



amelia tree conservancy

Goal 5: Conservation and Coastal Management

Amelia Tree Conservancy makes the following recommendations for Conservation. We also support Dr. Hopf's recommendation regarding our dunes and all other beach and wetland conservation efforts.

- **Conservation must be defined to include all lands that function to protect our island**, including all parts of the maritime forest (from scrub trees and shrubs to upland forests), forested uplands, and salt and fresh water wetlands.
- **Conservation and preservation of mature canopy to support long-terms sustainability goals and floodplain resiliency goals** (see also recommended studies submitted for Goal 1: Future Land Use)
- **Preservation of native understory and soils** to support tree health and reduce nutrient runoff and erosion. This must be required in areas of new construction and encouraged elsewhere.
- **Canopy loss and needs data:** We need more complete data on our urban forest, both on public and private property. In addition to inventories and GIS data, we need to monitor and measure canopy loss and additions in order to have a firm foundation for planning. (see also recommended studies submitted for Goal 1: Future Land Use)
- **Identification of wildlife corridors:** Another area we need data on is wildlife corridors. Along with a commitment to conserve them. (see also recommended studies submitted for Goal 1: Future Land Use)
 - Conservation of wildlife corridors through acquisition or conservation easements
 - Prohibition of further development on major wildlife corridors
- **Major land conservation effort:** The City should coordinate with NFLT and ATC on a major land conservation drive:
 - We must **maximize our land conservation during the next five years**, acquiring at least 50 acres in each of the first three years and 20 acres in years four and 5.
 - **Conservation easements must guarantee the conservation status of all lands designated as conservation**
- **Major reforestation effort:** The City should coordinate with ATC to launch a major reforestation effort.
- **Incentives should be developed for redevelopment, restoration of our environment and planting;** disincentives for developing vacant parcels
- **All developers and builders must be required to utilize conservation site design in their approach to vacant parcels.** In other words, they are not looking at a blank slate, but vegetative, soil and hydrologic systems already in existence. To the extent possible, all design and building should be designed on the foundation of that existing system. (In cases in which the existing system is the result of ill-planned prior human activity, approaches should be discussed with the Conservation and Planning Dept. to optimize environmental outcomes. It is essential that structures be built within and around our environment rather than the environment being obliterated and replaced with buildings.
- **Requirement of low-impact development practices and sustainable building practices in all types of development and redevelopment.** Permits should only be issued for developers and builders following these approaches and conservation site design.



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Goal 5: Conservation and Coastal Management

- **Our old trees, whether registered as heritage or not, must be protected**, as they protect us and are fundamental to our economy. **Such trees are not restricted by property lines and must be protected to the drip line. No root or canopy pruning or damage may be inflicted on these trees without guidance of the City Arborist.** Properties were purchased with these trees in place, and this restriction on damage to them is inherent in that purchase.
- **Changing of the FLUM from Conservation to any other category requires a referendum.**
- **Optimize use of natural storm water management methods.**
- **Maximize pervious surfaces:** Reduce the maximum ratio for impervious surface to 50% or less, regardless of the zoning and function of the structure, to preserve more trees and native understory and optimize storm water management.
 - **Impact fees could be reduced for those building smaller homes.**
- **Requirement of real, in-depth environmental impact statements for all development.** Perhaps developers and builders should be charged a fee to cover this and the city should hire the professional to ensure objectivity.
- **Longer period of staff review of projects; pay for faster service.** This would provide staff to analyze the development/redevelopment more carefully.
- **LEED-qualified staff:** The City needs to boost its standards for the credentials of staff, of builders and developers and for their products. We need to identify higher standards in specific measurable goals.
- **During construction, we need a protection zoned for rights of way as well as for trees.**
- **Greater protection and planting of shade trees. Stronger protection of heritage trees and canopy streets.** The heritage tree program needs to be redesigned, and we need a canopy street program.
- **Scenic vistas (Policy 1.03.07 and 1.03.08, p. 7) along A1A need to be protected because that is state law.**
- **We need to develop policies encouraging or requiring use of native landscaping to improve sustainability.**
- **The city needs to expand its staff for monitoring building and development activities and enforcement.** Monitoring and enforcement need to be a priority. We need to staff for the need. Protection zones need to be monitored to ensure that proper materials are used.
- **Control of population growth and buildout**
- **No further development in the Coastal High Hazard Area**

Summary of draft version of Objective 5.02 Beach and Dune Preservation submitted to City Commission and sent to Planning Department for review

Background and History of our dunes and beaches

- 1) Nature blessed the island with adequate beaches and dunes to protect the interior of the island and the mainland inundation from tropical storms and Nor' Easters
- 2) Starting in 1881, US government efforts to open the St Mary's to deeper draft vessels interrupted the estimated at 267MCY/year of sand the island received from Cumberland Island and the river to maintain itself.
- 3) AI's dunes and beach shrunk every year as a result of this disruption
- 4) Hurricane Dora slammed a weakened dune and beach in 1964; riprap had to be placed at AB and North Beach to protect against waves. Dune and beach virtually gone in these areas.
- 5) Florida legislature recognized the importance of the beach and dunes and passed laws to protect them in 1985, gives FDEP first responsibility over dunes and dune protection.
- 6) Navy and USACE recognize the our missing sand was clogging their channel, and NCSPP developed as 50 year program, local share paid by TDC funds to artificially replace the natural sand movement processes to keep the beach and dunes alive, over 10MMCY (over a million 9 yd dump truck load equivalents) of sand has been moved
- 7) With some assistance from humans, a large percentage of AI dunes have rebuilt themselves into very environmental productive and dunes that protect the island from 100 year storm wave damage as defined by FEMA's 2017 FIRM
- 8) This plan recognizes that with community support and some investment (mostly in longer and more walkovers), the rest of the City's beach could achieve the same, given some patience
- 9) Like most beach communities, the City must be willing to curtail human activities in our dunes and dune restoration areas to achieve the 150' minimum wide dune seaward of existing structures and infrastructure
- 10) Florida law gives City and County and FDEP a lot of authority to make this happen

Major items in proposed dune and beach management plan:

- 1) Patch holes in existing dunes where uncontrolled human access has eliminated any protection of the dunes from storms
- 2) Establish a needed dune line to provide required 100 year storm protection and habitat standard the entire length of the City's beach
- 3) Prioritize dunes and beaches of greatest concern
- 4) Commence dune restoration activities, relying heavily on native vegetation to regrow dunes 30-40 foot wide at a time
- 5) Build additional and extend some existing beach walkovers to maintain and improve beach access while protecting dunes and dunes restoration activities, prioritizing as they are built to allow best use of funds as they become available.
- 6) Strengthen regulations, marking, and enforcement to provide additional protection for the dunes and dune restoration area.
- 7) Insist on treating beach renourishment as an integrated dune-beach-nearshore and habitat program instead of traditional beach rebuild and disposal issue. (Note: Coastal engineers and coastal scientist are not always in agreement on some issues, hopefully the USACE's Congressionally authorized South Atlantic Coastal study will help bring the two closer together in approach
- 8) Warns against suggestions to New Jersicate our dunes and even harder engineering approaches to achieve resilience.
- 9) Insists on being able to change directions if necessary.

Frank Hopf

April 29, 2019

First Draft City of Fernandina Beach Dune and Beach Management Plan – March 21, 2019

Executive Summary

The City of Fernandina occupies the northern half of Amelia Island, a barrier island. Like the many barrier islands along the passive coast of North America, it provides protection from waves and storms for the land and marsh behind it.

Amelia Island differs from most barrier islands as it actually consists of a Holocene (younger than 10,000 years) barrier island welded to an older Pleistocene barrier island. Within the City, the Egan's Creek salt marsh remains trapped between these two islands. In this regard, Amelia resembles its barrier island sisters to the north along the Georgia Bight coast. These islands share a very wide, gently sloping continental shelf, live with ample sediment supply, and are subject to medium tidal ranges (but higher than any other on Florida beaches).

Amelia's recent geologic history left it with wide beaches backed by wide and tall dunes; stable deep inlets to the north and south, and a healthy productive salt marsh behind it and within it. Before the arrival of Europeans and Africans, Amelia's beach and dune system stood wide and tall enough to adequately protect the island and its marshes from the largest storm waves. This was likely true of other Florida beaches/dunes, with Amelia's among the strongest and tallest because of the large tidal effects and the consistent sand supply. Amelia enjoyed a healthy maritime forest which held the older Pleistocene part of the island in good order

The beaches and dunes that provide the primary protection for upland areas first became habitat for a variety of land and sea animals and plants and the members of their food chains. Humans eventually realized the beauty and relaxation of the beach and began in huge numbers to move in. Early beach developers built in the dynamic dune, eventually forcing the need for engineered structures to compensate for the lost protection of the dunes. Meanwhile, improvements to our navigation systems along the coast led to massive disruption of sediment supply and the dunes and beach starved to death at many locations.

Amelia and Fernandina fared somewhat better than most beaches. As inland agriculture expanded in the late 1700s and early 1800s, increased soil erosion in the Nassau and St Mary's river basins led to increased sand supply to the island. In response, the beaches and dunes actually grew seaward by an estimated 400 feet. However, by 1880, the natural 18 foot deep (low tide) St Mary's channel was not deep enough for newer ships so the Corps of Engineers built a jetty and later began dredging, choking off Amelia's sand supply. The beach and dunes wasted away the 400 feet gained and then some by 1960. Contributing to the beach losses, the construction of beach cottages in the dunes and the trampling and destruction of the vegetation that create and hold together the dunes, led to additional sand loss.

In September 1964, Hurricane Dora made landfall in St Augustine and slammed Amelia Island with waves which overwhelmed the dunes and damaged buildings along Fletcher and American Beach. The storm surge measured at about 10.5 feet above MLW. The waves destroyed homes, businesses and the dunes particularly north of Main Beach and at American Beach. The dunes were given emergency repairs with construction of a rock revetment. Likely this structure was not an engineered structure; there was not enough time to study the problem.

By 1979, the dunes were so deteriorated that they would have provided little protection from a major hurricane, which fortunately has not yet arrived.

By the late 1970's coastal science recognized the importance of naturally functioning beach dune systems for storm protection, providing habitat for threatened species, and as an economic resource (tourism). Much of the research took place in Florida and the legislature responded by passing the Comprehensive Beach Management Law. This City policy seeks to promote the goals of that law by (1) eliminating the causes of human-induced erosion of beaches and dunes, (2) promoting continued reliance on state-of-the-science to the beach-dune-nearshore littoral renourishment as a primary tool to simulate lost natural sediment supply, (3) reinforcing state laws that require coastal zone construction and reconstruction that do not damage existing beaches and dunes and (4) developing site specific beach and dune restoration plans, including prioritizing of dune walkover and drive overs.

The goal of the management plan is to develop a plan to provide the entire city with as a minimum, protection from 100 year frequency storm waves with maximum reliance on naturally functioning systems; to improve access for a beach going public that respects the natural environment of the beach; and to enhance the natural habitat for the wide variety of resident, nesting, and transitory species (including several endangered or threatened) that share the beach and dunes with us.

Underlying principles of the Management plan for Fernandina Beach dunes, beaches and near shore

Management of the nearshore, beach and dune system on Fernandina Beach will be based on the following underlying principles.

- 1) Natural processes provide the best habitat, property protection, and recreational opportunities in the nearshore,-beach-dune system
- 2) Human interference in these processes (particularly building infrastructure within the dynamic system and modification of bounding inlets to accommodate navigation) have challenged the community to engaged in the always difficult use of human designed processes to mimic or replace natural ones.
- 3) Fortunately the entities whose activities have blocked the natural littoral drift of sand to the island have both recognized their responsibility to replace the sand lost and also have found that the sand now tends to fill in the navigation channel . Thus an excellent, mutually beneficial agreements have been signed that calls for the US Army Corps of Engineers and US Navy to deposit the beach compatible sand

from dredging the St Marys channel on the beaches of Fernandina. The City must work to assure that the USACE/Navy, the city's consulting coastal engineers, and the contractors involved always to employ the latest knowledge to execute these projects in the most cost effective and environmentally protective methods. Important in this is effort to assure placement of sediment that is compatible with the beach, dune, nearshore and beach of Amelia Island. The City will actively follow and participate in the USACE's South Atlantic Coastal Study and latest research initiatives of the American Shore and Beach Preservation Association, the National Research Council and others to be able to modify and adjust this plan to best meet the objectives.

4) The policy recognizes that the restoration, maintenance, and sustainability of barrier islands begins with a healthy dune system.(NJ p37)

5) The policy supports the principle that dune and beach created by publicly funded enhancement projects are part of the public domain.

6) With adequate correct sand availability, the dunes can be grown (as opposed to constructed) to increased storm protection over that currently provided. The initial target will be to provide protection from the FEMA 100 year (1% probability) storm surge the entire length of the city beach front from survey points 13 to 39 within 10 years of enactment and funding. The target and scheduling must be reviewed annually.

7) Beach access for all who respect the dune-beach- nearshore system will be maintained and enhanced.

8) This plan does fully address management of the shoreline along the Amelia River or the St. Mary's Channel which require different sets of processes

9) Execution of this plan will fall main under a newly created position of Floodplain Manager who will be responsible for effort to reduce the risk of flooding in the City from all sources and prepare for the increase pressure from expected sea level rise into the foreseeable future.

Actions required:

The City Commission should create a City Floodplain Manager reporting to the City Manager whose responsibilities will include management the dunes and beach of Fernandina in accordance with the following plan developed to meet the objectives of the City Comprehensive Plan for Beach and Dune Preservation

The Floodplain Manage will execute this plan designed to meet the Comprehensive Plan Objective 5.02, Beach and Dune Preservation and will at least annual make recommendation to the City Commissioners on the status and recommend any changes to it. The Management Plan is organized by steps to be taken to meet the identified policies of the Comprehensive Plan as follows

Policy 5.02.01

Effective July 1, 2019, the City will establish the following classification of beach-dune system and identifies proposed actions for each, subject to concurrence of the Florida Department of Environmental Protection.

Class A Dune width in excess of 200'. FEMA VE and AE 1% zones end in dune

Class B Dune width less than 150'. FEMA VE and AE 1% zones abut structures

Class C Dune width less than 50'. FEMA VE and AE 1% zones impact structures but not public roads

Class D Dune width less than 50'. FEMA VE and AE 1% zones impact public infrastructure and structures on west side of Fletcher Avenue.

Class E Dune width 50'-100'. FEMA VE and AE 1% zones impact considerable public infrastructure and significant number of private structures behind the dunes. Full protection will likely require an elevation 9' berm from the coastal dune to the high dune on north City line

Class F Dune width adequate but height, volume and habitat value damaged vehicle and pedestrian access. Structures protected by retaining walls or not protected from 1% Storm flood

Class G: Structures installed in middle of the active dune, rendering dune rebuilding difficult

The City shall establish priorities as follows

- 1) Establish initial dune toe target line as the easternmost of the:
 - 1) Existing dune toe
 - 2) The dune vegetation line as of July 1, 2019
 - 3) The 8' above MSL contour line as of July 1, 2019 (NDVS)
 - 4) A line 150' east of Coastal Setback Line or
 - 5) A line 150' east of the eastern side of the nearest building, shore parallel structure, or roadway.
- 2) On dunes classified as Class D, commence dune restoration activities, starting with a project 30'-40' seaward of the existing dune with target of build dune out to the eastern most of the 8' contour line or 150' east of the developed property. Construct new dune crossovers in accordance with priority list.
- 3) On dune in Class E, fill in and plant dune vegetation in the erosion gaps in manmade dune along the length of the Ocean Avenue and fence off dune from the street. Establish dune restoration project from

north side of Main Beach to the State Park boundary, starting with a project extending 30'-40' seaward of the existing dune with target of building dune out to the eastern most of the 8' contour line or a line 150' east of east edge of Ocean Avenue south of 9th Avenue and 150 feet east of the Coastal Setback Line north of 9th Avenue. Work with State Park to develop a 9' elevation vegetated berm along an east west line roughly parallel to Lisa Avenue and Kimberly Street to the high dune in the park. Construct new dune crossovers in accordance with priority lists

4) On dune rated Class F, complete elevated dune crossover structures for pedestrians and vehicles identified in the Crossover priority list.. Commence dune reconstruction activities.

5) On dunes in Class C area, commence dune restoration projects starting with a project extending 30'-40' seaward of the existing dune with target of build dune out to the eastern most of the 8' contour line; line 150' east of the developed property; line 150' east of Coastal Construction Line; or the Erosion Control Line . Construct new dune crossovers in accordance with priority lists

6) On dune rated Class B, Commence dune restoration project seaward of the dune to the easternmost of the 8' contour line or dune vegetation line as of July 1, 2019. Construct new dune crossovers in accordance with priority lists

7) In Class A areas, install signage every 100' defining the eastern limit of the dune target line with notation that the sand to west is not to be entered. Establish limited width fence walkways diagonally across the foredune as required to the dune target line. Require than any building permit issued after July 1, 2019 would require either an elevated walkway to the dune target line no more than 4' wide that clears the foredune at elevation 19' minimum. Construct new dune crossovers in accordance with priority lists. Provide support for private dune restoration projects.

8) For Class G areas, encourage abandonment of these properties. Restrict access to existing dunes and commence dune restoration projects

Dune restoration projects will include all of the following

1) Restricting access to section of dune by sand fencing or posts and rope or chain

2) Proper signage explaining restricted access

3) Planting of at least four varieties of native frontal dune vegetation to include sea oats in accordance with a plan approved by the Floodplain Manager and the FDEP. Sand fencing shall not be longer than 10' and spaced no closer than 15' apart may also be used as long as they are not more than 4' high and are removed when the freeboard is less than 15 inches. Sand Fencing shall be installed with a heading at an approximate 105 degree from north. Consideration may be given to shore parallel sand fencing provide they are removed during the turtle season

4) Any building permit issues to applicants will include the requirement that an approved elevated walkover be constructed from the property to the dune target line OR fencing being constructed restricting access to beach from the property directly.

4) The City will impose a fine not of not less than \$100 for pedestrian and \$500 for any vehicle accessing the dune restoration area except for emergency situations or approved monitoring, planting, invasive species removal and restoration activities. Littering fines will be doubled in the dune restoration areas. Removal or relocation of any sand in the dune restoration areas except with the approval of the Floodplain Manager or designee shall be subject to a fine of \$100 per cubic yard moved.

5) The City shall extend within dune restoration area State protection of sea oats and sea grape to the following dune vegetation types:

Pennywort

Beach sunflower

Beach morning glory

Salt grass

Railroad vine

Bitter panicum

Sea purslane

The Floodplain manager is authorized upon notification to the City Commission, addition to this list any vegetation type selected for use in any approved dune restoration project

Policy 5.02.03

The City recognizes that the Beach wrack, the sea vegetation and other organics cast ashore by the waves, provides valuable nutrients to the dune vegetation, the sea birds and other resident and visiting fauna, including those down the food chain. Therefore, removal or relocation of the wrack or deliberate driving over wrack is prohibited and subject to fine unless approved by the Floodplain Manager.

The City will not approve use of mechanical cleaning or sweeping of the beach by private parties. The City will only use these cleaning methods in emergencies and only under the direct supervision of the Floodplain Manager or designee. In the case of future FEMA, State, or County led post-storm emergency cleanup efforts, the City Floodplain Manager will be the designated senior representative to the incident command structure of the cleanup.

Policy 5.02.04

The City shall continue implementation of the Coastal Upland Protection Zone (COPZ) in the Land Development regulations. Any changes to the Future Land Use Map (FLUM) or zoning change in

the COPZ while require the review by the Floodplain Manager for recommendation to the City Commission.

Policy 5.02.05

The City shall adopt and maintain the attached prioritized Dune Walkover and Driveover development plan with the target of all beach access by January 1, 2025 shall be limited to safe Walkovers and Driveovers.

In the meantime, beach accesses awaiting walkover construction shall be restricted to a maximum 4 foot wide trail fenced or roped off across the foredune and down to the dune target line or the end of the active dune restoration project, crossing the foredune or restoration project on a NW-SE azimuth.

The Floodplain Manager will review the prioritization each year until the Walkovers Are completed for review by the City Commission.

Emergency access driveovers shall be developed in accordance with Attachment A

Policy 5.02.06

The City Land Development regulation shall be revised to reflect the requirement identified in Policy 5.02.01 for permits issued for the various class of dunes eastward of the CCCL in the City. The Floodplain Manager must also sign off on any permit issues in the area east of the CCCL and in the CUPZ.

Policy 05.02.07

No motorized vehicles shall be operated on the Beach or Dune except as designed the City Commission. The fine for violation shall be increased to \$250 and impoundment of the vehicle until the fine is paid. The fine shall be doubled for vehicles without functioning four wheel drive capability.

Except in an emergency, local law enforcement, lifeguards, and beach patrol vehicular access shall be limited to drivers who have successfully completed the City's beach driving training program and have passed the annual refresher test. Drivers of public vehicles violating the beach driving regulations will face disciplinary action, up to and including termination.

The City Commission will work with the Nassau County Sheriff's office to provide proper training for county employees required to drive on the beach.

No storage of vehicles, boats, trailers, materials, beach equipment, etc. shall be permitted on the dune or beach of Fernandina Beach.

Policy 5.02.08

The City floodplain Manager will work with the FDEP and FEMA to reconcile the location of CCCL within City to make it a more usable tool for protection of the beach and dunes and the inland sections for

flood protection. This recognizes that the CCCL was last updated in 1982 and the original intent of this line and FEMA' attempt to better assess the risk of coastal flooding were similar. Updating the lines will permit better planning for the future.

Policy 5.02.09

A) City Building Codes shall be revised (if required) to prohibit excavation cutting or filling of land from 1000' landward of the CCCL to the Atlantic unless it will not negatively impact the contours, drainage or topography on the dunes

B) The City Building codes shall be revised to prohibit destruction of existing vegetation in the active dune or dune restoration area. Where such damage is unavoidable, a three to one replacement ratio shall be required to offset the damage.

C) No building permit will be issued for any new or modified structure that does not include a dune walkover from the rear of the structure to the front of the dune target or maintenance line, clearing the dune surface by at least 3 feet. Such walkovers shall not be more than 4' wide. Until such walkover is completed, the property shall be fenced to restrict access to the beach directly from the structure.

D) No structure, building, impervious service, lawn, retain wall, swimming pool, spa, or deck will be permitted within 150' of the target dune line.

Policy 5.02.10

All hard erosion structures, public and private, shall be mapped into the GIS mapping system by July 1, 2109

Policy 5.02.11 The City will prohibit use of any vertical structure or seawall east of the CCCL. Existing ones which fail or need replacement may only be replaced sloped shorelines stabilized by approved dune-beach development, living shorelines, or other approved system that will recreate habitat and provide improved storm protection for upland areas.

The City may condemn any property protected by a seawall that has failed or provides inadequate protection for the property of others.

Policy 5.02.12 The City will develop a relationship with the FDEP that any CCCL applications will in the City will be shared with the Floodplain Manager. The City reserves its right under State law to impose additional requirements to protect the beach-dune system east of the CCCL, before a building permit can be issued. All additional requirements shall be as spelled out in this management plan.

Policy 5.02.13 The City recognizes that the beach renourishment activities of the of Nassau County Shore Protection Project are critical to replace the natural littoral sand movement process that navigation channel maintenance precludes on our beaches. The City is committed to continuing to work and pay for its contracted share of this process. It also will work with coastal scientists as well as coastal

engineers of the partner agencies to promote a renourishment effort which develops the entire nearshore-beach - dune system.

The City Floodplain manager will monitor and participate in initiatives to improve beach protocols of the US Army Corps of Engineers, the Florida Department of Environmental Protection, the American Shore and Beach Preservation Association, the National Research Council and others. Of particular concern in the 2019 to 2022 time frame will be the South Atlantic Coastal Study headed by the USACE.

The City Floodplain Manager will initiate programs to better understand the nature of the beach compatible sand on the beaches and dunes of the city. The city will by January 1, 2020, convert to monitoring the state of the offshore-beach-dune system to determining when renourishment scheduled and how to adjust the program by use of LiDAR generated DEMs and models in the City's GIS

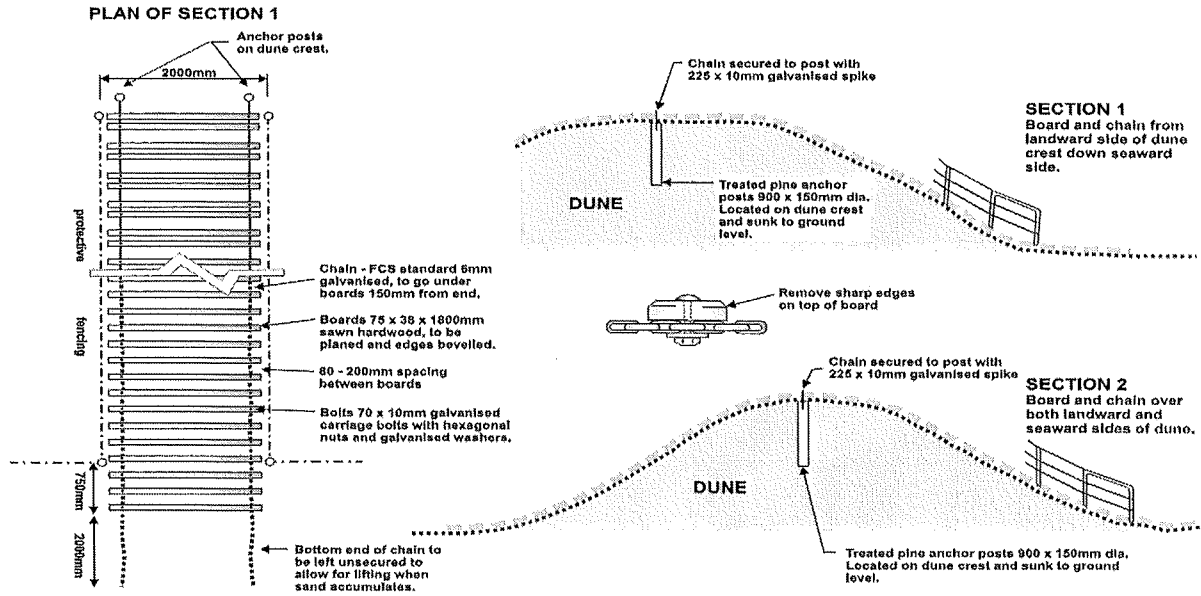
Policy 5.02.14 (New)

The beach and dunes will be managed proactively to protect and provide habitat to a variety of endangered and threatened species of flora and fauna , as identified in The Florida Imperiled Species Management Plan 2016 and the Florida Beaches Habitat Conservation Plan. All dune and beach management efforts shall be consistent with these plans to protect such species as the Right Whales, Gopher Tortoise, Beach Mice, Sea Turtles, Piping plovers, Rednots and other shorebirds. The City will continue to work with and support the highly successful Amelia Island Sea Turtle Watch, Inc. in the protection of these important species.

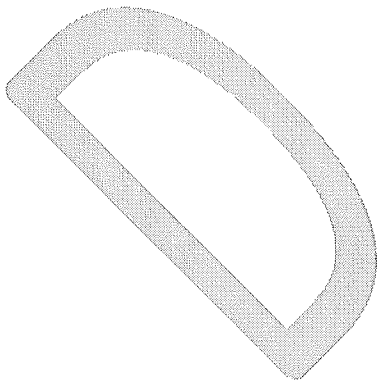
Policy 5.02.15 (New)

The Flood plain Manager will develop a stakeholder outreach program to obtain community input and to educate residents and visitors about need and advantages of a healthy dune and beach. The City will work with the TDC to tout the advantage of a beach destination with a viable and interesting dune /beach system

Submitted by Frank Hopf, Ph.D (Coastal geomorphology Texas A&M University 2011); P.E. (Texas); Member American Shore and Beach Preservation Association, *Phi Beta Kappa, Tau Beta Pi , and Beta Gamma Sigma*



Appendix A Dune Driving Crossover Design (From *Coastal Dune Management*, Department of Land and Water Conservation, New South Wales state, Australia)



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Beach Access walkover construction priority List (4/29/2019)

New/old #	Cross street	Walk Over	Current length	Ultimate length	ADA Rank	Structural Rank	Protection Priority	Service area	Priority score	Estimated \$
18	9 Jasmine	Y	20	175	3	3	6	6	5	4.62 \$
17	8 Maryland	N		150	3	3	6	6	4	4.29 \$
16	6 New York	N		162	3	3	6	6	4	4.29 \$
11	4N W 1st	Y	30	150	5	5	5	5	3	4.29 \$
9	6N W 3rd	Y	15	150	5	5	5	5	3	4.29 \$
Driveover 2	Sadler	N/A		70	3	3	4	4	5	3.96 \$
12	Main Beac Atlantic Dolphin	Y	515	975 Y	3	3	4	4	5	3.96 \$
3	North Beac North Beach Park	Y	330	410 Y	3	3	5	5	4	3.96 \$
27	Seaside Pk Sadler	Y	300	330 Y	2	2	4	4	5	3.63 \$
19	10 Wisconsin	Y	89	225	4	4	4	4	3	3.63 \$
15	5 Alabama	N		175	3	3	6	6	2	3.63 \$
7	New W 5th	N		150	3	3	5	5	3	3.63 \$
4	9N W 8th	Y	40	150	3	3	5	5	3	3.63 \$
1	16N Lisa	Y	50	150	3	3	5	5	3	3.63 \$
10	5N W2nd	Y	40	150	3	3	5	5	2	3.30 \$
8	7N W4th	Y	40	150	3	3	5	5	2	3.30 \$
6	New W6th	N		150	3	3	5	5	2	3.30 \$
5	8N W7th	Y	40	150	3	3	5	5	2	3.30 \$
Driveover 1	Main Beach	N/A		70	3	3	4	4	3	3.30 \$
41	35 Manatee	Y	235	380	3	3	4	4	3	3.30 \$
40	34 Mantanzas	Y	370	400	3	3	4	4	3	3.30 \$
38	31 Hutchens	Y	210	325	3	3	4	4	3	3.30 \$
22	13 Jefferson	Y	45	225	3	3	4	4	3	3.30 \$
21	11 Colorado	N		160	3	3	4	4	2	2.97 \$
20	10 South Kentucky	N		225	3	3	4	4	2	2.97 \$
2	New Gisell	N		150	3	3	5	5	1	2.97 \$
14	2 Amelia	N		230	3	3	3	3	3	2.97 \$
13	1 Nassau	N		150	3	3	3	3	3	2.97 \$
45	38 Osceola	Y	160	320	5	5	1	1	2	2.64 \$
39	33 Oklawaha	Y	245	380	1	1	4	4	3	2.64 \$

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37	30 Simmons	Y	220	335	4	1	3	2.64 \$	160,750
23	14 Rachel	N		220	3	3	2	2.64 \$	109,000
43	36 Kissimmee	Y	250	395	4	1	2	2.31 \$	187,750
36	29 South Casino	Y	240	340	4	1	2	2.31 \$	163,000
35	28 North Casino	Y	230	310	4	1	2	2.31 \$	149,500
34	27 Allen	Y	235	325	4	1	2	2.31 \$	156,250
29	21 South B	N		355	3	1	3	2.31 \$	169,750
28	21 John Robes	N		300	3	1	3	2.31 \$	145,000
26	18 Roosevelt	N		250	3	3	1	2.31 \$	122,500
25	16 Cleveland	N		240	3	3	1	2.31 \$	118,000
24	15 Madison	N		253	3	3	1	2.31 \$	123,850
46	39 Ozello	Y	255	400	4	1	1	1.98 \$	190,000
42	35 South Suwanee	Y	260	405	3	1	2	1.98 \$	192,250
47	40 Pasco	Y	200	300	3	1	2	1.98 \$	145,000
44	37 Alachua	Y	460	490	3	1	2	1.98 \$	33,500
33	25 Mizel	Y	230	300	3	1	2	1.98 \$	51,500
32	24 Askins	Y	285	365	3	1	2	1.98 \$	56,000
31	23 D	Y	245	295	2	1	2	1.65 \$	42,500
30	22 C	Y	205	270	2	1	2	1.65 \$	49,250
								\$	5,157,000

Dune Priority Ranking Based on Dune Protection Class (Lowest 1, Highest 6)

Ranking	Description	Location in City Limits
1	Class A Dune width in excess of 200'. FEMA VE and AE 1% zones end in dune ~8800'	Beach access 35 to South City line 3136 Fletcher to Beach Access 21
2	Class B Dune width less than 150', FEMA VE and AE 1% zones about structures ~1200'	1720 to 1962 Fletcher
3	Class C Dune width less than 50' FEMA VE and AE 1% Zones impact structures but not public roads ~6038'	932 to 1720 Fletcher 348 Fletcher to Main Beach

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- 6 Class D Dune width less than 50' FEMA VE and AE 1% Zones impact Public infrastructure and structures on west side of road way ~3100' 348 to 932 Fletcher
- 5 Class E Dune width 50'-100' FEMA VE and AE 1% Zones with public infrastructure and significant private structures behind the dunes. Full protection will likely require an elevation 9' berm from the coastal dune to the high dune ~7500' North of Main Beach to State Park
- 4 Class F Dune width adequate but height, volume and habitat value damaged by vehicle and pedestrian access. Structures protected by retaining walls or not protected from 1% Storm flood ~3600' 3136 Fletcher to Walkover 35 Access 21 to 3136 Fletcher Main Beach

Structural Priority List based on Gillette and Associates March 2019 preliminary report.

A 3 assigned to locations without walkovers

Service Area Priority based on estimate of number of parking spots and residents without private beach access that are closest to that particular access, 5 most active, 1 least

Weighting of the factors:	Structural safety of Walkover-	0.33
	Protection of dunes	0.33
	Relative visitor use	0.33

Water Quality 5.07

Educate Residents about the Impact of lawn fertilizers, pesticides and herbicides on island waters.

(Explained in the booklet, "Florida Yards and Neighborhoods" – UF extension – or FloridaYards.org)

Eagans Creek and Amelia River

Need buffer zone around water edges. Add requirement of 25' buffer zone with native vegetation. (Same as Nassau County). Limited mowing, and a 40' buffer for fertilizers and pesticides.

Educational campaign, in print and/or on social media, explaining the reasons for this buffer. (Explained in the booklet, "Florida Yards and Neighborhoods" – UF extension.

Septic Systems 5.07.07 and 4.03.08

Intergovernmental coordination - City Needs to have a working relationship with county health department

Septic Systems As referenced in 5.07.07 and 4.03.08

Need an enforceable requirement for testing the integrity of the septic systems.
Need to adhere to water quality testing requirements according to state guidelines.
Record results and, if outside limits, then enforcement...

A requirement for repair/replacement of leaking systems, or hook up to city sewer when possible.

This also needs to apply to county properties that impact city property. (Intergovernmental coordination). Example: County residential property adjacent to the Greenway.

Wildlife Planning 5.10.01

Increased development is stressing wildlife, one of the gems of our island.

Most significantly, mammals, need land and territory for movement.

Policy 5.10.04 calls for a plan for Wildlife Corridors.

Policy 5.10.07 States that potential wildlife corridors should be a high priority in the land acquisition priority assessment. Focus: The Greenway needs to be extended south of Sadler.