



Tybee Island Beach Management Plan



Prepared by Mary A. Elfner (www.maryelfner.com) for the
City of Tybee Island (www.cityoftybee.org)
September 2005



**The source of funding for this project are The Coastal Management
Program of the Georgia Department of Natural Resources and
The U.S. Department of Commerce, National Oceanic
and Atmospheric Administration.**



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Signature Page

The City of Tybee Island and the Georgia Department of Natural Resources, Coastal Resources Division have partnered to create this Tybee Island Beach Management Plan.

The City of Tybee Island has asked its citizens to define their beach management interests and priorities and has given fair consideration to the inclusion of those interests and priorities in this Beach Management Plan. The Georgia Department of Natural Resources has provided technical assistance and funding to the community to conduct and complete this mutually beneficial work.

The project has enabled the City of Tybee Island to define its beach management interests and goals and will further enable the City to conduct its planning, budgeting, and public works functions as they relate to management the of Tybee Island beaches. The Plan enables the Georgia Department of Natural Resources, Coastal Resources Division to address the beach management needs of the community by directing components of its Coastal Management Program, including technical assistance, Coastal Incentive Grant funds and other mutually beneficial contracts, and permitting as required to administer the Shore Protection Act and Coastal Marshlands Protection Act, to the enactment of the Plan.

Signed this _____ day of _____, 2005.

By:

**Honorable Walter Parker, Mayor
City of Tybee Island**

**Ms. Susan Shipman, Director
GA DNR, Coastal Resources Division**



INTRODUCTION

In order to understand Tybee Island and its unique place on our coast, we must place it into the larger perspective of the Georgia barrier islands. The northernmost of our barrier islands, Tybee has been impacted by human development for centuries. From Yuchi Indians to modern day people looking for a beachside community, Tybee has been an important component of our landscape, both culturally and ecologically for centuries.

An article from the Savannah Morning News from the late 1800's gives us the following quote: *The beach is crowded with the old and the young, the rich and the poor. There is no caste here. There is no stilted style. The beach is long enough and broad enough and free for all. It's impossible for the selfish to monopolize the pure air of Tybee! There is enough and to spare. It is as free as the waves which beat upon the beach.*

In order to properly discuss beach management, which is the purpose of this document, we must balance all perspectives, from beach stabilization and renourishment to the abundant natural and cultural resources. For an excellent technical overview of shoreline stabilization on Tybee Island see the *Tybee Island, Georgia, Long Range Beach Management Plan* prepared for Tybee Island in June of 2001 by Olsen & Associates, Inc.

The purpose of this plan is to provide a useable planning document to the Tybee Island government and community that will serve several functions: serve as standard operating procedures for beach management by outlining responsibilities for management and maintenance of the beach; recommend specific duties to stakeholders and government officials (see **Appendix I—Recommendation Matrix**) and provide pertinent information to residents and interested parties. This document will serve as official policy of the City of Tybee Island. It will provide long-term direction and guidance for city policy makers and the Tybee Island Beach Task Force (BTF) as well as best management practices to city personnel for beach re-nourishment and maintenance.

OVERARCHING ISSUES

Issues addressed below are ones that affect the entire community.

Barrier Island Dynamics

Barrier islands move by forces of nature and design! These forces include water currents such as longshore currents, wave refraction, and storms, and cause barrier islands to be impermanent geological entities.

This section will briefly discuss the fact that the shapes and sizes of barrier islands change constantly under the influence of winds, waves, and tidal currents. Inlets, on the north and south ends of the barrier islands, are especially dynamic with southern ends tending to grow through accretion and northern ends showing irregular growth and erosion. And so Tybee Island, just like any Georgia barrier island, changes shape constantly. This Holocene, or recent geologically speaking, island consists of 3,100 acres, of which 1,500 acres are uplands. For more information on this topic, please see *A Guide to a Georgia Barrier Island* by Taylor Schoettle. Because the Georgia Ports Authority Port of Savannah shipping channel has disrupted this natural cycle, more attention will be paid to it in the next section and in the Beach Restoration and Nourishment section.



History and Development of Tybee Island

Tybee Island was colonized alongside Savannah by General James Oglethorpe in 1733. Tybee was recognized early on in the colonial period as strategic to protect the port of Savannah. Several lighthouses were built on Tybee, and what you see today is actually two lighthouses: the third lighthouse (the bottom 60 feet completed in 1773) and the fourth lighthouse (the top 94 feet added to the original foundation in 1867). The octagonal structure is made of brick, with 12-foot-thick walls at the base tapering to 18 inches at the top (Sherpa Guides, Lenz Design, 2005).

Tybee development continued in the mid-1800s when the only transportation was over water, the general public having access by steamboat. It wasn't until after the Civil War that Tybee truly became a tourist destination with the establishment of a rail line with Savannah in 1887. There were very few year-round residents before the 1870s, but over 400 beach cottages and other buildings were established by the 1890s for the summer residents.

U.S. Highway 80 was completed in June of 1923 linking Tybee Island with Thunderbolt, Georgia, and by the 1920s Tybee was one of the busiest seaside resorts in the Southeast with the main hub of social activity being the Tybrisa Pavilion.

Another aspect of development on Tybee revolves around the shipping channel and port. The natural channel depth of the Savannah River is approximately 24 feet. Please see the sections on Beach Restoration and Nourishment and Beach Monitoring, as they adequately address these topics.

Demographics

Tybee Island is one of four public beach communities in Georgia: Jekyll Island, St. Simons and Sea Islands, and Tybee Island. Tybee is



Georgia's 11th largest barrier island, measuring approximately 2.5 miles long by 0.75 mile wide. There is a permanent resident population approaching 4,000, which can grow to 30,000 on summer weekend days. The population in the year 2000, according to the most recent census (2000), was 3,392. The median resident age was 47 years, median household income was \$50,000, and the median house value was \$175,000 and continues to increase rapidly (City-Data.Com, 2005). As of August 2005, there have been 59 single-family new house construction building permits issued at an average cost of \$495,000 (Personal communication, Jan Fox and Vivian Woods, July 2005). According to the U.S. Department of Labor May 2004 Metropolitan Area Occupational Employment and Wage Estimates for the Savannah Metropolitan Statistical Area (MSA), the mean annual wage for all occupations was \$32,750.

Race is mostly of European descent, with ancestries including African, English, Irish, German, Italian, Scottish and American Indian (City-Data.Com, 2005).

Rapid growth on the South Carolina coast and in Florida have placed additional human stresses on Tybee such as increased visitors on the beach, and greatly increasing single- and multi- family residential construction. In turn there is a greater need to maintain the beach for the use of our visitors and the protection of property.

Planning and Zoning

Mr. Donald 'Dee' Anderson is the Assistant City Manager and Zoning Administrator for Tybee Island. According to Mr. Anderson and Mr. Bob Thomson, City Manager for the City of Tybee Island, Tybee has two unique planning and zoning requirements: 1) Tybee Island requires drainage plans for both individual houses as well as subdivisions, and this is rare for most jurisdictions in Georgia; and 2) there is a building height limit of 35 feet or less (Personal communication, Bob Thomson, April, 2005).

The following general information was excerpted from the Comprehensive Plan for Tybee Island as submitted to the Georgia Department of Community Affairs: Unlike other cities with a diverse range of development, Tybee Island is essentially composed of residential, tourist, and resort-services activities. Development and zoning patterns are therefore straightforward. Residential zone (R-1 and R-2), tourist zoning (R-T), and commercial (C), are in effect and are generally followed by planners. However, exceptions stand out. Certain "pockets" of nonconforming developments rise over, append to, or simply loom in the midst of conformed development. For more information please refer to the *Comprehensive Plan for Tybee Island*, and refer to **Figure 1, Zoning Map of Tybee Island**.

Beach Restoration and Nourishment



The following section is excerpted from an article written by Mr. Lou Off, Chairman of the Tybee Island Beach Task Force, and is a good overview of this subject:

The history of the Georgia Ports Authority Port of Savannah indicates that dredging activities got underway in the late 1800's. At this time there was a point of land a half mile out to sea between the north groin to highway 80. By 1915 this land had disappeared and by 1925 another 600 feet disappeared from the front beach. The channel was deep enough to stop most sand and the island had to be protected by the sea wall built in 1938. Over 130 groins helped to hold some of the sand, but continuing deficits to the incoming sand flow due to the channel have caused increasing shoreline erosion beyond that expected by natural causes.

Many older residents have memories of waves breaking against the sea wall from the Back River all the way around to the front beach. With the destruction, in 1963, of a bulkhead protecting Fort Screven, the U.S. Army Corps of Engineers (USCOE) at the Savannah District initiated a Federal Beach Erosion Control Project for Tybee Island. Congressional authorization was obtained in 1967 and work started in the mid 1970's on the north groin near the light house. Upon completion of the groin, 2.3 million cubic yards of sand was excavated from a source just south of the island and placed on the front beach. Following the nourishment, it was found that the new sand started migrating southward and disappearing off the end of the island. The Georgia Department of Natural Resources (DNR) initiated the action to form the Beach Task Force (BTF) to work with the Army Corps of Engineers (USCOE) and beach consultants which resulted, in 1987, the construction of the south groin at 18th Street. Another 1,000,000 cubic yards of sand was also placed on the Back River, South Tip and front beaches.

In 1994, another deepening of the Savannah Channel was used to bring sand to the north end of the island. The material was of a poor quality, including mud, silt, clay and fine sand and the beach disposal was terminated. What material that did get to the beach soon washed away. Because of this failure, the Georgia Ports Authority along with the State of Georgia made \$4,900,000 available to assist Tybee with erosion problems. In 1995 three groins were built on the South Tip with 335,000 cubic yards of sand placed there and northward to 14th Street.

In 1996 under the authorization of the federal Water Resources Development Act (WRDA), Tybee Island had its Shore Protection Program extended another 35 years, through the year 2023 and the inclusion of the South Tip and Back River beaches. This allowed the re-nourishment of 2000 which provided 1,500,000 cubic yards of sand and 8 rock groins along the Back River beach. This project cost over \$10,000,000 and Tybee Island as the non federal sponsor was responsible for 40%. We had assistance from the State of Georgia and

SPLOST funds to pay our bill.

As of 2005, the front beach in the middle of the island has a very stable beach with over 500 feet of dunes. The South Tip has a usable beach and a growth of sand dunes, and the Back River beach except for the area just west of South Tip has shown growth. The front beach has been eroding between the north groin and 2nd street and also near 17th Street, the rate of erosion has lessened since the three nourishments that are starting to refill our sand starved beaches. (Tybee Issues, 2002)



Although progress has been made to stabilize the beach, work remains to be done to decrease the annual loss of sand caused by normal forces of nature, which are exacerbated by the interruption of the littoral flow by the Port of Savannah shipping channel. Nourishments are required to replace approximately 200,000 cubic yards of sand lost each year. Such nourishments are needed about every seven to ten years to protect property and the growing dune fields and to maintain the beach.

Moving Sand from Local Areas of Accretion to Local Areas of Erosion

There is much concern from landowners on Tybee Island regarding beach erosion areas on their property. This issue is very evident in certain areas such as the Highway 80 curve and Second Street.

Tybee Island has two areas of significant sand accretion. These are found at both ends of the island in the ebb tidal deltas. Sand could be mined in these areas to be placed in areas of erosion such as Second Street.

At a public meeting on June 20, 2005, one private citizen suggested that Tybee Island purchase a small dredge that could move sand from flood tide deltas to eroding areas. These kinds of creative solutions need to be researched and thoughtfully planned out by the citizens and public servants of Tybee Island in coordination with the State.

A policy for moving sand needs to be developed by the City of Tybee Island, the Beach Task Force, City consultants, the Georgia DNR/Coastal Resources Division (CRD), and the USCOE. Such things as permits and engineering methods should be clarified. According to Mr. Brad Gane of the Georgia DNR/CRD, moving sand locally from areas of accretion to areas of erosion can be done through identifying best management practices and standards and acquiring the necessary approvals from the State (Brad Gane, personal communication, June 20, 2005).



Public/Private Ownership of Beaches

The issue of who owns parts of the beach on Tybee Island is an important one to understand. The City of Tybee needs to confirm, clarify and establish a line of demarcation of what is beach related property. According to City Code Section 5-010, Permits Required for Construction, article J, Shore Protection with Variance Clause *...no permit for building, land clearing, disturbance or excavation, shall be issued for activities or areas seaward of the line established by the Shore Protection Act (O.C.G.A. §12-5-230). Except however, for the purposes of this ordinance, the line shall not be based upon the occurrence or existence of a live, native tree twenty feet in height or greater, but rather shall be determined based upon existing dwellings.* This makes the local ordinance, for the most part, stricter than the State law

The issues at hand, then, for the City of Tybee Island, are to:

1. Determine if this local ordinance is adequate,
2. If not, determine by alternative means, a line of demarcation using monument markers,
3. Clarify and change ownership of beach from private to public through negotiations between the City, the Georgia DNR and the property owners,
4. Place the public property in some kind of trust, such as conservation easements, that would prohibit development through deed restrictions
5. Ensure that current private owners will always have an easement to the beach. This could be established by the DNR policy of regarding dune crossovers (**Appendix C**).

Beach Monitoring

The Savannah District of the U.S. Army Corps of Engineers (the Corps), monitors Tybee Island's beaches for 5 years after a beach renourishment has occurred as is required by the federal project for Beach Erosion Control (Tybee Island, Georgia, Operations, Maintenance, Replacement, Repair, and Rehabilitation Manual, U.S. Army Corps of Engineers, Savannah District, May 2002). This is done several times per year by aerial photography and on ground surveys by the Corps and provides Tybee Island with ongoing status reports of present beach conditions and the rate of sand loss. The local entity, in this case Tybee Island, is responsible for beach monitoring after 5 years have elapsed until the next beach renourishment. Some fluctuations to beach conditions are caused by wind, water, and storms, and some to manmade impact, such as tourism and shipping traffic. **Appendix A** provides a summary table of shared responsibilities regarding beach monitoring on Tybee Island.

To see a list of Players and Projects regarding beach sand management on Tybee, please see **Appendix B**.



Beach Safety

This section of the Tybee Island Beach Management Plan addresses lifeguards, existing standard operating procedures, equipment and needs.

Lifeguards

Lifeguards on Tybee Island operate under standard operating procedures that are available through The City of Tybee Island Police Department and the City Manager’s Office.

All lifeguards fall under the command of the City of Tybee Island Chief of Police. Direct supervision of the lifeguard department is under the Police Officer appointed as the supervisor of the Beach Patrol and Ocean Lifeguard Division. This officer is a direct liaison for the Lifeguard Captain to the Chief of Police (Personal communication, Major Chris Case, July 2005)

Equipment and Needs

The City of Tybee provides the lifeguards with several items to ensure that the lifeguards are uniformed and professional in appearance. These include uniformed swim trunks or female suits, tank tops and whistles with lanyards. Towers, flotation cans, binoculars, various first aid equipment, Police quality 800mhz radios, rescue surfboard and kayaks as well as ATVs are also provided as equipment to be used by lifeguards. Below is a chart explaining the placement of guards and equipment. This is only an example and should not be used as a template for everyday placement (Tybee Island Police Department Ocean Lifeguard Division, Standard Operating Procedure Manual).

Table 1. Tybee Island Lifeguard Equipment

Location	Flotation Cans	Radios	Rescue Surfboard	Kayaks	Foot Patrol & ATV
Tower 1: 14th Street	2 Guards 2 Cans	1 Radio	No	No	Yes
Tower 2: 15th Street	2 Guards 2 Cans	1 Radio	No	No	Yes
Tower 3: North Pier	2 Guards 2 Cans	1 Radio	No	Yes	Yes
Tower 4: South Pier	2 Guards 2 Cans	1 Radio	No	Yes	Yes
Tower 5: 17th Street	2 Guards 2 Cans	1 Radio	No	No	Yes
Tower 6: 18th Street	2 Guards 2 Cans	1 Radio	No	No	Yes
North Beach Main Strand	2 Guards 2 Cans	1 Radio	Yes	No	Yes
North Beach Tower	2 Guards 2 Cans	1 Radio	No	No	Yes
Lifeguard Station EMT	1 Guard	1 Radio	No	No	No



A current need for the City is to purchase and man a Wave Runner boat that would patrol the near offshore area, particularly from 14th Street to the South Tip on busy summer and holiday weekends.

Environment

The environmental section of this document covers the following topics: wildlife, plants, greenspace, water quality, water quantity, and hurricane preparedness.

Wildlife

Two groups of wildlife directly using the beach environment for food, shelter and reproduction are shorebirds and sea turtles. Both will be addressed at length in this section of the plan. Information for other groups of wildlife such as neotropical migrants, Diamondback terrapins, Wood Storks, alligators, Right whales and Bottlenose dolphins can be found at the Tybee Marine Science Center, the Georgia Department of Natural Resources and the U.S. Fish & Wildlife Service (USFWS) Coastal Refuges Office.

Shorebirds

Tybee Island is important to wintering sea birds and shorebirds, and occasionally nesting sea birds. The north beach of the island from the jetty on the northeast corner, west along the beach that parallels the Savannah River is the best area for wintering and nesting birds.

1. The north beach of Tybee has been designated as Critical Habitat by the U.S. Fish and Wildlife Service, and noted as GA-1 in the federal register for the Piping Plover (*Charadrius melodus*). This area supports many species of waterbirds through the fall, winter and spring months. On January 26 2005, there were nearly 2,000 waterbirds on the north end of Tybee, including 7 Piping Plover. A map of the general locations of the designated critical habitat for the wintering Piping Plover is depicted in **Appendix G**.

2. Beach-nesting birds are a high conservation priority for the Wildlife Resources Division of the DNR. The beach flats and dunes on the north end of Tybee occasionally attract sea birds to nest. In 2005, a small flock of Black Skimmers (*Rynchops niger*) nested on Tybee. The City of Tybee should coordinate with the DNR Wildlife Resources Division (WRD) to protect the areas where birds are nesting, to achieve mutual conservation goals. State nongame biologists can assist in sign placement and rope barriers to keep the public away from beach nesting birds.

3. Dogs can disrupt and harass birds on the beach. Tybee's no-dog rule needs to be enforced for the north end of the island.



Sea Turtles

Nesting sea turtles are an important part of our beach ecosystems in the Southeast. The following beach nourishment guidelines are from the Georgia Department of Natural Resources, Wildlife Resources Division, Nongame Program:

The protection and maintenance of nesting habitat is considered a high priority in the USFWS/National Marine Fisheries Service (NMFS) Recovery Plan for the U.S. Population of the Loggerhead Turtle, *Caretta caretta*. The purpose of these guidelines is to minimize the affects of beach nourishment projects on sea turtle reproduction and to ensure nourished beaches are compatible with native beaches.

The following are general guidelines for beach nourishment projects:

Construction. Construction shall be allowed outside the loggerhead turtle nesting and hatching season (May 1-October 31).

Sediment Grain Size. Fill material shall be free of construction debris, rocks, or other foreign matter and shall not contain, on average, greater than 10% fines (i.e. silt and clay; passing through a #200 sieve; approx. .075 mm) and shall not contain, on average, greater than 5% coarse gravel or cobbles (retained by #4 sieve; approx 4.5 mm). Sand grain size on Georgia beaches is generally between 0.15 and 0.3 mm.

Sediment Composition. The sediment composition of Georgia beaches is generally fine-grained silica sand (>90%) with very little fragmented shell. Shell content should remain below 15% of total volume.

Sediment Color. Sediment color should be between 10yr6.5/1 and 10yr7.0/1 on the Munsell soil color chart.

Compaction. Sand compaction should be measured at a maximum of 500 ft. intervals along the fill area. Compaction will be measured at 3 stations along three transects corresponding to the landward, middle and seaward portion of the fill berm. At each measurement station, a cone penetrometer shall be pushed to depths of 6, 12, and 18 inches three times (3 replicates) and the compaction readings will be averaged to produce a final reading at each depth for each station. If the average value for any depth exceeds 500 cpu for any 2 or more adjacent stations, than that area will be cross-tilled from the high tide wave rush to the seaward



toe of the dune prior to May 1. If a dune feature is constructed as part of the project, the dune feature should be tested for compaction prior to the planting of vegetation or sand fence construction. If compaction readings are greater than 500 cpu at any of the test depths (6", 12" 18") for 2 consecutive stations, the dune feature should be tilled prior to May 1.

Beach Profile. The constructed beach profile should be gradually sloping rather than an elevated flat terrace to reduce scarping. The beach should be monitored for scarping prior to the nesting season. Escarpments in excess of 18" extending more than 100 ft should be mechanically leveled to natural beach contour prior to May 1.

Sand Fence Construction. Sand fence construction will be in accordance with GADNR guidelines. GADNR Sand Fence Guidelines (**Appendix H**) are designed to allow marine turtle access to nesting habitat and prevent trapping of marine turtles as they return to the sea following nesting.

No discussion of sea turtles would be complete without mentioning beach front lighting during nesting and hatching season. The City of Tybee has an ordinance, section 8-3-230, that provides standards for lighting in the shore protection area adjacent to the city's beaches. Because egg-laying females are disturbed by lights, and sea turtle hatchlings orient toward the bright horizon to be able to find their way to the ocean, they can become easily disoriented by artificial sources of lights, such as street and porch lights. Because of this, the Tybee Island Marine Science Center (TIMSC) and Savannah Electric (SEPCO) have instigated a "Lights Out" program on Tybee Island to encourage citizens and tourists to turn off or shield outdoor lighting after 9 PM from May 1 to October 31. For more information on this subject please visit the TIMSC website at <http://www.tybeemsc.org/turtles.html>.

Plants

Scrub-Shrub Trimming Guidelines

The goal of this strategy is to summarize data from numerous sources and to propose guidelines for granting Georgia Department of Natural Resources Shore Protection Act Permits for vegetation trimming or landscaping within State Shore Jurisdiction areas. Though derived from the known habitat needs of the Painted bunting (*Passerina ciris*), a species of concern in Georgia, these guidelines are intended to apply to all scrub-shrub habitats within Shore Protection Act jurisdiction. Please refer to **Appendix D** for a more thorough description of scrub-shrub trimming guidelines for areas within Georgia Shore Protection Act jurisdiction.

Sea Oats

The City of Tybee has a local ordinance that protects sea oats (*Uniola paniculata*), section 9-5-1(8): No disturbing of dune vegetation or walking in the dunes. It shall be unlawful for any person to pick, gather, remove, walk in the dunes, or otherwise disturb the vegetation present on sand dunes, including sea oats.



Greenspace

The topic of greenspace on Tybee Island continues to evolve. There are three main efforts underway:

- 1) A nature trail system consisting of the Sally Pearce trail, unopened city streets, and a bicycle trail,
- 2) City Resolutions that cover preserving all remaining parcels owned by the City for greenspace and public recreation, and disallowing permanent structures or pervious surfaces in city parks,
- 3) The Tybee Island Land Trust which holds several conservation easements to permanently protect the easement properties, and

Some discussion has ensued regarding a real estate transfer tax for greenspace acquisition that would require state action for Tybee Island to collect a small percentage of a transfer tax when real estate changes hands.

In 2004, the City of Tybee Island received a grant from the Georgia Forestry Commission to inventory and map remaining undeveloped forested and green space areas. The goal of this project was to develop, from this inventory and map, a series of walking and biking trails and linear parks (Personal communication, Bob Thomson, July 2005).

There are several ordinances in place, such as the prohibition of any fill of marsh and freshwater wetlands that exceed the State's minimum requirements (City Code 8-3-240, Wetlands Protection). A map of greenspace on Tybee Island is available at City Hall (Personal communication, Paul Wolff, April, 2005).

The City Code that directly addresses greenspace in article 8, section 3-165, entitled Greenspace. Following is the current city code of this section as listed on the Tybee Island City Government website (City of Tybee Island, 2005).

Findings and Purpose: *The preservation of green space is important to the health and welfare of the City's citizens and aids in the reduction of drainage problems associated with development; and the preservation of green space and permeable surfaces will preserve aesthetic features of the landscape and provide for the free flow of air, light, etc. Therefore, in the interest of the public health, safety and welfare, the Mayor and Council find that the imposition of a permeable surface requirement into the*



setback spaces of lots is appropriate.

In all zoning districts, sixty-five percent (65%) of the designated setback area of a lot shall consist of permanent permeable surface so as to permit the absorption of water and shall not be paved, built upon, or covered in such a way so as to interfere with the permeability of the surface.

It is the intention of the governing body and it is hereby ordained that the provisions of this Ordinance shall become and be made a part of the Code of Ordinances, City of Tybee Island, Georgia, and the sections of this Ordinance may be renumbered to accomplish such intention.(ORD. 1999-24; 8/12/99)(ORD. 2000-10; 2/11/00)

Water Quality

This section is attributed to the Georgia Department of Natural Resources, Coastal Resources Division.

Beach Water Quality Monitoring

The Department of Natural Resources Coastal Resources Division (CRD) Beach Monitoring Program was developed to protect swimmer health. Starting in 1999, CRD monitored the swimming beaches on Tybee for the presence of fecal coliform bacteria. Fecal coliform is an indicator bacteria, which when found in the water indicates the presence of human or animal fecal matter. Fecal matter can contain pathogens (bacteria, virus, etc.), which can cause human illness.

Passage of an amendment to the federal Clean Water Act known as the Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000 (PL 106-284) addresses significant new swimmer protection provisions. The BEACH Act requires states to adopt water quality criteria utilizing enterococcus bacteria as the standard indicator for salt-water recreational beaches. The Act also requires states to develop procedures for notifying the swimming public when high levels of bacteria are found.

In April 2004, CRD entered a new phase of beach monitoring and public notification based on the Environmental Protection Agency's recommended levels of enterococcus bacteria for marine recreational waters. Enterococcus, like fecal coliform, is an indicator bacteria. Research has shown the enterococcus is a better indicator of the presence of fecal matter in salt water. EPA has finalized a new standard for bacterial water quality: a single sample maximum of 104 enterococcus CFU per 100ml or a geometric mean of 35 enterococcus CFU per 100ml.

CRD has worked in partnership with the City of Tybee and the Chatham Health Department to develop procedures to notify the public. Public advisory signage has been installed at beach access points on Tybee Islands. The Health Districts have prepared templates for press re-

leases to issue health advisories in the event of high bacteria levels.

CRD tests the Tybee beaches year-round in 5 locations: the south end at Chatham St.; the Strand just north of the pier; at Center Terrace, near the lighthouse at Gulick St.; and at Polk St., with Polk Street recently being taken off of a permanent advisory status. The beaches are tested weekly. When elevated levels of bacteria are found, CRD notifies the Health Department. The Health Department notifies the City of Tybee and issues a press release notifying the public of the swimming advisory. The City of Tybee activates the advisory signs in the affected area of beach. The Environmental Protection Division (EPD) investigates to find the source.



CRD continues to test the affected beach until the bacteria levels drop to an acceptable level. The Health Department then lifts the swimming advisory and the City of Tybee de-activates the advisory signs.

CRD has placed beach information on our web site at <http://crd.dnr.state.ga.us/> and has linked to the Earth911 web site to show current beach conditions. On the Earth911 site, regular beach visitors can subscribe to an e-mail notification system for their favorite beach. Subscribers to this free service will receive an e-mail each time the beach status changes.

Stormwater Management

Stormwater management on Tybee Island directly affects beach water quality. There have been several ordinances/resolutions passed by City Council that address stormwater regarding:

- pervious driveways, and
- a stormwater permit is required by any land disturbing activity regardless of size or distance from the water.

It is important to note that the local code is stricter than State requirements regarding stormwater management. To see the Code section in it's entirety, visit the City of Tybee website at www.cityoftybee.org, Title 5 Public Works.

An important initiative that is currently being put into place is a cooperative agreement, through the Planning Assistance to States program, between the US Army Corps of Engineers and the City of Tybee Island regarding non-point source pollution resulting from sheet flow drainage in the South Beach area. Additionally, the Corps is proposing an alternate outflow to the current 48 inch pipe at Alley 3 (Bob Thomson, personal communication, August 2005).



Water Quantity/Conservation

Water conservation is a priority for Tybee Island. There is a water conservation ordinance in place since 1997, Municipal Code 6-1-2, and the City's website has a section on water conservation at <http://www.cityoftybee.org/conservation.htm>.

Hurricane Preparedness

Mr. Jimmy Brown, with the City of Tybee Island, is the director of the Tybee Island Emergency Management Agency. To learn about hurricane preparedness on Tybee Island, contact Mr. Brown through City Hall and/or visit the Tybee Island website at <http://www.cityoftybee.org/HURRICANE/hurricane.htm>.

Regarding what to do should a hurricane visit Tybee Island, two points need to be mentioned. According to current City Manager, Bob Thomson, a private firm has been retained to help with clean-up in the aftermath of a hurricane. And, according to Mr. Phillip Webber, current director of the Chatham Emergency Management Agency (CEMA), there are two programs for emergency funding available to residents called Public Assistance (<http://www.fema.gov/rrr/pa/>) and Individual Assistance (<http://www.fema.gov/rrr/inassist.shtm>), the source of funds originating at the Federal Emergency Management Agency (FEMA) level. These low-interest loan and grant programs become effective after presidential emergency declaration. For more information on these programs and related manuals, please visit <http://www.fema.gov> (Personal communication, Phillip Webber, June 29, 2005).

For a copy of the Chatham County Hurricane Plan, visit: <http://cema.chathamcounty.org/documents/Complete%20Hurricane%20Plan%20July%202004.pdf>

Dogs on the Beach

There are many reasons why dogs, and other pets, are not allowed on Tybee's beaches: public nuisance and disturbance to shorebirds are on the top of the list, along with nonpoint source pollution from fecal matter. The City Code that addresses this issue can be accessed via the City of Tybee website at www.cityoftybee.org/code, *Section 9-5-1 RULES AND REGULATIONS FOR USE OF THE MUNICIPAL BEACHES, (4) No pets. It shall be unlawful for any person who shall own, or be in control of, or be in charge of, any dog or other pet, to allow or take that dog or other pet upon the beaches or structures erected thereon. This does not include properly certified guide dogs, or similar animals assisting the blind, deaf, or other physically handicapped persons.*

Beach Cleaning and Maintenance



Beach cleaning and maintenance is one component of good beach management, and beach cleaning should take place within limits. In a letter written from CRD Director Susan Shipman to Mayor Walter Parker on July 16, 2004, it is stated that pursuant to O.C.G.A., Section 12-5-248 (b), the Department of Natural Resources would issue a letter of authorization to Tybee for beach cleaning activities with the following conditions:

1. (Mechanical) cleaning may not occur in the dunes and can only occur during the day.
2. Cleaning should focus on manmade debris and avoid natural debris, such as beach wrack, as beach wrack is important to primary dune formation—an important component to the ecology of the beach ecosystem.
3. During the sea turtle nesting season (May 1 to October 1), cleaning can only occur after the turtle patrol has completed their daily survey of Tybee Beach for nests and hatchling emergence.
4. Cleaning may not occur within 20 feet of sea turtle nests.
5. Cleaning may not occur within 100 feet of a designated shorebird nesting area or designated critical habitat.
6. Cleaning equipment must stay at least 10 feet from indigenous vegetation.
7. Only equipment with 10-psi or less tire pressure can operate on the beach.
8. Cleaning equipment must not penetrate more than two inches into the beach surface.
9. Cleaning equipment must effectively screen and return sand to the beach.
10. All material collected must be removed from the beach.

The letter also states the O.C.G.A. 12-5-248 (a) (1) provides that governmental vehicles may be utilized for beach maintenance without a permit as long as those vehicles operate across existing crossovers, paths, or drives. The letter goes on to state that pursuant to Board of Natural Resources Rule 391-2-2, Appendix A, Tybee Island's three such existing access sites are the north, middle, and south access drives. Other access points would need to be approved by the Shore Protection Committee. Furthermore, the statute mandates that proper vehicular activity must be conducted so as to provide protection to sea turtles and birds. Please see **Appendix F** for a complete copy of this letter.

Tourism

Tourism is the mainstay of Tybee Island's economy. It is one of



the main reasons why a beach management plan is necessary in the first place and cannot be overemphasized.

Traditional Tourism

Traditional tourism on Tybee began after the Civil War when steamships began carrying beach-goers to the island. Use of Tybee as a tourist destination has increased steadily as transportation to the island has become easier, by train (the Nancy Hanks, no longer in operation) and by car (U.S. Highway 80).

Although no formal study has taken place regarding the importance of tourism to Tybee's economy, we can look to certain indicators to show the exponential growth of this industry, such as the hotel/motel tax generated over the past decade. Hotel/motel tax shared with the Tybee Department of Tourism in 1986 was \$28,000, while in 2004 it was \$325,933 (Personal communication, Paul DeVivo and Katrina Murray, April, 2005). This is an approximate 1,000 percentage increase in 19 years.

A number of websites exist that are dedicated to tourism on Tybee Island, including:

www.tybeevisit.com
www.tybeeonline.com
www.tybee.com
www.tybeetyme.com

Ecotourism

According to the Institute of Ecotourism (www.ioet.org), "The term "ecotourism" originated in the early 1990's in response to the growing interest among travelers in enriching their travel experiences through direct contact with the natural environment, living history, and local cultures." Tybee Island, having plenty of all three, is a perfect ecotourist destination, and many small businesses and entities have sprung up due to the ample ecotourism opportunities. The Institute of Ecotourism goes on to say that "ecotourism enables communities to thrive economically while preserving and restoring the resources on which the travel and tourism industry and local communities depend". With this idea in mind, ecotourism is a large part of Tybee's future!

The Tybee Island City Council has an ecotourism committee. The mission of this committee is two-fold: to promote ecotourism on Tybee and to identify greenspace and seek ways to make greenspace accessible to the general public. At present there are three projects that the ecotourism committee is working on:

1. A bicycle trail using City streets from South Beach to the Lighthouse. This is a marked bike trail that keeps cyclists off of Jones Avenue and Highway 80; two of the busiest streets on Tybee Island.
2. The Sally Pearce Nature Trail. The ecotourism committee is in

the process of identifying unopened rights of way to expand the existing nature trail (Personal communication, Lawanna Tsoulos, April 2005).

3. Alleviating a growing problem of limited water access on Tybee for all humanly powered craft such as kayaks, canoes, rowing shells and sailing rigs (Personal communication, Dale Williams, May 2005).



Roads & Parking

The following information has been summarized from the *Tybee Island Traffic & Parking Study* prepared for the City of Tybee Island by HDR, Inc., Engineering in Atlanta, Georgia. For more complete information please see their report on file with the office of the City Clerk, or available as a downloadable PDF file on the City of Tybee website (www.cityoftybee.org).

The coastal community of Tybee Island, Georgia, has a full-time population of about 3,500 residents. This can increase to over 30,000 on weekend days during the summer. The Tybee Island beaches, which stretch along the northern and eastern sides of the island, are essentially the only Georgia beach areas serving the surrounding three-county area for public access and day use. This influx of visitors impacts traffic conditions on the island and public parking facilities frequently reach capacity during peak times, leaving some visitors upset about not being able to find readily available parking.

The HDR study continues to discuss overall parking strategies due to the fact that parking spaces are inadequate during peak periods in the summer. Overall parking strategies recommended by this study include enhanced beach access signage, satellite parking and shuttle system, and a toll at the entrance to the island (Tybee Island Traffic & Parking Study, HDR Engineering, Inc., January 2005).

To see parking locations and beach access points on Tybee, along with a summary of access points and parking in table form, please refer to **Appendix J**.

Beach Access

To remain eligible for federal beach renourishment funding through the *Project Cooperation Agreement between the Department of the Army and the City of Tybee Island* (available at City Hall), Tybee Island needs to ensure public accessibility of its beaches. For more information on this subject, please refer to the Project Cooperation Agreement between the Department of the Army and the City of Tybee Island (Personal communication, Bob Thomson, April, 2005).

Recently, Tybee Island has addressed the needs that beaches be handicapped and stroller accessible by installing a beach mat at 18th Street, with two more locations planned by the end of Summer 2005 at 8th Street and Gulick Street. There is more that Tybee Island can do re-



garding handicap access through Title II of the Americans with Disabilities Act (ADA) (State of Georgia ADA Coordinator's Office, 2005).

The Georgia Department of Natural Resources, Coastal Resources Division has standard conditions for dune crossovers. These conditions are authorized by the Georgia Shore Protection Act (SPA) (O.C.G.A., §12-5-230) and allows only one crossover structure per parcel. Please refer to **Appendix C** to see the entire standard conditions.

DNR also has guidance on maintaining and establishing dune paths. The Department of Natural Resources Coastal Resources Division may allow the use of a path through the state's jurisdiction under the Shore Protection Act. O.C.G.A. 12-5-230 et.seq. The purpose of a path is to provide pedestrian access through the vegetated dune area of the dry sand beach in areas of low traffic where public access does not exist and the functionality of the dune system will not be degraded. Please refer to the guidance in it's entirety in **Appendix E**.

Redevelopment Plans for Tybrisa and the Strand

The *Tybee Island South Beach Business District Design Charette* by HDR Engineering, Inc., was completed in January 2005 for the City of Tybee Island. The South Beach Business District Design Charette, held September 15-17, 2004, focused on the South Beach Business District.

The charette process included intense sessions to receive input from City staff, the general public and area stakeholders. The design concept, according to HDR, is a starting point—a big picture idea for future actions. Implementation recommendations were broken up into Immediate Actions (<1 Year), Intermediate Actions (1-5 Years), and Long-term Actions (5+ Years).

Immediate:

- Wayfinding/Branding/Beach Access & Parking Signage
- Tybrisa Street Improvements
- 18th St. and Handicapped Access Area
- 5-Head Signal at US 80/14th St.
- Designate Loading Zones, Short-term Parking
- Trash Management
- Drainage Improvements
- Code Revisions/Architectural Design Improvements
- Public Bath House/Short-term Improvements

Intermediate:

- South Beach Parking Lot/Strand Ave. Improvements
- US 80/Tybrisa/Inlet Ave. Intersection Improvements
- 14th, 15th, 17th St. Improvements
- Pier/Pavilion Improvements

Long-Term:

- US 80/Butler Ave Improvements
- Parking Garage

- Test shuttle system/remote parking
- Preference Survey for parking fees/tickets/toll
- Toll Feasibility Study
- Underground Utilities



Balanced economic development will provide increased resources for the city to implement this plan.

BEACH COMMUNITIES

In order to assess such local issues as infrastructure, zoning and parking, we have attempted to identify beach communities on Tybee Island. The model that was used for this task is the Virginia Beach Management Plan of April 2002, which used a principal strategy of segmenting Virginia Beach's coastline into eight individual beach units.

We have, cursorily, attempted to identify beach communities and have come up with six communities: Savannah River Beach, North Beach, Front Beach, Beach Business District, South Tip, and Back River. The following sections were written by Mr. Lou Off, current Tybee Island Beach Task Force chair, and Ms. Berta Adams, also of the Tybee Island Beach Task Force.

Savannah River Beach



Location and Structures

This beach starts in the north-west area of Tybee and goes to the northeast. Starting near Teresa Lane, where residential development is approximately 500 feet wide between highway 80 and the beach, it ends at Estill Point, which is over a mile north of Highway 80. The beach is approximately 5,000

feet long and contains 25 single-family beach front residences and 10 vacant lots. Also along the beach is the Savannah beach and racket club with 157 units near the west end and Light House Point with 117 units on the east end. Both of these complexes contain mainly short term rental spaces. The Tybee Island sewage treatment plant is on this beachfront with tertiary treatment and effluent discharge into the river. Other than multi-family housing, most homes are owner-occupied and have been constructed in the last five to 15 years. All remaining lots are zoned for



single-family homes.

Property Ownership

Privately-owned property along this beach stops at the ordinary high water mark. The federal government, through the U.S. ACOE, administers to the high water line, while the state DNR administers the land that is designated as sand dunes. The City of Tybee building ordinance allows construction only to a line between existing dwellings. Public sand nourishment projects should not be constructed on private land. Therefore, clarification of property ownership needs to be determined.

Usage

This beach is difficult to access unless from the beach-front residences, multi-family units or in subdivisions that have beach access. The beach is therefore quiet and seldom crowded. Increased construction in this area is causing more single-family residences to be placed in the rental program causing a higher usage of the beach in the summer months. Since this beach faces the Savannah River there is little surf and is safe for wading, kayaking, fishing and wind surfing. The beach is used for sunbathing, biking and walking. Points of interest along this beach include the shrimp boats that moor overnight in the warm months, that attract many dolphin, while the close proximity to the river make it a great place to observe the large commercial ships sailing to and from Savannah.

Beach Maintenance

This beach is not included in the Tybee Island Shore Protection Program. Because it is on the river, surf is minimal, and the dynamic forces that usually affect this beach are the tidal currents and large ship wakes. The east end of this beach has been accreting from sand moving north from the north end of the island due to the sink caused by the depth of the shipping channel and summer south east winds. This has added over 300 feet to Estill Point in the last 10 years. Polk Street to the west end of the beach, which averages 200 feet of width at low tide, has small but steady erosion caused by winter time nor'easters that erode the dunes at high tides. The State of Georgia provided funding in 2002 to increase the dune size in this area by having 20,000 cubic yards of sand trucked in and placed on the existing dunes. The USCOE has recommended that this beach be raised by three feet so the high tides would not enter the dune field. A study is underway to include this beach in the Shore Protection Program.

Access

Because this beach is not in the Shore Protection Program there is no federal requirement to have public access. However, there is public access at Polk Street that handles vehicular traffic as well as walking and biking.

Wheelchairs can use this road but would need to have tires that can transverse the soft sand. The City of Tybee has plans for another access to this beach at the unopened portion of Byers Street, which is near the west end of this beach.



Parking

There is no public parking currently available for the Polk Street access. The Tybee Public Works treatment plant has excess area that can be developed for public parking. There is adequate right-of-way near Byers Street and on Bay Street to provide some public parking when that location is opened.

Infrastructure

There are no showers or restrooms along this beach. The city does maintain several locations with trash receptacles. There is a wooden swing near Polk Street. There are several locations with signs posting the City rules for beach use and numerous signs to remind people to stay off the dunes. A set of bird identification signs are at the beach entrance at Polk Street.

Services

Trash is picked up daily in the summer and as needed in other seasons. Almost no safety service or police patrols are made on this beach. Currents are strong on ebb and flood tides, especially at new and full moons, when changes in the tide are at maximum. At low tide the south river channel is close to the beach and can be dangerous for swimming or rafting. The east end is extremely dangerous for swimming due to the combined effects of tidal currents, beach wind currents, greater surf and the ship wakes that are very close. Drownings have occurred at this location.

Environmental

The accretion of sand has formed a large dune field and shrub area near Estill Point that is a nesting area for many shore birds. Also, the limited use of the beach allows birds to gather in large numbers. This is a designated spot on the Colonial Coast Birding Trail. When permits were received from the Georgia Department of Natural Resources for rebuilding the dunes on this beach, requirements for compaction and scarp maintenance were assigned to the City of Tybee.

Recommendations

1. Include this section of beach in the Shore Protection Program.
2. Raise the level of the beach by approximately 3 feet as recommended by the ACOE. This could be done by federal or local funding and by dredging, trucking or relocating sand from the accreting area of Estill Point. Note—this action could have deleteri-



- ous effects on the shorebirds in this area.
3. Take further action to protect the shorebirds in this area.
 4. Complete the Byers Street beach access with public parking.
 5. Develop public parking and rest rooms at Polk Street by using the public works area.
 6. Allow vehicular traffic on beach for special events only with police control. This action would have to be done in confirmation with the Shore Protection Act beach driving rules.
 7. Provide more police and lifeguard protection to the beach, especially in summer.
 8. Have rental property owners and/or brokers provide adequate information on rules and regulations pertaining to the beach and its usage to short term renters.
 9. Clarify property ownership along this beach.

North Beach



Location and Structures

This beach is defined as the area from Estill Point south to Highway 80. The beach is approximately 7,000 feet long with the north Federal Groin in the middle. The accreting point on the north end is over 1,000 feet from the nearest structure which is Light House Point condominiums (see Savannah

River Beach section).

Beyond this large complex is a small gated community, several single-family residences and a line of town homes. Behind these is a mixture of 25 single-family residences of mixed size and age. South of the groin is the City of Tybee Public Beach that is over a quarter mile long. To the south is Seaside Colony subdivision, a group of condominiums and more single-family houses to highway 80. This portion of the community includes 18 beachfront houses, 4 beachfront condominiums with another 50 single-family houses and 5 condominiums behind them. Houses range from historic to new, dating back to the 1890s. Just off the beach there are two single-story older structures housing a nursing home.

Property Ownership

The City of Tybee owns a portion of this beach and adjacent land for parking. On the north end it is necessary to clarify ownerships as described in the previous beach community section (Savannah River Beach). It is thought that to the south of the public beach, ownership to the beach side of the 1938 sea wall has been quitclaimed to the City. This needs to be clarified

Historic Area

Much of this area of Tybee was a part of Fort Screven, developed in the 2nd half of the 1800's and decommissioned in 1947. The fort contains the Tybee Lighthouse and several renovated support buildings. Nearby is a section of the fort that is now a museum. Other fort buildings remain, such as the theatre and bakery along with eleven officer houses that have been restored. Gun emplacements and attached ammunition storage exists along the beach with 14 foot thick walls. Some of these are under private ownership with houses built on top of them. This area attracts many tourists.



Usage

The north and south portions of this beach are difficult to access and are used mainly by the home owners, renters and guests. Typical beach use includes sun bathing, swimming and walking. South of the groin the surf is greater. Along the southern portion the erosion has exposed a sea wall from the early 1900's that makes swimming dangerous. Signs mark this area, and care needs to be taken in this area. The public beach is the second most used beach on the island and draws large weekend and holiday crowds. At times the crowds on this beach spread along the other sections.

Beach Maintenance

The portion of the beach north of the groin is not a part of the Shore Protection Program. This beach has remained stable due to sand passing through the groin with the southeast summer winds and tidal currents caused by the nearby shipping channel. There are emerging dune fields along this beach above the tide line. The north point continues to accrete. The north groin was built in 1975 and has been sinking into the sand allowing more sand to pass through it to the north. A dynamic area on the north side of the groin is caused by another "Y" shaped rock groin and the varying winds that make major seasonal changes in the immediate area. The federal groin continues to collect sand on the south side to provide an adequate beach for the public area. The beach south of the groin has been fairly stable with only a small loss of sand. Areas above the tide line could use more sand fencing to encourage more dune build up. The south end of this section is the worst erosion on the island. Renourishment sand has been placed in this area during each construction project. Because the beach projects towards the east at this point, sand flows off it in both directions. Beaches to both sides have become more stable from renourishing projects. Except for the couple of blocks near highway 80, this beach has a low tide width of over 300 feet and increasing dune fields.



Signage and Traffic

Many day trippers use the public beach in the North Beach community and this, along with the historic area tourists, brings heavy traffic to mostly narrow two-lane residential roads. Signage for beach parking and the historic area is good and directs traffic through various turns from highway 80 to the parking lots. During days of expanded use, traffic can be intense.

Access

North of the groin the only access for the public is along the south side of the Light House Point condominiums. To the south there are public access points at both highway 80 and one block north at Van Horne Street. The public beach has three access boardwalks with one being handi-capped accessible. Other beach access is provided for the condominium complexes and private houses. All major public and private access points are boardwalks over the dunes. Some of the crosswalks do not extend through new dune fields and several paths are being used for private access.

Parking

The public access north of the groin has no public parking in its vicinity. It has been proposed that vacant land around the City of Tybee police station be made into parking for up to 200 cars. This could be overflow parking for the lots at the lighthouse and public beach. To the south of the groin there are over 30 spaces for the public with parking meters. At the public beach there is an attended lot with 280 spaces and another lot with 60-meter spaces. There is also a lot with free parking of 30 spaces for use by visitors to the lighthouse and museum.

Infrastructure

There are restrooms at the public beach that are somewhat outdated. At the parking lot end of the dune walks there are showers and water nozzles. Public access points have signs with the beach rules and regulations. Near the groin there are bird identification signs provided by the DNR and designed by Mallory Pierce. There is a permanent lifeguard station on the public beach. Several beach swings are on the beach but in need of repair. A restaurant, the North Beach Grill, shares the parking lot at the public beach, and the museum and lighthouse are adjacent. Improvements to the restrooms are planned for 2006.

Environmental

At the north point there is, in addition to the quiet beach and dunes, approximately 5 acres of shrubs and myrtle trees. This area is good for bird nesting and observing. This beach section of Tybee is also heavily used by many ecologically sensitive shorebirds such as Black Skimmers

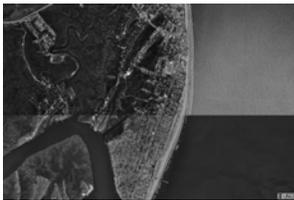
(*Rhyncops niger*) and Sandwich Terns, (*Sterna sandvicensis*), and is a good area for bird nesting and bird watching.



Recommendations

1. The north end of this community beach needs to be included in the Shore Protection Program.
2. Plans need to be completed for additional parking at the police area
3. The old exposed sea wall needs to be removed
4. Sand fencing should be installed at areas above the high tide line that have emerging dune fields
5. Improve the restrooms/changing areas and swings in this area
6. A study should be completed to see if the groin needs to be re-inforced.
7. Further determine actions needed to protect the shorebirds in this area.
8. Provide more police and lifeguard protection to the beach, especially in summer.
9. Have rental property owners and/or brokers provide adequate information on rules and regulations pertaining to the beach and its usage to short term renters.
10. Property ownership along this beach should be clarified.

Front Beach



Location and Structures

This beach is approximately 8,000 feet and starts at Highway 80 on the north and ends at 14th Street on the south. The beach parallels Butler Avenue. The north end of Butler is only 100 feet from the beach and about 900 feet at 14th Street. The first two blocks on the north end contain two town-home complexes and twenty single-family houses. The next two blocks hold the Desoto Hotel and Condominiums with 37 hotel rooms and 30 condominium units and Beach Side Colony with 91 condo units and a beach side restaurant, with plans to add 16 more condo units by October 2005. Most condo units are for short-term rentals. From 5th (Center Street) to 14th Street the area between Butler and the beach contains 40 beachfront single-family homes and 15 lots for development. Behind the beachfront are approximately 250 single family homes, a few duplexes and another 50 lots. These homes contain one or two living levels, range between brand new and 1930's vintage with most having footprints of 1,500 feet raised off the ground to meet Federal Emergency Management Agency (FEMA) requirements. Between each numbered street are 2 or 3 alleyways that service these homes and dead end at the beach. Many homes are being built



or renovated to meet increasing demands for beach side short-term rentals. An exception to the above is the Fresh Air Home, which sits upon six or more lots and caters to disadvantaged youngsters for beach camp. The west side of Butler, for a depth of several blocks, contains houses smaller in size but mainly for permanent residents. Also on this side is the City Hall and related buildings, four churches, two motels and the island grocery market.

Property Ownership

It is not known whether all property beachside of the 1938 sea wall is owned by the City or not. This should be confirmed, and a permanent ownership tool, such as a conservation easement, should be established to guarantee no future development.

Usage

From Highway 80 to Center Street is the third most used beach on the island due to the higher density housing with the town homes, hotel and condominium units. Residents of weekly rentals tend to use this beach more than the permanent residents. Parking is available in this section of the beach. From Center to 14th Street the beach is quiet and used mainly by residents, renters and guests in the houses between Butler and the beach. An exception is when all parking is in use, usually summer weekends and holidays. This beach is used for sunbathing, swimming and walking. There is a vendor for beach items at 2nd Street.

Beach Maintenance

The north portion of this beach is Tybee Island's most erosive area. Prior to the 1999 renourishment project there was no beach in this area at high tide and the sea wall was totally exposed. This could be possible before the renourishment scheduled for 2007 is complete. About 80% of the total sand lost since the last nourishment has happened in this area. New sand placement will rebuild this section of the beach. At this point on the island sand flows in each direction due to the summer winds from the southeast and northeasters in the winter. The whole front beach, from the north to the south federal groin, has had a loss of sand from the hurricane season of 2004, and from normal erosion. This beach has seasonal changes that include scarping, sand bars and intertidal gullies. From 8th Street to 13th Street the dune fields have increased in width to over 400 feet. This is due to nourishments and receiving sand from the beach to the north. Dune fields are emerging at 3rd to 6th Streets and need sand fencing to encourage more growth.

Signage and Traffic

Sunny summer weekends and holidays bring heavy traffic to Highway 80 and Butler Avenue. The dead-end numbered Streets tend to fill up quickly

by beach goes hunting parking spots. There is directional signage but a coordinated plan to move traffic and inform the public of available parking is needed.



Access

Most numbered streets have public access to the beach by dune cross-overs. Others have direct access without the boardwalk where there are little or no dune fields. At 8th Street the crossover is handicapped accessible and there is a MOBI mat for wheel chair mobility on the soft sand. Alleyways between the numbered Streets have dune crossovers that service the homes in those areas. Some beachfront houses have private dune crossovers. The hotel and condominium complexes have direct private beach access.

Parking

This section has parking along both sides of Butler Avenue, all numbered Streets and on the west side of Butler at 4th and 5th Streets. There is a privately owned lot at 3rd Street, with about 100 spaces, that is intermittently attended. Public parking spaces with meters by various locations are noted below:

2 nd Street	6
3 rd Street	13
4 th Street, west of Butler	60
Center Street	21
5 th Street, west of Butler	25
6 th Street	30
7 th Street	29
8 th Street	27
9 th Street	21
10 th Street	25
11 th Street	13
12 th Street	7
13 th Street	23
14 th Street	31
Butler west side	126
Butler east side	131
Total	585

Parking on streets without meters is not legal. Cars will be ticketed.

Infrastructure

All public access points have outdoor showers and feet washing facilities. Signage at the street ends has beach rules and regulations and water quality information. At the beach side of the access there is also signage for



beach rules and regulations, wooden swing seats and trash receptacles. There is no permanent lifeguard along this beach.

Environmental

Most sea turtle nesting activity takes place on this beach. The wider dune fields here have abundant plant life and provide homes for shore birds.

Recommendations

1. Renourish this beach in 2007 or as soon as possible.
2. Provide signage to direct traffic to available parking locations.
3. Periodically improve or repair dune crossovers and swings.
4. Put street numbers on the beach side of crosswalks.
5. Clarify ownership of property east of the sea wall.
6. Ensure hotels, condominium complexes and other short-term rentals have adequate information on beach and dune rules, usage and safety.
7. Provide more lifeguard service to this beach.

Beach Business District



Location and Structure

This community is bounded by 14th Street on the north, 18th Street on the south and Butler Avenue to the west. It encompasses approximately 2,200 feet of beach. The front row on the beach is comprised of a hotel, numerous condominium buildings, and several stores and restaurants. Between these structures and the beach are public parking lots and small buildings that house the Tybee Island Marine Science Center, Parking Services and connected rest rooms. The main fishing pier and pavilion extends over the ocean at Tybrisa Street (16th Street). Tybrisa Street is lined with stores, a hotel, galleries and restaurants. South of Tybrisa, single and multi-family structures are densely built on the numbered streets and parallel alleys. North of Tybrisa, there are a few scattered single-family residences, a new condominium complex, restaurant, motel and conference center. There is some open space remaining in this area. On the west side of Butler Avenue the street is lined with motels, shops and restaurants.

Historical

This area was the site of an early 1900s hotel and amusement park. However these buildings are now gone. There are a few early and mid-century

residential structures.



Usage

This is the busiest beach and community on the island in the summer time. Off-season there remains much commerce but only at a fraction of the busy season. The beach is typically crowded in the summer and used for sun bathing, swimming and surfing.

Beach Maintenance

In the mid 1980s, the South Federal Groin was constructed. This stopped a good portion of the southerly sand drift through this area and has improved the stability of the beach. Prior to this groin, the south portion of this beach was extremely unstable and there were times even after the commencement of sand nourishment that the sea wall was exposed. The build up of the beach to the north feeds sand onto this beach. The sand dunes along this beach continue to develop. It is expected that only a small amount of sand will need to be placed on this beach in the 2007 re-nourishment.

Signage and Traffic

This community is extremely congested with both traffic and people during the summer season. The City of Tybee has formulated a development plan made for the streets and parking lots of this area, which is expected to be constructed in phases over the next several years. It is hoped that improved traffic flow and more pedestrian-friendly space will result. Improved signage should be a goal of this project. Current beach signage is similar to other adjacent communities.

Access

There are four dune crossovers between the pier and 14th Street, public accesses from the pier and crossovers at 17th and 18th Streets. 18th Street access is handicapped accessible and is also capable of vehicular access.

Parking

The area immediately adjacent to the beach is reserved for public parking the entire stretch of this community. From 14th Street to Tybrisa Street there are 185 spaces in the lot and south to 18th Street there are another 177 spaces. These lots are currently attended. The design for this area re-formats these lots to improve the efficiency of spaces and traffic flow. Additionally there is parking on the numbered streets, Butler Avenue and Inlet Avenue as below:

14 th Street	31
15 th Street	41
Tybrisa	60



17 th Street	10
18 th Street	12
Butler Avenue	62
Inlet Avenue	13
North Lot	185
South Lot	177
Total public spaces	591

There are, at this time, private lots in some of the open areas. It is expected that new construction will eliminate these lots in the future.

Infrastructure

This beach has signage for State water quality monitoring and beach rules and regulations, trash receptacles and swings at the access points. There are also showers. Rest rooms for the public are in the building with the Tybee Island Marine Science Center and store. The pier and pavilion are administered and maintained by Chatham County. There are several beach vendors in this community.

Environmental

Due to the high human usage, recycling and trash pickup, particularly on holidays and summer weekends should be increased.

Recommendations

1. Provide sand during the 2007 renourishment
2. Review beach safety for signage, equipment and personnel
3. Have a planned program for the maintenance of swings and crossovers
4. Increase trash pickup and recycling on holidays and summer weekends
5. Ensure hotels, motels and private rentals inform visitors of beach usage and safety
6. Follow-up to the Design Vision from the HDR South Beach Business District Design Charette:

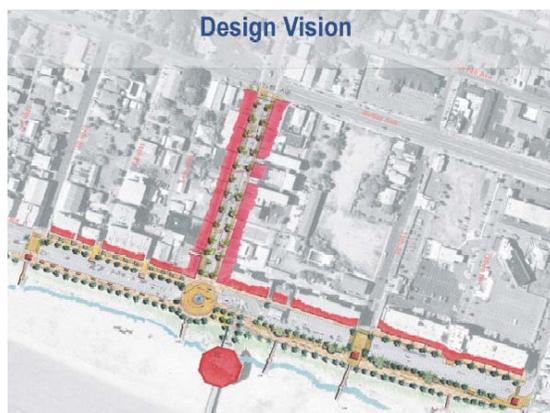


Figure 2. South Beach Business District Design Vision

South Tip



Location and Structures

The South Tip community is considered to be the approximately 1,800 feet of beach from 18th Street to the Back River terminal groin (jetty). Along the beach there are 11 single-family homes with another 30 between the beach and Butler Avenue. Several structures are town homes or duplexes. The neighborhood is zoned R-

2. There is a mix of permanent residences, second homes (unoccupied in the off season), and units for short-term rental. Houses exist in a variety of sizes and ages.

History

Development of the south end of Tybee was established in the early 1900s and some homes of that era still survive. There are a variety of renovated homes from different parts of the 1900s along with some recent construction. Many houses in this area represent prime examples of historic Tybee Beach architecture and life style. Unfortunately, some are lost each year due to demolition.

Usage

South of the South Federal Groin is a substantial broad beach and a large ebb tide delta that is fed by the southerly littoral flow of material coming down the shoreline from the upper beaches. This decreases the surf and allows beach walking on the sand bar at low tide. The South Tip beach is a popular area for sunbathing, sailboarding, and camping. The vegetation and dune formations give the area a tropical island ambiance somewhat akin to the Bahamian Out Islands. Low density housing adds to the feeling of space and remoteness that appeals to visitors wishing to spread out with their families, picnic, play Bocce Ball, or toss a Frisbee.

Beach Maintenance

The beach nourishment project of 1975 used a sand bar area just south of the beach for borrow material and destroyed existing jetties as well. The combination of the sink-hole caused by removing more material than specified in the project engineering plan and the destruction of the jetties led to an erosion problem for the first time in this area. A State project engineered in the mid 1990s by Tybee's beach consultant resulted in the construction of 2 "T" and 1 "L" groins made of Campbell units. These





are concrete sections that are designed to decrease erosion caused by the dynamics of surf hitting solid surfaces. Currently, the beach is showing signs of stability and is forming new dune fields where the pre existing fields (before 1975 dredging) used to be. A required notching of these groins allowed for more sand to continue its flow through this beach for additional nourishment to the Back River. This action continues to be monitored for positive results on the Back River and possible negative results to the Front Beach. It is expected that more sand will be placed here during the 2007 renourishment.

Signage and Traffic

The location, accessed by several parking areas, has increased traffic in this area. Signage for parking is adequate. During summer months, parking on 19th Street and Chatham Avenue extension is in great demand; consequently, there is congestion at peak periods of beach use.

Access

Public access to the beach is available with a dune walk at 18th Street, a dune walk and driveway at 19th Street, a dune walk at Chatham Avenue, and handicap access at 18th Street with a MOBI mat leading across the soft sand to the hard sand. Alleys between 18th and 19th Streets provide access to the houses that are off the beach, and some front beach houses have private access.

Parking

There is public metered parking for this area as follows:

18 th Street	12 spaces
19 th Street	36 spaces
Butler Ave.	22 spaces
Chatham Ave	23 spaces
Total public spaces	93 spaces

Roads in this area are narrow and do not allow for any other parking.

Infrastructure

At public access points there are signs for rules and regulations and water quality. There are also sitting areas at the 19th and Chatham Avenue crossovers. Trash cans are placed at the access points.

Environmental

Sand fencing is being reinstalled in a new configuration that will be less of a hindrance to Sea Turtle nesting.

Recommendations

1. Include this area in the 2007 renourishment
2. Review acquisition of private property east of the sea wall
3. Conduct on-going monitoring of the notches in the groin field
4. Place signage to warn people of the dangers of walking on the sand bar or attempting to cross to Little Tybee
5. Station a permanent life guard to supervise beaches between 19th Street and the Back River Groin
6. Conduct public works review and plan for signage/structure maintenance
7. Look into more safety monitoring in summer months
8. Install sand fencing above the high water line on all emerging dunes
9. Investigate ways to distribute parking further north on Chatham Avenue to decrease traffic congestion on the South Tip



Back River



Location and Structures

The Back River beach starts at the terminal groin at the south end and runs approximately 3,000 feet northward. Along this beach are 24 single-family structures including two duplexes on the beach front and another 24 between there and Chatham Avenue that parallel the beach. Houses in this community vary from some of the oldest on the is-

land to some of the newest. Many houses have been renovated, keeping the old style of the early 1900's. Some houses are second homes and only a few are used for short-term rentals. Also on this stretch of beach is the Back River fishing pier, which extends 300 feet across the beach into the river. Several homes have personal docks. The limits of private ownership along the beach area are unknown.

History

Due to the use of the river and the cooling summer breezes, back river development started in the late 1800s. Much of the original construction was destroyed by several strong hurricanes at that time. The next wave of house construction is still standing and many of these are great examples of cottages from the 1900s. Others represent construction from the 1920s and 1930s with some already renovated and others in need of repair and renovation. There has been some infill of houses from the 1950s to present day.



Usage

The Back River area is used for swimming as there is no undertow and the wave action is relatively mild. Swimmers, however, are urged to pay attention to the currents, especially during tidal changes. Popular activities are walking, fishing and kayaking. A previous boat ramp and areas along the beach are good places to launch kayaks. Walking on the north end of the back river is interrupted by the pier and docks that block the beach at higher tides. The exposed sea wall makes it difficult to walk from the back river to the south tip beach at higher tides as well.

Beach Maintenance

The back river has recently been placed in the Shore Protection Program and includes the area from the south tip terminal groin to Horse Pen Creek. There is no beach from the entrance of Horse Pen Creek southward for 1,500 feet, and this confuses the limits of this beach. It is understood that there has never been a beach in this area and there are 17 private short docks and a marina that would preclude nourishment in this area without significant adjustments. This area has a bulkhead. There has been beach renourishment on the south end of this beach and in 1999 eight short rock groins were constructed. The southern most groins are fully exposed while the five to the north are totally covered by sand. Past experience shows stability along the north section and almost constant change both seasonal and annually on 800 feet of the south end. Most of the erosion here is caused by dynamic tidal action in the river. At Inlet Avenue there has been some accretion to the beach. Notching the south tip groins have shown that a small amount of sand can migrate to this beach. Future study may show a need for several more short groins at the south end of this beach, with breakwaters added to some of the groins. It is expected that some nourishment will be done here in the 2007 project.

Signage and Traffic

Most use of this beach is by the people living in this community and those living on the east side of Chatham Avenue. Roads are all narrow in this area and seldom crowded as most tourists remain on the east beach areas. There are several signs for the fishing pier.

Access

Public access is at Inlet Avenue, Alley 3 and at the fishing pier. Most houses have access by paths or short dune crossovers. This beach can also be accessed from the south tip beach at lower tides but, with a new stairway from the sea wall, could be accessed at all times.

Parking

There are 10 metered parking places at Inlet Avenue, 24 at the fishing pier and 8 along Alley 3. This appears to be adequate for the amount of

usage in this area.

Infrastructure

There exists no infrastructure on this beach except for trashcans and signs for rules and regulations.



Environmental

This area is particularly sensitive to oil spills as there are many boats being docked here and the water does not flush easily. Diamondback terrapins also utilize the back river and are a species of concern to wildlife biologists and ecologists.

Recommendations

1. Include this area in the 2007 renourishment
2. Conduct a study to see if more groins in this area are warranted
3. Clarify the limits of construction for the Shore Protection Program
4. Review ownership of private property
5. Review beach usage for safety and possible installation of warning signs regarding currents
6. Review dock policy and see if access through docks can be made
7. Install a stairway from the top of the sea wall to the beach at south end
8. See if sand fencing can be added above high tide lines on beach
9. Review old boat ramp for possible improvements
10. Insure that the conditions at the sea wall are safe
11. Review authority for keeping track of and clean up of gas and oil spills

It is recommended that citizens of these six beach communities be chosen to work with the Tybee Island Beach Task Force, and City staff from Public Works, Planning & Zoning, and others as identified, to hold a one-day workshop to further discuss these beach community sections.

ROLES AND RESPONSIBILITIES

The purpose of this plan is to provide a useable planning document to the Tybee Island government and community that will serve several functions:

1. To provide *standard operating procedures* for beach management by outlining responsibilities for management and maintenance of the beach,



and to provide long-term direction and guidance for city policy makers and the Tybee Island Beach Task Force (BTF) as well as best management practices to city personnel for beach re-nourishment and maintenance

2. *recommend specific duties to stakeholders, and*
3. *provide pertinent information to residents and interested parties.*

Planning & Zoning

Planning and zoning are the responsibility of the local government. Comprehensive Plans are required for a local government to keep Qualified Local Government status through the Georgia Department of Community Affairs (DCA). Tybee Island submitted a comprehensive plan in 1992 that has had short-term work updates in 1998 and 2003 (Personal communication, Mike Gleaton, Georgia DCA, May 2005). The short-term update of 1998 states that a priority for Tybee Island is the formulation of uniform, fair, and long-range zoning, building and enforcement codes that reflect the experience of the past and the desire of the islanders for low-density, single-family residential development and the need for open space and recreational areas.

Beach Restoration & Nourishment

Federal

The Federal Government

Through the Water Resources Development Act the federal government entered a 50 year agreement with the City of Tybee Island to help maintain the beaches through 2023. Specifically this agreement authorizes a beach renourishment every seven years of approximately one million cubic yards. The federal government contributes 60% of the needed funding to do this work. Although the work is authorized, it is unfunded and much congressional lobbying is necessary to obtain the funding. The federal government is also responsible for the maintenance of the adjacent Savannah Harbor Federal Navigation Project and expends \$12 million per year of operations and maintenance dollars to maintain a depth of 42 feet. This work includes upstream and offshore disposal of materials that are predominately not beach quality sands, as they are mostly composed of silt.

U.S. Army Corps of Engineers (Corps)

The Corps is responsible for the administration and operations of the federal government programs. For Tybee Island this work includes studies for this coastal area, engineering for construction and management of these projects. They provide valuable input to maintenance of the

beach. They also are the responsible agency for the maintenance of the Savannah River shipping channel.



State

State of Georgia, General Assembly

The State has been very generous in providing financial assistance to Tybee for beach nourishment. In addition to assisting with the Shore Protection Project funding the state has provided funds of \$4.9 million in 1995 to install the South Tip modular concrete erosion control units and nourish beaches in that area. The State also provided \$450,000 in 2002 to add to the dune fields at the North Beach.

House Bill 727. The following is taken from Georgia Code Section 52-9-2:

- (a) With regard to all sand that is suitable for beach replenishment originating from the dredging of navigation channels within tidal inlets, as well as the entrances to harbors and rivers:
- (1) Such sand shall be used to replenish the adjacent coastal beaches, if feasible, either by deposition of sand into the near shore littoral zone or direct placement on affected beaches;
 - (2) If such sand is placed elsewhere, then a quality and quantity of sand from an alternate location necessary to mitigate any adverse effects caused by the dredging shall be used to replenish affected coastal beaches; provided, however that this paragraph shall apply only where beach replenishment is necessary to mitigate effects from the dredging and dredged material removal from the natural river-sand transport-beach system of a specific project and beach replenishment from another source is the least costly environmentally sound mitigation option;
 - (3) The disposition of sand shall be completed in cooperation with and, when required by applicable state or federal law, with the approval of the local governing authority and the Department of Natural Resources according to the requirements of Part 2 of Article 4 of Chapter 5 of Title 12, the 'Shore Protection Act'; and
 - (4) All such activities shall provide protection to coastal marshlands as defined in paragraph (3) of Code Section 12-5-282 and to nesting sea turtles and hatchlings and their habitats.
- (b) The Department of Natural Resources and the party undertaking the dredging shall coordinate to determine the option under subsection (a) of this Code section for beach replenishment that is most beneficial to the adjacent or affected coastal beaches, including, where applicable, identifying an alternate source of sand for purposes of paragraph (2) of subsection (a) of this Code section, after taking into consideration environmental impacts and any limitation of applicable state and federal law.



Georgia Department of Natural Resources, Coastal Resources Division

The DNR Coastal Resources Division is responsible for implementing the Georgia Coastal Management Program in which Georgia's beaches are a major component. One of the enforceable authorities of the Georgia Coastal Management Plan is the Shore Protection Act of 1979 that defines the sand-sharing system and establishes management standards. Activities regulated by the State include construction and maintenance of boardwalks, dune stabilization projects, beach restoration and renourishment, and other activities that may alter the natural topography or vegetation within beach and dune areas. In addition, the DNR establishes guidelines for the placement and maintenance of sand fencing to provide for dune building and stabilization while minimizing adverse impacts on wildlife. Recommendations are provided for native dune vegetation when planting is needed. Coastal activities are coordinated with other state and federal groups in accordance with existing laws and regulations while ensuring the values and functions of the sand sharing system are not impaired.

Georgia Ports Authority (GPA)

The GPA operates the ports in the Savannah area as well as three other Georgia locations. The GPA is included in the state Department of Transportation and provides a large economical impact on this area. Being approximately 15 miles from the port to the coast the GPA along with the federal government must maintain the river to allow continued commerce.

Local

City of Tybee Island

The City is ultimately responsible for the maintenance and operation of the beach within certain limits placed upon it by the State and Federal Government. The City is currently involved in an agreement called the Tybee Island Shore Protection Project, which is designed to provide flood control protection from hurricanes and storm damage. The protective work includes renourishment of beaches to maintain a minimum beach template and groins and fencing as required. The agreement establishes an operation and maintenance program with specified tasks to be performed by City personnel and cooperation with the preparation of studies and specifications for future work. The responsibilities for the City are established in the *U.S. Army Corps of Engineers, Savannah District, Tybee Island, Georgia, Shoreline Protection Project, Operations, Maintenance, Replacement, Repair, and Rehabilitation Manual*.

Beach Monitoring

Much of the Federal and Local information below is taken from the *Operations, Maintenance, Replacement, Repair and Rehabilitation Manual for Tybee Island, Georgia, Shoreline Protection Project* of the U.S. Army Corps of Engineers, Savannah District of May 2002. **Please see Appendix A** for responsibilities.



Federal

Cost Shared Five-Year Beach Monitoring

The Project requires a post construction-monitoring program to evaluate the effectiveness of the project features. This portion of the monitoring is cost shared under terms of the Project Cooperation Agreement (PCA), a legal document that spells out the responsibilities of both the Federal Government and the Non-Federal Sponsor, and is performed by the Corps of Engineers. The 5-year monitoring plan includes beach and hydrographic surveys as well as aerial photograph documentation.

Quality Assurance Under Inspection of Completed Works Program

The Corps of Engineers performs a continuing quality assurance (QA) role on civil works projects that have been turned over to the local sponsor for operation and maintenance. The Tybee Island Project is part of this program. This program requires the Government to assure that local sponsors are fulfilling their PCA and OMRR&R responsibilities. The program requires the local sponsor to appoint a Project Superintendent and provide the necessary resources to comply with the requirements outlined in the OMRR&R Manual. The Superintendent and the Corps will jointly inspect the project at least once a year. The Corps will coordinate a mutually acceptable QA inspection date with the Project Superintendent.

State

There are no State responsibilities regarding beach monitoring at this time.

Local

Non-Federal Monitoring Requirements

Beginning in the sixth year, 2006, (after the 5-year post construction monitoring by the Corps of Engineers) at least annually, the non-Federal Sponsor is responsible for monitoring the beach profile to determine losses of nourishment material from the Project design section and provide the results of such monitoring to the Government. After the 5-



year monitoring period, the non-Federal Sponsor may request the Government to conduct the surveys and analyze the data. However, financial arrangements must be made prior to enactment and the non-Federal Sponsor must pay the entire cost.

Quarterly Surveillance Report

A quarterly surveillance report is submitted to the Savannah District Project Manager and Georgia Department of Natural Resources, Coastal Protection Division. The report includes an assessment of the beach fill, berm, dune, and groin performance of the Project. This visual inspection is separate from the profile-monitoring program.

Citizens and Tourists

Citizens and tourists are responsible for helping to maintain a clean and healthy environment. They should recycle, keep the beach free from litter, and ensure that pets are not roaming the beach. If citizens and tourists see any illegal or unethical practices, they should report such activities to the Tybee Island Police Department on the weekends at (912) 786-5635, and Mr. Jason Heckman during the week at (912) 547-8198.

Beach Cleaning & Maintenance

State

O.C.G.A. 12-5-248 (a) (1) provides that governmental vehicles may be utilized for beach maintenance without a permit as long as those vehicles operate across existing crossovers, paths, or drives. Pursuant to Board of Natural Resources Rule 391-2-2, Appendix A, Tybee Island's three such existing access sites are the north, middle, and south access drives. Other access points would need to be approved by the Shore Protection Committee. Furthermore, the statute mandates that exempted vehicular activity must be conducted so as to provide protection to sea turtles and birds. Pursuant to O.C.G.A. Section 12-5-248 (b), the Department would want to issue a letter of authorization, with the following conditions:

1. Cleaning may not occur in the dunes and can only occur during the day.
2. Cleaning should focus on manmade debris and avoid natural debris, such as beach wrack, as beach wrack is important to primary dune formation – an important component to the ecology of the beach ecosystem.
3. During the nesting season (May 1 to October 1), cleaning can only occur after the sea turtle patrol has completed their daily survey of Tybee Beach for sea turtle nests and hatchling emergence.
4. Cleaning may not occur within 20 feet of sea turtle nests.

5. Cleaning may not occur within 100 feet of a designated shorebird nesting area or designated critical habitat.
6. Cleaning equipment must stay at least 10 feet from indigenous vegetation.
7. Only equipment with 10-psi or less tire pressure can operate on the beach.
8. Cleaning equipment must not penetrate more than two inches into the beach surface.
9. Cleaning equipment must effectively screen and return sand to the beach.
10. All material collected must be removed from the beach.



The above conditions are based on consultation with Florida's beach cleaning provisions and DNR's Coastal Nongame Endangered Wildlife Program.

Local

It is the responsibility of the local government, City of Tybee Island, to comply with the above conditions once a letter of authorization is issued from the State. City personnel would need to be trained in correct beach cleaning equipment and procedures. The Tybee Beautification Association coordinates two major beach sweeps each year. The organization also sponsors many smaller cleanups for various school and civic organizations. Also, four Adopt-A-Highway clean ups are conducted annually by the Tybee Beautification Association.

Citizens and Tourists

Citizens and tourists are responsible for helping to maintain a clean and healthy environment. They should recycle, keep the beach free from litter, and ensure that pets are not on the beach.

Environment

Regarding the environment, the City of Tybee Island is required to follow the rules and regulations of the federal and state governments. Some local ordinances that apply to the following environmental responsibilities are in place. This section outlines relevant responsibilities from the federal, state and local levels.

Wildlife

There are several groups and species of wildlife that inhabit the ecosystems of Tybee Island. Two groups that we will cover in this plan are shorebirds and sea turtles, as the state of Georgia places great emphasis on the management of certain species within these groups. Emphasis must also be given regarding the Wood Stork (*Mycteria americana*), a federally endangered species that possibly roosts on/near Tybee Island,



the Right Whale (*Eubalaena glacialis*), and the Bottlenose Dolphin (*Tursiops truncatus*).

Shorebirds

Federal

The Migratory Bird Act makes it illegal to disturb or destroy any nesting species;

The Endangered Species Act—Piping plovers are the only federally listed shorebird species protected by this federal law at this time.

State

Georgia Code 27-3-130 to 27-3-133 is known as the Endangered Wildlife Act of 1973. *As used in this article, the term 'protected species' means a species of animal life which the department shall have designated as a protected species and shall have made subject to the protection of this article* (http://www.legis.state.ga.us/cgi-bin/gl_codes_detail.pl?code=27-3-130).

Local

The local responsibilities regarding protection of roosting and nesting shorebirds include two major areas—dogs and feral cats on the beach. The general public should be educated about the threat that dogs and feral cats pose to shorebirds.

Sea Turtles

Federal

The Loggerhead (*Caretta caretta*), Leatherback (*Dermochelys coriacea*), Green (*Chelonia mydas*), Kemp's Ridley (*Lepidochelys kempii*) and Hawksbill (*Eretmochelys imbricata*) sea turtles are federally threatened and endangered species, respectively, under the Endangered Species Act and are protected under this law.

State

The State operates under cooperative agreements with the National Marine Fisheries Service (NMFS) for turtles in water, and with the US Fish & Wildlife Service for nesting turtles. The cooperative agreements give authority to the State for acting as federal agents on Georgia beaches, including Tybee Island. DNR coordinates all protection efforts federal, state and local.

Local

Tybee Marine Science Center (TMSC) runs the local sea turtle program. TMSC staff hold permits for working with sea turtles through the Georgia

DNR, Wildlife Resources Division.



Plants

Federal

Should any federally listed plant species exist on Tybee Island, the protection of these plants and their habitats is mandated under the Endangered Species Act.

State

The Georgia DNR Shrub-scrub Trimming Guidelines are given in **Appendix D**.

Local

Tybee Island and its citizens are required to abide by the State's shrub-scrub trimming guidelines, and to the federal Endangered Species Act.

Tybee Island has an ordinance to protect Sea Oats (*Uniola paniculata*), Section 9-5-1(8): No disturbing of dune vegetation or walking in the dunes. It shall be unlawful for any person to pick, gather, remove, walk in the dunes, or otherwise disturb the vegetation present on sand dunes, including sea oats.

Greenspace

State

The State of Georgia has just passed the Georgia Land Conservation Act, House Bill 98, 2005. New rules and regulations are being drafted by the Georgia Environmental Facilities Authority (GEFA) as of the drafting of this document (Jennifer Spivey, personal communication, August 2005).

Local

Chatham County and the municipalities within it adopted an Intergovernmental Agreement in November 2002 regarding a county-wide, unified Greenspace Program. The State of Georgia/Department of Natural Resources recognizes the community's Greenspace Program in compliance with state law, which precipitated receipt of funds. The Chatham County– Savannah Metropolitan Planning Commission serves as the coordinating agency.

Tybee Island Code Section 3-165 GREENSPACE

Findings and Purpose: The preservation of green space is important to the health and welfare of the City's citizens and aids in the reduction of drainage problems associated with development; and the preservation of



green space and permeable surfaces will preserve aesthetic features of the landscape and provide for the free flow of air, light, etc. Therefore, in the interest of the public health, safety and welfare, the Mayor and Council find that the imposition of a permeable surface requirement into the setback spaces of lots is appropriate.

In all zoning districts, sixty-five percent (65%) of the designated setback area of a lot shall consist of permanent permeable surface so as to permit the absorption of water and shall not be paved, built upon, or covered in such a way so as to interfere with the permeability of the surface.

It is the intention of the governing body and it is hereby ordained that the provisions of this Ordinance shall become and be made a part of the Code of Ordinances, City of Tybee Island, Georgia, and the sections of this Ordinance may be renumbered to accomplish such intention. (ORD. 1999-24; 8/12/99)(ORD. 2000-10; 2/11/00)

Citizens and Tourists

Citizens and tourists have no legal requirements to protect greenspace, but it is expected that they would enjoy the land set aside for this important quality-of-life issue, and support the acquisition of further greenspace as the opportunities arise, by writing their political representatives and attending relevant meetings.

Water Quality

Federal

Water Pollution Control Act. See section of laws and policies regarding federal roles and responsibilities.

With the passage of an amendment to the federal Clean Water Act known as the Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000 (PL 106-284) significant new swimmer protection provisions added. The BEACH Act requires states to adopt water quality criteria utilizing enterococcus bacteria as the standard indicator for salt-water recreational beaches. The Act also requires states to develop procedures for notifying the swimming public when high levels of bacteria are found.

State

Beach Water Quality Monitoring. The Department of Natural Resources Coastal Resources Division (CRD) Beach Monitoring Program was developed to protect swimmer health. Starting in 1999, CRD monitored the swimming beaches on Tybee for the presence of fecal coliform bacteria. Fecal coliform is an indicator bacteria, which when found in the water indicates the presence of human or animal fecal matter. Fecal matter can contain pathogens (bacteria, virus, etc.), which can cause human illness. The CRD, due to changes in federal regulations,

now tests for enterococcus, a better indicator of water quality. The Georgia Environmental Protection Division (EPD), also has responsibilities for Georgia's water quality.



Local

County health departments have responsibility for their communities water quality to protect public health. For example, in water wells cannot be within a certain distance of a septic system.

Stormwater Management.

Local

The local governments of Tybee Island and Chatham County are required to comply with the federal and state laws regarding water quality. There are also several ordinances in place on Tybee Island regarding water quality.

Water Quantity/Conservation

Federal

The Environmental Policy Act of 1969, (NEPA) 42 USC § 4321 et seq. (1969), as amended, requires the use of efficient plumbing fixtures. For more information see <http://www.epa.gov/owm/water-efficiency>.

State

Georgia Code Section 12-5-96 (ground water)

(a)(1) No person shall withdraw, obtain, or utilize ground waters in excess of 100,000 gallons per day for any purpose unless such person shall first obtain a permit therefore from the division.

(2) Any person applying for a permit or a permit modification under this part which indicates an increase in water usage, except for permits for solely agricultural usage, shall also submit with such application a ***water conservation plan*** approved by the EPD Director and based on guidelines issued by the director. The director shall collect and disseminate such technical information as the director deems appropriate to assist in the preparation of water conservation plans.

Georgia Code Section 8-2-1 to 8-2-3

Georgia Code sections 8-2-1 to 8-2-3 require efficient plumbing fixtures. These are slightly more stringent than the federal regulations in that "After April 1, 1992, there shall not be initiated within this state the construction of any residential building of any type which:

(1) Employs a gravity tank-type, flushometer-valve, or flushometer-tank toilet that uses more than an average of 1.6 gallons of water per flush;



provided, however, this paragraph shall not be applicable to one-piece toilets until July 1, 1992;

(2) Employs a shower head that allows a flow of more than an average of 2.5 gallons of water per minute at 60 pounds per square inch of pressure;

(3) Employs a urinal that uses more than an average of 1.0 gallon of water per flush;

(4) Employs a lavatory faucet or lavatory replacement aerator that allows a flow of more than 2.0 gallons of water per minute; or

(5) Employs a kitchen faucet or kitchen replacement aerator that allows a flow of more than 2.5 gallons of water per minute.

Local

The City of Tybee is required by the above Georgia Code Section to submit a water conservation plan to the director of the Georgia Environmental Protection Division (EPD). Section 6-1-2 of Tybee Island's Code is the is known as the Water Conservation Ordinance.

New construction and remodeling efforts are required to install low-flow plumbing fixtures as outlined in the National Environmental Policy Act and Georgia Code 8-1-2.

Citizens & Tourists

It is important that local citizens conserve water at all times to protect coastal Georgia's source of water, the Floridan Aquifer. For more information on how this can be done, visit <http://www.cityoftybee.org/conservation.htm>.

Dogs on the Beach

The prohibition of pets, including dogs, on the beach is exclusively a local responsibility. City Code 9-5-1(4) addresses this issue. Citizens and tourists are required to comply or face a penalty.

POLICIES AND LAWS

Federal

The Shore Protection Program Tybee Island was included in the Federal Shore Protection Program under the Water Resources Development Act in 1974. This agreement with the Federal Government authorizes sand re-nourishments every seven years through 2023. The Corps administers and engineers this Program with coordination of the City, State and the DNR. Although authorized this work must be funded from the Congress for each nourishment and the studies and engineering required by it. Three past nourishment projects have brought in 1975, the North Federal Groin and

2,300,000 cubic yards of sand along the front beach; in 1986/87, the South Groin and 1,000,000 cubic yards of sand at the north and the south ends of the front beach; and in 1999/2000, built 8 rock groins at the back river and placed 1,300,000 cubic yards of sand on the north front beach and the south end of the island. Another renourishment is authorized for 2007 and the engineering is currently underway by the Corps. It is expected that the approximately 200,000 cubic yards lost per year will be restored to Tybee's beaches. The BTF has requested that the north end of the island also be included in this program as is all of the rest of Tybee. The federal government as sponsor provides 60% of the funding and Tybee Island as the local sponsor must provide the remaining 40% with the help of the County and the Georgia Ports Authority. Another study requested by the BTF would assign a larger percentage to the federal government due to the affects of the federal channel.



Federal Water Pollution Control Act of 1972, Public Law 92-500.

State

The Shore Protection Act of 1979 (O.C.G.A. 12-5-230, et seq.) The Shore Protection Act is the primary legal authority for protection and management of Georgia's shoreline features including sand dunes, beaches, sand bars and shoals. It's jurisdiction includes the submerged shoreline lands out to the three mile limit of State ownership, the sand beaches to ordinary high water mark, and the dynamic dune field. See http://www.legis.state.ga.us/cgi-bin/gl_codes_detail.pl?code=12-5-231.

The Marshlands Protection Act (O.C.G.A. 12-5-280, et seq.) The Coastal Marshlands Protection Act provides the DNR Coastal Resources Division with the authority to protect tidal wetlands. The CMPA manages certain activities and structures in marsh areas and requires permits for other activities and structures. Erecting structures, dredging, or filling marsh areas requires a Marshlands Protection Committee Permit administered through the DNR Coastal Resources Division. In cases where the proposed activity involves construction on a State-owned tidal water bottom, a Revocable License issued by the CRD may also be required. The estuarine area is defined as all tidally influenced waters, marshes, and marshlands lying within a tide elevation range from 5.6 feet above mean tide level and below. The jurisdiction of the Coastal Marshlands Protection Act includes marshlands, intertidal areas, mudflats, tidal water bottoms, and salt marsh areas within estuarine areas of the state. See http://www.legis.state.ga.us/cgi-bin/gl_codes_detail.pl?code=12-5-281.

The Georgia Coastal Management Program Georgia joined the Federal



Coastal Zone Management Program (CMP) in 1998. Georgia's federally-approved CMP allows the state to:

- Provide technical assistance and Coastal Incentive Grants to local governments for projects in coastal area communities
- Provide public education about coastal resources
- Simplify the permitting process and improve compliance with issued permits
- Exercise more control over federal projects in the coastal area through federal consistency review
- Improve environmental monitoring efforts to ensure the health of our coastal ecosystems

Developed through an extensive public process, the Georgia Coastal Management Program is an integrated, networked program which uses existing state laws to manage Georgia's critical coastal resources. State resource policies, such as the Coastal Marshland Protection Act and the Shore Protection Act, protect critical natural areas but do not provide a coordinated, comprehensive management framework with which to address the above issues. The Georgia Coastal Management Program provides such a framework.

Water Quality Control Act, Georgia Code 12-5-20, et seq. The people of the State of Georgia are dependent upon the rivers, streams, lakes, and subsurface waters of the state for public and private water supply and for agricultural, industrial, and recreational uses. It is therefore declared to be the policy of the State of Georgia that the water resources of the state shall be utilized prudently for the maximum benefit of the people, in order to restore and maintain a reasonable degree of purity in the waters of the state and an adequate supply of such waters, and to require where necessary reasonable usage of the waters of the state and reasonable treatment of sewage, industrial wastes, and other wastes prior to their discharge into such waters. See http://www.legis.state.ga.us/cgi-bin/gl_codes_detail.pl?code=12-5-21.

House Bill 727, The following is taken from Georgia Code Section 52-9-2:

(a) With regard to all sand that is suitable for beach replenishment originating from the dredging of navigation channels within tidal inlets, as well as the entrances to harbors and rivers:

(1) Such sand shall be used to replenish the adjacent coastal beaches, if feasible, either by deposition of sand into the near shore littoral zone or direct placement on affected beaches;

(2) If such sand is placed elsewhere, then a quality and quantity of sand from an alternate location necessary to mitigate any adverse effects caused by the dredging shall be used to replenish affected coastal



beaches; provided, however that this paragraph shall apply only where beach replenishment is necessary to mitigate effects from the dredging and dredged material removal from the natural river-sand transport-beach system of a specific project and beach replenishment from another source is the least costly environmentally sound mitigation option;

(3) The disposition of sand shall be completed in cooperation with and, when required by applicable state or federal law, with the approval of the local governing authority and the Department of Natural Resources according to the requirements of Part 2 of Article 4 of Chapter 5 of Title 12, the 'Shore Protection Act'; and

(4) All such activities shall provide protection to coastal marshlands as defined in paragraph (3) of Code Section 12-5-282 and to nesting sea turtles and hatchlings and their habitats.

(b) The Department of Natural Resources and the party undertaking the dredging shall coordinate to determine the option under subsection (a) of this Code section for beach replenishment that is most beneficial to the adjacent or affected coastal beaches, including, where applicable, identifying an alternate source of sand for purposes of paragraph (2) of subsection (a) of this Code section, after taking into consideration environmental impacts and any limitation of applicable state and federal law.

Local

Consolidation of Beach Ordinances

This section should consolidate ordinances into one section of the City code. Included will be safety and enforcement, commercial vendors, fishing regulations, pier use, and other rules and regulations and ordinances that should have the effect of law. (See 'k' below). Following is a partial list of ordinances:

Stormwater Management Tybee Code 5-4-1

Beach Rules Tybee Code 9-5-1 (dogs on beach, animals at large)

Greenspace Title 8 is the land development code, in particular 8-3-100 is beach and dune vegetation, and 8-3-165 is greenspace rule, 8-3-240 is wetlands protection, 8-5-010J is shore protection (above ordinances provided by Bubba Hughes, City Attorney).

- a. Beach Task Force, Sec. 2-3-30
- b. Regulatory fees, Sec. 3-2-72
- c. Sand removal, Sec. 5-1-3
- d. Damage or intrusion, Sec. 5-1-5
- e. Powered watercraft, Sec. 7-3-6
- f. Sales on beach, Sec. 9-1-20
- g. License, Sec. 9-3-31
- h. Fees, Sec. 9-3-33
- I. Control of business, Sec. 9-3-34



- j. Lifeguard, Sec. 9-3-35
- k. Rules and Regulations, Sec. 9-5-1
- l. Disorderly conduct, Sec. 11-1-6
- m. Authorized powers, Sec. 100-1-13
- n. Special property tax, Sec. 100-6-12
- O. Parking, street, & beach user fees, Sec. 100-6-14
- p. Dock Builders—regulation of contractors, unassigned as of

August 2005

(Above alphabetized list provided my Lou Off. There are other ordinances that may apply)

RECOMMENDATIONS

- Improve upon existing handicapped access by using better access material such as MOBI mats, and increase number of access points to five at the minimum.
- Create outreach materials for citizens and tourists, particularly regarding environmental stewardship such as why dogs and feral cats are a threat to shorebirds, water quality, water conservation, etc.
- The Tybee Beach Task Force must continue to work with the State Legislature and Chatham County to secure adequate funding for beach renourishment.
- The Tybee Beach Task Force, along with City of Tybee Island staff, citizens and engineering consultants, need to come up with recommendations for moving sand from accreting to eroding areas on the island, such as the north or south end to Second Street (to be approved by the State DNR so as to not disrupt sea turtle nesting and other environmental factors) (or to build up the Savannah River Beach as recommended by the Corps)
- It is recommended that citizens of the six identified beach communities be chosen to work with the Tybee Island Task Force, and City staff from Public Works, Planning & Zoning, and others as identified, to hold a one-day workshop to further discuss such subjects as infrastructure, parking, zoning, services, etc.
- The city of Tybee Island should agree to protect the areas where state protected shorebirds are nesting (the North End west of the rock jetty). This would fit well with the state's conservation goals. State nongame biologists can assist in sign placement and rope barriers to keep the public away from beach nesting birds.
- Tybee's no-dog rule should be enforced particularly on the north end of the island due to nesting and roosting shorebirds found there that are protected by the State.
- It is recommended that this Tybee Island Beach Management Plan be incorporated by reference into the next update of the Tybee Island

Comprehensive Plan.

- The City of Tybee Island should look into forming Adopt-A-Stream and Adopt-A-Wetland programs for monitoring water quality on Tybee. These programs are administered through the Georgia Environmental Protection Division and locally through Savannah State University.
- Tybee Island should consider the option of purchasing a small dredge that could be used to move sand from flood tide deltas to eroding areas that are privately owned. This course of action would need to be planned in advance and the sand movement approved by the Georgia Department of Natural Resources, Coastal Resources Division.
- Tybee Island should research the issue of public/private ownership of beaches, who owns accreting areas of beach, and determine and set line of public/private ownership along the entire beach. Once this line is set, publicly owned lands need to be held in trust so that these greenspace lands are not used for private gain by development.
- A current safety need for the City is to purchase and man a Wave Runner boat that would patrol the near offshore area, particularly from 14th Street to the South Tip, on busy summer and holiday weekends.
- Set up a websites or Internet pdf file with frequently updated information to inform the public of beach renourishment projects.
- Place signs on US 80 near the Spanish Hammock turnoff that read, 'Do Not Litter' (with the fine amount), and 'No Pets on Beach' (also with the fine amount).
- Better enforce the no pets on beach ordinance.



A recommendation matrix complete with all recommendations made in all sections of this plan, please see **Appendix I**.



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Acknowledgements

Ms. Berta Adams, Tybee Island Beach Task Force
Dr. Clark Alexander, Skidaway Institute of Oceanography and Georgia Southern University
Mr. Dee Anderson, City of Tybee Island
Ms. Deb Barreiro, Georgia Department of Natural Resources, Coastal Resources Division
Mr. Bart Brophy, Living Independence for Everyone (LIFE) Inc.
Mr. Jimmy Brown, City of Tybee Island
Major Chris Case, City of Tybee Island Police Department
Ms. Elizabeth Cheney, Georgia Department of Natural Resources, Coastal Resources Division
Mr. Paul DeVivo, DeVivo Marketing
Ms. Jan Fox, City of Tybee Island Finance Director
Mr. Brad Gane, Georgia Department of Natural Resources, Coastal Resources Division
Mr. Alan Garrett, US Army Corps of Engineers
Mr. Mike Gleton, Georgia Department of Community Affairs
Mr. Mike Harris, Georgia Department of Natural Resources, Wildlife Resources Division
Mr. Bubba Hughes, City of Tybee Island
Ms. Jan MacKinnon, Georgia Department of Natural Resources, Coastal Resources Division
Mr. Pat Monahan, Chatham County, Assistant County Manager
Ms. Hope Moorer, Georgia Ports Authority
Ms. Katrina Murray, Tybee Island Chamber of Commerce
Mr. Lou Off, Tybee Island Beach Task Force
Olsen & Associates
Mr. Doug Plachy, U.S. Army Corps of Engineers
Ms. Susan Shipman, Georgia Department of Natural Resources, Coastal Resources Division
Ms. Jennifer Spivey, Georgia Environmental Facilities Authority
Mr. Bob Thomson, City of Tybee Island City Manager
Ms. Ann Thran, Georgia Department of Natural Resources, Coastal Resources Division
Ms. Fran Todd, Living Independence for Everyone LIFE Inc.
Ms. Lawanna Tsolous, Tybee Island Ecotourism Council
Mr. John Walden, Georgia Department of Natural Resources
Mr. Phillip Webber, Chatham Emergency Management Agency
Ms. Kathryn Williams, Tybee Beautification Association
Mr. Mark Williams, City of Tybee Island Public Works Director
Mr. Brad Winn, Georgia Department of Natural Resources, Wildlife Resources Division
Mr. Paul Wolff, Tybee Island City Council
Ms. Vivian Woods, City of Tybee Island

The source of funding for this project are The Coastal Management Program of the Georgia Department of Natural Resources and The U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

And, of course, all the private citizens of Tybee Island who attended the public meetings and gave their comments and recommendations!

Literature Cited and Supporting Documents

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- Beach Long Range Management Plan by Erik Olsen. This provides lots of info on the beach and monitoring, projects, funding.
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- North Beach berm construction permit from DNR. Spells out requirements from DNR that the City must follow.
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- Tybee Island South Beach Business District Design Charrette. Prepared by HDR, January 2005.
- Tybee Island Traffic & Parking Study. Prepared by HDR Engineering, Inc. Atlanta, GA, January 2005.
- View of Tybee from the Lighthouse, 2004, Application for Urban & Community Forestry Financial Assistance Program.
- Virginia Beach Beach Management Plan, April, 2002, Beaches and Waterways Advisory Commission.

Appendix A Beach Monitoring Responsibilities

1.1 Summary of Local Superintendent Responsibilities

The following information contains a summary of the activities the Tybee Island superintendent has responsibility for implementing as part of the OMRR&R phase of the project.

MONITORING REQUIREMENTS OF MONITORING RESPONSIBLE AGENCY TIMEFRAME DURATION OF MONITORING FREQUENCY, respectively.

Visual Surveillance Inspection	City of Tybee	Jan, Apr, Jul, Oct	Quarterly. October inspection will be performed jointly with the Corps as a Quality Assurance (QA) inspection.
Extraordinary Storm Inspection	City of Tybee	As Major Storms or Hurricanes Occur	As required when Tybee Island anticipates seeking emergency assistance under PL 89-44.
Beach Profile Surveys and Analysis	City of Tybee	Survey by 20 Aug & Complete analysis by 15 Sep in Advance of Hurricane Season	Once a year beginning in 2006
Sand compaction tests (cone penetrometer)	City of Tybee	February	At least 2 yrs. following beach nourishment, till to 36" depth if tests fail
Lighting Ordinance	City of Tybee	May 1 – October 31	Enforcement every year; send compliance report to Brunswick Office of USFWLS and the Corps of Engineers by 5 Nov. Report should include (1) a copy of the ordinance enforced for the season, (2) method used to notify the public of the ordinance, (3) Enforcement action implemented such as periodic inspections, results of inspection, and follow-up measures.
Sand fencing/planting vegetation	City of Tybee	As required during the year	As r As required to maintain

1.2 Corps of Engineers Responsibilities

The following information summarizes the Corps of Engineer's responsibilities.

REQUIREMENTS RESPONSIBLE AGENCY TIMEFRAME FREQUENCY, respectively

Review sea turtle nest records for Tybee Island and other data.	Corps of Engineers	Coordinate with USFWS	At least 6 months before each dredging/renourishment cycle
5-Year Monitoring Program	Corps of Engineers	Thru 2005	As shown in the 5-Year Monitoring Program
QA Inspection	Corps/City Jointly	In October	Once a year

1.3 Cost Shared Five-Year Beach Monitoring

The Project Shoreline protection projects generally requires a post construction-monitoring program to evaluate the effectiveness of the project features. This portion of the monitoring is cost shared under terms of the PCA and is performed by the Corps of Engineers. The South Tip and Back River Beaches in particular should be monitored closely. The 5-year monitoring plan as shown in Table 7 includes beach and hydrographic

surveys as well as aerial photograph documentation.

Table 1—Recommended 5-Year Monitoring Program

1.2 Non-Federal Monitoring Requirements

Beginning in the sixth year, 2006, (after the 5-year post construction monitoring by the Corps of Engineers) at least annually, the non-Federal Sponsor shall monitor the beach profile to determine losses of nourishment material from the Project design section and provide the results of such monitoring to the Government. After the 5-year monitoring period, the non-Federal Sponsor may request the Government to conduct the surveys and analyze the data. However, financial arrangements must be made prior to enactment and the non-Federal Sponsor must pay the entire cost.

1.2.1 Quarterly Surveillance Report.

An quarterly surveillance report will be submitted to the Savannah District Project Manager and Georgia Department of Natural Resources, Coastal Protection Division. The report will include an assessment of the beach fill, berm, dune, and groin performance of the Project. City of Tybee Island Shoreline Protection Project. The report is shown in Appendix I. This visual inspection is separate from the profile-monitoring program. The surveillance report meets the requirements of the Corps to perform quality assurance of the non-Federal Sponsor's responsibilities outlined in the PCA and this manual.

1.2.2 Quality Assurance Under Inspection of Completed Works Program

The Corps of Engineers performs a continuing quality assurance (QA) role on civil works projects that have been turned over to the local sponsor for operation and maintenance. The Tybee Island Project is part of this program. This program requires the Government to assure that local sponsors are fulfilling their PCA and OMRR&R responsibilities.

The program requires the local sponsor to appoint a Project Superintendent and provide the necessary resources to comply with the requirements outlined in the OMRR&R Manual. The Superintendent and the Corps will jointly inspect the project at least once a year. The Corps will coordinate a mutually acceptable QA inspection date with the Project Superintendent. Refer to ER 1110-2-100 dated 15 Feb 95, "Periodic Inspection and Continuing Evaluation of Completed Civil Works Structures" for further guidance. The Corps of Engineers may conduct the inspections and write the report, on behalf of the Project Sponsor, provided appropriate procedural and financial reimbursement arrangements are made.

Appendix B

TYBEE BEACH SAND MANAGEMENT

Players and Projects

A. The Players;

1. The City of Tybee: The City is ultimately responsible for the maintenance and operation of the beach within certain limits placed upon it by the State and Federal Government. The City is currently involved in an agreement called the Tybee Island Shore Protection Project which is designed to provide flood control protection from hurricanes and storm damage. The protective work includes renourishment of beaches to maintain a minimum beach template and groins and fencing as required. The agreement establishes an operation and maintenance program with specified tasks to be performed by City personnel and cooperation with the preparation of studies and specifications for future work. The responsibilities for the City are established in the Project Operations, Maintenance, Replacement, Repair, and Rehabilitation Manual.

The City is also working with the State Government, the DNR and the NOAA to modify the CZM plan in order to require the sand being dredged from the Savannah River Channel for maintenance to be placed on the Tybee Island beach or near shore. Other beach sand management projects are sponsored by the City when deemed necessary.

2. Tybee Island Beach Task Force (BTF): The City by ordinance 2-3-30 created the BTF for the purpose of promoting the health, safety, morals, convenience, order, prosperity and general welfare of the City and provide recommendations to the Mayor and Council of the City regarding issues affecting the beach including but not limited to beach erosion and renourishment. Ten to twenty members appointed by Mayor and Council are selected for their knowledge and interest in protecting and promoting the natural characteristics of Tybee, especially its beaches and shorelines. Functions and duties include the promotion of beach preservation and maintenance, prevent erosion through renourishment while serving as consultant to the City on beach matters. The BTF coordinates with other entities to perform these functions and lobbies county, state and federal entities on behalf of the City. Open monthly meetings are held on the third Thursday at 11:30am at City Hall, with minutes and reports made to the City.
3. Chatham County: To date little assistance has been provided by Chatham County to help in the maintenance of the sand on Tybee Island beach. It is widely accepted that a high percentage of beach visitors come from this county and there should be participation by them for the costs. The City should be keeping records of the county traffic and start negotiations with the county to establish a line item in the budget for this.
4. The State of Georgia: The state has been very generous in providing financial assistance to Tybee for beach nourishment. In addition to assisting with the Shore Protection Project funding the state has provided funds of \$4.9 million in 1995 to install the South Tip modular concrete erosion control units and nourish beaches in that area. The State also provided \$450,000 in 2002 to add to the dune fields at the North Beach. The state has created two bills to require maintenance material from the Savannah River Channel be put on the Tybee Island beach and near shore. The Georgia Ports Authority and the Department of Natural Resources coordinates beach related situations as directed by the state.
5. Department of Natural Resources (DNR): The DNR Coastal Resources Division is responsible for implementing the Georgia Coastal Management Program in which Georgia's beaches are a major component. One of the enforceable authorities of the Georgia Coastal Management Plan is the Shore Protection Act of 1979 that defines the sand-sharing system and establishes management standards. The sand sharing system is comprised of the beaches, sand dunes, sandbars, and shoals that constitute a vital area of the state by protecting real and personal property, providing essential habitat for wildlife, and playing an integral part in main-

taining the health and well being of residents and visitors. Activities regulated by the State include construction and maintenance of boardwalks, dune stabilization projects, beach restoration and renourishment, and other activities that may alter the natural topography or vegetation within beach and dune areas. In addition the DNR establishes guidelines for the placement and maintenance of sand fencing to provide for dune building and stabilization while minimizing adverse impacts on wildlife. Recommendations are provided for native dune vegetation when planting is needed. Coastal activities are coordinated with other state and federal groups in accordance with existing laws and regulations while ensuring the values and functions of the sand sharing system are not impaired. A representative of the DNR, Coastal Division attends BTF meetings to answer questions regarding the State's role in beach management and to act as a liaison between the City and the Department.

6. Georgia Ports Authority (GPA): The GPA operates the ports in the Savannah area as well as three other Georgia locations. The GPA is included in the state Department of Transportation and provides a large economical impact on this area. Being approximately 15 miles from the port to the coast the GPA along with the federal government must maintain the river to allow continued commerce. The GPA cooperates and assists the City with its beach maintenance and has a representative that attends BTF meetings.
7. The Savannah River Channel: Being one of the oldest Cities in the Country, Savannah, growth has depended on the use of the river. Larger ships in the 1800's required manipulation to deepen the channel. Once breakwaters and jetties along with river depths of 20 feet or more, sand flows from the north were restricted. Radical changes were observed to the coast line of Tybee Island. Continued sand starvation spawned the construction of a seawall along most of the Tybee beach front and over 130 wood, steel and rock groins. Studies of the area have resulted in estimating the losses of sand to Tybee beaches and near shore of 300,000 to 800,000 cubic yards per year. Annual maintenance of the river channel by the state and federal government removes approximately 800,000 cubic yards of material which is wasted beyond where it could assist the Tybee shore line.
8. Olsen and Associates: The City retains Erik Olsen, a coastal engineer to provide professional advice on the requirements to maintain the beach. Mr. Olsen is responsible for many studies of the South Carolina, Florida and Georgia and a long range beach management plan in 2001 for Tybee which has been the road map for continuing BTF recommendations. Mr. Olsen provides input to other studies, reports and construction to the beach.
9. The Federal Government: Through the Water Resources Development Act the federal government entered a 50 year agreement with the City to help maintain the beaches through 2023. Specifically this agreement authorizes a beach renourishment every seven years of approximately one million cubic yards and all the studies and engineering to accomplish this work to keep the beach as designed. The federal government contributes 60% of the needed funding to do this work. Although the work is authorized it is unfunded and much congressional lobbying is necessary to obtain the funding. A scheduled renourishment has not happened on time to date. The Federal Government is also responsible for the maintenance of the adjacent Savannah Harbor Federal Navigation Project and expends \$12 million per year of operations and maintenance dollars to maintain a depth of 42 feet. This work includes upstream and offshore disposal of materials that are predominately silty in nature.
10. The Army Corps of Engineers (ACOE): The ACOE is responsible for the administration and operations of the federal government programs. For Tybee this work includes studies for this coastal area, engineering for construction and management of these of these projects. They provide valuable input to our maintenance of the beach. They also are the responsible agency for the maintenance of the Savannah River shipping channel. The ACOE attends BTF meetings.
11. Marlowe and Company: Howard Marlowe and others of his company are experts on coastal management and projects. Based in Washington they are in constant contact with Congressional Representatives, Senators and their staff. They help shape policy and push for the necessary funding for beach projects. The City retains this company to keep us informed and lobby officials on our behalf. They also provide beach maintenance processes and procedures

from their wealth of knowledge on this subject by their involvement with coastal organizations such as the American Shore and Beach Preservation Association.

B. The Projects:

1. The Shore Protection Program: Tybee Island was included in the Federal Shore Protection Program under the WRDA in the mid 1970's. This agreement with the Federal Government authorizes sand renourishments every seven years through 2023. The ACOE administers and engineers this Program with coordination of the City, State and the DNR. Although authorized this work must be funded from the Congress for each nourishment and the studies and engineering required by it. Three past projects have brought in 1975, the North Federal Groin and 2,300,000 cubic yards of sand along the front beach; in 1986/87, the South Groin and 1,000,000 cubic yards of sand at the north and the south ends of the front beach; and in 1999/2000, built 8 rock groins at the back river and placed 1,300,000 cubic yards of sand on the north front beach and the south end of the island. Another renourishment is authorized for 2007 and the engineering is currently underway by the ACOE. It is expected that the approximately 200,000 cubic yards lost per year will be restored to Tybee's beaches. The BTF has requested that the north end of the island also be included in this program as is all of the rest of Tybee. The federal government as sponsor provides 60% of the funding and Tybee Island as the local sponsor must provide the remaining 40% with the help of the County and the State/GPA. Another study requested by the BTF would assign a larger percentage to the federal government due to the affects of the federal channel.

2. GPA/State of Georgia: In 1994 while the channel was being deepened it was expected that 2,000,000 cubic yards of material would be disposed on the north end of Tybee. The poor quality of the material was responsible to the termination of this project and it was replaced by a project funded by \$5,000,000 of excess bond revenue from the deepening which stabilized the south tip with 3 concrete modular groins with 50,000 cubic yards of sand fill. Another 285,000 cubic yards of sand was placed from the south federal groin northward to 13th Street.

3. HB 727: Burke Day, State Representative for Tybee has presented and had approved a State Bill that requires all beach quality material removed from the State's navigation channels be used to repair the beaches and near shore areas that it damages. If it is not economically feasible to use the dredged material, similar material can be obtained from approved barrow areas. Georgia is attempting to have the law made a part of the NOAA Coastal Management Plan that would require federal compliance. This Bill would combine the current double costs of removing channel material by one program and returning it by another.

4. Regional Sand Management/Widener Project. The Savannah District of the ACOE has identified a solution that will satisfy the above State Bill and the emphasis by the ACOE to solve sand management problems on a regional basis with cost savings. A breakwater built in the late 1800's to protect an anchorage at the mouth of the Savannah River has been backing up sand from the north to south littoral flow for many years. This sand now bypasses the breakwater and causes annual channel maintenance. Unlike the other removed maintenance material, this sand is of quality to be placed on the beach and in the near shore. After an initial clearing of material to a wider profile, dredging could be accomplished every other year instead of annually. By a permanent pump out buoy material can be placed on Tybee on demand in future years. An added cost for the first year from operation and maintenance funds from Congress is the only thing standing in the way of this project. After the first year costs will be less and recoup the first year cost. With this process the Tybee beach will be protected by an off shore berm, have sand migrate to the beach and have selected material placed directly on the beach. Tybee would have to be responsible for the relocation of material that is placed on the beach.

5. Other: There are other methods of moving sand that is available in the area:
a. Trucking from on shore barrow areas to the beach. This method is high cost and time inefficient.

- b. On beach relocation. The removal of sand from areas with an abundance of sand to sand starved areas. Has quantity limitations.
- c. Smaller sized local dredges. To move sand off nearby sand bars.
- d. Self contained sand sharing equipment. Could be used in the Tybee/ Little Tybee inlet to move delta sand back on shore.
- e. Sand stabilizing methods. Most of these use intrusive on beach structures.

Appendix C Standard Conditions for Dune Crossovers

6/24/2003

Shore Protection Act O.C.G.A. 12-5-230 Standard Permit Conditions for Dune Crossovers

Only one crossover structure shall be allowed on a parcel. In considering the design and routing of a crossover, the shortest route over the lowest area of the dunes shall be plotted to minimize impacts to the sand sharing system. For new construction, no decks or viewing platforms will be approved in the jurisdictional area. Previously permitted and grandfathered structures may be maintained provided they are serviceable. Additionally, the applicant requesting the structure must own 100% of the private lands through which the structure crosses or have the express written permission of the owner.

The following standard conditions shall apply to dune crossovers:

1. The height of the structure shall be at least 36" above the grade of the sand dune and the width shall be no greater than 6' as measured from the outside posts, to allow for sand movement or accretion in the dynamic dune field.
2. The terminal point of the crossover shall be seaward of the seaward most dune but shall not encroach seaward of the ordinary high water line in the active intertidal beach.
3. If the shoreline erodes and the crossover extends seaward of the ordinary high water line, it will be the responsibility of the applicant to move the permitted improvements back to the dry sand beach, landward of the ordinary high water line.
4. The structure shall begin at the toe of the landward most dune.
5. Heavy equipment is prohibited in the Shore Protection Act jurisdiction. This project must be constructed using hand tools.
6. Clearing and grading of dunes is not authorized in conjunction with the construction of this project; stockpiling of materials in the dunes is prohibited.
7. Vegetation may be cleared only for the width of the permitted structure. The maintenance trimming of jurisdictional vegetation will only be allowed within 6" of the sides of the structure and 7' high over the structure.
8. No motorized vehicles are permitted on the crossover structure, except for motorized wheelchairs for handicapped persons.
9. Any sand needed to restore the site to pre-project vegetated and topographic conditions, or for backfilling, must be beach quality and obtained from an upland source and not from the beach.

Appendix D

Scrub-Shrub Trimming Guidelines for Areas Within Georgia Shore Protection Act Jurisdiction

The goal of this proposal is to summarize data from numerous sources and to propose guidelines for granting Georgia Department of Natural Resources Shore Protection Act Permits for vegetation trimming or landscaping within State Shore Jurisdiction areas. Though derived from the known habitat needs of the Painted bunting (*Passerina ciris*), a species of concern in Georgia, these guidelines are intended to apply to all scrub-shrub habitats within Shore Protection Act jurisdiction. Successful management of habitat requires the protection of existing habitat. Breeding habitat loss is generally considered to be the greatest threat to the painted bunting species (Muehter 1998, Lowther et al. 1999). A major concern for Atlantic coast populations of painted buntings is the transformation of valuable wetland and scrub-shrub habitats into intensive residential development. This is especially well documented along the Atlantic coast. Current management practices can be modified or initiated to enhance the population of this declining species.

The goal of this plan is to identify:

- Habitat Management Goals specific to each site
- Habitat Management Considerations to be identified for each site
- Planning Tools to be utilized in Habitat Management

Habitat Management Goals:

Along the coast, natural beach dunes and scrub-shrub and grassy habitat are maintained by storms, salt spray, and drought. In developed areas near coastal marshes, habitat should be maintained as naturally as possible, with special attention paid to the grass to shrub ratio found so that it emulated the same ratio found in naturally occurring open savannah-like forests. Mowed lawns are not conducive to the painted bunting, and in critical habitat areas, should be discouraged. Wetlands, even those less than ½ acre in size, should be protected as important feeding areas for nesting buntings and their young (Meyers 1999).

Active management may enhance nesting habitat. The maintenance of scrub-shrub grasslands in transition areas such as beach dune habitats is critical. Areas that are vegetated primarily with waxed myrtle (*Myrica cerifera*), rattan vine (*Berchemia scandens*) as well as native muhly grass (*Muhlenbergia filipes*) provide for painted bunting and other bird species nesting and feeding habitat. Painted buntings use some areas if grasses and scrub-shrub habitat are allowed to cover the area for four to five years and have successfully produced young in this habitat in coastal Georgia (Meyers 1999).

Habitat Management Considerations:

Known breeding habitat for the eastern populations of painted bunting must maintain early to mid-successional vegetation, with an emphasis on retaining a mix of open and wooded or shrubby components. In the southeast, protecting beach scrub-shrub and coastal wetland habitats is important, not just for painted bunting habitat but for a wide variety of bird species known to utilize this habitat year round and is best accomplished by being left alone (Sykes 2004).

Ideally, nesting habitat could be enhanced by using a template modeled after successful nesting habitat on other barrier islands such as Nanny Goat Beach, Sapelo Island. The template could be designed using aerial photographs of Nanny Goat Beach to roughly establish a ratio of grassland to scrub-shrub that is present in known nesting habitat. An overlay would create habitat that is approximately 50% grasses and 50% scrub-shrub.

On developed barrier islands, a dense shrub perimeter no less than 25' along adjacent property lines would be maintained to afford protection to the emergent grassland habitat within the proposed cutting area. The objective would be to incorporate viewshed corridors for adjacent properties when identifying selected areas of

Myrica cerifera to be removed. A proposal could include the selective removal of *Myrica cerifera* followed by monitoring for the natural succession of *Muhlenbergia filipes*, *Berchemia scandens* and *Sageretia minutiflora*. Additionally, the removal of known invasive species such as Chinese tallow (*Sapium sebiferum*) should be a mandatory component of any proposed vegetation plan.

Additionally, in an effort to enhance the value of the habitat, feral cats should be trapped in a humane manner and be permanently removed from the area.

Planning Tools:

Using aerial photographs and detailed surveys of specific locations, templates could be designed to emulate known nesting habitat while considering viewshed corridors for adjacent property owners. The plan would emphasize cutting a pattern that simulated the heterogeneous clumps of shrubs as seen on Sapelo's Nannygoat beach. Long straight lines of shrubs would not be recommended, because predator search patterns focus on and easily follow this type of edge habitat. Clumps of heterogeneously spaced shrubs cannot be searched as easily by predators. A customized plan would identify specific stands of *Myrica cerifera* for removal through selective cutting and the minimal application of localized herbicide. Early March is the best time to maintain grassy areas. Mowing of grassy areas should be conducted no more frequently than every other year.

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Appendix E

DNR Guidance on Maintaining and Establishing Dune paths

The Department of Natural Resources Coastal Resources Division may allow the use of a path through the state's jurisdiction under the Shore Protection Act. O.C.G.A. 12-5-230 et. Seq. The purpose of a path is to provide pedestrian access through the vegetated dune area of the dry sand beach in areas of low traffic where public access does not exist and the functionality of the dune system will not be degraded.

The dune area is a fragile and important habitat for many birds and other wildlife. A path may be recommended instead of a crossover through areas with thick vegetative growth and presence of wildlife. The path should meander through the vegetation avoiding significant trees and habitat and allowing for the growth of a canopy over the path and is generally approvable if not greater than 3 feet wide and 7 feet high.

The Department requires that paths be maintained using hand tools only. No heavy equipment may be used. No vehicular access is authorized. The Department requires that staff be on site to flag the footprint of the path before maintenance begins.

No alterations of the location or dimensions of the path may be done without prior approval from the state. You must use all appropriate best management practices to protect the habitat and dune system. All debris must be removed from jurisdictional areas. Any incidental impacts associated with projects must be rectified by fully restoring areas to their pre-construction topographic and vegetative states. If sand is needed to restore the project site, it must be of beach quality obtained from an upland source rather than from the beach or dune system. You may be required to demonstrate proof of upland sand acquisition.

The Department must be notified prior to planning a dune path. Once staff has met on-site to assess the request, a Letter of Permission (LOP) may be issued outlining specifications. Each project must comply with all other Federal, State, and local statutes, ordinances and regulations.

Appendix F

July 16, 2004

The Honorable Walter Parker
Mayor, City of Tybee Island
P.O. Box 2749
Tybee Island, Georgia 31328

Attn: Mr. Bob Thomson

SUBJECT: Beach Cleaning

Dear Bob:

The City of Tybee as well as Tybee Beach Task Force have inquired of Coastal Resources Division in recent weeks as well as in the past about beach cleaning equipment — whether it is allowed or not. We understand there is interest among the City of Tybee Commissioners in exploring this as a possible beach maintenance activity. We have studied available information regarding beach cleaning equipment as well as researched this activity in neighboring states.

O.C.G.A. 12-5-248 (a) (1) provides that governmental vehicles may be utilized for beach maintenance without a permit as long as those vehicles operate across existing cross-overs, paths, or drives. Pursuant to Board of Natural Resources Rule 391-2-2, Appendix A, Tybee Island's three such existing access sites are the north, middle, and south access drives. Other access points would need to be approved by the Shore Protection Committee. Furthermore, the statute mandates that exempted vehicular activity must be conducted so as to provide protection to sea turtles and birds. Pursuant to O.C.G.A. Section 12-5-248 (b), the Department would want to issue a letter of authorization, with the following conditions:

1. Cleaning may not occur in the dunes and can only occur during the day.
2. Cleaning should focus on manmade debris and avoid natural debris, such as beach wrack, as beach wrack is important to primary dune formation – an important component to the ecology of the beach ecosystem.
3. During the nesting season (May 1 to October 1), cleaning can only occur after the sea turtle patrol has completed their daily survey of Tybee Beach for sea turtle nests and hatchling emergence.
4. Cleaning may not occur within 20 feet of sea turtle nests.
5. Cleaning may not occur within 100 feet of a designated shorebird nesting area or designated critical habitat.
6. Cleaning equipment must stay at least 10 feet from indigenous vegetation.
7. Only equipment with 10-psi or less tire pressure can operate on the beach.
1. 8. Cleaning equipment must not penetrate more than two inches into the beach

surface.

9. Cleaning equipment must effectively screen and return sand to the beach.
10. All material collected must be removed from the beach.

The above conditions are based on consultation with Florida's beach cleaning provisions and DNR's Coastal Nongame Endangered Wildlife Program.

We would request that the City of Tybee notify the Coastal Resources Division, Ecological Services Section in writing of your intent to conduct mechanized beach cleaning. Please provide us the details of the activity, including the equipment to be used, in order to evaluate the notice of intent, following which we could then issue a letter of authorization. Correspondence will also keep all parties in touch and informed.

We hope this responds to the City of Tybee's inquiry regarding beach cleaning. Should you have any questions or need further information about this activity, please contact Brad Gane, Assistant Director for Ecological Services, at 912-264-7218.

Sincerely,

Susan Shipman

xc: Brad Gane
Jeannie Butler
Buck Bennett
Brad Winn
Mark Dodd
Lou Off

Appendix G



Some locations have been slightly enlarged for display purposes only.

Appendix H

Georgia Department of Natural Resources

Sand Fence Guidelines

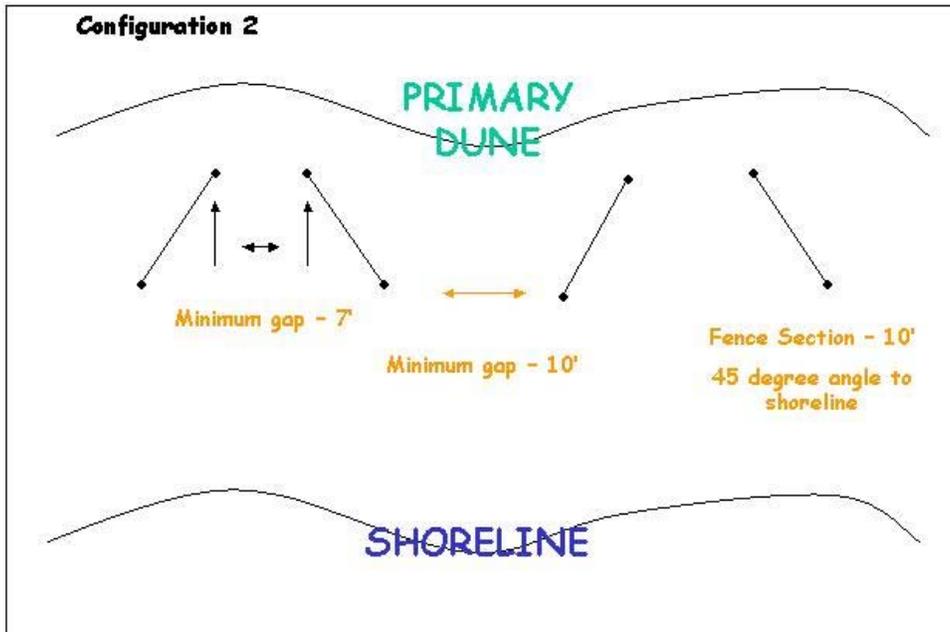
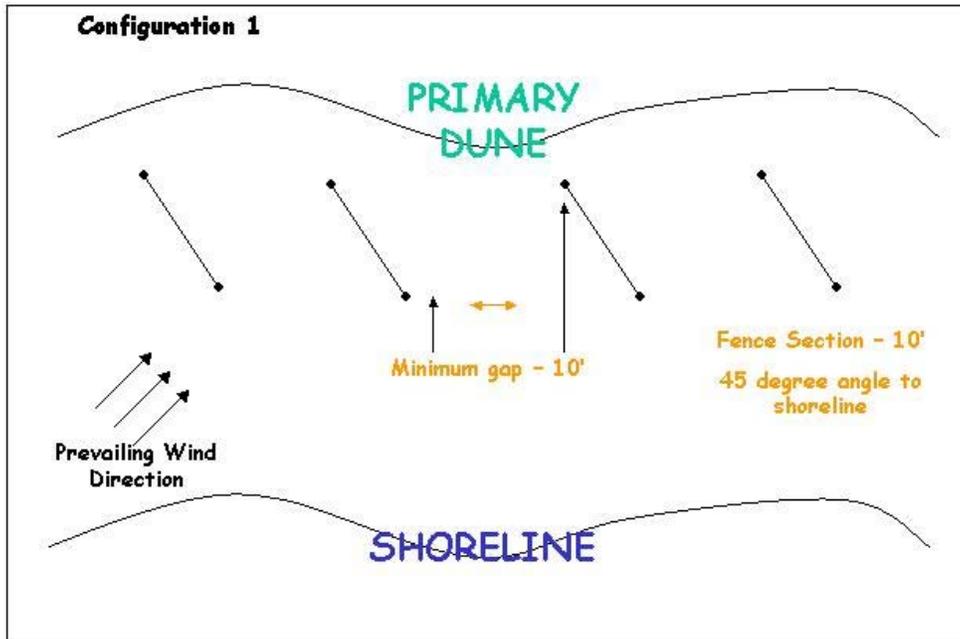
Sand fencing is used extensively along the Atlantic Coast to build and stabilize dune fields and control human access to the beach. Unfortunately, some sand fence configurations have been shown to restrict or inhibit sea turtle nesting. The **Management Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia** (II, B, 2, C) stipulates that “fencing must be placed so as not to deter turtles’ access to nesting areas, and arranged to prevent trapping nesting turtles”. The following sand fence guidelines are designed to provide good dune building and stabilization performance, while minimizing impacts to sea turtles.

Standard sand fencing consists of 4’ wooden slats wired together with spaces between the slats. Woven fabric type fencing has also been successfully used in dune restoration projects. However, it is important that fabric fencing have a 40% to 60% open to closed space ratio to be effective. Fabric fencing is susceptible to ultraviolet degradation causing it to sag and lose its original shape. With sufficient maintenance, this problem may be avoided.

Guidelines for Sand Fence Placement:

1. Installation and repositioning of sand fences shall be conducted outside the marine turtle nesting season (May 1 – October 15) unless approved by the USFWS or GADNR Nongame-Endangered Wildlife Program.
2. Sand fence shall be installed in a temporary manner in accordance with the attached conceptual drawing. Configuration 1 consists of 10 foot sections of fence spaced at a minimum of 10 feet on a diagonal alignment to the shoreline (facing the prevailing wind). Configuration 2 consists of two 10 foot sections placed in an “open V” shape with the wider end facing the shoreline. Minimum space between ends of the “V” is 10 feet, and minimum width between the close ends of the “V” is 7 feet. For both configurations, the approximate angle of the fence to the shoreline is 45 degrees.
3. Sand Fence shall not be placed in the inter-tidal zone. Sand Fence must be placed above the highest spring high tide line, preferably adjacent to the primary dune.
4. Sand Fence shall not be placed within 7’ of a beach scarp.
5. Sand Fence shall not be placed in front of an existing fence until the existing fence is completely buried.
6. Sand fences shall not be placed to control pedestrian traffic seaward of the secondary dunes. A post and rope fence may be used to restrict pedestrian access without impacting nesting marine turtles.
7. If fence material is damaged, debris must be removed from the beach area by the owner in an expeditious manner.

Appendix H
Georgia Department of Natural Resources
Sand Fence Guidelines—continued



Appendix I Recommendation Matrix

Recommendation	Responsibility	Cost	Priority
<u>Infrastructure Section</u>			
Complete the Byers Street beach access with public parking	DPW		
Develop public parking and rest rooms at Polk Street by using the public works area	DPW		
Plans need to be completed to make additional parking at the police area at North Beach	DPW		
The old exposed sea wall needs to be removed from North Beach	DPW		
Install sand fencing at areas above the high tide line that have emerging dune fields	DPW		
Improve the restrooms/ changing areas and swings in the North Beach area	DPW		
Study to see if the North Beach groin needs to be reinforced	DPW		
Provide signage to direct traffic to available parking locations	DPW		
Have program to periodically improve or repair dune crossovers and swings	DPW		
Put street numbers on the beach side of crosswalks in Front Beach area	DPW		
Complete the designs as recommended for the Beach Business District and have the merchants follow up with improvements	DPW		

Conduct on-going monitoring of the notches in the groin field on South Tip Beach	DPW
Place signs to warn beachgoers of the dangers of walking on the sand bar or attempting to cross to Little Tybee on South Tip beach	DPW
Conduct public works review and plan for signage/structure maintenance	DPW
Install sand fencing above the high water line on all emerging dunes	DPW
Conduct a study to see if more groins in Back River area are warranted	DPW
Review dock policy and see if access through docks can be made in Back River area	DPW
Install a stairway from the top of the sea wall to the beach at south end	DPW
See if sand fencing can be added above high tide lines on beach along Back River area	DPW
Review old boat ramp for possible improvements in Back River area	DPW
Insure that the conditions at the sea wall are safe in Back River area	DPW
Improve upon existing handicapped access by using better access material such as MOBI mats	DPW
Increase number of handicap access points to five at the minimum	DPW
Increase trash pickup and recycling on holidays and summer weekends	DPW

Investigate ways to spread parking further north on Chatham Avenue to decrease traffic congestion on the South Tip	DPW
Improve North Beach Restrooms	DPW
Place ‘Do Not Litter’ and ‘No Pets on Beach’ signs on US 80 near Spanish Hammock	DPW
<u>Public Safety Section</u>	
Allow vehicular traffic on beach for special events only with police control	City of Tybee Police and Fire Departments
Provide more police and lifeguard protection in all beach communities, especially in summer	City of Tybee Police and Fire Departments
Station a permanent lifeguard to supervise beaches between 19th Street and the Back River Groin	City of Tybee Police and Fire Departments
Look into more safety monitoring in summer months	City of Tybee Police and Fire Departments
Review beach usage for safety, possible signs warning about currents	City of Tybee Police and Fire Departments
A current safety need for the City is to purchase and man a Wave Runner boat that would patrol the near offshore area, particularly from 14th St. to the South Tip on busy summer and holiday weekends	City of Tybee Police and Fire Departments
<u>Public Education Section</u>	
Have rental property owners and/or brokers provide adequate information on rules and regulations pertaining to the beach and its usage to short term renters.	

Create outreach materials for citizens and tourists regarding environmental stewardship, such as why dogs and feral cats are a threat to shorebirds, water quality, water conservation, etc.

The City of Tybee Island should look into forming Adopt-A-Stream and Adopt-A-Wetland programs for monitoring water quality on Tybee. These programs are administered through the Georgia Environmental Protection Division and locally through Savannah State University

Set up a website or Internet pdf file with frequently updated information to inform the public of beach renourishment projects

City of Tybee IT Department

Environmental/Wildlife

Take further action to protect the shorebirds in the Savannah River and North Beach areas

City of Tybee/DNR, WRD

Review authority for who is responsible for keeping track of and clean up of gas and oil spills in all areas, particularly the Back River

City of Tybee/DNR, WRD

The City of Tybee Island should agree to protect the areas where state protected shorebirds are nesting (the North End west of the rock jetty).

City of Tybee/DNR, WRD

Tybee's no-dog rule should be enforced particularly on the north end of the island due to nesting and roosting shorebirds found there that are protected by the State

City of Tybee

Renourishment Section

Include Savannah River Beach and the north end of North Beach in the Shore Protection Program

City of Tybee/USACE

Renourish Front Beach North Beach and Beach Business District in 2007 or as soon as possible. Include South Tip Beach and Back River Beach in the 2007 renourishment

City of Tybee/USACE

The Tybee Beach Task Force must continue to work with the State legislature and Chatham County to secure adequate funding for beach renourishment

City of Tybee/State Legislature/Chatham County

Local Movement of Sand Section

Raise the level of Savannah River Beach by approximately 3 feet as recommended by the ACOE. This could be done by federal or local funding and by dredging, trucking or relocating sand from the accreting area of Estill Point

The Tybee Beach Task Force along with City of Tybee Island staff and citizens need to come up with recommendations for moving sand from accreting to eroding areas on the island such as the north or south end to Second Street (to be approved by the State DNR that will not disrupt Sea Turtle nesting and other environmental factors

City of Tybee Staff and Citizens

Tybee Island should consider the option of purchasing a small dredge that could be used to move sand from flood tide deltas to eroding areas that are privately owned. This course of action would need to be planned in advance and approved by the Georgia Department of Natural Resources Coastal Resources Division

City of Tybee/DNR CRD
& WRD

Property Ownership Section

Clarify property ownership along Savannah River, North Beach and Back River areas, and property east of the sea wall along Front Beach, Beach Business District and South Tip

Tybee Island should research the issue of public/private ownership of beaches who owns accreting areas of beach and determine and set line of public/private ownership along the entire beach. Once this line is set, publicly owned lands need to be held in trust so that these greenspace lands are not used for private gain by development

Miscellaneous Section

Review beach safety for signage, equipment and personnel

Clarify the limits of construction for the Shore Protection Program in Back River area

Hire a sign consultant for overall review of signs on Tybee

It is recommended that citizens of the four identified beach communities be chosen to work with the Tybee Island Task Force, and City staff from Public Works, Planning & Zoning, and others as identified to hold a one-day workshop to further discuss such subjects as infrastructure, parking, zoning, services, etc.

It is recommended that this Tybee Island Beach Management Plan be incorporated by reference into the next update of the Tybee Island Comprehensive Plan

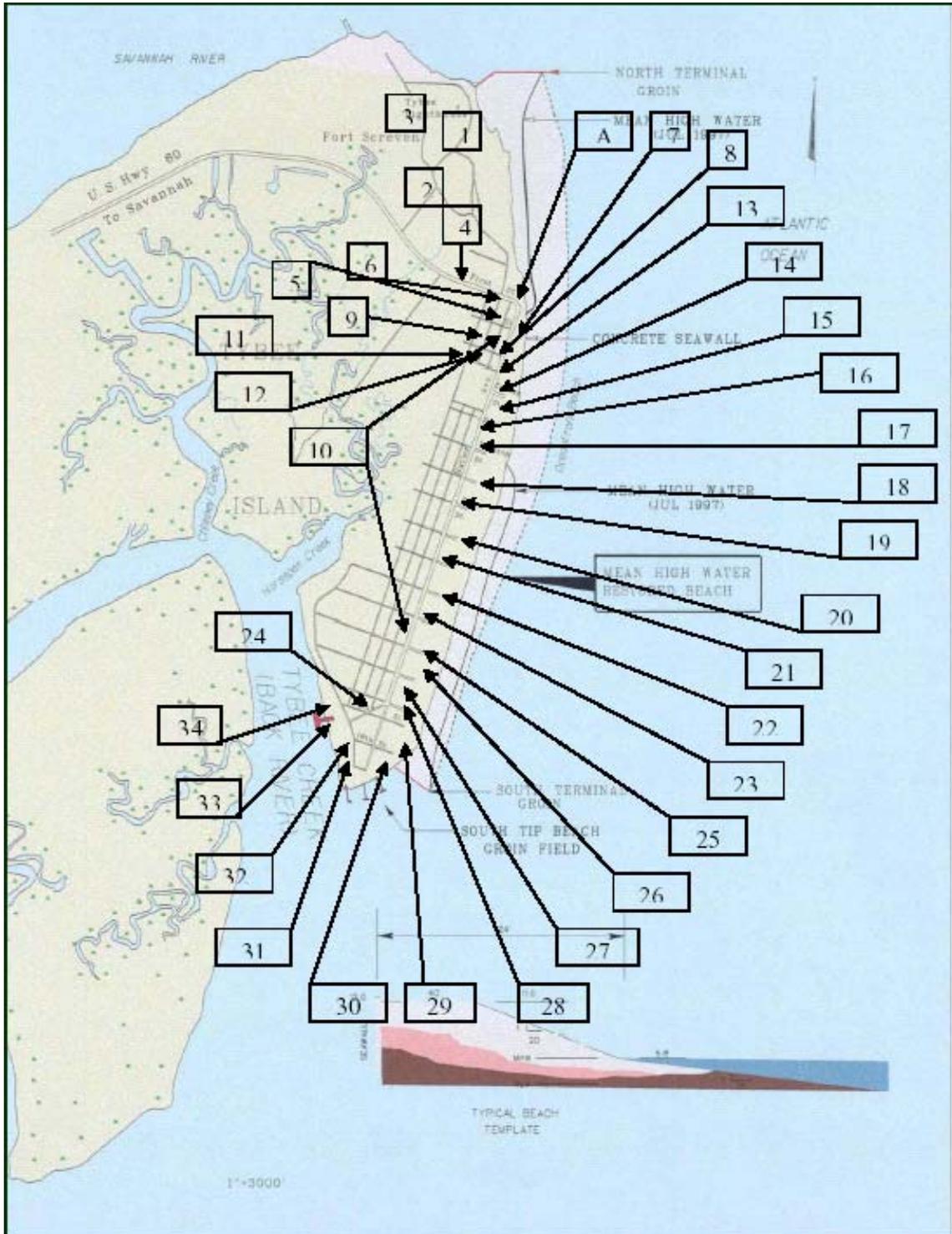
It is recommended that a City policy be crafted regarding when and under what conditions vehicles are allowed on the beach on Tybee. This policy will be consistent with state DNR policy.

Construction of crossovers in all beach communities should be strictly limited to those for public access or to those that serve entire neighborhoods. Private crossovers should be prohibited

City's Managers office,
Tybee City Council, concerned citizens

City council, DNR, concerned citizens

Appendix J Beach Access Points and Parking Locations on Tybee Island*



*Limited Reevaluation Report, Tybee Island, Georgia, 2007 Renourishment, August 2005, US Army Corps of Engineers Savannah District

Location Number	Name	Number of Spaces	Type of Parking	Access at Site
1	North Beach Lot	280	City Owned, \$8 per day	Yes
A	HWY 26 & 80 (curve)	0	None	Small sand path
2	Fort Screven/Museum Lot	60	Metered	No
3	Tybee Island Light Station	30	Free	No
4	Special Event Lot	300	\$7 per day	No
5	North of 3rd St. on US 80	50	\$8 per day	No
6	2nd Avenue North of US 80	34	Metered	No(?)
7	2nd Street Beach Access	6	Metered	Yes
8	3rd Street Beach Access	13	Metered	Yes
9	4th Street West of US 80	61	Metered	No
10	US 80 from 1st Street to Izlar	313	Metered	No
11	Center Street	21	Metered	No
12	5th Street West of US 80	24	Metered	No
13	6th Street Beach Access	29	Metered	Yes
14	7th Street Beach Access	30	Metered	Yes
15	8th Street Beach Access	27	Metered	Yes
16	9th Street Beach Access	21	Metered	Yes
17	10th Street Beach Access	25	Metered	Yes
18	11th Street Beach Access	12	Metered	Yes
19	12th Street Beach Access	7	Metered	Yes
20	13th Street Beach Access	23	Metered	Yes
21	14th Street Beach Access	31	Metered	Yes
22	15th Street Beach Access	41	Metered	Yes
23	Tybrisa Street	60	Metered	Yes
24	Inlet Avenue—West	13	Metered	No
25	Strand Avenue	20	Metered	Yes
26	South Beach Lot 2	185	City Pay	Yes
27	South Beach Lot 1	177	City Pay	Yes
28	17th Street Beach Access	18	Metered	Yes
29	18th Street Beach Access	13	Metered	Yes
30	19th Street Beach Access	36	Metered	Yes
31	Butler Avenue	22	Metered	No
32	Chatham Avenue	16	Metered	Yes
33	Inlet Avenue Beach Access	10	Metered	Yes
34	Fisherman's Walk	23	Metered	Yes
Total		2031		