

Part 2: Existing Conditions Analysis

Section 2.A: Introduction

Hurricane preparedness, available infrastructure, and the physical, environmental, economic, and political characteristics of Navarre Beach are considered in this Plan in order to plan for the future development of the Beach. These characteristics determine the type and extent of development that is appropriate, desirable, and financially feasible. The general physical features of the area will have a direct impact on all potential uses and are addressed below.

Section 2.B: Hurricane Preparedness

Subsection 2.B.1: History - The Impacts of Hurricanes Erin and Opal

In 1995, as shown in Table 2-A of this Plan, hurricanes Erin and Opal caused major damage to Santa Rosa County and especially to the Navarre Beach area. According to the final damage assessment summaries, a total of 1,004 housing units were destroyed or incurred major or minor damage in the wake of Hurricane Erin.

The eye of Hurricane Erin made landfall on Santa Rosa Island between Navarre Beach and Pensacola Beach. Maximum sustained winds were 101 MPH with higher gusts. Four to eight inches of rain fell across the area. Erin caused extensive damage to signs, trees, fences, and infrastructure (power, phone, traffic signals, and television lines). Metal buildings were often the most damaged structures due strictly to wind. Home and business damage was caused mostly by tree and branch collapse.

The amount of dwelling unit destruction and damage should not be underestimated. All of the single family dwelling units destroyed in the State by Erin occurred in the West

Florida Region. In all, 89.2 % of the housing damage in all of Florida occurred in four of the five declared counties in West Florida.

Approximately, two months after Hurricane Erin struck Northwest Florida, Hurricane Opal moved northeastward from its position near the Yucatan Peninsula towards Northwest Florida. Hurricane Opal was the most destructive hurricane to impact this area of Florida in many years. The storm rapidly intensified to near Category 5 strength (Saffir-Simpson Scale), causing immediate evacuation orders to be issued. While Hurricane Opal sustained winds of 115 MPH, the most serious losses were from the storm surge, measuring from 7 to 24 feet, with accompanying destructive breaking waves ravaging beach areas including Navarre Beach. A total of 19,693 housing units, mobile homes, and apartments were either completely destroyed or damaged within the Northwest Florida Region.

Structural damage resulting from Opal's high storm surge waves and erosion was extensive. Extensive beach and dune erosion occurred throughout Northwest Florida. The western most portion and the lower lying areas in the eastern portion experienced significant over-wash. Generally the beach and dunes were both lowered and recessed. The lowering of beach and particularly dune elevation was responsible for much of the structural damage. However, many habitable structures were by direct wave attack. In over-washed areas, extensive quantities of sand were deposited landward by the surge effectively flooding some structures and destroying roads and infrastructure in areas. ¹

¹ DEP Bureau Beaches and Coastal Systems, 1995.

Table 2-A: Hurricane Impacts to Structures in Santa Rosa County (1995)

	Single	Family		Mobile	Homes			Apartments		
Hurricane	Destroyed	Major	Minor	Destroyed	Major	Minor	Destroyed	Major	Minor	Total
Erin	3	94	595	26	42	80	0	10	154	1,004
Opal	59	227	102	3	7	11	56	132	332	929
Total	62	321	679	29	49	91	56	142	486	1,933

Source: American Red Cross, Final Assessment Summary Sheet, August 12, 1995 & October 17, 1995.

Subsection 2.B.2: Current and Projected Evacuation Clearance Times

The Santa Rosa County Comprehensive Emergency Management Plan (CEMP) defines the hurricane vulnerability zone as those areas within the categories 1- 5 storm surge zones. Vulnerability of property is directly related to the category and composition of the storm. Like people, the structures in close proximity to the main bodies of water, especially Santa Rosa Island, are vulnerable to high winds and water, as well as any floating or flying objects. Navarre Beach is entirely located within the storm surge zone for a tropical storm meaning that is also entirely within the storm surge zone for category 1- 5 hurricanes as well. Thus, hurricane evacuation capability is absolutely necessary for Navarre Beach development to continue and remain safe.

Table 2-B: Santa Rosa County Clearance Times In Hours Year 2000

	Low Seasonal	High Seasonal
	Occupancy	Occupancy
Category 1 Hurricane		
Rapid Response	7 (5 ¼)	7 ¼
Medium Response	8 (6 ¼)	8 ½
Long Response	9 ¾ (9 ¼)	10
Category 2-3 Hurricane		
Rapid Response	7 ¾	8
Medium Response	9	9 ¼
Long Response	10 ¾	11
Category 4-5 Hurricane		
Rapid Response	9	9 ¼ (8 ¼)
Medium Response	10 ¼	10 ½ (9 ½)
19 ¼ Long Response	12	12 ¼ (11 ¼)

Source: Northwest Florida Hurricane Evacuation Study Technical Data Report, 1999

Note: Times in parentheses reflect using participation rates of less than 100% in the areas to be evacuated.

Table 2-C: Santa Rosa County Projected Clearance Times In Hours Year 2005

	Low Seasonal	High Seasonal
	Occupancy	Occupancy
Category 1 Hurricane		
Rapid Response	8 ½ (6 ½)	8 ¾
Medium Response	9 ¾ (7 ½)	10 ¼
Long Response	11 ¾ (11 ¼)	12 ¼
Category 2-3 Hurricane		
Rapid Response	9 ½	9 ¾
Medium Response	11	11 ¼
Long Response	13	13 ½
Category 4-5 Hurricane		
Rapid Response	11	11 ¼ (10)
Medium Response	12 ½	12 ¾ (11 ½)
Long Response	14 ½	15 (13 ¼)

Source: Northwest Florida Hurricane Evacuation Study Technical Data Report, 1999

Note: Times in parentheses reflect using participation rates of less than 100% in the areas to be evacuated.

According to the Northwest Florida Hurricane Evacuation Study Technical Data Report (1999), evacuation clearance times for Northwest Florida are generally 24 hours or less. However, there will be storms with unusual meteorological characteristics and/or late behavioral response (like Hurricane Opal) where it is possible that only 18 or even 12 hours are available for evacuation. This could impact the number of evacuees that are able to evacuate. As shown in Tables 2-B and 2-C above, hurricane evacuation clearance times are considered to be within reasonable limits for Santa Rosa County. In Santa Rosa County, evacuation movements can work within a 12 hour clearance time frame as long as evacuees are warned of traffic conditions for long out of county movements (i.e. I-10 eastbound and I-65 northbound) and are encouraged to stay in county.

Subsection 2.B.3: Number of Persons Requiring Evacuation

According to the Northwest Florida Hurricane Evacuation Study Technical Data Report, 1999, and the Navarre Beach Existing Land Use Map (reference Map 2-1) there are no existing mobile home parks or marinas with boat storage located on Navarre Beach. Further there are only four critical facilities located on the beach, the Navarre Beach Volunteer Fire Department, the Navarre Beach Sewage Treatment Plant, and Navarre Beach potable water wells #2 and #3. However, it should be noted that the two wells remaining on Navarre Beach are used only for emergency backup.

The following Tables 2-D and 2-E provide population information by hurricane evacuation zone. Hurricane evacuation zones are those areas that need to be evacuated for a particular hurricane scenario to protect residents at risk from flooding or high winds. These evacuation zones were used in the Northwest Florida Hurricane Evacuation Study Technical Data Report, 1999, to estimate the evacuating population and number of evacuating vehicles. It should be noted that the Category 1 evacuation zone is also considered the coastal high hazard area and therefore has land use/growth management implications. These implications are discussed later in Part 2 of this document.

Table 2-D: Santa Rosa County Vulnerable and Total Population by Evacuation Zone – Year 2000

Evacuation Zone	Mobile Home Surge Vulnerable Population	Total Mobile Home Population	Non-Mobile Home Surge Vulnerable Population	Surge Vulnerable Tourist Population	Vulnerable Population (Columns 3+4+5) Total
Total Population	24,915	24,918	88,933	3,912	117,760
Category 1 Evacuation Zone	2,648	24,918	11,784	2,907	39,606
Category 2-3 Evacuation Zone	5,159	24,918	18,693	2,913	46,521
Category 4-5 Evacuation Zone	7,509	24,918	30,447	3,392	58,754

Source: Northwest Florida Hurricane Evacuation Study Technical Data Report, 1999

Table 2-E: Santa Rosa County Vulnerable and Total Population by Evacuation Zone – Year 2005

Evacuation Zone	Mobile Home Surge Vulnerable Population	Total Mobile Home Population	Non-Mobile Home Surge Vulnerable Population	Surge Vulnerable Tourist Population	Vulnerable Population (Columns 3+4+5) Total
Total Population	30,247	30,247	107,965	4,749	142,961
Category 1 Evacuation Zone	3,215	30,247	14,306	3,529	48,082
Category 2-3 Evacuation Zone	6,263	30,247	22,693	3,536	56,476
Category 4-5 Evacuation Zone	9,116	30,247	36,963	4,118	71,327

Source: Northwest Florida Hurricane Evacuation Study Technical Data Report, 1999

Subsection 2.B.4: Number of Persons Requiring Public Hurricane Shelter and Number of Hurricane Shelter Spaces Available

According to the Northwest Florida Hurricane Evacuation Study Technical Data Report, 1999, the percent of evacuees planning to use public shelters ranges from 5 to 15 percent depending on their risk zone, the storm intensity and their income. Table 2-F below shows the shelter demand for Santa Rosa County.

Table 2-F: Santa Rosa County Shelter Use and Availability Data

Santa Rosa County	Total Evacuating People	Evacuees Going to In-County Shelters	% of Evacuees Going to In-County Shelters
Category 1 Low Tourist Occupancy	39,402	4,047	10%
Category 1 Low Tourist (Realistic)*	26,258	2,495	10%
Category 1 High Tourist Occupancy	40,880	4,122	10%
Category 2-3 Low Tourist Occupancy	48,352	5,030	10%
Category 2-3 High Tourist Occupancy	49,857	5,106	10%
Category 4-5 1 Low Tourist Occupancy	65,598	7,064	11%
Category 4-5 High Tourist Occupancy	67,424	7,154	11%
Category 4-5 High Tourist Occupancy (Realistic)*	59,110	6,275	11%
TOTAL AVAILABLE SHELTER CAPACITY		7,150	

Source: Northwest Florida Hurricane Evacuation Study Technical Data Report, 1999
Santa Rosa County Emergency Management Division

The worst-case demand scenario, a category 4 or 5 hurricane during peak tourist season, would require shelter spaces for 6,275 evacuees. Due to the retrofit of shelters accomplished through the Hazard Mitigation Grant Program, Santa Rosa County now has 7,150 shelter spaces available. This means that there is a current surplus of 875 shelter spaces in Santa Rosa County.

Subsection 2.B.5: Evacuation Routes

The following roadways located within Santa Rosa County have been designated hurricane evacuation routes. These roadways are also depicted on Map 2-A.

- I-10 - Escambia County Line to Okaloosa County Line
- US 98 (SR 30) - Escambia County Line to Okaloosa County Line
- US 90 (SR 10) - Escambia County Line to Okaloosa County Line
- SR 87 – Alabama State Line to Terminus
- SR 89 – Alabama State Line to Terminus
- Avalon Boulevard (SR 281)– US 90 to US 98
- Chumuckla Highway (CR 197) – Alabama State Line to Terminus
- Munson Highway (CR 191) - Alabama State Line to Terminus
- Ward Basin Road (CR 89) - Alabama State Line to Terminus

Section 2.C: Physical Characteristics

Subsection 2.C.1: Description of Navarre Beach and the Region

Map 2-B illustrates the location of Navarre Beach, its geographical relationship to the City of Milton, Pensacola and other municipalities within the area. This map also depicts the location of the Beach at the southern most portion of Santa Rosa County. The City of Pensacola is located in the Northwest portion of Florida, just ten miles east of the Florida-Alabama border. Pensacola is the westernmost gateway to the “Emerald

Coast”, one-hundred miles of beaches, islands and peninsulas stretching east to Panama City Beach.

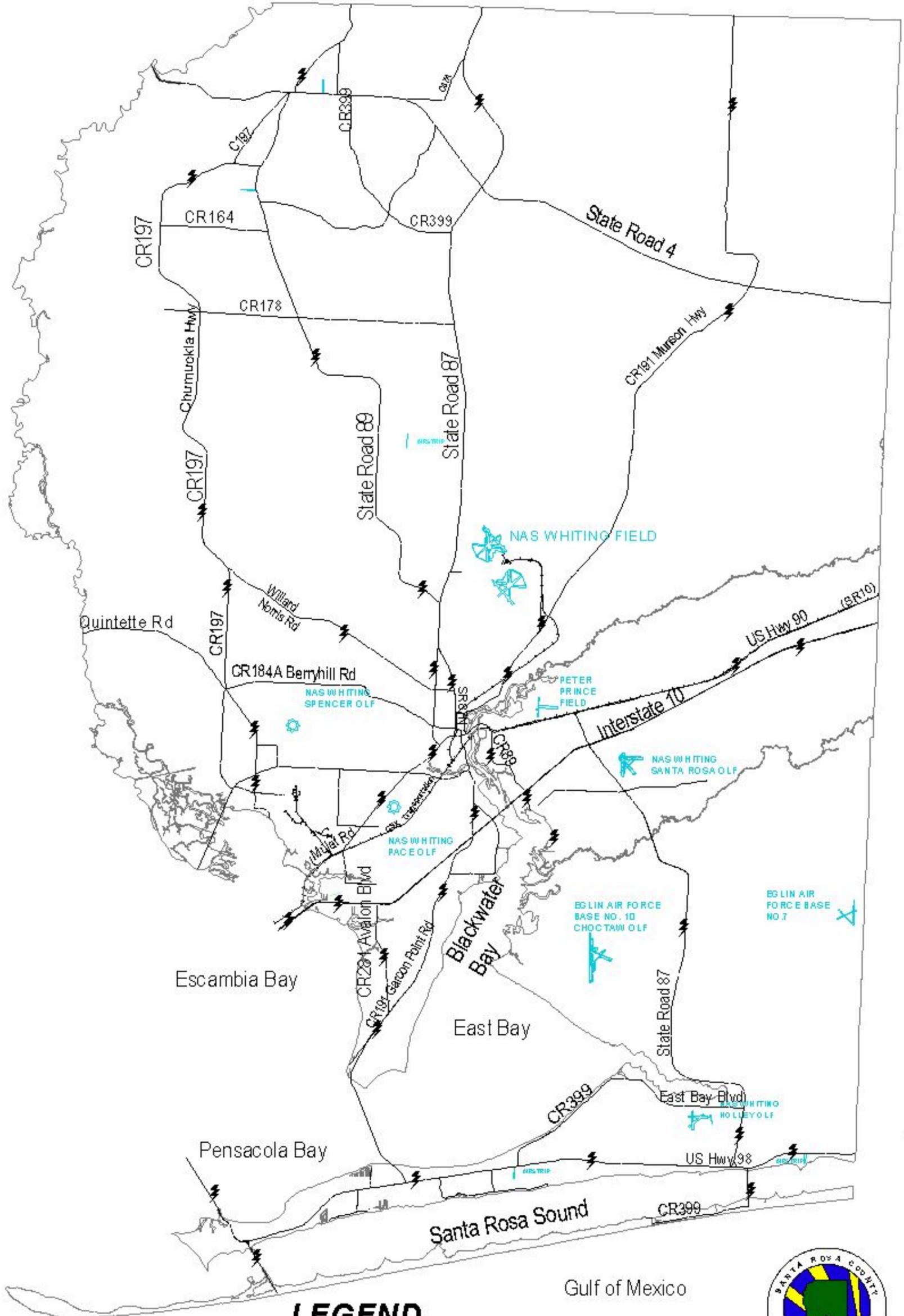
Navarre Beach is part of the Emerald Coast and consists of a four mile section of Santa Rosa Island, a barrier island separating mainland Santa Rosa County from the Gulf of Mexico and protecting the Pensacola, Escambia, East, and Choctawhatchee Bays. Navarre Beach is bound to the north by the Intercoastal Waterway, to the south by the Gulf of Mexico, to the east by Eglin Air Force Base, and to the west by Gulf Islands National Seashore. Pensacola Beach, a seven-mile stretch of residential and commercial development, lies to the immediate west of the Gulf Islands National Seashore. West of Pensacola Beach, the Gulf Island National Seashore continues encompassing Fort Pickens.

Navarre Beach is bounded on the east by about 14 miles of island within the Eglin Air Force Base Reservation. East of Eglin the Fort Walton Beach/Destin areas containing numerous beach front developments, tourist attractions and the eastern terminus of Santa Rosa Island. There are another six miles of Eglin property east of Fort Walton Beach and about 19 additional acres of the Gulf Islands National Seashore, all of which are located on Santa Rosa Island/Okaloosa Island.

The Okaloosa County portion of Santa Rosa Island that is available for development is about 3.5 miles in length and is almost built out. Similarly, only a few parcels on Pensacola Beach are still available for development, and many of the older structures/developments are being redeveloped.

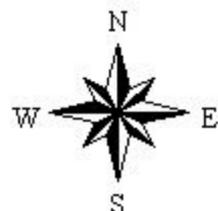
Combined, there are about 14.5 miles of the Island available for development and only about 4 such miles comprise Navarre Beach. About 45 miles of the Island are in Federal ownership, protection, and control. In addition, several hundred acres are set aside by the State and managed by the University of West Florida. All of these state

Map 2-A Santa Rosa County Hurricane Evacuation Routes Map



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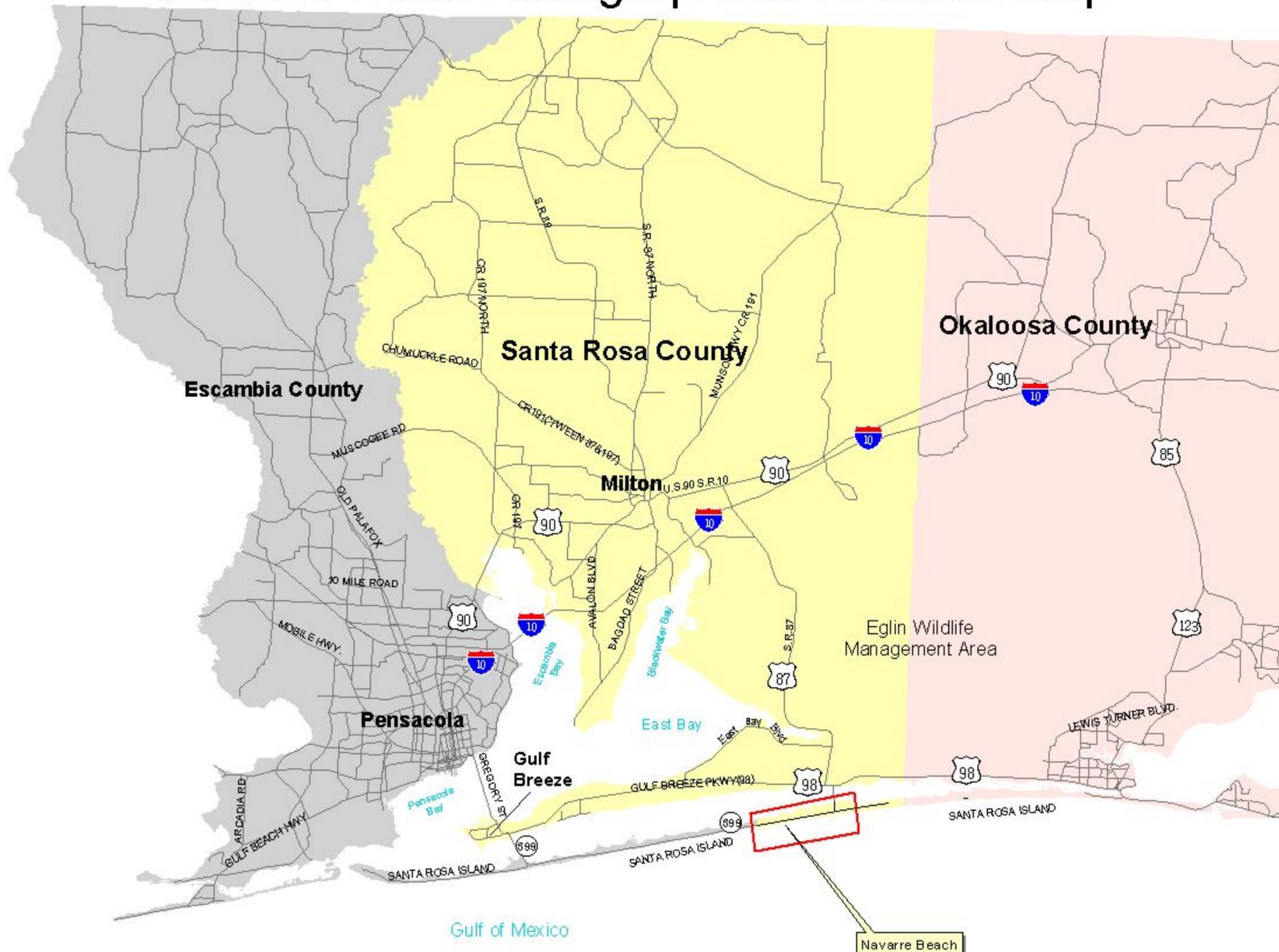
-  Roads
-  Railroad
-  Airfields
-  Evacuation Routes



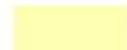
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Development Division
September, 2001

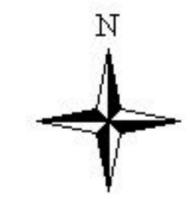
Map 2-B

Navarre Beach Geographical Location Map



Legend

-  Major Roads
-  County Boundaries
-  SANTA ROSA
-  ESCAMBIA
-  OKALOOSA



Not to Scale



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and federal lands are utilized for conservation and recreation purposes.

As noted, approximately four miles of the 60-mile length of Santa Rosa Island fall within Navarre Beach's boundaries. There is little variation in elevation or topography in Navarre Beach's approximately 800 acres. Dune formation and wetlands are the only significant features. The depth of Navarre Beach (measured between the Gulf and the Intracoastal Waterway) averages 1,800' to 1,900', varying from a narrow 1,400' to 2,400' at the widest point. These measurements are estimates at mean tide levels and may change with shifting sand movement.

Subsection 2.C.2: Temperature and Seasonality

The average mean temperatures for the area are 78°F in the spring, 82°F in the summer, 73°F in the fall, and 59°F in the winter. Area visitors are drawn to the beaches, but Navarre Beach's climate can be a limiting factor in its year-round appeal. Generally, maximum and minimum winter temperatures average 68°/49° in November, 69°/53°F in December, 56°/39°F in January, and 62°/44° in February. Swimming and beach use resumes as the weather warms, usually beginning Easter weekend, growing through the summer months then tapering of as temperatures cool in the fall.

Section 2.D: Infrastructure

Subsection 2.D.1: Transportation Facilities

Santa Rosa Island is accessible via the Pensacola Bay Bridge from the mainland and then via the Pensacola Beach Bridge (SR 399) from Gulf Breeze. The Navarre Beach Toll Bridge also connects the central part of the island to the Santa Rosa County mainland. The Navarre Beach toll bridge is the primary access point for visitors and residents entering Navarre Beach from the north. In the Ft. Walton Beach area, the Island is connected to the mainland via the Brooks Bridge. However, Navarre Beach is not accessible from this route.

The roadway system on Navarre Beach consists of Gulf Boulevard (SR 399), and undivided arterial that transverses the developed portion of Santa Rosa Island in Escambia and Santa Rosa Counties; White Sands Boulevard; and several small local streets (Map 2-B depicts the current roadway and street network on Navarre Beach).

The roadway system on the island is adequate for current traffic levels. The following Table 2-G provides the adopted level of service (LOS) standards for the significant roadway located on Navarre Beach and those utilized by visitors to access Navarre Beach. This table also provides the current operating levels of service for these roadways for comparison purposes. As identified in the table, SR 87S from SR 30 (US 98) to the southern boundary of Eglin Air Force Base is currently operating a LOS C. However, improvements are planned and funded for this section of SR 87S.

Table 2-G: Navarre Beach Roadway and Adjacent Roadway LOS

Segment Number	Roadway	Segment	Adopted LOS	Operating LOS
16	SR 30 (US 98)	From CR 191B (Soundside Drive) to Edgewood Drive	D (43,600)	B*
17	SR 30 (US 98)	From Edgewood Drive to Belle Mead Circle	D (32,800)	C*
18	SR 30 (US 98)	From Belle Mead Circle to Okaloosa County Line	D (61,800)	B*
22	SR 87S	From SR 30 (US 98) to Eglin Southern Boundary	D (35,700)	B
30	SR 399	SR 30 (US 98) to Fort Pickens Road	E (27,000)	B
41	CR 399	From south approach of Navarre Beach Bridge to Escambia County Line	D (24,800)	A

Source: Santa Rosa County Community Planning, Zoning & Development Division

* Operating LOS determined utilizing ArtPlan analysis.

Three sections of SR87 are being 4-laned. Two of the sections on the southern end are contiguous, resulting in a 4-laning of SR87 from US98 to the Eglin AFB southern boundary. The section from US98 to just north of Five Forks Road will be built in FY01/02. The section from just north of Five Forks Road to the AFB boundary will be built in FY03/04. One northern segment is being 4-laned; SR87 from CR184 (Hickory

Hammock Road) to US90 and is scheduled to be built in FY03/04. All of these projects were the #1 priority of the MPO before being funded and all are part of the special funding program started under Governor Bush's Mobility 2000 program. The specific SR 87 improvements are listed below:

1) SR87 from US98 to north of Five Forks Road (3.743 miles):

- Project description- Widen from SR87 from 2 to 4 lanes, construct bike lanes in the urban section and pave shoulders in the rural section
- Scheduling- both right-of-way acquisition and construction are scheduled for FY01/02
- This was the MPO's #1 priority and is a Mobility 2000 project

2) SR87 from north of Five Forks Road to the Eglin AFB southern boundary (2.987miles)

- Project Description- Widen from 2 to 4 lanes, pave 5-foot wide shoulders
- Scheduling-
 - ROW scheduled for FY01/02
 - Environmental Mitigation scheduled for FY02/03
 - Construction scheduled for FY03/04
- This was the MPO's #1 priority and is a Mobility 2000 project

3) SR87 from CR184 (Hickory Hammock Road) to US90 (3.38 miles)

- Project Description- Widen from 2 to 4 lanes, pave 5-foot wide shoulders
- Scheduling-
 - ROW scheduled for FY01/02
 - Construction scheduled for FY03/04
- This was the MPO's #1 priority and is a Mobility 2000 project

Note: In FY04/05 FDOT will be doing rehabilitation work on several bridges on SR87. This will not result in any increases in capacity.

Subsection 2.D.2: Potable Water

Navarre Beach is served by Santa Rosa County owned potable water and sanitary sewer treatment facilities. Both systems have undergone expansion in recent years and contain the necessary capacity to adequately serve present demand levels as well future demands at the development potential indicated on the current and proposed Future Land Use Map.

Navarre Beach Water System is presently interconnected with Midway Water System by a sub aqueous HDPE pipeline under Santa Rosa Sound and has a contractual agreement to purchase 400,000 gpd of water. There are two wells remaining on Navarre Beach that are used only for emergency backup. As permitted by the Northwest Florida Water Management District, the Navarre Beach wells have a maximum combined withdrawal of 541,000. The general condition of each well site on Navarre Beach is inspected daily by Navarre Beach operators and two inspections are preformed annually by the Florida Department of Environmental Protection (FDEP). With the connection to Midway, the two (2) island wells have a highly desirable minimal impact on the Floridan Aquifer. To Further protect the Floridan, the County will connect to and become a wholesale customer of the Fairpoint Regional Water System when it comes on line in the future.

The Fairpoint Peninsula Water Supply Development Project provides financial assistance through a federal EPA grant obtained by the District for the design and development of the Sand-and-Gravel Aquifer inland wells for the Fair Point Peninsula. The Northwest Florida Water Management District is providing \$328,000 in financial assistance for the development of this water project in the form of a grant-in-aid. The District has secured federal assistance for the construction phase of this project as an alternative water supply. The project supports establishment of a dependable, sustainable supply of water, which is not otherwise financially feasible. The project also provides substantial environmental benefits by preventing or limiting adverse water resource impacts, but requires funding assistance to be economically competitive with

other options. The project will include the development of an estimated 6.3 Mgal/d and will alleviate pumping from the Floridan Aquifer along the coast in southern Santa Rosa County. Estimated construction costs are \$19 million. The project funding is primarily by the public utilities².

Subsection 2.D.3: Sanitary Sewer Facilities

With regard to wastewater disposal, the Santa Rosa County Board of County Commissioners has entered into an administrative order with FDEP to study, design, permit, and construct an effluent disposal system which will remove current Santa Rosa Sound effluent disposal practices. The current deadline for completion is November 17, 2002; however, FDEP is currently reviewing and supports a time extension request to allow SRC to investigate a regional disposal system on Eglin AFB. Therefore, the County has requested a new deadline of May 5, 2005 for completion of this alternate disposal system and expects FDEP's time extension approval within 60 days.

Subsection 2.D.4: Storm Water Management

The operating LOS for storm water management currently requires the retention of the first one inch of run-off for a 100 year storm event. This revision was accomplished by ordinance and amendment of the County's Land Development Code. Further, percolation rates and other characteristics of the soils at Navarre Beach are such that storm water management is not difficult and compliance with all adopted standards is the norm.

Subsection 2.D.5: Recreation and Open Space

See Part 4: Public Access

Subsection 2.D.6: Solid Waste

There are now about 593 gross acres in the central landfill. The average daily tonnage

² Regional Water Supply Plan, Northwest Florida Water Management District, July 2000

being received at the Central landfill is 140-160 tons per day. Only about 84 of the 593 acres has been filled which means that the landfill could be projected to have a 75 year design life. Several private landfills also operate within the County, serving to further increase available capacity. As such there is capacity available to last well beyond the 2020 planning time frame.

Subsection 2.D.7: Public Safety

There is one volunteer fire department in operation on Navarre Beach and police protection is provided by the Santa Rosa County Sheriff.

Section 2.E: Historical Resources and Sites

According to the Santa Rosa County, Florida Cultural Resource Management Geographical Information System, 2000, there are no Florida Master Site File archaeological sites or historical structures on Navarre Beach. Also, as part of this research, the Prehistoric Site Location Model was utilized. This model delineates high medium and low probability areas for prehistoric archaeological deposits. The model is based on environmental characteristics that are consistently associated with archaeological sites (land forms, drainage characteristics, distance to potable water). For Navarre Beach this model indicates the shoreline to be within a high probability zone with inland areas indicated as medium probability zones (reference Map 2-C). Since the shoreline is protected from encroaching development by FDEP and County regulations, the protection of these resources is not of issue (reference Appendix 1, Santa Rosa County Land Development Code Excerpt - Coastal Construction/Shoreline Protection Regulations).

Section 2.F: Environmental Resources and Characteristics

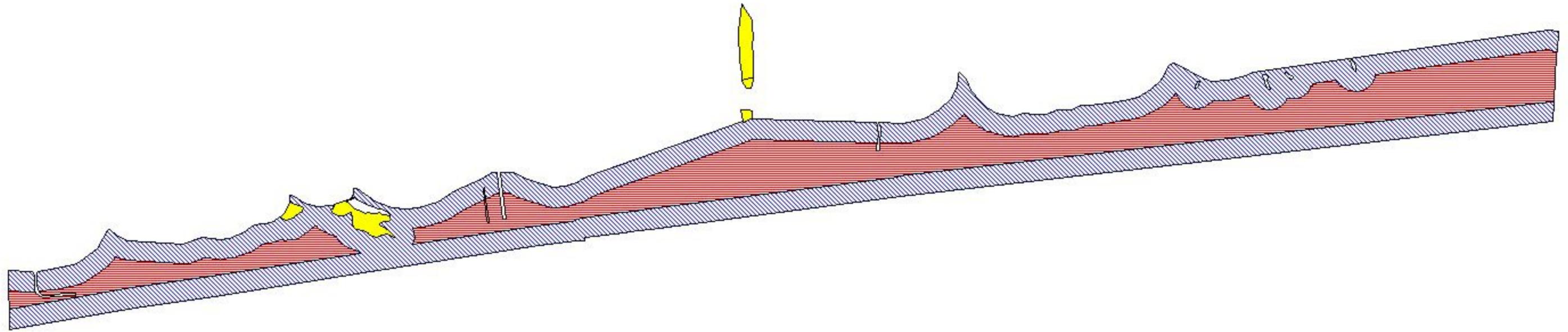
The scope of this subsection is to present an inventory of the natural resources by parcel on Navarre Beach and to describe their functions and susceptibility to possible

adverse impacts caused by development. The inventory was prepared utilizing aerial photo interpretation and various environmental maps currently available from various state and federal sources. The photo interpretation was conducted by utilizing digital orthophotography dated January 2001 (reference Map 2-D). The Northwest Florida Water Management District's wetland data, the National Wetlands Inventory Map (US F&WS) and the Biodiversity Hotspots Map (FFWCC) were utilized to a certain extent as well (reference Maps 2-E, 2-F, and 2-G). It should be noted that these data sets cannot be accurately applied on a parcel specific basis.

Map 2-C

Navarre Beach

Prehistoric Site Location Model Results



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Prehistoric Probability Zones

-  Low Probability
-  Medium Probability
-  High Probability

Geographic Data, Research and Analysis
Provided by
University of West Florida
May 2000



0.2 0 0.2 0.4 0.6 0.8 1 Miles



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