

## **The Need for a Dune Protection and Enhancement Plan for Amelia Island**

The simple answer to why we are proposing a dune protection plan now is the fact that last fall there was growing community and commission pressure to better protect our dunes. The City Attorney took on the task of drafting one and in November, sent me an email asking for help with the technical aspects of the task since I have been studying and working to protect our dunes since Hurricane Matthew. I agreed to provide a technical document and she would craft it into a legal document. However, to help her establish as much precedence as possible, I did follow her request to copy language from other city, county, and even community association codes. I reviewed at least forty rules and regulations from other communities to borrow the most established language available. I reviewed my draft with many in our community who have been concerned and have studied our dunes for years and was able to incorporate additional insight. In January I submitted the first draft to Ms. Bach and a second draft in February. In November 2023 Conserve Nassau expanded the plan to make it Island-wide with submittal planned to both Nassau County and the City

### **Critical Protection**

Folks living on the coast soon recognize that the dunes are the main protection against flooding from storm waves. In fact, they are virtually the ONLY chance for protection from the 100-year storm wave, one that has not hit the city in over 125 years. The dunes also provide a special, fragile habitat that provides homes, nurseries, and resting spots for a variety of endangered, threatened and just plain endearing native fauna. They are a large part of the natural beauty and wonder that attract both visitors and residents to our island.

The dunes provide protection against highest wind velocities for the rest of the island, they help protect against saltwater intrusion in our groundwater, and they provide protection against a storm larger than a 100-year storm from carving out a new channel across the island.

The reality is that Amelia Island is blessed with a very protective dune system and the Fernandina Beach -Nassau County-US Army Corps of Engineers-US Navy Shore Protection Project gives us the opportunity to protect and grow our protective dune even more. Many coastal communities have lost their protective dunes and some like Flagler Beach are now almost completely dune less. As a result, on July 23, 2023, a storm washed a section of the shoulder of A1A into the ocean for the second time in less than a year.

For many years, we all believed, and FEMA agreed, that almost all AI beach homes, condos, and apartments were high enough that they had less than a 0.2% chance of being damaged by storm waves. Reliance on the US Weather Bureau's "Sea, Lake, and Overland Surges from Hurricanes (SLOSH)" maps to identify the Coastal High Hazard Area of the City and County has added to the false sense of security along the beach front. The SLOSH maps represent a real advance in flood emergency response planning, but they do not account for the damage storm waves cause when they ride on the top of the storm surge. But in 2012, Superstorm Sandy ravaged the barrier islands and shores of New Jersey and Long Island. FEMA and everyone else realized that storm waves could easily tear the sand out from under homes regardless of their elevation if the dune in front was not big and strong enough to take the beating. Absorbing huge insurance losses, FEMA set out to reevaluate and remap this risk nationwide. One only must look at Daytona Beach during the passage of then tropical storm Nicole in November

2022 to see the damage the waves can do to properties that the SLOSH maps cannot identify as being at risk.

In September 2017, FEMA released new ratings for Amelia Island and most structures north of Sadler on the beach (including many on the inland side of Fletcher) were identified as being in the 1% (One-hundred-year flood) VE Special Flood Hazard Zone (SFHZ). I have reviewed the details of the mapping and most accepted research and can confirm that the risk is real and the assessments accurate. The research and the Federal legislation identify that a property needs to have a dune with at least 540 cubic feet of sand ABOVE THE 100-YEAR FLOOD LEVEL for every foot of beachfront to be safe from the 1% storm's waves. Debates rage whether 540 cubic feet/foot is too much or too little volume. And the rule ignores a lot of important other factors. But the bottom line is that Congress has made it the Law of the Land. For those beautiful homes now so classified, that automatically means that flood insurance is required for financing. And the cost of that flood insurance increased with that announcement. This really triggered my determination to help the island do a better job of protecting its protective dunes.

Thanks to the NCSPP, the natural supply of sand coming from the north has been artificially restored after it was interrupted by the jetty for over 100 years. The result is that the dunes south of Sadler have grown big enough that the homes and swimming pools are NOT in the flood hazard zone. The great news is that this happened with very little cost to the community. The City's southern beaches have seen less tourist and other beachgoer impacts and the dunes have recovered over the past 20 years to provide the protection not enjoyed since 1870. But to build the beach front out of the SFHZ the City needs to provide a little more protection. So, the draft plan includes some common-sense restrictions on beach access and use. These rules need to apply to even the well-developed dunes because if you live on the beach, there is never too much dune protection. There will be bigger storms than the 100-year storm.

### **Low-Cost Strategies and Prioritization**

There are some low-cost things we can do to hasten the dune recovery and build up. Several folks have made substantial improvements to the dunes protecting their homes by planting the proper native dune vegetation. And many helped with the volunteer planting of the dunes along the very vulnerable Ocean Avenue section. I am confident the sand volume gained at one of the private home locations now satisfies the 540 requirement and I plan to apply for a recertification of that property (the other properties already were already out of the flood hazard zone.) The draft plan provides guidance for the things we can do to enhance dune development.

The draft plan suggests that the City and County goals should be that the dunes be developed so that all homes and buildings are out of the VE flood zones. Recognizing that our dunes do not provide equal protection today, the plan breaks the dunes into six prioritization zones depending on how much volume remains to be added to achieve the goal. The same rules will apply in all classes, but emphasis will be placed on promoting development in the higher risk areas, especially in spending public resources.

### **Dune Walkovers**

Whereas most of the dune development efforts require relatively small expenditures if done in accordance with the Plan, one set of expenditures looms large. Those are the dune walkovers required where we need to get significant numbers of tourists and residents with their wagons and coolers to the beach with minimum damage to the dune. The City owns about 30 of these, six built in the past three years, and about 45 beach accesses. Most of the older walkovers are at the end of their fifteen-to-twenty-year usable lives, require a lot of maintenance and still pose significant safety hazards.

On April 21, 2021, the Beach Access Committee of Fernandina Beach, a special committee of Fernandina Beach residents commissioned by the City Manager issued a report which identified the critical guiding principles to insure safe and convenient beach access while protecting and develop the dune system, at the lowest lifetime cost for the community. This plan reinforces and seeks to codify the guiding principles that the committee identified as "Very Important" or "Extremely Important" to accomplish the goals of the City.

### **Coastal Upland Protection Zone (CUPZ)**

The final set of issues relates to what the legislature defined as Coastal Upland Protection Zone (CUPZ), defined in Florida Code Section 161. On a barrier island it is defined as the area not more than 5,000' (or the width of the island) but not less than 2500' inland from the Coastal Construction Control Line (CCCL). This law recognizes the fact that the beaches of Florida are very young landforms and they run in a very narrow strip around the state, having been created in the last 6000 years by rising sea levels. They are generally less than a mile wide and they must be protected as a unit.

Amelia Island is really two sand dunes. One is an old formation created 1300,000 years or so ago when the seas were higher. The other is the younger Holocene Era deposit we know as "the beach and dunes." This Holocene beach/dune provides not only the economic engine of the state and county, it and its native vegetation also provide critical services to life in areas inland. These services include hosting in its higher elevations, the dune hammock, the first oaks and magnolias of the Maritime Forest. These beautiful, contorted, and stunted hammock trees take and blunt the full force of tropical cyclone winds and help absorb the killer salt in the onshore gales and breezes.

Like all trees on the island, those of the dune hammock are integrated with the local water table. The shallow water table of the Holocene dunes feeds the native plants on the entire island. Further it provides hydrostatic pressure to control saltwater intrusion from the ocean. The current land development code recognizes the need to protect this water table by preserving the topography of the and protecting the hummock tree of the CUPZ. However, recent development including the destruction of dune slopes at 1507 South Fletcher, along First Avenue and on the far north end of the island and in on Little Nana dune in American Beach called for inclusion of stronger protections in the draft plan. Unwarranted cutting and trimming of the hammock trees expose everything and everyone inland from them to greater risk of tropical wind damage and salt hazards. And any cutting or trimming of these critical trees is unwarranted and is prohibited by this plan,

The good news is that most of the privately held properties in the critical area CUPZ have already been developed without violating the strengthened requirements. Therefore, the few remaining undeveloped

lots not available for conservation land can be developed successfully within the guidelines. Perhaps the larger threat is the ongoing teardown and rebuild-BIGGER-process going on the island.

So the draft plan has been offered as a way to protect the island and its flora and fauna from destruction. It takes full advantage of the free help nature and natural processes offer us in this regard.

**Finally, compliance with Comprehensive Plan,**

The Comprehensive Plan of Fernandina Beach induces a requirement for adoption of a Dune Protection ordinance by 2013. Previous City Management and Commissions claimed that the acceptance of Engineering Documentation Report (EDR) - Dune Resilience by the U.S. Army Corps of Engineers Jacksonville District November 2019 constituted approval of a "Dune Protection Plan" but that is not the intent or effect of the report. The report identified about a million dollars' worth of projects at Main and Seaside beaches that would be required to build artificial dunes to meet the USACE standards to prevent beach erosion but nothing to meet the goals of meeting FEMA standard for flood protection.

The report generalizes about protecting the dunes but with no specifics. The dune protection plan incorporates the required specifics, consistent with the USACE report's general suggestions.

Further, because of what they have learned from recent hurricanes, USACE is officially and deliberately moving toward natural and nature-based methods of coastal engineering and protection, the same principles this draft dune protection plan promotes.

CN would be happy to discuss the details of the proposed plan. Conserve Nassau began hosting public presentations and discussions on dune protection for the public in October, and we also plan to encourage the County to adopt these recommendations. U-tube videos of the public presentations are available on the CN website [www.conservenassau.org/dunes](http://www.conservenassau.org/dunes).

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