 2006
16. Lawton Canal Pump Replacement (partnership) – 2006
17. Club Course Drainage Project (partnership) – 2007/8

In terms of estimated life, the existing drainage systems are expected to remain in place well beyond a 20-year horizon. Build-out is substantially complete in these beachfront areas. The drainage systems in place should adequately handle future conditions since minimal new development can occur.

Cleaning, dredging and maintaining the existing drainage system is a foremost priority. The Beaufort County Stormwater Utility collects $3.56 million dollars yearly from the Town. The Town provided 5% $91,992) last year to the Utility for administrative overhead. The Utility returns the entire $3.56 million of fees (minus the administrative overhead) for the Town to use for drainage infrastructure maintenance and debt service on a $17 million SWU Revenue Bond.

The Town also monitors water quality at 18 sites Island-wide. This project was initiated in 1999 in an effort to monitor stormwater drainage improvements. The Town currently tests for dissolved oxygen, pH, salinity, temperature, turbidity, nitrate, total phosphates, fecal coliform, total kjeldahl nitrogen, and ammonia.

Stormwater studies are being conducted for individual watersheds to develop drainage inventories, flood models, water quality models and lists of potential capital improvement projects.

FIGURE 16 - WATERSHEDS

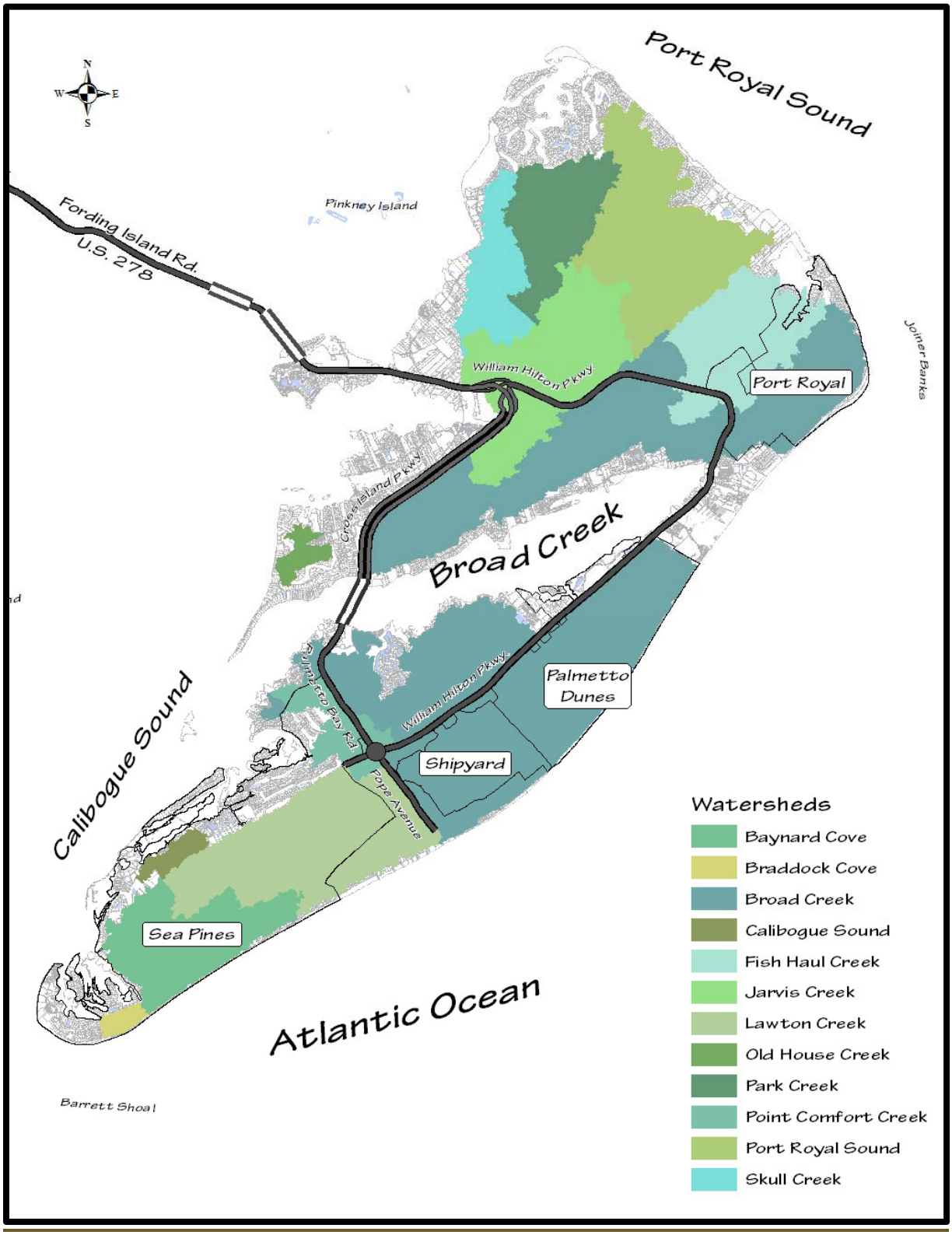
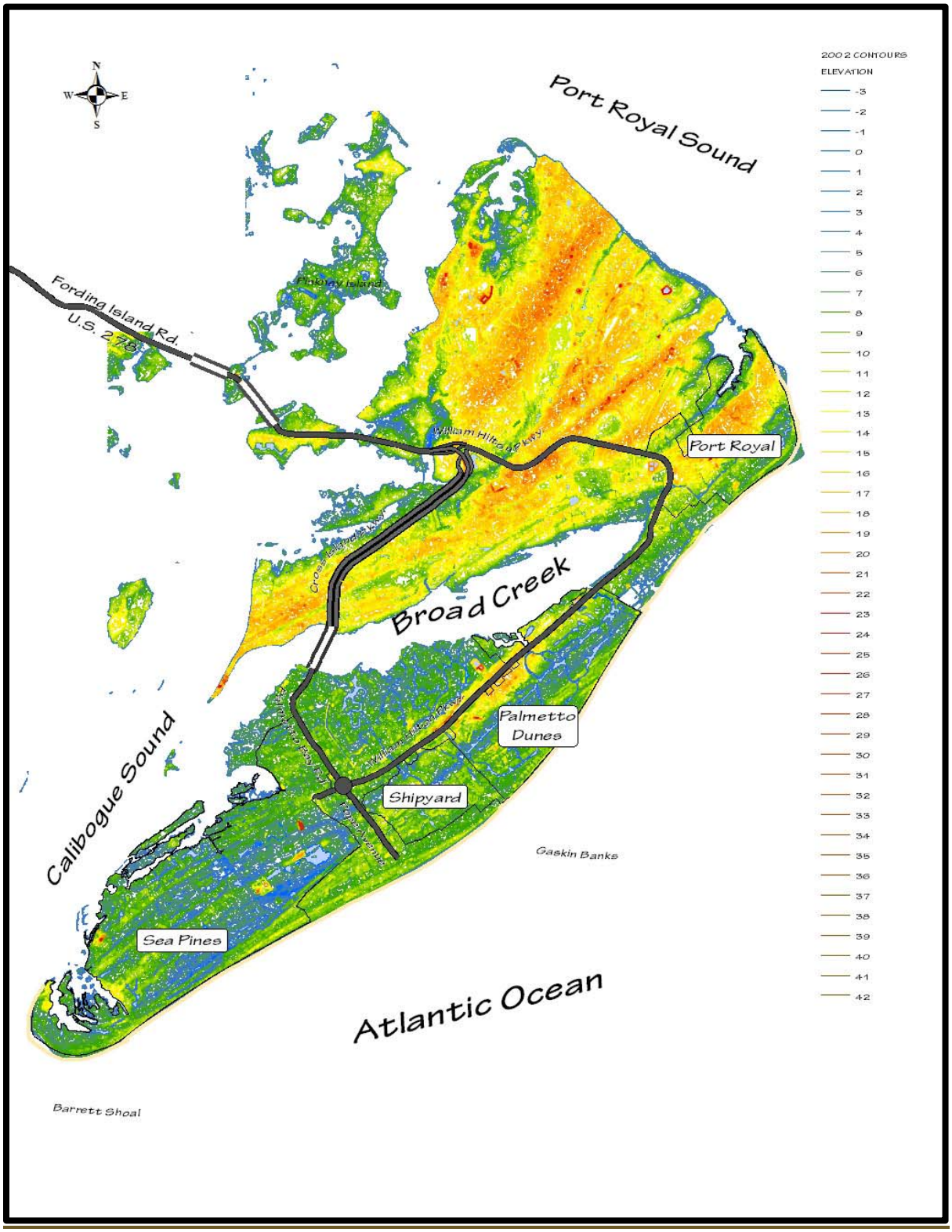


FIGURE 17 – ELEVATIONS



4 - BEACH MANAGEMENT & AUTHORITIES

The Public Trust Doctrine provides much of the basis for the management of public lands and waters in the United States. The Public Trust Doctrine is an example of common law, meaning rules derived from the traditional laws of England in the Middle Ages that were based on custom and precedent rather than legislative action. Common law often addresses issues of access, fairness, commerce, and land uses. The Public Trust Doctrine established that public trust lands, waters, and living resources are held in trust by the State for the benefit of all citizens. It also created the right of the people to fully enjoy public trust lands, waters, and living resources for a multitude of public uses. Finally, the doctrine established responsibilities for the State when managing these public trust resources, and set limitations on the ways government, public, and private owners can use public trust resources.

In the coastal zone, the Public Trust Doctrine covers navigable waters and lands that are subject to the ebb and flow of the tide, including tidal marshes and oceanfront beaches. While each state is able to implement the Public Trust Doctrine according to its own views of justice and policy, the core principles are the same throughout the country. These principles, and the responsibility they establish for the state, are at the heart of many of the state's coastal laws, regulations, and policies. In many states, including South Carolina, the jurisdiction of the Public Trust Doctrine on the beach and navigable waters of the ocean extends landward to the mean high water line. Generally, the Public Trust Doctrine protects the right of the public to pass along the shoreline up to the mean high water line and utilize the space for fishing, navigation or recreation. The Public Trust Doctrine does not authorize the public to trespass on upland private property in order to access the beach. However, the doctrine does help preserve and protect the right of the public to access and utilize the beach

In South Carolina, as with much of the United States, the Public Trust Doctrine has been at the center of numerous court cases and deliberations and will likely continue to be. This doctrine is at the core of the philosophy of coastal zone management and should be recognized and considered by the government, private landowners, and the public at large in the course of decision-making along the beach. Numerous federal and state agencies have responsibility or authority for assisting beach management on Hilton Head Island. A summary and description of the agencies with regulatory or management authority relevant to beach management in the Town of Hilton Head Island can be found as Appendix E to this plan.

4.1 STATE AUTHORITIES

4.1.1 Overview of State Policies (Beachfront Management Act)

Refer to Appendix E on regulatory agencies.

4.1.2 Beachfront Setback Area

The State of South Carolina established a forty-year policy of retreat as part of the Beachfront Management Act. DHEC OCRM, as the steward of the State's coastal resources, is responsible for implementing this policy. The implementation is derived from a baseline established by DHEC OCRM which runs parallel to the shoreline on oceanfront beaches. The baseline is evaluated and redrawn by DHEC OCRM every eight to ten years and, as directed by the Beachfront Management Act, stretches of beach are divided into standard erosion zones and inlet erosion zones based on their erosion characteristics.

The baseline for a standard erosion zone is established at the location of the crest of the primary oceanfront sand dune in that zone. If the shoreline in a standard erosion zone had previously been altered naturally or artificially by the construction of erosion control or other anthropogenic structures, the baseline is established where the crest of the dunes would be had the disturbance not occurred.

The baseline for inlet erosion zones is determined differently for inlets that are stabilized by jetties, groins or other structures, and inlets that are not stabilized. For unstabilized inlets, DHEC OCRM establishes the baseline at the most landward point of erosion at any time during the past forty years. For inlet zones that are stabilized by jetties, groins, or other structures, DHEC OCRM establishes the baseline at the location of the crest of the dune, and not at the location that the dunes would be had the inlet remained unstabilized.

All baseline decisions are determined by DHEC OCRM, founded on the best scientific and historical data available. In determining the baseline location for inlet erosion zones, DHEC OCRM must consider historical inlet migration, inlet stability, channel and ebb tidal delta changes, the effects of sediment bypassing on shorelines adjacent to the inlets, and the effects of nearby beach restoration projects on inlet sediment budgets.

The second part of implementing the forty-year retreat policy at the State level is the setback line. The setback line is a boundary established by DHEC OCRM that is landward of the established baseline at a distance equal to forty times the average erosion rate, and not less than twenty feet.

No new construction is permitted seaward of the baseline, with the exception of wooden walkways not more than six feet wide, wooden decks no larger than 144 square feet, public fishing piers, golf courses,

normal landscaping, pools that were located landward of existing functioning erosion control structures, groins built before 1988, or structures permitted by a DHEC OCRM special permit. A DHEC OCRM permit is required for all of the above actions except for the construction of wooden walkways not more than six feet wide.

Construction within the State setback line is restricted in order to implement the State forty-year retreat policy. Construction, reconstruction, or alterations between the State baseline and setback lines are governed as habitable structures, erosion control devices, and swimming pools. All other construction between the baseline and setback lines requires a permit from DHEC OCRM. New habitable structures built between the baseline and setback line may not exceed five thousand square feet of heated space, be located as far landward on the property as possible, and not incorporate any erosion control structure or device as part of the integral habitable structure. No part of the building may be constructed seaward of the baseline or on the primary sand dune. The applicant must certify to DHEC OCRM in writing that these conditions are accurate, and submit a drawing that shows the footprint of the structure on the property, a cross section of the structure, and the structure's relation to property lines and setback lines which may be in effect.

Owners may replace habitable structures permitted within the setback that have been destroyed beyond repair by natural causes after notifying DHEC OCRM. The owner must certify that the total square footage of the replaced structure seaward of the setback line is not greater than the original square footage beyond the setback line, the replaced structure is no further seaward than the original structure, and is constructed as far landward as possible, considering local zoning and parking requirements.

No new erosion control devices are allowed seaward of the setback line except to protect a public highway which existed prior to the enact ion of the Beachfront Management Act. Erosion control structures that existed before 1988 may not be repaired or replaced if destroyed more than fifty percent above grade. DHEC OCRM is responsible for assessing the damage to erosion control devices and structures, as well as habitable structures, to determine the extent of damage following hurricanes or other events.

Finally, no new pools are permitted to be constructed seaward of the setback line, unless they are located as landward as possible of an existing, functional erosion control device. Pools that existed prior to 1988 may be repaired or replaced, if destroyed beyond repair, if the owner in writing certifies to DHEC OCRM that it is moved as far landward as practical, it is rebuilt no larger than the destroyed pool, and is constructed in such a manner that cannot become or act as an erosion control device. DHEC OCRM may issue a special permit for all other construction or alteration between the setback line and baseline.

Town of Hilton Head Island's Retreat Policy

The South Carolina Beachfront Management Act requires that local plans include a 40 year retreat policy that considers relocation of buildings, removal of erosion control structures and relocation of utilities. When the Town's Beach Management Plan was first adopted in 1991, the State was in the process of drafting their own policy, and provided little direction to the Town at that time. In 1992, the Town amended its original Beach Management Plan to include a 40 Year Retreat Policy which stated:

1. Locate development landward of the DHEC OCRM Setback line to the extent possible;
2. Adopt various growth management techniques and procedures to reduce development levels;
3. Retain open space seaward of the DHEC OCRM Setback line to the extent possible;
4. Utilize land acquisition; and
5. Address retreat during redevelopment scenarios after a disaster.

With the adoption of this 2008 Beach Management Plan, this Policy continued to be in effect. The Town's zoning, density and design standards mentioned previously help fulfill this policy along with other techniques outlined in the next Section.

To accompany the above Retreat Policy, this Beach Management Plan details an additional Policy on beach renourishment as part of the 40 Year Retreat Policy. Beginning in 1990, the Town embarked on an ambitious renourishment program with an ongoing maintenance program. As a result of these projects, portions of the beach and dunes system have been enhanced, thereby resulting in expanded areas subject to development pressures by construction that is not in the public interest and not in accordance with retreat policies and goals of the State and the Town. In a few instances, DHEC OCRM has designated a newly formed embryonic dune as the new primary dune, allowing development on the landward, and sometimes larger, dune. Because of this, there have been petitions to the DHEC OCRM to move the Baseline further seaward, increasing the number of areas for loss of the larger dunes system. In addition, DHEC OCRM re-examines the possibility of relocating the Baseline every 8-10 years, possibly seaward. This would further encourage development on top of the larger dunes system.

It is not and has not been the intent of the Town to encourage or permit development to move seaward as a result of the Town's beach renourishment projects and efforts, or to support any effort to move the DHEC OCRM established baseline seaward, where such effort to relocate the baseline is based in whole or in part on the existence of new dunes and/or new beach areas formed as a result of the Town's beach renourishment projects and efforts, or by other private efforts. The Town's intent in pursuing the renourishment program is:

1. To protect, preserve, restore, stabilize and enhance the beach/dune system through beach renourishment and other appropriate means, to provide for the protection of life and property, and to act as a buffer from high tides, storm surges, hurricanes, and erosion;
2. To prohibit development from moving seaward onto new dunes or beach areas formed as a result of the Town's beach renourishment projects and efforts;
3. To provide an important basis for a tourism industry that generates annual revenue for the State of South Carolina and the Town;
4. To provide habitat for numerous species of plants and animals which are threatened or endangered, or which may become threatened or endangered as a result of the loss of the beach/dune system;
5. To provide habitat for beach/dune system vegetation that is unique and extremely important to the vitality and preservation of the system; and
6. To create a recreational beach at high tide.

In support of this, the Town adopted two overlay zoning districts along the beachfront for the purpose of limiting the seaward migration of development as a result of renourishemnt.

- CPA-O Coastal Protection Area Overlay District
  The purpose of the Coastal Protection Area Overlay (CPA-O) District, in conjunction with the Transition Area Overlay (TA-O) District, is to eliminate the potential for seaward migration of the built environment along the Island's beachfront to the greatest extent possible. This environmentally sensitive area:
  i. Protects life and property by serving as a storm barrier;
  ii. Provides an important basis for a tourism industry that generates annual tourism industry revenue;
  iii. Provides habitat for numerous species of plants and animals that are important to the natural functioning of the beach and dune system, or that are threatened or endangered; and
  iv. Provides beach and dune system vegetation that is unique and extremely important to the vitality and preservation of the barrier island environment.

- TA-O Transition Area Overlay District
  The purpose of the Transition Area Overlay (TA-O) District, in conjunction with the Coastal Protection Area Overlay (CPA-O) District, is to eliminate the potential for seaward migration of the built environment along the Island's beachfront as well as protect the area between existing construction and the mean high water mark, to the greatest extent possible. This environmentally sensitive area:
  i. Protects life and property by serving as a storm barrier;
  ii. Provides an important basis for a tourism industry that generates annual tourism industry revenue;

iii. Provides habitat for numerous species of plants and animals that are important to the natural functioning of the beach and dune system, or that are threatened or endangered; and

iv. Provides beach and dune system vegetation that is unique and extremely important to the vitality and preservation of the barrier island environment.

4.2 LOCAL GOVERNMENT AND AUTHORITIES

4.2.1 Municipality's Comprehensive Plan

The Town's first Comprehensive Plan was adopted in 1985. This was revised and adopted in 1990, 1996, 2000, and 2004. The plan was then rewritten and adopted in 2010 and was updated in 2012. The Comprehensive Plan is a continuing planning program for the physical, social and economic growth, development and redevelopment of the Island. The original 1991 Town Beach Management Plan was adopted as part of the Town's Comprehensive Plan. The plan approved in 2009 was a revision and update of the previous 1991 Beach Management Plan and was adopted as an Appendix to the Town's Comprehensive Plan.

Other Elements of the Comprehensive Plan promote protection and preservation of the beach and dune systems. The Natural Resources Element describes the Island's beach systems and coastal dunes, as well as the endangered, threatened and rare plant communities and species. It also lists goals and strategies for continued research and monitoring of natural resources; improvement of water quality and reduction of pollutants; development and implementation of a wildlife protection plan; continued land acquisition to further protect sensitive and endangered environments; creation of view corridors; promotion of environmental education programs; and incorporation of environmental protection into development projects. The Land Use Element describes goals and strategies for reduction of allowable density to ensure that development does not create adverse impacts on natural resources and encourages incentives and voluntary compliance with the 40 year setback zones. The Recreation Element provides strategies for park development and guidelines for the continued creation or expansion of public beach parks and beach accesses.

Regional Planning Efforts

In 2006, the Town of Hilton Head Island adopted by resolution the Southern Beaufort County Regional Plan. In relationship to Beach Management, this plan recommended that the participating local governments adopt the same regulations, if possible. As part of the implementation of this plan, a regional Natural Assets Working Group was formed which compiled a list of baseline standards that should be adopted by the applicable participating local governments and also be made available to the region. These included such recommendations as uniform dune/dune system definition, protection of more than just the primary dune, protection of all dune plants, reasonable dune plant pruning, re-establishment of dunes systems by redevelopments, restriction of structures in dune systems and buffer areas, uniform lighting standards for protection of wildlife, and standards for violations. These recommended suggestions have been reviewed by the Regional Plan's Implementation Committee.

4.2.2 Municipality's Hazard Mitigation Plan

In 2004, the Town adopted the Beaufort County Hazard Mitigation Plan which replaced earlier mitigation plans. It was updated in 2009 and identifies natural hazards to the Island, contains a vulnerability assessment, and gives goals to continue periodic beach renourishment. A Disaster Recovery Commission was formed that worked on the implementation of the 2003 Recovery Plan. This Plan will be discussed in more detail below.

4.2.3 Municipality's Disaster Preparedness and Evacuation Plan

The Town developed a Post-Disaster Plan in 1991 to guide its citizens and post-disaster operations. The plan was incorporated into the Town's Comprehensive Plan in 1999. In 2003, the Town prepared a Comprehensive Emergency Management Plan (CEMP), which was updated in 2014. According to this plan, Recovery is defined as actions taken in the long term after the immediate impact of the disaster has passed to stabilize a community and to restore some semblance of normalcy.

The Town's Disaster Recovery Plan is designed to supplement the Town's *Emergency Operations Plan – Basic Plan (EOP – Basic Plan)*, and identify agencies to provide assistance to disaster victims in conjunction with Federal, State and County governments and coordinate emergency recovery activities. This plan provides local emergency management personnel with operational guidance in order to effectively manage recovery activities in the aftermath of a major or catastrophic disaster or emergency. The Town works with all appropriate agencies, in advance of a disaster (if predictable) and after, to minimize potential injury and damage, and to expedite recovery and redevelopment.

The organization of the Town's recovery activities is consistent with the concepts of the Incident Management System (IMS) and Integrated Emergency Management System (IEMS). Storm recovery is divided into short-term phases, which begins during the response phase of an emergency and can last up to six months, and long-term recovery which focuses on restoring the community to pre-disaster condition or better. The Town's recovery activities and programs are grouped into 22 Recovery Functions (RF) including, Recovery and Redevelopment (RF1), Continuation of Government (RF3), Damage Assessment and Impact Analysis (RF 9), Emergency Permits and Inspections (RF 13), and Mitigation (RF 19).

In the event of a hurricane threat, the Town will activate all or part of the Town Emergency Operation Center (EOC).

Cleanup

The purpose of the Debris Management Plan is to effectively manage debris generated by natural and man-caused disasters and contains the following policies:

1. First focus debris removal efforts on clearing of major transportation routes and roadways into damaged areas to allow for the movement of emergency vehicles, personnel, equipment and supplies.

2. Remove debris in affected areas to prevent the development and spread of vector-based epidemiological agents and general sanitation problems.

3. Conduct disposal activities with health and environmental concerns being the foremost consideration.

Maintaining essential services

The repair and restoration of public infrastructure, services and buildings after a disaster will be completed for the purpose of returning public infrastructure and the Town's services to pre-event levels or better. Restoration of utility services is critical to the success of both short and long-term recovery programs. Complete utility restoration could take months. Initial roadway clearance will push debris to the right-of-ways, providing access to underground cables. Restoration of the commercial power supply will be the pacing activity for reestablishing water and sewer systems, and the restoration of power will be passed by the clearance of debris along the transmission line rights-of-way.

Damage to transportation systems will influence the accessibility of disaster relief services and supplies. Restoration of transportation systems is designed to make sure that the Town (service, equipment, facilities, etc.) can facilitate the movement of emergency personnel, vehicles, equipment and supplies.

Restoration of electrical services and communication systems will begin as soon as major transportation routes are cleared of debris to allow emergency vehicles and crews to enter the disaster area.

Protecting public health

The Town will also work to identify the threats to public health during the recovery period and to provide remedies. It is the policy of the Town that the continuation of public health functions and control of environmental factors related to public health is essential following a disaster to prevent the outbreak of disease and to monitor the spread of vectors associated with the disaster itself.

Emergency Building Ordinances

After a disaster the Town will provide an emergency permitting plan to streamline the permitting process on Hilton Head Island, which will include coordination with DHEC OCRM regarding the

permitting for reconstruction of any oceanfront structures. This process will include determining whether repair or reconstruction of damaged structures will be allowed and under what conditions, coordinating and streamlining the Town's permitting processes, and implementing a system to verify that repairs/redevelopment comply with all applicable codes and laws.

Mitigation

In 1999, the Town developed a Flood Hazard Mitigation Plan. It was one of the first mitigation plans in the nation to be officially incorporated into a Town's Comprehensive Plan—a concept now embraced by the American Planning Association through their *Planning Advisory Series*, and FEMA, through the *Disaster Mitigation Act of 2000* (*DMA) regulations*. In 2004, the County joined with its municipalities to create the *Beaufort County Hazard Mitigation Plan*, which was adopted by the Town as part of its Comprehensive Plan. This Plan was updated in 2009 and outlines hazard identification, vulnerability assessment, community mitigation capability assessment, goals and objectives, and hazard mitigation projects and Action Plan.

As mentioned in this Plan, floodplain management and development policies and procedures are in good order and contribute to the Town's commendable Community Rating System (CRS) rating of 5, which provides a 25% reduction in the cost of flood insurance to the more than 30,000 policyholders. This represents an approximate annual savings of $5.5 million.

4.2.4 Beachfront Development Regulations

The Town's Land Management Ordinance (LMO) is a set of laws that regulate land use and development activity within the Town. It has several sections that regulate development activity on the beach and dune system.

Development review and site design standards for all development on Hilton Head Island are regulated in LMO Chapter 2, 3, 4, 5 and 6. This includes regulations on density, buffers, setbacks, aesthetics, landscaping, tree protection, wetland alteration, traffic circulation, open space standards, street and pathway standards, parking and loading standards, stormwater management standards, lighting, flood zone standards, fire protection water supply and utility standards.

Other local setbacks exist regarding adjacent use and adjacent street setbacks in LMO:

Chapter 5: Adjacent Use Setbacks (for Single family, Multifamily/Recreational, Institutional/Commercial, and Industrial/Utility) and adjacent street setbacks (Single family detached and other uses) in areas outside the beachfront PUD's are governed by Chapter 5 of the LMO. Required setbacks for development shall be determined according to the relationship of the proposed use to the existing contiguous use on each property adjacent to the development. For purposes of determining the

appropriate setback distance where the adjacent property is vacant, it shall be classified as the use which would require the greatest setback allowed by right in that district. As mentioned previously, the PUD's also contain their own adjacent use and street setback requirements.

One consequence of this setback restriction may be that the buildable area of a parcel of land is diminished. The State has attempted to overcome this limitation by adopting a policy encouraging buildings to be located as far landward as practical. However, once the local setbacks required by the Town and/or a local architectural review board are included, the buildable size of the parcel may be even further diminished. A local avenue of relief for landowners who find themselves in this dilemma exists in the form of a variance required from local setback requirements. The Town's Board of Zoning Appeals determines whether to grant the variance based on those findings dictated in the State enabling legislation which requires consideration of the Town's Comprehensive Plan and therefore the Beach Management Plan.

LMO Chapter 6: (Natural Resource Protection) contains regulations designed to promote the protection and stabilization of existing beaches.

Before development plan approval is granted, it must meet the following general standards:

- Will not result in the removal or diminution of the amount of sand, silt, shell, sediment or other geologic components of any beach, or interfere with natural patterns of wind and water movement of sand, silt, shell, sediment or other beach components, except for maintenance of any structures causing these effects which were existing prior to the enactment of this Title;
- Will not result in the direct discharge of stormwater onto any beach;
- Will not result in the discharge of treated or untreated sewage or other human waste from land or waterborne sources, with the exception of advanced treated effluent irrigation systems approved by the SCDHEC;
- Will not result in the direct or indirect removal, destruction, depletion or digging out of vegetation which contributes to beach stability;
- Will minimize any interference with the natural use of the beach for feeding, foraging, resting, nesting and breeding by indigenous and migratory birds, shellfish, marine fishes, sea turtles and other wildlife. Such interference shall include the destruction or diminution of organisms or material upon which wildlife feed;
- Will not interfere with the customary rights of the public for access to and use of the active beach; and
- Will not remove, alter or destroy any beach protection structure, such as walls or revetments, unless specifically authorized by an appropriate development plan approval or building permit.

4.2.5 Regulations on Beach and Shoreline Protection

The Town's Municipal Code defines a dunes system as one or a series of hills or ridges of wind-blown sand or one or a series of hills or ridges of sand resulting directly or indirectly from restoration or beach renourishment, all of which may or may not be anchored by vegetation (e.g., sea oats) and is in the vicinity of the beach. Damage to or development of this dune system is not in the public interest and would not be in accordance with retreat policies of the State of South Carolina and the Town of Hilton Head Island. Furthermore, the Town wishes to protect, preserve, restore, and enhance the beach/dune system for the protection of life and property so it acts as a buffer from high tides, storm surge, hurricanes, and erosion.

In 2006, Town Council adopted an amendment to the Municipal Code Title 8 which strictly regulated the South Forest Beach area by establishing a Critical Storm Protection and Dune Accretion Area along the beach between the State-mandated Setback Line and the actual line of habitable existing construction. The Town determined that dunes systems exist in this area between the OCRM Setback Line and the line of existing construction that could be developed. Therefore, in 2006, Town Council adopted a Resolution and Ordinance to create and define the Landward Barrier Line, define and designate a Critical Storm Protection and Dune Accretion Area and Transition Area, and limit the type of construction activities within these areas. These provisions were expanded and ultimately incorporated into the Town's Land Management Ordinance natural resource protection requirements referenced above when it was rewritten as the CPA-O and TA-O overlay zoning districts that help to protect the dunes and oceanfront properties by protecting the dunes and limiting the intensity of uses in these areas, which are included as an appendix to this plan.

The activities and uses permitted and prohibited in the CPA-O District are as follows:

All development is prohibited in the CPA-O District except the following permitted uses and activities:

- Boarded pathways as perpendicular to the beach as practical and not larger than six feet in width and their associated wooden deck not larger than 144 square feet (must comply with Sec. 16-6-103, Beach and Dune Protection);
- Beach renourishment;
- Emergency vehicular beach access; and
- Permitted beach maintenance activities such as sand fencing, re-vegetation with native plant material and erosion control.
- All activities and uses in the CPA-O District must also comply with all current local, State and federal laws.

The activities and uses permitted in the TA-O District are as follows:

- In addition to the activities and uses permitted in the CPA-O District (see Sec. 16-3-106.L.3), the TA-O District may include any uses that do not require enclosed space to operate. These activities and uses include, but are not limited to, swimming pools, boardwalks, fire pits, decks, required drainage improvements, and necessary utilities.
- The activities and uses in the TA-O District shall be located as far landward as possible. Activities or uses in the TA-O District shall be accessory activities or uses to the development to which they are directly seaward.
- Development in the TA-O District shall conform to the standards for impervious cover and open space for the underlying base zoning district.
- Activities or uses in the TA-O District shall not be on or in any part of a dune or dune system.

4.2.6 Other Regulations on Beach Management

Chapter 6 of the LMO also describes general standards, beach nourishment and erosion control standards, beach access standards, and dune protection standards.

- Standards for beach nourishment and erosion control detail requirements for fill materials; the use of natural features of the beach and dune system over artificial structures; limited approval of erosion control structures; interference with existing or planned public access to the beach; and timing of beach nourishment or construction of control structures.
- Beach access standards regulate elevated walkways; vehicular access to the beach; general public interest in development applications (such as the need for land acquisition for public use); and prohibitions on development adjacent to the beach that would cause net loss of any officially designated beach access. Beach access will be discussed later in more detail.
- Dune protection standards prohibit development on dunes with certain exceptions; prohibit primary dune destruction, disturbance or alteration with exceptions; restrict elevated walkways; allow vegetation planting and construction of wood, sand and wire fences; and prohibit removal, alteration or destruction of any dune protection structure. It also outlines when restoration or stabilization of existing dunes and creation of new dunes may be required for new developments and redeveloping properties.

Title 8 of the Town of Hilton Head Island Municipal Code is the Town's Beach Ordinance. It covers activities which are prohibited or regulated on the beach, defines Designated Areas, and regulates enforcement. In order to ensure the public health, safety and welfare of individuals using the beach, the following activities are regulated or prohibited by the Town's Municipal Code:

- Prohibited: vehicles, para-sailing, glassware, horses on the beach, interfering with marine life and wildlife, indecent exposure, disorderly conduct, unauthorized wearing of lifeguard emblems, littering, possession or consumption of alcoholic beverages, and open containers.

- Regulated: operation of motorized watercraft, sand sailing, kites, sleeping on the beach, animals, shark fishing, fires, firework discharge, disturbing the public peace, and franchising commercial activities on the beach.

In addition, the Town contracts with two organizations for beach safety; the Beaufort County Sheriff's Office to provide law enforcement and security on the beach and Shore Beach Services to provide a patrol boat and rescue jet skis, life guards (9:00 a.m.-5:00 p.m. from Memorial Day weekend through Labor Day weekend), litter patrol, and beach rental items (chairs, umbrellas, paddleboats, sailboats, fun cycles, sailboards, etc.) Beach markers were also installed as part of the Sea Turtle Program every 0.1 miles along the beachfront. These markers are used to help identify beach access points.

The Town of Hilton Head Island is proactive on educating the public on the accessibility of its beaches. This includes information on access locations, parking rules, swimming areas, beach rules, pathways, and beach renourishment. In addition, the Town's Facilities Management Division operates and maintains the beach parks, including overseeing contracts for life guards, boat rentals, and litter patrol; collecting beach fees; park security; and public relations. Kiosks are being installed at several parks, and beach rule signs have been posted at every public access point. In addition, South Carolina Department of Transportation signs assist in directing beach-goers to the various parks.

Brochures and other information locations produced or funded by the Town include:

- Island Pathways Brochure
- Island Parks Brochure
- Beach Renourishment Brochure
- Resident and Visitor Guide to Hilton Head Island's Beaches
- EcoMap (funded with Southeastern Ecological Institute)
- Sea Turtle Information Brochure
- Website *www.hiltonheadislandsc.gov*

5 - EROSION CONTROL & MANAGEMENT

When the Town was incorporated in 1986, the need for a beach management strategy was also identified. A Shore Protection Task Group was created, along with a semi-annual beach monitoring program. The beach monitoring results revealed areas of highly erosional shoreline and sediment deficits that placed upland areas at risk along certain areas of the beach. The Town evaluated alternatives including no action and encouraging individual property owner's to protect their properties from potential beach erosion impacts. This led to the identification of an initial program philosophy of restoring and maintaining the entire beach system with a comprehensive approach and a program was developed by the Town that included comprehensive beach restoration, comprehensive beach

monitoring, strategic use of shoreline stabilization structures to improve performance/increase longevity of beach nourishment, use of near-island sand sources, as available, and attempts to control seaward advancement of development and protect beach/dune resources. The benefits of this program include:

- Recreational – Provides/maintains recreational amenity for visitors and residents of the Island.
- Storm/Erosion Protection – Provides/maintains buffer between the ocean and upland.
- Environmental – Maintains beach habitat for turtles, birds, etc.
- FEMA Benefits – Can help decrease storm damage.

This program has been highly successful. The performance of nourishment projects has far exceeded program expectations and there have been island-wide improvements in beach and dune conditions.

FIGURE 18: HILTON HEAD ISLAND BEACH EROSION NEAR PORT ROYAL SOUND

5.1 SHORELINE CHANGE ANALYSIS

The Beachfront Management Act defines three types of shoreline zones. A standard erosion zone is a segment of shoreline which is not directly influenced by the inlet or associated shoals. An unstabilized inlet erosion zone is a segment of shoreline along or adjacent to a tidal inlet which is directly influenced by the inlet and its associated shoals and which is not stabilized by jetties, terminal groins or other structures. A stabilized inlet erosion zone is a segment of shoreline along or adjacent to a tidal inlet which is directly influenced by the inlet and its associated shoals and which is stabilized by jetties, terminal groins or other structures.

In accordance with the Beachfront Management Act, Hilton Head Island is divided into 3 inlet erosion zones and 2 standard erosion zones. These zones are defined and described from south to north according to the numbering system of the State's beach monitoring network. The location of each monitoring monument and zone designation is shown in Figure 19 - Beach Control Monuments & Erosion Rate Zones. Each of the inlet zones are unstabilized by terminal groins, jetties or other types of shoreline armor.

5.1.1 Beach Profiles

There are 45 beach monitoring stations on Hilton Head Island that were surveyed in March 2014. Stations 1400-1406 show a low-lying dune field hundreds of feet wide at the southwest end of the island. Profiles at stations 1409-1436 in Sea Pines and South Forest Beach show a well-established dune field, with crests of 12-15 ft., and a wide high-tide sand berm. Stations 1437-1448 in North Forest Beach and Shipyard Plantation exhibit a similar beach profile with a wide beach and a dune crest peaking at 15 ft. At stations 1451 and 1454 in the southern end of Palmetto Dunes, the dune field becomes even wider, and stations 1456-1466 in the remaining section of Palmetto Dunes also have a mature dune field and wide dry-sand beach. In many places three distinct rows of sand dunes have formed seaward of the oceanfront houses. Stations 1468 and 1469 at Singleton Beach and also station 1472 on the other side of The Folly at Burkes Beach all have a wide dune field and dry-sand beach.

Stations 1474-1478 are located on Bradley Beach and Folly Field Beach. At stations 1474-1477 the dune field remains wide but becomes narrower and flatter at station 1478. The area to the northwest, where stations 1481 and 1484 are located in Port Royal Plantation, became highly erosional around 10 years ago. At that time an offshore sand shoal called Joiner Bank had dissipated, resulting in higher-energy waves reaching the shoreline and causing extreme erosion. The Town of Hilton Head Island responded to this situation by constructing a groin and a beach renourishment project here in 2011. The project has stabilized the beach, and the most recent profile data shows a 300-ft wide shelf of dry sand seaward of the vegetation line.

Stations 1487-1493 are located in Port Royal Plantation, along the Port Royal Sound shoreline up to Fish Haul Creek. Profiles here show a wide beach with a low-lying dune field, and the offshore portion of the profiles also show massive sand bars associated with the channels of Port Royal Sound. Station 1496, on the inland side of Fish Haul Creek, is far enough into Port Royal Sound to be out the state's beachfront jurisdiction. This is a typical estuarine shoreline, with a minimal sand beach.

Beach profile and volume over time graphs for representative monuments of each erosion zone are provided in Figures 20-27.

FIGURE 19 - BEACH CONTROL MONUMENTS & EROSION RATE ZONES

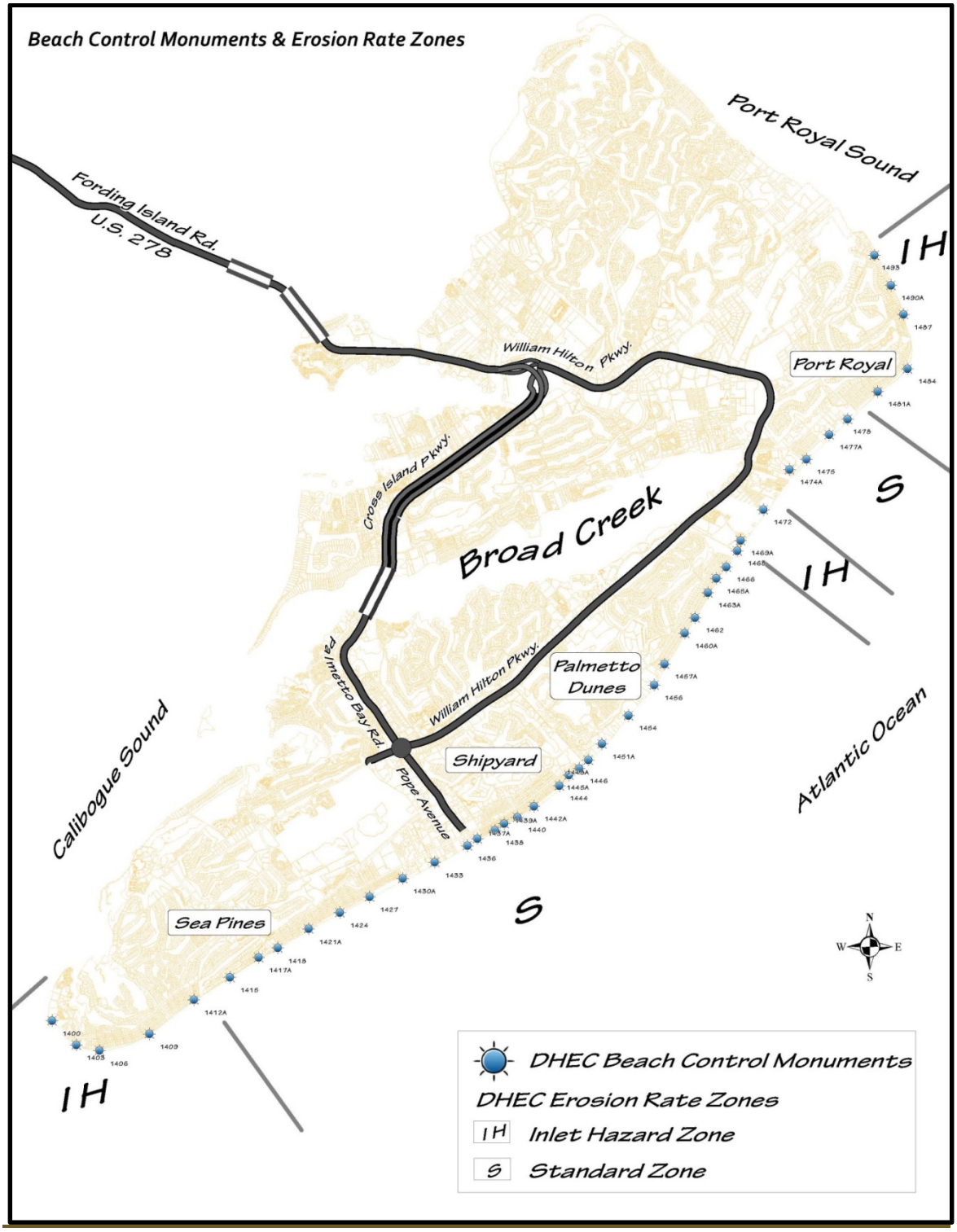
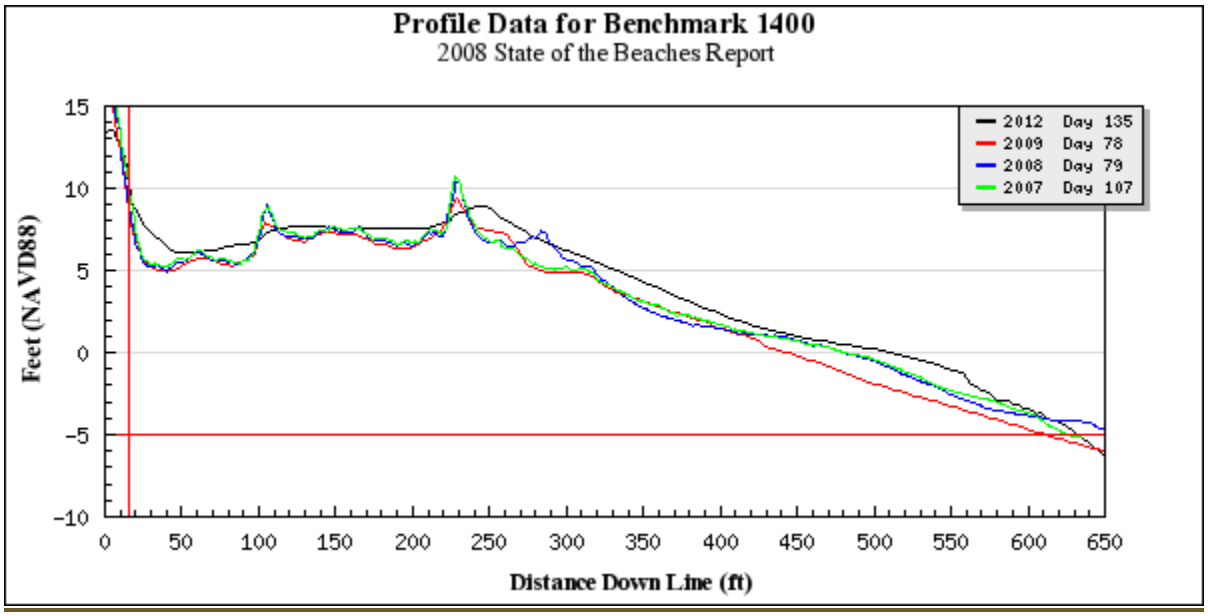


FIGURE 20: BEACH CONTROL MONUMENT 1400



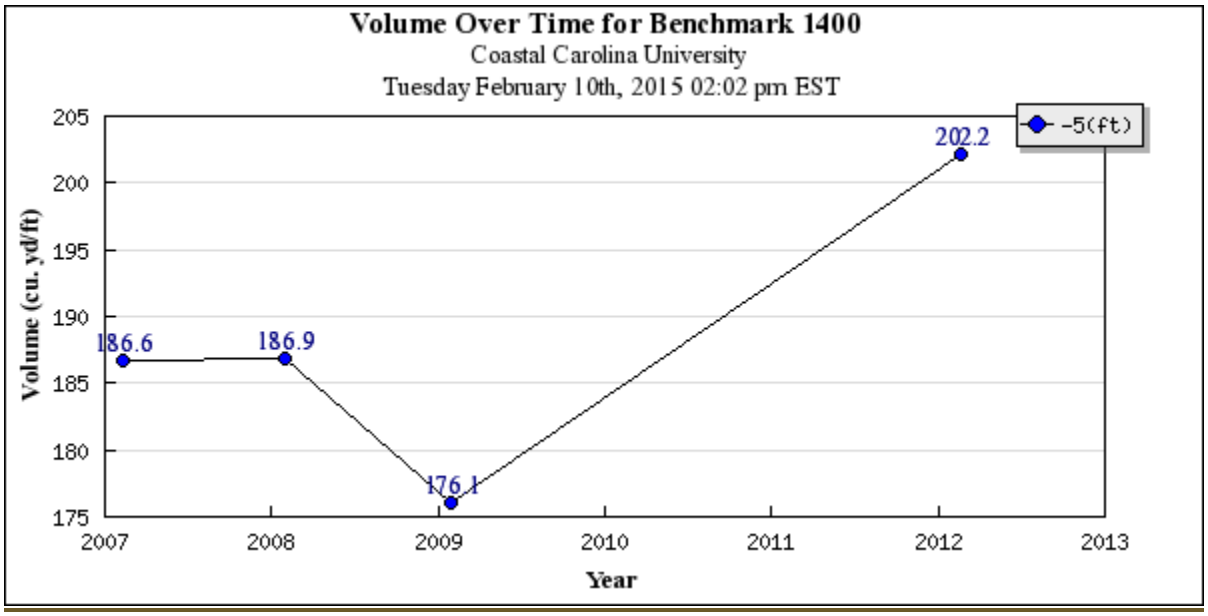
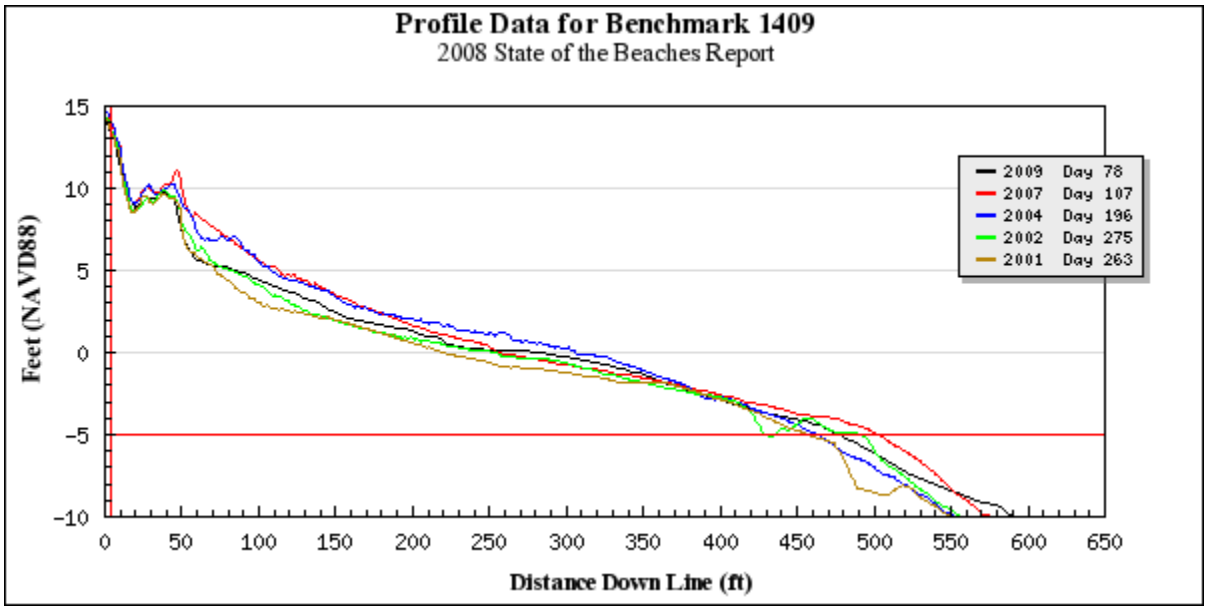


FIGURE 21: BEACH CONTROL MONUMENT 1409



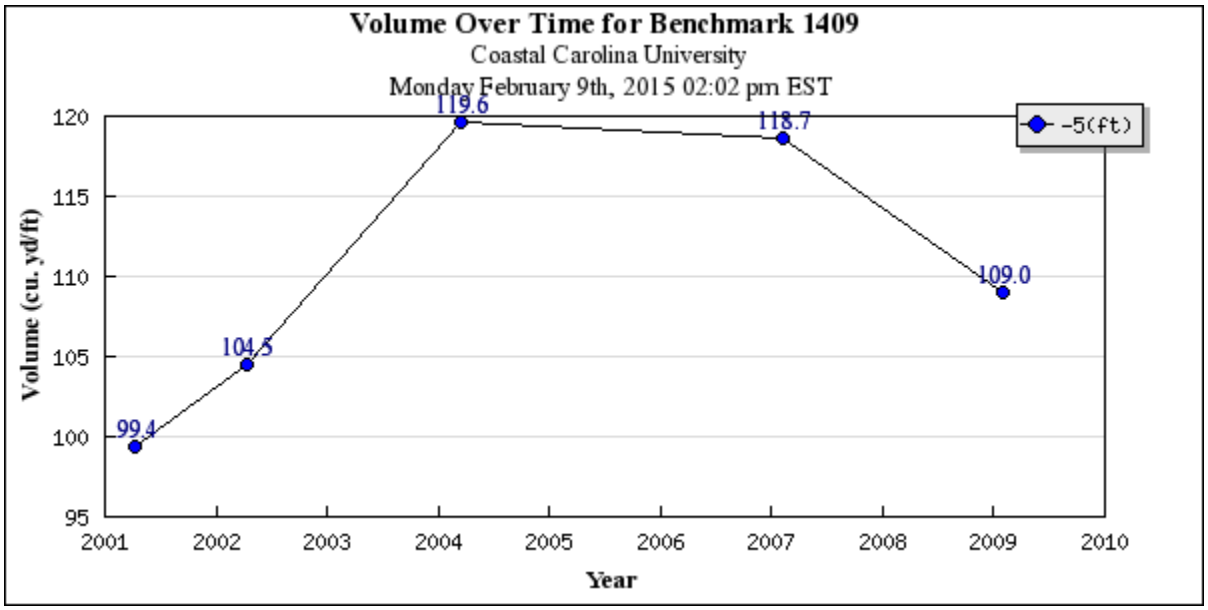
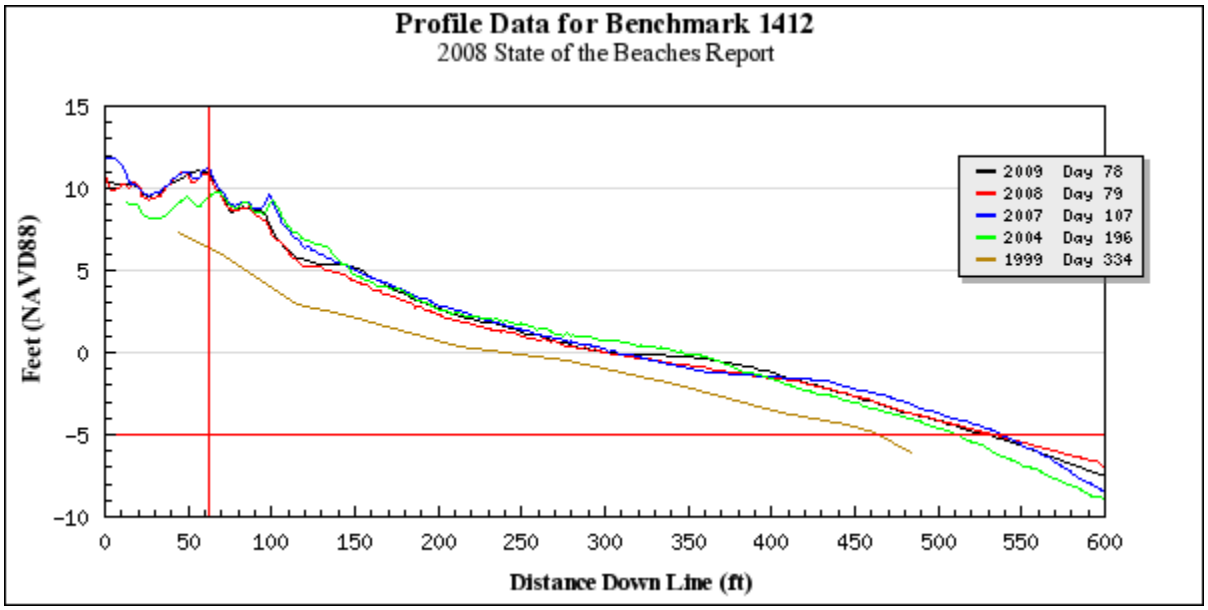


FIGURE 22: BEACH CONTROL MONUMENT 1412



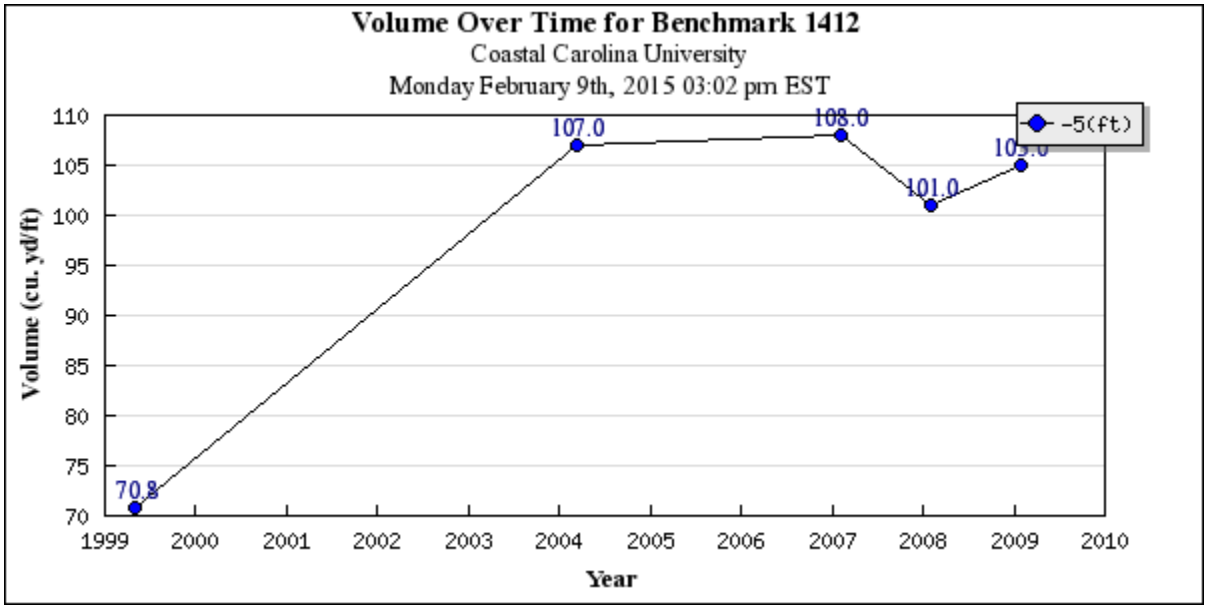
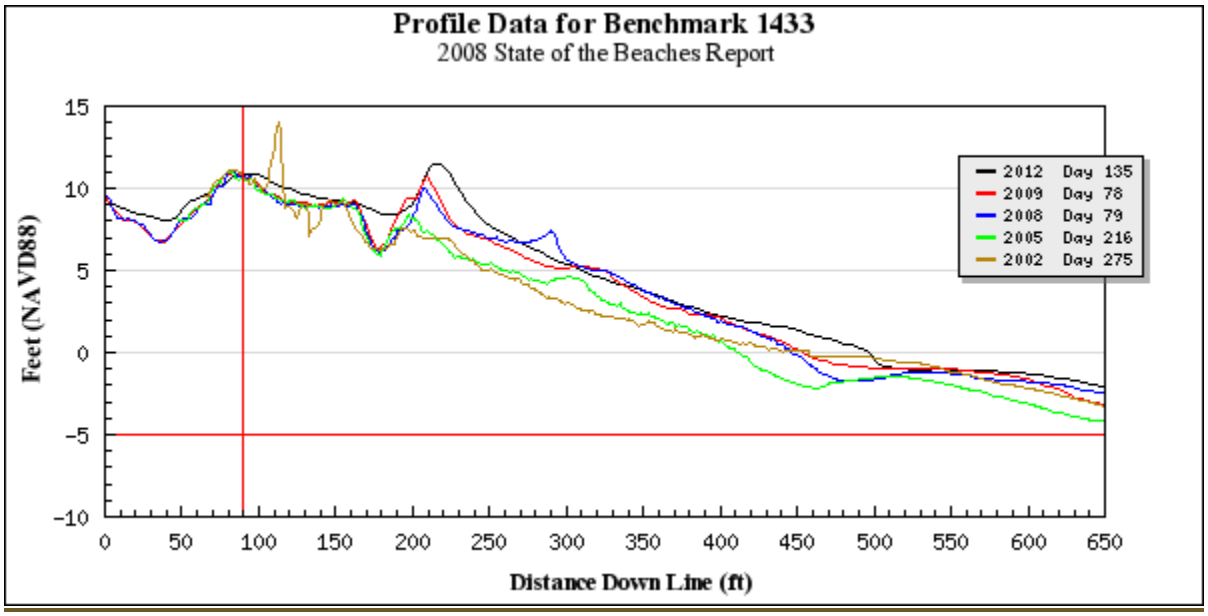


FIGURE 23: BEACH CONTROL MONUMENT 1433



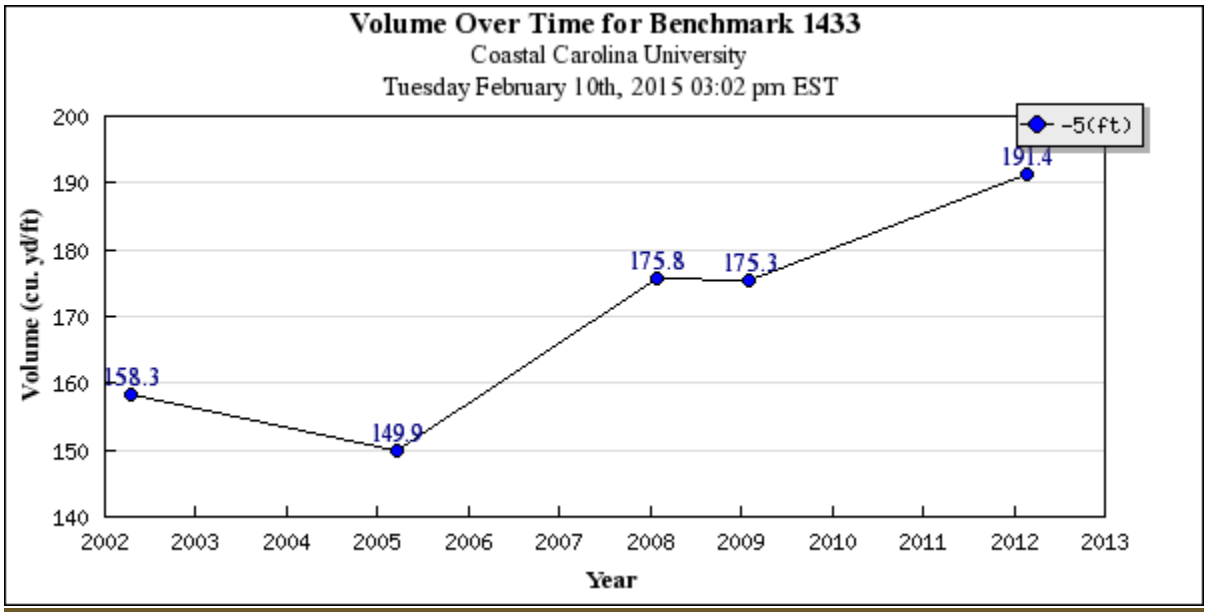
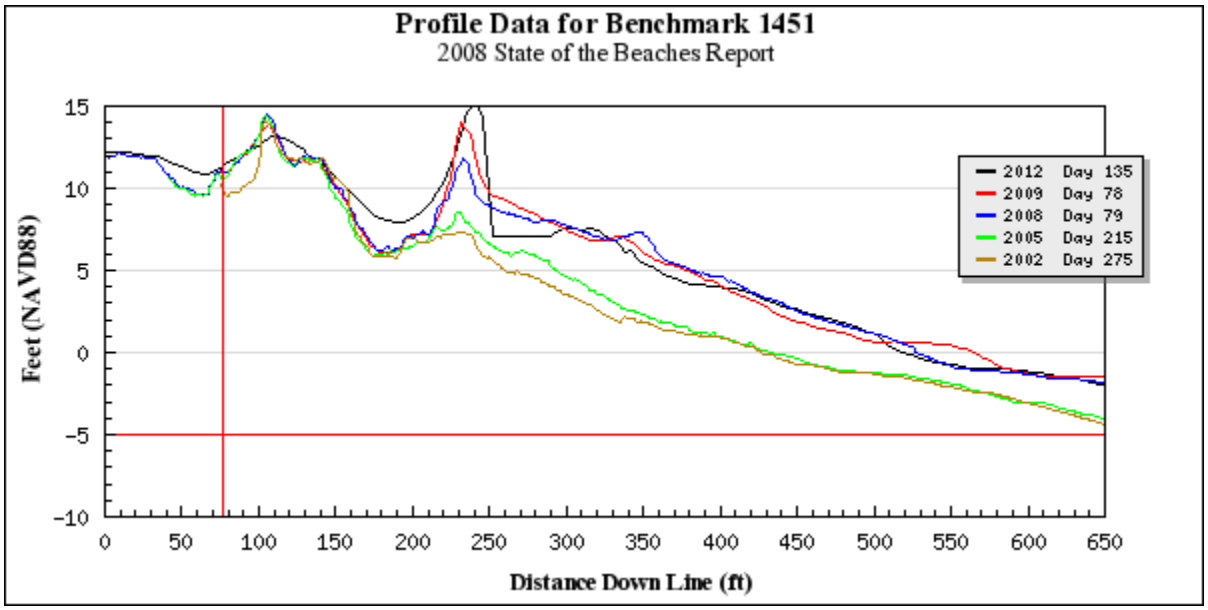


FIGURE 24: BEACH CONTROL MONUMENT 1451



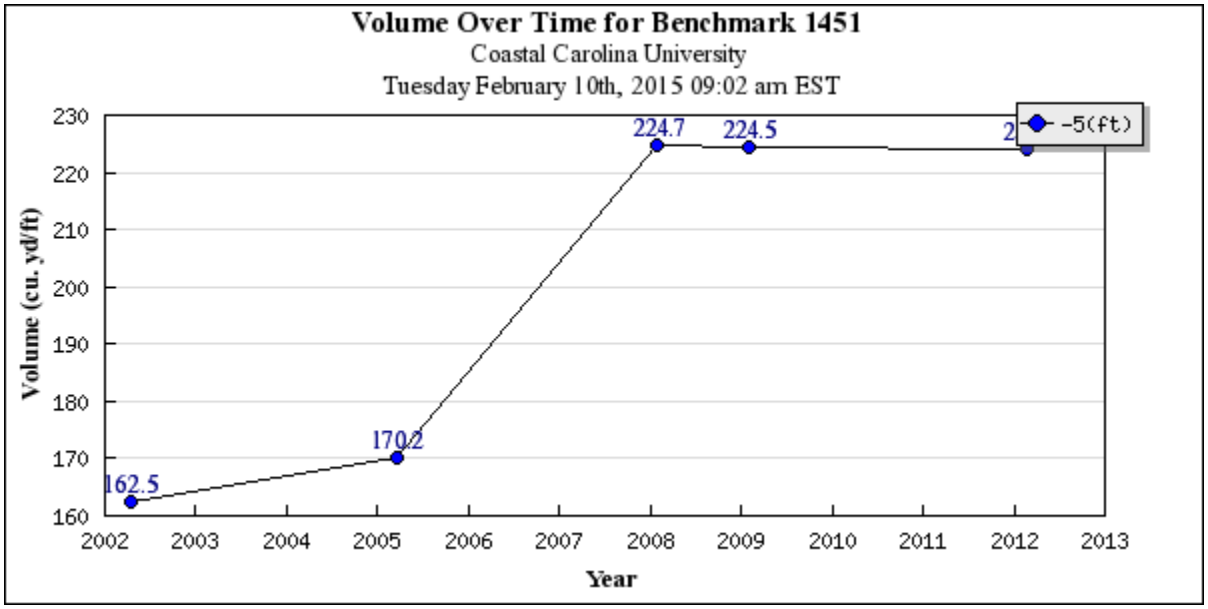
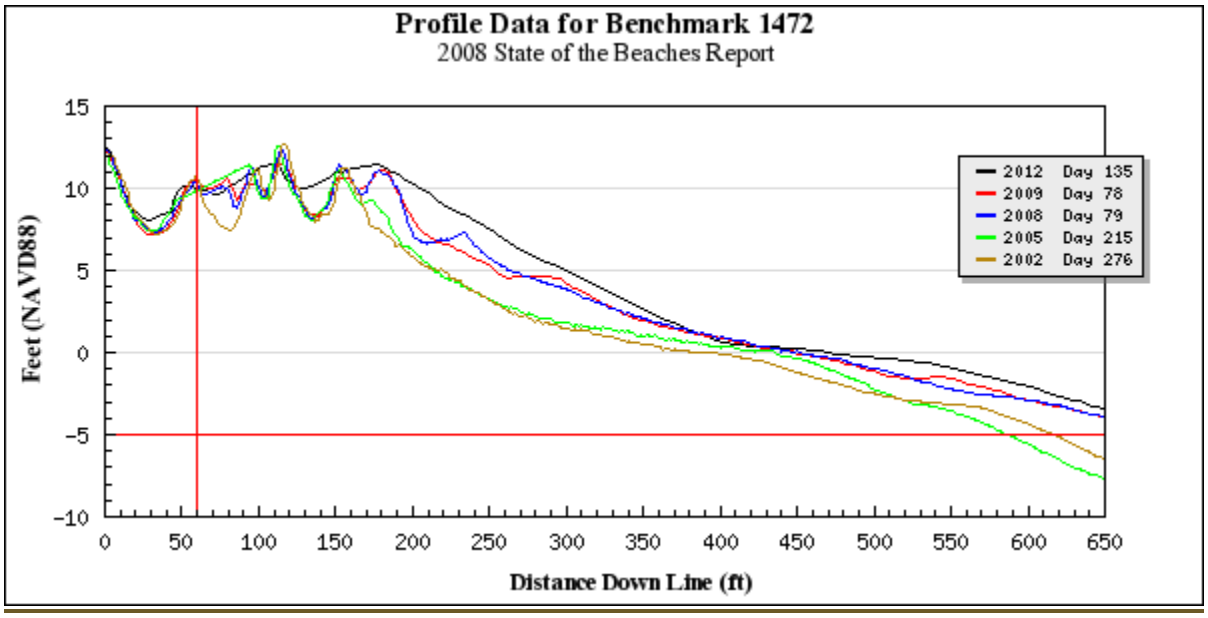


FIGURE 25: BEACH CONTROL MONUMENT 1472



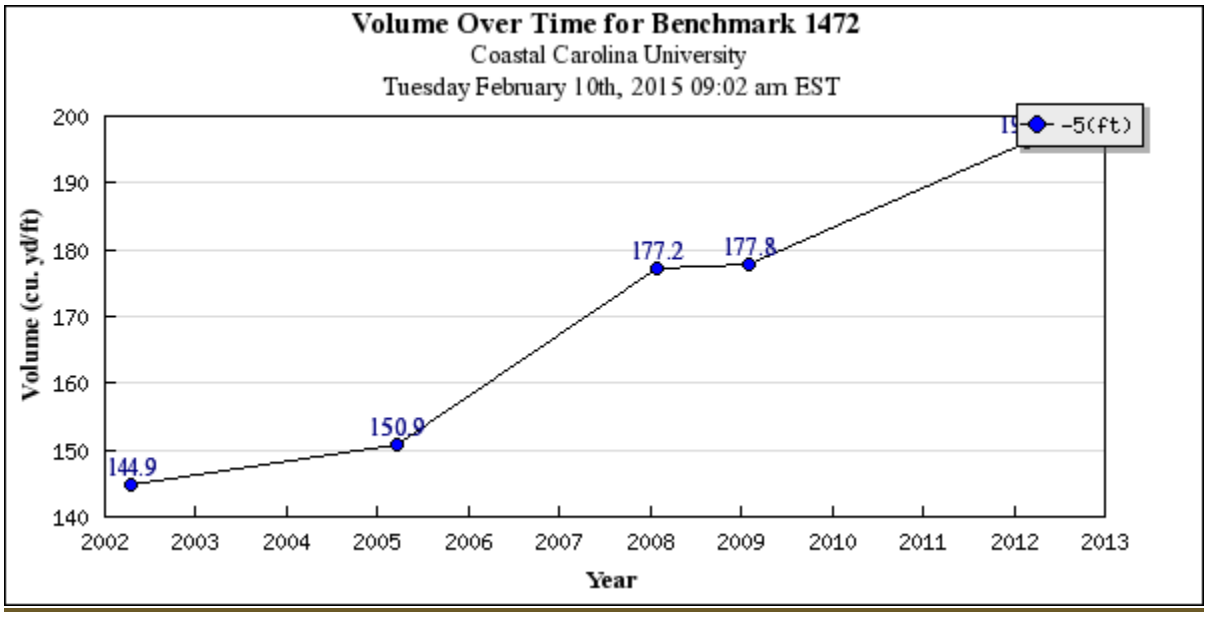
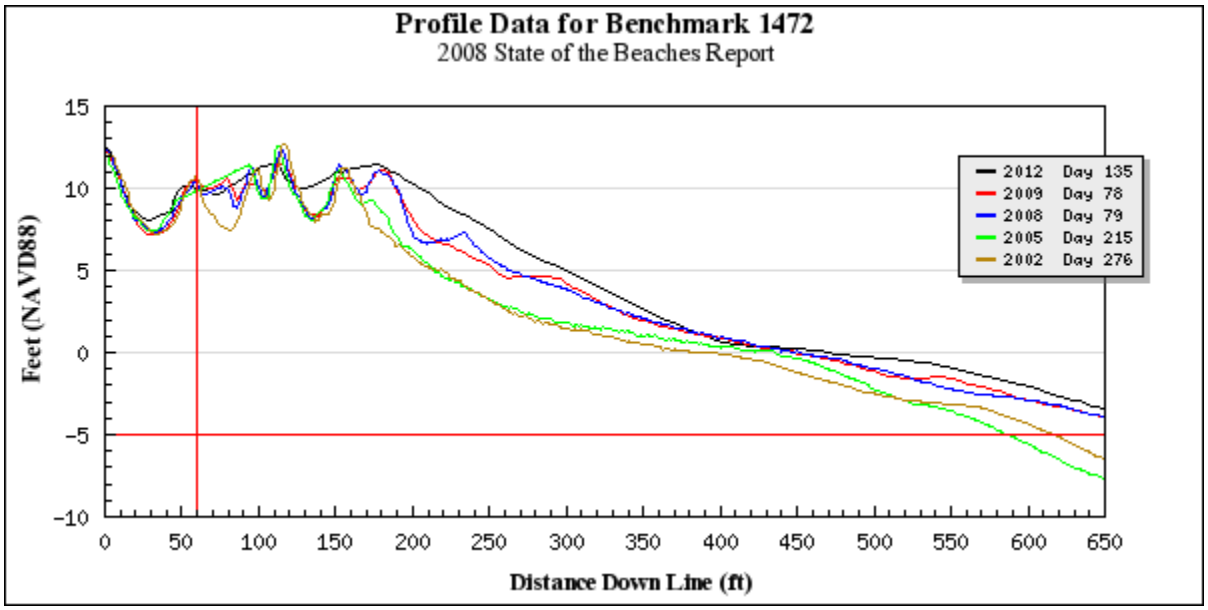


FIGURE 26: BEACH CONTROL MONUMENT 1478



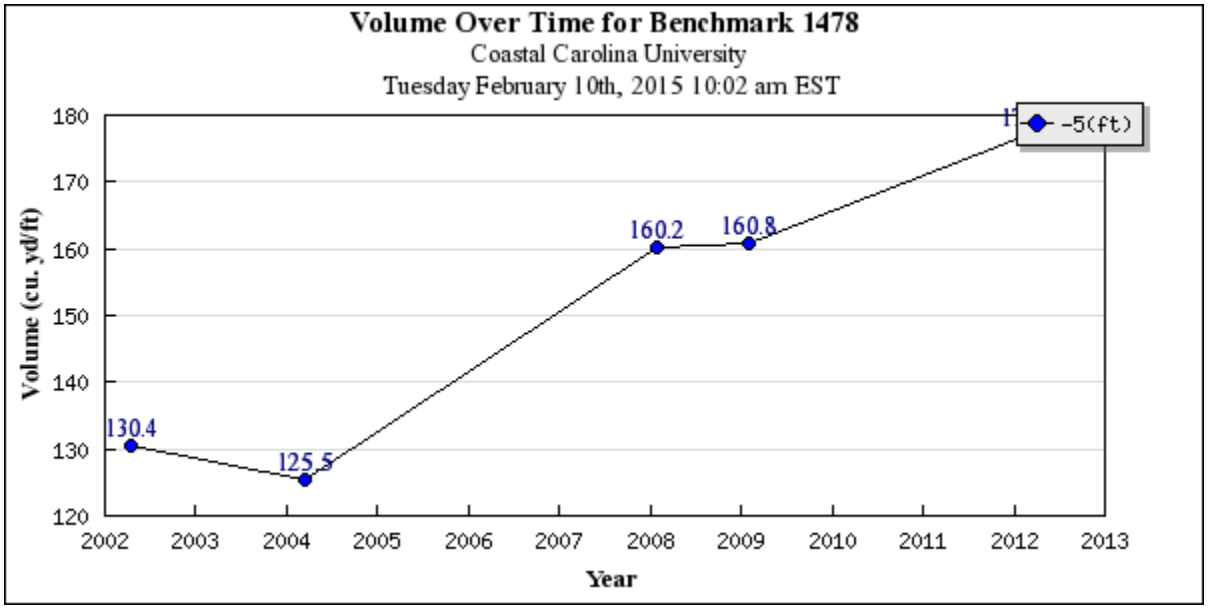
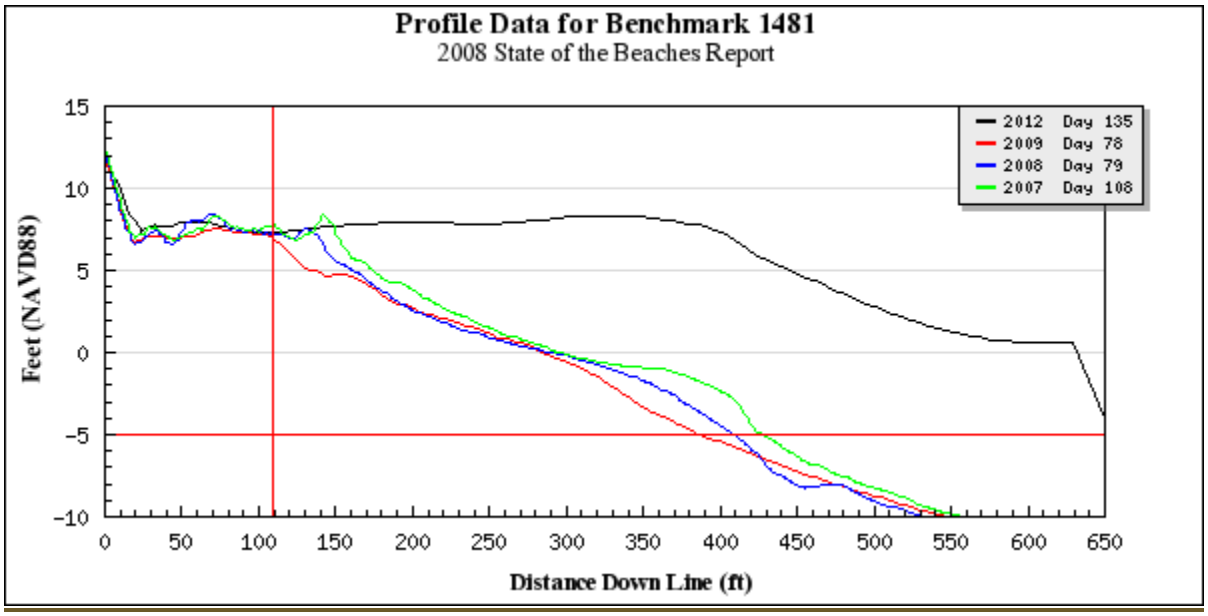
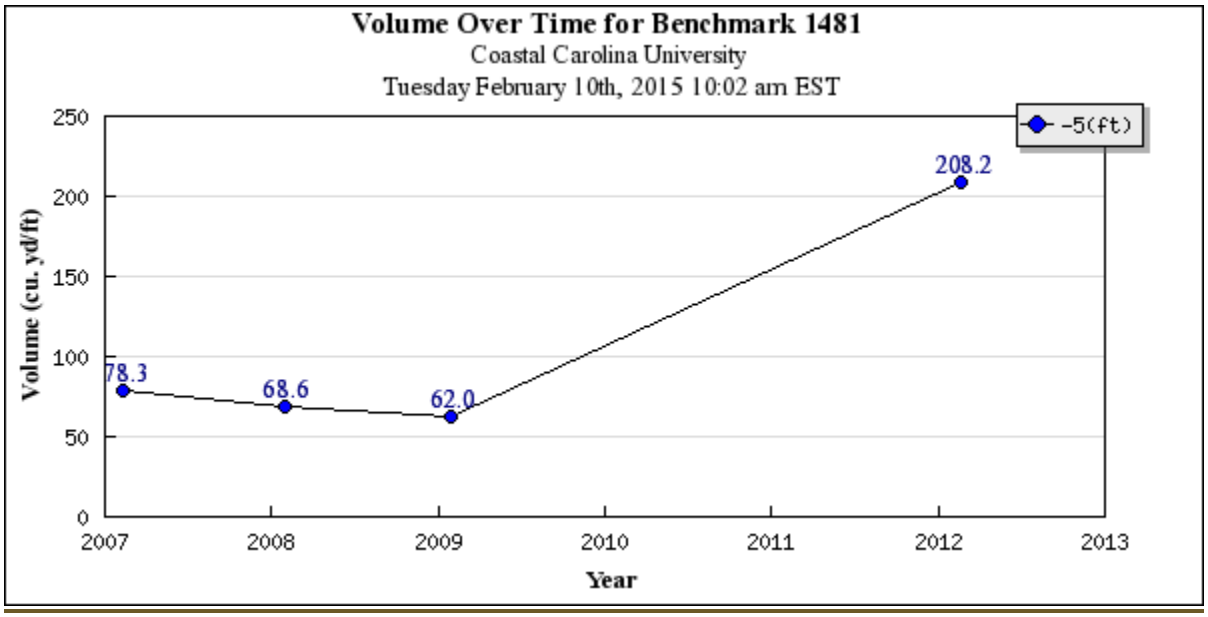


FIGURE 27: BEACH CONTROL MONUMENTS 1481





5.1.2 Long Term Erosion Rates and Shoreline Change

Hilton Head Island can be divided into five geomorphologic reaches, which are each discussed below:

The portion of Sea Pines Plantation bordering on Calibogue Sound is an unstabilized inlet zone, subject to the influence of the Sound and tidal processes. This section of shoreline is historically accretional.

The second zone on Hilton Head is a 10 mile-long standard zone that extends from station 1412 in Sea Pines Plantation to station 1469 just south of the Folly. This area includes South Forest Beach, North Forest Beach, and Palmetto Dunes. Long-term shoreline change rates vary in this zone. They are generally accretional for the area south of Coligny Circle and also north of Coligny Circle up to Lark St. Beyond Lark Street the beach becomes erosional up to Singleton Swash, with the rate of erosion increasing with distance from the Circle and reaching a maximum of -7 ft. per year in Palmetto Dunes.

The third zone on Hilton Head is a 2,200-ft long unstabilized inlet zone, located on either side of the Folly. Stations 1468, 1469 and 1472 are the monitoring stations in this reach, which historically was very dynamic because of the inlet channel. However, a small jetty constructed on the south side of the Folly in 1997 has helped stabilize this region. Long-term erosion rates here are around -6 ft. per year.

The fourth zone is a 1.3 mile-long standard zone that extends from just north of Burke's Beach Road to the Westin Hotel and includes stations 1474 through 1478. Long-term shoreline change rates here are stable to -3 ft. per year of erosion.

The fifth zone is an unstabilized inlet zone that includes all of the Port Royal Plantation shoreline. Survey stations 1481 through 1496 are located here. Stations 1481 and 1484 on the Atlantic Ocean shoreline are accretional on decadal time scales, but experienced extreme erosion in recent years. A new groin was built here in 2011 to stabilize the beach. Stations 1487-1496, on the Calibogue Sound shoreline, have long-term erosion rates of -1 to -5 feet per year.

The long-term erosion rates adopted by the State are shown in Table 5.

Table 5:
2015 Annual Erosion Rates for Current Beachfront Baseline
DHEC-OCRM,

Station	Erosion Rate (ft./yr.)	Station	Erosion Rate (ft./yr.)	Station	Erosion Rate (ft./yr.)	Station	Erosion Rate (ft./yr.)
1400	20.80	1433	3.90	1454	-4.76	1475	-1.71
1403	11.29	1436	3.71	1456	-5.45	1477A	-0.59
1406	10.43	1437A	3.58	1457A	-5.94	1478	0.69
1409	S/A	1438	2.99	1460A	-6.17	1481A	0.69
1412A	S/A	1439A	2.89	1462	-6.69	1484	1.94
1415	S/A	1440	2.30	1463A	-6.59	1487	-0.36
1417A	S/A	1442A	0.89	1465A	-6.33	1490A	-0.33
1418	S/A	1444	-0.95	1466	-6.23	1493	-2.00
1421A	S/A	1445A	-1.80	1468	-5.84		
1424	2.20	1446	-2.30	1469A	-5.64		
1427	3.97	1448A	-2.76	1472	-4.69		
1430A	4.17	1451A	-3.02	1474A	-2.72		

5.2 BEACH ALTERATION INVENTORY

Although the Town's preferred approach to shoreline stabilization is beach renourishment, historic efforts to stabilize the Island's shoreline have resulted in structures being installed by various entities at six locations along the Island's shoreline.

Existing Shoreline Stabilization Structures

South Beach Groins:
Seven shore-stabilizing structures presently exist along the southern extremity of the Island within Sea Pines. Six of these structures constitute the groin field found along South Beach's ocean-facing shoreline, while the seventh structure is a terminal groin commonly called the Land's End Groin, located immediately adjacent to the Braddock Cove tidal creek. These structures were installed during the late 1960's and 1970's by Sea Pines Company.

North Forest Beach Armoring:
In conjunction with the development of this residential area in the 1960's and prior to the adoption of the S. C. Beachfront Management Plan and DHEC OCRM setback line in the 1980's, over a mile of various forms of armoring was constructed along the North Forest Beach shoreline by property owners. Typical types of armoring ranged from walls, to granite rip rap and concrete rubble, most of which was placed in

an undesigned fashion on an as-needed basis. As a result of the Town's renourishment efforts, this zone of shoreline hardening has been effectively isolated from normal day to day wave and tide impacts by beach fill projects conducted in 1990 and 1997. Since the section of central Hilton Head Island shoreline extending from North Forest Beach to the present day Marriott Hotel naturally experiences the most erosional stress, it is deemed to be an important trigger for beach restoration activities.

Marriott Hotel Sloping Concrete Revetment with Seawall:
The existing Marriott Hotel complex (formerly the Hyatt Hotel) is an example of the placement of a major habitable shorefront structure at the natural dividing point along Hilton Head Island's littoral system. A massive sloping concrete revetment with seawall was constructed in conjunction with and upland of the original project, clearly acknowledging that the hotel complex would be subjected to wave and tide impacts. However, what may not have been realized was the magnitude for potential chronic shoreline recession at that location. A Littoral Transport Study of the island's oceanfront shoreline (Olsen, June, 1996) confirmed that the natural dividing point for littoral transport lies in the vicinity of the hotel and that phenomenon has been partially responsible for increased background erosion rates measured at that location. Although two previous beach renourishment projects have overtly sought to both reduce erosion vulnerability at the Marriott hotel site and to maximize post-construction beach widths sufficient to address high intensity recreational demand, it is recognized that a comprehensive solution is neither practical nor cost-effective seaward of the hotel complex. It is acknowledged that erosion of this area will occur faster than other areas along the shoreline; however due to the specific nature of this area, such an occurrence will not be used as the trigger for a large scale renourishment, like erosion in the North Forest Beach area.

Folly Terminal Groin:
A relatively short rock terminal groin was built along the west side of the small tidal inlet known as the Folly, as part of the 1997 renourishment project. The primary purpose of the structure was to allow beach restoration operations to occur in close proximity to the Folly (westward of the inlet only) without increasing the probability of closure due to project induced shoaling. DHEC OCRM permits for beach nourishment on Hilton Head Island, require that the Folly "must be kept in an open and flowing condition" since the tidal inlet is connected to a small isolated estuarine area deemed to be an important environmental resource. Accordingly, maintenance of the groin structure at its current location and approximate existing configuration is an important mechanism for minimizing fill impacts at this location of the island. Conversely, the eastern limit of the Folly has remained unstabilized and beach fill operations at that location are not allowed to encroach toward the inlet.

Port Royal Plantation Groin Field:
Along the Port Royal Shoreline, 17 shore perpendicular groins and two shore parallel rock revetments were constructed between 1969 and 1974. The 17 groins were constructed of varying mixes of small, medium and large granite stone. Some groins included concrete rubble. The two remaining groins,

located at the southeastern most section of the Port Royal Sound shoreline, were constructed of palm tree trunks combined with granite stone. It is estimated that these two structures were constructed around 1960. The groins' lengths vary from about 100 to 600 feet and the spacing between groins varies from approximately 165 to 850 feet.

Town/SPA Breakwaters:
As part of the 2006 Beach Renourishment Project, a new section of Port Royal Sound facing shorefront received limited beach fill to the northwest of Fish Haul Creek. As a complement to the small sand fill, six small rock detached breakwaters were constructed seaward of the limits of sand placement. The purpose of the rock breakwaters is to extend the life (and performance) of the very small isolated fill project. The structures are likewise intended to reduce sand migration from the fill towards Fish Haul Creek. Subsequent to rock placement, marsh vegetation was planted in the lee of each structure to further encourage long term natural stabilization along this shoreline which is at the transition point from sandy beach to an estuarine environment. It should be noted that this shore stabilization project is not located within the DHEC OCRM Beach/Dune Critical Area, but serves to more evenly distribute beach access points throughout the Island.

Town/Port Royal Groin:
A new section of Port Royal Sound facing the Atlantic shorefront received limited beach fill and a 700 foot long rubble mound terminal groin at the northeastern end of the project. The groin is low crested and mostly buried. The purpose of the rock breakwaters is to extend the life (and performance) of the small isolated fill project.

Beach Renourishment

In 1980, United States Army Corps of Engineers (USACE) issued a permit for the deposition of 300,000 cubic yards of sand along approximately 14,000 linear feet of the beach to Sea Pines Company. The renourishment sand was transported from the permitted dredging project of Shelter Cove Marina, located mid-island on Broad Creek, as a result of its compatibility with existing beach front sand. A Palmetto Dunes Resort project was the only renourishment project on Hilton Head Island permitted by the USACE and certified by the South Carolina Coastal Council prior to 1990, and predates the incorporation of the Town.

In 1990, the Town of Hilton Head Island undertook a nourishment project that was jointly funded by the State and the Town. This project involved the placement and contouring of as much as 2.5 million cubic yards of compatible sand along 35,000 linear feet of the beach. This renourishment project covered an area of the beach from just north of the Westin Hotel to south of Coligny Circle, with a small area excluded around the Folly. The sand was excavated and placed by hydraulic dredge from two offshore borrow sites located at Joiner and Gaskin Banks.

In 1997, the Town performed another renourishment project located very similarly to the 1990 project; however, this project addressed an additional 1.5 mile segment along Port Royal Sound, the reconfiguration of a tidal channel and the installation of sand fencing and native vegetation to encourage dune formation and stabilization.

In 1999, another renourishment project was permitted for emergency work to renourish along the South Beach shoreline as the preferred solution to the localized erosion problem which was occurring at that time. This fill was placed over the South Beach groin field rather than maintaining the structures themselves.

In 2007, the Town finished a $16.6 million project that was similar to the projects constructed in 1990 and 1997, with the exception of certain design refinements near the Marriott and along North Forest Beach. In addition, the Town elected an area near Fish Haul Creek along the shoreline of Port Royal Sound due to chronic erosion. This project placed about 2 million cubic yards of sand along 6.6 miles of Atlantic shorefront, from just south of Coligny Circle to just north of the Westin Hotel at Port Royal Plantation, 85,000 cubic yards of sand along 2,000 feet of the Port Royal Sound shoreline north of Fish Haul Creek at the Spa, and 42,000 cubic yards of sand along 1,500 feet of Atlantic Shorefront at South Beach. As with previous projects, the nourishment sand was excavated by hydraulic dredge from two offshore shoal features.

The 2011-12, beach renourishment project was a smaller scale project that built up the beach from just north of The Westin Resort to the Beach House in Port Royal Plantation. The 9.8 million dollar project included two principal parts: The placement of about 1.0 million cubic yards of sand along 1.0 miles of Atlantic shorefront and the construction of a 700 foot long rubble mound terminal groin at the northeastern end of the project. The groin is low crested and mostly buried.

The 2016 beach renourishment of the Atlantic oceanfront shoreline is expected to be similar to the projects constructed in 1990, 1997 and 2006 and is estimated to cost over $20 million dollars, will also include sand placement along localized portions of previously restored shoreline in Port Royal Plantation and the area just north of Fish Haul Creek on Port Royal Sound.

The planned 2016 renourishment project will include four principal parts:

1. Placement of about 1.3 million cubic yards of sand along 5.5 miles of Atlantic Ocean shorefront from just South of Coligny Circle to The Folly tidal inlet at Singleton Beach,
2. Placement of about 0.5 million cubic yards of sand along 7,000 feet of the Atlantic Ocean and Port Royal Sound shorelines in northern Port Royal Plantation,
3. Placement of about 0.3 million cubic yards of sand along 5,000 feet of Atlantic Shorefront in southern Sea Pines near South Beach, and

4. Placement of up to 60,000 cubic yards of sand along 2,400 feet of the Port Royal Sound shoreline north of Fish Haul Creek in the vicinity of the Fish Haul Park, Mitchelville Beach Park and The Spa of Port Royal.

FIGURE 28: 2016 BEACH RENOURISHMENT MAP

FIGURE 29: PRE-1990 SHORELINE AND 2006 PROJECT COMPLETION

5.3 EROSION CONTROL ALTERNATIVES

Since about 1986 a fundamental tenet of the Town's beach management strategy is that reliance upon "*hard*" structures should be minimized. Prior to the initiation of beach restoration through nourishment, different types of hard structures implemented for shore stabilization by the private sector (*i.e.* homeowners, developers, hotels, P.O.A.'s, etc.) have typically consisted of structures such as groins and seawalls or bulkheads. For the purpose of evaluation, two basic types of shoreline stabilization techniques have been considered: hard and soft shoreline treatments. In 2005, Olson and Associates prepared a white paper on shoreline stabilization structures that included the following evaluation of alternatives for both "hard" and "soft" erosion control techniques.

"Armoring consists of shoreline *hardening* through the application of bulkheads, seawalls or revetments.

- Bulkheads are vertical retaining walls designed to hold or prevent soil from sliding waterward.
- Seawalls are usually massive, vertical designed structures used to protect backshore areas from heavy wave action. In highly erosive conditions or exposed locations they may separate land from water.

- Revetments provide a sloping protective cover of erosion resistant material to protect a shorefront from waves and/or strong currents. They can be solid (*i.e*. sloping concrete for example), but most typically are comprised of a designed cross section of natural rock (like granite), or on less frequent occasions manmade type armor units.

Although armoring may be successful in limiting or reducing the extent of horizontal shoreline recession along a chronically eroding shorefront, it does *not* serve to alleviate deflation (*i.e*. vertical erosion) of the beach profile seaward. Hence, armoring is considered to be net impactive with respect to littoral processes. Most vertical armoring is highly reflective of incident wave energy; thereby further accentuating offshore sediment losses, in particular during storm events. For this reason, a sloping rock revetment (with a lower coefficient of reflectivity) is typically preferable over a vertical seawall or bulkhead in open coast environments.

Groins are one of the oldest and most common shore connected beach stabilization structures. Groins are structures typically constructed perpendicular to a shoreline in the zone of most active littoral transport across the beach profile. As such, groins are often designed to interrupt longshore transport in order to trap, or retain sand mobilized by waves or currents. Groins are often deployed as a field of structures in order to spatially affect a section of shorefront. At the terminus of a littoral cell, a single "terminal structure" may be used to anchor the beach, and/or limit the removal of sand from the shore into a navigational channel or the shoals of a tidal inlet."

Rather than these hard structures, the principal means of shore stabilization embraced by the Town of Hilton Head Island Shoreline Management Plan should be beach nourishment, a restorative "*soft*" structure which provides for improved shorefront conditions suitable for recreation, protection of upland development or infrastructure, as well as global environmental enhancement. In the mid 1980's the Town commissioned an "Erosion Assessment Study for Hilton Head Island" which was followed by an "Engineering Evaluation of a Beach Restoration Strategy for Hilton Head Island." In addition to providing the technical rationale for beach nourishment, these two documents formed the basis for the Town's initial and first request to use State funds for the purpose of beach nourishment in 1989.

Since that time, the Town has enacted a local "Beach Preservation Fee" which amounts to a 2% assessment on short-term rental accommodations. Rental to the same person or party of ninety (90) continuous days or more is not considered short term. The collection of this fee has allowed the Town to unilaterally fund subsequent beach renourishment projects, conduct semi-annual beach surveys and annual shoreline aerial photography, provide annual monitoring reports, acquire land, develop beach parks to enhance access, and install and maintain sand fencing and dune vegetation. The program generates approximately $4 million per year. The Town of Hilton Head Island has spent $50 million for beach renourishment projects between 1990 and 2012, and the Town's Capital Improvements Program includes funding to continue providing beach re-nourishment and maintenance in future years.

The Town has undertaken large scale fill projects on its oceanfront beach in 1990, 1997 and 2006. Besides the creation of a wider, higher and more robust beach configuration suitable for both active and passive opportunities at all stages of the tide, the Town has also been able to initiate a wide array of additional beach and shoreline management functions. These efforts benefit the local population as well as the island's natural environment. Noteworthy accomplishments directly associated with the Town's existing management program include, but are not necessarily limited to the following areas:

1. A coincident program of dune and vegetation restoration,
2. Improved beach protection laws for existing shorefront development and future redevelopment,
3. Enhanced property values and concurrent ad valorem tax base,
4. Eligibility for unique post-disaster financial assistance from FEMA,
5. Acquisition of undeveloped oceanfront lands for purposes of improved public access and park creation,
6. Improved promotional opportunities and amenities for resorts, hotels, property management firms, etc.
7. Protection of the Folly and its unique estuarine environment,
8. Improved Federal Flood Insurance program compliance,
9. More effective regulation of inappropriate oceanfront development,
10. Enhanced habitat for birds and endangered sea turtles.
11. Semi-annual beach surveys and annual shoreline aerial photography are used for modeling erosion and accretion rates when studying the Island's renourishment needs.

FIGURE 30: SAND FENCING

FIGURE 31: BEACH RENOURISHMENT RESULTS

6 - NEEDS, GOALS AND IMPLEMENTATION STRATEGIES

With the adoption of the Land Management Ordinance and the Comprehensive Plan and appendices, including the Beach Management Plan, many of the Town's policies and goals on shoreline retreat are being met. However, continuous pressure from developers to move development toward the newly renourished beach is of grave and immediate concern to the Town.

Need 1: *The Town should investigate methods to continue to protect the existing beach/dune features and those features resulting from renourishment projects from development and redevelopment pressures.*

Goal 1.1: Have a well maintained beach and dunes system that helps to preserve and protect the Island's manmade and natural resources and provides for a sound economic base; the Town does not support movement of the baseline or any other action that would result in encroachment of development into the dunes system or seaward of the baseline that was established in 1999.

Goal 1.2: Continue to Protect and Enhance the Beach/Dune System though the regulation of beachfront development.

Implementation Strategies:

A. The Town should continue to implement its Capital Improvement Program and Land Acquisition Program to develop, renovate, or expand its beach parks.

Achievements:

- ✓ Town Council authorized the first phase of a comprehensive Shoreline Management Plan. The first element, an inventory and analysis of shoreline stabilization structures, has been completed.
- ✓ The Town has completed four major and one emergency beach renourishments since 1990, with another large scale project currently underway.
- ✓ Detached breakwaters were installed along parts of Port Royal Sound Shoreline.
- ✓ The Town has begun post 2007 project monitoring, studies on groins at Port Royal Plantation, South Beach, and the Spa area on Port Royal Sound.
- ✓ The Town contracted with Olsen Associates for studies on groins at Port Royal Plantation, South Beach, and the Spa area on Port Royal Sound.

- ✓ Semi-annual beach surveys are conducted and an annual monitoring report is prepared.
- ✓ Sea turtle monitoring continues on island beaches. Staff is mapping all nesting sites.
- ✓ A dedicated funding source has been established for beach renourishment in the form of a beach fee, derived from an additional two percent Local Accommodations Tax levied by Town Council. This source provides $4 million each year, dedicated to beach renourishment and related monitoring, dune refurbishment, maintenance and operations, and new beach parks and beach access facilities.
- ✓ Completed a Port Royal beach erosion study.
- ✓ In accordance with continuing beach maintenance activities, shorebird monitoring is entering its seventh season. The Town's monitoring of threatened or endangered shorebirds is assisting federal and state agencies in the protection and recovery of those species.

B. Continue to hold densities along the beachfront to their current levels or below.

Achievements:

- ✓ The Town adopted *Resolution 2003-08,* that states: "to ensure that the intent of the ten Planned Unit Developments within the Town's PD-1 District is not compromised, *the master plan caps for those Planned Unit Developments should be held at current levels or below* until the Comprehensive Plan review/revision process is completed and this resolution is incorporated into the same, unless it can be clearly demonstrated that such a change will result in a reduced impact on infrastructure and the natural resources of the Island."
- ✓ A goal of the Land Use Element states*: "the reduction in allowable densities is preferred*." The Town should "reduce allowable development densities to ensure that development and redevelopment do not create adverse impacts on the natural resources of the Island, and so, not place an unreasonable burden on the community's infrastructure. Further, since 70% of the Town is within areas that were master planned, the "*master plan caps should be held at or below current levels* to ensure that the intent of those PUDs is not compromised" *(Comprehensive Plan 2004).*

C. Continue to amend and enforce the LMO and Municipal Code to protect the established dunes systems on our beachfront, to provide for re-establishment of the dunes systems during redevelopment, and to provide for redevelopment scenarios after a natural disaster.

Achievements:

- ✓ LMO Chapters 3 & 5 regulate growth management requirements regarding site design and density; LMO Chapter 6 regulates natural resources, including beach protection and preservation. These chapters address building location on the site and requirements for protection of beach/dunes systems and vegetation.
- ✓ Municipal Code Title 8 Chapter 1 regulates beach/dune use and activities. Municipal Code Title 8 Chapter 3 provides for Sea Turtle Protection.
- ✓ Town Council adopted the Recovery Plan in 2003, which was updated in 2014. The Disaster Recovery Commission was formed to work with staff to further research certain unresolved issues in the Recovery Plan.
- ✓ Town Council adopted the Coastal Protection Area and Transition Area Overlay Zoning Districts.
- ✓ The Town installed fences and plantings to support buildup and retention of dunes.

D. Work with DHEC OCRM during the update of the Town's Local Comprehensive Beach Management Plan when designated by the State and to review, as requested, public petitions to move the Baseline on individual properties to ensure compatibility with this Plan. It is the policy of the Town of Hilton Head Island that the baseline not be moved seaward.

Achievements:

- ✓ Beach Management Plan was first adopted in 1991 and amended in 1992 (inclusion of 40 Year Retreat Policy) and in 1998 (update of Beach Access section).
- ✓ This constitutes the update of the 2008 Beach Management Plan that was last amended in 2011. Town Staff coordinated heavily with OCRM Staff on its outline and content.

E. Continue to promote environmental education programs and standards that stress protection of fragile areas and wildlife.

Achievements:

- ✓ In 2001, USFWS identified critical wintering habitat for the Piping Plover along parts of the Island's shoreline.
- ✓ The Town supports the Loggerhead Sea Turtle Protection Program through funding.
- ✓ The Town provides brochures that addresses habitat on the beach.
- ✓ The Town conducted a habitat inventory near Fish Haul Creek in 2003.

- ✓ Ordinance enforcement is carried out by Town Codes Enforcement Officers, Facilities Management staff, Shore Beach franchise employees and BCSO deputies.
- ✓ Town Staff works with OCRM, DNR, the Coastal Discovery Museum, Clemson Extension, Lowcountry Estuarium and other partners to present public education programs on such topics as water quality, low impact development, wildlife and native beach plantings to both the general public and the development community.

F. Coordinate with the Chamber of Commerce in tourism efforts to promote our beach.

Achievements:

- ✓ ATAX grants are given to the Chamber for promotions.

G. Work to revise state legislation for enhanced protection of the beach and dunes system which should include an effective retreat policy in addition to considering renourishment efforts when determining baseline locations to prevent movement of the baseline further seaward as a result of renourishment.

H. Provide input to DHEC OCRM during the update of the State's Beach Management Plan to help ensure that the DHEC OCRM Baseline does not move further seaward along the Town of Hilton Head Island shoreline.

I. Work with the State to receive beach nourishment funds in the event the Town does not have local funding to renourish.

2. Beach Access

Need 2: *With the large majority of oceanfront land under private ownership, the Town should seek ways to work with developers to allow for public beach access in redeveloped sites, and to work with Property Owners Associations to protect accesses that currently exist.*

Goal 2.1: Have adequate public beach access at Town-owned sites and seek innovative solutions to provide additional beach access for the public in privately owned neighborhoods and commercial areas.

Implementation Strategies:

A. The Town should continue to implement its 10 year Capital Improvement Program to develop, renovate, or expand its beach parks.

Achievements:

- ✓ The Town owns 8 dedicated beach parks with over 1400 parking spaces.
- ✓ The Town has a dedicated funding source for land acquisition on the beach.
- ✓ The Town has spent $ 171 million for land acquisition to acquire over 1150 1,300 acres, some for beach parks.
- ✓ The Town has renovated the Coligny Beach Park to open views to the ocean and to provide a better designed park.

B. Continue to work with oceanfront developments to provide public access to the beach during redevelopment. Also work with neighborhood associations to protect neighborhood access points.

Achievements:

- ✓ LMO 16-6-304 provides the ability for the Town to "consider the need for beach access to meet the general public interest" while reviewing all development applications involving property adjacent to the beach. This allows Town Staff to recommend to Town Council purchasing the property for beach access.
- ✓ The Town has negotiated with beachfront developers to include emergency vehicle access in some of the new development along the beach (Marriott Oceanfront, Disney).

C. Develop methods of increasing public awareness concerning beach access points through better access signage, informational kiosks, directional signage and brochures.

Achievements:

- ✓ The Town installed beach matting at Coligny, Driessen, Folly Field, Alder Lane, Mitchellville and Islander's beach parks for access to the lower beach area by wheelchairs and other mobility devices used by disabled people to traverse the dry, soft sand.
- ✓ The Town installed GEOWEB to stabilize emergency accesses to the beach. Accesses are in the Coligny Beach Park, Islanders Park, Bradley and Burkes Beach Roads, Mitchellville and future Collier Beach Park.

- ✓ Staff worked with oceanfront beach developers to allow beach access emergency markers for location identification and installed them for efficient emergency vehicle access.
- ✓ The Fire & Rescue Master Plan recommends special emergency response vehicles be purchased in order to facilitate medical emergency response on the beach.
- ✓ The Town produced a Beach brochure and a Park Brochure detailing beach access locations and pathways to the beach.
- ✓ The Town coordinated with SCDOT for highway identification signs directing the public to beach parks.