

**Nassau County 2030 Comprehensive Plan
Coastal Management Element**

Background Data and Analysis

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Introduction

The purpose of the Coastal Management Element is to provide for the responsible use and management of coastal resources related to development activities, protection of human life, the limitation of public expenditures in areas subject to natural disaster and protection of wildlife and natural habitat. The element focuses on the proper use and management of the County's coastal resources such as beaches, estuarine marshes and coastal waters, which are key to major components of the County's economy, especially tourism and commercial fishing.

The Coastal Management Element was developed from analysis of various factors and conditions affecting the coastal areas of the County. The evaluation included review and analysis of conditions related to existing land uses, the economic base of the coastal area, the effects of future land use on coastal resources, estuarine pollution, beach and dune systems, public access, hurricane evacuation, coastal high-hazard areas and post-disaster redevelopment.

It is the intent of the County to promote the responsible management of its coastal area, and to balance the provision of water-related recreational activities and the protection of working commercial waterfronts with the preservation of coastal and natural resources. The proper management and use of this area is necessary for the protection of life and property from natural disasters as well as the conservation of natural resources.

The element is divided into three (3) sub-elements, incorporating the coastal environment, coastal hazard mitigation and water-dependent uses. Each sub-element is constructed as a stand-alone document with its own data and analysis, goals, objectives and policies.

Recommendations Incorporated from the 2008 EAR & Vision 2032 Final Report

Beach Access

- Complete a study analyzing existing public beach access and demand to establish future beach access requirements based upon projected populations. incorporate the findings into the Parks & Recreation Master Plan, Recreation and Open Space, and Coastal Management Elements. *(EAR, Issue 10: Create a first-class parks and recreation system)*
- Incorporate a beach access and parking plan into the proposed Recreation Master Plan that will assure maximum accessibility to public beaches while providing sufficient protection to maintain the current quality of the beach and dune system. *(EAR, Issue 10: Create a first-class parks and recreation system)*

Boat Facilities

- Improve access to waterways through acquisition of land and construction of additional boat ramp parks with a mix of outdoor recreational facilities using grant funding and impact fees. *(Vision 2032, QOL Issue 4: Recreation and Open Space)*
- Create an inventory of existing boat facilities, i.e. marinas and boat ramps, and evaluate the need for additional facilities at least once every five years. Incorporate the findings into the Parks & Recreation Master Plan. *(EAR, Issue 10: Create a first-class parks and recreation system)*

Shoreline Land Uses

- Coordinate with DEP, Corps of Engineers and other relevant agencies to adopt Land Development Regulations that specify performance standards for shoreline land uses. *(EAR, Issue 1: Update the future land use plan)*

Coastal Environmental Resources

- Promote increased “limited activity” setbacks from water bodies including rivers, lakes, streams, and creeks. *(Vision 2032, QOL Issue 1: Conservation and Preservation of the Natural Environment)*
- Request that DEP, Florida Fish and Wildlife Conservation Commission and other stakeholders review the Coastal Management Element and provide recommendations for improving County protection of Aquatic Preserve resources. *(EAR, Issue 6: Preserve environmental resources)*

Existing Regulatory Framework

Federal

The Federal Coastal Management Program is based on the Coastal Zone Management Act (CZMA) of 1972 its amendments (1976, 1989) authorizes a Federal Grant-in-Aid program to be administered by the National Oceanic and Atmospheric Administration (NOAA) through its Office of Coastal Zone Management (OCZM). The CZMA affirms a national interest in the effective protection and careful development of the coastal zone by providing assistance and encouragement to coastal states to develop and implement management programs for their coastal areas.

The CZMA provides broad guidelines and basic requirements to direct the development of state and local coastal management programs. Financial assistance grants under Section 305, program development, and Section 306, program implementation, are authorized by the CZMA to provide coastal states with the means for achieving these objectives.

The U.S. Army Corps of Engineers (USACE) has traditionally permitted and regulated dredge and fill activities in navigable waters of the United States. Section 404 of the Federal Water Pollution Control Act amendments of 1972 extended the jurisdiction to not only include navigable waters but artificially created channels and tributaries connected to navigable waters. This amended act also included dredge and fill operations in wetland and adjacent to navigable waters.

State & Regional

The Florida Coastal Management Program is based on existing statutes and regulations as required by the Florida Coastal Management Act of 1978 (Chapter 380, F.S., Part II). The laws and statutes apply statewide, therefore, the boundary of the Florida Coastal Management Program is the entire State, including the territorial sea. Based on the authority of the Florida Coastal Management Act of 1978, the Department of Environmental Protection (DEP) has compiled a program of policies and legal authorities codified under the Florida Statutes.

The Coastal Zone Protection Act of 1985 established a statewide coastal building zone within which, certain construction requirements were to be applied. Modifications to make the law more functional were accomplished by the 1986 revision to the Coastal Zone Protection Act of 1985. The 1986 Legislature also provided the means for a coastal construction education program. The program is to include the development of a coastal construction training manual and a deemed-to-comply inspection manual for coastal building inspectors. A Model Coastal Construction Code has been prepared by a special working group of construction industry professionals and government representatives in order to help local governments implement the Coastal Zone Protection Act.

In 1986, the Florida Legislature adopted a position of protecting and restoring the state's beaches through a comprehensive beach management planning program. Under the program, DEP's Bureau of Beaches and Coastal Systems evaluates beach erosion problems throughout the state seeking viable solutions. The primary vehicle for implementing the beach management planning recommendations is the Florida Beach Erosion Control Program, which is a program established for the purpose of working in concert with local, state and federal governmental entities to achieve the protection, preservation and restoration of the coastal sandy beach resources of the state. Under the program, financial assistance in an amount up to 50 percent of project costs is available to Florida's county and municipal governments, community development districts, or special taxing districts for shore protection and preservation activities located on the Gulf of Mexico, Atlantic Ocean, or Straits of Florida.

The St. Johns River Water Management District (SJRWMD) is primarily responsible for controlling storm water runoff on a regional basis with independent drainage districts managing runoff on a sub-regional basis.

The Florida Inland Navigation District (FIND) is a special State taxing district for the continued management and maintenance of the Atlantic Intracoastal Waterway. In this capacity the District provides all lands required for the navigation project, including rights of way and lands for the management of dredged materials removed from the waterway channel during dredging activities. Funding assistance is provided to other governments within the District to develop waterway improvement projects such as access channels, boat ramps, public marinas, fishing piers, boardwalks, waterfront parks, environmental enhancement/restoration, environmental education and boating safety. FIND is responsible for and provides dredge material sites pursuant to 9J-5.006(1)(f)3.

Local

The County enforces all State regulations and requirements concerning coastal construction and is currently preparing its own local Coastal Construction Code. The County continues to coordinate with other agencies and municipalities to ensure compliance with National Pollution Discharge Elimination System (NPDES) regulations, and particularly with DEP and the SJRWMD regarding its role in complying with State water quality regulations (Chapter 62-43, F.S.).

Aside from compliance with federal and state programs, The County does not have its own coastal management program.

Coastal Planning Areas

Rule 9J-5.003(18) of the Florida Administrative Code provides that a County's designated "coastal planning area" shall be an area of the local government's choosing; however, this area must encompass all of the following where they occur within the local government's jurisdiction: water and submerged lands of oceanic water bodies, or estuarine water bodies; shorelines adjacent to oceanic waters or estuaries; coastal barriers; living marine resources, marine wetlands, water-dependent facilities or water-related facilities on oceanic or estuarine waters, public access facilities to oceanic beaches or estuarine shorelines, and all lands adjacent to such occurrences where development activities would impact the integrity or quality of the above.

When preparing and implementing the requirements of the Coastal Environment Sub-element, concerning water quality, water quantity, estuarine pollution, or estuarine environmental quality, the coastal planning area shall be all occurrences within the local government's jurisdiction of oceanic waters or estuaries as defined in Rule 9J-5.003 (see Map CEV-1).

When preparing and implementing the hurricane evacuation and hazard mitigation requirements of the Coastal Hazard Mitigation Sub-element, the coastal planning area shall be those portions of the local government's jurisdiction that lie in the hurricane vulnerability zone (HVZ). Rule 9J-5.003(57), F.A.C. defines the hurricane vulnerability zone (aka "areas subject to coastal flooding") as the areas delineated by the regional or local hurricane evacuation plan as requiring evacuation in the event of a 100-year storm or Category 3 storm event (see Map CHZ- 1).

The *Coastal High Hazard Area* (CHHA), which is illustrated on Map CHZ-4, is now defined in Sec. 163.3178(2)(h), Florida Statutes as the area below the elevation of the category 1 storm surge line as established by a Sea, Lake, and Overland Surges from Hurricanes (SLOSH) computerized storm surge model as established in the Northeast Florida regional hurricane evacuation study (HES).

The *Coastal Development Area*, as defined in the Future Land Use Element of this plan consists of the unincorporated portions of Amelia Island, lands adjacent to the Amelia River, and the lands surrounding the estuarine system of the Nassau and St. Marys Rivers. It is generally bound on the east by the Atlantic Ocean and the west by Blackrock Road north of A1A and C.R. 107 south of A1A. It also includes the southern area of Nassauville and Holly Point (see Map FL-6). This portion of the County is the most highly urbanized, is mostly located in hurricane vulnerability zone (HVZ), is subject to transportation limitations, and contains significant archaeological, historic and environmental resources. This area is defined separately from other coastal planning areas described above and its purpose is to serve as a guideline for future development and redevelopment. Because existing development patterns and environmental factors in this area create development limitations, policies in the Future Land Use Element discourage significant increases in residential densities in this area and encourage build out at densities presently permitted by the 2010 FLUM.

Coastal Environment Sub-Element

I. Inventory of Coastal Natural Resources

When preparing and implementing the requirements of the Coastal Environment Sub-element, concerning water quality, water quantity, estuarine pollution, or estuarine environmental quality, the coastal planning area shall be all occurrences within the local government's jurisdiction of oceanic waters or estuaries as defined in Rule 9J-5.003 (see Map CEV-1).

Barrier Islands

The County's coastal area is composed of a series of barrier island formations within a wide, relatively flat drainage basin. Much of the area consists of low lying transitional lands between high and dry uplands or sand ridges and the estuarine waters. Barrier Islands are vital to lessening the impact of storm surge from hurricanes to adjacent inland areas and can potentially reduce property damage in such inland areas by millions of dollars. The beach dune systems found there are also important to the proper functioning of barrier islands in protecting the inland and coastal residents from such storm surges. As sea turtle nesting grounds, shore bird habitat and foraging areas, and as habitat for a large variety of migratory birds along a renowned migration route, this is one of the finest natural resources in Nassau County.

Amelia Island is widely recognized as one of the most important and beautiful barrier islands in northeast Florida. The island is home to the City of Fernandina Beach and is the historical center of urban development in Nassau County. It affords enormous recreational, tourism and residential/commercial opportunities, many of which have already been realized. Amelia Island is critical to the economy of Nassau County and its natural resources have undoubtedly contributed enormously to the success of Amelia Island as a destination and community.

Natural communities found on or in association with Amelia Island include Maritime Hammock, Beach Dune, Coastal Interdunal Swale, Mesic Flatwoods and Estuarine Tidal Marsh.

Beaches and Dunes

The beach/dune and near-shore ecosystem is an integral feature of Nassau County and is invaluable in providing important recreational, commercial, environmental and storm protection functions.

Sand dunes and beaches exist in a constant state of flux due to the forces of wind, waves, and currents. Areas surrounding inlets are particularly susceptible to drastic changes and variable conditions. The County contains two inlets to the Atlantic Ocean: Nassau Sound, located between the south end of Amelia island and Big Talbot Island in Duval County; and Cumberland Sound, located between the north end of Amelia island and Cumberland Island, Georgia.

The shoreline of Georgia and Northeast Florida has experienced significant changes in position and volume over the past 150 years. Dramatic changes occurred as the result of the building of the St. Marys River and St. Johns River jetties in the late 1800s. While the construction of the jetties at the mouth of the St. Johns and St. Marys harbor was a localized event, the changes in erosion and accretion rates on islands to the south and north have been significant.

Estuarine Tidal Marsh

The Estuarine Tidal Marsh natural community dominates a very large proportion of the area lying behind Amelia Island, and formed by the confluence of the combined St. Marys, Nassau and Amelia rivers. This community is not only extensive, but is very well-developed and exhibits characteristics indicative of very high quality examples of this community type. This vast estuarine

system is one of the most ecologically and economically significant along Florida's northeastern coast.

Dominant species in the Estuarine Tidal Marsh community include smooth cordgrass (*Spartina alterniflora*) in what are often termed "low marsh" areas and black needle rush (*Juncus roemerianus*) and sawgrass (*Cladium jamaicense*) in what are often termed "high marsh" areas. Interspersed among these brackish water marsh systems are various small islands of what might be termed "Coastal Flatwoods" - a variant of Wet Flatwoods with some maritime influence and a conspicuous understory of cabbage palms and southern red cedar (*Juniperus silicicola*).

This community is highly significant as a nursery for many game and commercial fish species, important and economically valuable for hundreds of invertebrate species and as prime feeding grounds for a variety of birds, some of them rare and endangered. Although somewhat protected through regulatory means, the long-term conservation of this community type is not strictly assured.

These communities have many recreational and economic benefits, both direct and indirect in terms of the ecosystem services they provide. They provide tremendous economic benefits in terms of natural flood control, a vast commercial and sport fisheries nursery ground (including shell fish), are part of a nationally-recognized migratory bird route (bird watchings, barriers against hurricane and other storm surges, protection of land from erosion, carbon dioxide sink in salt marsh grasses and accumulating sediments, building land, wildlife habitat and production, hunting opportunities, canoe and kayak livery services and row crop based food production.

Surface Waters

Nassau County's surface water resources are, generally, in good condition. The enforcement of State, Federal, and local regulations, coupled with the public's generally increased awareness of the need to conserve and protect water resources have combined to protect these waters from the types of point and non-point sources of pollution which have degraded surface waters in other parts of the state. The primary threats to Nassau County's surface waters continue to include non-point source pollution generated by urban and agricultural runoff, leachate from septic tanks and package wastewater treatment plants, and erosion from improper land clearing activities.

Florida's water quality standards, the foundation of the state's program of water quality management, designate the "present and future most beneficial uses" of the waters of the state (Sec. 403.061(10), Florida Statutes). Water quality criteria for surface water and ground water, is expressed as numeric or narrative limits for specific parameters, describe the water quality necessary to maintain these uses. Florida's surface water is classified using the following five designated use categories:

- Class I- Potable water supplies
- Class II- Shellfish propagation or harvesting
- Class III- Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife
- Class IV- Agricultural water supplies
- Class V- Navigation, utility, and industrial use (there are no state waters currently in this class)

All waters in the Nassau- St. Marys Basin are Class III, except for the Class II waters listed below in Table CEV-1 and shown on Map CEV-1. Shellfishing is currently prohibited in all of the Class II waters in the basin.

Table CEV- 1 Class II Waters in Nassau County

Name	Description
Alligator Creek	Alligator Creek (in its entirety)
Nassau River /Creek	From the mouth of Nassau Sound (a line connecting the northeasternmost point of Little Talbot Island to the southeasternmost point of Amelia Island) westerly to Seymore Point.
South Amelia River	From Nassau River north to a line from the northern shore of the mouth of Alligator Creek to the northernmost shore of Harrison Creek; and waters between South Amelia River and Alligator Creek.

Source: Rule 62-302, FAC

Aquatic Preserves

The Ft. Clinch State Park Aquatic Preserve and the Nassau River-St. Johns River Marshes Aquatic Preserve (located in both Nassau and Duval counties) extend into the Atlantic Ocean as well as into surrounding estuarine systems. At 9,000 acres and 85,000 acres, respectively, these two State of Florida Managed Areas provide an enhanced degree of protection to the aquatic and fishery resources along the coastline of Nassau County. In Nassau County, waters located within the Ft. Clinch State Park Aquatic Preserve and the Nassau-St. Johns River Marshes Aquatic Preserve are designated Outstanding Florida Waters (OFWs). These waters are shown on Map CEV-1.

Dredged Material Management Areas (Spoil Sites)

The identification and permitting of suitable dredged material management areas for the Atlantic Intracoastal Waterway (AIWW) in Florida has become increasingly difficult. This has resulted from the nature of dredging, the requirements of handling and storing dredged material, and the environmentally sensitive and rapidly developing areas in which these operations are performed. In response to this situation, the Florida Inland Navigation District (FIND) initiated in 1986 a program of long-range dredged material management. When fully implemented this program will provide a permanent infrastructure of management facilities for all maintenance material dredged from the Intracoastal Waterway channel connecting Fernandina Harbor in Nassau County with Miami Harbor in Miami-Dade County.

This planning effort, executed in close cooperation with the Jacksonville District of the U.S. Army Corps of Engineers (USACE), has identified approximately 23 million cubic yards of sediment to be maintenance dredged from the 398 miles of the Intracoastal Waterway channel over the next fifty years. Of this dredging volume, 12 million cubic yards of sand has been identified as potentially beach quality material and 8 permanent beach placement areas have been identified and designed for these materials. The other 11 million cubic yards of sediment contains levels of silt that preclude this material from being placed on the beach. These sediments will be temporarily stored in 53 upland containment sites where the material will be selectively excavated and used beneficially. Two of these sites are located in Nassau County, one at the north end of Crane Island (NA-1) and one at the south end of Amelia Island on Nassau Sound (NA-NS). They are illustrated on Map CEV-2.

II. Analysis and Recommendations

Although Amelia Island is nearing build-out, and the County's 2030 Comprehensive Plan will adopt policies to direct new development outside coastal areas, it is still anticipated that population growth within the coastal area will continue and will have significant impact on the coastal natural resources of the County. Federal, State and County entities need to work in coordination to regulate coastal development to lessen its impact on the natural environment.

Maintaining the Quality of Beach And Dune Systems

Most of the beach and dune protection activities in Nassau County are handled by a combination of state and local government programs.

The Department of Environmental Protection (DEP) Beach Erosion Control Program is a program established for the purpose of working in concert with local, state and federal governmental entities to achieve the protection, preservation and restoration of the coastal sandy beach resources of the state. The program provides project managers for coastal projects proposed for funding or funded by the state in partnership with local governments and the U.S. Army Corps of Engineers (USACE). They assist in management activities which facilitate the preservation and enhancement of coastal beach habitat.

The St. Mary's River Entrance is part of the federally authorized *Fernandina Harbor Navigation Project* and is the entrance to the Port of Fernandina and Kings Bay Naval Base. Maintenance dredging generally occurs on an annual basis with beach quality sand placed on the inlet shoreline at Fort Clinch State Park, on the ocean shoreline of Fernandina Beach, or in a near-shore disposal area. DEP adopted an inlet management plan in May 1998 that established an annual objective to bypass suitable sediment to the downdrift beaches. Improvements to the groin field at Fort Clinch as recommended in the plan were completed in 2000. Sand placement from maintenance dredging occurred in the groin field and at the south jetty in 2007.

In 1994, the *South Amelia Island Beach Restoration Project* was constructed along a 3.1 mile segment of critically eroded beach along the southern portion of Amelia Island, including the South Amelia Island Shoreline Stabilization Association (SAISSA) and Amelia Island State Park. Dredging of the Atlantic Intracoastal Waterway (AIWW) is scheduled for every 3 to 5 years with placement of beach quality sand along this segment of beach. To stabilize the south end of the island, a terminal rock groin was constructed in 2004. Due to the importance of emergent shoals in Nassau Sound for migrating and resident bird populations, the terminal rock groin was designed to allow for the continued movement of sand across the sound to feed the emergent shoals.

The *Nassau County Federal Shore Protection Project* was constructed along Fernandina Beach in the summer of 2008. The purpose of the project was to widen and restore the sandy beach along approximately four miles of shoreline from Fort Clinch State Park to just south of Sadler Road. The project will be maintained through monitoring and periodic nourishment.

DEP also administers the Coastal Construction Control Line (CCCL) program. DEP regulates all development seaward of the CCCL to ensure the development has minimal impact on the beach and dune system and can survive a major storm. As part of the coastal construction permitting process, 30 years of erosion must be considered, and Florida law prohibits, with limited exceptions, construction of buildings that would be in the water in 30 years. FDEP jurisdiction is limited to areas seaward of the CCCL. State law also prohibits driving on dunes and picking sea oats, vegetation that is crucial to supporting the structure of the dune system.

The County protects beaches and dunes primarily through its building code and by coordinating with developers and the state of Florida during the development review process. The county's

coastal building code requires buildings to be sited so as not to interfere with the natural shoreline fluctuations and the storm buffering capability and stability of the dune shall not be diminished.

A significant amount of coastal dunes and their related ecological communities have been protected through the Development of Regional Impact (DRI) for the large resort developments on the south end of Amelia Island, such as Summer Beach and Amelia Island Plantation. The development of Amelia Island Plantation was based on a master plan developed in the 1970s to balance development while protecting environmentally sensitive coastal communities and encouraged architectural designs that blend with the natural environment.

The 2010 comprehensive plan contained and objective and related policies that direct development away from the shore and dune system so that these natural resources would be preserved. Policies required the preservation of vegetated oak hammock and dune interface areas to ensure protection of primary and secondary dune systems. The policy also requires development to minimize damage in all areas of the dune system. The County will maintain similar policies for the 2030 comprehensive plan.

Maintaining the Quality of Estuarine Systems

The County's vast estuarine system formed by the confluence of the St. Marys, Nassau and Amelia rivers is one of the most ecologically and economically significant along Florida's coast. This community is highly significant as a nursery for many game and commercial fish species, important and economically valuable for hundreds of invertebrate species and as prime feeding grounds for a variety of birds, some of them rare and endangered. Although somewhat protected through regulatory means, the long-term conservation of this community type is not guaranteed. Loss of natural habitat is the inevitable result of increased residential and commercial developments in the coastal zone. Loss of habitat is the most significant concern regarding the survival of species designated as being threatened or species of special concern.

As with all wetlands, the County restricts development in the estuarine tidal marshes that form these important natural communities. Approximately 32,000 acres of publicly and privately owned marshlands in the coastal areas are designated for conservation uses on the Future Land Use Map (FLUM). Private lands under this designation are often used for wetland mitigation efforts. Other wetlands having an influence on estuarine systems fall under the Wetlands Limited Development Overlay District, and overly encompassing all jurisdictional wetlands within the County. The County will generally discourage development in these areas and limits residential development to a maximum residential density of one unit per 5 gross acres. The overlay district and its requirements are detailed in the Future Land Use Element.

The ecological and economic importance of the varied creek and stream systems that form the Nassau-St. Marys watershed is enormous. Not only do they themselves provide significant wildlife habitat, they flow into the larger riverine systems that feed and support the estuaries. Without the protection of the lands that encompass the watershed, including various types of pine flatwoods that provide slow release of groundwater into these creeks and streams, the sustainability of Nassau County's estuarine-based systems and its associated and economic activities will be diminished.

The "green infrastructure" concepts proposed in the Conservation Element envision the creation of natural corridors that would provide linkages between existing public and preserved lands and represent the most valuable natural habitats, support critical environmental functions and meet the recreational needs and lifestyle choices of current and future generations. Preservation on private property could be achieved through incentives such as transfer of development rights, wetland and open space credits and public acquisition, in whole or in part, through fee simple or less than fee acquisition. Coastal resources and associated natural communities that support the

health of the St. Marys-Nassau watershed and the associated estuarine systems should be priority areas for conservation .

Nassau County's surface water resources are, generally, in good condition. The enforcement of State, Federal, and local regulations, coupled with the public's generally increased awareness of the need to conserve and protect water resources have combined to protect these waters from the types of point and non-point sources of pollution which have degraded surface waters in other parts of the state. The primary threats to Nassau County's surface waters continue to include non-point source pollution generated by urban and agricultural runoff, leachate from septic tanks and package wastewater treatment plants, and erosion from improper land clearing activities. Non-point source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution occurs when rainfall, snowmelt, or irrigation runs over land or through the ground, picks up pollutants throughout the watershed, and deposits them into rivers, lakes, and coastal waters. As the designation "non-point" implies, it is often difficult to isolate the source of these pollutants, and even more difficult to develop and successfully implement programs to reduce the amount of such pollutants which enter the surface water system because such programs usually rely on public education and voluntary compliance.

Policies in the Coastal Environment Sub-Element regulate development for the purpose of limiting non-point pollution by requiring the on-site treatment of stormwater runoff before it is released from the site; requiring construction bordering estuarine systems to control surface water runoff during and after construction activities; and technical standards for the treatment of surface water before it is released into adjacent water bodies. The county will also address stormwater runoff issues through the development and implementation of a stormwater master plan. A detailed description of this project is provided in the Stormwater Management Sub-Element of the Public Facilities Element.

In 2003, the County adopted the St. Marys River Overlay District as part of the Land Development Code. The overlay district is also now incorporated into the Comprehensive Plan as part of the Future Land Use Map (FLUM) Series. The intent of the overlay district is to protect and preserve the water quality, natural habitats, diverse wildlife, and recreational value of the St. Marys River. The overlay district, applicable in all zoning districts, establishes minimum lot area and width (one acre and 100 feet, respectively) for properties along the river, and prohibits on-site sewage and disposal systems within one hundred (100) feet of the riverbank.

Although agricultural operations can have a significant impact on surface water quality, some of these activities are exempt from SJRWMD permitting requirements. The county should continue implementing its current comprehensive plan policies that require the use of the Florida Division of Forestry's best management practices (BMPs) for forestry and timber operations. BMPs require silviculture activities to maintain various setback distances from wetlands, based on the type of silviculture activity proposed and on the type of wetland impacted.

Coordinated local, state, and regional efforts in the Nassau-St. Marys Basin are responsible for much of the progress that has been made in implementing watershed and water quality improvements in the area. Many plans share common goals, and their implementation is based on a combination of groups playing critical roles in planning, funding, managing, and executing projects. Local organizations and initiatives provide leadership in water body restoration and preservation efforts. The County continues to coordinate its efforts with local, regional, and other state agencies to obtain data, strengthen monitoring activities, and exchange information through periodic meetings.

Coastal Hazard Mitigation Sub-Element

I. Coastal Hazard Areas

Tropical cyclone events have a high probability of occurrence in this region and can have a major impact on the County. As a coastal community, the County is susceptible to wind and surge damage from tropical cyclones.

Although the entire county can be affected by high winds, there are certain areas where winds would be higher due to their geography and/or higher elevations, such as the shoreline, areas adjacent to the Intracoastal Waterway, developed areas and areas in around the City of Fernandina Beach and Amelia Island. Depending on the direction and intensity of the storm hurricane winds can inflict severe damage to inland locations as well.

The danger of storm surge damage is not limited to the coastline either. Many tributaries flow through the county, which can cause surge damage well into western parts of the county. The Nassau and Saint Mary's Rivers, which form the northern and southern boundaries of the county respectively, are shallow and strongly influenced by tides from the Atlantic Ocean. As a result, areas adjacent to the rivers and their tributaries are subject to storm surge impacts. Areas of particular vulnerability include the entire shoreline of the Nassau River, and the Town of Callahan, which are in the path of the river's fallout when it retreats from hurricane storm surge. The eastern portions of St. Mary's River and the Lofton Creek, shorelines in the eastern portion of the County are also of particular concern. Alligator Creek located in the western portion of the County frequently causes local flooding from rainfall the effects of hurricane rain fall volumes would be greatly intensified.

Coastal Planning Area (Hurricane Vulnerability Zone)

For the purposes of this Sub-element, the coastal planning area shall be those portions of the local government's jurisdiction that lie in the hurricane vulnerability zone (HVZ). Rule 9J-5.003(57), F.A.C. defines the hurricane vulnerability zone (aka "areas subject to coastal flooding") as the areas delineated by the regional or local hurricane evacuation plan as requiring evacuation in the event of a 100-year storm or Category 3 storm event, as shown on Map CHZ-1.

Coastal High Hazard Area (CHHA)

The Coastal High Hazard Area (CHHA), which is illustrated on Map CHZ-2, encompasses the area below the elevation of the Category I hurricane storm surge line as established by a Sea, Lake, and Overland Surges from Hurricanes (SLOSH) computerized storm surge model developed by the National Hurricane Center.

There are several characteristics which may, either individually or collectively, make an area considered a high hazard area for tropical cyclones. These include: proximity to large bodies of water; the location of the property in relation to shifting channels; and, the height of land in comparison to adjacent water bodies and tracts of land.

Existing Land Uses in Coastal Hazard Areas

A significant amount of Nassau County's urban development is located in coastal hazard areas. With appropriate corrections for outlying rural areas, the existing land use inventories of residential, commercial, industrial, public and other land uses provided in the Future Land Use Element can be used to describe land use patterns in the Coastal Planning Area. As its name

implies, the Existing Land Use Map (ELUM) (also presented in the Future Land Use Element) describes the current uses of properties in Nassau County. A complete description of the ELUM, including the methodology on which it is based, is found in the Future Land Use Element. Unlike the Future Land Use Map, which has regulatory as well as descriptive uses, the ELUM series is included within the comprehensive plan solely as a descriptive tool as it may be subject to incorrect interpretations.

Table CHZ-1 provides the existing Nassau County unincorporated land use in hazard areas, based on the 2008 parcel data from the Nassau County property appraiser.

Table CHZ-1 Estimated Acreage of Existing Land Uses in Coastal Hazard Areas

Land use	Total Acres		CHHA		HVZ
Residential	11,145		1,351		4,568
Commercial	2,151		18.3		242
Industrial	401		31.4		49.6
Conservation	15,925		12,604		12,791
Rural/Agriculture	356,951		26,724		39,314
Recreation/ Open Space	29.1		8.0		21.5
Government/Public Use	3,186		3.3		8.5

Sources: Nassau County Post-Disaster Redevelopment Plan

Future Land Uses in Coastal Hazard Areas

As Nassau County grows, additional pressure will be placed upon vacant and undeveloped lands, some of which are in hazard vulnerability areas.

A GIS analyses was performed to identify the acreage by future land use classifications in coastal hazard areas, as indicated in Table CHZ-2.

Table CHZ-2 Estimated Acreage of 2010 Future Land Use Categories in Coastal Hazard Areas

FLUM Category	Total ac.	CHHA	%	HVZ	%
Agriculture	317,978.8	21,551.1	6.8	30,582.8	9.6
Commercial	2,370.1	51.5	2.2	385.7	16.3
Conservation	26,089.1	16,218.9	62.2	17,083.2	64.5
Residential	39,842.7	2,345.0	5.9	8,510.0	21.4
Industrial	1,074.9	17.2	1.6	31.1	2.9
Multi-Use	1,815.1	279.3	15.4	940.0	51.8
Public Buildings/ Grounds	1,277.0	0.0	0.0	24.1	1.9
Recreation	608.6	62.9	10.3	371.6	61.1
Total	391,056.3	40,526.0	10.4	57,928.5	14.8

Sources: Nassau County GIS

Although a significant portion of unincorporated Nassau County is located within the newly-defined CHHA (approximately 43,935 acres or 68 square miles) it incorporates far less land that is designated for low, medium or high density residential use. As it is now defined, much of the land within the CHHA is covered by wetlands, floodplains and low-lying areas lying within the Wetland Limited Development Overlay District (see Future Land Use Element). Approximately 40 percent of the entire CHHA is proposed to be designated as Conservation I or II (CSV I-II) on the 2030 Future Land Use Map. This situation limits the development potential of lands located within the CHHA. However, the potential for residential development still exists, and analysis of the 2010 FLUM categories in the CHHA indicate a maximum build-out potential of approximately 2,950 units in the residential FLUM designations.

The development and preservation framework presented in the Future Land Use Element (see Map FL-6) is based on the Vision 2032 process and attempts to lay a foundation for land development decision making. Although it is not regulatory, the framework creates a core strategy, that will guide the legally binding goals, objectives and policies and FLUM designations. It is the long-range “30,000 foot perspective” for assisting the Local Planning Agency with EAR-based and future FLUM decisions.

The framework identifies a *Coastal Development Area* consisting of the unincorporated portions of Amelia Island, lands adjacent to the Amelia River, and the lands surrounding the estuarine system of the Nassau and St. Marys Rivers. It is generally bound on the east by the Atlantic Ocean and the west by Blackrock Road north of A1A and C.R. 107 south of A1A. It also includes the southern area of Nassauville and Holly Point, an established community lying outside of the JEA utility service area. This portion of the County is the most highly urbanized, is mostly located in a Level 1-3 hurricane evacuation zone, is subject to transportation limitations, and contains significant archaeological, historic and environmental resources. Because these factors create development limitations, significant increases in residential densities in the Coastal Development Area are discouraged, and the Area should be encouraged build out at densities limited to those permitted by the 2010 FLUM.

Existing Infrastructure in Coastal Hazard Areas

Infrastructure is a broad term which may be applied to any physical improvement to the land which generally serves growth or a public need. Infrastructure may include roads, bridges, parks, sanitary sewer facilities, potable water plants, public coastal shore protection structures, public buildings, and public beach renourishment projects.

The County’s historical development patterns have placed most of the population and most of the urban development in the County in coastal areas, and thus a large percentage of Nassau County’s existing network of roads and bridges, water lines, and sewer lines occurs within areas vulnerable to hurricane damage from Category 1-3 storms. Much of County’s other forms of infrastructure - including schools, fire stations, libraries, government buildings, and hospitals also occur in coastal hazard areas. Maps CHZ-3 and 4 illustrate the location of such infrastructure relative to the Hurricane Vulnerability Area and the Coastal High Hazard Area.

II. Hurricane Evacuation

The current program for planning, managing, and enforcing hurricane evacuations is administered by the Nassau County Department of Emergency Management. The roles and responsibilities of each County department are defined in the Nassau County Comprehensive Emergency Management Plan (CEMP), pursuant to Ch. 252 Florida Statutes. It addresses natural or man-made disasters, emergencies, designation of authority and succession, and empowers the designation of a local state of emergency. Authority for implementation of emergency management procedures is provided in an ordinance adopted by the Board of County Commissioners.

The information in this section is taken largely from the CEMP and the associated Hurricane Evacuation Study (2005) prepared by the Northeast Florida Regional Council.

Hurricane Hazards

Two analytical tools are used to predict potential hazards from hurricanes: SLOSH and TAOS. SLOSH (Sea, Lake, and Overland Surges from Hurricanes) is a computerized model used to predict storm surges, hurricane categories, and depth of flooding. The TAOS (The Arbitrator of Storms) model uses a variety of input data to create rainfall predictions and expected damage to structures for various storm events. Additional technical information on the hurricane analysis models can be found in the Hurricane Evacuation Study, 2005 prepared by the Northeast Florida Regional Council. The regional report also provides a description of the various hazards from hurricanes including high wind speeds, storm surge on the coastline, and freshwater flooding.

The intensity of a storm is measured by the Saffir-Simpson scale of hurricane intensities. Tropical storm winds range from 39 to 73 mph. A tropical storm becomes a hurricane when the one-minute average wind speed of 74 mph is reached. Damage from high wind increases exponentially for each storm category. Any hurricane force wind can create a significant amount of structural, agricultural, or projectile damage. Tornadoes are another hazard spawned by high wind conditions.

Storm surge is considered the most destructive of the forces related to hurricanes. The surge is caused by low atmospheric pressure which, when over a large body of water such as the Atlantic Ocean, results in a high dome of wind driven water. This surge of water contains immense, destructive power. At times, the effects of the moving water can be likened to a bulldozer clearing everything in its path. Debris propelled by the storm surge can act as a battering ram destroying objects in its way.

The high dome of wind-driven water can be 50 to 100 miles wide, and moves across the coastline generally north of the "eye" as a hurricane makes landfall. Worst-case storm surge heights for Category 1 through Category 5 hurricanes are those approaching 90 degrees relative to the coastline.

Based on past history, beach erosion, usually the result of the stress placed on the shore from the storm surge, is a problem in the Northeast region. In the event of a hurricane either striking or passing near this coast, the potential of beach erosion which can undermine both houses and roads must be seriously considered. It is advisable for all beach front areas to evacuate in the event of a threat of a hurricane affecting the coast. Effects of beach erosion on coastal roads should also be considered in relation to late evacuations, recovery from storms and in planning future roadways.

Wind is the second ranked of the lethal components of a hurricane's destructive force. Strong winds can be a very dangerous element of a hurricane due to wind-borne debris, from improperly constructed houses or from loose objects, which can result in injury or death. Gale force winds and tornadoes associated with hurricanes are very hazardous to mobile homes. High winds often fell power lines and trees thus inhibiting mobility during and after the storm.

Unlike the effects of the storm surge, the high winds associated with a hurricane will have an impact on inland as well as coastal areas. Therefore, inland areas must plan for the impacts of high winds (fallen trees and power lines) on their road system and, perhaps more importantly, on the health and welfare of their citizens living in mobile homes or in substandard homes which may not be resistant to these high winds.

Rain ranks third in the order of a hurricane's destructive force. During the average 24-hour period that it normally takes a hurricane to pass over an area, an average rainfall of between 5 and 10 inches may occur. Normally, this happens concurrently with the arrival of gale force winds. In Florida, however, there have been hurricane-related rainfalls ranging from 12 to 20 inches. These excessive rains which accompany hurricanes can cause excessive flooding in low lying areas requiring their evacuation. It is very important to consider roads which are rendered impassable during heavy rains and which may affect the evacuation of the vulnerable population.

Hurricane Evacuation Zones

A storm surge model, SLOSH (Sea, Lake and Overland Surges from Hurricanes), was used to predict the magnitude of storm surge for various scenarios of storm strengths and directions. Data from the SLOSH model was used to map storm surge inundation areas. Based on these areas of inundation, evacuation zones were established, the population at risk was determined for various hurricane intensities, and the facilities vulnerable to hurricane related flooding were identified. Hurricane evacuation zones established in Nassau County are shown along with public shelter locations (see below) in Map CHZ-5.

Hurricane Evacuation Routes

Nassau County has identified several roadways as hurricane evacuation routes. A roadway designated a Hurricane Evacuation Routes has met specific criteria either by design or location. These roadways are protected under F.S. 163.3180(6). Rule 9J-5 of the Florida Administrative Code does not allow level of service standards for a hurricane evacuation route to exceed 100 percent of the designed capacity of the roadway. Map CHZ-6 shows the Nassau County hurricane evacuation route network.

With the onset of a storm, there is danger from both surge and freshwater flooding. The County's extensive coastal lowlands create a large area for surge inundation and for a large number of roads that could be affected by surge flooding. Because roadways are the main concern for residential evacuation, the elevation of the roads along with the depth of water that can possibly occur is important. This information can provide the emergency manager with a tool to order evacuations in a timely manner. Evacuation routes that will easily deteriorate due to surge or freshwater flooding may be subject to early closures and rerouting.

Nassau County will work with the State of Florida Department of Transportation to maintain the adopted level of service standards for all Strategic Intermodal System (SIS) road facilities that are designated as Hurricane Evacuation Routes. Maintaining road connectivity and traffic flow on Hurricane Evacuation Routes is essential for ensuring evacuation continues as quickly as possible prior a major storm event.

Population Requiring Evacuation

In the Hurricane Evacuation Study, 2005, census data on population and housing were used in conjunction with Geographic Information Systems (GIS) to map the location of the population at risk. Table CHZ-3 shows a summary the data used in the study's calculations.

Table CHZ-3 Key Population / Dwelling Unit Summary, Nassau County, 2005

Data	County Totals
Year 2005 Estimated Permanent Population	67,067 people
Permanent occupied dwelling units	25,554 units
Mobile homes	7,873 units
Tourist/seasonal units	3,382 units
People per permanent unit	2.70
Vehicles per permanent unit	1.91

Source: Northeast Florida Hurricane Evacuation Study, 2005

Using the storm surge model, residents who should evacuate were identified. It is assumed that persons living in areas flooded by storm surge should be evacuated. This includes permanent residents, in single family, multifamily, and mobile home units, as well as, tourists staying in hotels/motels, condominiums, and rental units in storm surge vulnerable areas. In addition, mobile home units living outside the hurricane flooded areas of the County were assumed to evacuate due to high wind vulnerability.

Table CHZ-4 shows the number of residents and tourists estimated to leave dwelling units for each evacuation area by scenario in the Hurricane Evacuation Study, 2005. The number of people involved in an actual evacuation will likely total less than these figures due to the assumed 100 percent participation rate of people from units in storm surge vulnerable areas and mobile homes for each evacuation scenario. Even with door-to-door evacuation notification, it will be difficult to convince all who should leave to do so, even for the most intense storm threats. Participation rates in tropical storm/weak Category 1-2 hurricanes can be quite low even in potential surge areas. Conversely, for higher category storms, continual coverage on local and national television broadcast stations will tend to cause high participation rates from residents that local officials would rather have stay in county, or shelter in place.

Table CHZ-4 Evacuating Population By Storm Scenario, Nassau County, 2005

Scenario	Maximum People/ Vehicles Evacuating*	Maximum Public Shelter Demand
Category 1	46,147 / 24,236	2,943 People
Category 2	50,247 / 26,214	3,429 People
Category 3	56,170 / 29,178	4,732 People
Category 4 & 5	61,927 / 32,109	5,516 People

**Based on Year 2005 Estimated Permanent Population 67,067 People
Source: Northeast Florida Hurricane Evacuation Study, 2005*

Special Needs Population

People with special needs are the handicapped, disabled, hearing and visually impaired, and others requiring special assistance. The Nassau County Department of Emergency Management is responsible for overall direction and control of evacuation procedures and for an orderly, coordinated evacuation for persons with special needs. Specifically, this office provides for the identification, public information, warning, evacuation, sheltering, and recovery operation for people with special needs. To facilitate the evacuation process, a roster of such persons is maintained and assistance is provided with transportation.

Public Shelter Capacity

One crucial aspect of hurricane evacuation planning involves the coordination of public shelter locations and capacity to meet the shelter demand of evacuees in any given storm plan. Table CHZ-4 above shows potential public shelter demands and reported capacities at each shelter.

Normally, public shelter demand generally increases slightly from low to high tourist occupancy for lesser category storms. This demand between low and high tourist occupancy usually remains the same for more intense storms. However in this region the level of tourist occupancy is reasonably stable throughout the entire year so the figures provided in this study do not factor in variations in tourist vacancies. Since mobile home residents typically have a higher propensity to use local public shelter space more than other residents, the high mobile home population may increase shelter demand. Growth in special needs and elderly populations could also add to the increased demand in this region.

It should be noted that not all shelters will be opened and available for use during all storms. The emergency shelter inventory for Nassau County is comprised of public schools and other public buildings. Table CHZ-5 lists the Nassau County general and special needs shelters which are also shown on Map CHZ-5.

Table CHZ-5 Nassau County Public Shelters, 2009.

Name	Address	City	Retro fit (R) or New Const. (N)	ARC 4496 Capacity (persons)	Non- ARC 4496 Capacity (persons)
Bryceville Elementary School	6504 Church Ave	Bryceville	N	128	0
Callahan Elementary School	449618 US Hwy 301	Callahan	-	0	326
Callahan Intermediate School	34586 Ball Park Rd	Callahan	R	326	0
Callahan Middle School	450121 Old Dixie Hwy	Callahan	N	621	0
Hilliard Middle School*	1 Flashes Ave	Hilliard	N	123	0
Hilliard Elementary School	275568 Ohio St	Hilliard	R	326	0
West Nassau High School	1 Warrior Drive	Callahan	N	561	0
Yulee Elementary School	86063 Felmore Rd	Yulee	N	370	0
Yulee Middle School	85439 Miner Rd	Yulee	N	965	0
Yulee Primary School	86426 Goodbread Rd	Yulee	-	0	129
Yulee High School	85375 Miner Rd	Yulee	N	1,028	0
Totals				4,448	455

*Special Needs Shelter

Source: Nassau County Dept. of Emergency Management

Clearance Times

Clearance time is the time required to clear the roadway of all vehicles evacuating in response to a hurricane situation. Clearance time begins when the first evacuating vehicle enters the road network (as defined by a hurricane evacuation behavioral response curve) and ends when the last evacuating vehicle reaches an assumed point of safety. Clearance time includes:

- Mobilization Time - the time required by evacuees to prepare for evacuation and enter the road network;
- Travel Time - the time needed to travel along the road network; and
- Queuing Delay Time - the cumulative times for all stops caused by traffic congestion.

Clearance time does not relate to the time any one vehicle spends traveling on the road network and does not include time needed for local officials to assemble and make a decision to evacuate.

Establishing the arrival time of tropical storm force winds within a community determines when an evacuation must be completed. The clearance time added to the tropical storm force arrival time establishes the latest time that local officials must issue an order initiating an evacuation. The general time of day in which the evacuation order must be issued will determine the response curve to be used in choosing a clearance time and whether extra time will be needed in order to complete an evacuation. For instance if the decision time for issuing an evacuation order generally coincides with the middle of the night or the middle of a working day, a clearance time with a slow response curve may be used in order to allow extra mobilization time (to allow people to wake up, or return from work and school), or travel time (to account for the effects of darkness on driving). Conversely, a clearance time with a fast response may be considered if an evacuation order will occur during a weekend day or before residents have left their households for normal workday activities.

Table CHZ-6 presents the projected hurricane evacuation clearance times developed for Nassau for 2010 in the Northeast Florida Hurricane Evacuation Study, 2005. These times reflect local in-county movement. Clearance time runs were generated based on differing intensities of hurricanes, levels of background traffic and the rapidity of response by evacuees.

Table CHZ-6 Nassau County Clearance Times, Local In-County Movement, 2010

Event/Response	Clearance Time(hours)	
	<i>Light Background Traffic</i>	Heavy Background Traffic
<i>Category 1 Hurricane</i>		
Rapid Response	14	14 ³ / ₄
Medium Response	14	15 ¹ / ₄
Long Response	14 ¹ / ₄	16 ¹ / ₄
<i>Category 2 Hurricane</i>		
Rapid Response	14	14 ³ / ₄
Medium Response	14	15 ¹ / ₄
Long Response	14 ¹ / ₄	16 ¹ / ₄
<i>Category 3 Hurricane</i>		
Rapid Response	14 ³ / ₄	15 ¹ / ₂
Medium Response	14 ³ / ₄	15 ³ / ₄
Long Response	15	16 ³ / ₄
<i>Category 4-5 Hurricane</i>		
Rapid Response	16 ¹ / ₄	17
Medium Response	16 ¹ / ₄	17 ¹ / ₄
Long Response	16 ¹ / ₂	18 ¹ / ₄

Source: Northeast Florida Hurricane Evacuation Study (NEFRC), 2005

III. Post-Disaster Redevelopment

Local Mitigation Strategy (LMS)

Local mitigation planning forms the foundation for short-term and long-term post-disaster recovery and mitigation activities. In 1998, the State of Florida contracted with and provided funding to each of the counties within the state to develop a Local Mitigation Strategy (LMS). The LMS represents Nassau County's blueprint for how it intends to reduce the impact of natural hazards on people and the built environment. The purpose of the LMS is to provide guidance in developing pre- and post-disaster mitigation plans, identifying priority projects and programs for funding, and increasing the likelihood of State and Federal funding for hazard mitigation projects. The essential elements of the LMS include goals and guiding principles, hazard identification and vulnerability assessment, vulnerable properties and estimated losses, mitigation initiatives, projects and potential funding sources.

The Nassau County LMS establishes the following goals:

- Goal 1 - Protect the lives of the citizens of Nassau County
- Goal 2 - Minimize or eliminate damages to personal residences in Nassau County
- Goal 3 - Insure protection of existing infrastructure of Nassau County
- Goal 4 - Protect values and associated economic value of property in Nassau County.

The LMS guiding principles section includes natural hazards mitigation policies from the community's comprehensive plan and local ordinances, which provides for purposeful integration among local planning initiatives to guide post disaster redevelopment risk reduction and sustainability.

The LMS provides information needed by the managers and leaders of local government, business and industry, community associations, and other key institutions and organizations to take actions to address vulnerabilities to future disasters. It also provides proposals for specific projects and programs that are needed to eliminate or minimize those vulnerabilities.

These proposals, called "mitigation initiatives" in the LMS, have been justified on the basis of their economic benefits using a uniform technical analysis and prioritized for implementation using objective criteria. This approach is intended to provide a decision tool for the management of participating organizations and agencies regarding why the proposed mitigation initiatives should be implemented, which should be implemented first, and the economic and public welfare benefits of doing so.

There are a number of state and federal grant programs, policies, and regulations that encourage or even mandate local government to develop and maintain a comprehensive mitigation strategy. This LMS is specifically intended to assist the participating local governments in complying with these requirements, and to enable them to more fully and quickly respond to state and federal funding opportunities for mitigation-related projects. Because the LMS defines, justifies and prioritizes mitigation initiatives that have been formulated through a technically valid hazard analysis and vulnerability assessment process, the participating organizations are better prepared to more quickly and easily develop the necessary grant application materials for seeking state and federal funding. Programs requiring documentation of approved local mitigation plan include the following:

Federal Programs:

- Flood Mitigation Assistance Grant
- Pre-Disaster Mitigation Grant

- Hazard Mitigation Grant Program
- Repetitive Flood Claims Grant

State Programs:

- Emergency Management Preparedness and Assistance Trust Fund Competitive Grant
- Florida Communities Trust
- Community Development Block Grant Program
- Residential Construction Mitigation Program

Post Disaster Redevelopment Plan (PDRP)

All Florida coastal communities are required to develop a Post Disaster Redevelopment Plan (PDRP) as part of the Local Comprehensive Plan or as a separate document. The PDRP is likened to an umbrella plan that unites growth management and emergency management planning efforts to develop a comprehensive and collaborative PDRP with community stakeholders. The PDRP addresses issues such as: government operations and citizen response, housing and structural repairs, infrastructure and public facility recovery, economic resumption, land use planning and quality of life resiliency.

The Nassau County PDRP was developed as part of a statewide pilot project initiative that was sponsored by the Florida Department of Community Affairs, Division of Community Planning and Division of Emergency Management. The PDRP was developed to provide Nassau County and its jurisdictions with an overarching strategic, interdisciplinary plan for guiding action and decision making during the disaster recovery (1-90 days after the disaster occurs) and redevelopment (90 days or more after the disaster occurs) periods, as well as identifying actions that can be implemented prior to a disaster to expedite the recovery process.

The Nassau County PDRP was developed during May 2008 through June 2009 by the Nassau County PDRP Executive Technical Committee, which was comprised of various county departments, municipalities, businesses, non-governmental organization, regional organizations and citizens. The PDRP positions Nassau County and its jurisdictions to recover more expeditiously from a disaster, while taking into account opportunities for hazards vulnerability reduction.

Despite commonalities in Nassau County communities, it is recognized that each jurisdiction has its unique features and recovery strategies may slightly vary. The PDRP is intended for use on a county-wide basis. However, local jurisdictions are encouraged to modify the contents as deemed appropriate prior to adoption.

Nassau County is vulnerable to various hazards, as it is a coastal community located on the Atlantic Ocean with many rivers, streams, creeks, and marshes spanning from the coast to the inland areas. The highest risk hazards for Nassau County as identified in the County's 2003-2004 Local Mitigation Strategy (LMS) and the 2007 County Comprehensive Emergency Management Plan (CEMP) are tropical cyclone-generated storm surge and high winds, flooding, wildfires, and hazardous materials spills. An assessment of hazardous materials release is not included in the vulnerability assessment for the PDRP, as it would not likely warrant redevelopment.

The purpose of the Post Disaster Redevelopment Plan (PDRP) is to provide Nassau County and its jurisdictions with an overarching strategic, interdisciplinary plan for guiding action and decision making during the disaster recovery and redevelopment period, as well as identifying actions that can be implemented prior to a disaster to expedite the recovery process. This PDRP establishes a strategy for Nassau County to leverage coordination amongst county departments, municipalities, businesses, non-governmental organization and regional organization to redevelop after a catastrophic disaster in a proactive and effective manner. The PDRP positions Nassau

County and its jurisdictions to be in a better position to recover more expeditiously from a disaster to utilize redevelopment as an opportunity to build a more sustainable community and maintain or enhance the “quality of life”, which is often cited by residents as a benefit of living in Nassau County.

This PDRP was developed with the intent to provide cohesive, consistent treatment of redevelopment issues throughout the county. Establishing redevelopment guidelines provides equitable considerations of impact throughout the county, in an objective, rational consistent basis. The PDRP serves to facilitate returning Nassau County to pre-disaster condition when this makes sense or to better position itself to maximize post-disaster opportunities to reduce hazard vulnerability

Implementation of the PDRP

The PDRP provides strategic planning guidance for many aspects of disaster redevelopment in both pre-disaster and post-disaster phases.

The pre-disaster phase includes the development and implementation of policies and procedures to reduce hazard vulnerability and collaborative processes to enhance redevelopment efficiency and effectiveness following a disaster. The pre-disaster actions focus on assessing vulnerability, institutional capacity, intergovernmental and intercommunity coordination; and examining and implementing hazard vulnerability reduction policies and procedures.

The PDRP will be implemented for short term recovery (1-90 days after the disaster occurs) and long term redevelopment (90 days or more after the disaster occurs) actions. Short term recovery includes damage assessment, temporary housing, debris operations; measures that can impact long term redevelopment. Long term redevelopment actions focus on land use planning, infrastructure reconstruction, structural and facility repair, environmental restoration, historic preservation and hazard mitigation.

The decision to activate the PDRP will be made by the Executive Policy Group. The request for activation will be made by the Emergency Management Director. This will occur after a declaration of a Local State of Emergency has been made, the Emergency Operation Center (EOC) is activated, and there are major or catastrophic damages that warrant redevelopment.

Once the PDRP is implemented, members of the Redevelopment Task Force (formerly known as the Executive Technical Committee), will be notified of the PDRP activation. Community stabilization will be a major concern during the shift from emergency response to recovery. Sustainable development will be a major concern during the shift from recovery to redevelopment. The Task Force will serve as an advisory committee to the Nassau County personnel and stakeholders that are responsible for redevelopment activities. The Task Force will brief elected officials and provide recommendations to decision makers based on the PDRP and available resources and opportunities. The Task Force will also coordinate with various local organizations for economic recovery and faith-based organizations for recovery support.

PDRP Recovery and Redevelopment Strategy

The recovery and redevelopment strategy is comprised of a list of the post-disaster redevelopment goals and issues that were identified by the Executive Technical Committee (ETC). The issues were grouped into seven major topics:

1. Damage and Recovery Assessment
2. Government Operations and Citizen Report
3. Housing and Structural repairs
4. Infrastructure and Public Facility Recovery
5. Economic Resumption
6. Land Use and Redevelopment
7. Quality of Life Resiliency

Goal 1: Damage and Recovery Assessment

The County and participating jurisdictions, agencies and organizations shall coordinate with each other to prepare a comprehensive damage assessment. The damage assessment will include and assessment of damage to publicly owned buildings, critical facilities and infrastructure; damage and economic impact to local businesses; damage to historic properties; repetitive flood losses; and impacts to the natural environment.

During the damage assessment, there will be opportunities to identify hazard mitigation measures to employ in the development period to reduce hazard vulnerabilities. The Nassau County Local Mitigation Strategy includes a prioritized list of hazard mitigation projects that will be reviewed during the damage assessment to determine which projects to implement. After a disaster, it is important to conduct outreach and education on hazard mitigation measures with local contractors and homeowners to encourage hazard vulnerability reduction. The damage assessment will also be helpful for understanding the disaster impacts on the natural environment to determine ecological, recreational and tourism based losses.

Goal 2: Government Operations and Citizen Response

The County and participating jurisdictions, agencies and organizations shall effectively coordinate with each other to restore and sustain government operations and services that expedites the communities' ability to recover from a disaster. Collaboration will hinge on proactive strategies that incorporate reasonable expectations and actual capabilities of the local government, agencies, businesses, non-governmental organizations and private citizens. Procure and disperse all available private, federal and state disaster recovery funding, services and donated supplies.

Government operations and citizen response issues were categorized as 1) organization and authority, 2) government / local capacity, or 3) communications / disaster information dissemination. After a disaster, it is important to maintain government services and communication throughout the community. High priority issues include: sustaining local government functions per the Continuity of Government (COG) and Continuity of Operations (COOP) plans, maintaining local oversight of the recovery strategy, retaining or hiring additional staff to work on essential functions, setting up an accounting system to manage recovery funding, explaining the applicability of the PDRP and other emergency management plans, coordinating with faith based organizations to provide assistance, and communicating redevelopment information to citizens.

Goal 3: Housing and Structural Repairs

The County and participating jurisdictions, agencies and organizations shall collaboratively work together to provide temporary housing for its residents and incoming disaster workforce to support

expedient repair of homes and businesses. This will include expedited repair procedures (e.g., permitting) and incorporating hazard vulnerability reduction measures for permanent structures. Each unit of local government will endeavor to enter into mutual aid agreements to provide adequate permitting and inspections to accommodate post-disaster volume.

Housing and structural repairs were categorized into 1) temporary housing, 2) long term housing, and 3) structural repairs. The decisions made at the onset of recovery can greatly impact long-term redevelopment and should be weighed carefully. High priority issues include: establishing criteria for on-site and group-site temporary housing to ensure that there is proper zoning to allow for temporary structures, identifying site suitability and infrastructure availability for group sites, ensuring that there is enough workforce housing, using hazard mitigation measure to reduce structural vulnerability, and creating an expedited permitting process for structural repairs.

Goal 4: Infrastructure and Public Facility Recovery

The County and participating jurisdictions, and local utility providers will work together to restore infrastructure, critical facilities and public facilities in support of community recovery based on established priorities and hazard vulnerability reduction measures.

Infrastructure and public facility recovery was categorized as 1) debris and 2) infrastructure repairs. The repair and restoration of infrastructure and public facilities affects the community's ability to recover at large. The restoration of transportation networks is essential to recovery and redevelopment. High priority issues include: evaluating whether to replace infrastructure or facilities to pre-disaster condition or to rebuild them stronger or in a different location to avoid future damage, identifying critical transportation routes for prioritized emergency and long-term repairs, coordinating with utility providers to ensure that utilities are being restored in areas with critical facilities and businesses, and identifying alternate transit if the Intercoastal bridge is damaged or destroyed.

Goal 5: Economic Resumption

Based upon priorities in the PDRP, the County and participating jurisdictions will support the local business community through the disaster impact assessment, needs identification, infrastructure restoration, employee assistance and disaster recovery funding that fosters economic resumption.

Economic resumption is extremely important as it affects the entire community's recovery efforts and is a major indication of how long it takes the community to redevelop. The return of jobs, tourism, and other indicators of economic health is interdependent on housing recovery, infrastructure restoration, and public service provision. High priority issues include: determining and prioritizing business recovery resources, identifying funding sources for business recovery, establishing a business recovery center, assessing damage and economic impacts, and tracking business recovery data.

Goal 6: Land Use and Development

The County and participating jurisdictions shall enforce compliance with applicable regulations for construction and reconstruction and use the post-disaster environment to reduce hazard vulnerability. Hazard vulnerability reduction will be focused within the Coastal High Hazard Area, Special Flood Hazard Areas, and Repetitive Loss Areas.

Land use and zoning decisions pertaining to redevelopment can have long-term effects on the community's hazard vulnerability. After a disaster, there will likely be opportunities to rebuild infrastructure and structures back in a less vulnerable manner. Although there is often pressure to build back as quickly as possible, it is important to assess how and where the community will rebuild to reduce hazard vulnerability through hazard mitigation measures. High priority issues include: mapping land use in high hazard areas to understand how to reduce future vulnerability, identifying non-conforming land use and structures and considering how to address restoration, providing the opportunity for citizens to provide feedback on how to redevelop through the use of facilitated charette workshops, and ensuring that proper restoration techniques are being employed for historic properties.

Goal 7: Quality of Life Resiliency

The County and participating jurisdictions, agencies and organizations shall attempt to prevent degradation during post-disaster restoration of social, cultural, historic, faith based, health care and educational amenities and the environment.

Quality of life was categorized as 1) cultural / historic preservation, 2) environmental, 3) health and social services. Quality of life is highly valued in Nassau County, as it attracts and maintains residents and tourists. High priority issues include: providing historic restoration guidelines to private property owners, prioritizing resources for making temporary and long-term repairs, conducting a post-impact assessment for historic properties to help guide appropriate repair, restoring aquatic areas, educating the public on asbestos abatement and mold remediation, providing mental and physical health care, and providing continued public education on disaster preparedness and redevelopment requirements.

The goals and issues were assessed and formulated into action items in the PDRP. The PDRP also includes a Communications Plan and a Financing Plan. Pertinent excerpts from the PDRP are included as Appendix G.

Water-Dependent Uses Sub-Element

I. Existing Water-Dependent Uses

Water-dependent uses, as defined by Rule 9J-5.003(137),F.A.C., are activities which can be carried out only on, in, or adjacent to water areas because the use requires access to the water body for: waterborne transportation, including ports or marinas; recreation; electrical generating facilities; or water supply. Water-related uses mean activities, which are not directly dependent upon access to a water body, but which provide goods and services that are directly associated with water-dependent or waterway uses.

Seaport Facilities

The Port of Fernandina is a natural deep water port situated on the west side of Amelia Island about 2.2 miles from the mouth of the Amelia River (see Map WDU-1). It provides terminal service to over ten pulp and paper producers located throughout Florida and the Southeast. The Port has also expanded in providing steel export services to several steel mills in the Southeast. The Port also supports a number of independent container lines serving Latin America and the Caribbean.

The berth consists of one 1,200 linear foot marginal wharf. Draft alongside the berth is maintained at a depth of 36 feet mean low water (MLW). All berths can handle container or conventional cargo working vessels. The adjoining marshaling area can accommodate 3,200 TEU including 50 electrical hookups for refrigerated containers. A chassis depot is located near the port with parking for 500 chassis.

The Ocean Highway and Port Authority of Nassau County serves as the governing body for the Port of Fernandina., and are responsible for preparing the Port Facilities Element and a Port Master Plan for the City of Fernandina Beach Comprehensive Plan. The primary purpose of this element is to clearly define a direction for the Port's Future by providing a guide for long and short term planning and development opportunities.

Recreational and Commercial Working Waterfronts

Recreational and commercial working waterfronts are defined by Sec. 342.201(b), Florida Statutes as property that provide access for water-dependent commercial activities or provide access for the public to the navigable waters of the state. Recreational and commercial working waterfronts require direct access to or a location on, over, or adjacent to a navigable body of water. The term includes water-dependent facilities that are open to the public and offer public access by vessels to the waters of the state or that are support facilities for recreational, commercial, research, or governmental vessels. These facilities include docks, wharfs, lifts, wet and dry marinas, boat ramps, boat hauling and repair facilities, commercial fishing facilities, boat construction facilities, and other support structures over the water.

The Fernandina Beach area has historically been a center of commercial fishing, most notably for shrimp and it remains the home port for several commercial fishing vessels. Commercial shrimp production has declined significantly, however, due in large part to overseas competition and increasing regulation of fishing in near-shore waters. According to the Florida Marine institute, the dockside value of seafood landed in Nassau County in 2007 was less than \$810,000.

Nassau County remains a popular locale for recreational fishing. Fishing opportunities in the County's estuarine waters include shrimp, blue crab, oysters, flounder, sea trout, red fish (red drum), blue fish, king mackerel, pompano, striped bass, tarpon, and many others. Recreational boaters accessing the water from single docks, boat ramps or marinas account for the majority of on-water traffic in the County.

Marinas are public or licensed commercial facilities which provide secured public moorings or dry storage for vessels on a leased basis including accessory facilities for purposes such as refueling, minor repairs and launching. Several commercial marinas and one public marina (run by the City of Fernandina Beach) serve Nassau County. They are listed in Table WDU-1 and illustrated on Map WDU-1).

Table WDU-1 Existing Public and Commercial Marinas in Nassau County

Facility	Address	Wet Storage	Dry Storage
Amelia Island Yacht Basin	251 Creekside Drive, FB 32034	135	200
Egans Creek Marina	1620 N 14th St, FB 32034	46	70
Fernandina Harbor Marina	1 Front Street, FB 32034	140	0
Olde Towne Marina	1420 N 14th St, FB 32034	4	30
Tiger Point Marina	997 Egans Creek Ln, FB 32034	46	20

Sources: Nassau County Growth Management Dept.

Since most single-family docks and marinas are built over the State's submerged lands, the Florida Department of Environmental Protection (DEP) regulates construction of docks and marinas, and usually requires a permit prior to construction for new facilities as well as written authorization from DEP to use the submerged lands.

Public Boat Facilities

Historically, boat facilities constructed and maintained by the County have been boat ramps. New boat facilities must comply with all state and/or federal regulations for the siting of marine facilities. Adequate parking facilities for both vehicles and trailers are necessary as well as access for multi-modal traffic. County-maintained facilities are listed in Table WDU- 2 and illustrated on Map WDU-1).

Table WDU-2 Existing County-Maintained Boat Facilities

Facility	Address	Lanes	Acres
Dee Dee Bartel (North End) Boat Ramp	97177 Pogeys Place FB, 32034	3	11.95
Edwards Road Boat Ramp	445 Edwards Road, Yulee 32097	1	0.97
Holly Point Boat Ramp (Nassauville)	3336 Winterberry Ave., FB 32034	1	4.23
Kings Ferry Boat Ramp	49127 Bill Johnson Rd., Hilliard 32046	1	0.99
Melton Nelson Boat Ramp (Lofton Creek)	463540 S.R. 200 , Yulee 32097	1	2.04
Scott Landing Boat Ramp	Scotts Landing Road, Hilliard 32046	1	0.88
Wilson Neck Boat Ramp	85006 Faye Rd. Yulee 32097	1	2.49

Sources: Nassau County Building Maintenance Dept.; Nassau County Growth Management Dept.

Public Beach Access

Beach access parks include dune walkovers or other access for beach-related activities such as sunbathing, swimming, and surf fishing. They may also include picnicking areas, trails or areas of natural or ornamental quality for other resource-based outdoor recreation activities. The County currently maintains five (5) beach access facilities along the unincorporated shoreline. They are listed in Table WDU-3 and illustrated on Map WDU-2).

Table WDU-3 Existing County-Maintained Beach Accesses

Facility	Address	Planning District	Acres
American Beach Historic Park	5508 Gregg St., FB, FL 32034	Amelia Island	0.99
Burney Park	1556 Gregg St., FB, FL 32034	Amelia Island	6.42
Peters Point Park	1974 S. Fletcher Ave., FB, FL 32034	Amelia Island	10.65
Scott Rd. Beach Access	4902 Amelia Island Pwy., FB, FL 32034	Amelia Island	3.40
South End Walkover	8014 First Coast Highway, FB, FL 32097	Amelia Island	1.19
Summer Beach Walkover	Summer Beach, FB, FL 32034	Amelia Island	1.40

Sources: Nassau County Building Maintenance Dept.; Nassau County Growth Management Dept.

The City of Fernandina Beach maintains 40 beach access points along its shoreline. Of these, 23 have parking facilities.

Ft. Clinch State Park at the northern tip of Amelia Island is a premier destination for tourists and supports large areas of barrier island natural communities. Sunbathing swimming and surf fishing are popular activities at the beach areas of the park. Fishing is also available from the park's pier.

Amelia Island State Park at the extreme southern end of Amelia Island encompasses some of the remaining barrier island natural communities that once covered the entire Atlantic Ocean coastal portion of the County. Sunbathing, swimming, and surf fishing are popular activities as well as guided, beachfront horseback riding. Fishing is also available at the adjacent George Crady Bridge Fishing Pier State Park.

II. Analysis and Recommendations

Waterfront property and recreational facilities are in high demand. Demands on coastal resources are continually increasing, while the supply of available resources continues to diminish.

Water-dependent and water-related uses for shipping, port related facilities, and other shoreline industrial and commercial use, provides a significant stimulus to the local economy. The County's waters also support a high degree of recreational use. However, those uses can conflict with other uses such as fish and wildlife habitat, wetland areas, residential uses, public access, commercial fishing, and the aesthetic value of the environment. Provision of additional commercial, recreational, industrial or port-related facilities must be weighed against their potential impacts on the environment and existing land uses, especially other existing water-dependent uses.

Preserving Recreational and Commercial Working Waterfronts

Across Florida, there is an important interest in facilitating boating and other recreational access to the state's navigable waters. This access is vital to tourists and recreational users and the marine industry in the state, to maintaining or enhancing the \$57 billion economic impact of tourism and the \$14 billion economic impact of boating in the state annually, and to ensuring continued access to all residents and visitors to the navigable waters of the state.

In Nassau County, there are important state, regional and local interests in maintaining viable water-dependent support facilities, such as public lodging establishments and boat hauling and repairing and commercial fishing facilities, and in maintaining the availability of public access to navigable waters. These activities rely on access to the water through recreational and commercial working waterfronts.

Statewide, private marinas providing boat ramps, parking, and dry storage slips are increasingly being redeveloped for other uses. While Nassau County has largely escaped this trend up to now, this trend continues throughout the state, and could place additional pressure on public boat facilities and infrastructure in the near future.

In 2005, Fernandina Beach became a Designated Waterfronts Florida Community, part of the state Waterfronts Florida Partnership Program administered through the Department of Community Affairs. This program was created to address the physical and economic decline of traditional working waterfront areas by providing communities with technical assistance in working towards waterfront revitalization. The Fernandina Beach Waterfronts Partnership Committee is a cooperative effort between the City of Fernandina Beach, private citizens, private business, industry, and the CRA to revitalize the Fernandina Beach waterfront area.

The County should continue to support the Waterfronts Florida Partnership Program and participate as necessary to ensure the viability of the Fernandina Beach Waterfronts Partnership and assist in the protection and revitalization of local recreational and commercial working waterfronts.

Assuring Public Access to Coastal Resources

Although it is a fact that water-based recreational activities are an essential part of recreation in the County for both residents and visitors, the provision of such facilities must be weighed against their potential impacts on the environment and existing land uses, especially other existing water-dependent uses.

Approximately 76 percent of the County's parks are water-dependent facilities such as boat ramps and beach accesses. The Recreation and Open Space Element provides maps which clearly illustrate the location of the County's park facilities (most of which occur in the urbanized portion of the County) as well as a thorough discussion of the County's park needs and expansion plans.

Public Boat Facilities

The Recreation and Open Space Element indicates a present and continuing deficit in boat facilities, specifically boat ramps, based on a LOS standard of one (1) ramp lane per 5,000 persons based on the projected total permanent population.

Boat launching facilities are an important water-dependent land use and are critical access points for public recreation in The County. While regional data collected by DEP indicates that an adequate number of boat ramps exist to serve the Northeast Florida population based on an average participation rate there remains a need for new and improved boat launch facilities in certain high use areas. Also, any factors limit the usability of existing facilities: condition of ramps, water depths, currents, waves, location of ramp in relation to recreation area, and the condition and availability of parking facilities.

Policies in this Sub-element will require developments with significant frontage along navigable waterways to provide easements for, or the construction of, boat ramps and/or parking facilities for public use. Such easements may be calculated as part of the open space standards for the development.

Other policies will require an inventory of existing boat facilities, i.e. marinas and boat ramps, and evaluation of the need for additional facilities. These evaluations will be incorporated into the Parks and Recreation Master Plan required by the policies of the recreation and Open Space Element.

Public Beach Access

The Recreation and Open Space Element indicates a present and continuing deficit of public beach accesses along the unincorporated shoreline based on a LOS standard of one (1) access per one-half (.5) mile. However, due to the limited availability of undeveloped ocean-front land, further provision of beach access facilities must be weighed against its high acquisition costs, and its potential impacts on the environment and existing land uses.

Policies in this Sub-element will require will require the dedication of public access to beaches or waterfront areas as a condition of development (where appropriate) for developments located along the Atlantic Coast beaches or the Intracoastal Waterway.

Other policies will require the development of a beach access and parking plan that will assure maximum accessibility to public beaches while providing sufficient protection to maintain the current quality of the beach and dune system. The recommendations of this plan will be incorporated as part of the Parks and Recreation Master Plan required by the policies of the recreation and Open Space Element.