



# *Board of County Commissioners St. Johns County, Florida*

## *Water Dependent Uses and Marine Study St. Johns County Planning Division*



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**ST. JOHNS COUNTY WATER DEPENDENT USE STUDY**  
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# ***EXECUTIVE SUMMARY***

## EXECUTIVE SUMMARY

This Water Dependent Uses and Marine Study has been undertaken to help St. Johns County officials plan for the anticipated growth of the County, and the future needs for water dependent use facilities such as boat ramps, marinas, private docks and commercial facilities. With an expected growth in population of 60% by the year 2015, St. Johns County will quickly exceed the capacity of the existing water dependent use facilities available to the general public. This Study has utilized a scientific and statistical approach to determine the future requirements for wet slip and dry slip (dry stack) units located at marinas, boat ramp lanes, boat ramp parking, private docks, and commercial facilities.

To meet these demands for new water dependent use facilities, locations of new and expanded facilities have been determined based on environmental and developmental constraints currently existing in the County. These constraints include, but are not limited to, manatee mortality, submerged aquatic vegetation, population center locations, water quality classifications, shellfish harvesting, vehicle access and waste water treatment availability.

To ensure that new facilities contribute minimal adverse effects to the environment, and are properly constructed and sited, a Marina Facility Siting, Planning, Implementation and Control element has been incorporated into this Study. This element will help the County establish realistic requirements that should be incorporated into all new and expanded facilities, and provide guidance for County Planners and Regulators when reviewing new marine development projects.

## ***SECTION 1.0***

### ***INTRODUCTION***



## 1.0 INTRODUCTION

Applied Technology & Management, Inc. (ATM) has completed this Water Dependent Uses and Marine Study for the St. Johns County Planning Department under the direction of Vickie Renna. The study should serve as a baseline for the planning of future water dependent uses in St. Johns County. Chapters of this report address the existing facilities within the County, future demands for new and expanded boat ramps and marinas, siting considerations for public and commercial water dependent uses, and proposed regulations for the planning of new facilities.

For many citizens not living on waterfront property, boat ramps and marinas provide the only access to the waters of St. Johns County. It is imperative that sufficient facilities exist to provide this access. Interest in protecting the County's water resources, wildlife, flora/fauna and water quality can only be achieved through careful marine management.

### 1.1 Purpose

St. Johns County is one of the fastest growing counties in Florida and the Southeastern United States. According to the Bureau of Economic and Business Research (BEBR, 2001), the projected population in the County may increase by 60% by the year 2015. Because of the vast amounts of water surrounding the County, St. Johns County has a high ratio of registered vessels per resident (nearly one registered vessel for every ten citizens). With this projected growth, existing water use facilities will not be able to meet the demand of County residents. Figure 1 shows the County's most recent existing land use map. Comparing the 2015 Future Land Use map to Figure 2, it is apparent that the County is aware that it will be experiencing continued rapid growth. Figure 3 shows where the currently planned major developments will occur. In order to address the need for future water dependent use facilities such as boat ramps and marinas, the County must start planning now for this future growth.

The purpose of this Water Dependent Uses and Marine Study is to identify the future needs of St. Johns County for docks, ramps, public and new commercial marinas (wet and dry slips) based on the projected need, location and environmental constraints. In part, this Study functions as a continuation of the 1990 State Blue Ribbon Marina Siting study which inventoried and assessed the need for additional marinas in the State of Florida.

### 1.2 Water Dependent Use Geography of St. Johns County

St. Johns County is different from most counties in the State from a water use perspective in that it has two distinct and separate major water bodies that are not interconnected within the County. The eastern portion of the County is focused on the Intracoastal Waterway (ICW), which is comprised of the Tolomato, Guana, and Matanzas Rivers and their tributaries. The ICW stretches south from the Duval County line for approximately 52 miles to the Flagler County line. It encompasses two Atlantic Ocean inlets (St. Augustine and Matanzas), and untold miles of tributaries and creeks, including the San Sebastian River, Guana River, Pellicer Creek, and others. At the present time, nearly 80% of the County's public and private water dependent use facilities (boat ramps/marinas) are concentrated on the ICW.

The St. Johns River borders the County on its western boundary. There are very limited facilities on the River, and only two older marinas exist within the County. The northwestern portion of the County will see significant growth in the near future, and the St. Johns River will be the primary source of water access for many new residents.

### 1.3 Goals and Objectives of this Study

This Water Dependent Uses and Marine Study inventories and assesses the need for additional docks, ramps and public marinas (wet and dry slips) within the County. This demand for facilities is balanced with the environmental and developmental constraints within specific regions of the County, and takes into account such critical criteria as water quality, sea grasses, manatees, shell fish harvesting, storm protection, bathymetry and other suitability criteria. Specific elements of this Study include:

- A profile of the supply and demand characteristics of boaters
- Inventory and mapping of existing water dependent use facilities such as ramps, docks, and marinas
- Suitability evaluation of potential sites for expansion
- Identification of regulatory criteria that affect development and protection of the County's marine resources
- Creation of new water-dependent use standards and procedures
- Proposed Water Dependent Uses and Marine Land Development Regulations (LDRs)

The results of this Study will assist the county in determining how to achieve sustainable coastal development, guide the future uses along the shoreline, prioritize water dependent and water related uses, and provide guidance for the creation of new land development regulations. This Study is a requirement of the St. Johns County 2015 Coastal/Conservation Element of the Comprehensive Plan.

### 1.4 Rationale of Procedure

Within the State of Florida, several Counties have developed and undertaken projects similar to this Water Dependent Uses and Marine Study. Because St. Johns County has experienced accelerated growth rates (within the last 7 years), obtaining background information to base this study on has been difficult, to non-existent. There is very limited reliable information on boating statistics and trends in the County. Previous reports conducted on a statewide basis have grossly underestimated the future needs of St. Johns County for water dependent use facilities. This Study will serve as a baseline for future work in the County.

The basic procedures for conducting this Study are based on other Florida County's work, but the information has been altered to address the unique characteristics of St. Johns County. While previous studies have focused mainly on statistics and mathematical interpretation of data, care was taken during this study to become

exceptionally familiar with the intrinsic details and special conditions in this area. A large amount of time was spent in the field visiting sites and approaching the project as citizens of the County and patrons of the facilities. Another critical element of this study was input from all affected parties, including St. Johns County staff, the Florida Department of Environmental Protection (FDEP), St. Johns River Water Management District (SJRWMD), University of Florida (UF), Department of Community Affairs (DCA), and private citizens. Where precise information and data was missing, input from these contacts filled the gaps.

Instead of investigating individual parcels for suitability for new and expanded facilities, a Regional and sub-regional approach was undertaken. The County was separated into four Regions (Intracoastal North and South, St. Johns River North and South) and then sub-regions. The sub-regions were not based on geographical size, but rather similar characteristics such as water quality, future growth, etc. Each sub-region was assigned scores for different environmental and developmental criteria. These scores were based on available information and input from local specialists. The combined scores were then tabulated and each sub-region was rated accordingly. While some of the criteria is subjective due to the lack of available information and interpretation, the final scores and ratings are clearly delineated into specific rating groups.

The results of this Study will assist St. Johns County Planners in addressing the future water dependent use needs of this rapidly growing County.

## ***SECTION 2.0***

# ***EXISTING FACILITIES INVENTORY***

## 2.0 EXISTING FACILITIES INVENTORY

As part of this study, all of the existing water dependent use facilities in St. Johns County were visited, including marinas, boat ramps, commercial docks, and boat yards. Both private and public facilities were assessed and documented. Site assessment forms for individual sites are located in Appendix A. Facilities were classified as “Public” if they were open for use by the general population, even if a fee were required such as a fish camp. “Private” facilities were limited to use only by patrons who were members, such as condominium associations, and yacht clubs, etc.

Boat Ramp facilities have been rated using a system which describes the usability of the ramp by the general public. Ramps rated an “A” are considered to be able to handle any trailerable boat. A “B” classified ramp is generally limited to boats 22 feet or less in length, depending on individual boat drafts and launch vehicle considerations (4 wheel drive, etc.). A ramp rated with a “C” is considered unimproved, or unsuitable for most trailered boats. Any ramp which is not paved is considered a “C” ramp. There are several areas in St. Johns County where residents launch small boats off the side of the road, such as near Matanzas Inlet and along portions of the St. Johns River. These areas are too numerous to count and were not considered for obvious reasons. Only County, State, or privately owned and maintained ramps were considered. For the purpose of this study, the waterfront areas of the County were separated into specific aquatic regions as shown in Figure 4.

A detailed inventory of the existing facilities in each of the four major regions (ICW-N, ICW-S, SJR-N and SJR-S) is provided in the following sections. Table 2-1 summarizes the existing marina facilities in St. Johns County, and Table 2-2 summarizes the existing boat ramps in St. Johns County. The total number of existing wet slips, dry slips, private docks, ramp lanes and trailer parking spaces is shown in Table 2-3. Information regarding future proposed expansion of any of these facilities is also addressed. Locations of facilities are shown in Figures 5 - 8.

### 2.1 Intracoastal Waterway – North (ICW-N)

This area of the ICW running from the Duval County boundary line south to St. Augustine Inlet has two public marinas (Comachee Cove and Sea Love Marina) with a total of 335 wet slips, almost all of which are at Comachee Cove (325 slips). Sea Love Marina, which is located under the eastern side of the SR A1A bridge, houses several charter fishing vessels and is considering an expansion of several slips. However no detailed planning or permitting has begun, and the increase in slip counts is unknown. Both marinas are at nearly 100% occupancy. A third, smaller private marina is in the permitting stage just north of Sea Love Marina. The original permit for a 20-slip marina has expired, and landowners are currently seeking to re-permit the site for the original 20 slips. This area of the ICW also has two private marinas (Marsh Landing and Villages of Vilano) with a total of 140 wet slips. The slips at Marsh Landing are for larger vessels in the 40+ foot range, while Villages of Vilano slips are in the 18 – 45 foot range. Occupancy rates at these facilities vary heavily with seasonal fluctuations, with most slips full in the winter months.

There are six public boat ramps in this region, providing a total of nine launch lanes and 323 trailer parking spaces. However, two of these ramps (1 lane each) are considered

unimproved, “C” rated ramps and are limited to very small motorized vessels or canoes/kayaks. These two unimproved ramps located within Guana River State Park are owned and maintained by the State. This leaves four ramps with a total of seven lanes available to the general public. Four of these lanes are located at Vilano Basin (“A” ramp), the most popular and largest ramp in St. Johns County. This facility currently has approximately 250 parking spaces; however, a planned expansion in 2002 will add another 50 spaces at the ramp. The other public ramps, with one lane each, are Pine Island Fish Camp (“B” ramp), Oscars Fish Camp (“B” ramp), Boating Club Road (“B” ramp).

Two private boat ramps are also located in this region, each with one lane. St. Augustine Boating Club (“A” ramp) which is located directly adjacent to Boating Club Road Ramp is used only by club members. Villages of Vilano Condominium (“A” ramp) also has a ramp in the marina basin which can be used only by condominium residents.

A new public ramp is planned for the Palm Valley Bridge area to replace the private ramp which was closed to facilitate new bridge construction. According to U. S. Army Corps of Engineers (USACE) officials, the new ramp should be completed by fall of 2002 if funding is secured. If constructed, this ramp would alleviate many of the water access deficiencies in the ICW-N region. This is critical, considering the existing growth of Palm Valley/Ponte Vedra Beach, and the planned Nocatee development.

There are approximately 446 private docks in this region, most of which are associated with single-family dwellings. This number was ascertained from a visual count using detailed aerial photography provided by the county. Dock counts from permits were considered inconclusive due to inconsistencies in permitting and construction verification. Most inhabited parcels along the waterfront in this region have some form of private dock.

## 2.2 Intracoastal Waterway – South (ICW-S)

The Intracoastal Waterway – South Region extends from St. Augustine Inlet south to the Flagler County line. The majority of St. Johns County’s water dependent use facilities are located in this Region, with the largest concentration in the City of St. Augustine general area.

The San Sebastian River is home to all commercial facilities in the County, including four boat yards and one commercial dock. The boatyards (St. Augustine Marina, Symi/Xynides, High Tide Boat Works, and Luhrs) provide new construction and major repairs of larger vessels. Symi/Xynides caters exclusively to repair and outfitting of commercial vessels (mostly fishing), while High Tide Boat Works and St. Augustine Marina cater to both commercial and private vessels. Luhrs is a major manufacturer of large offshore recreational private fishing vessels. None of these facilities have permanent wet or dry slips for any vessels other than those under going repair or construction.

St. Johns County’s only fully commercial dock is also located in the San Sebastian River. Marine Supply and Oil owns the large dock paralleling the river on the north side. Portions of this dock and the adjacent upland parcels are rented to various tenants, including a wholesale fish supplier, marine repair and equipment supplier, and other vendors supplying materials for the commercial fishing fleet.

Within this region, there are eight public marinas with approximately 396 wet slips available. One of these eight, Sebastian Harbor Marina, has no wet slips, but provides the County with the only readily accessible dry storage units (150 units). St. Augustine Marina, which was discussed above and is classified as a boat yard for this study, is currently undergoing permit review for the addition of 250 dry storage units. According to FDEP sources, this expansion will likely be approved, bringing the total number of dry storage units to 400, all located in the San Sebastian River. Oasis Boat Yard & Marina has only 20 wet slips, however the upland parcel provides storage for many sailboats. These vessels must be launched with a travel lift, and it is not intended for daily use. The largest marina in this region is Conch House Marina, located in Salt Run. This facility currently has 104 wet slips and is in the process of adding an additional 43 slips. This expansion should be complete in 2002. Other public marinas in the St. Augustine area include St. Augustine City Marina (85 slips), Hidden Harbor Marina (42 slips), Oyster Creek Marina (80 slips), and Fish Island Marina (50 slips). Private marinas include Views at Baypointe Condominiums (24 slips), and English Landing (38 slips).

Further South, near County Road 206, are two smaller marinas. Genung's Fish Camp/Coastal Outdoor Center is a newly renovated marina for smaller boats and canoe/kayak rentals. It has capacity for 15 boats less than 20 feet in length. A second private marina basin is located at the Sunrise Harbor Condominiums. The marina is defunct, and docks and bulkheads are beyond repair. However, the basin could be redeveloped into a viable small private or public marina. For this study, it is considered to have no usable slips. In the extreme southern portion of this region is Marineland Marina. Although it is actually located in Flagler County, it is considered a marina of regional impact. This facility has been permitted for re-development of an 85-slip marina. Actual construction dates have not been determined. When complete, this facility will provide additional slips for the southern portion of the County.

There are eight public boat ramps in the ICW-S Region providing a total of 10 launching lanes and approximately 117 trailer parking spots. Of these eight, five of the ramps are "C" rated ramps and not suitable for general public boat launching. Favor Dykes State Park has a ramp which is shallow and is generally limited to very small boats and canoes/kayaks. Green Street Ramp in Crescent Beach is a well-constructed ramp, however it is located in a residential area, and no parking is available. A third, un-named "C" rated ramp is located along the northern shore of Moultrie Creek. It has limited parking, and is too shallow for most trailered boats.

Doug Crane Park on the western shore of the ICW and Palmetto Road Ramp on the eastern shore provide "B" rated launch facilities, however there is limited depth and parking at both of these sites. Future plans call for upgrading the parking at Doug Crane Park; however, no additional spaces are planned.

Lighthouse Park ("A" rated ramp) provides the best launching facilities in the northern portion of this region, while Frank Butler Park provides "B" level launching capabilities. Frank Butler Park is very suitable for expansion. Further south is Devils Elbow Fish Camp ("B" rated ramp), which has a planned expansion and upgrades scheduled for 2002.

There are 204 private docks in this Region. The smaller amount of docks in this region compared to the ICW-N Region is due in part to the wide tracts of marsh and wetlands between the upland parcels and the open water.

### 2.3 St. Johns River – North (SJR-N)

The northern portion of the St. Johns River in the County extends along the eastern shore from the Duval County line to the Shands Bridge. While this area of the County is experiencing very large growth, there is only one facility offering wet slips. The Amity Inn Anchorage is an older marina with 48 available slips. It has limited amenities, and shoaling in the area has limited the number of usable slips. There are no other public or private marinas in this region.

In addition to the lack of wet slips in the SJR-N region, there are also no dry storage facilities or boat ramps. The only alternative for resident boater access in this region is to travel north to Duval County or facilities in the southern portion of the River.

As with other areas in the County, the majority of occupied or developed waterfront parcels have private docks. There are approximately 268 docks in this region. Many of these docks have boathouses or lift capabilities.

### 2.4 St. Johns River – South (SJR-S)

The SJR-S region extends from the Shands Bridge south to the County line. In this region, there is one public marina offering wet slips. Pacetti's Campground has approximately 30 slips. The facility has limited amenities, and many of the docks need refurbishment. A newly planned development called Rivertown Estates has recently applied to FDEP for the construction of 4 temporary wet slips within the project area. These new slips, if approved, will have no effect on the regional impact. A similar development in this region had obtained permit approval for the construction of a marina with 50 –60 wet slips. However, due to several reasons, the marina was never constructed, and the permit has expired. There are no other public or private marina facilities in this region.

There are currently six public boat ramps in the SJR-S region, providing seven launch lanes and approximately 95 trailer parking spaces. Of these six, 2 are considered "C" level ramps, and are not readily usable for most boaters. The Moody Canal ramp is located in a residential subdivision at the end of a canal. Although partially improved, it has no on-site parking and limited depth. It is used almost exclusively by local residents launching and retrieving their boats on a seasonal basis. The second "C" ramp is located at Six Mile Marina on Six Mile Creek. This facility, also referred to and owned by The Outback Crab Shack, is a limited use ramp for canoes, kayaks, and very small boats. It is only open for launching during the weekdays and is not available on weekends.

There are two ramps located near the mouth of Trout Creek. Trout Creek Park is a two-lane facility owned by the County which provides the best access to the River for St. Johns County boaters. This "A" rated ramp has approximately 40 parking spaces or more, and adequate depth for all trailered boats. Pacetti's Campground has a ramp associated with the marina. This "B" rated ramp is usable for a fee and has room for



approximately 20 parking spaces. Also located in this vicinity of the River is Palmo Boat Ramp ("B" rated), another County owned ramp. Planned expansion for this ramp includes acquisition of adjacent property for parking and maintenance dredging. Further south is Riverdale Park ("B" rated ramp), which has limited parking and water depth launching capabilities. Future expansion plans call for maintenance dredging and ramp improvements under Phase I, and additional parking areas under Phase II sometime in 2003.

There is one private ramp in this region. The old Tocol Fish Camp has been sub-divided to private units. The ramp remains in place, but is only available to residents, and has little or no parking.

There are 286 private docks in this region, and no boat yards or commercial docks.

**Table 2-1 St. Johns County's Existing Marinas/Boatyards/Commercial Docks**

Facility Name	GIS/ID	Zone	Type	# Wet Slips	# Dry Units	Expansion Potential	Size Range	Occupancy	Notes
St. Augustine City Marina	PBM-01	ICW-S(1)	Public	85	0	2 (wet)	20'-110'	80%	Caters to larger vessels and transients; prone to storm damage
Oasis Boat Yard & Marina	PBM-02	ICW-S(1)	Public	20	0	1 (both)	20'-60'	90%	Boat yard with repair & lift facilities.
Hidden Harbor Marina	PBM-03	ICW-S(1)	Public	42	0	2 (wet)	Unl.	100%	Newer Facility at former commercial boat dock
Oyster Creek Marina	PBM-04	ICW-S(1)	Public	80	0	2 (wet)	30'-110'	90%	Busy wet slip facility with abandoned or un-used boat ramp
Sebastian Harbor Marina	PBM-05	ICW-S(1)	Public	0	150	3 (N/A)	30' max	80%	Dry Stack Only.
Sea Love Marina	PBM-06	ICW-N(3)	Public	10	0	1 (wet)	Unl.	100%	Planned Expansion in Future.
Comanchee Cove	PBM-07	ICW-N(3)	Public	325	0	2 (wet)		95%	Haulout & Repairs; Full Service.
Conch House Marina	PBM-08	ICW-S(1)	Public	104 (+43)	0	1 (wet)	120' max	80%	Planned Expansion to 147 slips.
Fish Island Marina	PBM-09	ICW-S(1)	Public	50	0	2 (wet)	30'-50'	100%	Quiet facility on east side of ICW with protected basin
Coastal Outdoor Center	PBM-10	ICWS(2)	Public	15	0	3 (N/A)	<20'	95%	Newly Renovated Marina
Views at Baypoint	PVM-01	ICW-S(1)	Private	24	0	3 (N/A)	40' max	100%	Private Dockominium w/ Condo.
English Landing	PVM-02	ICW-S(1)	Private	38	0	3 (N/A)	50' max	100%	Private Marina.
Villages of Vilano	PVM-03	ICW-N(3)	Private	40	0	3 (N/A)	18'-45'	90%	Facility also has ramp.
Sunrise Harbor	PVM-04	ICW-S(2)	Private	-	-	3 (N/A)	-	-	Facility destroyed; For Sale & Repair.
Marsh Landing Marina	PVM-05	ICW-N(1)	Private	100	0	3 (N/A)	17'-85'	80%	Private Marina.
St. Augustine Marina	BOATY D1	ICW-S(1)	Boat Yard	-	(250)	-	-	-	Boat Repair Facility; planned addition of 250 dry slips under permit review
Symi/Xynides	BOATY D2	ICW-S(1)	Boat Yard	-	-	-	-	-	Boat Repair Facility (Commercial).
Luhrs Boat Yard	BOATY D3	ICW-S(1)	Manufacture	-	-	-	-	-	Manufacture & Repair Facility.
High Tide Boat Works	BOATY D4	ICW-S(1)	Boat Yard	-	-	-	-	-	Limited Boat Repair Facility (No direct water access capability).
Marine Supply & Oil	CMDOC K1	ICW-S(1)	Commercial Docks	-	-	-	-	-	Seafood, supplies, fuel, commercial facility.
Amity Inn Anchorage	PBM-A	SJR-N(2)	Public	48	0	1 (wet)	20'-46'	85%	Needs dredging and dock improvement.
Pacettis Camp Ground	PBM-B	SJR-S(1)	Public	30	0	2 (wet)	17'-30'	80%	Needs new docks.

Marina Notes:

- 1) Public - Open to anyone; May or May Not Require Fee
- 2) Dry Units - Number of storage units dedicated to boats that can be put in water at Facility

**Table 2-2 St. Johns County's Existing Boat Ramps**

Facility Name	GIS/ID	Zone	Type	Rating	# Lanes	Estimated Parking	Expansion Potential	Notes
Pine Island Fish Camp	PBR-01	ICW-N(2)	Public	B	1	20	Fair	Limited depth and navigation
Doug Crane Park	PBR-02	ICW-S(1)	Public	B	1	20	Fair	Limited depth and navigation, planned parking upgrade
Un-named - Moultrie Creek	PBR-03	ICW-S(1)	Public	C	1	5	Fair	Very limited depth.
Six-Mile Ramp - Guana River	PBR-04	ICW-N(2)	Public	C	1	15	Poor	Access only to Guana Lake
Guana Dam Ramp	PBR-05	ICW-N(2)	Public	C	1	20	Poor	Lake access only; 10 hp or less restriction
Oscars	PBR-06	ICW-N(3)	Public	B	1	10	Good	Expansion possible if acquisition of adjacent property.
Boating Club Road	PBR-07	ICW-N(3)	Public	B	1	8	Good	Expansion possible if combined with adjacent ramp.
Vilano Boat Basin	PBR-08	ICW-N(3)	Public	A	4	250 (+50)	Fair	Planned parking expansion; Ocean access.
Lighthouse Park	PBR-09	ICW-S(1)	Public	A	3	30	Fair	Located within Recreation area
Palmetto Road Boat Ramp	PBR-10	ICW-S(2)	Public	B	1	4	Poor	In residential area; very limited parking.
Frank Butler Park	PBR-11	ICW-S(2)	Public	B	1	30	Good	Very high expansion potential, would need ramp improvement
Green Street Ramp	PBR-12	ICW-S(2)	Public	C	1	3	Poor	In residential area; limited use.
Devils Elbow Fish Camp	PBR-13	ICW-S(2)	Public	B	1	20	Good	Planned expansion. May add additional ramp.
Favor Dykes State Park	PBR-14	ICW-S(3)	Public	C	1	5	Poor	State Park access to Pellicer Creek.
St. Augustine Boating Club	PVR-01	ICW-N(3)	Private	A	1	30	Good	Combination with Public Ramp on Boating Club Road. (PBR-07)
Tradewinds Condominiums	PVR-02	ICW-S(2)	Private	B	1	0	Poor	Private; little upland.
Villages of Vilano	PVM-03	ICW-N(3)	Private	A	1	0	Poor	Private in condo; Also Private Marina (PVM-03).
Moody Canal Road	PBR-A	SJR-S(1)	Public	C	1	0	Poor	In residential area; no parking.
Trout Creek Park	PBR-B	SJR-S(1)	Public	A	2	40	Fair	Well maintained ramp.
Six Mile Marina Ramp	PBR-C	SJR-S(1)	Public	C	1	10	Poor	Associated with restaurant; limited use.
Palmo Boat Ramp	PBR-D	SJR-S(1)	Public	B	1	10 (+15)	Good	Used primarily by commercial fishermen; planned expansion.
Riverdale Park	PBR-E	SJR-S(3)	Public	B	1	15	Good	Very high expansion potential, would need ramp improvement.
Deep Creek Ramp	PBR-F	SJR-S(3)	Public	C	1	5	Fair	Planned landing improvements
Old Tocol Fish Camp	PVR-A	SJR-S(3)	Private	B	1	0	Poor	Private for condos.
Pacettis Campground	PBM-B	SJR-S(1)	Public	B	1	20	Good	Associated with Marina and Camp.

Ramp Rating Code:

- A Unlimited Use - all trailerable boats
- B Generally Limited - boats ~<22 ft
- C Limited by depth, access, parking, etc.

**Table 2-3 Facility Totals for St. Johns County (Existing)**

Zone	Total Public Ramps (lanes)	Total Public Ramps Parking	Public Ramps A/B Rated (lanes)	Public Ramps A/B Rated Parking	Private Ramps (lanes/parking)	Public Wet Slips	Public Dryslips	Private Docks
ICW-N	6 (9)	323	4 (7)	288 (+50**)	2 (2/30)	335	0	446
ICW-S	8 (10)	117	5 (7)	104	1 (1/0)	396	150 (+250*)	204
Total ICW	14 (19)	440	9 (14)	392 (+50)	3 (3/30)	716	150 (+250*)	650
SJR-N	0	0	0	0	0 (0/0)	48	0	268
SJR-S	6 (7)	95	4 (5)	85 (+15**)	1 (1/0)	30	0	286
Total SJR	6 (7)	95	4 (5)	85 (+15)	1 (1/0)	78	0	554
<b>GRAND TOTAL</b>	<b>20 (26)</b>	<b>535</b>	<b>13 (19)</b>	<b>477 (+65**)</b>	<b>4 (4/30)</b>	<b>794</b>	<b>150 (+250*)</b>	<b>1204</b>

## ***SECTION 3.0***

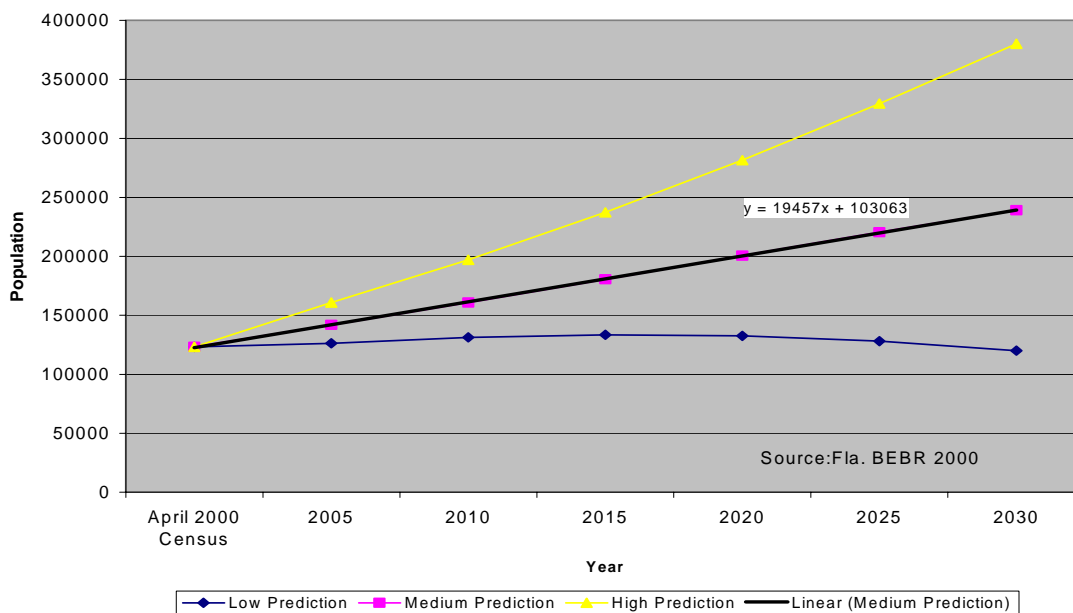
# ***PRESENT AND FUTURE WATER ACCESS DEMAND***

### 3.0 PRESENT AND FUTURE WATER ACCESS DEMAND

As St. Johns County and Northeast Florida grow, the demand for boat ramps, marinas and water use facilities will continue to increase. For many citizens, these facilities provide the only access to water areas in the County.

Keeping in stride with the State of Florida and the Southeast in general, the population of St. Johns County continues to grow rapidly. The 2000 census counted approximately 123,135 county citizens, which is projected to increase by as much as 60% by the year 2015. The graphic and table below show long-term population predictions for St. Johns County from the University of Florida's Bureau of Economic and Business Research.

**Graph 3-1 St. Johns County Population Predictions**



**Table 3-1 St. Johns County Population Prediction Data**

	April 2000 Census	2005	2010	2015	2020	2025	2030
Low Prediction	123,135	126,200	131,300	133,400	132,500	128,100	120,000
Medium Prediction	123,135	141,800	160,800	180,400	200,600	220,500	239,000
High Prediction	123,135	160,700	196,900	237,200	281,500	329,500	380,100

Source: BEBR 2000

### 3.1 General Demand

Due to St. Johns County's numerous expanses of water bodies and year-round temperate climate, boating access is extremely important. As the population grows, the number of boaters requiring water access grows, either in the form of marinas and dry storage, or through boat

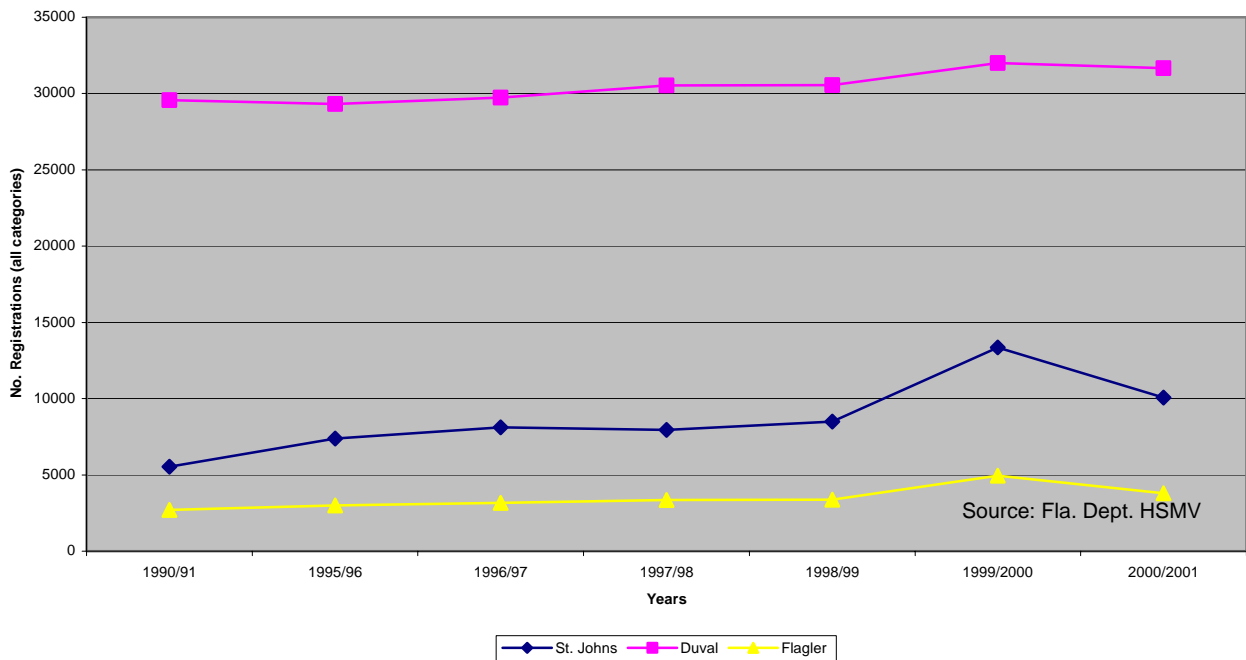
ramps. The ratio of registered boats to citizens in St. Johns County is approximately 1:10. This compares with 1:25 in Duval County and 1:11 in Flagler County.

The Florida Department of Highway Safety and Motor Vehicles (HSMV) provided the Florida County boater registration statistical data presented in this section. Graphs 3-2 and 3-3 below show a breakdown of all registered vessels in northeast Florida from 1990 and 1995 to 2001, and a breakdown of vessel types in St. Johns County. The statistics clearly show that the majority of vessels registered in the County are in the less than 26 feet range, making them ideal for trailering. Tables 3-2 “A-G” give detailed registrations by year and classification.

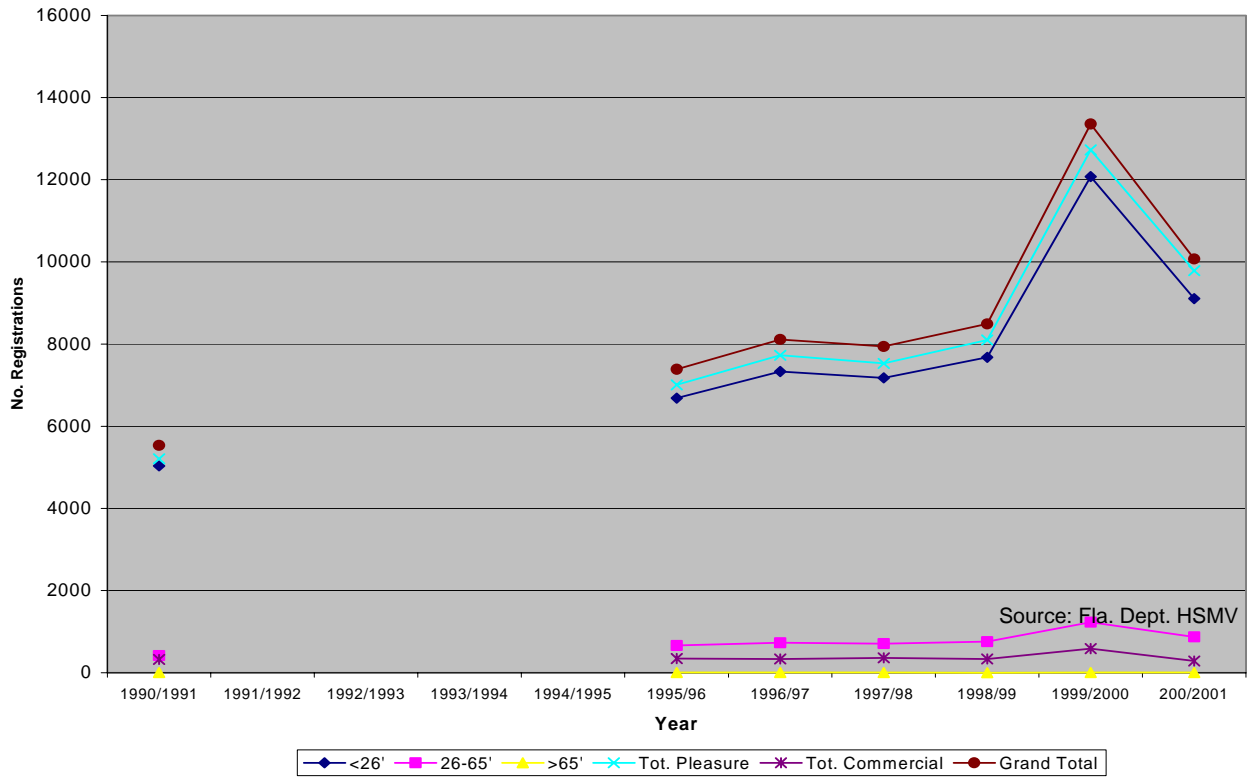
The apparent rise in boater registration shown for the fiscal year 1999-2000 is not real. Although the 1999-2000 fiscal year boater registration data is shown, it should be noted that this data was not used in calculation of the projected number of registered boaters for specified years due to the inflation of boater registration totals caused by a change in accounting methods by the Florida HSMV for this year.

Population growth was reported to increase at a linear rate over the next 30 years as reported by the Florida BEBR. Therefore, as illustrated later in this section, it was determined a linear relationship could be established to project the future estimate of registered boaters in the County for specific years with reasonable confidence.

**Graph 3-2 Boat Registrations for Coastal NE Florida**



**Graph 3-3 St. Johns County Boat Registrations 1995 - 2000**





**Table 3-2A Florida Boater Registration Data for Fiscal Year 1990-1991**

COUNTY	CLASS A-1		CLASS A-2		CLASS 1		CLASS 2		CLASS 3		CLASS 4		CLASS 5		CANOES		DEALER	TOTAL	TOTAL	GRAND
	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm		PLEASURE	COMMERCIAL	TOTAL
DUVAL	2,384	15	11,888	227	12,337	385	1,357	136	205	84	4	41	1	0	379	9	116	28,672	897	29,569
FLAGLER	211	2	1,028	38	1,146	33	173	7	32	3	1	8	0	10	18	0	21	2,630	83	2,713
ST. JOHNS	406	10	2,405	126	1,963	125	301	36	63	20	0	8	0	0	44	0	27	5,209	325	5,534

Source: Fla. Dept. HSMV

**Table 3-2B Florida Boater Registration Data for Fiscal Year 1995-1996**

COUNTY	CLASS A-1		CLASS A-2		CLASS 1		CLASS 2		CLASS 3		CLASS 4		CLASS 5		CANOES		DEALER	TOTAL	TOTAL	GRAND
	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm		PLEASURE	COMMERCIAL	TOTAL
DUVAL	3,802	26	9,888	128	12,701	326	1479	126	261	68	3	51	1	0	338	1	116	28,473	726	29,315
FLAGLER	307	4	1,049	41	1,250	30	200	8	50	4	1	1	0	0	27	1	22	2,884	89	2,995
ST. JOHNS	862	14	2,662	122	2,839	134	513	41	79	30	2	4	0	0	51	0	37	7,008	345	7,390

Source: Fla. Dept. HSMV

**Table 3-2C Florida Boater Registration Data for Fiscal Year 1996-1997**

COUNTY	CLASS A-1		CLASS A-2		CLASS 1		CLASS 2		CLASS 3		CLASS 4		CLASS 5		CANOES		DEALER	TOTAL	TOTAL	GRAND
	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm		PLEASURE	COMMERCIAL	TOTAL
DUVAL	4,194	25	9,598	115	12,956	323	1,554	114	255	74	6	46	1	0	339	0	138	28,903	697	29,738
FLAGLER	361	2	1,088	33	1,314	35	224	10	52	8	1	1	0	0	24	0	23	3,064	89	3,176
ST. JOHNS	1,020	16	2,794	105	3,190	140	554	45	105	25	1	5	0	0	66	0	49	7,730	336	8,115

Source: Fla. Dept. HSMV

**Table 3-2D Florida Boater Registration Data for Fiscal Year 1997-1998**

	CLASS A-1		CLASS A-2		CLASS 1		CLASS 2		CLASS 3		CLASS 4		CLASS 5		CANOES		DEALER	TOTAL	TOTAL	GRAND
	Less than 12'		12' to 15'11"		16' to 25'11"		26' to 39'11"		40' to 64'11"		65' to 109'11"		110' or more		Pleas	Comm		PLEASURE	COMMERCIAL	TOTAL
COUNTY	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm				
DUVAL	4,590	20	9,483	112	13,452	307	1,613	118	243	69	5	47	0	0	333	0	136	29,719	673	30,528
FLAGLER	411	9	1,092	39	1,382	48	244	9	66	2	2	0	0	0	24	0	23	3,221	107	3,351
ST. JOHNS	988	27	2,664	103	3,177	153	540	48	92	27	0	5	0	0	69	0	50	7,530	363	7,943

Source: Fla. Dept. HSMV

**Table 3-2E Florida Boater Registration Data for Fiscal Year 1998-1999**

	CLASS A-1		CLASS A-2		CLASS 1		CLASS 2		CLASS 3		CLASS 4		CLASS 5		CANOES		DEALER	TOTAL	TOTAL	GRAND
	Less than 12'		12' to 15'11"		16' to 25'11"		26' to 39'11"		40' to 64'11"		65' to 109'11"		110' or more		Pleas	Comm		PLEASURE	COMMERCIAL	TOTAL
COUNTY	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm				
DUVAL	4,619	29	9,028	98	13,779	296	1,724	108	259	67	4	47	0	0	352	0	153	29,765	645	30,563
FLAGLER	447	6	1,069	29	1,436	31	251	10	45	2	4	0	0	0	26	0	24	3,278	78	3,380
ST. JOHNS	1,110	18	2,756	94	3,487	136	579	54	95	29	0	2	0	0	75	0	54	8,102	333	8,489

Source: Fla. Dept. HSMV

**Table 3-2F Florida Boater Registration Data for Fiscal Year 1999-2000**

	CLASS A-1		CLASS A-2		CLASS 1		CLASS 2		CLASS 3		CLASS 4		CLASS 5		CANOES		DEALER	TOTAL	TOTAL	GRAND
	Less than 12'		12' to 15'11"		16' to 25'11"		26' to 39'11"		40' to 64'11"		65' to 109'11"		110' or more		Pleas	Comm		PLEASURE	COMMERCIAL	TOTAL
COUNTY	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm				
DUVAL	4,921	96	8,718	104	14,966	293	2,004	111	295	76	5	61	0	0	250	0	111	31,159	741	32,011
FLAGLER	644	22	1,467	21	2,218	33	409	7	72	4	6	0	0	0	33	0	15	4,849	87	4,951
ST. JOHNS	1,769	75	4,053	144	5,726	234	922	87	179	43	1	2	0	0	79	0	43	12,729	585	13,357

Source: Fla. Dept. HSMV

**Table 3-2G Florida Boater Registration Data for Fiscal Year 2000-2001**

	CLASS A-1		CLASS A-2		CLASS 1		CLASS 2		CLASS 3		CLASS 4		CLASS 5		CANOES		DEALER	TOTAL	TOTAL	GRAND
	Less than 12'		12' to 15'11"		16' to 25'11"		26' to 39'11"		40' to 64'11"		65' to 109'11"		110' or more		Pleas	Comm		PLEASURE	COMMERCIAL	TOTAL
COUNTY	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm	Pleas	Comm				
DUVAL	4,921	15	8,677	110	14,937	298	1,892	105	297	35	19	39	1	0	165	0	155	31,064	602	31,666
FLAGLER	522	1	1,125	14	1,689	33	284	7	58	2	2	0	0	0	27	0	27	3,734	57	3,791
ST. JOHNS	1,427	16	2,978	77	4,484	124	676	37	124	28	2	2	0	0	39	0	59	9,789	284	10,073

Source: Fla. Dept. HSMV

### 3.2 Marina and Wet Slip Demand and Deficiencies

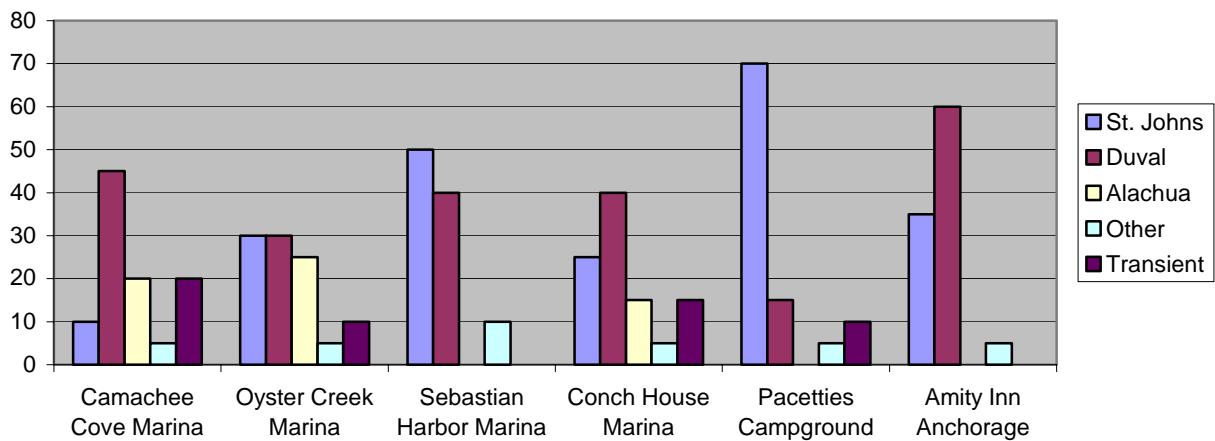
As part of this study, a survey was taken of the major existing marinas to determine the general distribution of demand for boat slips (wet and dry) by counties in Florida. The information below indicates a surprising statistic. At the major marinas, less than 50% of the slip holders are from St. Johns County. The majority of the owners are from Duval, with smaller amounts from other nearby counties. The two exceptions are Sebastian Harbor, which is dry stack only, and Pacetti's Campground, which is one of only two marinas on the St. Johns River. Although recognized as a critical element in the St. Johns County boating scene, the St. Augustine City Marina was not available to provide information for this portion of the study.

**Table 3-3 St. Johns County Marina Use Survey for April 2002**

Marine Facility	Percentage of Users by Florida County					
	St. Johns	Duval	Alachua	Other	Transient	Total
<b>Camachee Cove Marina</b>	10%	45%	20%	5%	20%	100%
<b>Oyster Creek Marina</b>	30%	30%	25%	5%	10%	100%
<b>Sebastian Harbor Marina</b>	50%	40%	0%	10%	0%	100%
<b>Conch House Marina</b>	25%	40%	15%	5%	15%	100%
<b>Pacetti's Campground</b>	70%	15%	0%	5%	10%	100%
<b>Amity Inn Anchorage</b>	35%	60%	0%	5%	0%	100%

Source: Independent Survey - ATM

**Graph 3-4 St. Johns County Marina Use by Florida County April 2002**



Source: Independent Survey - ATM

Table 3-3 and Graph 3-4 illustrate the diverse nature of the market for wet and dry slip marine facilities in St. Johns County. Although the market for these facilities is diverse, it was determined the best method to predict the demand for future facilities based on the ratio of boaters registered in St. Johns County to the present number of wet and dry slips available to the current market.

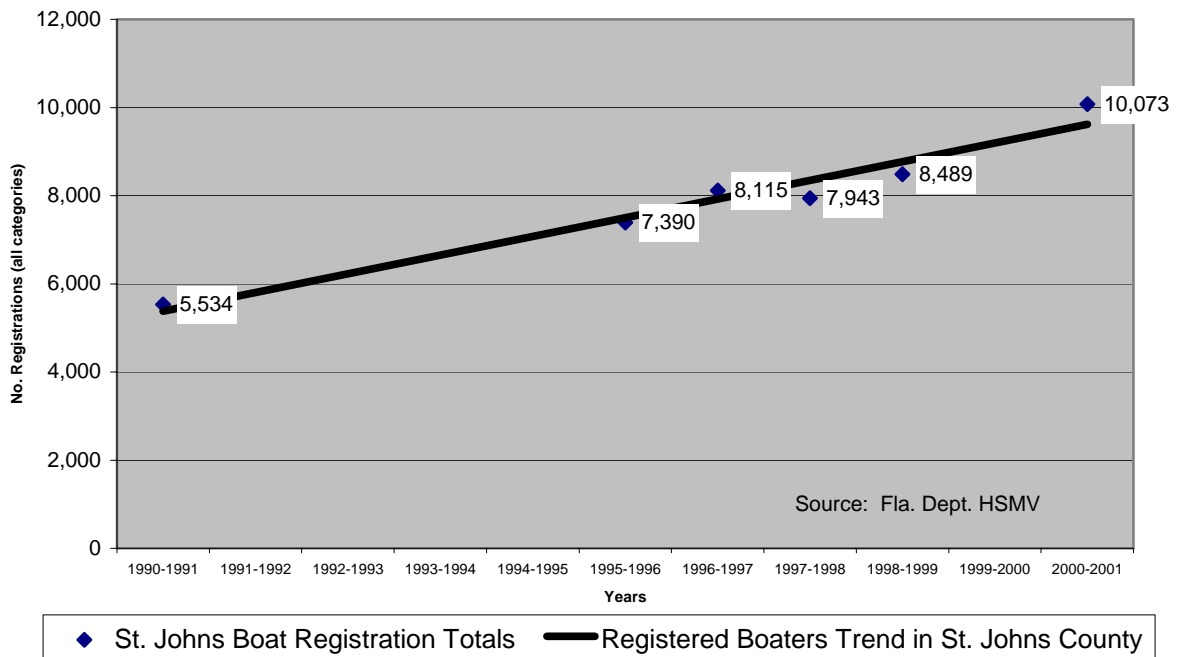
### 3.2.1 PROJECTED WET AND DRY SLIP FACILITIES DEMAND FOR ST. JOHNS COUNTY

The projected dry and wet slip facilities demand for St. Johns County is presented in this section. The projected demand for slips in St. Johns County was based on the 2001 ratio of slips available to registered boaters in St. Johns County.

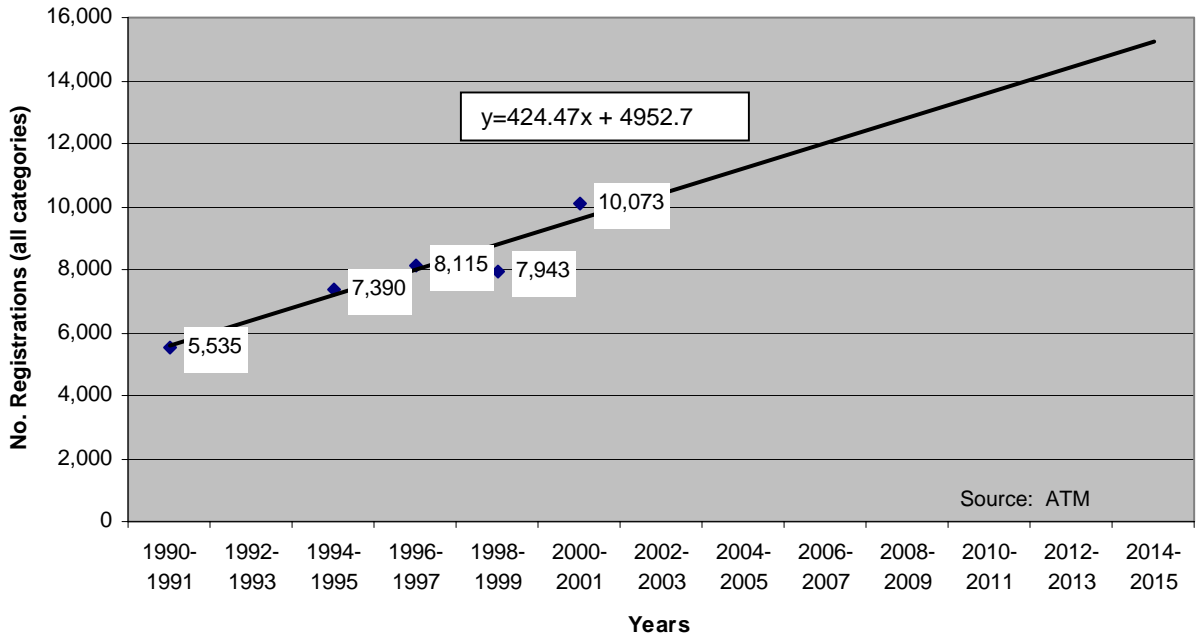
Graph 3-5 illustrates the trend in boaters registered in St. Johns County over the last ten years. The total boater registration data from fiscal year 1999-2000 was not included due to the change in the accounting of boater registration data by the Florida Department of Highway Safety and Motor Vehicles (DHSMV). The data used to generate the graph is presented in Tables 3-2 “A-F.”

Based on the trend identified in Graph 3-5, projection of future boater registration statistics were calculated for the years 2005, 2010, and 2015. Graph 3-6 shows the anticipated trend for boat registrations in St. Johns County, while Graph 3-7 illustrates the actual projected total numbers of registered boaters for St. Johns County for the years 2005, 2010, and 2015.

**Graph 3-5 Historic Boat Registration Totals for St. Johns County 1990-2001**

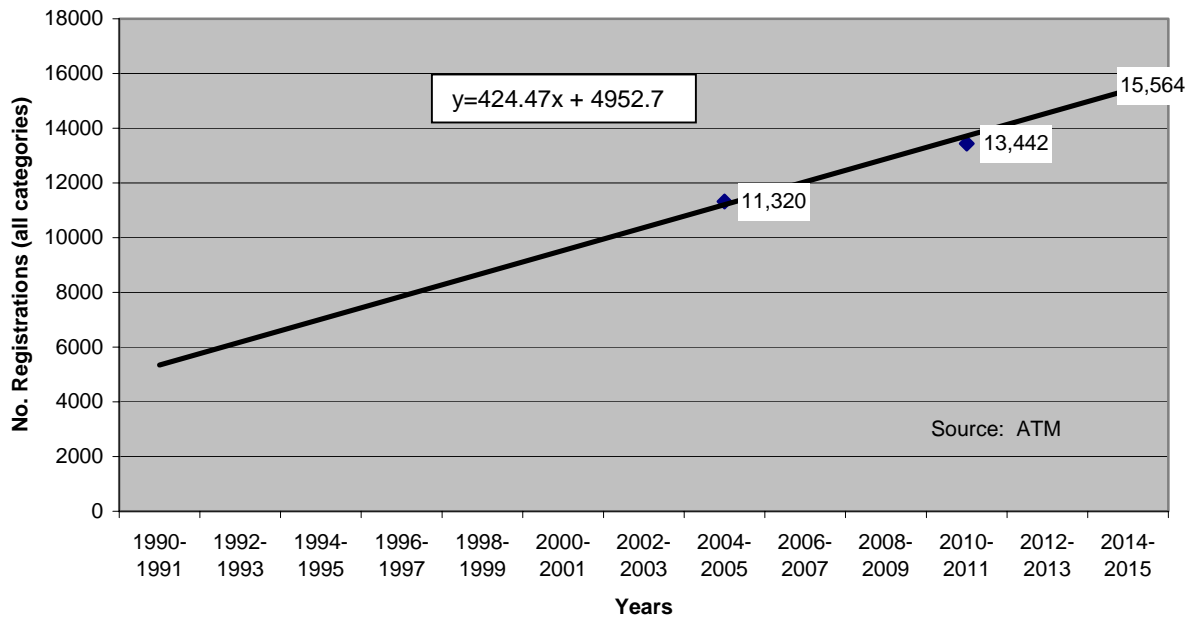


**Graph 3-6 Projected Boat Registration Trend for St. Johns County  
Years 2005, 2010 and 2015**



◆ St. Johns Boat Registration Totals      — Registered Boaters Trend in St. Johns County

**Graph 3-7 Projected Boat Registrations for St. Johns County  
Years 2005, 2010 and 2015**



◆ Projected Number of Boaters Registered in St. Johns County      — St. Johns County Registered Boaters Trend

As illustrated in Graph 3-7 the projected number of boaters registered in St. Johns County for the following years are respectively:

<u>Year</u>	<u>Projected Number of Boats Registered</u>
2005	11,320
2010	13,442
2015	15,564

The projected number of registered boaters for each year was determined using the following equations based on the trend in boater registration from 1990 and 1995 through 2001. The equation is presented as follows:

$$y = 424.47 x + 4,952.7$$

where  $y$  = the number of projected boaters registered in St. Johns County for a given year

and

$x$  = the number of years from 1990

For example for the year 2005:

$$y = 424.47 (15) + 4952.7$$

$$y = 11320$$

### 3.2.2 METHODOLOGY FOR ESTIMATING FUTURE WET AND DRY SLIP FACILITIES NEEDS

The following statistics are the basis for the calculations and are taken from the fiscal year reports of the Florida Department of Highway Safety and Motor Vehicles (DHSMV) and from ATM's inventory of current marina facilities in St. Johns County, shown in Table 3-4. The results of these calculations are presented below and in Graph 3-8.

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SJC total dry slips 2001	400
SJC total wet slips 2001	1,054

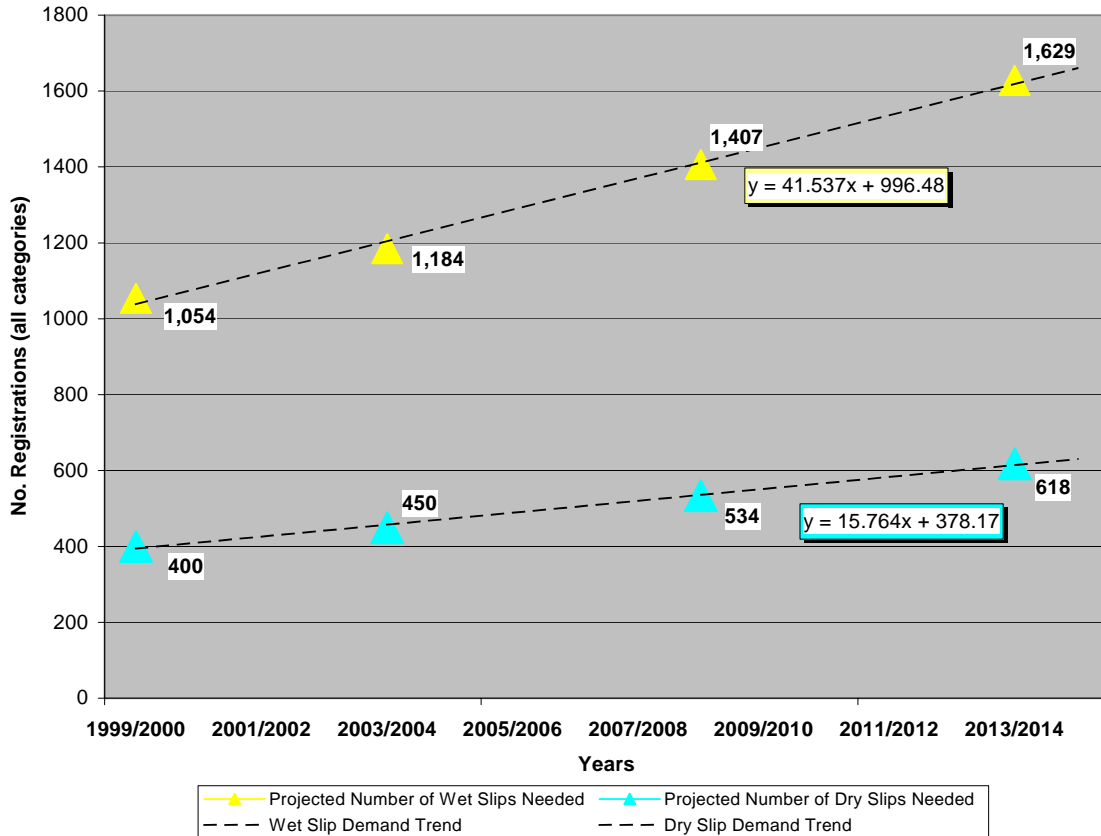
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SJC total registered vessels 2000/2001	10,073
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<b>2001 Ratio of wet slips to registered boats (SJC)</b>	<b>1 : 9.557</b>
<b>2001 Ratio of dry slips to registered boats (SJC)</b>	<b>1 : 25.185</b>

**Graph 3-8 Projected Wet and Dry Slip Demand for St. Johns County  
Years 2005, 2010 and 2015**



As illustrated in Graph 3-8 the resultant projections for wet and dry slips in St. Johns County are as follows.

---

Projected Total Number of <b>Wet Slips</b> needed in	<b>2005</b>	<b>1,185</b>
Projected Total Number of <b>Wet Slips</b> needed in	<b>2010</b>	<b>1,407</b>
Projected Total Number of <b>Wet Slips</b> needed in	<b>2015</b>	<b>1,629</b>

Presently there are 1,054 wet slips available in St. Johns County. In order to meet demand projections St. Johns County will need to add to the present number: **131** slips by **2005**, **353** by **2010** and **575** by **2015**.

---

Projected Total Number of <b>Dry Slips</b> needed in	<b>2005</b>	<b>450</b>
Projected Total Number of <b>Dry Slips</b> needed in	<b>2010</b>	<b>534</b>
Projected Total Number of <b>Dry Slips</b> needed in	<b>2015</b>	<b>618</b>

Presently there are 400 dry slips available in St. Johns County. In order to meet demand projections St. Johns County will need to add to the present number: **50** slips by **2005**, **134** by **2010** and **218** by **2015**.

**Wet Slip Demand**

In calculating wet slip demand, it was assumed that the percentage of St. Johns County registered boaters, as compared to the percentage of registered boaters from other Florida counties, (using St. Johns County marina facilities) would remain constant. It was also assumed that the supply of wet slips available in St. Johns County meets the demand of the current market wet slip boating needs and that the current ratio of wet slip versus dry slip demand would remain the same.

Using these assumptions it was calculated that the demand for wet slips needed in the coming years for St. Johns County was generally a function of:

$$y = 41.437 x + 996.48$$

When

- y = the projected demand for wet slips in St. Johns County
- x = the number of years beyond 2000

**Dry Slip Demand**

Similarly, in calculating future dry slip demand it was assumed that the percentage of St. Johns County registered boaters, as compared to the percentage of registered boaters from other Florida counties, (using St. Johns County marina facilities) would remain constant. It was also assumed that the supply of dry slips available in St. Johns County meets the demand of the current market dry slip boating needs and that the current ratio of wet slip versus dry slips would remain the same.

Using these assumptions it was calculated that the demand for dry slips needed in the coming years for St. Johns County was generally a function of:

$$y = 15.764 x + 378.16$$

When

- y = the projected demand for dry slips in St. Johns County
- x = the number of years beyond 2000



Other counties also contribute to the demand for wet and dry slips in St. Johns County, especially those adjoining counties. The projection of the demand for boat slips assumes that the percentage of St. Johns County registered boaters, as well as other surrounding counties boat users, use of the St. John County's marine facilities, will remain constant.

The total number of dry and wet slips available for St. Johns County's boaters use, including those dry stack facilities that are currently under permit review, were utilized to project future boat slip (dry and wet) needs.

The following table summarizes the inventory of significant available and proposed wet and dry slip marina facilities for St. Johns County.

**Table 3-4 St. Johns County Marina Facilities Inventory Summary**

Facility Name	Zone	No. Wet slips	No. Dry Units	Size Range	Occupancy	Notes
St. Augustine City Marina	ICW-S(1)	85	0	20'-110'	80%	
Oasis Boat Yard & Marina	ICW-S(1)	20	0	20'-60'	90%	Boat Yard with Repair & Lift Facilities.
Hidden Harbor Marina	ICW-S(1)	42	0	unlimited	100%	Waiting List.
Oyster Creek Marina	ICW-S(1)	80	0	30'-110'	90%	
Sebastian Harbor Marina	ICW-S(1)	0	150	30' max	80%	Dry Stack Only.
Sea Love Marina	ICW-N(3)	10	0	unlimited	100%	Planned Expansion in Future.
Comachee Cove	ICW-N(3)	325	0		95%	Haulout & Repairs; Full Service, Waiting list.
Conch House Marina	ICW-S(1)	104 (+43)	0	120' max	80%	Planned Expansion to 147 slips.
Fish Island Marina	ICW-S(1)	50	0	30'-50'	100%	Waiting List
Coastal Outdoor Center	ICWS(2)	15	0	<20'	95%	Newly Renovated Marina
Views at Baypoint	ICW-S(1)	24	0	40' max	100%	Privately owned docks.
English Landing	ICW-S(1)	38	0	50' max	100%	Waiting List.
Villages of Vilano	ICW-N(3)	40	0	18'-45'	90%	Facility also has ramp.
Sunrise Harbor	ICW-S(2)	-	-	-	-	Facility destroyed; For Sale & Repair.
Marsh Landing Marina	ICW-N(1)	100	0	17'-85'	80%	Private Marina.
St. Augustine Marina	ICW-S(1)	-	(250)	-	-	Planned addition of 250 dry slips under permit review
Symi/Xynides	ICW-S(1)	-	-	-	-	Boat Repair Facility (Commercial).
Luhrs Boat Yard	ICW-S(1)	-	-	-	-	Manufacture & Repair Facility.
High Tide Boat Works	ICW-S(1)	-	-	-	-	Limited Boat Repair Facility
Marine Supply & Oil	ICW-S(1)	-	-	-	-	Seafood, supplies, fuel, commercial facility.
Amity Inn Anchorage	SJR-N(2)	48	0	20'-46'	85%	Needs dredging and dock improvement.
Pacettis Camp Ground	SJR-S(1)	30	0	17'-30'	80%	Needs new docks.
<b>Total Quantity of Slips</b>		<b>1054</b>	<b>400</b>	Total includes existing and planned wet and dry storage facility units		

Source: Independent Survey - ATM

### 3.3 Boat Ramp Demand and Deficiencies

For this Water Dependent Use Study, projections of the number of boat ramps needed in the future were determined using the methodology presented below in Section 3.3.1. These projections were compared to projections made earlier by a Florida Sea Grant Study. Using updated population data, the Sea Grant methodology would produce very similar results to the projections presented in this Water Dependent Use Study.

The Florida Sea Grant Study (Bell, 1995) surmised that a good rule of thumb for sufficient ramp access is one ramp lane (a ramp may have more than one lane) for every 6,700 people in a county. Using this very basic relationship and St. Johns County's median projected population of 180,400 by the year 2015, St. Johns County would need as many as 13 additional new ramp lanes, for a total of 27 boat ramp lanes, according to Bell's Study. Currently, there are 14 "A" and "B" rated public ramp lanes in the County.

The Sea Grant Study presented a detailed methodology for predicting the number of lanes each County would likely need in the year 2010. Unfortunately, the projected growth of St. Johns County at the time the study was completed vastly underestimated the number of boat lanes needed, and the conclusion was that little or no ramps would be needed in the County. This same study, however, suggested that as many as 70 new lanes would be necessary in neighboring Duval County. Certainly, the number of lanes required in both of these Counties is somewhere in between. Much of the population that was predicted to reside in Duval County will likely end up in St. Johns County, skewing the Sea Grant Study numbers.

Because St. Johns County is unlike most counties in that it has two distinct water bodies, and is undergoing extreme growth, a slightly different and site-specific approach for estimating the boat ramp needs of the County was undertaken. It has been found that at most ramps, the limiting factor for ramp use is the number of trailer parking spaces. A common problem with boat ramps is that the ramp itself is well constructed and can handle a large number of boats; however, there is insufficient parking for trailers at the facility. The following calculations summarize the methodology used to determine St. Johns County ramp needs in the future.

#### 3.3.1 METHODOLOGY FOR ESTIMATING FUTURE RAMP NEEDS

The following statistics are the basis for the calculations and are taken from various sources, including Florida Department of Transportation (FDOT), Florida Fish and Wildlife Conservation Commission (FWCC), University of Florida (UF), and others.

SJC April 2000 Census:	123,135
SJC Medium population prediction for 2015:	180,400
SJC total registered vessels (2000):	13,357 (90% < 26')
SJC total registered vessels < 26' (trailerable)	12,021
Ratio of boats to population (SJC)	~ 1:10
Ratio of boats to population (Duval)	~1:25
Ration of boats to population (Flagler)	~1:11
Total No. ramp lanes (A/B) St Johns	14
Total No. ramp parking spaces (A/B) SJC	~477

It can be assumed that 90% of vessels <26 feet in length are trailered. This estimate is based on the existing number of dry stack spaces currently available in the County and an observation of the number of vessels in marinas and docks which are less than 26 feet in length.

Therefore, the number of County residents trailering boats = 90% x 12,021 registered boats less than 26 feet = 10,820 trailered boats.

Other counties also contribute to the demand at local ramps, especially those adjoining counties also facing ramp deficiencies. It has been estimated from other studies and interviews with ramp users that 15% of Duval County boaters and 60% of Flagler County boaters use St. Johns County ramps, most frequently Vilano Boat Basin and Trout Creek Park.

Vessels under 26': Duval County: 29,348 vessels x 15% use in SJC = 4,402  
Flagler County: 4,438 vessels x 60% use in SJC = 2,662

Using these estimates and ignoring other counties and out of state boaters, there are potentially 17,884 trailered boats in St. Johns County.

Next, the actual boat use trends must be examined. The boating industry experts generally estimate that each boater participates in approximately 31 outings annually. This number is probably low for St. Johns County and Florida in general, but can be used as a conservative estimate. Multiplying the number of outings annually by the number of trailered boats in the County gives:

31 outings x 17,884 trailered boats = 554,404 potential ramp users annually

Other considerations which aid in the ramp requirement calculations are:

1. Assume that each parking space at the ramp is used 1.75 times a day. This covers the early morning fishermen, afternoon cruisers, and those boaters on all day trips.
2. Assume that adequate parking is the limiting factor for ramp usage, as reported during boater surveys.

Typically, some parking spaces may be used twice a day – by morning boaters and afternoon boaters. A standard usage factor of 1.75 uses for each space per day is acceptable.

Taking the number of available parking spaces in the County and multiplying by the usage rate of 1.75 yields:

477 available spaces x 1.75 = 835 optimum spaces available on a daily basis (A/B ramps only)

When these numbers are extrapolated on an annual basis, the number of boat trailer tips can be estimated:

52 weeks x 7 days x 835 spaces = 303,940 boat trailer trips

This number varies seasonally and daily since weekends are obviously busier than weekdays. However, it serves as a base for estimating future ramp needs.

### 3.3.2 EXISTING RAMP DEFICIENCIES

In order to determine ramp requirements, a comparison must be made between the potential number of ramp users and the existing optimum boat use on any given day. As discussed above, currently St. Johns County has 554,404 potential annual trips, or outings. The current optimum use for County ramps based on available parking is 303,940 annual trips. Subtracting the optimum use from the potential use:

Using year 2000 numbers:

Number of Potential Ramp Users = 554,404 trips
<u>- Current Optimum Boat Use/day = 303,940 trips</u>
Existing Deficiency of Ramps = 250,464 trips

Using the same numbers, the deficiency of the number of required parking spaces to can be calculated:

$$250,464 \text{ trips} / (52 \text{ weeks} \times 7 \text{ days} \times 1.75 \text{ parking trips}) = 394 \text{ spaces}$$

Assuming that the maximum ramp lane level of service approaches 50 launches/retrievals per day (industry recommendation is 30 - 50), then the number of deficient ramp lanes can be computed:

$$394 / 50 \text{ spaces per lane} = \sim 8 \text{ lanes}$$

### 3.3.3 FUTURE RAMP DEFICIENCIES

Projecting future ramp needs are based on the methodology, population predictions and the statistics summarized above. Using medium population predictions for the County, the number of trailerable boats (boats less than 26') in 2015:

St. Johns County = (180,400 people) / (10 people per boat) x (90 % boats < 26') x (90% boats trailered) = 14,612 trailered County boats (compared to 10,820 in year 2000)

Similar calculations for adjacent County boaters using St. Johns County ramps gives a conservative estimate of additional boaters:

Duval: 36,888 registered boats < 26 feet x 15% use factor = 5,533 trailered boat users  
Flagler: 7,381 registered boats < 26 feet x 60% use factor = 4,428 trailered boat users

Adjacent county use factors may actually be higher based on the knowledge that only one new ramp is currently being planned in Duval County. Adding all of the county's contributions, the total number of potential trailered boats in St. Johns County in the year 2015 is:

$$14,612 \text{ (SJC)} + 5,533 \text{ (Duval)} + 4,428 \text{ (Flagler)} \text{ in } 2015 = 24,573 \text{ (17,937 in year 2000)}$$

Using the same assumptions as above,

31 annual outings x 24, 573 = 761,763 potential boat trailer trips

In the year 2015, based on medium population predictions:

Number of Potential Ramp Users = 761,763 trips  
- Current Optimum Boat Use/day = 303,940 trips (from above)  
Estimated Deficiency of Ramps = 457,823 trips

As before, the number of parking spaces necessary to meet this demand can be calculated:

457,823 trips / (52 weeks x 7 days x 1.75 parking trips) = 718 parking spaces

718 parking spaces / 50 spaces per lane = 14 new lanes.

Table 3-5 summarizes the numbers used in the above calculations.

#### 3.3.4 SUMMARY OF RAMP NEEDS

Boat ramps in St. Johns County provide the only access to the water for many residents and non-residents alike. The number of boat ramp lanes currently existing do not sufficiently meet today's demand for access. This is especially true on the St. Johns River side of the County, where there is only one existing ramp which provides adequate parking. Because this area of the County will see extreme growth in the coming years, the demand for new ramp lanes and associated parking is critical. To meet this demand, St. Johns County will need to acquire as many as 14 additional ramp lanes, and 718 trailer parking spaces by the year 2015, bringing the total number of lanes to 28. This estimate is quite realistic, especially if the rule of thumb of one lane per 6,700 residents is followed which projects a need of 27 total lanes.

A large majority of these new ramp lanes and parking areas should come from expansion of the existing facilities. The facilities which are best suited for expansion are discussed in Section 7 of this report. Other additional ramps and parking may be the responsibility of entities other than St. Johns County, such as the City of St. Augustine, new residential developers, and other commercial providers like fish camps and marinas.

**Table 3-5 Existing and Projected Boat Ramp Deficiencies**

	St. Johns County's Trailered Boats Using Ramps	Duval County's Trailered Boats Using Ramps	Flagler County's Trailered Boats Using Ramps	Total Trailered County Usage	Annual Boat Participation	Existing Parking	Optimum Space A/B Available	Total Annual Potential Boat Trips	Current Optimum Boat Trips	Ramp Trip Deficiencies	Ramp Parking Deficiencies	Boat Ramp Deficiencies
Existing	10,820	4,402	2,662	17,884	31	477	835	554,404	303,940	250,464	394	8
Future (2015)	14,612	5,533	4,428	24,573	31	477	835	761,763	303,940	457,823	718	14

Source: ATM

### 3.4 Private Docks

There are approximately 1,200 private docks located in St. Johns County associated with private residences. As shown in Table 2-3, almost 37% of these docks are located in the ICW – North region which extends from the Duval County line to the St. Augustine Inlet. A smaller percentage, approximately 17%, is located in the southern portion of the ICW from St. Augustine Inlet to the Flagler County line. The remaining private docks (46%) are located along the St. Johns River and its tributaries.

A simple estimate of the number of private docks in future years in the County can be made by examining the number of dock permits typically processed annually by FDEP and SJRWMD, which is roughly 25. Using this number, an approximate projection for future years yields:

<b>Year</b>	<b>No. of Private Docks</b>
2000	1200
2005	1325
2010	1450
2015	1575

These estimates will vary depending on the number of waterfront parcels sold.

Observations made in the field and supported by County real estate data indicate that nearly every improved lot abutting navigational waters in both the Intracoastal Waterway and St. Johns River has some form of dock. These docks range from elaborate structures with boatlifts and multiple slips to simple wooden access piers extending past the high-water line. In projecting the demand for future private docks, it is a safe assumption that nearly every new waterfront property developed will eventually seek construction of some form of a private dock, whether the resident owns a boat or not.

Permitting and construction of private docks is well regulated by the St. Johns River Water Management District, Florida Department of Environmental Protection, the U.S. Army Corps of Engineers. For the permit to be approved, the builder must show that adequate water depth exists, seagrass bed impacts are minimized, navigational areas are not impeded, and other regulations are met. Additional restrictions are placed on new docks in Outstanding Florida Waterways and Aquatic Preserves. In the State of Florida, riparian rights favor the landowner, and placing additional restrictions on private facilities can require unwanted litigation. A complete listing of the requirements can be found in the Florida Administrative Codes (FAC 62-302). In St. Johns County, as with other counties in Florida, the primary focus for the County should be to ensure that all new private docks have been properly permitted by the appropriate agency, and constructed according to plan. The County should refrain from placing additional restrictions on private docks.

### 3.5 Commercial Boatyards and Docks

There are four commercial boatyards and one commercial dock located in St. Johns County. All of these facilities are located in the San Sebastian River in the ICW-N(1) sub-region. A commercial boatyard or dock is considered any facility that does not cater primarily to the storage of individual boats, such as a marina. Instead, they provide



construction, repair, supplies and purchasing for the commercial fleet, which is primarily fishing in St. Johns County. Commercial facilities impact the environment, especially water quality, and as such, are regulated accordingly. The locations of these commercial facilities are dependent on St. Johns County's Future Land Use Map's land use designations, Comprehensive Plan's goals, objectives and policies (GOP's), and land development code regulations.

The demand for new commercial boatyards and docks is waning throughout the U.S., including northeast Florida. In contrast to public marinas for which there is an increasing demand, many commercial facilities are closing down. Others are redeveloping to become public marinas, such as Hidden Harbor Marina in St. Augustine, which was redeveloped three years ago. St. Augustine Marina, also in St. Augustine, is currently adding new dry storage facilities to meet the local boating demand. Previously this facility performed only repair work.

Changes in demand for commercial facilities may occur in the year 2015, however they are hard to predict. If future demand for commercial facilities increases, new boatyards should be limited to the San Sebastian River area. The location of these commercial uses needs to be consistent with the appropriate land use designations and zoning categories as identified on the St. Johns County's 2015 Future Land Use Map and the Land Development Code regulations.

### 3.6 Trip Origins and Destinations

The large expanses of water bodies within St. Johns County make it difficult to ascertain meaningful boat trip statistics for planning the expansion of shore facilities such as marinas, private docks and boat ramps. Urbanizing Florida Cities and Counties in the state have acquired large data pools. The data is drawn upon when creating planning information. For this study, trip origins and destination information was based primarily on informal boater surveys, information from local marina operators/managers, and local knowledge and observations.

Trip origins within St. Johns County are very closely tied to boat size and regional location. Larger vessels are obviously more likely to originate from marinas rather than boat ramps. For St. Johns County, that means that nearly all large vessel boat trips originate from the St. Augustine area (including Comachee Cove and Sea Love Marina) since the County has no other areas providing large slips. The exception to this is Marsh Landing Marina in northern St. Johns. However, local observations and lack of a primary destination for these vessels indicate that the percentage of boat trips from this location is relatively small, and accounts for less than 3% of all boat trips. Overall, it is estimated that 15 to 20% of all boat trips originate and return to marinas. Private docks also account for some trip origins; however, it is generally accepted that this percentage hovers around 12 to 15%.

This means that the remaining boat trips, or approximately 65 to 73% of all trips, originate from boat ramps. This figure compares favorably with a study conducted by the Florida Department of Economics (Bell, 1994), which suggested that 70% of boaters in Florida use boat ramps. St. Johns County boaters are more likely to use boat ramps for primary water access points compared to other counties due to the limited marina facilities, especially on the St. Johns River.

Within the boat ramp user group, it is estimated 80% of all ramp trips originate from one of two locations, depending on the region of use. Within the ICW regions, the majority of ramp usage is at the Vilano Boat Basin due to its nearly direct ocean access, excellent ramp conditions, and fairly adequate parking. On the St. Johns River side, nearly 99% of all ramp trip origins are from the Trout Creek/ Six Mile Creek area south of the Shands Bridge, which is the home for five of the County's seven ramps on the River. Of those trips, the majority originate from Trout Creek Park which provides the best facilities and parking.

The fourth boat traffic origin route identified in the County is seasonal, north-south boat commuters.

As the County undergoes continued development, the percentage contribution of boat traffic from each area and type of facility will likely change. However, by the year 2015 these percentages should be fairly close.

## ***SECTION 4.0***

# ***SITE SUITABILITY AND FACILITY SITING***

## 4.0 SITE SUITABILITY AND FACILITY SITING

This chapter addresses the siting for new facilities and expansion of existing facilities based on environmental and developmental criteria. Each region and sub-region was analyzed and assigned a score based on how it compared with other areas of the County. These scores were then totaled, and suitability ratings were established.

### 4.1 Regional Descriptions and General Suitability

For the purpose of this study, St. Johns County was divided into four separate regions for analysis of site suitability. Each region was further broken down into two or more sub-regions based on similarities and unique characteristics within that area. The dividing lines were based on site location within the County, water body classifications, projected growth distribution, water use areas, and other environmental and developmental similarities.

St. Johns County is fortunate in that it has two distinct water bodies – the St. Johns River, on its western border, and the waters comprising the Guano, Tolomato, and Matanzas Rivers and their tributaries in the eastern portion of the County. These are two very separate and different ecosystems that must be analyzed independently. This distinction is the basis for the regional/sub-regional type analysis for the site suitability portion of this study, and future water dependent use planning.

A detailed description of the regions and sub-regions follows. Refer to Figure 4 for the locations of these areas. Figures 5-8 break out the individual sub-regions and existing facilities.

#### 4.1.1 ST. JOHNS RIVER – NORTH (SJR-N)

The St. Johns River – North region starts at the Duval County line and runs south to the Shands Bridge at State Road 16. The River is very wide in this region, but can be shallow close to the shoreline. There are several coves and protected areas, and State Road 13 hugs the riverbank in most areas, with residential parcels on both sides of the road. Boat traffic is mostly limited to the navigation channel and protected coves for skiing, fishing and other water use activities.

##### *SJR-N(1) – Julington Creek and Tributaries*

Julington Creek and its tributaries comprise the sub-region referred to as SJR-N(1). This area is characterized by waterfront homes and protected waters. Duval County has a small boat ramp with limited parking on the north side of the Creek. The Creek is reported to support a stable manatee population and is popular with boaters. Boat traffic can be heavy on busy weekends and holidays.

##### *SJR-N(2) – Entrance to Julington Creek South to Shands Bridge*

From the entrance to Julington Creek south to Shands Bridge is sub-region SJR-N(2). It encompasses all of the waters of the St. Johns River and its tributaries south to the bridge. The shoreline in the northern part of this sub-region is comprised of residential houses, each with private docks. There are still some vacant parcels in this area; however, the demand for new home sites has gradually taken up the majority of once

vacant parcels. There are several coves offering good protection; however, the depth in these coves is likely limited.

#### 4.1.2 ST. JOHNS RIVER – SOUTH (SJR-S)

The portion of the St. Johns River from Shands Bridge South to the Putnam County line is referred to as the SJR-S Region. Like the northern portion of the river, this region is characterized by a meandering shoreline with several coves and protected areas. Sea grass becomes more abundant as the salinity drops, and the general upland vicinity becomes more rural with timber and pasturelands. The river remains wide in this region, and boat traffic tends to become thinner.

##### *SJR-S(1) – Shands Bridge South to Picolata (CR 208)*

The area of the St. Johns River between Shands Bridge and Picolata is one of the busiest water use areas along the River in St. Johns County, and is referred to as sub-region SJR-S(1). There are five boat ramps in this sub-region, and the protected waters at the mouth of Trout Creek and Six Mile Creek provide good areas for water recreation. The area is also home to the majority of the commercial fishing population in this portion of the County, including crabbing and baitfishing.

##### *SJR –S(2) – Picolata South to Lane Landing*

The area of the river between Picolata and Lane Landing South of Toco Creek is referred to as SJR-S(2), and is comprised of a mix of low/medium density residential housing, recreation lands, and agriculture/forest. County Road 13 departs from the shoreline for a large portion of the area, and direct access to the water is limited. As with other areas of the river, the depth is relatively shallow close to shore, and boat traffic is concentrated in the navigation channel.

##### *SJR-S(3) – Lane Landing South to County line*

From Lane Landing south to the Putnam County line is considered SJR-S(3). Large homes abut the water in most of this sub-region, with a mix of agriculture and recreational areas in the southern portion. Deep Creek drains into the River in the very southern area and is bordered on both sides by forested land. County Road 13 hugs the shoreline in the northern part of this sub-region, and then departs well inland, making direct access to the River difficult. Sea grass beds are more predominant in this area as well.

#### 4.1.3 INTRACOASTAL WATERWAY – NORTH (ICW-N)

The Intracoastal Waterway – North region encompasses the Tolomato and Guana Rivers, as well as the narrow portions of the ICW north of Palm Valley. This region is generally characterized by shallow areas outside of the marked channel and high boat traffic on weekends and during seasonal migration of winter transients. Overall, the waters are well flushed and there are no stagnate areas.

##### *ICW-N(1) – Duval County line South to Palm Valley Bridge (SR 210)*

The portion of the ICW from the County line South to the Palm Valley Bridge is lined with private docks on nearly every parcel along the east side of the ICW. These private docks extend nearly to the edge of the channel, and in some instances may overlap the USACE recommended maintenance setback. The majority of the west side of the ICW is

privately held land which currently is undeveloped. The USACE is developing plans to perform maintenance dredging along this portion of the ICW, although existing depths are sufficient for most boat and commercial barge traffic. Due to the confined nature of the waterway, new marinas are not possible without utilizing an upland cut basin. This area is suitable for public boat launch facilities to meet the increased demand in this sub-region.

*ICW-N(2) – Palm Valley South to Vilano Beach (ICW marker “55”)*

South of the Palm Valley bridge (SR 210), the Tolomato River opens up and becomes less confined. However, areas outside of the ICW channel are still relatively shallow. Marsh areas and natural tributaries and creeks become prevalent, and upland parcels are set back from deeper water. South of ICW marker “47”, in the vicinity of Ximanies Creek, and further South near Pancho and Robinson Creeks, certain portions of the waters are classified as Conditionally Approved for shellfish harvesting. This sub-region also includes the Guana River, which is classified as an Outstanding Florida Waterway (OFW) and Aquatic Preserve (AP). A large portion of this sub-region also encompasses the newly created Guana-Tolomato-Matanzas National Estuarine Research Reserve (NERR). While the area is well flushed and open, large permanent marine facilities would be difficult to construct due to required dredging and potential water quality degradation. The sub-region is well suited for boat launch facilities, and several boat ramps currently exist in the area (see Section 2).

*ICW-N(3) – Vilano Beach from ICW marker “55” to St. Augustine Inlet*

This portion of the Tolomato River is wide, with adequate depths and exceptional flushing characteristics. Shellfish beds are not prevalent, and upland areas are generally commercially zoned. Although vessel traffic can be congested due to the proximity to the St. Augustine Inlet and the City of St. Augustine, the river is wide enough in certain places to accompany expansion of existing facilities. Currents are relatively strong, and the area is generally susceptible to severe storm events. Boat launching facilities and marinas would likely require protection. In the ICW-North Region, this sub-region is the most adaptable for new or expanded facilities based on water quality, existing upland zoning, access, and water depth.

#### 4.1.4 INTRACOASTAL WATERWAY – SOUTH (ICW-S)

The Intracoastal Waterway South of St. Augustine Inlet is characterized by wide areas in the North adjoined by large portions of vacant land. Most of the development is centered around St. Augustine. At the southern portion of the County, the barrier island as well as the ICW become narrow, and private docks line the water. A large portion of the river South of SR 206 is Conditionally Approved for Shellfish Harvesting, and several active leases are present.

*ICW-S(1) – St. Augustine Inlet South to ICW marker “29”*

This sub-region is the most developed, and includes a large majority of St. Johns County’s in-water marine facilities, specifically along the San Sebastian River. Several ongoing expansion projects of marinas are underway in this region, as well as new facilities. Adequate depths, flushing, and limited environmentally sensitive areas make this region excellent for new and expanded marinas, boat ramps, and commercial facilities. It is also central to County urban areas and newly planned developments, providing excellent access points for the public.

#### *ICW-S(2) – ICW marker “29” South to Pellicer Creek*

All water bodies South of ICW marker “29” are Class II waters. Additionally, a large portion of the Matanzas River south of SR 206 is Conditionally Approved for Shellfish Harvesting, and is part of the NERR. The upland areas along the western shore in this sub-region are predominantly state lands or undeveloped areas. The eastern shore contains residential areas and wetlands. Outside of the channel, water depths in this region are extremely shallow. Construction of new in-water facilities would be difficult due to potential water quality degradation, disruption of approved shellfish harvesting areas, inadequate depths and other environmentally sensitive conditions. The lack of large urban developments in this region also lessens the need for new in-water facilities. Existing ramp locations should be sufficient if updated and properly maintained.

#### *ICW-S(3) – Pellicer Creek and its tributaries*

This sub-region is environmentally sensitive. It is part of the NERR, as well as being an Outstanding Florida Waterway. The area is relatively pristine, with little development other than some private docks on the western (upriver) portion of Pellicer Creek. Navigation on the eastern portions of the creek where it joins the Tolomato River is challenging and requires detailed local knowledge of the creek. Favor Dykes State Park is located on a portion of the northern shore of Pellicer, and provides ramp access for smaller boats. Due to the sensitivity, shallow depths, and limited upland access, this area is considered poor for marina and trailer boat access. It is very suitable for non-motorized vessel access, such as kayaks and canoes.

## 4.2 Detailed Site Suitability Analysis

The goal of the detailed site suitability analysis is to evaluate the potential for an area to be used as a marina, boat ramp, private dock, or other water dependent use facility. For this study, specific parcels were not evaluated individually due to the rapidly changing conditions regarding ownership, zoning, and future growth. Rather, specific areas of St. Johns County exhibiting similar conditions were grouped together in regions and sub-regions and evaluated as a whole. This approach allows the County to evaluate more than one parcel at a time. Because of the unique characteristics of St. Johns County and diverse regional areas, this regional approach to the Site Suitability Analysis will be more useful to county planners.

Following similar work by Florida Sea Grant (Antonini, et. al. 1997), a development suitability rating (Preferred Water-Dependent Use, or PWDU) is assigned to each region and sub-region. This rating is based on several factors including water quality, infrastructure, wetlands and submerged aquatic vegetation, access, Outstanding Florida Waterways and Aquatic Preserves, and other factors. The higher the score, the better the suitability rating. Sites with low scores are not considered suitable for intense uses such as marinas and commercial docks, but may be considered for less intense uses such as boat ramps, waterfront parks, fishing areas, and other small commercial uses.

Table 4-1 summarizes the criteria used to evaluate the suitability of the various regions. A detailed discussion of each criterion and basis for scoring is also provided. The criteria rating points assigned for each sub-region are interpretive, and are based on comparisons within the County. For some subjective categories, the scores were developed based on available information and direct solicitation from various sources. These sources included St. John’s County staff, St. Johns River Water Management District (SJRWMD), Florida Department of Environmental Protection (FDEP), Florida

Fish and Wildlife Commission (FWCC), U.S. Army Corps of Engineers (USACE), private citizens, and other relevant data sources.

**Table 4-1 Site Suitability Criteria**

<b>CRITERIA</b>	<b>ASSESSMENT POINTS</b>
<b>Environmental Considerations</b>	
Historical Manatee Mortality Rate	0 – 4 points
Wetlands	0 or 2 points
Shellfish Harvesting Areas	0, 2, or 4 points
Outstanding Florida Waterways, Aquatic Preserves and Water Quality Classifications	0, 2, or 4 points
Submerged Aquatic Vegetation	0 - 2 points
Suitable Water Depths without Significant Dredging	0 or 2 points
<b>Maximum Achievable Assessment Points</b>	<b>18 points</b>
<b>Developmental Considerations</b>	
Existing Infrastructure (roads, water, sewer)	0 – 4 points
Existing Facility Density and Demand	0 – 4 points
Surrounding Population Density or Projected Growth	0 – 4 points
Available Vacant Property in Sub-Region	0 – 4 points
Storm Protection	0 – 4 points
<b>Maximum Achievable Assessment Points</b>	<b>20 points</b>

The suitability criteria were grouped into two categories. The first category is environmental considerations and includes criteria that are based solely on natural environmental conditions at the time of this assessment. These are also the criteria that would be closely evaluated from permitting agencies (FDEP, SJRWMD, USACE) for any new or expanded construction of water-dependent facilities. A second category of criteria is evaluated under developmental considerations. These criteria are based on supply and demand, access, and other developmental constraints. A detailed description of the criteria and basis for scoring is discussed below.

#### 4.2.1 ENVIRONMENTAL CONSIDERATIONS

For each sub-region, specific environmentally sensitive criteria were examined. The rating points assigned to each criterion were developed independent of the region's other criteria. For example, shellfish harvesting areas were examined independently from water body classifications. Environmental criteria will be a large part of any permitting review by appropriate agencies.

##### *Historical Manatee Mortality Rate*

Using information obtained from the Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute's 2000 Atlas of Marine Resources, manatee mortality reports were analyzed. This information, shown in Figure 9, was used to rate each region on the following basis:

- No reported deaths                      Score = 4
- One to Four deaths                      Score = 2



More than Four deaths      Score = 0

Causes of death were not incorporated in this rating score, and these statistics are not meant to be a comprehensive study of manatee mortality in St. Johns County. It should also be noted that some regions might soon contain manatee refuge areas or other boating restrictions which would alter the assigned score in the future.

#### *Wetlands*

It is generally regarded that most areas of St. Johns County along water bodies have some form of wetlands or salt marsh areas on site. An attempt to use information from the National Wetland Inventory and other sources was inconclusive for St. Johns County due to the lack of coverage, unsubstantiated ground truthing, and dated information. Therefore sites were assigned either a 2 or a 0, based on whether large tracts of undisturbed wetlands were observed on a majority of the waterfront parcels in the sub-region.

#### *Shellfish Harvesting Areas*

Information from the Florida Department of Agriculture and Consumer Services shellfish harvesting areas was utilized to assign ratings for each region, as shown in Figure 10. Conditionally approved areas were scored 0, conditionally restricted areas were assigned a value of 2, and prohibited or unclassified areas were assigned a value of 4.

#### *Outstanding Florida Waterway (OFW), Aquatic Preserve (AP), and Water Classification*

Using information provided by FDEP and the Florida Administrative Code (FAC), a sub-region was assigned either a 4 if it is not part of an OFW or AP, or a 0 if it is within either of these water body classifications. Sub-regions containing Class II waters that are not otherwise Outstanding Florida Waters or Aquatic Preserves were scored a 2. These water body classifications are shown in Figures 11 and 12. There are no Outstanding Florida Waterways or Aquatic Preserves on the St. Johns River within St. Johns County.

#### *Submerged Aquatic Vegetation Coverage*

As with wetland information, detailed sea grass and submerged aquatic vegetation information was limited, and insufficient for rating all portions of St. Johns County. Detailed mapping is currently being conducted by the St. Johns River Water Management District (SJRWMD); however, this information is not suitable for interpretation at this time. Therefore, regions were scored from 0 - 2, depending on observed submerged aquatic vegetation during site visits and the overall potential for sea grass beds. Generally, none of the ICW regions exhibit high sea grass potential. Within the St. Johns River, the potential becomes greater further up-river, but is dependent on flushing, salinity, turbidity and other factors. Locations of submerged aquatic vegetation may vary drastically over time.

#### *Suitable Depths without Significant Dredging*

Detailed bathymetry of all of St. Johns County is not readily available. For this analysis, regions which were known to be overall shallow and would require significant dredging for any improvements were assigned a score of 0, while areas that were known to have acceptable water depths were assigned a score of 2, depending on the average depths. This criterion is obviously site specific, however scores were developed based on the general depths and conditions within the sub-region.

#### 4.2.2 DEVELOPMENTAL CONSIDERATIONS

Criteria listed under developmental considerations are based on factors that influence the actual need and constructability of a new facility. They consider projected growth, availability of existing facilities, and access. This criteria is more likely to influence long term regional planning within St. Johns County.

##### *Infrastructure (roads, water, sewer)*

Regions were assigned scores ranging from 4, if suitable infrastructure was currently in place, to 1, if roads, water service and sewers were not available or major construction was required to make the area accessible. Information for this criterion was obtained from local maps, service areas, and site visits.

##### *Existing Facility Density and Demand*

The necessity of new or expanded facilities is partly dependent on existing facility density and regional demand. Regions with no, or limited facilities were given higher scores than those regions currently having more facilities. The range for this criterion was from 0 to 4, dependent on existence and conditions of existing facilities, and existing demand. Future demand is more a function of projected growth, and was examined under that criterion.

##### *Surrounding Population Density or Projected Growth*

Construction of new facilities should take place as close to population centers (existing and planned) as possible. Areas with high growth rates were assigned scores of 3 and 4, while regions with little or no planned growth were assigned scores of 0 – 2. Growth was predicted based on future planned developments (PUDs and DRIs).

##### *Available Vacant Property in Sub-Region*

Planned new construction of water dependent facilities is dependent on available property. Regions with little or no available water frontage were assigned lower scores than those areas with ample potential for new or expanded facilities. Due to the different geographical sizes of the sub-regions, the scores were based on percentage of available land in each one. State and County owned lands which may be available for water dependent uses were also examined.

##### *Storm Protection*

Although a smaller consideration for overall planning, regions with no protected areas for mooring or other water dependent uses were scored lower than regions displaying adequate storm protection characteristics. Wide-open coasts were given lower scores than regions with sheltered areas from wind and tidal surge.

### 4.3 Competing Shoreline Uses

As the growth in St. Johns County continues, there will be an increasing demand for waterfront property. This demand will be in the form of residential homes, commercial establishments such as restaurants and hotels, boat ramps, marinas, and other recreational facilities. For many citizens not living on waterfront property, new facilities will provide the only access to the waters of St. Johns County. It is imperative that sufficient facilities exist to provide this access.

The County should make every effort to acquire as much waterfront property as feasible. The criteria for determining suitable parcels for acquisition should be based on results of this study as well as other needs of the County, such as passive parks, preserves, and conservation areas. As the pool of available property shrinks, care should be taken to ensure that acquired areas are best utilized for the overall needs of the County residents.

The requirements for marinas are the strictest from an environmental and developmental standpoint. They require sufficient depth, access, protection, and adjacent upland area. There are few available parcels that can support these demands, and therefore these should be a priority for siting of new marinas. While the County is not in the business of constructing, owning or operating marinas, it should facilitate expansion and new construction of marinas in suitable areas.

The requirements for siting of boat ramps are not as strict or intensive as marinas, however, they must meet certain criteria such as access and suitable depth for navigation. While many of the existing ramps in the County can be expanded and upgraded, there will be a need for new ramps in the near future. Available parcels in high growth areas that can support the requirements for new ramps should be acquired as soon as possible.

Passive parks, preserves, and other recreational areas along the shoreline not used for boat ramps or marinas have the least constraining requirements, and therefore are more readily available. The County may also share in the financial responsibility and acquisition with other State, local and Federal agencies.

Care must be taken to utilize the remaining available parcels in the most efficient manner. Areas that meet the rigorous demands for marinas and ramps should be utilized for that purpose almost exclusively since the availability of these parcels is becoming scarce. Purchase of a parcel that meets the requirements for a new ramp, and then using the upland areas for playgrounds and picnic areas instead of trailer parking is not efficient use of the property. While these facilities are as important as boat ramps, they should be constructed on parcels that do not meet the criteria for water dependent uses.

#### 4.4 Discussion of Results

The environmental and developmental suitability scores are provided in Tables 4-2 and 4-3 along with the basis for the assigned scores. Table 4-4 shows a summary of the overall combined scores for each region and sub-region. It should be noted that the suitability ratings are for comparison purposes only, and actual scores are not as important as the grouping of scores (e.g., high range vs. low range). Each project should be evaluated on its own merit using the established criteria.

**Table 4-2 Site Suitability Ratings - Environment Considerations**

Region	Sub-Region	ENVIRONMENT CONSIDERATION												Total Environmental Score
		Historical Manatee Mortality	Score	Wetlands	Score	OFW, AP, Classification	Score	Shell Fish Harveting	Score	Submerged Aquatic Vegetation (SAV)	Score	Suitable Depth	Score	
ICW-N	1	Four reported deaths, two of which were related to watercrafts; limited refuge along ICW at lower tides.	2	No large tracts of native wetlands along waterways.	2	No OFW's, AP's, or Class II waters in this sub-region.	4	Sub-region is unclassified, and no active shellfish harvesting being conducted.	4	Insignificant observed or reported seagrass beds.	2	Any new facilities will require extensive dredging in this sub-region.	0	<b>14</b>
	2	Five reported deaths, one related to watercraft, three undetermined.	0	Majority of this sub-region contains large tracts of wetland areas.	0	This sub-region contains an AP, an OFW and a large portion are Class II waters.	0	Several active and conditionally approved shellfish harvesting areas in this sub-region.	0	Insignificant observed or reported seagrass beds.	2	Any new facilities will require extensive dredging in this sub-region.	0	<b>2</b>
	3	Two report deaths, one undetermined, one cold stress related.	2	No large tracts of wetlands on existing vacant parcels.	2	No OFW's, AP's, or Class II waters in this sub-region.	4	All areas of this sub region prohibited for shellfish harvesting.	4	Insignificant observed or reported seagrass beds.	2	Sufficient depths may exist in available areas for development without significant dredging.	2	<b>16</b>
ICW - S	1	Seven report deaths, all but one undetermined, mostly due to excessive decomposition; one natural death.	0	Majority of sub-region is urbanized, and large track of wetlands non-existent.	2	Majority of sub-region is unclassified. One small area of Class II waters in Salt Run.	4	Most of sub-region is restricted with exception of small area within Salt Run.	4	Insignificant observed or reported seagrass beds.	2	Sufficient depths may exist in available areas for development without significant dredging.	2	<b>14</b>
	2	Three reported deaths, two undetermined cause and one watercraft related.	2	Several areas in this sub-region have wetlands or other sensitive vegetation habitats.	0	Majority of sub-region is Class II waters, and portion is within Guana-Tolomato-Matanzas NERR.	2	Large tracts of active shellfish harvesting areas within this sub-region.	0	Insignificant observed or reported seagrass beds.	2	Sufficient depths may exist in available areas for development without significant dredging.	2	<b>8</b>
	3	No manatee mortalities reported in this sub-region.	4	Several areas in this sub-region have wetlands or other sensitive vegetation habitats.	0	Majority of sub-region is Aquatic Preserve on OFW.	0	Most of sub-region is unclassified, with some areas listed as conditionally restricted.	2	Insignificant observed or reported seagrass beds.	2	Majority of sub-region is extremely shallow, and would require significant bottom impacts.	0	<b>8</b>
SJR - N	1	One reported manatee death; portions of this sub-region may be classified as manatee refuge in future.	2	Some sporadic wetland areas, but majority urbanized.	2	No OFW's, Aquatic Preserves, or Class II waters in this region.	4	No known shellfish harvesting areas or restrictions.	4	Some sporadic seagrass beds observed or reported.	1	Although shallow near shore, acceptable depths can be achieved further out into the river.	2	<b>15</b>
	2	Three reported deaths, none directly classified as watercraft related.	2	Several areas in this sub-region have wetlands or other sensitive vegetation habitats.	0	No OFW's, Aquatic Preserves, or Class II waters in this region.	4	No known shellfish harvesting areas or restrictions.	4	Some sporadic seagrass beds observed or reported.	1	Although shallow near shore, acceptable depths can be achieved further out into the river.	2	<b>13</b>
SJR-S	1	Five reported manatee deaths, one directly related to watercraft.	0	Several areas in this sub-region have wetlands or other sensitive vegetation habitats.	0	No OFW's, Aquatic Preserves, or Class II waters in this region.	4	No known shellfish harvesting areas or restrictions.	4	Several areas of existing seagrass beds reported or observed; specific areas vary.	0	Although shallow near shore, acceptable depths can be achieved further out into the river.	2	<b>10</b>
	2	No manatee mortalities reported in this sub-region.	4	Several areas in this sub-region have wetlands or other sensitive vegetation habitats.	0	No OFW's, Aquatic Preserves, or Class II waters in this region.	4	No known shellfish harvesting areas or restrictions.	4	Several areas of existing seagrass beds reported or observed; specific areas vary.	0	Although shallow near shore, acceptable depths can be achieved further out into the river.	2	<b>14</b>
	3	Three reported manatee deaths, one of which directly related to watercraft.	2	Several areas in this sub-region have wetlands or other sensitive vegetation habitats.	0	No OFW's, Aquatic Preserves, or Class II waters in this region.	4	No known shellfish harvesting areas or restrictions.	4	Several areas of existing seagrass beds reported or observed; specific areas vary.	0	Although shallow near shore, acceptable depths can be achieved further out into the river.	2	<b>12</b>

**Table 4-3 Site Suitability Ratings - Development Considerations**

Region	Sub-Region	DEVELOPMENTAL CONSIDERATION										Total Development Score
		Infrastructure	Score	Existing Facility Density & Demand	Score	Projected Growth	Score	Vacant Property	Score	Storm Protection	Score	
ICW-N	1	Current roads and planned expansion (Palm Valley Bridge) are sufficient. Sufficient service of water and sewer.	4	While there are some existing private wet slips, there are no ramps or public wet slips.	3	Several large PUD's and DRI's planned, including Nocatee development.	4	Limited amount of vacant parcels readily available.	2	Well protected from surge and wind.	4	<b>17</b>
	2	Although some existing roads and service, road access to water areas is limited. Limited sewer and water.	1	While there are no public wet slips, there are several ramps.	2	Portion of Nocatee included in this sub-region, as well as other smaller PUD's.	3	Some parcels available; large private tracts maybe purchased.	3	Large fetch areas; limited coves or other protected areas.	2	<b>11</b>
	3	Majority of sub-region is currently serviced and accessible.	3	Dense concentration of ramps and slips, with some planned expansion.	2	Majority of sub-region has reached maximum build out; No new developments planned.	2	Some parcels currently available.	3	Susceptible to large surge and extremal winds.	1	<b>11</b>
ICW - S	1	Majority of sub-region is currently serviced and accessible.	3	Dense concentration of marinas and ramps in area.	1	Majority of sub-region has reached maximum build out; No new developments planned.	2	Some vacant parcels, as well as County & State owned land.	3	Susceptible to large surge and extremal winds.	1	<b>10</b>
	2	Some areas of this sub-region are easily accessed by roads, while other areas are not. Water and sewer limited.	2	Sufficient ramps, however limited number of wet slips available.	2	No new major developments, PUD's or DRI's planned.	2	Some vacant parcels, as well as County & State owned land.	3	Large fetch areas storm surge.	2	<b>11</b>
	3	Very limited water and sewer infrastructure to this sub-region.	1	Little or no demand for new marinas or ramps in this area.	1	No projected growth for this sub-region.	1	Some vacant parcels, as well as County & State owned land.	3	Fairly well protected.	3	<b>9</b>
SJR - N	1	Majority of sub-region is currently serviced and accessible.	3	No existing facilities in this sub-region.	4	Several large developments planned in this sub-region.	4	Some vacant parcels, as well as County & State owned land.	3	Fairly well protected.	3	<b>17</b>
	2	Majority of sub-region is currently serviced and accessible.	3	No existing ramps in this sub-region. Very limited wet-slips.	4	Several large developments planned in this sub-region.	4	Some vacant parcels, as well as County & State owned land.	3	Large open areas susceptible to fetch and surge.	2	<b>16</b>
SJR-S	1	Some areas of this sub-region are easily accessed by roads, while other areas are not. Water and sewer service limited.	2	Largest concentration of facilities on SJR, however still limited.	2	Closest water areas to World Golf Village and other area developments.	3	Limited amount of vacant parcels readily available.	2	Fairly well protected.	3	<b>12</b>
	2	Most of this sub-region is located away from any main roads and service.	1	No ramps or marinas in this sub-region; little demand.	2	Limited projected growth in this sub-region.	2	Some vacant land, as well as purchasable parcels.	3	Large open areas susceptible to fetch and surge.	2	<b>10</b>
	3	Some areas of this sub-region are easily accessed by roads, while other areas are not. Water and sewer service limited.	2	One limited public ramp, no wet slips or marinas, little demand.	2	Little or no projected growth in this sub-region.	1	Some vacant land, as well as purchasable parcels.	3	Large open areas susceptible to fetch and surge.	2	<b>10</b>

**Table 4-4 Site Suitability Rating Combined Scores**

Region	Sub-Region	Environmental Consideration Score	Development Consideration Score	Combined Score	Rating
ICW-N	1	14	17	31	Good
	2	2	11	13	Poor
	3	16	11	27	Good
ICW - S	1	14	10	24	Fair
	2	8	11	19	Poor
	3	8	9	17	Poor
SJR - N	1	15	17	32	Good
	2	13	16	29	Good
SJR-S	1	10	12	22	Fair
	2	14	10	24	Fair
	3	12	10	22	Fair

Interpretation of the suitability scores ranged from 13 to 32, with distinct ranges of scores for the different sub-regions. In general, combined scores of less than 20 were considered poor for new facilities, while scores greater than 25 were considered good for new facilities. Scores between 20 and 25 were considered fair. While this approach is somewhat subjective, it allows room for variance if specific criteria change. The combined score for any sub-region should remain within its grouping (e.g., good, fair, poor) even if individual criteria scores change. Figures 13 - 16 show the ratings for each sub-region.

The highest scores using the developmental criteria were in the sub-regions that are experiencing the greatest growth in the northern part of the County, including SJR-N(1) and (2), and ICW-N(1). These three sub-regions also have fair environmental criteria scores as well, giving them the highest combined scores for both criteria.

Another important sub-region which showed a high environmental criteria score is the ICW-N(3) near the north side of St. Augustine Inlet. This sub-region scored well due to the lack of shellfish harvesting areas, Class II waters, Outstanding Florida Waters or Aquatic Preserves. The developmental score was not quite as high as other sub-regions in the North due to lack of vacant areas and high storm potential. Also, growth in this part of the County is not as high as the northern regions.

The three lowest scoring areas were the two southernmost sub-regions of the Intracoastal Waterway and the mid-region of the northern part of the Intracoastal Waterway {ICW-S(1), ICW-S(2), and ICW-N(2)}. These areas typically scored low due to the environmental considerations. All three sub-regions have Outstanding Florida Waterways, Aquatic Preserves, shellfish harvesting areas, Class II Waters, or some combination thereof. In addition, developmental consideration scores were somewhat low due to the lack of some key infrastructure requirements, lack of demand, and potential growth.

Finally, the upper reaches of the St. Johns River, or southern sub-regions in St. Johns County along the River, exhibited slightly lower scores than the northern region. This is

due to the higher potential for sea grass beds, lack of suitable depths close to shore, and lack of demand or potential area growth.

Figures 17 – 20 show when the vacant water front parcels currently exist in the county. These parcels show locations that the county may consider for purchase of new facilities.

Figures 21-24 show the expansion and new construction potential for public ramps in the various sub-regions, while Figures 25-28 show the expansion and new construction potential for public marinas.

## ***SECTION 5.0***

### ***TYPICAL MARINE CHALLENGES AND POSSIBLE SOLUTIONS***

### ***WATER DEPENDENT USES AND MARINE LAND DEVELOPMENT CODE (LDC) REGULATIONS***



## 5.0 MARINE USE REGULATIONS

Florida Statutes (F.S.) Chapter 163 requires that local governments prepare a Coastal Management Element and Goals Objectives and Policies. Basically, the Legislature recognizes there is significant interest in the resources of the coastal zone of the State. Further, the legislature recognizes that, in the event of a natural disaster, the state may provide financial assistance to local governments for the reconstruction of roads, sewer systems and other public facilities. Therefore, it is the intent of the Legislature that local government comprehensive plans restrict development activities where such activities would damage or destroy coastal resources. Such plans protect human life and limit public expenditures in the area that are subject to destruction by natural disaster.

The Florida Administrative Code (Rule 9J-5 (specifically 9J-5.012)) states the purpose of the Coastal Management Element is to plan for and where appropriate restrict development activities where such activities would damage or destroy coastal resources and protect human life and limit public expenditures in the area subject to destruction by natural disaster.

Applicable Coastal Management Element Data and Analysis requirements must include the following:

- (a) Coastal land uses shall be inventoried. Conflicts among the shoreline uses shall be analyzed and the need for the water-dependent and water-related development sites shall be estimated. A map, or map series showing existing land uses and detailing existing water-dependent and water-related uses shall be prepared.
- (b) Inventories and analysis of the effect of the future land uses are required to be shown on the future land use map, or map series on the natural resources in the coastal planning area shall be prepared including vegetative cover, including wetlands; areas subject to coastal flooding; wildlife habitats; and living marine resources. Maps shall be prepared of vegetative, wildlife habitat, areas subject to coastal flooding and other areas of special concern to the local government.
- (c) An inventory and analysis of the impacts of development and redevelopment proposed in the future land use element.
- (d) An inventory and analysis shall be prepared of estuarine pollution conditions and actions needed to maintain estuaries including: an assessment of general estuarine conditions and identification of known existing point and non-point source pollution problems; impacts on infrastructure and the environment; identification of the actions needed to remedy existing pollution problems.

Requirements for the Coastal Management Goals, Objectives and Policies (GOPs) are as follows:

- (a) The Coastal Management Element shall contain one or more goal statements that establish the long-term end toward the Legislature in enacting Section 163.3178, Florida Statutes, that local governments in their comprehensive plans restrict development activities that would damage or destroy coastal resources and protect human life and limit public expenditures in the area subject to destruction by natural resources.

- (b) The element shall contain one or more specific objectives for each objective statement which includes, but is not limited to the following:
- Protect, conserve, or enhance remaining coastal wetlands, living marine resources, coastal barriers and wildlife habitat;
  - Maintain or improve estuarine environmental quality;
  - Provide criteria or standards for prioritizing shoreline uses, giving priority to water-dependent uses;
  - Direct population concentrations away from known or predicted coastal high-hazard areas;
  - Maintain or reduce hurricane evacuation times;
  - Increase the amount of public access to the beach or shorelines consistent with the estimated public needs.
- (c) The element shall contain one or more policies for each objective which shall include, but shall not be limited to, the following:
- Establishing priorities for shoreline land uses, providing for siting of water dependent and water-related uses, establishing performance standards for shoreline development, and establishing criteria for marina siting, including criteria consistent with the countywide marine siting plan if adopted by the local government, which address: land use compatibility, availability of upland support services, existing protective status or ownership, hurricane contingency planning, protection of water quality, water depth, environmental disruptions and mitigation actions, availability for public use and economic need and feasibility;
  - Providing, continuing, and replacing adequate physical public access to the beaches and shoreline; enforcing public access to beaches renourished at public expense; enforcing the public access requirements of the Coastal Zone Protection Act of 1985; and providing transportation or parking facilities for beach and shoreline access;
  - Protecting estuaries which are within the jurisdiction of more than one local government, including methods for coordinating with local governments to ensure adequate sites for water-dependent uses, prevent estuarine pollution, control surface water runoff, protect living marine resources, reduce exposure to natural hazards and ensure public access; and
  - Demonstrating how the local government will coordinate with existing resource protection plans such as resource planning and management plans, aquatic preserve management plans and estuarine sanctuary plans.

Local governments within the coastal area that participate in a countywide marina siting plan, shall include the marina siting plan as a part of this element.

Based on the State's requirements of the Florida Statutes (F.S.) Chapter 163 and the Florida Administrative Code (F.A.C.) Rule 9J-5, St. Johns County adopted 2015 Conservation/Coastal Management Element's Objective E.1.4 and corresponding Policies E.1.4.1, E.1.4.2 and E.1.4.3 requiring a Water-Dependent Use and Marine Study be prepared by the County. The specific Conservation/Coastal Management Element's objective and corresponding policies are identified in the following sections.

St. Johns County adopted 2015 Conservation/Coastal Management Element's Objective E.1.4 and corresponding Policies E.1.4.1, E.1.4.2 and E.1.4.3 are as follows:

### **Objective E.1.4 – Water Dependent Uses and Marina Siting**

The County will give priority to water dependent uses in order to maximize the beneficial use of coastal natural resources. A Marina Study will be prepared to identify the future need for water-dependent uses and wet and dry boat slips based on the quantity, location and environmental constraints. The results of the new Marina Study will be incorporated into the Coastal Management Element and the future Countywide Marina Siting Plan upon its completion.

### **Policies**

#### **E.1.4.1**

By December 2001 or sooner, the County shall initiate an update of the standard sand procedures for development of water dependent uses within those areas of the County which can accommodate such uses. The Land Development Regulations shall (as necessary or appropriate) address the following, including, but not limited to:

- (a) The establishment of standards and/or criteria by which to assess the environmental suitability and location of proposed water-dependent uses, such as:
  - 1) Adequate water depths for channel navigation.
  - 2) Minimum tidal currents.
  - 3) Protection from hurricane vulnerability.
  - 4) Maintaining water quality characteristics.
  - 5) Preservation of water quality standards Outstanding Florida Waters (OFW's) Class II and Aquatic Preserves.
  - 6) Protection of Essential Habitat (threatened or endangered species and/or species of special concern). Marinas shall not be permitted in areas that have been determined by DEP, FWCC and the USFWS to be critical to the survival of these species.
- (b) The establishment of standards or criteria by which to assess and address the following site characteristics and development standards:
  - 1) Ingress/egress and parking standards;
  - 2) Buffering, landscaping and drainage facilities;
  - 3) Maintenance of applicable water quality and drainage standards for stormwater run-off;
  - 4) Height and other development intensity standards and/or requirements;
  - 5) Standards or requirements for fueling and wastewater pump-out facilities;
  - 6) Adequate location criteria in relation to land use type, surrounding land uses, zoning type, and functional access to the marina and the internal facilities;
  - 7) Future expansion of marinas and their ability to provide maintenance; and
  - 8) Travel time to popular boating areas.

- (c) The establishment of definitions, criteria, and standards by which to determine the priority to be assigned to potentially competing shoreline uses.

#### **E.1.4.2**

By December 2000, the County shall, through the adoption of Land Development Regulations, initiate standards and procedures by which to address the siting of new commercial marinas. The Land Development Regulations shall (as necessary or appropriate) address the, definitions, criteria and standards that shall include, but not be limited to, the following:

- (a) land-use compatibility, and buffering requirements for service facilities;
- (b) availability, location, and type of upland support facilities, including standards and criteria for fueling and waste water treatment or pump-out facilities;
- (c) the protected status, if applicable, of adjacent lands;
- (d) the consistency of proposed marina facilities with the requirements of the applicable hurricane evacuation plan and storm contingency requirements;
- (e) stormwater and drainage requirements, including standards and criteria for fueling and waste water treatment or pump-out facilities;
- (f) for determining the environmental sensitivity of proposed marina sites, including standards to address water depth, grass bed, manatee habitat locations, the desirability of slow speed zones and anchorage areas; and
- (g) for determining the market need or feasibility of proposed marina facilities.

#### **E.1.4.3.**

Recommendations from the Marina Siting Plan shall be included in the Land Development Regulations (LDRs) and the Coastal Management Element upon completion.

Further analysis of the St. Johns County 2015 adopted Future Land Use Element's (FLUE's) map and goals, objectives and policies indicates that marinas are allowed within the designated land use categories of Intensive Commercial and Airport District (further regulated by the Land Development Code's Airport Overlay District). The respective corresponding zoning categories that marinas are allowed within are Commercial, Highway and Tourist (CHT) and Airport Development (AD). In addition, marinas are allowed as a Special Use in the zoning categories of Commercial, Intensive (CI), Commercial, Rural (CR), Industrial, Warehousing (IW) and Plan Unit Development (PUD), subject to consistency with the 2015 Future Land Use Element's GOPs and corresponding land use categories of Intensive Commercial and Airport District as shown on the 2015 FLUE's Map.

Further analysis of the St. Johns County 2015 Future Land Use adopted map and goals, objectives and policies indicates that boat ramps are allowed within land use categories designated as Agricultural-Intensive and Rural/Silviculture, Conservation, Parks and Open Space on the 2015 FLUE's Map.

## 5.1 Typical Marine Challenges and Possible Solutions

The siting of new marinas and other boating facilities such as boat ramps and the expansion of existing facilities often creates conflicts between development and environmental resources. While recognizing restrictions imposed by aquatic preserve management plans, it is a major objective of St. Johns County to develop a marina siting element that balances the need for environmental protection with the demands for public as well as private boating facilities.

As the population of the boating public increases in St. Johns County, so does the demand for marina facilities. This increase in demand creates a need for site selection based on economic, social and environmental concerns.

The recommendations in this section of the water dependent use study are designed to identify important issues facing the County in the area of marina siting and to guide the development of this planning element and future Land Development Regulations (LDR's). General issues and actions by the County are described below. Section 5.1 provides suggestions for language that the County may want to incorporate into the County's Land Development Code. These suggestions have been culled from various municipalities that have similar environmental and developmental issues as St. Johns County.

### **Title: Marina Siting**

**Issue:** The determination of suitable locations for potential marinas are necessary and important, both to avoid environmental degradation and other adverse impacts associated with marina development and to provide for adequate facilities for the future population of St. Johns County.

**Action:** Prospective marina developers should complete the "Preliminary Screening Checklist For Marinas" and review the information with County Planning staff to discuss the potential issues for development of marinas in the St. Johns, Guana, Tolomato, and Matanzas Rivers. An official pre-application meeting should be held with the St. Johns County Planning staff for early identification of siting issues.

### **Title: Land Use**

**Issue:** Recreational boating facilities should be located in areas that provide for good access to waterways and in areas compatible with commercial or recreational activities such as parks, green spaces, and boat rental centers.

**Action:** Marina areas shall be compatible with the St. Johns County adopted 2015 Future Land Use Map shown in Figure 2, and applicable land development regulations in terms of the types and intensities of uses that are permitted.

### **Title: Marina Development (New Facilities)**

**Issue:** Construction of new marine facilities will create certain environmental impacts. Some unavoidable habitat destruction will occur as the result of the construction and operation of new facilities.

**Action:** New marine facilities should be located in areas that minimize the adverse environmental impacts as defined in the Marina Siting Study. New marinas, ramps, and other water dependent use facilities should be sited as shown in Figures 21-28, to the maximum extent possible. Variations to this siting location should clearly demonstrate the advantages of not using these areas.

**Title: Existing Marina Facilities**

**Issue:** The development of new marine facilities can present several problems, which are not associated with the expansion of existing facilities. The development of new facilities may create more problems related to environmental degradation, financial risk, and adjacent use compared to expanding existing facilities.

**Action:** St. Johns County shall give special consideration to the expansion of existing marina facilities or development in disturbed areas. However, this is not meant to exclude development in other areas provided siting requirements are satisfied. Figures 21-28 show these locations recommended for expansion. Figures 13-16 show the regions where developmental and environmental scores are highest, indicating recommended areas for expansion and re-development.

**Title: Marina Fueling Facilities**

**Issue:** Marina fueling facilities have the potential for release of fuel and lubricants into local waters and may cause water pollution.

**Action:** Adequate and effective measures shall be taken to prevent contamination of area waters from spillage or tank storage leakage. These measures must include spill containment devices and booms, overflow protection, and early detection systems as stated in EPA and FDEP regulations. A Spill Control Counter-Measures Plan (SPCC) must be prepared by the facility owner for all new fueling operations in St. Johns County. The plan will include operations and safety procedures and contingency plans for clean up of any potential spills. A plan approved by FDEP and other agencies shall be judged sufficient for St. Johns County. Section 5.1 gives appropriate language for this LDR.

**Title: Continued Existence of Marine Industries**

**Issue:** Boat sales and maintenance create an ongoing demand for the continuation of marine services. Many factors (environmental, social, and economic) are placing pressure upon marina facilities, owners, and operators, making it increasingly more difficult to remain in business. Marina facilities are necessary for safe, efficient and effective operation of all vessels. Existing facilities should be allowed to continue their operation provided these facilities meet current standards. New facilities should be allowed after a thorough evaluation of all factors.

**Action:** Due to the direct economic impact of this industry, St. Johns County should encourage continued orderly growth of the marine industry. This would include coordination and promotion of marine economic vitality with the St. Johns County Chamber of Commerce and the St. Johns County Economic Development organization.

### **Title: Marinas and Associated Business**

**Issue:** Marinas and ancillary businesses to marinas such as, but not limited to, marine equipment suppliers, accessories manufacturers and suppliers, wearing apparel, fishing tackle, bait producers, food suppliers, marine financing, insurance, charter boat operators and publishing firms, provide economic growth and ancillary uses to areas associated with marinas. These businesses increase demands for marine facilities and advance the economic impact of the marina industry. The State of Florida has conducted some preliminary studies to determine the economic contributions made by marinas and support industries. Refinement of these studies in St. Johns County should be encouraged in an orderly manner to better define the importance and economic significance of marinas and related industries in the County and the surrounding region.

**Action:** St. Johns County should consider financial and business interactions between marinas and associated industries and the economic benefits accrued to the County from these interactions during the marina siting and planning process. The County may consider conducting an Economic Development Study for this aspect of the planning stage. Additional coordination with the St. Johns County Chamber of Commerce and the Economic Development organization should be encouraged for each new project.

### **Title: Dry Stack Storage**

**Issue:** The limited amount of suitable areas for marina development dictates a limited number of wet slips available within the County. Marinas that are entirely dry storage, or largely dry storage, may have fewer impacts than wet storage marinas. They require less dock space and reduce discharges and leachates from the boats stored there.

**Action:** New and expanded marina facilities should utilize dry storage, where possible. St. Johns County should encourage the use of dry storage where practicable and possibly adopt performance standards to protect the environment and adjacent property owners. These should address standards such as setbacks, height limitations, parcel size, color, maintenance, etc. All new drystack facilities must meet County building codes, including utility requirements and fire protection.

### **Title: Zoning of Marine Industries**

**Issue:** By developing performance standards different types of facilities may be located in a variety of zones with some assurance of consistent quality.

**Action:** The County's Future Land Use Map (FLUM) designations dictate what land uses are allowable in what locations, and the zoning must be consistent with the adopted FLUM.

### **Title: Mixed Uses**

**Issue:** Single marine use developments create social, environmental and aesthetic problems, which may be avoided or at least mitigated through mixed-use development. Non-marina businesses may be situated to buffer marine activities from adjoining properties. Having mixed uses tends to keep quality of marine development high. This idea has been incorporated into successful downtown marine redevelopment projects elsewhere.

**Action:** St. Johns County should encourage mixed-use development where it does not preclude the use of waterfront property by water dependent businesses. Preference for new and expanded facilities shall be given to those that are in the best interest of the general public. Section 5.2.2 gives appropriate language for this LDR.

**Title: Water Dependent Structures**

**Issue:** Shoreline development, including structures over the water causes disturbances of aquatic ecosystems. Once such alteration has occurred, the functions and values of these types of systems are impaired, if not lost. Restaurants, bait and tackle shops, gift shops and similar types of uses should be built on uplands. Constructing these facilities on uplands would not affect the function. Only structures whose function depends on being over the water shall be allowed on riparian lands.

**Action:** Only structures, which are truly water dependent, shall be located over the water and away from Aquatic Preserves. Non- water dependent uses such as restaurants and bait and tackle shops should be situated on uplands, unless it can be demonstrated that it is in the best interest of the public.

**Title: Industrial Uses of Marine Resources**

**Issue:** Industrial marine uses should be located so it does not adversely affect surrounding (less industrialized) businesses. Industrial operations, such as major repair facilities, boat building, seafood producing operations, freight activities and tourism (cruise ships), located within high quality environmental areas create negative impacts on surrounding areas.

**Action:** All new facilities must conform to the St. John County Comprehensive Goals, Objectives and Policies (GOP's) and the Land Development Code requirements. In Florida, the County's Comprehensive Future Land Use Map (FLUM) designations dictate what land uses are allowed in what locations in the County, and the zoning must be consistent with the adopted FLUM.

**Title: Public Access**

**I. Existing Facilities**

**Issue:** Existing marinas, boat ramps and docking facilities may be expanded, renovated, converted into other uses, or made private and removed from public use as development occurs in the County. These actions may reduce the availability for existing public access.

**Action:** St. Johns County should encourage the preservation of public access through existing facilities to water bodies, as stated in County's 2015 Comprehensive Plan.

St. Johns County may consider innovative incentives which encourage a certain percentage of public boat slips to be constructed within private marina facilities.



**Title: Public Access**

**II. New Facilities**

**Issue:** As development continues to occur along the water bodies of St. Johns County, visual access to these water bodies will be curtailed.

**Action:** St. Johns County should require that some public visual access from public right-of-way to water bodies be maintained by limiting structure heights, requiring open space on both sides of new structures, and prohibit barriers (i.e., fences and shrubs) that block the view of the water.

St. Johns County should encourage new development to provide public access to water bodies. Preference for construction of new facilities will be given to those projects which serve in the best interest of the general public based on the amount of access, parking or upland staging areas, and quality of available public land use.

St. John County should make provisions for public access through canoe or boat rentals at selected county facilities.

**Title: Boating Launching Facilities**

**Issue:** Private and public boat launching ramps provide essential public access to the various water bodies in the county. Associated with boat ramps are many other facilities, which contribute to the economic growth of an area. Regardless of the classification (private or public) boat launching facilities provide economic benefits.

**Action:** St. Johns County should continue to provide guidance, regulation and support to the siting of boat launching facilities. Methods of support vary and include taxation, user fees, assessments, donation, state, federal and private funding sources. Section 4 discusses the siting recommendations for new and expanded facilities. Specific sites are shown in Figures 21-28.

**Title: Inspection of Marina Facilities**

**Issue:** Marinas are inspected by a number of agencies, however there is no coordination of these inspections and requirements. Potential operational and regulatory problems will be alleviated by proper coordination.

**Action:** Marinas are inspected by a number of agencies; however, the marine inspection evaluations are not presently coordinated between these agencies. The County, DEP and the University of Florida Sea Grant program should initiate the coordination between the regulating governmental agencies. Inspection of commercial marinas at business license renewal time is recommended. Items to be inspected or reviewed may include:

1. Pumpout facilities / Marine Sanitation Devices
2. Manatee information
3. Compliance with power / sailboat mix, if required
4. Hurricane Evacuation Plan

5. Spill prevention, control, containment and cleanup plans
6. Waste collection and disposal methods
7. Required fire fighting equipment

Duplication with existing inspection programs shall be avoided where possible.

**Title: Hurricane Evacuation**

**Issue:** St. Johns County, as with all coastal areas, is susceptible to the impacts and rages of storms and hurricanes. The concerns of marina residents, boat owners and the location of marina facilities is important to local governments in relation to the consequences of storm impact.

**Action:** St. Johns County should include provisions for the safety of marina residents and facilities within its adopted Hurricane Evacuation Procedures. Marina facilities should be required to file a Hurricane Preparedness Plan.

St. Johns County should work with marina owners to educate boat owners / marina residents about safety and possible protected and / or unsafe anchorages.

All facilities shall conform to State and Local building Codes for wind loading and hurricane protection. The County will give preference to development of new facilities that are designed with up to date hurricane evacuation and preparation controls, including strengthened structural members and special storm mooring capabilities.

**Title: Pumpout Facilities**

**Issue:** Due to lack of pumpout facilities, wastewater from boats is being dumped into surface waters without treatment. In St. Johns County there are a few pumpout facilities to service many boats with holding tanks. Undoubtedly due to the lack of pumpout facilities, holding tank contents are discharged to surface waters or the tanks are by-passed with direct discharge. Additional pumpout facilities would help alleviate this problem.

**Action:** Pumpout facilities may be required by St. Johns County as a permit condition at new or upgraded commercial/recreational marinas. Section 5.2.1(d)3 provides recommended language regarding pumpout requirements for new facilities.

**Title: Habitat**

**Issue:** As the result of marina construction, habitat has been lost.

**Action:** New marina development and expansion of existing marinas shall minimize the destruction of habitat. The nature and extent of mitigation for habitat losses shall be considered during the permitting process. St. Johns County shall give preference to sites which have been legally disturbed, as opposed to sensitive natural areas. Section 5.2(c) gives appropriate language to address this important issue.

**Title: Endangered Species / Manatees**

**Issue:** Boating provides some degree of impact on manatees in St. Johns County. By educating boaters about manatees and their habitat, mortalities resulting from boat/manatee collisions may be reduced.

**Action:** Marina operators shall provide information to boaters on manatees and nearby manatee sanctuaries.

Additionally, those involved in the sale of boats and motors shall be encouraged to provide manatee information to the buyer at the time of delivery.

The County shall work with the State and federal agencies and local marine businesses to develop an information packet containing manatee information.

Manatee warning signs and speed limit signs may be useful for some areas of the County. Waters and access channels to marinas shall be marked appropriately.

New facilities should not be located in manatee sanctuaries, or other areas designated for preservation of endangered or protected species.

**Title: Runoff From Boat Maintenance Areas**

**Issue:** Runoff from boat maintenance areas often contains various pollutants that should not be allowed to reach surface waters. Runoff from work areas reaching surface waters often results in oils, grease, solvents, metals and other pollutants being discharged to surface waters. However, simple wash down prior to storage contains minimal amounts of pollutants.

**Action:** New or upgraded marina facilities shall retain runoff from work areas on uplands, until adequate treatment prior to discharge is realized. A stormwater system shall be designed by a registered Engineer in the State. Stormwater retention ponds should be designed to retain the first inch of runoff from all impervious areas. The St. Johns River Water Management District (SJRWMD) and Florida Department of Environmental Protection (FDEP) stormwater management requirements shall be implemented.

**Title: Stormwater Runoff From Marina Areas**

**Issue:** Stormwater runoff may contain nutrients, herbicides, pesticides and other material, which may degrade surface waters. Stormwater discharges with no detention, retention, or other form or treatment, may result in the discharge of pollutants to surface waters.

**Action:** New or upgraded marina facilities shall be required to retain and/or treat runoff per County, State and Federal regulations. A stormwater system shall be designed by a registered Engineer in the State, and should retain the first inch of runoff. The St. Johns River Water Management District (SJRWMD) and Florida Department of Environmental Protection (FDEP) stormwater management requirements shall be implemented.

### **Title: Water Circulation**

**Issue:** Poor circulation in marina basins has resulted in poor water quality conditions within these basins. As a result of poor circulation, water quality in many marina basins is poor. By maintaining circulation in new basins or improving circulation in old basins water quality could be enhanced or maintained.

**Action:** New marina facilities shall be designed to take advantage of existing water circulation and shall not adversely affect existing circulation patterns. Improving water circulation shall be a consideration when expanding or upgrading existing facilities. It must be demonstrated that adequate flushing times, conditions and requirements are met, as outlined in FDEP and SJRWMD marina permit application regulations.

### **Title: Aesthetics**

**Issue:** Attractive facilities are often desirable to the residents of a community. The definition “attractive” and the establishment of criteria to determine the quality of development are subjective. Many types of land use activities, such as marine industrial development, would not necessarily require the same criteria addressing aesthetics as residential or recreational uses.

**Action:** These standards should address the adopted community goals and, at a minimum, address vegetation and landscape requirements. St. Johns County’s Future Land Use Element of the Comprehensive Plan could provide appropriate standards, which apply to these concerns.

### **Title: Dredging and Disposal**

**Issue:** Dredging activities may impact water quality, aquatic and wetland habitat resources by altering water circulation patterns, increasing turbidity or siltation, decreasing dissolved oxygen, releasing pollutants from sediments and increasing erosion or shoaling rates. State regulation prohibits dredging of Aquatic Preserve Areas unless it can be shown that such dredging is in the public interest.

**Action:** Preferred marina sites would be those requiring no dredging. Acceptable marina sites must be located within areas that can provide safe, easy and convenient access to waterways, with minimal dredging. Section 5.1.2 gives appropriate language to be used in future LDR’s. All new and expanded facility plans shall include detailed bathymetric survey data showing existing and proposed depths.

Areas with known high siltation or shoaling rates should be avoided due to the possibility of considerable maintenance dredging.

### **Title: Filling Activities**

**Issue:** The principal concern for adverse impacts from filling are related to the modification or loss of shallow aquatic habitat or wetlands, potentially reduced circulation and increased siltation.

**Action:** Preferred marina sites would have adequate upland area for marina development and future expansion, including updated utilities and parking. Filling of

shallow water areas or wetlands is considered unacceptable by St. John County and regulatory agencies, which have adopted “No Net Loss” wetlands policies, and should be avoided when other alternatives exist.

**Title: Structures**

**Issue:** Some sites may require modifications to the shoreline to either create additional land area or stabilize shore erosion. Bulkheads and revetments are commonly constructed for this purpose. Because they are constructed at the land/water interface and may disrupt the flow of water, detritus and biota into or out of a wetland, care must be exercised to minimize impacts for both aquatic and terrestrial habitats.

**Action:** Preference for new marina sites will be given for those providing good natural protection, which could eliminate or minimize the need for protective structures such as bulkheads, revetments and breakwaters.

**Title: Flushing and Water Quality**

**Issue:** The potential for water quality problems is higher in areas with low flushing rates such as dead-end channels or canals and the upper reaches of estuaries or tidal creeks, which may be characterized by low tidal range or low net flow.

**Action:** Preferred sites are those on open waters or near the mouths of tidal creeks or tributaries. Marina design should maximize natural circulation to reduce sedimentation and maximize dispersion of pollutants. All flushing requirements must be met as stipulated by FDEP and SJRWMD.

**Title: Protected Areas**

**Issue:** Fish or wildlife in designated aquatic preserves wildlife refuges; wilderness areas or other specially designated protected areas can be affected by marina construction and operation. The potential for adverse impact is directly related to the proximity of the marina to these areas. A significant portion of the Guana River and all of Pellicer Creek are protected areas since they are designated as Florida Aquatic Preserves.

**Action:** A proposed marina in or immediately adjacent to a protected area may require mitigative measures in order to obtain a permit. These measures may include design modifications, seasonal construction scheduling or seasonal modifications in operational activities to ensure the avoidance of adverse impacts.

**Title: Shellfish**

**Issue:** Changes in water quality can result from marina construction and operation and from boating activity. Changes that have the potential to impede shellfish growth and propagation include increased turbidity, siltation, and water turbulence and pollutant levels. Sanitary waste discharges can contaminate harvestable shellfish such as oysters and preclude commercial harvesting of this resource.

**Action:** Marinas shall not be located in approved or conditionally approved shellfish harvesting waters or other environmentally sensitive areas designated by the County so

as to substantially and materially have a negative impact on these waters. These waters are shown in Figure 10. Additional language is provided in Section 5.1.

**Title: Grassbeds**

**Issue:** Increased turbidity, pollutants and physical damage from boats may damage grassbeds. Seagrasses are considered to be sensitive resources because of their role as nursery areas and their slow recovery following impacts.

**Action:** Marinas shall not be located where significant disruption of highly productive seagrasses areas will occur. Site Plans for all new and expanded facilities shall include mapped seagrass areas, showing existing and impacted areas.

**Title: Obstruction to Navigation**

**Issue:** Structures that extend into existing channels have the potential to obstruct boat traffic. Although it is important that boating activity is or will be sufficient to support the marina, the marina should be sited in such a manner that the marina itself or boats moving to or from the marina will not interfere with traffic along established navigation channels or routes.

**Action:** Marina development shall comply with Corps of Engineers and other applicable agency siting requirements relative to designated channel/basin areas; structure placement shall not pose a hazard to safe navigation. All ingress and egress channels shall be clearly marked with appropriate signage. No structure shall block more than 20% of the waterway width at that location.

## 5.2 Recommendations and Suggestions for the Development of Land Development Regulations (LDR's)

In order to implement the findings and recommendations of the Water Dependent Use Study, the St. Johns County Land Regulations (LDR's) must be revised and expanded. Unless otherwise noted, the following standards shall be applied to all Marinas and Water Dependent Use facilities within St. Johns County. The term "best public interest" may include the following: increasing public access; improvement of public health, safety, or welfare; improved land management or water quality; enhancement of natural habitat; and improved protection of endangered, threatened, or unique species.

### Siting of Marinas, Boat Ramps, and Commercial Docking Facilities

- (a) *Purpose and Intent.* The provisions of this section are intended to regulate the location and potential impacts to the surrounding areas from proposed marinas, boat ramps, and commercial docking facilities, through the use of siting standards developed as part of the St. Johns County Water Dependent Uses and Marine Study, hereby referred to as the SJWDUMS.
- (b) *Pre-Development Requirements.* The following requirements must be met prior to submitting development plans to the County.
  - 1) Developers of all new marine related facilities will be required to complete and submit a Marine Study Checklist as provided in Section 6 of SJWDUMS. This checklist will be reviewed by the County during the required pre-application conference meeting.
  - 2) Prior to completing the screening checklist, the developer will identify the combined site suitability rating score based on Table 4-4 and Figures 13-16 of the SJWDUMS. This information must be included in the Marine Study Checklist.
  - 3) After initial review of the project, and upon acceptance of the Marine Study Checklist by the County, a conceptual development plan shall be submitted to the County. This plan must include:
    - (i) boat demand and market study for the project area;
    - (ii) discussion of size and services of the proposed facility;
    - (iii) a survey of the property, signed and sealed by a surveyor registered in the state, locating the mean high-water line, the ordinary high-water line, or the safe upland line;
    - (iv) a sketch, drawn to scale, on the survey described in subsection (3)(iii) of this section, indicating the location and building dimensions of the structures, and any proposed alteration of the shoreline;
    - (v) a description of the types of structures proposed and the construction materials to be used;
    - (vi) a description of how the surface water quality will be protected (see Section 5.2.1(b));

- (vii) adequate demonstration that the proposed facility has sufficient upland area to accommodate all needed utilities and marina support facilities, including stormwater retention;
  - (viii) environmental assessment of the site, including water quality impacts, sediment transport and management, stormwater runoff control, shoreline protection, biological impacts, and proposed mitigative measures.
- (c) *Preferred and Desirable Characteristics for New Facilities.* The following characteristics are desirable for new facilities, and will be looked upon favorably by the County when considering new marine developments.
- 1) Easy access to open waters, population centers, utilities, public sewer and water lines, and existing roads and maintained waterways.
  - 2) Adequate storm protection with deep waters close to shore.
  - 3) Near currently permitted public areas for disposal of dredged material
  - 4) High tidal ranges, or other features that promote high flushing rates (low flushing times), such as near mouths of estuaries and tidal creeks, near inlets, or on convex shorelines.
  - 5) Facilities located in areas that minimize adverse environmental impacts, such as, but not limited to, submerged aquatic vegetation, manatee protection and documented high population areas, tidal marshes, wetlands, and special water classifications, as shown in Figures 9-12 of the SJWDUMS.
  - 6) Legally disturbed areas as opposed to naturally sensitive areas. The County will take into consideration opportunities to improve or correct land use and/or environmental conflicts created by prior development activities.
  - 7) Minimized or avoided habitat removal/destruction. Facilities which have been planned to minimize or avoid habitat losses are preferred methods of conservation as compared to facilities proposing removal or destruction of natural habitat.
- (d) *Restrictions for Location of New Facilities.* The following restrictions will be adhered to when considering siting of new facilities.
- 1) For proposed marine developments in Class II waters, Outstanding Florida Waters, Aquatic Preserves, and conditionally approved Class III shellfishing waters and Class III waters, the requirements as established in Section 18-20.004 of the Florida Administrative Code (FAC) will be strictly adhered to, including setback requirements, surface water discharges, and shoreline protection. Petitions for variances to these restrictions will not be considered by the County unless granted by the State of Florida. Approval by the State does not guarantee approval by St. Johns County.
  - 2) Along Class II waters, Outstanding Florida Waters, aquatic preserves, and conditionally approved Class III shellfishing waters, a 50-foot shoreline buffer extending landward from the mean high-water line or the safe upland line, as determined by the bureau of survey and mapping of the FDEP, whichever the applicant prefers, shall be established.



- 3) Along Class III waters, except conditionally approved Class III shellfishing waters, a 25-foot shoreline protection buffer extending landward from the mean high-water line or the safe upland line, as determined by the Bureau of Survey and Mapping of the FDEP, whichever the applicant prefers, shall be established.
- 4) Alteration or construction within the shoreline protection buffer other than that which is permitted under this section shall be prohibited, unless it can be shown to be in the best public interest and does not adversely impact water quality and natural habitat.
- 5) All multi-slip and marina docking facilities, except boat davits, in or adjacent to natural waterbodies must be set back a minimum of 25 feet from all adjoining side lot lines.
- 6) Non-water dependent use facilities, such as, but not limited to, restaurants, bait and tackle shops, and retail facilities shall be situated on uplands. Petitions for variances to this requirement must demonstrate why the proposed facility can not be located on uplands, and what actions will be taken to ensure that there will be no adverse impacts to the adjacent waters.
- 7) Marina docking facilities shall only be approved in locations having adequate water depths to accommodate the proposed boat use. A minimum water depth of 4 feet (mean low water) shall be required. These depth requirements shall also apply to the area between the proposed facility and any natural or navigable channel, inlet or deep water.
- 8) Dredging and filling shall not be permitted in or connected to Class II waters, Outstanding Florida Waters, Aquatic Preserves and conditionally approved Class III shellfishing waters unless the activity is clearly in the best public interest, such as approved maintenance dredging on existing public navigational channels, or where dredging may improve the water quality by removing accumulated silt or improving flushing characteristics.

#### 5.2.1 DEVELOPMENTAL REQUIREMENTS FOR NEW MARINE USE FACILITIES

- (a) *Purpose and Intent.* This Section outlines the specific requirements that must be met for the construction of all new water use facilities in the County.
- (b) *Water Quality Requirements.* The following will be required for all new facilities to ensure that existing water quality in the proposed area will not be adversely affected by the development.
  - 1) A specific condition for approval of any proposed marina shall be that the applicant shall maintain water quality standards as stated in Chapter 403, Florida Statutes. To assure compliance, the applicant shall maintain a water-quality monitoring program approved by the Florida Department of Environmental Protection.
  - 2) All new marina facilities shall be designed to take advantage of existing water circulation and shall not adversely affect existing circulation patterns. It must be demonstrated that adequate flushing times, conditions and requirements are met, as outlined in FDEP and SJRWMD Environmental Resource Permit

(ERP) application regulations. Variations from these requirements will not be accepted by the County unless approved by FDEP or SJRWMD. Approval by these agencies does not guarantee approval by the County.

- 3) Adequate and effective measures shall be taken to prevent contamination of area waters from spillage or tank storage leakage. These measures must include spill containment devices and booms, tank over-fill protection, and early detection systems as stated in EPA and FDEP regulations. A Spill Control Counter-Measures Plan (SPCC) must be prepared by the facility owner for all new fueling operations in St. Johns County. The plan will include operations and safety procedures and contingency plans for clean up of any potential spills. A plan approved by FDEP and other agencies shall be judged sufficient for St. Johns County.
- (c) *Stormwater Control.* New or upgraded marina facilities shall be required to retain and/or treat runoff per all County, State and Federal regulations. A stormwater system shall be designed by a registered Engineer in the State, and should retain the first 1 (one) inch of runoff. The St. Johns River Water Management District (SJRWMD) and Florida Department of Environmental Protection (FDEP) stormwater management requirements shall be implemented.
- (d) *Utilities, Fire Protection, and Traffic Control.* The following requirements must be met for all new marine use facilities.
- 1) All water dependent use facilities shall demonstrate that connecting roadways are sufficient to accommodate the anticipated traffic without reducing the Level of Service below that required by St. Johns County's Comprehensive Plan. A Transportation Impact Report shall be required when a proposed marina project exceeds the threshold value.
  - 2) Parking for boat ramps shall consist of parking areas and spaces able to accommodate vehicles and trailers safely. The minimum allowable parking space size shall be 10 (ten) feet wide by 40 (forty) feet long. A limited number of standard spaces, 10 (ten) feet wide by 18 (eighteen) feet long, may be required at the discretion of the County. Sufficient Americans with Disability Act (ADA) parking spaces shall be made available at all water dependent use facilities. The number of available spaces must conform with State of Florida and Federal Statutes.
  - 3) All facilities must provide adequate capacity to handle sewage in accordance with state standards, either by means of on-site pump out and treatment facilities or connection to a treatment plant. Applicants shall document the availability and capacity of the above sewage facilities to handle the anticipated volume of wastes. All marinas serving live-aboards or overnight transient traffic shall provide sewage pumpout facilities at the dock.
  - 4) Utilities at wet slip and dry stack marinas shall comply with the latest edition of local codes and NFPA 303, Fire Protection Standards for Marinas and Boat Yards.
  - 5) Land uses at upland areas at dry stack marinas shall conform to the lot size, road frontage, setback, and height requirements stipulated in the St. Johns County Building Codes and Land Development Regulations. Minimum yard

requirements less than 20 ft shall be increased to 20 feet to ensure adequate access for fire and emergency equipment. Variances to yard requirements shall only be granted by the Board of Adjustment following review by the local fire department, and in accordance with procedures and standards set forth by the County. A variance to the lot coverage may be approved provided that no variance shall permit buildings to cover more than 50% (fifty percent) of the upland lot area. A variance to permit buildings to cover more than 50% of the upland area may only be granted by the Board of Adjustment in accordance with procedures set forth by the County. In the event of a conflict with the shoreline buffers and setback requirements, the greater distance shall be required.

#### 5.2.2 NAVIGATION AND OVER-WATER STRUCTURE RESTRICTIONS

- (a) *Purpose and Intent.* The following restrictions apply to docks, bulkheads, piers, and other structures that extend into, and over the water as related to marinas, boat ramps and other water use marine facilities.
- (b) *Navigational Restrictions.* The following restrictions shall be adhered to when constructing new facilities.
  - 1) Docks and vessels moored at the docks shall not interfere with navigation in adjacent waters. Docks shall not extend beyond the mean high water line more than 500 feet or 20% (twenty percent) of the waterway width at that point, whichever is less. Variances to this restriction may be approved by the County for the following circumstances:
    - (i) the proposed dock has been approved by all applicable state and federal agencies;
    - (ii) the increased length will not result in a hazard to navigation;
    - (iii) the proposed dock is compatible with docks or other structures and uses on adjoining lots;
    - (iv) the increase in length will lessen the docks impacts on submerged aquatic vegetation or other marine resources.
  - 2) Immediate access (ingress and egress) points to marinas and boat ramps shall be delineated by channel markers, indicating speed limits and any other applicable regulations as required by the Florida Fish and Wildlife Commission and the U.S. Army Corps of Engineers.
  - 3) There shall be no permanent docking within 30 feet of fuel pumps or other fueling equipment.
- (c) *Structural Requirements for New Facilities.* The following structural requirements must be met for all new commercial facilities.
  - 1) All docks and structures erected over the water shall be on piers permitting the free flow of water; no bulkhead shall be permitted to extend beyond the established mean high water line; no pier shall be allowed to extend in public water to such a distance as to interfere with navigation and commerce.

- 2) All new facilities must meet the requirements established in the Florida Building Codes for wind loading and hurricane protection, as updated in January 1, 2002.

### 5.2.3 RESIDENTIAL AND SINGLE FAMILY DOCKS

- (a) *Purpose and Intent.* The following restrictions apply to single family and residential docks used for mooring purposes and water access. They do not apply to commercial facilities and marinas.

- (b) *Number of Slips.*

- 1) No more than one private single-family watercraft mooring dock with two slips is permitted in natural water bodies.
- 2) A shared property dock can be permitted for up to four slips.
- 3) Docking facilities in natural water bodies must comply with the following maximum dimensional requirements:
  - (i) Access walkway not greater than four (4) feet wide;
  - (ii) Terminal platform not greater than 160 square feet;
  - (iii) Finger piers not greater than three (3) feet wide;
  - (iv) Variances to these dimensions may be granted if the primary access to the property is by watercraft and no reasonable alternative access exists.

- (c) *Setback Requirements.*

- 1) All private single family docking facilities in natural water bodies must be set back from all adjoining side lot and side riparian lines as follows:
  - (i) Marginal docks – no less than 10 feet;
  - (ii) All other docks – no less than 25 feet.
  - (iii) Single-family boat ramps shall not exceed 25 feet in width, not including accompanying access dock for the ramp.
- 2) Variances to these set back requirements may be approved under the following circumstances:
  - (i) The width of the subject parcel is not wide enough to permit construction of a single family docking facility perpendicular to the shoreline at the midpoint of the shoreline property line, without a deviation; or
  - (ii) Construction of the structure within the setback area will minimize or eliminate damage to environmental resources that would otherwise be impacted if the deviation is not granted.

## ***SECTION 6.0***

# ***MARINE FACILITY SITING, PLANNING, IMPLEMENTATION AND CONTROL MANUAL***

## 6.0 MARINE FACILITY SITING, PLANNING, IMPLEMENTATION AND CONTROL MANUAL

This Section provides a reference manual to be used by County staff and/or prospective developers to plan and review permit proposals for locating future water dependent use facilities in St. Johns County.

The manual discusses siting criteria and provides a site planning checklist for use during the early stages of marina screening. The siting criteria and checklist may be put into a separate document and used by County staff and potential developers. One suggestion would be to have all prospective developers complete the checklist and provide County staff a copy prior to an “official” pre-application conference. The siting and planning checklist could be reviewed at the official pre-application meeting.

This Section also includes a discussion of basic Environmental Assessment Techniques for further analysis of potential impacts and a discussion on approaches which mitigate adverse environmental effects. This section is designed to give insight into environmental issues that will have to be addressed during Local, State and Federal reviews.

### 6.1 Siting Criteria and Site Planning Checklist

#### 6.1.1 INTRODUCTION

Marinas are very important to the economy of St. Johns County and the local communities along its various water bodies. The popularity of boating and the resultant need for marinas will continue to increase in the future. Siting of marinas, however, should be done in areas that avoid or minimize adverse environmental effects. Environmental impacts include the potential loss of submerged and shoreline habitats such as marina grass beds, tidal marshes and wetlands which are biologically productive. Areas of particular concern in St. Johns County in siting marinas are special water class areas, aquatic preserves and manatee habitats. This presents a special concern in reference to marina siting. The Florida Department of Environmental Protection (FDEP) severely restricts marina development in these areas. The draft updates to management plans being formulated by FDEP continue to severely restrict marina development in aquatic preserves. FDEP considers the siting of new marina facilities within the aquatic preserves secondary to the expansion of existing facilities when such expansion is consistent with other standards.

All marina projects within aquatic preserves must demonstrate they are in the public's interest and consistent with an adopted management plan. Further, all requested transfers of ownership for sovereign lands are subjected to a cost/benefit analysis to determine whether the social, economic, and/or environmental benefits clearly exceed the costs imposed on the public. In evaluating the benefits and costs of proposed uses, consideration is given to the quality and nature of the affected water body. Projects in less developed, more pristine areas are subjected to higher standards than those in the more developed areas.

Categories of impact benefits include: public access; provision of boating and marina services; improvement of public health, safety, or welfare; improved land management;

improved water quality; enhancement and restoration of natural habitat and functions; and improved protection of endangered, threatened, or unique species. These benefits are balanced against the negative impact of: reduced water quality; degraded or destroyed natural habitat; destruction, harm, or harassment of endangered or threatened species and their habitat; pre-emption of public use; increased navigational hazards; reduced aesthetics, and adverse cumulative impacts.

Site selection is one of the most important steps in developing a marina project. The site evaluation is key to understanding the potential for economic success, the environmental impacts and the probability for obtaining regulatory approval. A proper siting process should include the following:

1. Compilation of data and maps of the site.
2. Comprehensive review of development constraints / opportunities.
3. Evaluation of alternatives.
4. Review of Federal, State and Local policies controlling proposed uses at the site.
5. Select acceptable site.

The siting process should start with a screening evaluation to identify sites that warrant a more detailed evaluation and to eliminate sites that are unacceptable for further study.

The initial screening process often begins with boating demand studies, market studies and formulation of a marina concept, including type of marina services, size and types of boats to be accommodated.

Following initial site identification, the prospective marina developer should proceed with an in depth feasibility study of the marina project which includes preliminary design and consideration of applicable regulations and policies. Marina sites often present unique problems in providing economically feasible recreational boating facilities while minimizing adverse environmental impacts.

#### 6.1.2 MARINA SCREENING CHECKLIST

The marina screening checklist is designed for early identification of planning, engineering, environmental and permitting issues that may be pertinent to a marina project. The checklist should be used to obtain an initial overview of the relative merits and disadvantages of marina site or sites. A prospective marina developer should also use the checklist in early discussions with St. John's County and local governments.

A discussion of the elements and use of the checklist follows:

##### Part I: Project Description

Items 1 through 7 of the screening checklist should be used during the initial evaluation of the marina project.

##### Question 1 – Location

A marina site must provide safe navigational access to cruising waters and have adequate land access for boat owners to reach the marina. Precise location of the site is important for identifying potential difficulties related to land, water or utility access or potential regulatory issues related to conflicts with state or local management plans, ordinances, zoning requirements or natural resource

## MARINA SCREENING CHECKLIST

### **Part I – Project Description**

1. Location:           municipality\_\_\_\_\_ county\_\_\_\_\_
- body of water\_\_\_\_\_ latitude/longitude\_\_\_\_\_
2. Type of marina:   open water\_\_\_\_\_ dredged basin\_\_\_\_\_ interior harbor\_\_\_\_\_
3. Intended use:     commercial\_\_\_\_\_ recreational: public\_\_\_\_\_ private\_\_\_\_\_
4. Size:            upland area (ac)\_\_\_\_\_ submerged area (ac)\_\_\_\_\_
- number of slips\_\_\_\_\_ range in slip size (ft)\_\_\_\_\_
5. Type of boat:     sail\_\_\_\_\_ power\_\_\_\_\_ both\_\_\_\_\_
6. Services and facilities:
  - A.     Services: fuel\_\_\_\_\_ pumpout\_\_\_\_\_ launching/ramp hoist\_\_\_\_\_
  - engine repair\_\_\_\_\_ hull repair\_\_\_\_\_ propeller repair\_\_\_\_\_
  - electricity\_\_\_\_\_ water\_\_\_\_\_ dry dock storage\_\_\_\_\_
  - B.     Other facilities: ship's store\_\_\_\_\_ residential\_\_\_\_\_
  - hotel\_\_\_\_\_ development\_\_\_\_\_
  - restaurant\_\_\_\_\_ access road/utilities\_\_\_\_\_
  - boat construction\_\_\_\_\_ parking areas\_\_\_\_\_
7. Hydrographic conditions:
  - A. Tidal Range (ft):\_\_\_\_\_
  - B. Natural depth of waters at site (ft at MLW): minimum\_\_\_\_\_ maximum\_\_\_\_\_
  - C. Completed project depth at marina (ft at MLW): minimum\_\_\_\_\_ maximum\_\_\_\_\_

### **Part II – Potential Permitting Issues**

In completing the following checklist, all aspects of the project as addressed above should be considered. Checks in the "Yes" column indicate potential permitting issues. Checks in the "Unknown" column indicate that additional information should be obtained.

- |  | <u>Yes</u> | <u>No</u> | <u>Unknown</u> |
|--|------------|-----------|----------------|
| 1. Will dredging be required for: access channel?  | _____      | _____     | _____          |
| boat basin?  | _____      | _____     | _____          |
| 2. Will filling be required?   | _____      | _____     | _____          |
| 3. Will dredged material disposal at locations other than currently permitted public disposal areas be required? | _____      | _____     | _____          |
| Is the disposal area adequate for the life of the project?   | _____      | _____     | _____          |
| 4. Will structures such as bulkheads, revetments, etc. be required?  | _____      | _____     | _____          |



	<u>Yes</u>	<u>No</u>	<u>Unknown</u>
5. Will the water body at the site be characterized by low flushing rates dead-end channel or canal, upper reaches of estuary or tidal creek, low tidal range or low net flow?	_____	_____	_____
6. What is the Florida Department of Environmental Protection (FDEP) water classification of the water body at the marina site?	_____	_____	_____
7. Is the water body classified as an outstanding Florida waters (OFW)?	_____	_____	_____
8. Does the water body presently fail to meet state water quality standards for existing use classifications?	_____	_____	_____
9. Is the site located within 1.6 km (1 mi.) of an aquatic preserve or a designated wildlife refuge, wilderness area or other area specially designated for the protection of fish or wildlife?	_____	_____	_____
10. Are there rare, threatened, endangered or otherwise designates unique or outstanding aquatic or terrestrial species or the habitats known to be present at the site? (Contact Florida Fish & Wildlife Commission, US Fish & Wildlife Service and/or National Marine Fisheries Service).	_____	_____	_____
11. Do shellfish beds occur within 2000 feet of the site or within 1000 feet of access channels?	_____	_____	_____
12. Are all grassbeds located within 1000 feet of the marina or access channels?	_____	_____	_____
13. Is the site in an area of recognized historic, archaeological, or scenic value? (Contact State Historic Preservation Officer)	_____	_____	_____
14. Are local residents or landowners apposed to the project or unaware of the project?	_____	_____	_____
15. Will any proposed activity be inconsistent with state coastal zone management plans or local management plans, ordinances or zoning requirements? (Contact St. Johns County Panning Department and City Governments).	_____	_____	_____
16. Will the project require a Development of Regional Impact (DRI) review by the State of Florida, Department of Community Affairs?	_____	_____	_____
17. Will the project obstruct public land access to navigable waters?	_____	_____	_____
18. Will the project require structures which would extend into or otherwise obstruct existing channels or will the project require placing structures closer than 100 feet to a federally-maintained channel or basin?	_____	_____	_____

**Table 6-1 Marina Services and Facilities**

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MARINA SERVICES

Water Related

Boat launching  
Mooring service  
Water taxi service  
Transient boat service  
Waste collection  
Fueling  
Boat towing  
Fire and rescue services  
Navigation and weather information

Land Related

Boat sales  
Boat repairs  
Marina supply sales  
General supply sales  
Trailer storage  
Parking  
Overnight  
Food service  
Concessions  
Utility service  
Recreational services

MARINA FACILITIES

Water Related

Open and covered mooring  
Boat launch ramp  
Marine railway  
Crane lift  
Drydock  
Fueling pier  
Anchorage areas  
Marine service station  
Entrance and exit channels  
Swimming area  
Water skiing course  
Basin flushing system  
Storm and wave protection

Land Related

Boat building and repair  
Boat dry storage  
Trailer storage  
Restaurant  
Motel  
Picnic areas  
Convenience store  
Boat washing  
Parking  
Swimming pool  
Camping  
Beach area  
Club room  
Marine supply sales  
Public toilets and showers  
Recreational facilities  
Bait shop  
Seafood sales

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management policies. Proximity of the site to population centers, accessibility of the marina from the landside and easy access to desired water use areas are important evaluation factors.

#### Question 2 – Type of Marina

The type of marina proposed directly relates to the impacts imposed on the environment. Open marinas in well-flushed tidal creeks or estuaries may minimize the potential for water quality impacts that could result in the buildup of pollutants in poorly flushed, dredged basins. Harbor marinas dredged from upland areas also may lessen impacts to aquatic and wetland resources by limiting submerged area use requirements and modification to aquatic and wetland habitats. The type of marina proposed may directly affect potential water quality or habitat resource permitting issues related to environmental protection.

#### Question 3 – Intended Use

The intended use of the marina may affect permit approval, particularly where public access is limited. Projects that allow public access to coastal waters are typically viewed as a positive factor in the permit evaluation process.

#### Question 4 – Size

The size of the marina is dictated by the number, size and type of boats to be accommodated. Land area requirements depend on the harbor function and the facilities necessary to support that function. An ideal marina site should have adequate upland area available for the necessary shoreside facilities and for nonessential facilities such as picnic areas and playgrounds. It may also be necessary to provide land for wastewater treatment facilities, solid waste disposal, stormwater retention and runoff control and dredge material containment.

The Florida Department of Community Affairs (DCA) has Development of Regional Impact (DRI) threshold requirements for marinas. Generally, marinas planned with 150 or more wet slips are subject to DRI review.

#### Question 5 – Types of Boats

The various boat types and sizes will affect the choice of marina location and marina design considerations. The type of mooring also influences the size of mooring area required. Deeper access channels and harbor depths are required for larger powerboats and sailboats with fixed keels. Reasonable proximity to open waters, relatively straight access channels with broad turns and few shoreline hazards are considerations for safe navigation for sailboats and larger powerboats. These considerations will affect the amount of dredging and submerged area use required for the marina, factors that are directly related to evaluation of potential impacts during the marina permit review process.

#### Question 6 – Services and Facilities

The marina concept may include a variety of services and facilities (Table 7-1). Suitable water and land areas are essential to successful marina development. Additional land area also may need to be considered to accommodate any projected future expansion. The particular services and facilities proposed may pose beneficial and adverse environmental impacts that could affect permit approval. Facilities for fueling and boat repairs are of particular concern to

regulatory agencies because these activities have the potential for water quality and shellfish sanitation problems.

#### Question 7 – Hydrographic Conditions

Tidal range, natural water depth at the site and the project depth at the marina are hydrographic considerations necessary for evaluating the natural circulation of the area and the projected flushing rate of the marina basin. During the hydrographic survey, it is also important to note the locations of underwater hazards or obstructions, and to review the past history of the bottom in terms of siltation rates, marina life, bottom growth and shoaling.

Other hydrographic considerations necessary for effective site evaluation include:

- Bottom Conditions
- Wave Action
- Tidal Conditions
- Sedimentation Patterns
- Shoaling Conditions

#### Part II: Potential Permitting Issues

After development of the marina concept and identification of potential sites, responses to the Screening Checklist, Part II, Questions 1 through 18 will identify potential permitting issues or indicate where additional information should be obtained. This should provide assistance in final site selection, site feasibility analyses and marina design.

#### Question 1 – Dredging

Dredging activities may impact water quality, aquatic and wetland habitat resources by altering water circulation patterns, increasing turbidity or siltation, decreasing dissolved oxygen, releasing pollutants from sediments and increasing erosion or shoaling rates. Because of the variety and nature of impacts that may result, preferred marina sites would be those requiring little or no dredging. Acceptable marina sites must be located within areas that provide safe, easy and convenient access to waterways. The site also should provide an area of sufficient depth to permit safe access and moorage for boats. Sites on long, winding channels or with shallow water or bottom conditions that hinder safe navigation may require extensive modification and should be avoided. Straightening winding channels can affect basin water circulation patterns, tidal flows and sedimentation characteristics. Areas with known high siltation or shoaling rates also should be avoided because considerable maintenance dredging may be required. Where dredging is necessary, preferred areas would be those where shellfish, other benthic invertebrates or seagrasses would not be affected. Dredging in aquatic preserves is prohibited unless it can be demonstrated that there would not be significant adverse environmental impacts and that the project would be in the public interest.

#### Question 2 – Filling

The principal concerns for adverse impacts from filling are related to the modification or loss of shallow aquatic areas or wetlands. Because of the significance of adverse impacts to these resources, preferred marina sites would

have adequate upland area for marina development and future expansion and present natural characteristics conducive to eliminating or minimizing fill requirements.

Filling of shallow water areas or wetlands is considered unacceptable by regulatory agencies and should be avoided when any alternative exists. Unavoidable modification of these areas may require mitigative measures to compensate for habitat loss. Federal, State and county policies are currently enforcing a “no – net loss” of wetlands. Therefore, compensation for potential wetland losses should be evaluated for any marina proposals that result in adverse effects on wetland resources.

#### Question 3 – Dredged Material Disposal

Adequate disposal areas for initial and all maintenance dredging should be identified for the life of the project. Upland areas are preferred dredged material disposal sites for initial and maintenance dredging. In localities where pollutants in the sediments may be insignificant, the dredged material may, in certain instances, be used for beach nourishment or to create spoil islands suitable of waterbird nesting rookeries. Productive use of dredged material may be viewed as a positive factor in permit application evaluation. According to FDEP, spoil disposal within an aquatic preserve shall be strongly discouraged and may be approved only where the applicant has demonstrated that there is no other reasonable alternative and that the spoiling activity may be beneficial to, or at the minimum, not harmful to the quality or utility of the preserve. FDEP rules may also limit dredging and dredge disposal in OFW areas.

#### Question 4 – Structures

Some sites may require modifications to the shoreline to either create additional land area or stabilize shore erosion. Seawalls, bulkheads and revetments are commonly constructed for this purpose. Care must be exercised to minimize impacts to both aquatic and terrestrial habitats since these structures are constructed at the land/water interface and may exacerbate erosion problems, disrupt the flow of water, detritus and biota into or out of the wetland. Preferred marina sites would be those affording good natural protective, which could eliminate or minimize the need for protective structures such as bulkheads, revetments and breakwaters.

#### Question 5 – Flushing

The potential for water quality problems is higher in areas with low flushing rates such as dead-end channels or canals and the upper reaches of estuaries or tidal creeks, which may be characterized by low tidal range or low net flow. Preferred sites are those on open water or near the mouths of tidal creeks or tributaries. Marina design should maximize natural circulation to reduce sedimentation and maximize dispersion of pollutants.

#### Question 6 – Water Quality Classification

The Florida Department of Environmental Protection has classified all waters of the State according to existing water quality condition and/or water quality goals. The State also publishes water quality standards for each classification that should be understood when evaluating a site for marina development. The State

of Florida has classified surface water into five categories which indicate allowable usage based on the quality of water:

<u>Class</u>	<u>Type</u>
I	Public Water Supplies
II	Shellfish Harvesting
III	Recreation / Propagation and Management of Fish and Wildlife
IV	Agriculture and Industrial Water Supply
V	Navigation, Utility and Industrial Use

Areas of St. Johns County are classified as Class II and Class III waters. Marina development is prohibited in Class I and generally prohibited in Class II waters if shellfish are affected.

#### Question 7 – Outstanding Florida Waters (OFW)

Certain waters of the State have been given an additional classification because of unique ecological features and high levels of water quality. This classification imposes severe restriction on marina development. All waters of Pellicer Creek and a large portion of Guana River are classified as Outstanding Florida Waterways.

#### Question 8 – Water Quality

Obtaining permits for marinas in marginal water quality areas or in sensitive areas where maintenance of water quality is critical for protecting natural resources such as shellfish or grassbeds may be very difficult or require extensive design modifications, including extensive and expensive pollutant control mitigative measures.

#### Question 9 – Protected Areas

Fish or wildlife in designated aquatic preserves wildlife refuges, wilderness areas or other specially designated protected areas can be affected by marina construction and operation. The potential for adverse impact is directly related to the proximity of the marina to these areas. Protected areas may be readily identified through contacting the Florida Department of Environmental Protection, Florida Fish & Wildlife Commission, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service.

Impacts to the fish and wildlife in protected areas may restrict marina development. A proposed marina near a protected area may require mitigative measures in order to obtain a permit. These measures may include design modifications, seasonal construction scheduling or seasonal modifications in operation activities to ensure the avoidance of adverse impacts. According to FDEP, marinas shall not be sited within State designated manatee sanctuaries.

#### Question 10 – Rare, Threatened, or Endangered Species

A number of endangered or threatened species potentially inhabit the waters of St. Johns County. The most seriously endangered of these species is the Manatee.

The West Indian Manatee is an endangered aquatic species of significant concern in Florida. This generally slow moving mammal concentrates in springs, power plant discharges and other warm water areas in Florida during the winter. Impacts on manatees or the habitat necessary to support them may result from marina construction, operation or boating activities. Manatee concentration areas may be identified through contacting the Florida Fish & Wildlife Commission, the Florida Department of Environmental Protection, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service.

Birds are also a primary group of endangered species that may be of concern in marina siting. Many waterbirds, such as pelicans, ospreys, terns, and herons are on state and federal lists of protected species.

Potential impacts to rare, threatened, endangered or otherwise designated outstanding or unique species or habitats are considered to be very important. Significant impacts to any of these areas or species are unacceptable. Circumstances may arise when mitigation of potential impacts would be acceptable.

#### Question 11 – Shellfish

Changes in water quality can result from marina construction and operation from boating activity. Changes that have the potential to impede shellfish growth and propagation include increased turbidity, siltation, water turbulence and pollutant levels. Sanitary waste discharges can contaminate harvestable shellfish such as clams and oysters, and preclude commercial harvesting of this resource. Locating marinas away from shellfish harvesting areas will reduce the potential for both environmental impacts and resource-use conflicts.

#### Question 12 – Grassbeds

Increased turbidity, pollutants and physical damage from boats may damage grassbeds. Seagrasses are considered to be sensitive resources because of their role as nursery areas, their role as food source for manatees and their slow recovery following impacts. It is preferred that marinas be sited in locations where disruption of highly productive nursery areas, such as seagrasses, marsh grasses, and mangroves will not occur.

The dredging of access channels through grassbeds is strongly discouraged and may be prohibited by regulatory agencies. Obtaining permit approval for marinas near grass beds will require close consideration for potential impacts and may require mitigative measures which can affect the financial feasibility of the project.

#### Question 13 – Historic, Archaeological, and Scenic Areas

Proposing a marina development in a recognized area of historic, archaeological or scenic value is a factor considered by permitting agencies. A finding of significant impact may cause a permit to be denied. As part of the permitting process, the USACE considers impacts to these resources that may result from marina development. Under Section 106 of the National Historic Preservation Act, the Florida Historic Preservation Officer (FHPO) has responsibilities for reviewing proposed developments to determine possible adverse impacts. The marina developer or site planner may identify these areas by contacting the

FHPO. The FHPO can identify sites that could give rise to significant permitting issues or recommend an appropriate professional with knowledge in the local area who may be consulted.

#### Question 14 – Local Opinion

An important consideration in site planning is the opinion of local landowners. Identification of adjacent property owners is a required part of the marina permit application. Early consultation with local residents and landowners may be important to project success. Informed residents who have the opportunity to participate in shaping the proposed development can be assets to the marina developer. Issuance of Public Notice is required in the permit review process. The purpose of this notice is to allow regulatory agencies, individuals, and special interest groups to comment on the proposed development. Public opposition to the project may lead to public hearings, require significant project modifications or ultimately result in permit denial.

#### Question 15 – Consistency with Coastal Zone Management,

##### Local Permits and Approvals

After the best of the candidate sites have been selected, early evaluation of consistency with the State Coastal Zone Management Plan and St. Johns County Comprehensive Plan & Land Development Code requirements is important in determining site feasibility. State and County law require consistency with the St. Johns County Comprehensive Plan. The FDEP permit review process requires a determination that the proposed project is consistent with state, county and local coastal management plans. Failure to obtain all necessary regional and local permits and approvals may result in costly delays in obtaining marina permit approval or result in permit denial.

#### Question 16 – Florida Development of Regional Impact

The Florida Department of Community Affairs administers the Development of Regional Impact (DRI) process which requires an evaluation of the social, economic, and environmental affects of development projects of certain magnitude. Marinas of sufficient size are subject to the DRI Review Process. A prospective developer should contact the Department of Community Affairs to determine the DRI requirements for the marina proposal.

#### Question 17 – Public Access

Considerations for public access affect permit approval. Regulatory agencies look more favorable on a public marina or a private marina that would allow public water-use access (boat ramps or other facilities) than on a proposed marina that would exclude any public use. Provision to provide or enhance public land access to navigable waters is generally viewed as a positive factor in evaluating permit applications. Projects that obstruct public access could be considered detrimental to the public interest and not approved as proposed.

#### Question 18 – Obstruction to Navigation

Structures that extend into or near existing channels have the potential to obstruct boat traffic. Although it is important that boating activity is or will be sufficient to support the marina, the marina should be sited in such a manner that the marina itself or boats moving to or from the marina will not interfere with



traffic along established navigation channels or routes. An acceptable marina site would provide adequate open water for safe navigation.

### Summary

The typical marina development process encompasses two phases:

1. An initial broad screening evaluation in which market analysis, development of market strategy and marina concept and identification of possible sites occur; and
2. A detailed site-specific evaluation in which the proposed site is selected, site feasibility and preliminary marina design are determined, final marina design is completed, and development is initiated.

The initial broad screening evaluation of candidate marina sites should consider the anticipated need and demand for the marina. Sites should provide adequate water and land area; water, land, and utility access; and aesthetic surroundings. Sites that meet these conditions may then be considered for detailed site-specific evaluations to determine existing site conditions favorable for marina development in an environmentally sound manner. The screening checklist can be used to identify desirable / undesirable site characteristics. Responses to questions in Part Two of the checklist will identify potential permitting problems. This approach leads to site selection and marina design that allow maximum use of existing conditions while minimizing site modifications. This, in turn, will help eliminate or reduce environmental impacts and permitting issues.

Collective environmental and engineering needs a given marina site are rarely met and alterations are usually required to make the site suitable. The most appropriate marina site would be one requiring as little modification to the site environs as possible. Desirable and undesirable site selection characteristics include:

### Desirable Site Characteristics

- Easy access to open waters, population centers, utilities, public sewer and water lines;
- Accessible from existing roads and waterways;
- On sheltered waters providing adequate storm protection with deep waters close to shore;
- Near existing state or federally maintained channels;
- Near currently permitted public areas for disposal of dredged material;
- High tidal range or flow and high flushing rates, such as near the mouths of estuaries or tidal creeks, near inlets or on convex shorelines;
- Compatibility with existing land and water uses; and
- Away from shellfish beds used for harvesting for human consumption.

### Undesirable Site Characteristics

- Too shallow or with inadequate water or land area for intended use, requiring extensive dredging or filling;
- Low tidal range or flow and low flushing rates, such as dead-end channels or canals or the upper reaches of tidal creeks

- In a location with poor water quality, marginally meeting state water quality standards;
- Near specially designated fish or wildlife protection areas or near shellfish bids or dense grassbeds;
- Location where rare, threatened, endangered, or otherwise designated unique or outstanding aquatic or terrestrial species or habitats are found;
- In an area or recognized historic, archaeological or scenic value; and
- Location where development would obstruct public access to navigable waters or hinder safe navigation by requiring structures that would extend into existing channels.

## 6.2 Environmental Assessment Techniques

### 6.2.1 INTRODUCTION

Upon completion of siting and preliminary design studies, the prospective marina developer should conduct an environmental impact assessment of the project. The following section of this manual presents a step-by-step guide for completion of an environmental assessment of the major impacts normally associated with a marina project. The guidelines present several recommended techniques for conducting impact analyses. Most of these are applicable to simplified marina designs. However, for more complex marina proposals, it may be necessary to use more sophisticated approaches in assessing impacts. Regulatory agency staff will advise the applicant as to the level of detail required for studies and analyses at the pre-permit conferences.

### 6.2.2 WATER QUALITY IMPACTS

Many factors work to determine the eventual impact a marina will have on the water quality within the immediate vicinity of a marina and areas of the adjacent waterway. Initial marina site selection is one very important factor. Selection of a site with favorable hydrographic characteristics and which requires the least amount of modification can do a great deal to reduce potential water quality impacts.

For marinas with enclosed or semi-enclosed basins, the basin configuration is another important factor. Marina basin size and shape are two significant features of basin configuration. The size and shape of marina basins are functions of:

- Natural advantages at the site
- Mooring facility requirements
- Required degree of protection from weather and waves
- Land and water area limitations
- Economics.

In such basins, circulation of flushing characteristics plays important roles in the distribution and dilution of potential contaminants. Circulation and flushing can be influenced by the natural or dredged basin orientation. The final design is usually a compromise that will provide the most desirable combination of marina capacity, services and access, while minimizing environmental impacts, dredging, protective structures and other site development costs.

Numerous marina-related development and operation activities are also significant factors impacting water quality. Dredging and dredged material disposal, wastewater disposal, fueling operations, stormwater runoff and boat maintenance and repair are some of these. Discharges from marina sanitation devices and bilges can also impact water quality in the marina waters. In inadequately flushed basins, discharges from these sources have the potential to reduce dissolved oxygen supply and increase turbidity, coliform bacteria concentrations, nutrient, metals or hydrocarbon levels. Further, the potential for periodic release of concentrated pollutant loads into adjacent waters exists in the case of inadequately flushed basins.

### *Flushing Characteristics of Marina Sites*

Flushing and circulation are important physical characteristics of a marina site that should be considered in marina planning. Precise information on flushing and circulation usually is not readily available during the marina site selection and design process. However, methods exist for providing estimates of expected flushing capability.

The method chosen to estimate expected flushing from a marina site depends upon the hydrographic characteristics of the siting location. Marinas anticipated to be located within a confined area with one or two relatively narrow openings would have flushing characteristics considerably different from marinas located directly on larger bays or estuaries or along river shorelines. Two openings may improve flushing in semi-enclosed marina basins. The United States Environmental Protection Agency (USEPA) Coastal Marinas Handbook describes several methods for evaluation flushing characteristics.

A prospective marina developer should schedule a meeting with the Chief Hydrographic Engineer with the Florida Department of Environmental Protection (FDEP) in Tallahassee to discuss appropriate water quality analysis techniques before submitting a permit application.

### *Sediment Deposition and Shoaling*

A variety of factors influence the amount and location of sediment deposition in a marina area. Since marina sites are generally chosen or designed to be relatively quiescent, they become efficient sediment traps. Sediment can be transported into the marina through suspended or bed load, hydrodynamic transport, or by upland storm runoff. Shoaling at harbor entrances can occur when breakwaters or entrance channels affect littoral drift. Sediment control measures such as groins or jetties may be required at some sites where suspended load or bed load sediment transport is high.

## SUSPENDED SEDIMENT TRANSPORT

### Semi-Enclosed Marinas

Estimates of suspended load sedimentation in a semi-enclosed marina can be obtained through the use of two characteristics, the total suspended solids in the water being carried into the marina basin and the percentage retention of these solids within the basin.

### Open Marinas

Sedimentation of the suspended load for marinas located on more open areas of an estuary, bay or river would be affected by local conditions. In estuaries, sedimentation of suspended load will be greater in the upper estuary near the point of river influx because the water velocity decreases at this point and many of the suspended particles will settle out. This also occurs at tide nodal point. Sedimentation also will be greater near the point of freshwater-saltwater interface in the estuary where rapid change in the salinity causes flocculation of the suspended particles. Marinas sited near these locations would be subject to high sedimentation rates. Available records can be reviewed to determine historic and therefore expected sedimentation in these areas.

### BED LOAD SEDIMENT TRANSPORT

Bed load transport is the descriptive term for sediment, which is moved along the bottom by currents. This sediment movement is a complex process that is affected by particle size, channel or bottom geometry, relative layering of various particles sizes, bottom growth or other obstructions, near-bottom current velocities and suspended particle composition of the near-bottom currents.

For marinas that are semi-enclosed with entrance channels perpendicular to rivers, bed load transport may be significant in filling the dredged entrance channel. For natural entrances and for marinas located on rivers or in bays or estuaries, the bed load transport would probably not create a buildup of sediment unless structures were added that significantly altered bottom flow patterns.

### Runoff

Stormwater runoff can carry particles into the marina basin. These particles would add to the total amount of sedimentation expected. Upland runoff characteristics result from complex interactions between rainfall frequency and intensity, ground characteristics such as vegetation, type of soil, relative compaction of soil, slope of the land, impervious and pervious surfaces and other obstructions.

### *Dredging and Dredged Material Disposal*

Impacts from dredging and construction activities may be environmentally significant, depending upon the physical and biological characteristics of the surrounding water body. The degree of impact depends on the quality of the existing environment; the character of site-specific habitats, wildlife water quality, adjacent developments; and the manner in which the dredging and disposal is conducted.

### Turbidity Increase

Turbidity, which can be both natural and man-induced, refers to the amount of suspended solids in the water column and the corresponding decrease in light transmittance.

Elevated turbidity levels can be temporary and localized. Many investigators feel that temporary, localized turbidity increases due to dredging are not significant because estuaries typically experience temporary turbidity increases as a result of tides and storms, and because some estuarine organisms, such as fish, can actively avoid these areas. The dredge-related effects of siltation, however, can have a prolonged and serious impact through seagrass destruction, shoaling and circulation changes, and

burial of organisms. Open water unconsolidated spoil banks and unstabilized dredged canal banks can be eroded and agitated by wave action and boat wakes so that turbidity levels remain elevated over long periods.

#### Quantity of Suspended Sediments

In order to determine the area of impact for dredging it is necessary to estimate the amount of dredging that would be required initially and for subsequent maintenance. The initial volume of dredging depends upon the specific design of the marina and the pre-construction condition of the site. The volume of maintenance dredging anticipated would depend upon sedimentation at the marina site.

Once determination has been made of the expected volume of dredged material to be removed, the quantity of increased suspended solids can be estimated.

The National Academy of Sciences, National Academy of Engineering (1973) recommends the following maximum concentrations of suspended sediments for protection of aquatic communities (Carstea, et al., 1975):

- |                            |                 |
|----------------------------|-----------------|
| • High level of protection | 15 mg / l       |
| • Moderate protection      | 80 mg / l       |
| • Low protection           | 400 mg / l      |
| • Very low protection      | over 400 mg / l |

#### *Shoreline and Protective Structures*

Marinas use shoreline and protective structures to retain their developed shores, to protect against waves generated by wind and moving watercraft, and to provide public access to navigable water. The following review is a complete summary of the impacts from minor shoreline structures with numerous references.

The shoreline and protective structures relevant to marinas include:

- Piers and piles
- Jetties, groins, and breakwaters
- Bulkheads, revetments, and ramps.

Development of marinas may involve dredging and construction of shoreline structures, access roads, and shop and supply buildings. These operations typically alter existing habitats which may include productive areas such as wetlands and estuaries. Although the construction of pilings, docks, bulkheads, breakwaters, rip-rap revetments, vegetated revetments, jetties, and other shoreline structures do afford new habitat for marine and terrestrial animal colonization, they do not replace the habitat that is lost by dredge and fill and construction activities or altered through secondary effects.

#### Physical Impacts

Physical alteration can be caused by certain shoreline structures. Alterations frequently involve changes in siltation, circulation, turbidity and erosion. Solid breakwaters, for example, change circulation patterns and may cause shoaling. Typical areas of shoaling for shore-attached solid breakwaters are along the shoreline near the updrift point of the breakwater shore attachment. For detached breakwaters, accumulation is often along the shoreline on the lee side of the breakwater. Such shoaling can cause downshore

erosion. Areas downshore of groins may also be deprived of littoral drift sediment and consequently scoured. Erosion and the resulting sediment accumulation elsewhere may require maintenance dredging.

### Chemical Impacts

In addition to dredging-related water quality alterations during construction, shoreline structures may produce other water quality changes. Pilings and other wooden structures are frequently treated with preservatives such as creosote or other zinc and copper salts to slow the settling of fouling and boring organisms and to increase the life of the structures. Chemicals can leach into marina waters and can affect the water quality and non-target organisms.

### *Pollutant Concentration*

Runoff from marinas may introduce pollutants that can degrade the quality of adjacent waters. During marina construction, natural vegetative cover is usually replaced by impermeable surfaces such as buildings or parking lots that reduce the area available for stormwater percolation. Without proper design, stormwater runoff can increase and pollutants may be washed from a marina into the water. These pollutants may include sediments, pesticides, oil and road dirt, heavy metals, and nutrients.

During periods of heavy rainfall, storm sewer systems designed simply to channel stormwater away from parking lots, walkways, roofs and other collection points may carry a variety of pollutants that are capable of degrading water quality.

Expected pollutant concentrations in marina basins and adjacent waters can be estimated by evaluating the type and quality of pollutant loadings expected and the dilution and transfer of such pollutants by various flushing mechanisms.

### Dissolved Oxygen

The discharge of pollutants to the marina basin may impose a biochemical oxygen demand that can be combined with estimated sediment oxygen demand to provide an estimate of oxygen depletion in the basin. This estimate requires a variety of assumptions. The approach to dissolved oxygen (DO) considerations is to conduct a DO mass balance over one tidal cycle and determine whether significant DO reduction occurs.

### Sanitary Wastes from Boats

One pollutant source of major concern is the discharge of sanitary wastes from boats in marinas or adjacent waterways which may contribute to increased biochemical oxygen demand (BOD) in receiving waters.

The most serious effect of discharging fresh fecal material is the potential for introducing disease-causing viruses and bacteria (pathogens). Problems may occur if boat sewage is released in the vicinity of shellfish (clam or oyster) beds or into enclosed waterways with limited flushing. Shellfish require clean water to be microbiologically safe for human consumption, regardless of whether they are eaten raw or partially cooked. Fecal coliform bacteria, other bacterial pathogens, and viruses found in water and sediments are concentrated by shellfish, depending upon temperature, density of pathogens, salinity, currents, depth, water chemistry, and shellfish feeding activity.

### Impact Evaluation

Several methods have been developed for predicting the potential coliform concentration resulting from sanitary waste discharge in a marina basin or adjacent waters. Potential impacts to shellfish areas or water quality can be estimated by comparing results from any of these methods with the state water quality standards for classification of waters in which the marina is located. If presence of shellfish is an important issue in the planning of a marina project, contact should be made with the Florida Department of Environmental Protection (FDEP) and a method for prediction of impacts should be coordinated and developed through the agency.

### *Boat Operation and Maintenance*

Many of the water quality impacts of boat operation and maintenance on the environment are subtle and most have not received the scientific attention required to assess them. In addition to sanitary waste discharges, other pollutants include outboard exhaust and other engine pollutants, lead, copper and detergents. The impacts associated with these pollutants range from acute toxicity to slight perturbations.

### *Wetlands*

Review of the vegetative community information developed in the ecological description of the site should be used to determine the amount (in acres) and types of wetlands. This analysis should include the impacts associated with dredging and/or development of all facilities associated with the marina project that will result in the loss of any wetland habitat. The importance and/or functional value of the wetlands impacted with regard to the local ecosystem and the relative significance of this loss of wetland resources should be discussed. The wetland areas to be preserved in their natural or existing state and the planning approaches that will be used to accomplish this preservation should be indicated.

### *Terrestrial Biology*

Review of the vegetation and wildlife information for the site should be used to determine the amount and types of vegetation and wildlife habitat that would be affected by construction of the proposed project. The locally or regionally important functions of these habitats, such as breeding, nesting, or roosting grounds for wildlife, should be discussed. The planning approaches that will be used to preserve any important areas found on the site should be discussed. The presence of any rare, threatened, or endangered plants and animals which would be affected by the proposed project should be determined.

### *Aquatic Biology*

The following information should be included:

1. The amount of aquatic habitat (i.e., grassbeds) that will be modified by the proposed marina project: a study of the quantity and quality of benthic communities may be undertaken to assess the direct loss by dredging or shoreline modifications;

2. The direct or indirect effects on bottom communities and shellfish resources by physical disruption of habitat during construction or indirect effects caused by changes in water quality during marina operation (refer to the impacts of coliform bacteria and other parameters analyzed in the water quality impact section to address indirect impacts on oyster resources);
3. The impact of construction and/or operation of the marina on important spawning or nursery areas for fishery resources in the site area;
4. After review of the benthic macroinvertebrate studies conducted at the site, an estimate of the amount of benthic habitat and communities that will be affected by the marina project; and
5. The effects of boat wakes on molluscan shellfish resources adjacent to the marina or in tidal creeks which would experience significant increases in boat traffic as a result of the proposed marina should also be addressed.

### *Protected Species*

The principal means of predicting impacts to protected species is the identification of their presence at or near the marina. State and federal lists of endangered species may be reviewed in order to determine potential presence of these species at a chosen marina site. Local experts, U.S. Fish and Wildlife Service and Florida Department of Environmental Protection agencies may also be contacted for endangered, threatened or rare species information.

### 6.2.3 SOCIAL AND ECONOMICS

#### *Historical or Archaeological Resources*

Important planning considerations for any proposed marina facility include evaluation of the cultural, economic and environmental consequences of its development. Consideration of the potential effects from marina development on local cultural resources may include the evaluation of historical and archaeological sites. If these sites occur in the area to be developed, data recovery and preservation activities may be necessary to avoid alteration or loss of prehistoric, historic or archaeological resources.

The National Register of Historic Places, compiled by the National Park Service, may be used as a primary information source for determining whether or not a proposed marina would affect any historic or archaeological site of significance for the area. The Register and the appropriate State Historic Preservation Officer will provide information on sites that the states are nominating for inclusion, or are considered eligible for inclusion in the National Register. If historical or archaeological resources, including marine artifacts, may be potentially affected by the project, a survey may be justified.

#### *Navigation*

Potential impacts to navigation resources may result from obstructing boating traffic through structure placement or increased shoaling as a result of marina development. Predicting impacts from structure placement principally involves determining structure



requirements for the marina layout and comparing these requirements with the size and type of boats presently using the waterway.

### 6.3 Mitigative Measures

#### 6.3.1 INTRODUCTION

Most coastal construction projects, including marinas, will have some impact on the environment. This section is designed to provide the prospective marina developer with alternative measures or “environmental solutions” that can be used to solve potential environmental impact problems during marina design and construction.

#### 6.3.2 ENVIRONMENTAL IMPACT SOLUTIONS THROUGH MITIGATION

##### Definition of Mitigation

The definition of “mitigation” has evolved to include avoiding and minimizing project impacts on natural resources during project planning and implementation, as well as corrective action following impact. This definition is stated in the National Environmental Policy Act (NEPA; Section 1508) and includes:

- Avoiding the impact altogether by not taking a certain action or parts of an action;
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operation during the life of the action; and
- Compensating for the impact by replacing or providing substitute resources or environments.

The U.S. Department of the Army, Corps of Engineers (USACE) has adopted regulations which address mitigation in the context of dredge and fill permits. Currently, the USACE and U.S. Environmental Protection Agency (EPA) are continuing to work to develop additional guidance for the implementation of the mitigation rules.

The USACE has generally adopted the NEPA definition for mitigation, and it uses the concept broadly throughout the permitting process. The USACE does not follow a permitting sequence of modification prior to mitigation because the USACE recognizes modification as a form of mitigation. Minor modifications such as restrictions in a project’s size and scope, changes in construction methods, materials or timing, or changes in operation and maintenance practices are all considered mitigation.

The most familiar form of mitigation resulting from the USACE permitting process is “compensatory mitigation.” It is defined as “compensating for the impact by replacing or providing substitute resources or environments.” It can be provided by constructing or enhancing a wetland, dedicating wetland acreage for public use, or contributing to the construction, enhancement, acquisition, or preservation of such “mitigating lands.”

The U.S. Fish and Wildlife Service (USFWS) is a commenting agency which receives USACE dredge and fill applications pursuant to the Fish and Wildlife Coordination Act.

The USFWS' major focus is the habitat value of the area impacted. One method of attempting to quantify the comparability of ecosystems is the USFWS Habitat Evaluation Procedure (HEP). There are many variations on this modeling methodology and close coordination with the agency involved is recommended before embarking on any attempt to quantify habitat ramifications from the proposed construction action or the planned mitigation measures. USFWS undertakes a higher visibility permitting role if an endangered species is impacted.

The Florida Department of Environmental Protection (FDEP) also has a rule in reference to mitigation. The intent of the rule is to establish criteria whereby a dredge and fill project, which is not otherwise permissible, nevertheless may be allowed if the adverse impacts of the project can be offset. The rule makes it clear that mitigation is resorted to only after it has been determined that the project is not permissible. It is not an "up-front" requirement in the normal processing of an application. The normal procedure will be for the FDEP to review an application to determine whether it is permissible under its statutory criteria. If it is not, then the applicant or FDEP may propose a mitigation plan.

Mitigation proposals must include:

- A description of mitigation area.
- A description of reference waters. Where necessary, reference waters are to be used to measure the success of mitigation.
- A description of proximal habitat (i.e., nearby or adjacent areas that can provide habitat for animals displaced by the dredge and fill activity).
- A monitoring plan.
- A mitigation cost estimate.
- Sufficient legal interest in the property to be used for mitigation.

All mitigation proposals are evaluated on a case by case basis. There is no absolute requirement for the replacement of the same type of habitats impacted, nor are there absolute requirements for habitats created or enhanced versus habitats adversely impacted.

Offsetting adverse impacts will usually be best addressed through protection, enhancement or creation of the same type of habitat as those impacted by the dredge and fill activity.

The rule provides that a ration of 2:1 (area created : area impacted) is to be used as a guideline for mitigation involving the creation of habitats.

#### Mitigative Concepts

The primary mitigative approach is one of preventative conservation, design to protect environmental resources and avoid costly man-assisted restoration efforts. It is founded on preventing adverse, predictable and irreversible trends or changes in aquatic and terrestrial natural systems. The mitigative approach to meet this objective is to pursue feasible and prudent alternatives to a proposed project and/or examine all feasible measures to reduce or counteract adverse impacts associated with that project. Where remedial action is indicated, it should be a sufficient size and properly designed so as to offset the adverse impacts of a proposed project.

### Extent of Mitigation

The extent of mitigation needed for a marina project may be based on consideration of the following factors:

- The extent of proposed dredge and/or fill activity in intertidal and marsh areas.
- The biological productivity and important resources values of the site.
- The adverse impacts and the extent to which they can be minimized through modification of project design or reduction in project scope.
- The identification of any remaining adverse impacts to be mitigated by restoration, compensation or other measures.

### Marina Related Mitigative Measures

In general adverse impacts associated with marina development include the loss of surface area (by filling), the loss of shallow intertidal benthic habitat (by either filling or dredging) and the degradation of water quality. As a minimum, mitigation efforts should be designed to maintain, to compensate for or to restore these potential environmental losses.

## 6.3.3 WATER QUALITY MITIGATIVE MEASURES

### *Flushing*

Adequate flushing of a marina is necessary for maintaining the water quality of the marina basin and adjacent waterway. Natural circulation near the site should be maintained whenever possible. Poorly flushed marinas can become stagnant and permit the concentration of pollutants from the marina facility and boats. The settling and accumulation of organic material and fine sediment can result in decreased dissolved oxygen levels and shoaling within the marina basin.

### *Marina Basin Design*

Open marinas located on existing channels will generally have the same flushing rate as the channel. Semi-enclosed marinas or marinas with dredged basins should be designed to maximize tidal exchange and mixing within the marina. Marina basin design features that promote flushing are:

- Basin depths that are not deeper than the open water or channels to which the basin is connected and never deeper than the marina access channel.
- Basin and channel depths that gradually increase toward open water.
- Two openings at opposite ends of the marina to establish flow-through currents.
- Single entrances that are centered in rectangular basins rather than at one corner.
- Basins with few vertical walls and gently rounded corners.
- Even bottom contours, gently sloping toward the entrance with no pockets or depressions.

Generally, a rectangular basin is accepted as the best geometric shape for maximizing both the number of boat slips and basin circulation.

### Mechanical Devices

In areas where tidal exchange may not adequately flush the marina, mechanical means such as tide gates or one-way valves may be used to enhance flushing rates. However, the performance of these systems should be carefully evaluated before installation. Where possible, flushing should be accomplished through basin design without the assistance of mechanical devices. Mechanical devices may be costly and will require maintenance.

### Entrance Channel Design

Entrance channel design and placement can alleviate potential water quality problems. Entrance channels designed with openings as wide as possible and with increasing depth away from the marina basis promote flushing. Flushing also is enhanced when entrance channels are located in the direction of prevailing winds where possible because wind-generated currents can mix basin water and facilitate circulation between the basis and adjacent waterway.

The abatement of negative dredging effects initially involves assessing the need for dredging. Ideally, a marina should be sited in a well-flushed, circulated, protected, deep-water, natural harbor that does not require dredging for navigation or require spoil filling of submerged wetland areas. Realistically, such areas are not always available or economically feasible. However, minimizing the amount (area and volume) of material dredged and the frequency of dredging activities will reduce the environmental impact as well as the cost of maintaining the marina.

Most marina developments require only small amounts of dredging and dredged material disposal. The most common marina-related dredging involves “spot” and maintenance dredging to remove sediment from problem areas in boat channels or near docks. A recent alternative to dredging boat basins from shallow water areas has been the excavation of upland areas, sometimes connected to open waters by locks.

Water quality impacts may be avoided or minimized by:

- Planning dredged channels that follow the course of natural channels.
- Building skips for boats with deep drafts in naturally deep water.
- Extending piers and docks as far as possible into naturally deep water.
- Providing upland storage for smaller boats and using boat lifts to transport them to the water.

### Sediment Curtains

Silt screens may be used to confine suspended sediments in sensitive areas such as those near shellfish beds or grassbeds. Sediment curtains are effective in low current areas (1 to 1.5 knots) when properly maintained and monitored (U.S. E.P.A., 1985).

### Other Mitigative Measures

Other mitigative measures for dredging impacts include:

- Dredging during colder months when Dissolved Oxygen (DO) levels are higher (cold water has a greater capacity for DO than does warm water) would help mitigate dredging-related DO and Biological Oxygen Demand (BOD) problems.

- Dredging dead-end (Venetian) finger canals within a marina is undesirable. If canals are dredged, however, the banks of the canals can be sloped, as opposed to being at right angles with the bottom, to reduce stagnant, low DO pocket areas. Sloped banks can be stabilized with rip-rap and/or vegetation to prevent erosion.
- Water circulation can be ensured by using properly designed culverts, pilings and bridge spans, and by using discontinuous mounds for open water discharge.

### *Dredged Material Disposal*

Historically, dredged material has been disposed of in open water, wetlands and upland sites. Today however, open water disposal is seldom a viable option for marina projects and disposal in wetlands is unacceptable because of environmental reasons. The following list provides potential guidelines for dredging associated with marina development.

- Productive use of suitable dredged material for beach replenishment, construction, sanitary landfill and agricultural soil improvement.
- Confining discharges to the smallest practicable deposition zone to protect adjacent substrates.
- Use of currently permitted public disposal sites.
- Dedicating permanent upland disposal sites as part of the marina specifications would help eliminate future problems related to disposal of maintenance dredging material. These permanent sites can be sites that have been previously used or represent an environmentally satisfactory alternative.
- The carrying capacity at existing disposal areas could be increased by raising the height of containment embankments.
- Disposing of toxic and organic materials in impervious containment basins (settling of contaminated suspended particles may be enhanced by the addition of a cationic polyelectrolyte with further treatment using sand filters and activated charcoal before discharge).
- Upland retention of treatment of runoff from the discharged material to remove dissolved pollutants before they reach the aquatic environment (a simple treatment such as ozonation or aeration can be adequate for reduction of BOD and Chemical Oxygen Demand (COD) before the discharge of supernatant liquid from spoil areas enters into receiving waters).
- Controlling erosion at diked areas by shaping the dike and using stabilization measures, such as revegetation. Positioning outfalls to empty back into the dredged area.
- Characterizing the sediments to be dredged and considering the potential odor problems during the selection of the disposal site and site preparation.

### *Structures*

Structures that may be required at the marina include bulkheads, revetments, pilings, piers and breakwaters. Bulkheads and revetments are primarily used to stabilize banks and control erosion. Pilings, piers and finger piers are necessary for mooring watercraft in the marina. Breakwater areas used to absorb and reflect wave energy away from the marina to protect boats moored within the marina basin. A direct water quality impact from these structures during construction is a temporary increase in turbidity during

emplacement. This may be alleviated, if necessary, by use of pile-driving rather than jetting. Water quality can be indirectly affected when structure emplacement, particularly breakwaters, reduces water circulation. Therefore, all structures should be designed and placed so as not to restrict water circulation or mixing within the marina basin or increase shoaling.

#### Bulkheads and Revetments

Revetments are preferable to vertical bulkheading for controlling erosion because revetments reduce reflected waves that can increase turbidity within the marina basin and can cause scouring adjacent to or in front of vertical structures. Sloping revetments are also preferable to vertical bulkheads since bulkheads provide less surface area than revetments, for colonization by organisms. Placing these structures as far upland as possible not only avoids alterations to shallow intertidal and wetland areas, but also provides a vegetated buffer to filter stormwater runoff between upland facilities and the waterway. Where vertical bulkheads are necessary, they should contain weep holes, backed with a filter cloth to contain upland sediments and while permitting groundwater flow into the marina.

Vegetated revetments are currently recommended as a means of maintaining a vegetative fringe along the shoreline while protecting the upland. Mangroves are presently being used for this purpose. A guide to the planting and maintenance of mangroves, *Spartina* and other species is available from the Florida Sea Grant Program (Barnett and Crews, 1990).

#### Piers and Pilings

Mooring structures can impact quality within the marina basin through the leaching of wood preservatives and by impeding water circulation. These potential impacts can be avoided or reduced by:

- Using alternative materials such as concrete-filled, steel-reinforced PVC, plastics or other non-conventional materials.
- Using highly refined (grade one) creosote that contains less tar, or alternative preservatives such as chromated copper arsenate (CCA) to minimize chemical leaching.
- Avoid solid structures.
- Elevate docks and piers as high as possible, orient in north-south rather than east-west direction and minimize structure width to allow for maximum sunlight penetration (maximum of 3 ft. wide finger piers and 6 ft. wide main piers within Aquatic Preserve boundaries).

#### Breakwaters

Breakwaters can be fixed or floating. Fixed breakwaters can interfere with currents and reduce the flushing rate within the marina, resulting in reduced water quality and increased shoaling. Circulation often can be maintained by providing openings in solid breakwaters, at both ends of fixed breakwaters or between the fixed breakwater and shore. Alternatively, pile supported wave screens or floating breakwaters can be used.

### *Stormwater Runoff and Spills*

Through optimal site selection, many of the problems associated with sanitary waste or other pollutants in stormwater runoff can be avoided or minimized. Marinas sited on estuaries, creeks, and water characterized by high flushing rates or high rates of water exchange should exhibit fewer water quality problems than marinas in areas of low water exchange. High exchange rates tend to dilute and disperse any sanitary waste or stormwater runoff pollutants from a marina. The configuration of a marina basin may enhance or hinder flushing rates. Marina basins with backwater, excessively deep or dead-end areas that have lower than natural rates of exchange tend to accumulate potential pollutants or require inordinate periods of time for flushing and organic decomposition.

An effective marina design and stormwater management plan are essential to maintaining water quality within the marina. Stormwater runoff impacts can be mitigated through proper control measures incorporated during marina design. Mitigative measures that can be used are:

- Minimize clearing and retain or create vegetated buffers such as marsh, mangrove or natural vegetation on the site between land and water areas.
- Install erosion and sediment controls before upland construction begins.
- Use porous surfaces (crushed stone, shell) whenever possible, particularly in parking areas.
- Retain at least the first inch of rain fall and route runoff through swales, wetlands, retention and detention ponds and other systems that will increase the time of concentration for pollutants, decrease runoff velocity, increase infiltration and allow suspended solids to settle and remove pollutants.
- When outfalls are necessary they should be located to discharge into areas with high flushing rates.

Fuel docks launching ramps are the primary sources for small spills of oil and fuel. Spills at fuel docks can be minimized by using fuel pumps with back pressure automatic cut-off valves. Cut-off valves should be available at the dock in the marina.

### *Sanitary Wastes*

If the marina is in an area where public sewer service can be obtained, this service should be used. Where septic tanks are used, they should be located in suitable soils far enough from the marina basin and adjacent waters and designed with sufficient capacity to prevent the leaching of contaminants. Wastes from boat pumpouts should be handled separately as the chemical disinfectants used can destroy the bacteria necessary to decompose wastes in onshore treatment facilities.

### Shoreline Facilities

Connection to a central sewage is the best way for a marina to avoid potential problems with pollution from land-based sewage facilities. Connection to municipal systems may not be available at all potential or proposed marina sites. However, in such cases, septic tank systems are a viable alternative as other forms of waste treatment can be prohibitively expensive for such relatively small businesses as marinas.

### Sanitary Wastes from Boats

Controlling sanitary wastes from boats is one of the primary marina permitting issues that may arise for marinas proposed in the vicinity of shellfishing waters, because of the potential impacts to shellfish through bacterial contamination. This source of pollution also can potentially result in contravention of state water quality standards. Because of these regulatory concerns, proper management plans and designs for these wastes can be critical to marina development. In general, marina sanitation can be considered to have two components; the first is the equipment on board a vessel and the second is the onshore equipment, including piers. The onboard equipment is categorically referred to as marina sanitation devices, or MSDS.

One means of controlling sewage pollution from boats is to educate boaters about the potential health hazards associated with the discharge of sewage and to encourage boaters not to discharge either treated or untreated wastes into a marina basin or into coastal waters. Marina operators or harbor masters shall post regulations prohibiting the discharge of any waste into marina waters and frequently inform their clients of such regulations. Such a regulation would be helpful in preserving water quality. It also makes good business sense to maintain an aesthetically pleasing appearance.

### Marina Wastewater Collection Systems

Three types of onshore marina wastewater collection systems are available:

- Marina-wide systems
- Portable / mobile systems
- Slipside systems

Marina-wide wastewater collection systems include one or more centrally located wastewater pumpout installations. These installations are located at the end of a berthing pier or on a non-berthing pier (such as a fuel pier). Vessels requiring the wastewater pumpout services would dock at the pumpout installation and a flexible hose would be connected to a wastewater fitting in the deck of the vessel.

Portable / mobile systems are similar to marina-wide systems except that the pumpout stations are mobile. The mobile unit includes a positive displacement pump and a small storage tank. The unit is connected to the deck fitting on the vessel and wastewater is pumped from the vessel's holding tank to the storage tank attached to the pumping unit. When the storage tank is full, the contents are discharged into onshore collection or treatment facilities.

## 6.3.4 ECOLOGICAL MITIGATIVE MEASURES

### *Aquatic Habitat*

Maintaining water quality through the design and mitigative measures previously discussed is essential to maintaining the aquatic habitat in the vicinity of the marina. Construction impacts to aquatic habitats result from increased turbidity and siltation and from direct habitat loss due to dredging. Alteration of the shoreline through dredging and placement of structures also can damage the aquatic community and even eliminate the shallow intertidal zone. Recolonization of dredged areas or disposal sites is more likely



to occur when the sediments in either area are similar in physical and chemical characteristics both before and after dredging and disposal. Mitigative measures applicable to aquatic habitat resources are:

- Locate marinas on existing channels
- Avoid sensitive areas such as shellfish beds and grassbeds
- Minimize the need for dredging through choice of marina site and design and the use of dry-stack storage for boats, where appropriate
- Extend open dockage to reach deep water
- Depth requirements should be based on the size and type of boats services and should not exceed the zone of light penetration unless existing conditions already exceed that depth
- Schedule dredging and other construction activities at times other than during spawning, migration or critical life stages of fish and other aquatic organisms
- Use sediment curtains and coordinate dredging activities with tidal cycle so as to avoid excessive siltation and burial of sensitive organisms
- Minimize pier widths to avoid excessive shading of aquatic habitats
- Place bulkheads or revetments as far upland as possible and provide access ways over wetlands to avoid shallow intertidal areas.
- Use floating, detached breakwaters and floating docks or piling construction to minimize habitat loss
- Sloping revetments and vegetated revetments provide better habitat and protection for juvenile fish and are preferable to vertical bulkheads, where feasible
- Locate boat ramps away from sensitive areas such as grassbeds or shellfish beds. Preferred areas are shorelines without wetlands vegetation and adjacent to waters with adequate navigation depths.

Unavoidable loss of habitat can be compensated through use of dredged material to provide new habitat. New or altered habitat areas can be restored as described below.

#### Rehabilitation of Altered Areas

When alternative sites are not available, or when some habitats are altered or destroyed during construction, some of these areas can be rehabilitated. The planting of mangroves and marsh grass and seagrasses are examples of artificial habitat restoration. The method of recolonization or rehabilitation chosen for those sensitive areas will depend on location, species concerned, sediment type and cost.

The disturbances of mangroves caused by dredge and fill is a particular problem. Mangrove species differ in their response to alteration of their environment. For example, black and white mangroves are typically more resistant to the effects of diking and flooding than red mangroves (Teas, 1980). Success rates for restoration projects will vary under different conditions. Mangrove rehabilitation / creation is a viable mitigation alternative that will necessitate site-specific planning.

Establishment of *Spartina* is possible by means of either seeds or transplants. Direct seeding apparently offers a very rapid and relatively economical route to the establishment and stabilization of areas meeting certain standards (e.g., very low wave

energy). Transplanting is considerably more expensive, but may be adaptable to a wider variety of conditions.

Since it has been shown that natural recolonization of seagrass beds takes many years and is often unlikely, rehabilitation of damaged seagrasses by means of transplanting may be considered. Planting and transplanting of aquatic vegetation show some limited success; however, problems involving cost and restoration time exist, so avoiding or minimizing impacts to sensitive aquatic habitat resources should remain the primary mitigative measure.

Existing marinas and other sites that flush poorly also can be rehabilitated. In lieu of improving circulation by dredging, such stagnant areas can be supplied with aeration systems that oxygenate and vertically circulate stagnant water areas. However, this method should remain a rehabilitation technique for existing marinas; new marinas should be designed to maintain adequate DO levels without aeration.

### *Terrestrial Habitats*

Impacts to terrestrial habitats are primarily related to construction of upland facilities and upland disposal of dredged materials. Site clearing and grading will remove the natural protective vegetation which controls erosion. Without cover, soil can be carried into the waterway, causing turbidity. Vegetation should be replaced as quickly as practicable. The soil also contains plant nutrients and other pollutants that can further degrade water quality. Minimizing the damage to natural vegetation is an effective method of controlling erosion, as well as other construction erosion control measures. If marina development required unavoidable loss of vegetation considered to be ecologically important, an area of greater value can be restored elsewhere in the ecosystem.

### *Wetlands and Protected Species*

Wetlands are vital to the health of the estuarine ecosystem and therefore any loss of wetlands is generally considered unacceptable by regulatory agencies. When there is no alternative to unavoidable loss of wetlands during marina construction, acceptable mitigation maybe the creation of new wetland or the restoration of a greater area of previously disturbed wetland. Measures that may be taken to mitigate impacts to wetlands are:

- Avoid dredging through use of existing channels
- Avoid dredging deep channels into wetlands or straightening tidal creeks to obtain access to the marina site
- The construction of access ways through wetlands should be elevated or otherwise permit unrestricted water flow through the wetland
- Wherever possible a wetland fringe should be retained along the shoreline and bulkheads and revetments should be placed along the existing shoreline as close to the upland as possible.

The impact of erosion on inshore or channel shorelines from boat wakes can be prevented or reduced by posting and enforcing "NO WAKE" zones in areas of high boating activity.

Planting marsh vegetation on stabilized exposed banks can be an efficient deterrent to erosion caused by boat wakes. The establishment of mangroves in conjunction with *Spartina* is another means of shoreline stabilization for protecting against erosion in some locations.

Fauna and flora also can be protected through public awareness. For example, a massive effort by the state of Florida, the U.S. Fish and Wildlife Service and private organizations have been successful in educating the public to protect the manatee. Regulation of boat speeds and limited access in manatee sanctuaries is also underway to reduce boat-related incidents. Similar measures can be taken for other species of concern.

The visible presence of humans may disturb wildlife, particularly during nesting seasons. Thus, regulations regarding minimum distances from nesting areas may be set and enforced to reduce noise and other disturbances from passing boats. Minimum distances required to prevent disturbance of nesting birds will vary with the number and species of birds and with the physical characteristics of the site such as the amount of vegetative cover.

Impacts to protected species such as manatees should be avoided. The presence of rare, threatened, endangered or otherwise designated unique species or habitat should be identified early in the marina planning process and planning and design steps taken to avoid any impacts.

Marina sites located near rookery areas or other wildlife refuges or sanctuaries should be buffered through the use of vegetation. Construction activities should be scheduled to not interfere with breeding, nesting or spawning seasons.

### *Shellfish*

The principal factors that promote the propagation, and growth of shellfish communities are the character of the bottom water movement, water salinity, temperature and food availability. Unfavorable factors that tend to destroy or inhibit growth and productivity of shellfish communities are sedimentation, competition, pollution, disease and predation (Galtsoff, 1964). Marina construction in or adjacent to shellfish beds may contribute directly and indirectly to these factors.

In some cases, it may be possible to remove biological contaminants from shellfish through depuration. This procedure could become an important mitigative measure for area-wide or regional impacts in the future; however, it is not effective in removing heavy metals and hydrocarbons.

Shellfish are particularly sensitive resources with respect to marina development because of the potential for fecal contamination from marinas and boat discharges. The Florida Department of Environmental Protection imposes buffer zones around marinas located in shellfishing waters. Significant permitting issues may arise from resource-use conflicts and this issue can prevent marina permitting. The primary mitigative measure for impacts to shellfish would be to avoid development within areas supporting harvestable shellfish beds.

## *Other Mitigative Measures*

### Historical / Archaeological Resources

Historical and archaeological resources present at the marina site or discovered during construction that may be impacted by marina development can be identified by contacting the Florida Historic Preservation Officer. Mitigative measures can include:

- Preservation or restoration of the artifacts.
- Photographic documentation.
- Survey or excavation by professional historians or archaeologists.

### Aesthetic Resources

Aesthetic resources contribute to the attractiveness of the area for development. Measures to protect and maintain water quality, minimize modifications to existing resources and develop the marina facility to be aesthetically compatible with the area will serve to preserve the aesthetic appear of the location.

### Public Access

Public access to navigable waters is a concern of permitting agencies when reviewing marina permit applications. Designs that incorporate provisions for public access through providing boat ramps, parks or other public recreational facilities will be a positive factor.

### Summary

Addressing potential impacts from the development and operation of marinas necessitates a concise and current knowledge of biological interactions, water chemistry, hydrology, geology, engineering practices and the economics of the situation. This section has focused on the primary environmental impacts associated with development and operation of marinas in coastal waters by means of reviewing potential impacts and ecosystem perturbations and examining documented physical, chemical, and biological responses to these impacts. Assessment of these impacts may be carried out on multiple levels, each varying in terms of cost and applicability. Responsibility for performing the impact assessment can also vary from decision-making agencies to the developer.

Upon completion of the preliminary marina review, the project can then be evaluated in reference to the specific goals, objectives and policy statements of the St. John's County Comprehensive Plan and in reference to the St. John's County Land Development Code.

If the project is considered compatible with St. John's County requirements, the prospective developer should review the county design, construction and performance standards and hurricane evacuation plan requirements which will be subject to review prior to project construction. The design, construction and performance standard and Hurricane Evacuation Plan requirements are presented in the following sections.

## 6.4 Design, Construction and Performance Standards

Standards for marina design and construction are presented in this section.

- 1) To the extent feasible marinas shall be located in areas where maximum physical advantage exists and where the least initial and maintenance dredging will be required.
- 2) Marinas should avoid or minimize the disruption of currents. Dead-end or deep canals without adequate circulation or tidal flushing will not be permitted unless it can be determined that water quality will not be adversely affected.
- 3) Open dockage extending to deep water is usually preferable to excavation for boat basins, and it must be considered as an alternative to dredging and bulkheading for marinas.
- 4) Turning basins and navigation channels shall be designed to prevent long-term degradation of water quality. In areas where there is poor water circulation, the depth of boat basins and access canals should not exceed that of the receiving body of water to protect water quality.
- 5) Marina proposals shall include facilities for the proper handling of petroleum products, sewage, litter, waste and other refuse.
- 6) Marina facilities shall only be located in or near areas with good circulation, flushing, and adequate water depths.
- 7) The location of new facilities and expansion of existing facilities shall consider the use of upland dry storage as an alternative to multiple wet slip docking, where permitted by St. John's County land use and zoning regulations.
- 8) Dredging and filling in wetlands or open water in order to accommodate uses which are not water-dependent is strongly discouraged. Exceptions may be granted in cases shown to be overwhelmingly in the public interest.
- 9) Cumulative effects of several marinas and/or boat ramps in one area shall be considered in the review of proposed marina projects.
- 10) All new expanded marinas may be required to provide adequate capacity to handle sewage, either by means of onsite pump out and treatment facilities or connection to a treatment plant. Applicants shall document the availability and capacity of any required sewage facilities to handle the anticipated volume of wastes. All marinas with fueling facilities may be required to provide pump out facilities at each fuel dock. Marinas which serve live-aboards or overnight transient traffic may be required to provide direct connection to central sewage collection system at every live-aboard and transient slip.
- 11) All applicants shall provide documentation of their capability to respond as rapidly and effectively as possible to contain any spills of petroleum or other hazardous materials. Documentation shall be in the form of a spill contingency plan which includes a list of clean-up equipment and where it will be stored, fuel pump operation and emergency shutdown procedures, spill containment and removal procedures, and the description of the training which will be provided to marina personnel who will operate the pumps and deploy clean up equipment.
- 12) If required, new and expanded marinas shall provide a demonstration of compliance with State Water Quality Standards by maintaining a water quality

monitoring program by the Florida Department of Environmental Protection (FDEP).

- 13) New marinas shall be located only in areas having adequate depths for ingress and egress with no dredging of productive submerged (vegetated or unvegetated) areas. A minimum water depth of -4 feet mean low water should be required. Greater depth should be required for those facilities designed for or capable of accommodating boats having greater than a three foot draft. These depth requirements should apply to the area between the proposed facility and any natural or other navigation channel, inlet, or deep water. Where necessary, marking of navigational channels may be required.
- 14) All new and expanded marinas shall provide treatment of stormwater runoff from upland areas to the extent necessary to ensure that State Water Quality Standards are met at the point of discharge to Waters of the State. In addition, all requirements of the Water Management Districts and the Florida Department of Environmental Regulation must be met.
- 15) Boat maintenance activities in new or expanded marina sites shall be situated in order to reduce contamination of waterbodies by toxic substances common to boat maintenance. Runoff from boat maintenance activities shall be collected and treated prior to discharge.
- 16) New marina facilities shall be designed to maximize water circulation, and should not adversely affect existing circulation patterns. Improvement of circulation should be a preferred consideration when expanding or upgrading existing facilities. However, any buffer zone established by FDAC's Shellfish Environmental Assessment Section shall be maintained.
- 17) Sewage pump-out service may be required in certain instances. Operation of all pump-out equipment shall be limited to trained personnel.
- 18) In the event marina fueling facilities are planned, the developer shall provide a fuel management spill contingency plan to the County in consultation with the St. Johns River Water Management District and the Department of Environmental Regulation. The plan shall describe the methods of fuel storage, personnel training, methods to be used to dispense fuel, and all the procedures, methods and materials to be used in the event of a spill.
- 19) Appropriate hydrographic analysis shall be undertaken to determine criteria for design and magnitude of the facility necessary to meet state water quality standards. No facility is to be constructed which would result in degradation of water quality below state standards. Proposed marinas will demonstrate adequate flushing, to prevent the accumulation of pollutants.
- 20) Docking facilities shall only be approved which require minimal or no dredging and/or filling to provide access by canal, channel, or road. This restriction shall also apply to widening and/or deepening any existing canal or channel, but not to regular maintenance dredging and filling to meet depth standards of existing canals or channels. In the event that dredging is required, the mooring areas and the navigation access channels shall not be dredged to depths greater than those necessary to prevent prop dredging. Any required dredging shall utilize appropriate construction techniques and materials to comply with state water quality standards (e.g., turbidity screens,

hydraulic dredges, properly sized and isolated spoil deposition area to control spoil dewatering).

- 21) The siting of marina facilities shall take into account the ability of boat traffic to avoid marine seagrass beds or other aquatic resources in the surrounding area.
- 22) The siting of new facilities within an aquatic preserve shall be secondary to the expansion of existing facilities when such expansion is consistent with other standards. Impacts to the fish and wildlife in protected areas may restrict marina development. A proposed marina near a protected area may require mitigative measures in order to obtain a permit. These measures may include design modifications, seasonal construction scheduling or seasonal modifications in operation activities to ensure the avoidance of adverse impacts. According to FDEP, marinas shall not be sited within State designated manatee sanctuaries.
- 23) Marinas shall not be sited within state designated manatee sanctuaries.
- 24) In any areas with known manatee concentrations, manatee warning / notice and/or speed limit signs shall be erected at the marina and/or ingress and egress channels, according to Florida Marine patrol specifications.
- 25) Spoil disposal within and aquatic preserve shall be strongly discouraged and may be approved only where the applicant has demonstrated that there is no other reasonable alternative and that the spoiling activity may be beneficial to, or at a minimum, not harmful to the quality and utility of the preserve.
- 26) In reviewing applications for new or expanded docking facilities, ways to improve, mitigate, or restore adverse environmental impacts caused by previous activities shall be explored. This may include shallowing dredged areas, restoring wetland or submerged vegetation, or making navigational channels. Such mitigation or restoration may be required as a condition of approval for new, renewed, or expanded facilities.
- 27) Immediate access (ingress and egress) points shall be delineated by channel markers, indicating speed limits, manatee area warnings if applicable, and other applicable regulations.
- 28) Open wet slips shall be preferred to cover wet slips in marina design to reducing shading of waterbodies which results in lowered biological productivity.
- 29) Marinas shall not be permitted in areas which have received the highest level of protection. These areas can include, but are not limited to, manatee sanctuaries, feeding areas or areas which have been identified in FDEP or USFWS manatee recovery plans.
- 30) Marinas proposed for the following resource areas shall conform to the rules for commercial / private docking facilities as specified in the F.A.C.:
  - a. Aquatic Preserves
  - b. Outstanding Florida Waters
  - c. Class II Waters
  - d. Manatee Sanctuaries or Critical Manatee Habitats
  - e. Marine Sanctuaries

- 31) Marina operators shall be required to undertake the following manatee protection measures in areas of manatee visitation:
  - a. Implement and maintain a manatee public awareness program (in consultation with FDEP) which will include the posting of signs to advise boat users that manatees are an endangered species which frequently use the waters of the St. Johns River and ICW and the provision of manatee literature at conspicuous locations.
  - b. Declare the waters in and around the marina as a no wake zone.
  - c. Install flags or other appropriate means of warning at the entrance channel to warn boaters when manatees are known to be in the area.
- 32) Marina designs should minimize the need for excavation and filling of shoreline areas.
- 33) To the extent feasible marinas should be located in areas that will have the least adverse impact on wetlands, water quality, wildlife and marine resources or other critical habitats.
- 34) Marina design shall incorporate natural wetland vegetative buffers whenever possible near the docking area and in ingress / egress areas for erosion and sediment control, runoff purification, and habitat purposes.
- 35) The following policies shall be considered in marina location and design:
  - a. Adequacy of transportation access from the landward site,
  - b. Adequacy of parking facilities,
  - c. Upland facilities which are compatible with the enhanced recreational boating opportunities.
- 36) Marina / multi-slip facilities shall not be approved for development in areas which are not designated for such use according to the St. Johns County's Comprehensive Plan.
- 37) Marinas proposed in St. Johns County shall demonstrate that they have sufficient upland areas to accommodate all needed utilities and marina support facilities, including parking.
- 38) Marina owners and developers shall prepare and adopt a hurricane preparedness plan addressing evacuation procedures and provisions that will be made for boat owners within the marina basin to assure protection of life and property to the maximum extent feasible. Development and approval of the plan shall be in accordance with the specifications provided by the County Disaster Preparedness Director in consultation with the United States Coast Guard and the FWCC. The plan must be approved by the County's Disaster Preparedness Director prior to occupancy of the facility.

#### 6.4.1 SUMMARY OF A STREAMLINED, SIMPLIFIED INTER-AGENCY PERMITTING AND PLANNING PROCESS

The existing marina permitting system in the State of Florida already affords St. Johns County abundant opportunities to influence the results of the process. Therefore, it is incumbent upon St. Johns County to develop a process to insure that their position is conveyed in a timely and convincing manner to the State and Federal regulatory agencies which have jurisdiction over marina development. Additionally, St. Johns



County and other units of local government, through development and adoption of an appropriate ordinance, may exert regulatory power over proposed marina projects within its jurisdiction.

In Florida, FDEP controls marina development in coastal waters. If FDEP does not issue the Sec. 401 Water Quality Certification as required by the Federal Clean Water Act and the State dredge and fill permit, the Corps cannot issue the requisite Federal permit. Therefore, local governments can exercise significant influence by requiring proposed projects meet standards established by FDEP and the Water Management Districts.

St. Johns County can best manage marina development within its jurisdiction by amending the Land Development Code addressing this issue. As indicated, the FDEP process provides the best avenue for the County to exert its desired control. Other agencies that should be made aware of the County's position on specific projects include the U.S. Army Corps of Engineers and the Department of Community Affairs (during the DRI processing). The development of the County's ordinance and regulations to control marina development is critical to insuring the County's voice is heard in this management process.

## ***SECTION 7.0***

# ***CONCLUSIONS AND RECOMMENDATIONS***

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

St. Johns County is one of the most rapidly growing Counties in the State. As the population increases as much as 60% by 2015, the demand for new and expanded water dependent use facilities such as marinas and boat ramps will rise as well. To meet this demand, St. Johns County officials must begin to plan for these requirements immediately. Information provided in this Study report are summarized below, along with recommendations to assist the County.

- In 2000/2001, there were a total of 10,073 registered vessels in St. Johns County. That number is predicted to increase to 15,564 vessels by 2015, an increase of nearly 65%.
- There are currently 1,054 wet slips at marinas located within St. Johns County. Based on current boat registration and population trends, an increase of 575 slips will be needed to keep up with the existing level of availability by 2015.
- There is an anticipated future demand of as many as fourteen (14) new boat ramp lanes (a ramp may have more than one lane) and 718 parking spaces by the year 2015. Much of this demand may be met by expansion and upgrading of existing facilities. Some additional facilities will be required in regions showing future high use.
- Based on current permitting trends, it is estimated that an additional 375 private residential docks will be constructed by 2015, bringing the total from approximately 1200 in 2000 to 1575 in the year 2015.
- There are currently 400 dry boat storage units at marinas located in St. Johns County. Based on current boat registration and population trends, an increase of 218 units will be needed to keep up with the existing level of availability by 2015
- The majority of wet slip holders in St. Johns County marinas are from outside of the County. As the County continues to grow, this relationship should swing back to St. Johns County registered vessels.
- Expansion and new construction potential for boat ramps is shown in Figures 21 through 24. Expansion and new construction potential for marinas is shown in Figures 25 through 28. The potential for each location was based on suitability ratings as well as an evaluation conducted during site visits as part of this study.
- Two areas of the County are particularly in need of new facilities. The northern portion of the Intracoastal Waterway Region (ICW-N1) has lost its only public ramp due to construction of the new Palm Valley Bridge. Establishment of a new replacement ramp is critical in this area.

The northwestern portion of the County (SJR-N) has no launch facilities. Several new residential developments will be coming on line in the near future and will require construction of new facilities. The County should be actively looking for available land to construct a new ramp. There is currently one facility (Amity Inn Anchorage) that the County should investigate purchasing.

- The central portion of the Intracoastal Waterway – North region (ICW-N2) has two locations which may be available for expansion. Oscar’s Fish Camp has an existing ramp which could be expanded by the County. Another option is to seek agreement with St. Augustine Boating Club and combine their ramp with the County’s adjacent Boating Club Road ramp. One large ramp would be more beneficial than two smaller, inefficient ramps. A level “A” ramp in this area would greatly reduce the crowding at Vilano Boat Basin ramp. This sub-region is considered poor for any new construction, so expansion of existing facilities is critical.
- Frank Butler Park in the southern portion of the Intracoastal Waterway (ICW-S) is ideal for expansion. Sufficient land exists for upland areas, and the water access can be easily improved. Expansion of this ramp would greatly alleviate crowding at Vilano Boat Basin and other Ramps.
- Two existing ramps on the St. Johns River are ideal for expansion. Palmo Boat Ramp has sufficient upland areas available to increase parking, and make it more user friendly. Expansion and improvement of Riverdale Park is critical to meet future demands for boat ramps.
- St. Johns County should begin searching for parcels for future development of a ramp facility in the southern portion of the St. Johns River (SJR-S 2 & 3). While the demand in these areas is currently low, future growth will undoubtedly occur.
- The extreme southern portions of the Intracoastal Waterway (ICW-S 2 & 3) are some of the most environmentally sensitive in the County. In addition to Aquatic Preserves and protected waters, these sub-regions are active shell fishing areas and Class II waters. Therefore, these sub-regions are considered Poor for construction of new facilities.
- Care must be taken to utilize the remaining available parcels in the most efficient manner. Areas that meet the rigorous demands for marinas and ramps should be utilized for that purpose almost exclusively since the availability of these parcels is becoming scarce. Purchase of a parcel that meets the requirements for a new ramp, and then using the upland areas for playgrounds and picnic areas instead of trailer parking is not efficient use of the property. While these facilities are as important as boat ramps, they should be constructed on parcels that do not meet the criteria for water dependent uses.

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**St. Johns County Water Dependent Use Study**  
**Project Contact List**  
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Patrick Hamilton	County Citizen
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John Burns	Cyano Labs

***APPENDIX A***  
***SITE FACILITY SUMMARIES***



**INDIVIDUAL MARINE FACILITIES INVENTORY & CONDITION CHECKLISTS  
SHOULD BE INSERTED HERE**

***APPENDIX B***

***ZONING CLASSIFICATIONS AND  
RESTRICTIONS***

## Land Use and Zoning Restrictions for Marinas and Boat Ramps

Further analysis of the St. Johns County 2015 adopted Future Land Use Elements (FLUE) map and goals, objectives and policies indicates that marinas and boat ramps will be allowed in the following land use areas and zoning:

### **MARINAS:**

#### Designated Land Use Category:

Intensive Commercial  
Airport District<sup>1</sup>

#### Zoning Category:

Commercial, Highway and Tourist (CHT)  
Airport District (AD)  
Commercial Intensive (CI)<sup>2</sup>  
Commercial Rural (CR)<sup>2</sup>  
Industrial, Warehousing (IW)<sup>2</sup>  
Planned Unit Development (PUD)<sup>2</sup>

### **BOAT RAMPS:**

#### Designated Land Use Category:

Agricultural-Intensive  
Rural Silviculture, Conservation, Parks and Open Space

#### Notes:

1 – Further Regulated by the Land Development Code's Airport Overlay District

2 – Allowed as a Special Use subject to consistency with the 2015 Future Land Use Elements GOP's and corresponding land use categories of Intensive Commercial and Airport District as shown on the 2015 FLUE map.

**ARTICLE II  
ZONING DISTRICTS AND SPECIAL USES  
SHOULD BE INSERTED HERE**

# ***APPENDIX C***

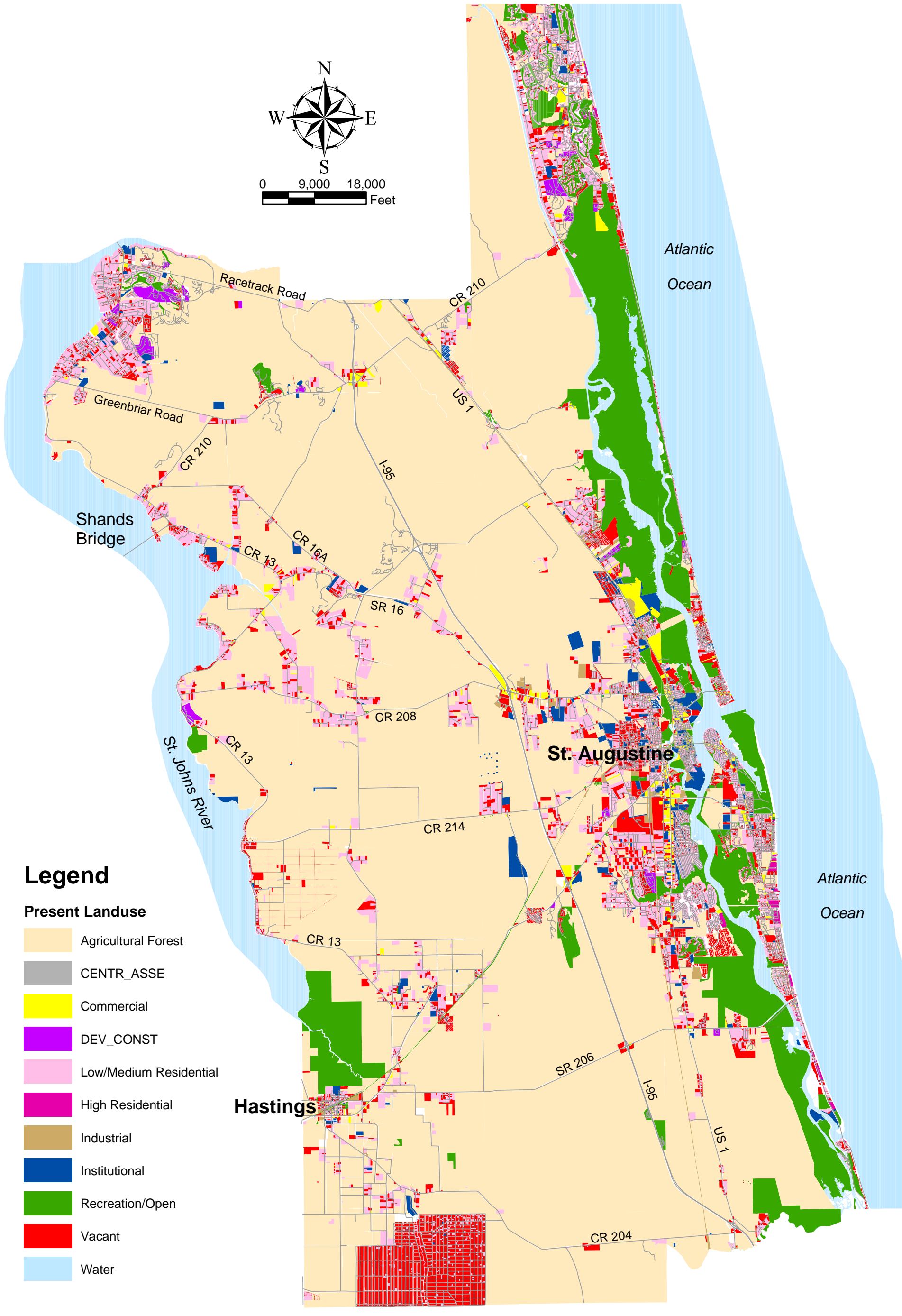
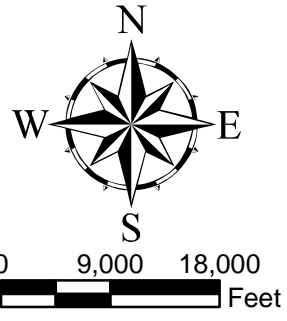
## ***ACRONYMS***

## List of Acronyms

AP	Aquatic Preserve
CR	County Road
FDACS	Florida Department of Agriculture and Consumer Services
FDCA	Florida Department of Community Affairs
FDEP	Florida Department of Environmental Protection
FIND	Florida Inland Navigation District
FMRI	Florida Marine Research Institute
FWCC	Florida Wildlife Conservation Commission
ICW	Intracoastal Waterway
LSJRB	Lower St. Johns River Basin
NERR	National Estuarine Research Resource
OFW	Outstanding Florida Waterway
SJC	St. Johns County
SJR	St. Johns River
SJRWMD	St. Johns River Water Management District
SR	State Road
SWIM	Surface Water Improvement (Program)
UF	University of Florida
USACE	U. S. Army Corps of Engineers

# ***APPENDIX D***

## ***FIGURES***



### Legend












- Present Landuse**
-  Agricultural Forest
  -  CENTR\_ASSE
  -  Commercial
  -  DEV\_CONST
  -  Low/Medium Residential
  -  High Residential
  -  Industrial
  -  Institutional
  -  Recreation/Open
  -  Vacant
  -  Water

Figure 1  
Existing Land Uses (1996)  
St. Johns County

Source: St. Johns County, Geographic Information System Data





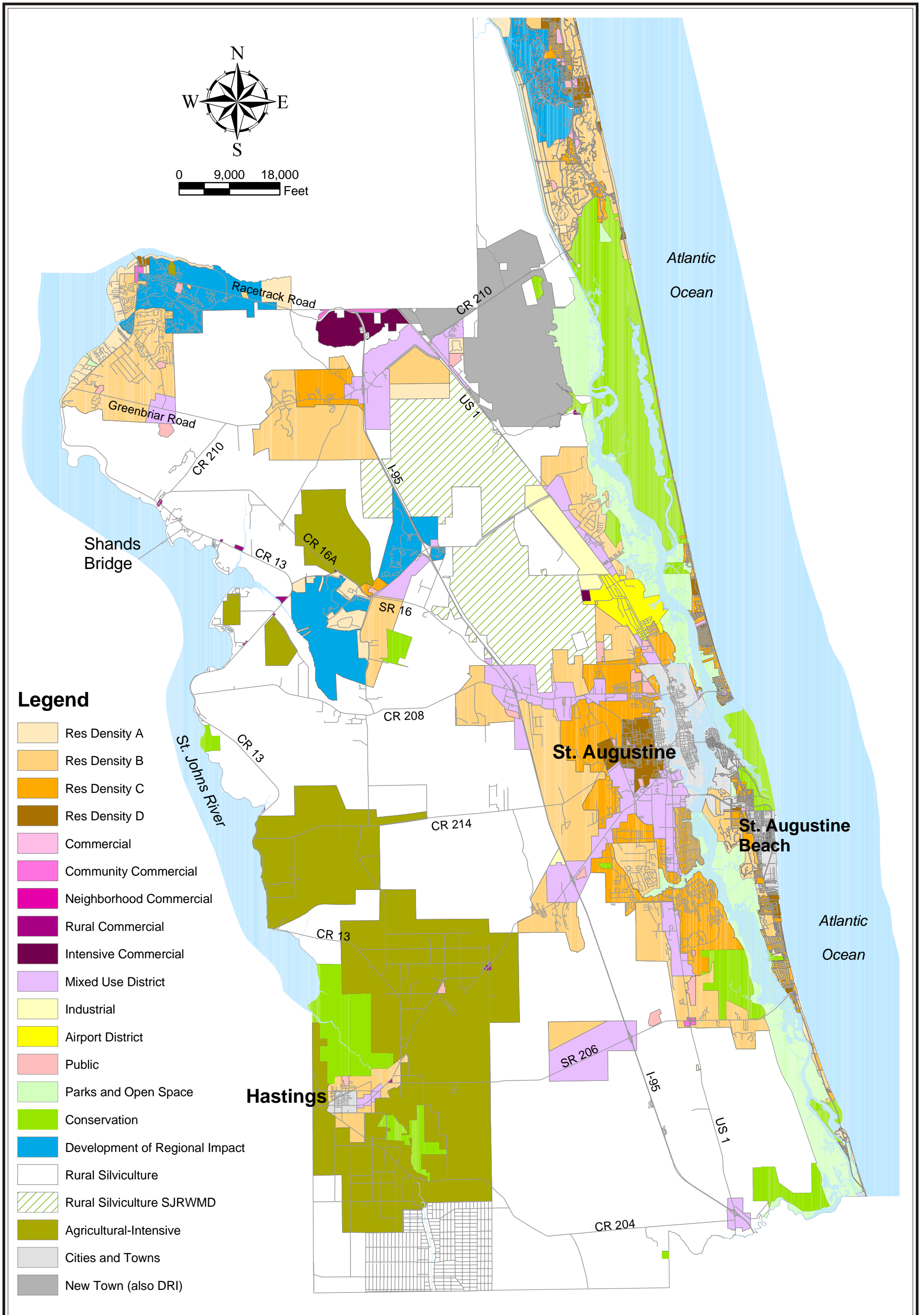


Figure 2  
2015 Future Land Use Map  
St. Johns County

Source: St. Johns County, Geographic Information System Data



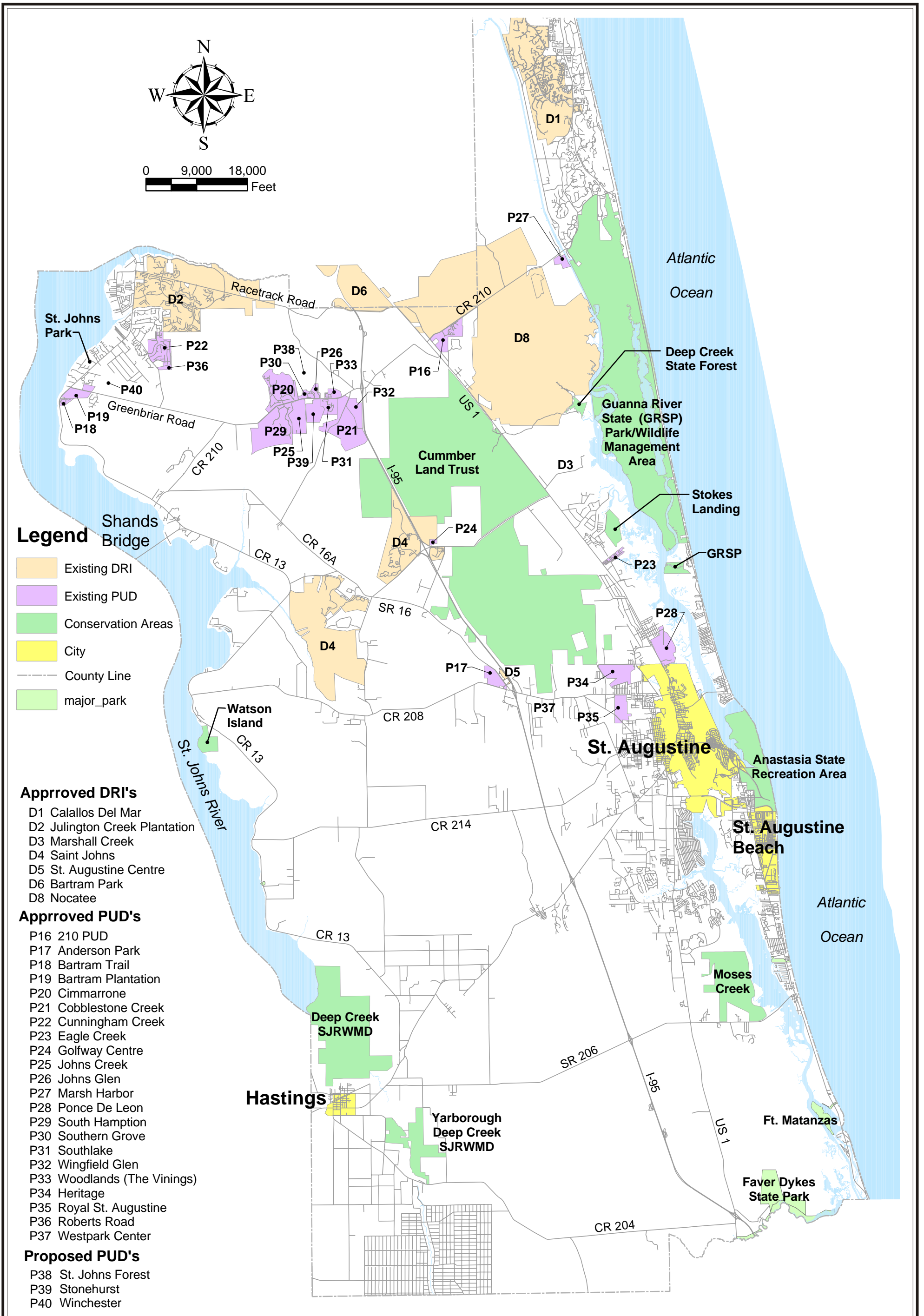


Figure 3  
Planned Major Developments in St. Johns County

Source: St. Johns County, Geographic Information System Data



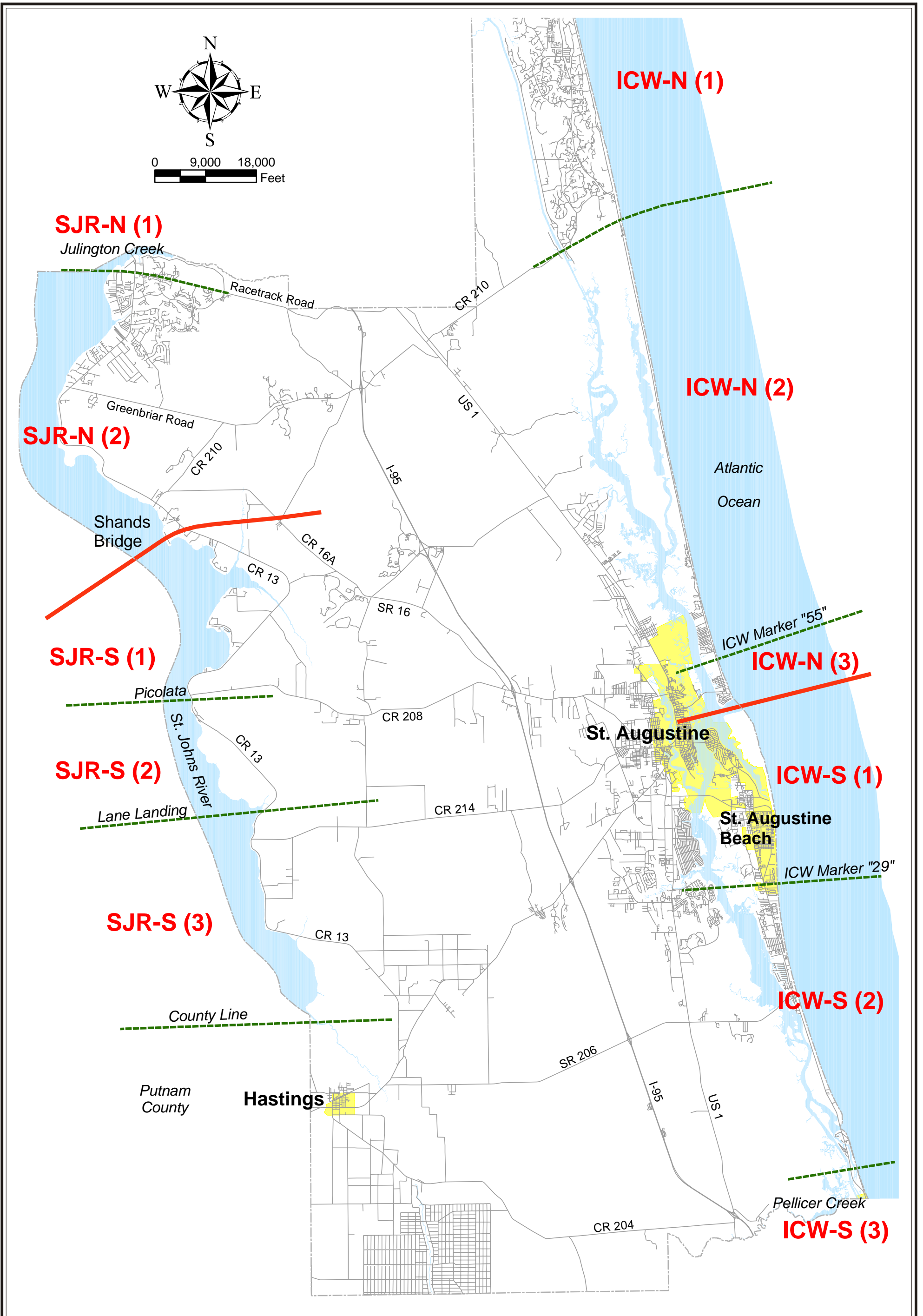


Figure 4  
Regional and Sub-Regional Aquatic Delineations  
St. Johns County

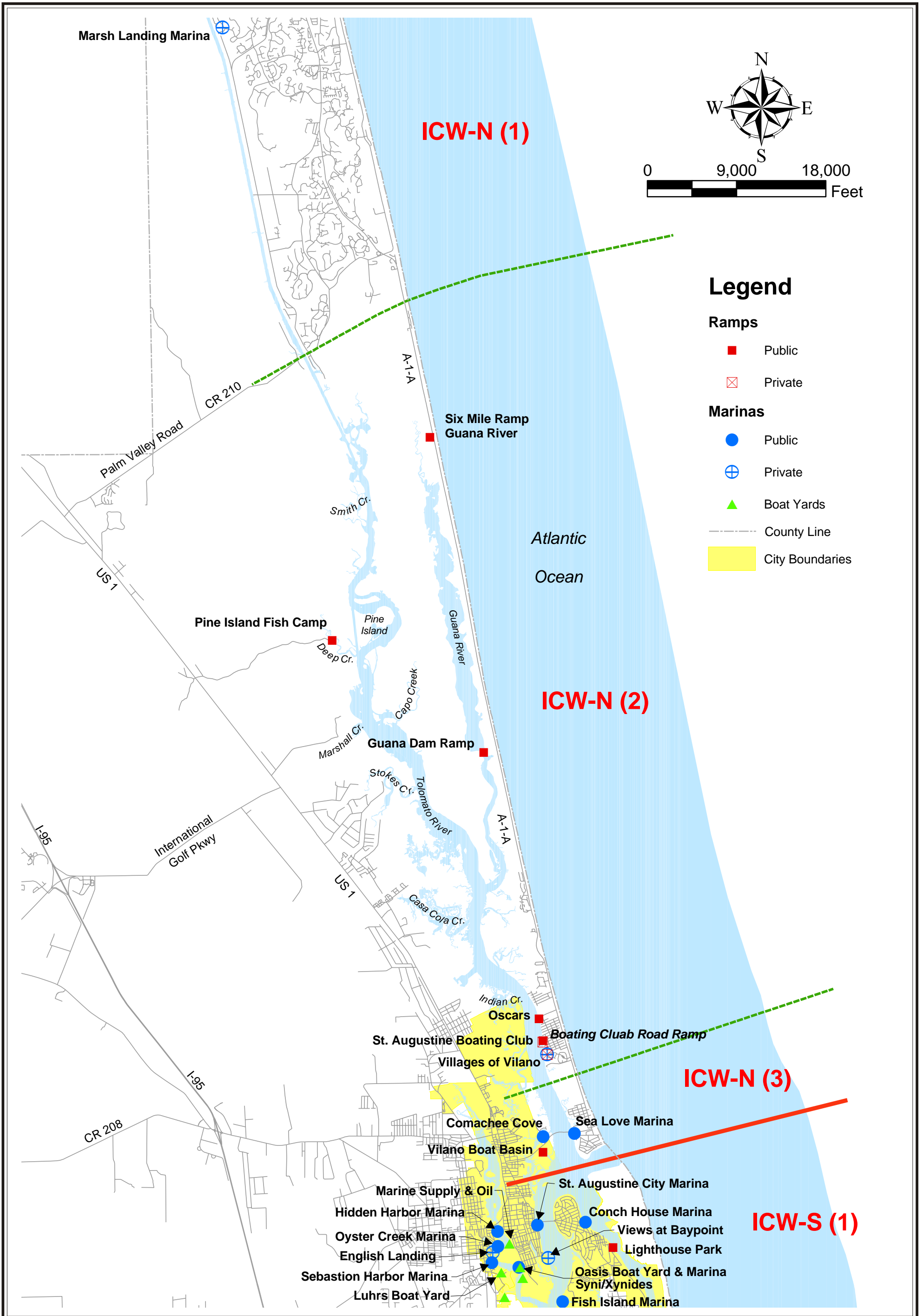


Figure 5  
Existing Facilities  
Intracoastal Waterway - North

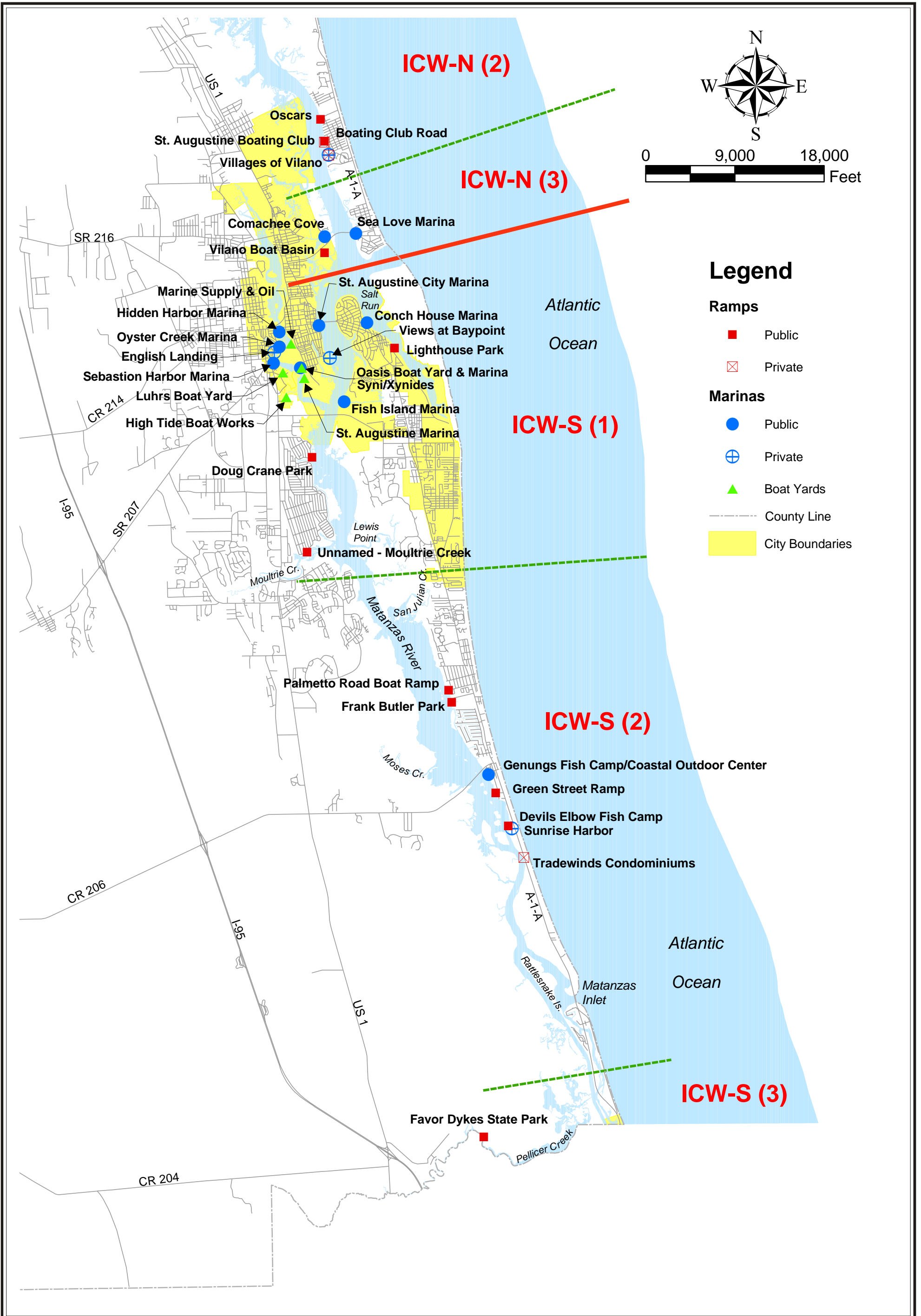
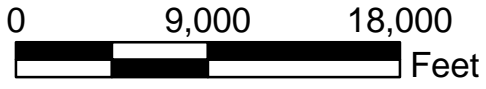
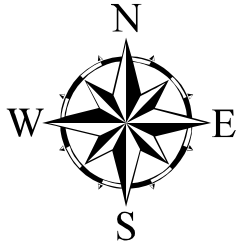


Figure 6  
Existing Facilities  
Intracoastal Waterway - South



### Legend

#### Ramps

- Public (Red square)
- Private (Red square with X)

#### Marinas

- Public (Blue circle)
- Private (Blue circle with X)
- Boat Yards (Green triangle)
- City Boundaries (Yellow fill)
- County Line (Dashed line)

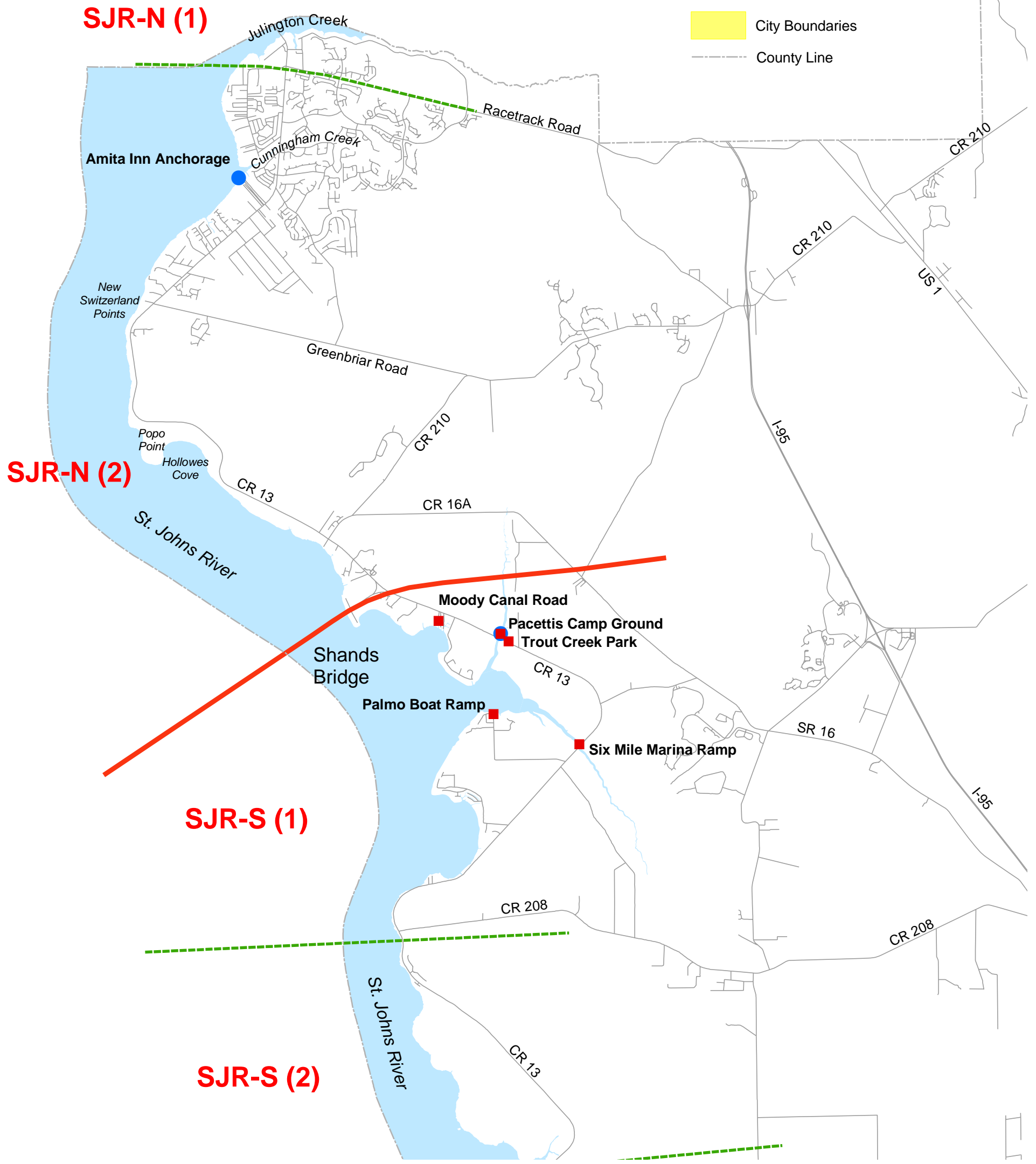


Figure 7  
Existing Facilities  
St. Johns River - North



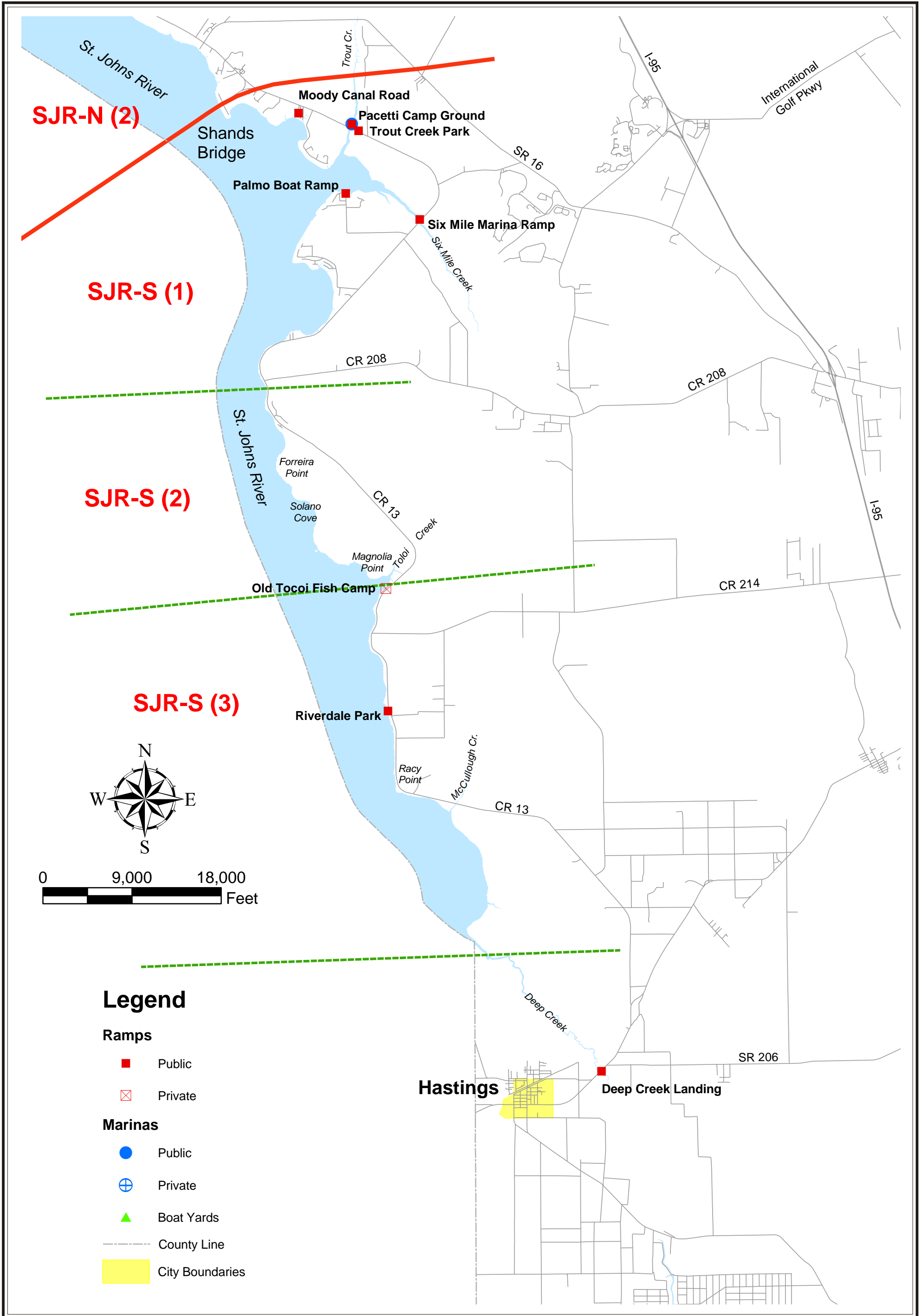


Figure 8  
Existing Facilities  
St. Johns River - South

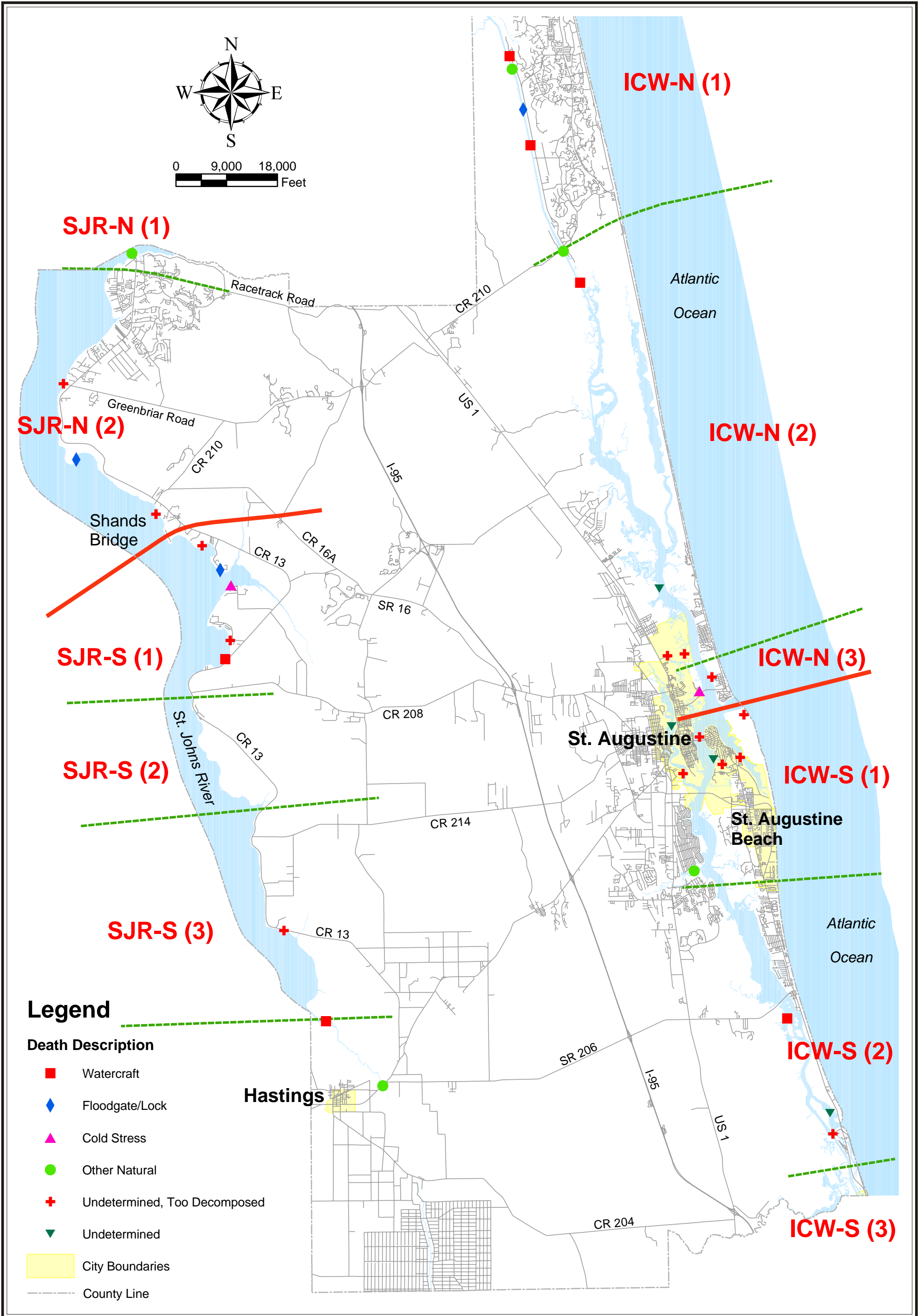


Figure 9  
 Manatee Mortality Map  
 St. Johns County

Source: Florida Fish and Wildlife Conservation Commission  
 Florida Marine Research Institute.  
 2000 Atlas of Marine Resources CDROM





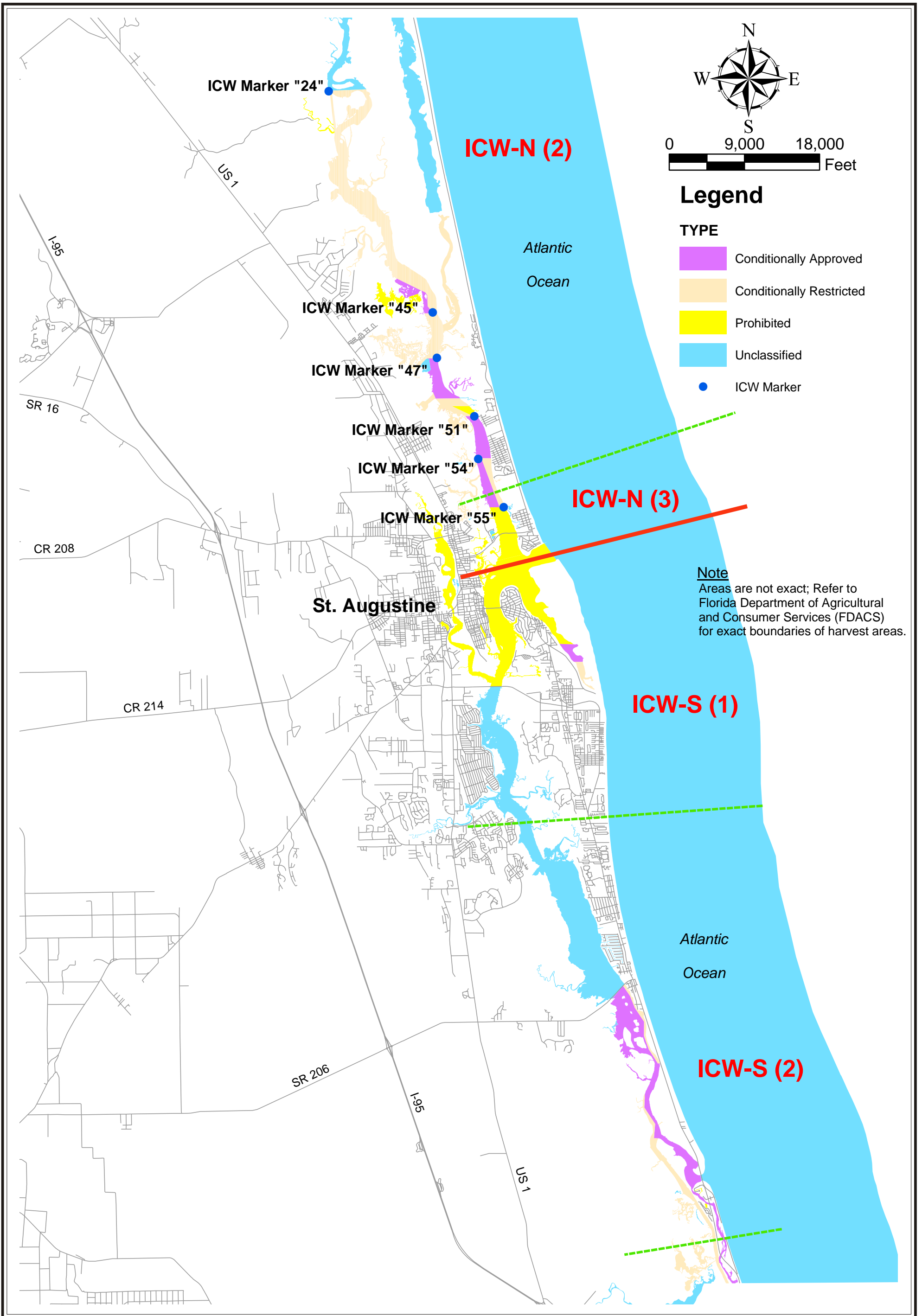


Figure 10  
Shellfish Harvesting Areas  
St. Johns County

Source: Florida Department of Agriculture and Consumer Services. Shellfish Harvesting Area Classification Map #92/Map #88



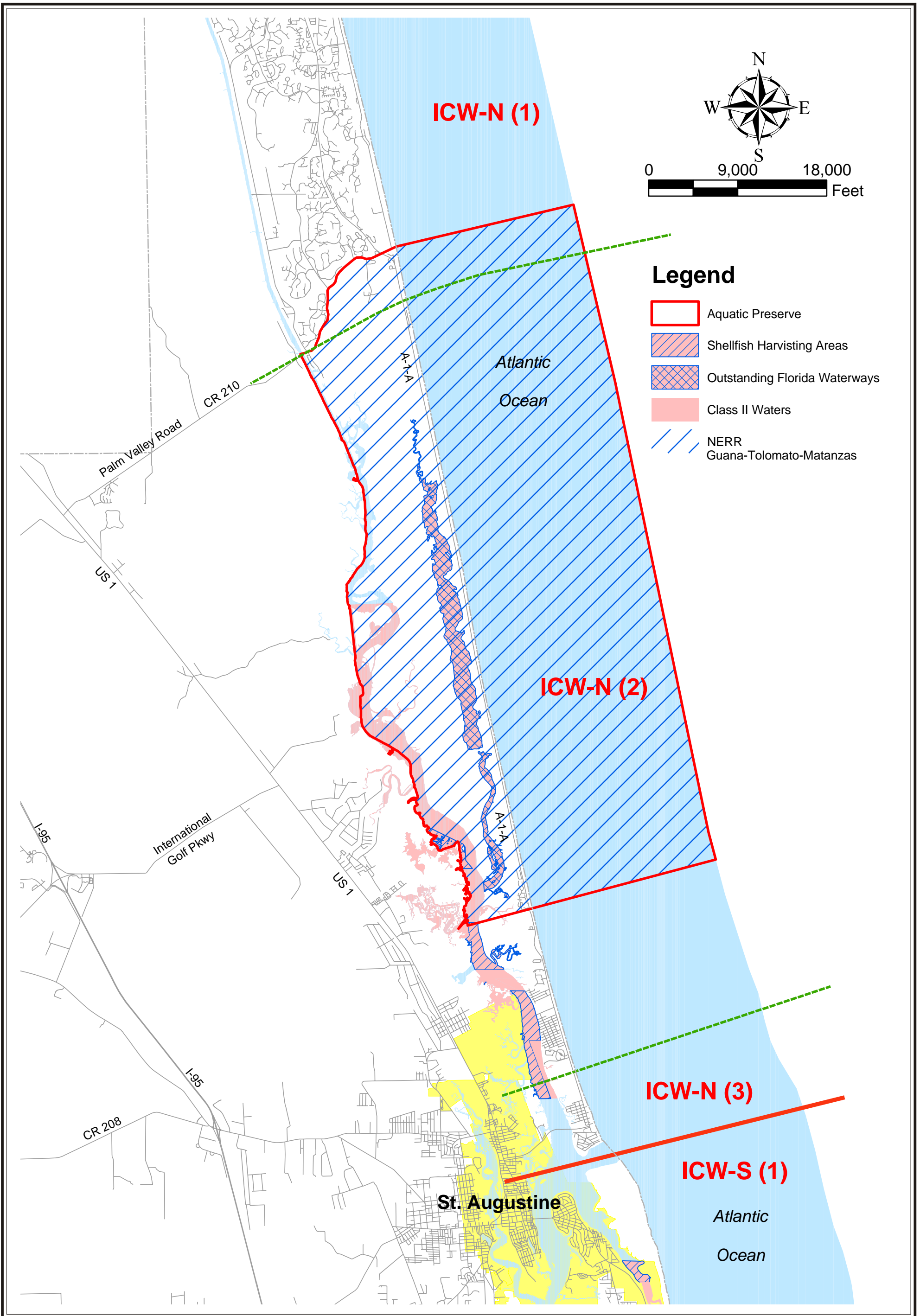


Figure 11  
Water body Classifications, Aquatic Preserves, and  
Outstanding Florida Waterways  
Intracoastal Waterway - North

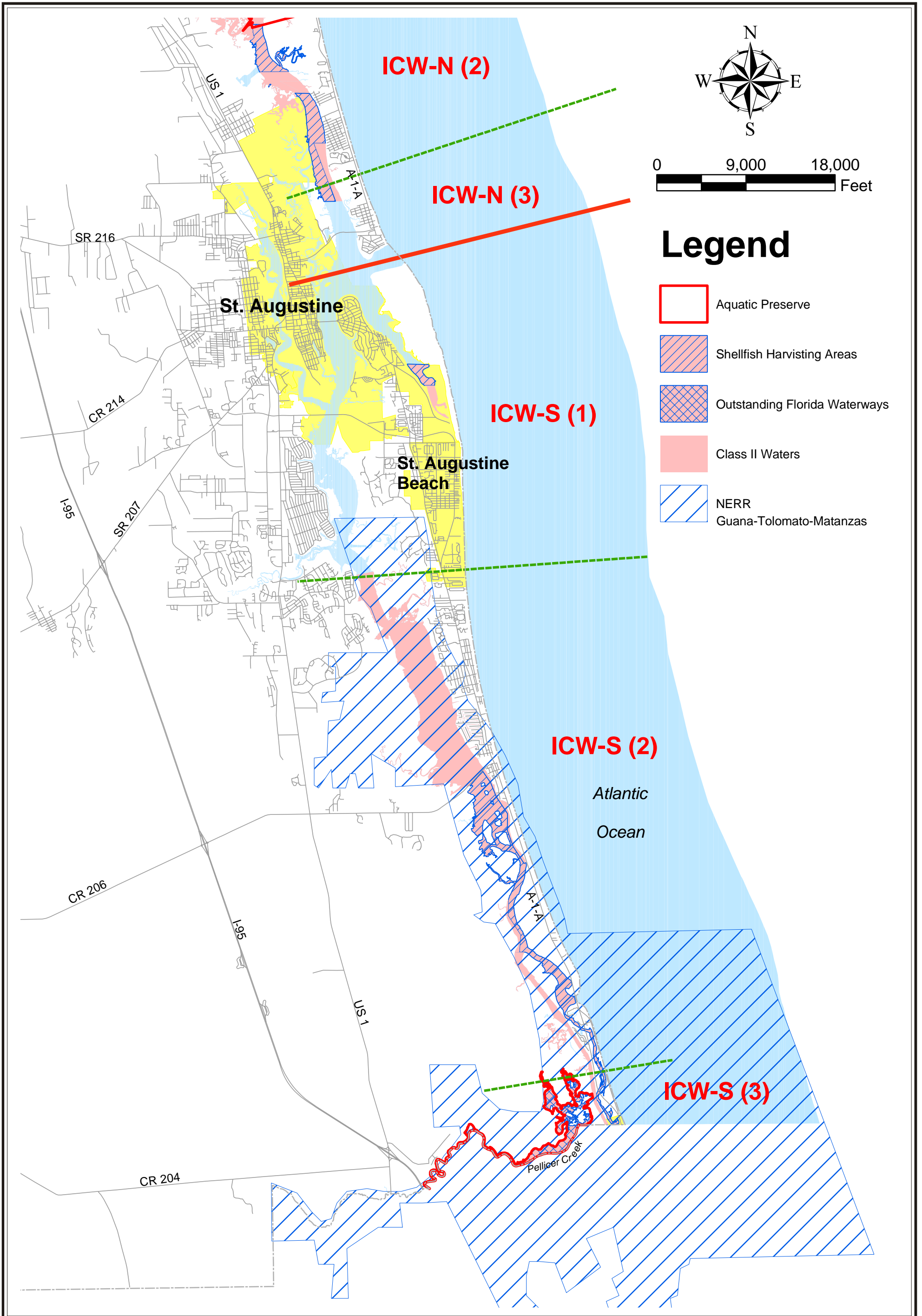


Figure 12  
Water body Classifications, Aquatic Preserves, and  
Outstanding Florida Waterways  
Intracoastal Waterway - South

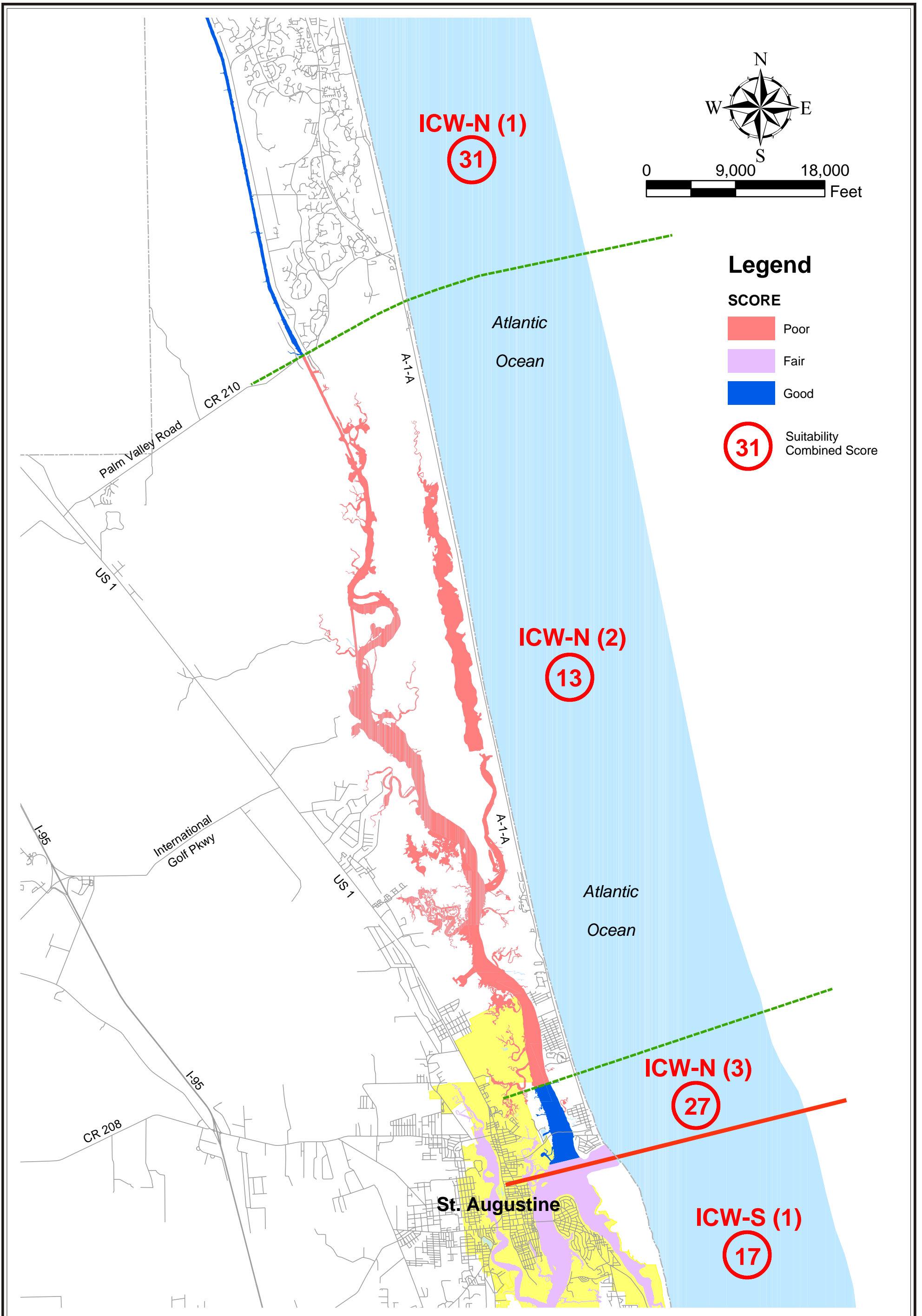


Figure 13  
Environmental and Developmental Suitability Scores  
Intracoastal Waterway - North

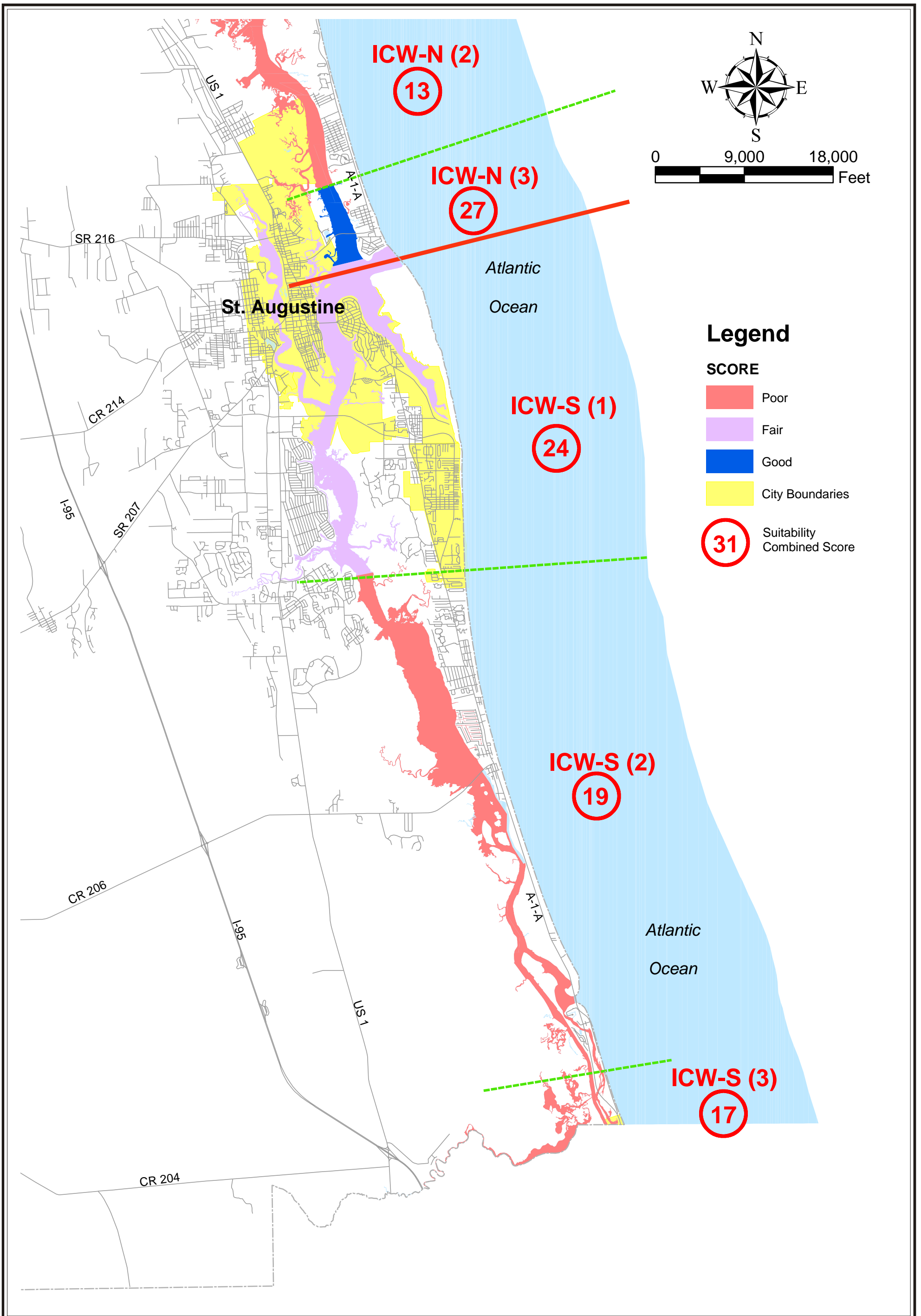


Figure 14  
Environmental and Developmental Suitability Scores  
Intracoastal Waterway - South

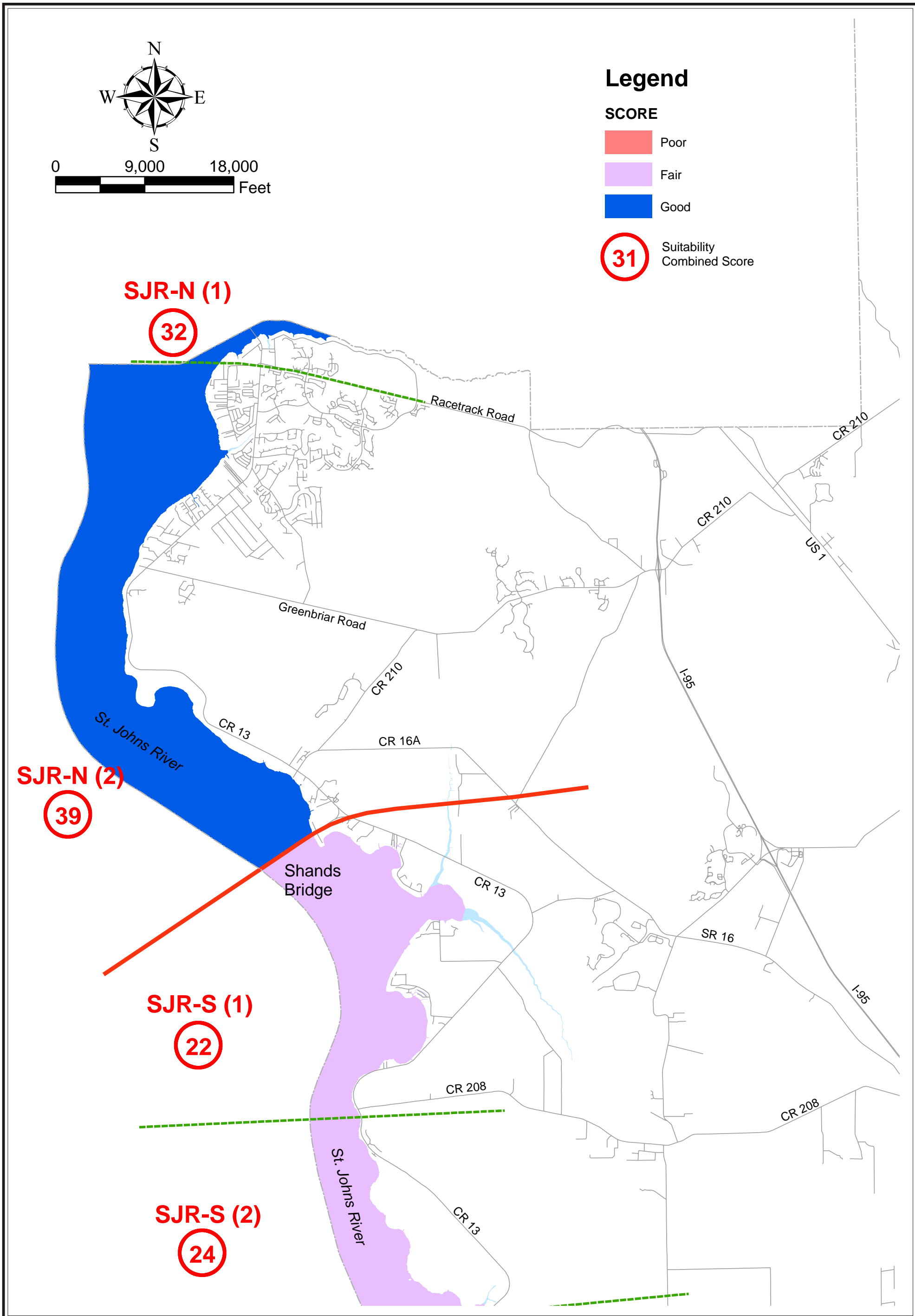


Figure 15  
Environmental and Developmental Suitability Scores  
St. Johns River - North

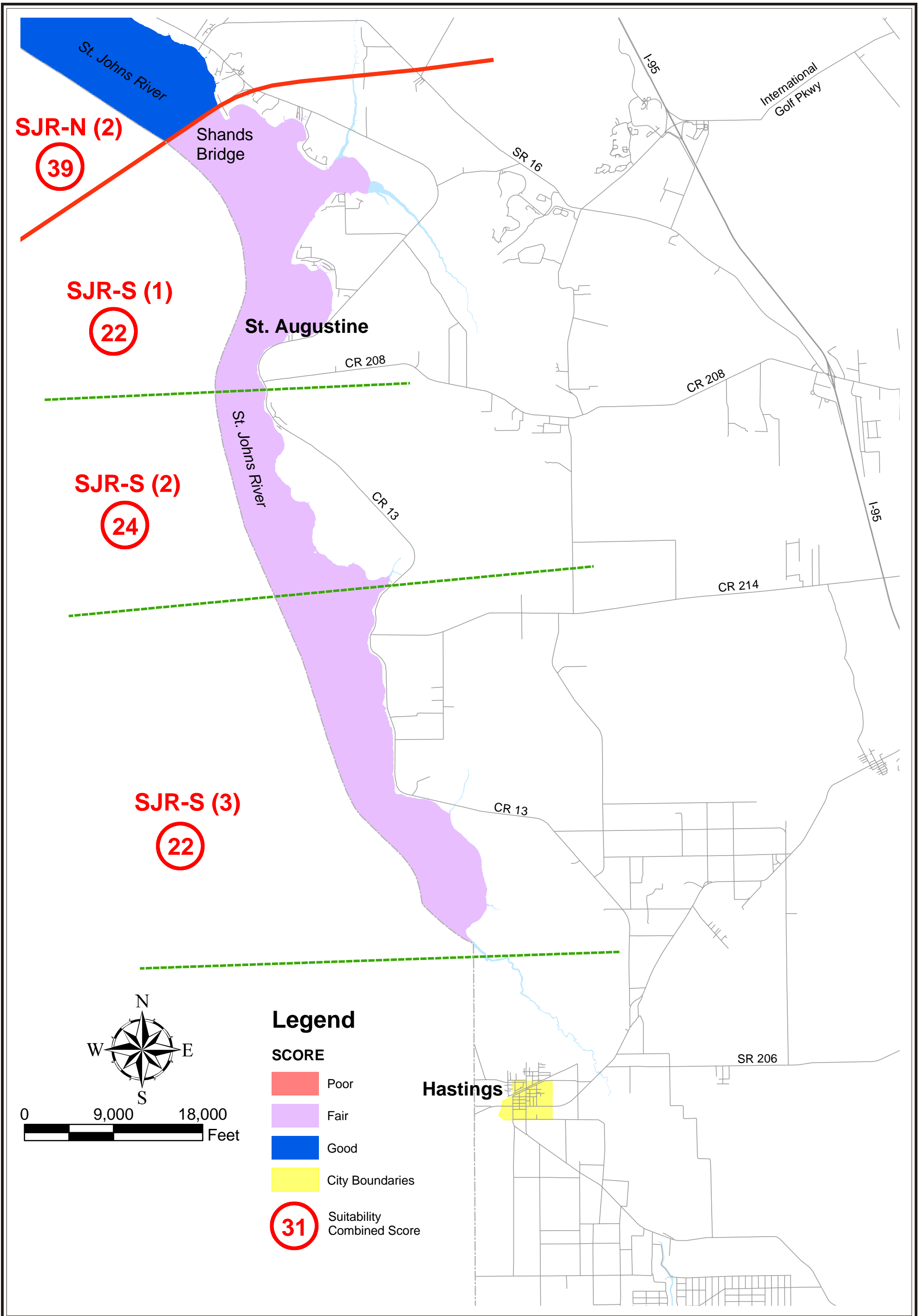


Figure 16  
Environmental and Developmental Suitability Scores  
St. Johns River - South

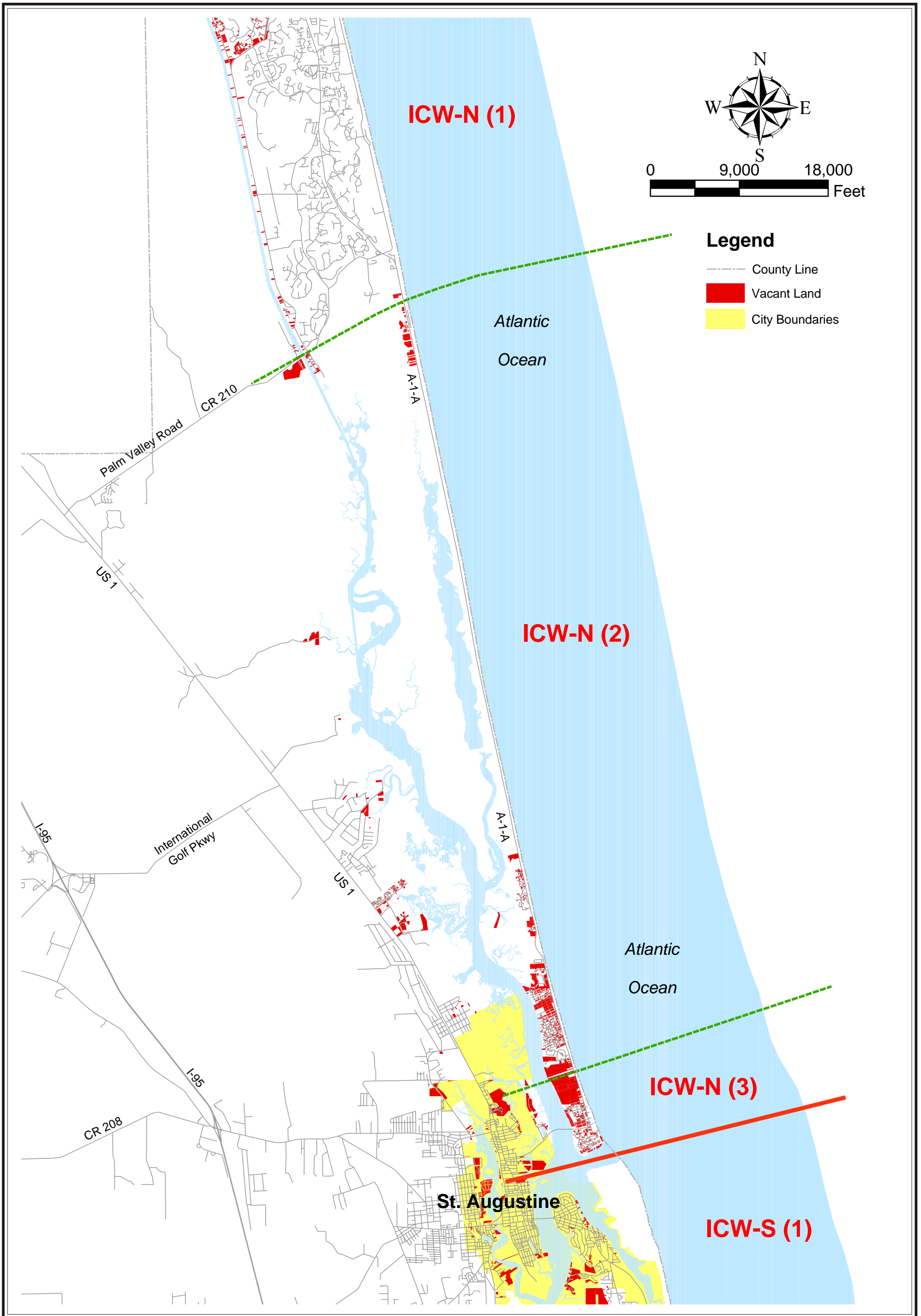


Figure 17  
Vacant Waterfront Parcels  
Intracoastal Waterway - North

Source: St. Johns County, Geographic Information System Data





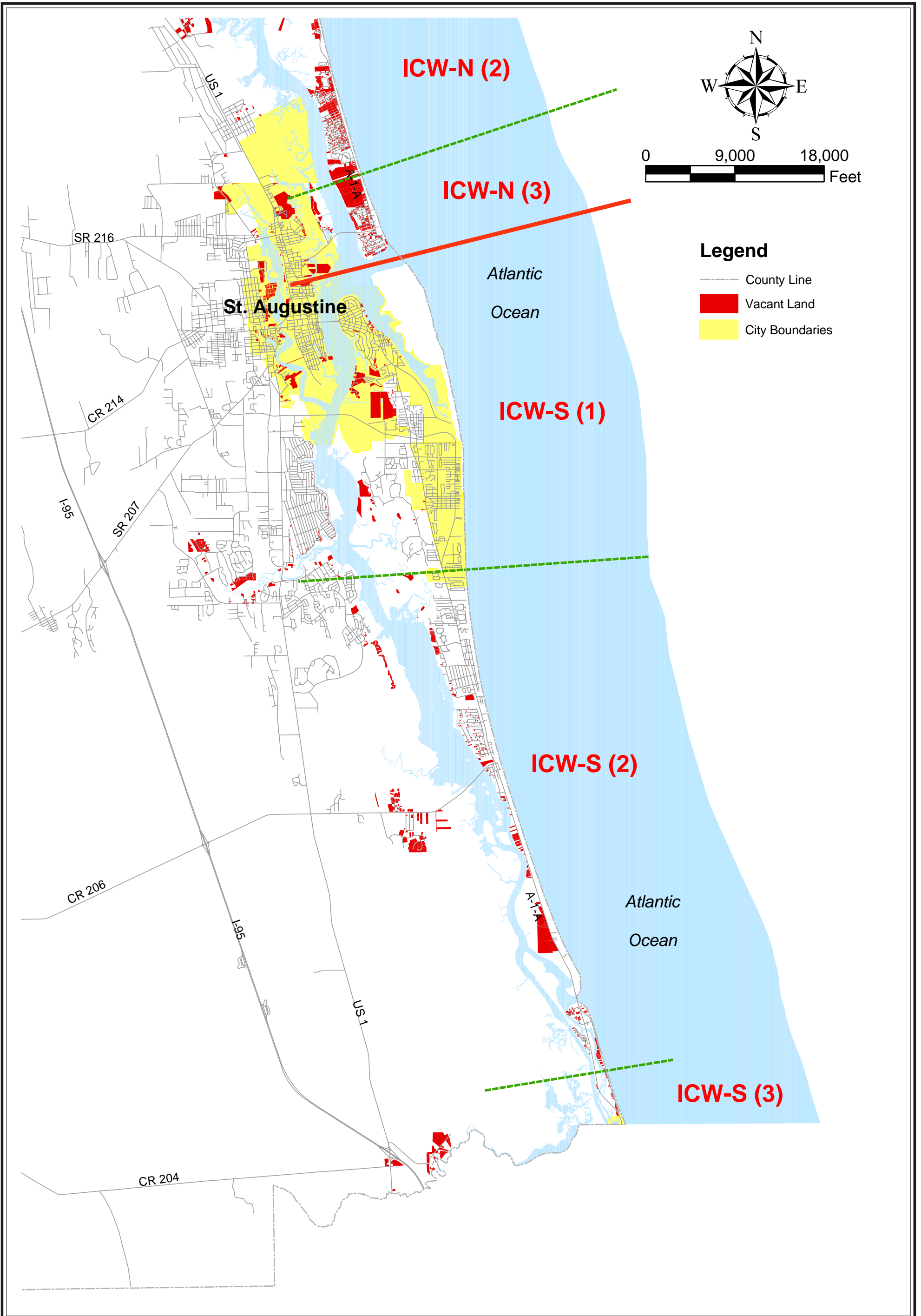
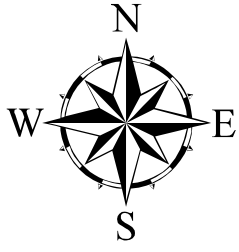


Figure 18  
Vacant Waterfront Parcels  
Intracoastal Waterway - South

Source: St. Johns County, Geographic Information System Data





### Legend

- County Line
- Vacant Land
- City Boundaries

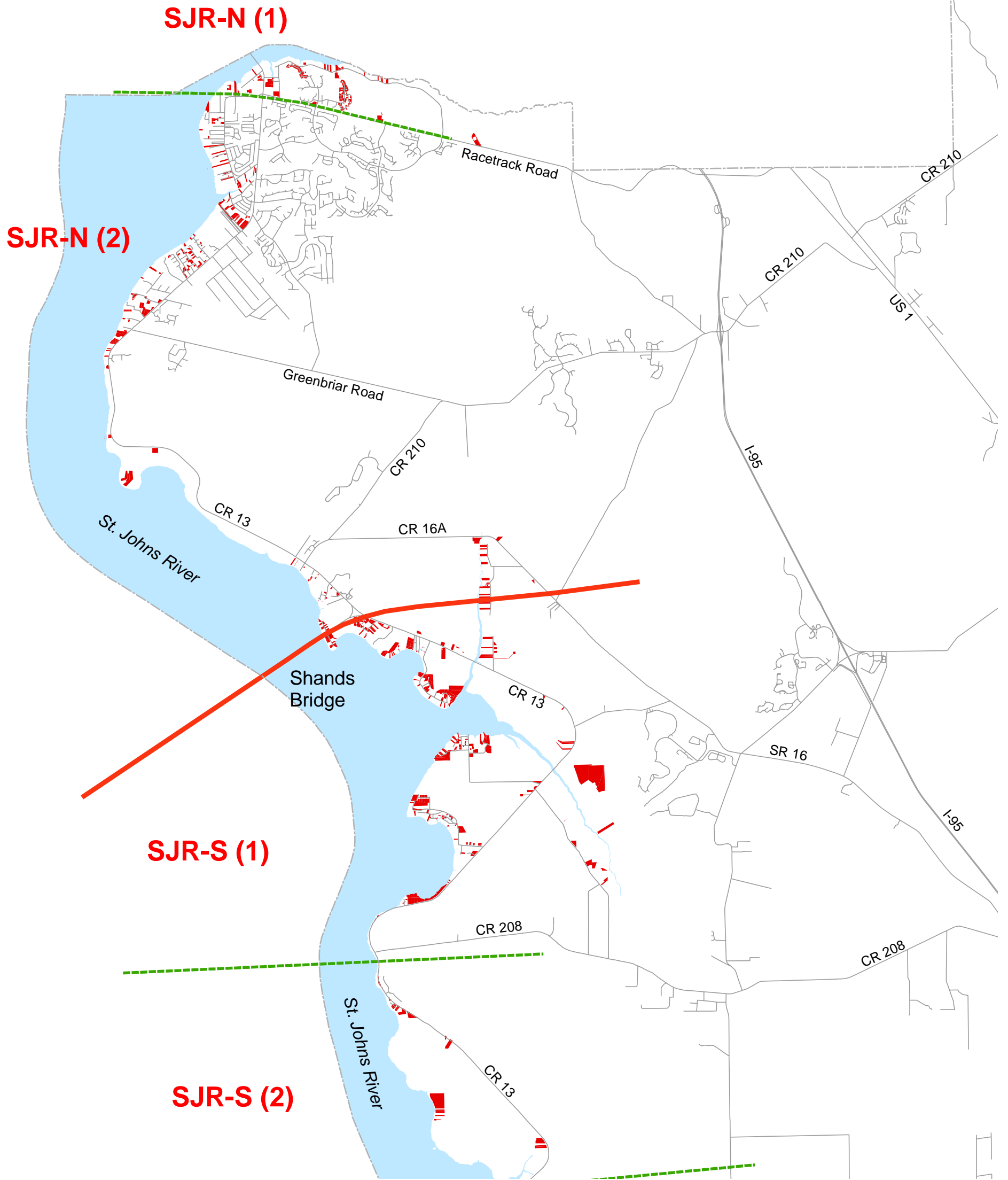


Figure 19  
Vacant Waterfront Parcels  
St. Johns River - North

Source: St. Johns County, Geographic Information System Data



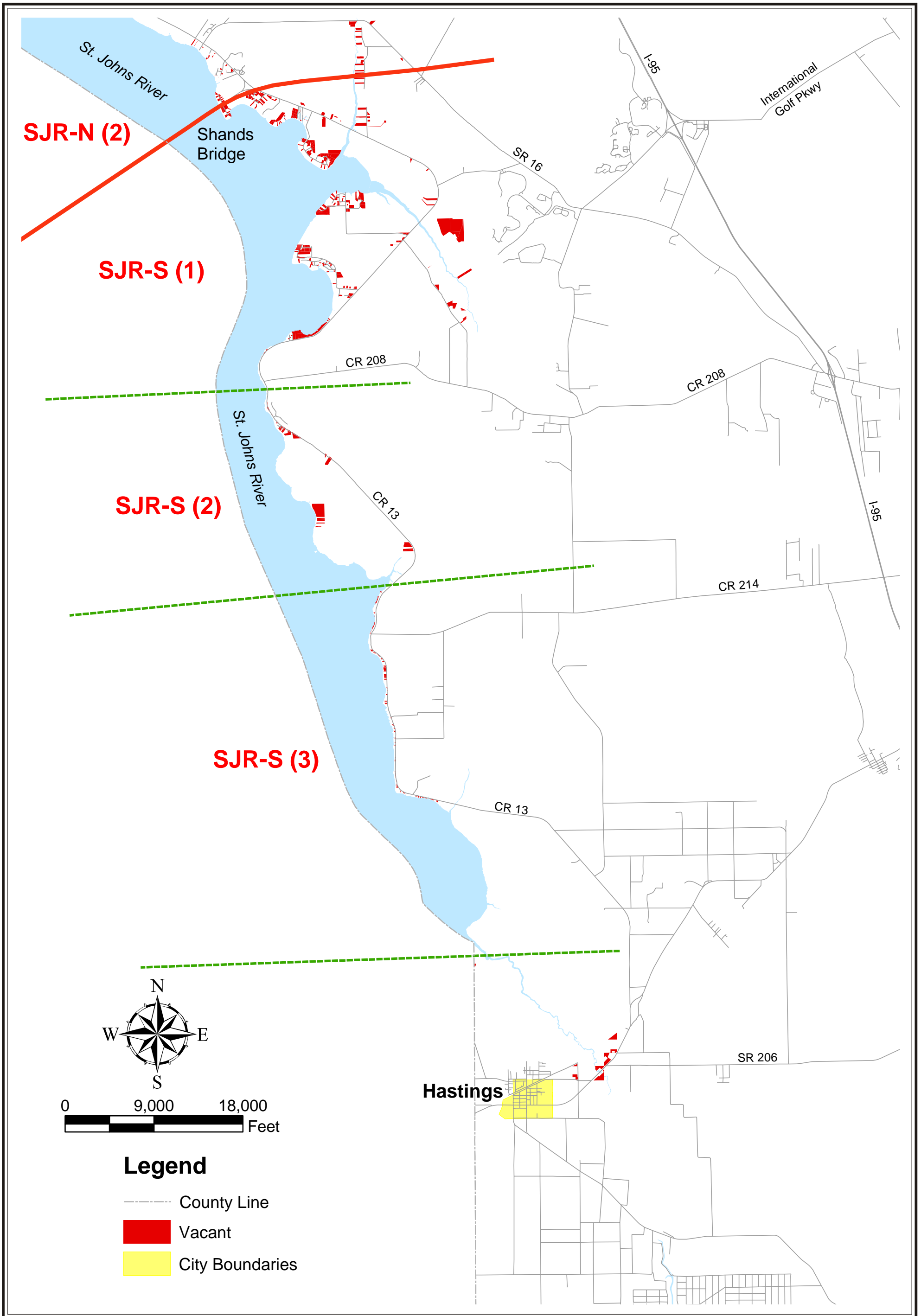


Figure 20  
Vacant Waterfront Parcels  
St. Johns River - South

Source: St. Johns County, Geographic Information System Data



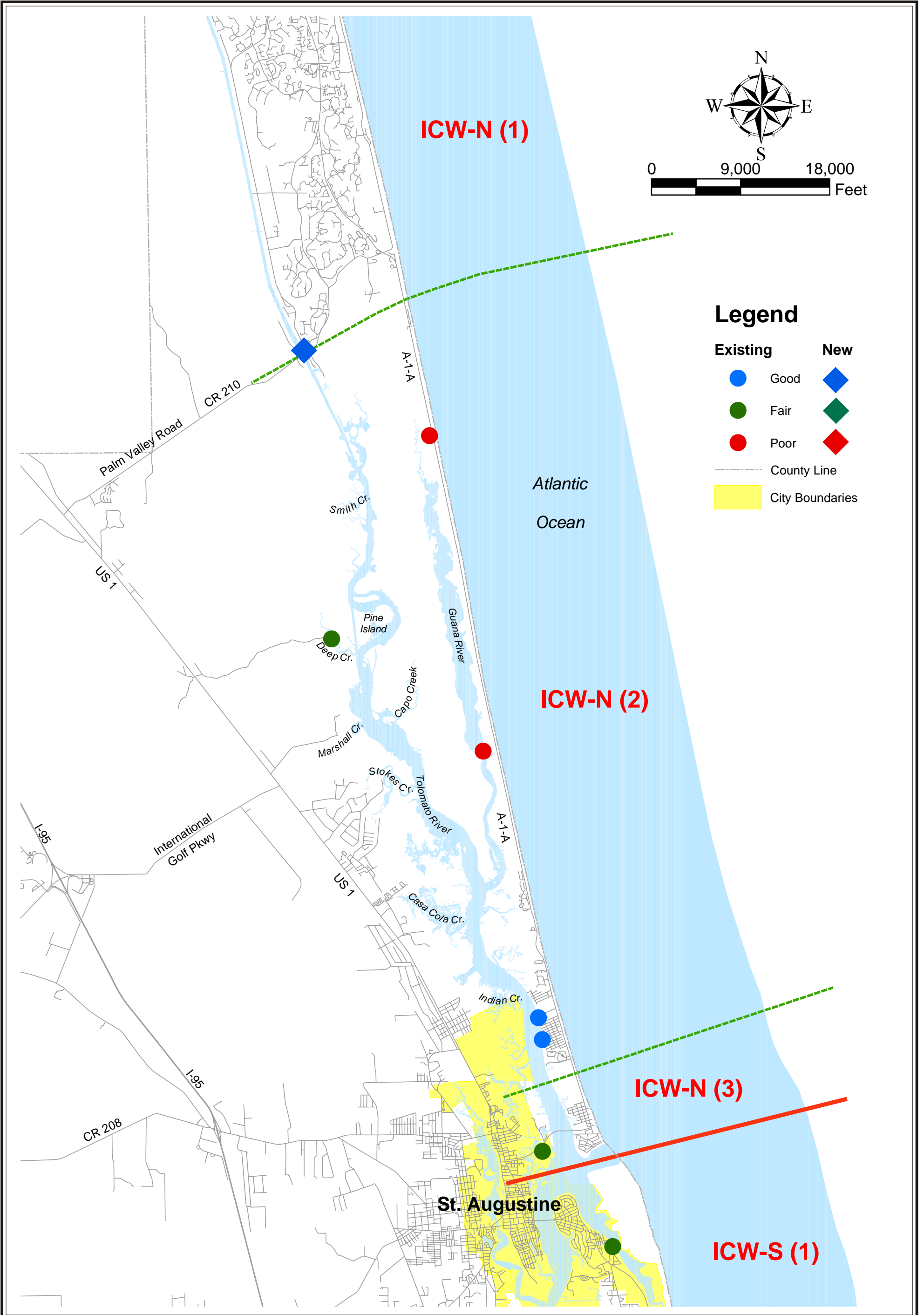


Figure 21  
Expansion and New Construction Potential for  
Public Ramps - Intracoastal Waterway - North

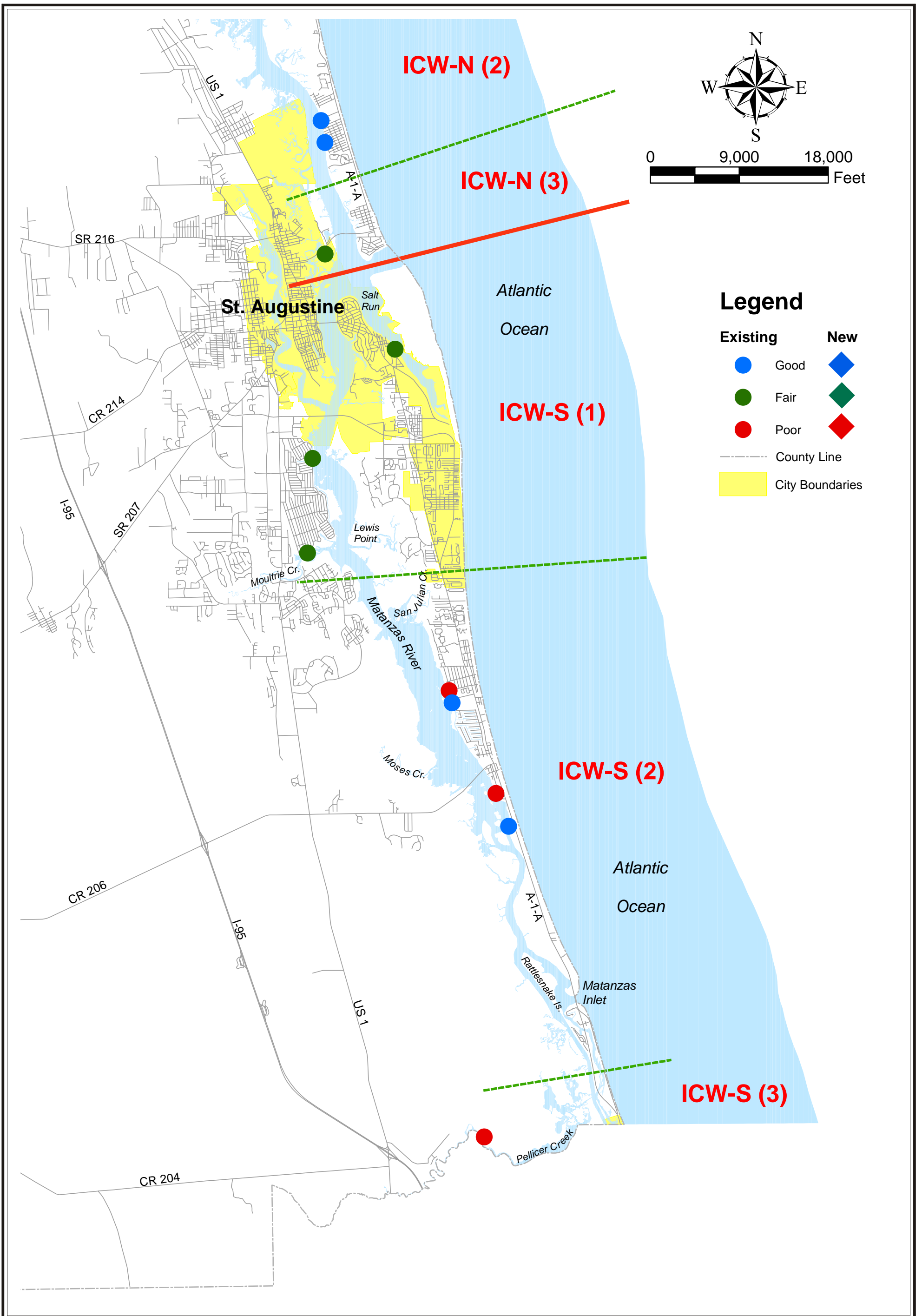
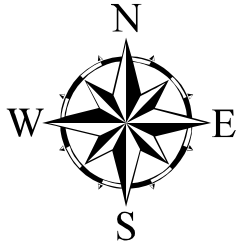


Figure 22  
Expansion and New Construction Potential for  
Public Ramps - Intracoastal Waterway - South



### Legend

Existing		New
<span style="color: blue;">●</span>	Good	<span style="color: blue;">◆</span>
<span style="color: green;">●</span>	Fair	<span style="color: green;">◆</span>
<span style="color: red;">●</span>	Poor	<span style="color: red;">◆</span>
---	County Line	
<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span>	City Boundaries	

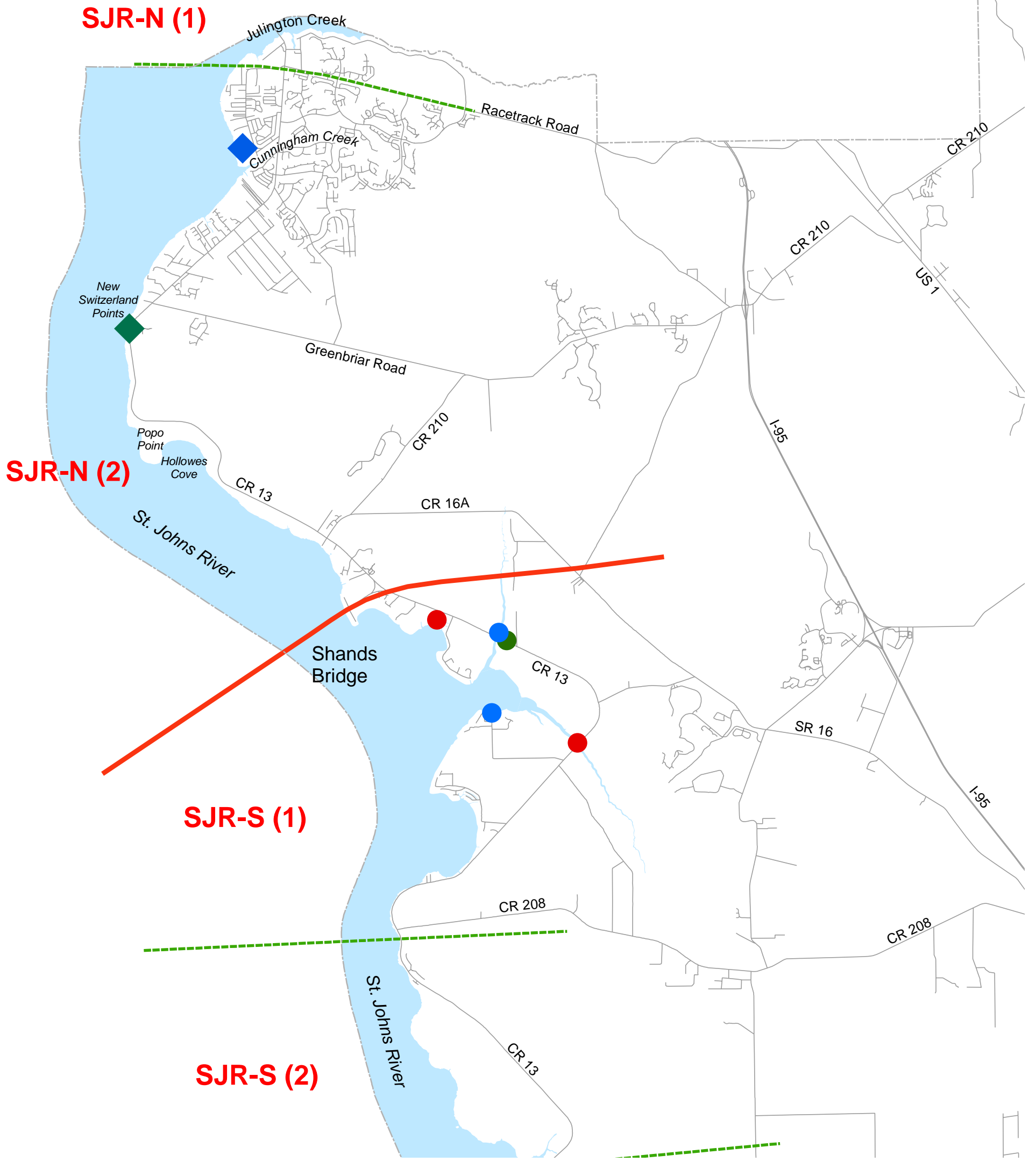


Figure 23  
Expansion and New Construction Potential for  
Public Ramps - St. Johns River - North



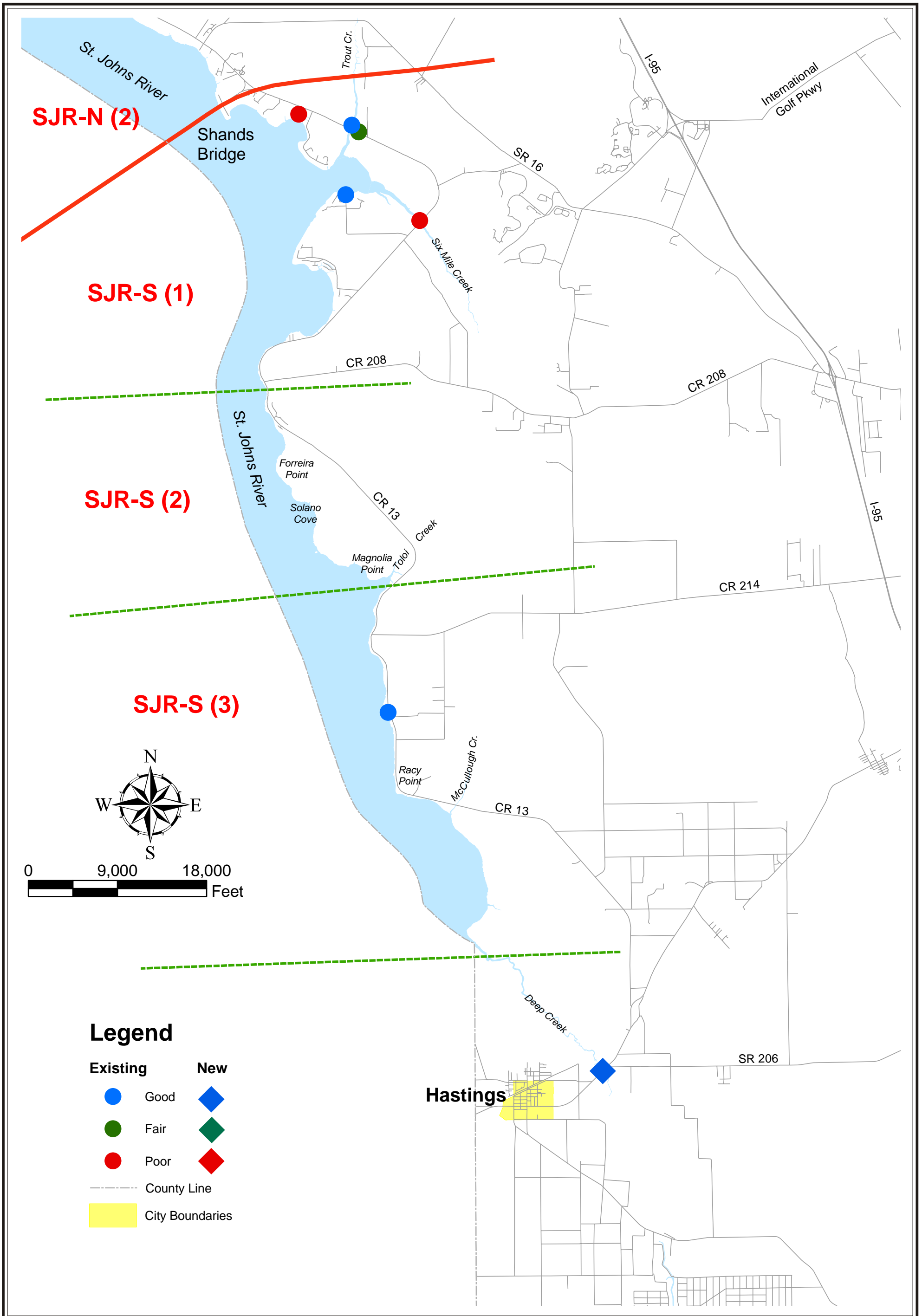


Figure 24  
Expansion and New Construction Potential for  
Public Ramps - St. Johns River - South

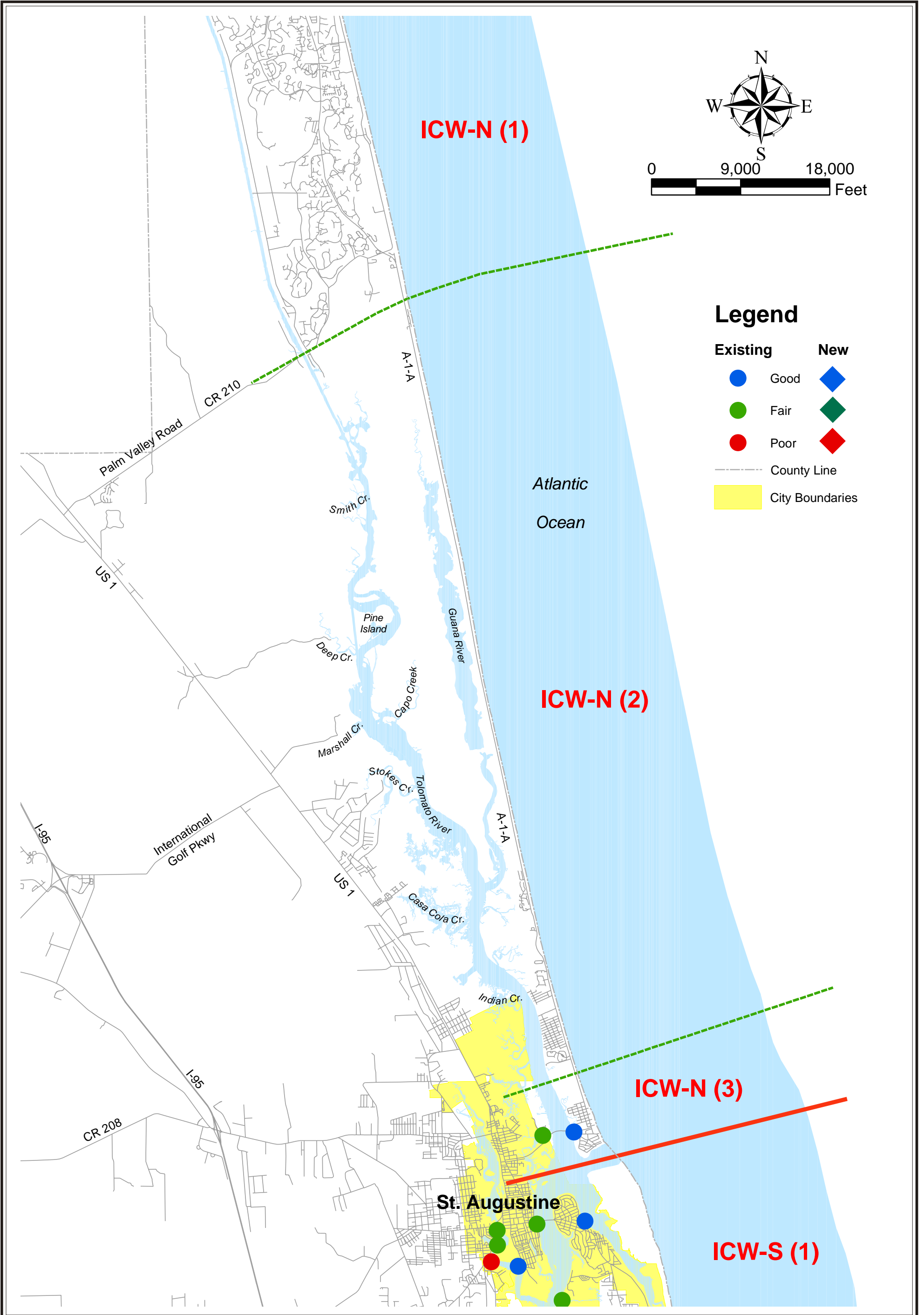


Figure 25  
Expansion and New Construction Potential for  
Public Marinas - Intracoastal Waterway - North



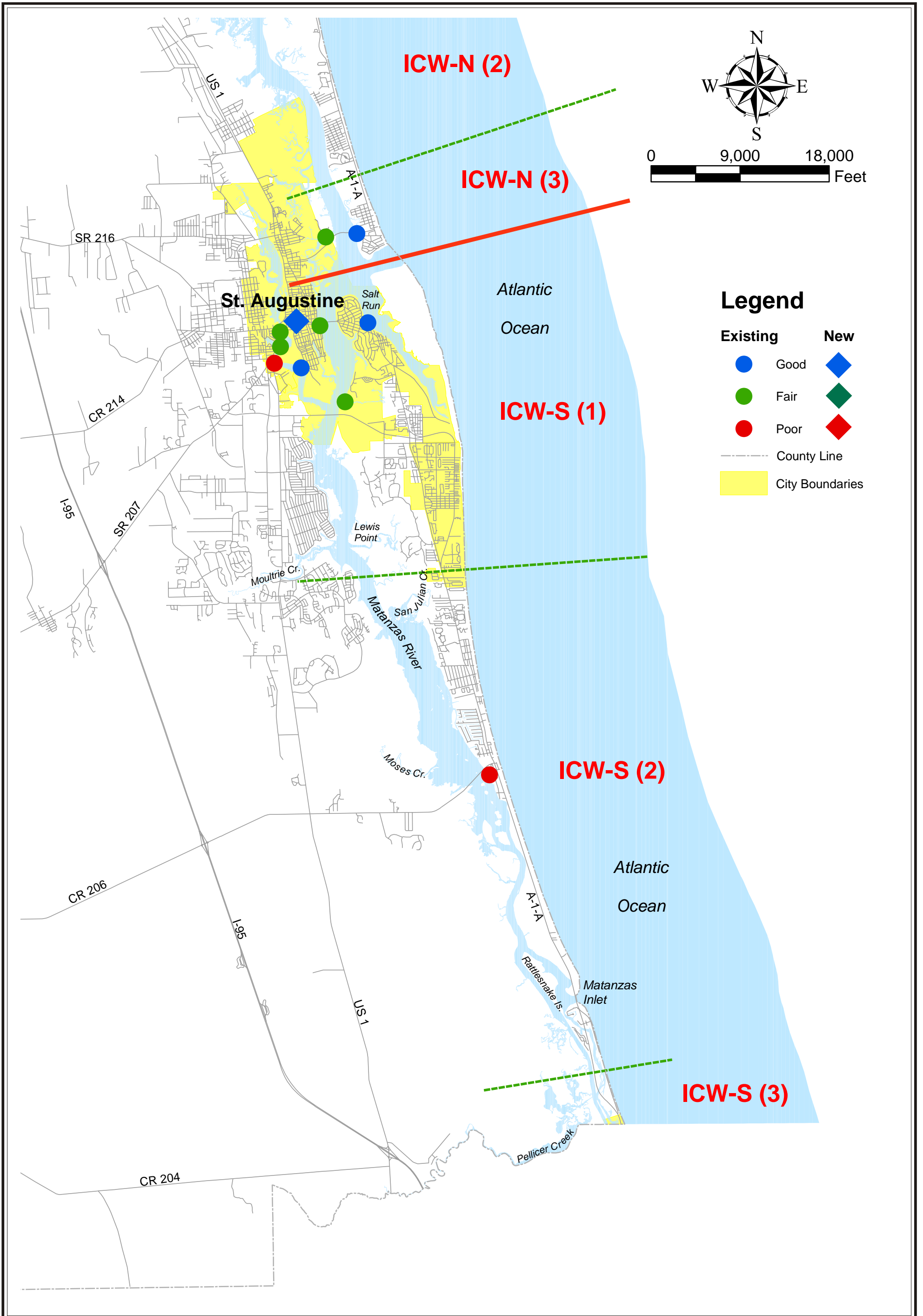
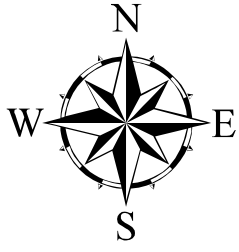


Figure 26  
Expansion and New Construction Potential for  
Public Marinas - Intracoastal Waterway - South



### Legend

Existing		New	
● (Blue)	Good	◆ (Blue)	
● (Green)	Fair	◆ (Green)	
● (Red)	Poor	◆ (Red)	
---	County Line		
■ (Yellow)	City Boundaries		

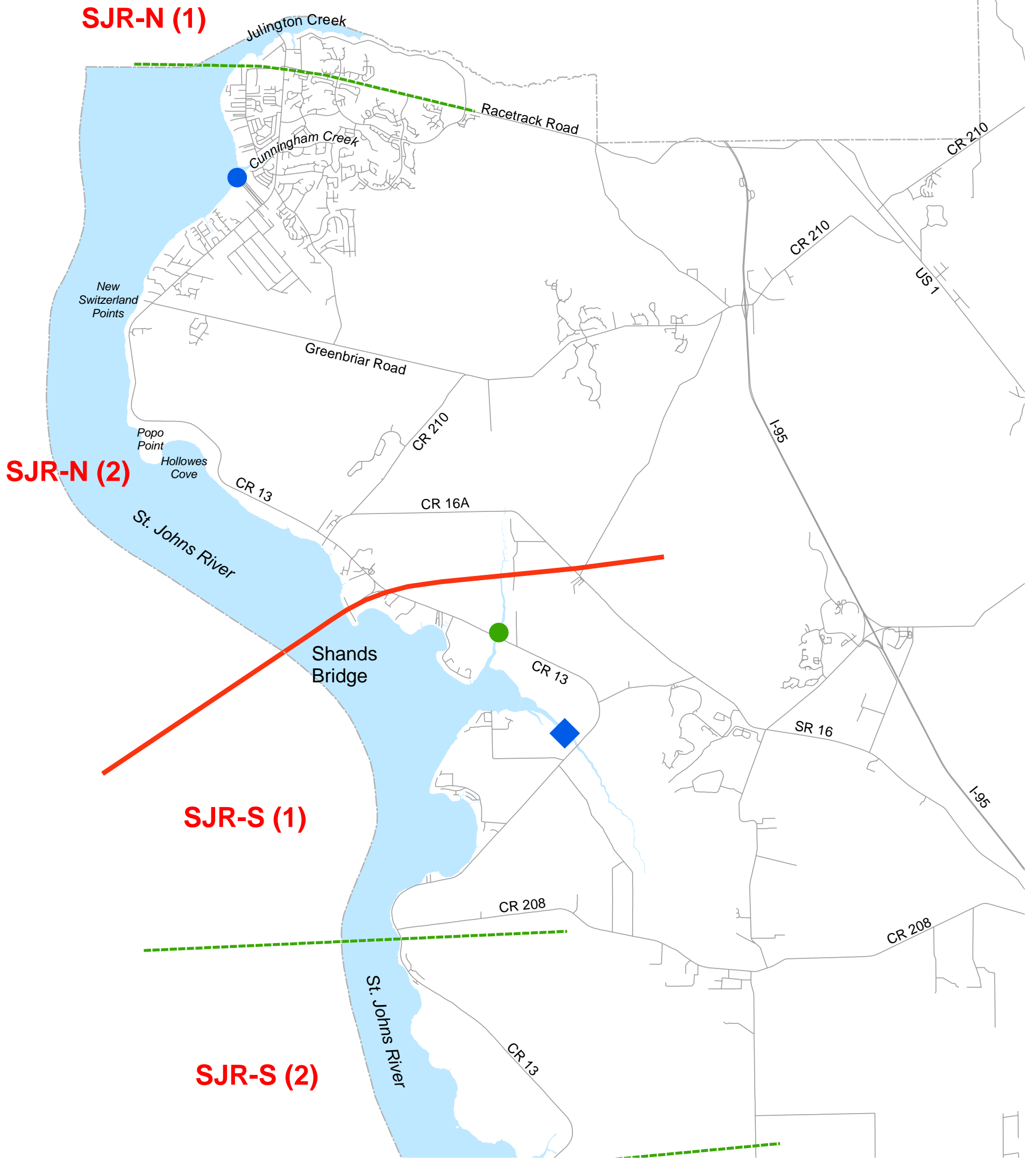


Figure 27  
Expansion and New Construction Potential for  
Public Marinas - St. Johns River - North



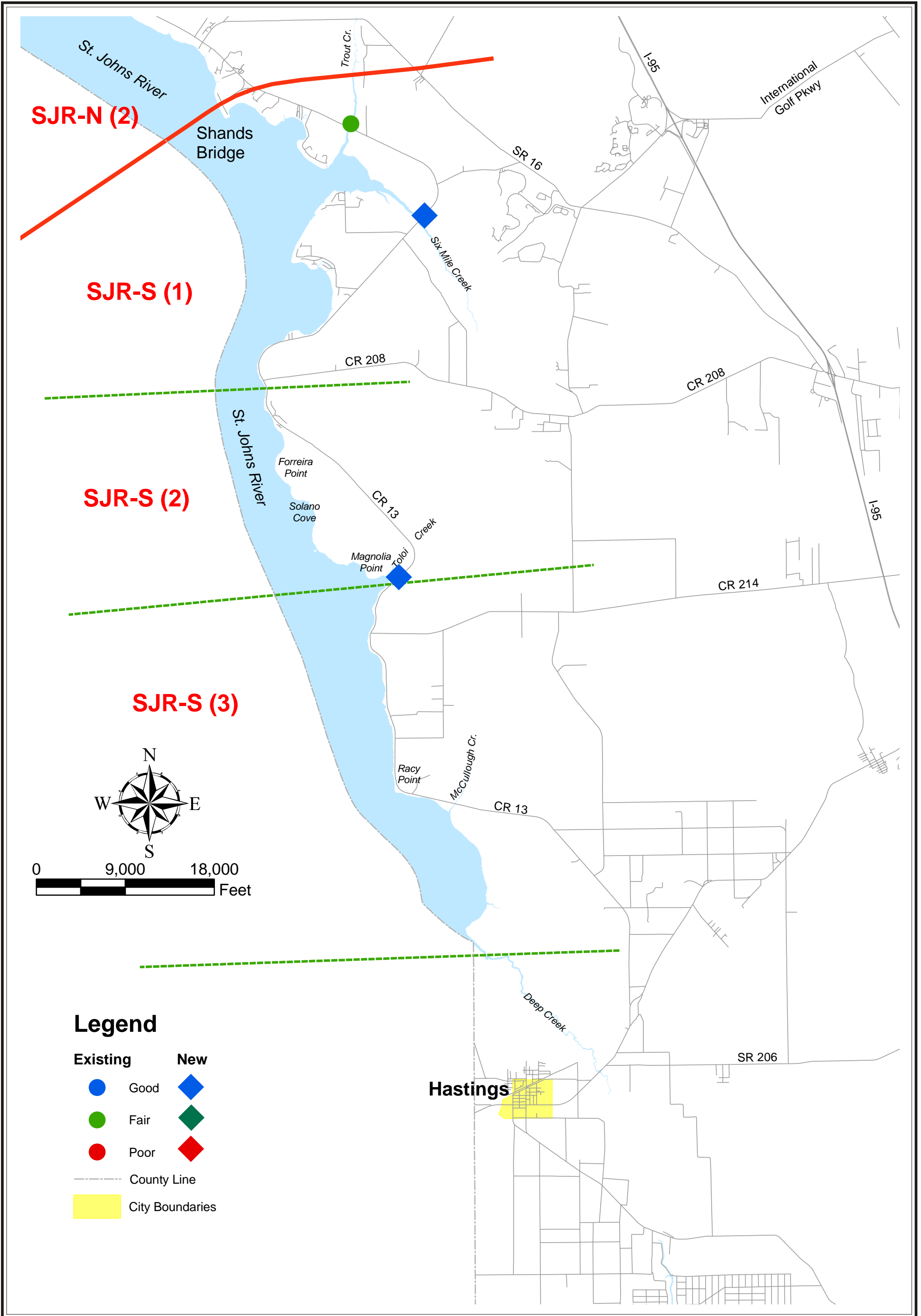


Figure 28  
Expansion and New Construction Potential for  
Public Marinas - St. Johns River - South

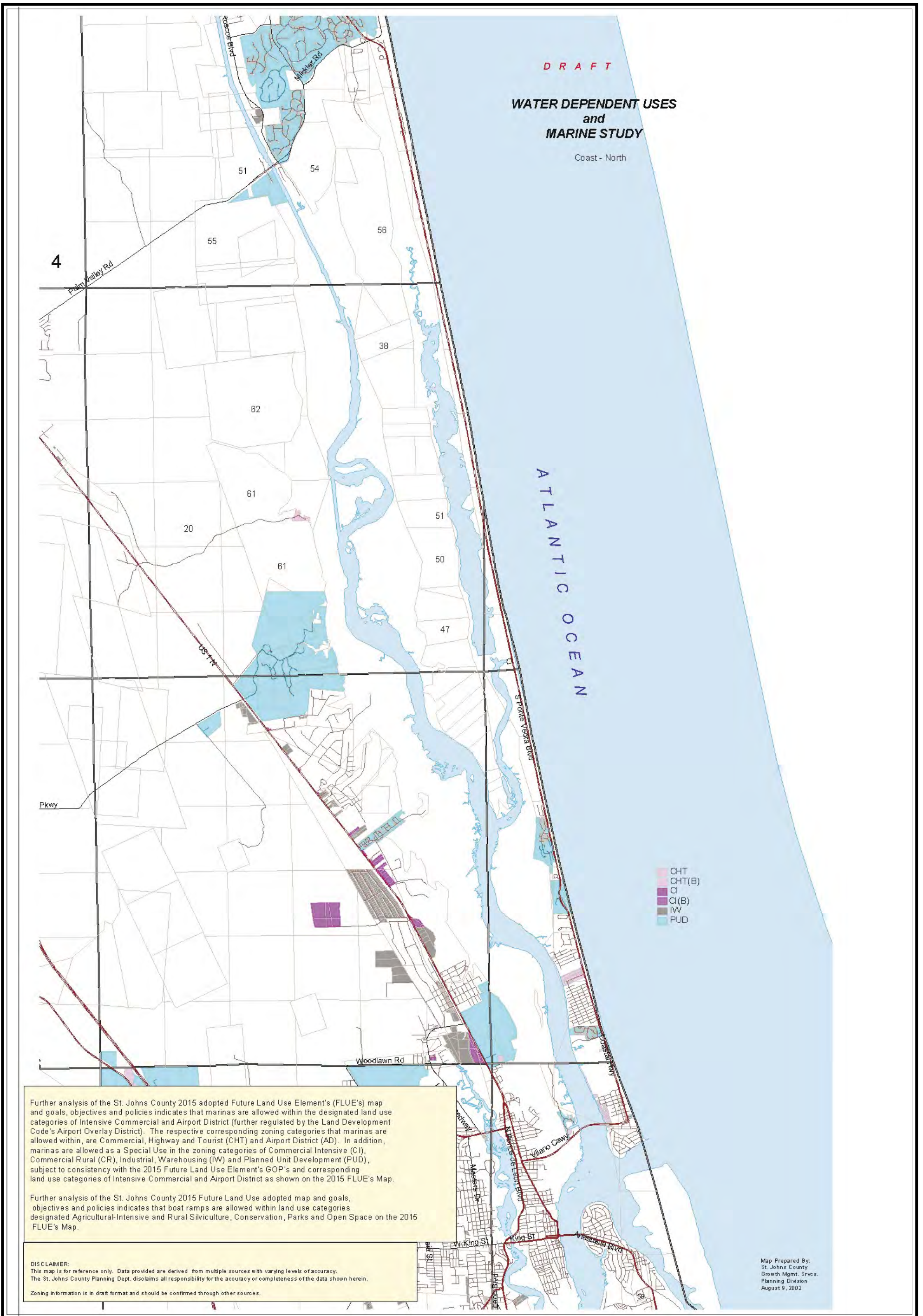
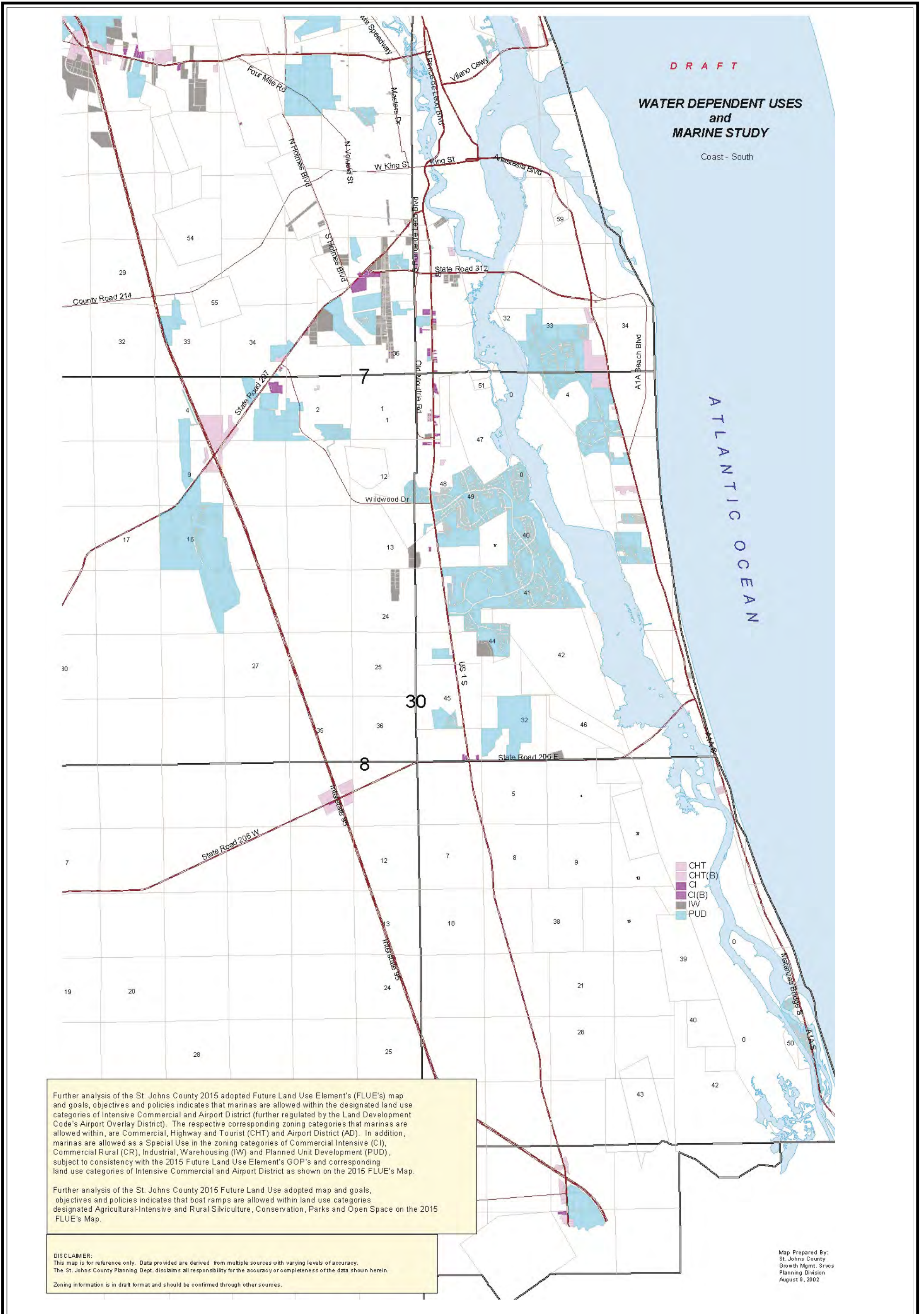


Figure 29  
St. Johns County Zoning - Intracoastal Waterway North

Source: St. Johns County, Planning Division





Further analysis of the St. Johns County 2015 adopted Future Land Use Element's (FLUE's) map and goals, objectives and policies indicates that marinas are allowed within the designated land use categories of Intensive Commercial and Airport District (further regulated by the Land Development Code's Airport Overlay District). The respective corresponding zoning categories that marinas are allowed within, are Commercial, Highway and Tourist (CHT) and Airport District (AD). In addition, marinas are allowed as a Special Use in the zoning categories of Commercial Intensive (CI), Commercial Rural (CR), Industrial, Warehousing (IW) and Planned Unit Development (PUD), subject to consistency with the 2015 Future Land Use Element's GOP's and corresponding land use categories of Intensive Commercial and Airport District as shown on the 2015 FLUE's Map.

Further analysis of the St. Johns County 2015 Future Land Use adopted map and goals, objectives and policies indicates that boat ramps are allowed within land use categories designated Agricultural-Intensive and Rural Silviculture, Conservation, Parks and Open Space on the 2015 FLUE's Map.

**DISCLAIMER:**  
This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. The St. Johns County Planning Dept. disclaims all responsibility for the accuracy or completeness of the data shown herein.  
Zoning information is in draft format and should be confirmed through other sources.

Map Prepared By:  
St. Johns County  
Growth Mgmt. Svcs  
Planning Division  
August 9, 2002

Figure 30  
St. Johns County Zoning - Intracoastal Waterway South

Source: St. Johns County, Planning Division



DRAFT

**WATER DEPENDENT USES  
and  
MARINE STUDY**



Further analysis of the St. Johns County 2015 adopted Future Land Use Element's (FLUE's) map and goals, objectives and policies indicates that marinas are allowed within the designated land use categories of Intensive Commercial and Airport District (further regulated by the Land Development Code's Airport Overlay District). The respective corresponding zoning categories that marinas are allowed within, are Commercial, Highway and Tourist (CHT) and Airport District (AD). In addition, marinas are allowed as a Special Use in the zoning categories of Commercial Intensive (CI), Commercial Rural (CR), Industrial, Warehousing (IW) and Planned Unit Development (PUD), subject to consistency with the 2015 Future Land Use Element's GOP's and corresponding land use categories of Intensive Commercial and Airport District as shown on the 2015 FLUE's Map.

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Map Prepared By:  
St. Johns County  
Growth Mgmt. Svcs.  
Planning Division  
August 9, 2002

Figure 31  
St. Johns County Zoning - St. Johns River North

Source: St. Johns County, Planning Division



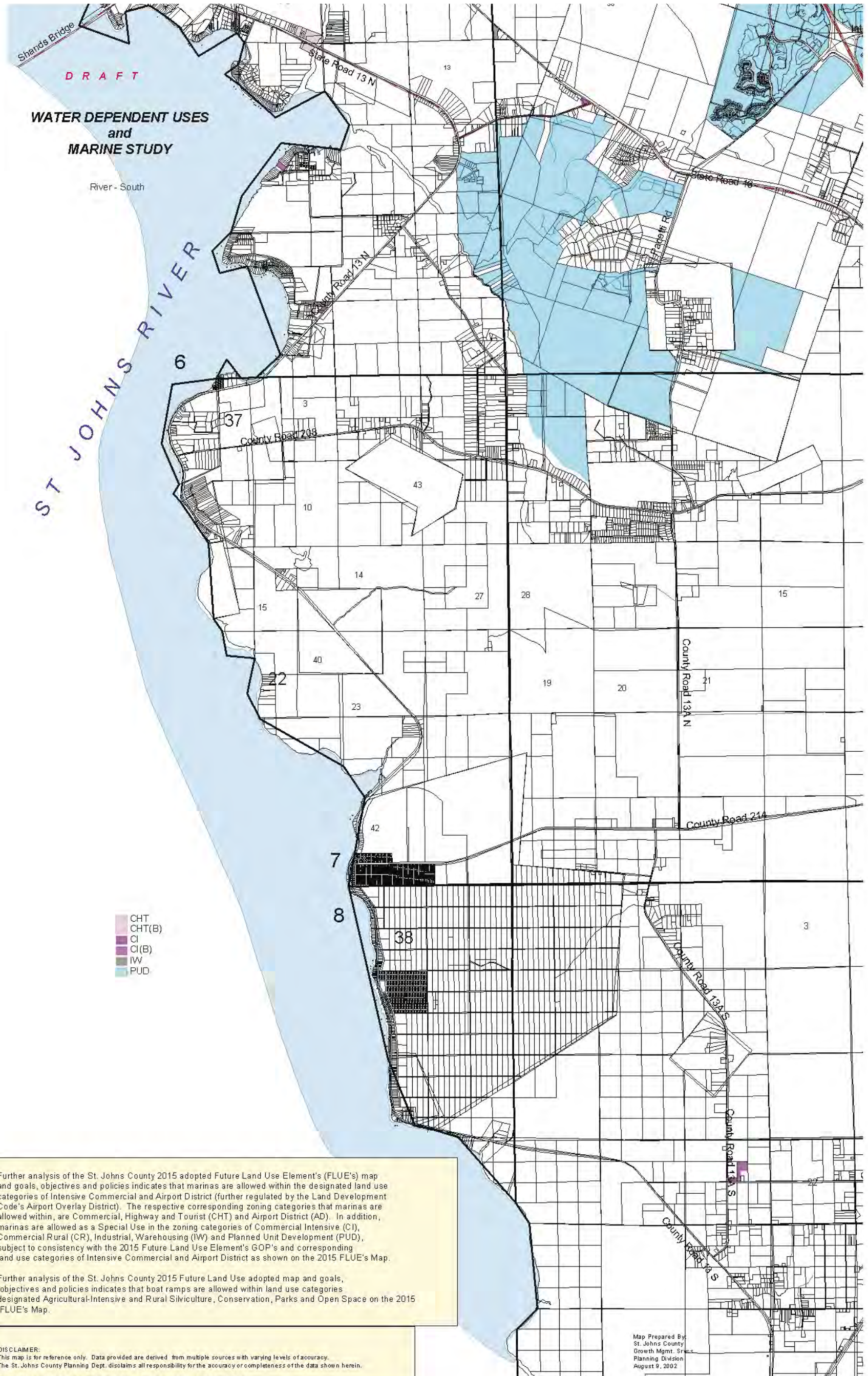


Figure 32  
St. Johns County Zoning - St. Johns River South

Source: St. Johns County, Planning Division

